Application for an Environmental Authorisation for the proposed relocation of the bulk chemical storage facility at Anglo American Platinum's Rustenburg Base Metal Refiners (RBMR), North West Province

Draft Scoping Report

DEDECT Reference Number: To be Confirmed

Report Prepared for

Anglo American Platinum's RBMR

Report Number 561608/ Draft Scoping Report

Report Prepared by

srk consulting

October 2020

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Anglo American Platinum's RBMR

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Executive Summary

Introduction

Who is conducting the EIA/EMPr?

SRK Consulting (SA) (Pty) Ltd (SRK) has been appointed by Anglo American Platinum's Rustenburg Base Metals Refiners (RBMR) as the independent Environmental Assessment Practitioner (EAP) to conduct the Environmental Authorisation (EA) application process for the proposed relocation of the bulk chemical storage facility.

The reports and documentation for the EA application process will be compiled and finalised for submission to the North West Department of Economic Development, Environment, Conservation (DEDECT) for consideration and decision making. The DEDECT will consult with other government authorities as required in terms of Section 24(K) of the NEMA.

Who will evaluate the EIA/EMPr?

Before the proposed development can proceed, approval has to be obtained from the DEDECT will then advise the project team as to how the project should proceed for the impact assessment phase of the project. The impact assessment phase will entail detailed specialist investigations (biodiversity, stormwater management and heritage resources), reporting and further stakeholder involvement. Only once a Final Environmental Impact Assessment Report (EIAR) and Environmental Programme (EMPr) have been submitted to DEDECT, can a decision be taken by the Department as to whether the project may proceed or not.

Description of the Proposed Development

The proposed project will include decommissioning of the current bulk chemical storage facility and construction and operation of a new bulk chemical storage facility as follows:

- Decommissioning of the Current Plant: The following actions will be implemented to affect demolition of the existing chemical tanks infrastructure:
    - Chemical tanks will be emptied;
    - Existing infrastructure will be removed to ground level including:
        - Removal of building material. Building material will be crushed and disposed of onto a registered waste disposal facility or re-used, recycled where possible; and
        - Dismantling and removal of the tanks and associated infrastructure.
    - All infrastructure for which there is no approved third-party post closure use will be dismantled. Infrastructure where there is a third-party use will be legally transferred to the relevant parties and any other valuable items salvaged during demolition will be sold;
    - All equipment will be rinsed with water and where required decontaminated by washing or chemical decontamination as appropriate;
    - Equipment and materials will be sold and removed from the site;
    - Removal of any hazardous material and re-used, recycled in line with Anglo American Platinum's Zero Waste to Landfill (ZW2L) goal. Disposing it at a licenced facility will be a last resort;
    - Removal of any general waste and re-use, recycling it at a registered waste facilities; and
    - Excavation, removal and replacement of contaminated soil/substrate and treatment and re-use thereof or disposal as a last resort at a registered waste disposal facility.

- Rehabilitation of the affected area: The area where the current facility is located will require rehabilitation. Remediation of the affected area will include:
    - Geotechnical investigations will be conducted on the ingress by acids encountered on the fill material and the underlying norite rock;
    - The geological map from the Council for Geosciences indicates that the site is underlain by gabbro, norite and anorthosite of the Pyramid Gabbro-norite (Vg). Very soft gabbro norite rock is encountered from a depth of 1.2m below ground level. Studies indicates ground water level to be between 15 to 30m;
    - Contaminated ground will be excavated, removed and be treated and re-used or disposed-off as a last resort to an authorized landfill site; and
    - Suitable material will be imported. All backfilling and compaction and testing thereof will be done in accordance with the Engineer's specifications.
- Construction of the new plant and associated infrastructure: The proposed bulk chemical storage facility relocation project will include the construction of the following:
    - Construction of chemical tanks (8 for caustic soda, 2 for sulphuric acid and 2 for Formalin);
    - Construction of parking and weighbridge areas;
    - Resurfacing of the existing gravel access road with tar for the transportation of imported chemicals; and
    - Construction of a rail siding from the existing railway line to the bulk chemical storage facility for the transportation of locally acquired chemicals.

Motivation for the Proposed Project

The environmental right is contained in the Constitution of the Republic of South Africa, Act 108 of 1996 (hereafter referred to as "The Constitution"). Section 24 of the Constitution enshrines environmental rights in South Africa, which are interpreted to have a two-fold purpose. The first part guarantees a healthy environment to every person. The second part mandates the State to ensure compliance with the first part. The State is prohibited from infringing on the right to environmental protection and is further required to provide protection against any harmful conduct towards the environment.

The construction and installation of the proposed bulk chemical storage facility will reduce the risk of failure of the current facility which would have environmental, socio-economic as well as health and safety implications.

Various monitoring and preventative measures have been put in place and implemented to avoid any further spills at the current plant, including repairs that have been implemented around the bund to attempt to contain any further contamination or leaks. These measures are unfortunately not long-term solutions and they will not contain a catastrophic failure or major rain event. The ingress of caustic soda into the substrate under the bunds has led to the supporting soil to heave, causing catastrophic damage to the concrete and steel structures within the existing bunds. The heaving is predicted to continue for the foreseeable future and will increase with the advent of the rainy season and any further leaks, which are highly likely. The caustic ingress has now also compromised all the lining systems, and due to an initial poor design, effluent is seeping out of the bund. Further, the supporting plinths off all the tanks are extremely compromised and their integrity cannot be assured.

With the unpredictable rainfall pattern, RBMR needs to ensure100% integrity of the structures at the plant. The behaviour of the underground soil movements is unpredictable. i.e. when and how much of the heaving is going to continue. The unforeseen and unpredictable nature of the heaving soils within the various bunds, combined with the condition of the steel and concrete structures and walls makes this project a necessity. In addition, the project presents RBMR with an opportunity to construct a new bulk chemical storage facility that will comply with international standards.

Should the application for an EA to construct a new bulk chemical storage facility be rejected, and there is failure at the current plant, the implication far reaching from both an environmental, socio-economic and plant safety perspective including:

- Contamination of land and water resources;
- Health and safety of all personnel and operational risk for the entire RBMR operation;
- Loss of revenue in terms of interest of deferred cash (approx. R11 Billion/month) (only considering major Platinum Group Metals (PGM) and base metals at current prices), which represents approximately 2% of South Africa's Gross Domestic Product (GDP),
- Impact on RBMR's image and reduced market image, and
- Loss of employment.

Alternatives Considered

Three alternatives were considered in terms of the location of the proposed bulk chemical storage facility as follows:

- Preferred Option: Located in a brownfields area outside the RBMR boundary;
- Alternative 1: Located inside RBMR boundary to the east of the Copper tank house; and
- Alternative 2: Located within the RBMR boundary (brownfields) to the East of the Nickel Tank House.

A technical evaluation of the options was undertaken, and the preferred option was chosen as it would result in:

- Reduced vehicle - pedestrian interaction by reducing number of chemical offloading trucks;
- Elimination of rail deliveries traffic within the RBMR facility; and
- Reduced congestion at RBMR entrance Gates & Weighbridge.

The assessment will also include the "no-go "option.

Environmental Assessment Process

Approach to the Environmental Impact Assessment

An EIA seeks to identify the environmental consequences of a proposed project from the beginning, and helps to ensure that the project, over its life cycle, will be environmentally acceptable, and integrated into the surrounding environment in a sustainable way. The project triggers activities listed in GNR325 (Listing Notice 2) of the NEMA and requires that a full EIA (scoping and impact assessment phases) be conducted.

Two parallel processes are followed during the scoping phase being the environmental technical process and stakeholder engagement process. This report is the draft Scoping Report and forms one of the first steps in the scoping process after which the EIA phase will be initiated. A summary of this process is shown in Figure ES-1.

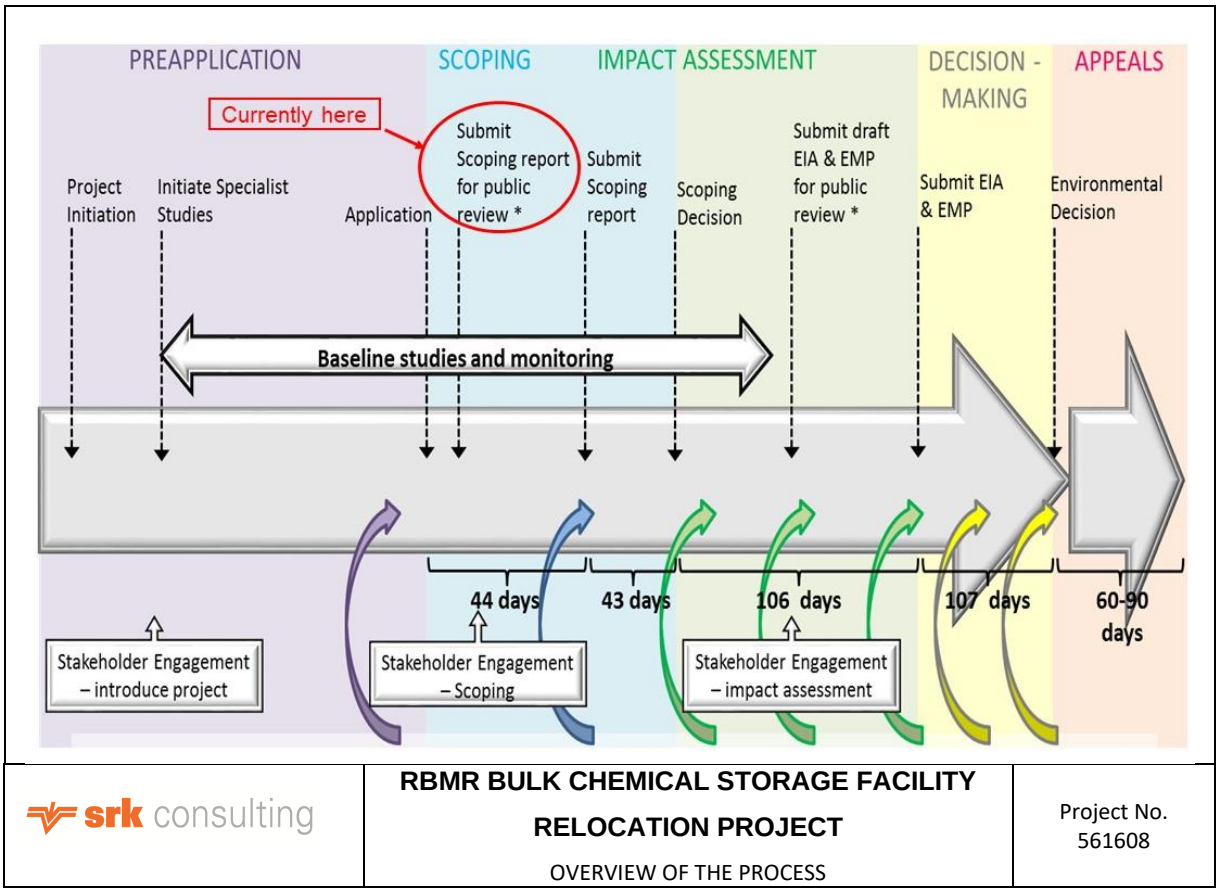

Figure ES-1: Illustration of the EIA process to be followed

Stakeholder Engagement Process

The process commenced with a pre-application consultation meeting that was held with the DEDECT on 11 August 2020 to discuss and confirm the possibility of declaration of a Section 30 A Emergency situation and the EIA process. The Department declined to grant RBMR with permission to commence with construction before the EA has been issued but indicated that due to the condition of the current plant, the DEDECT would be willing to assist in fast tracking the EIA process and shorten decision timeframes where possible. The DEDECT also emphasized that there would be no guarantees with respect to fast tracking of the process.

Activities that have been undertaken for the public involvement process during the pre-application process are:

- Development of a stakeholder database: The stakeholder database comprises a variety of stakeholders identified from previous projects in the area, newly identified stakeholders through the initial registering process of this project.

The opportunity to participate in the EIA and to register as an Interested and Affected Party (I&AP) was announced in August 2020 through the following means:

- Letter of invitations to register and background information documents were sent to stakeholders on 03 September 2020;
- Media advertisements in English and Setswana were placed in the Rustenburg Herald on 11 September 2020;
- Site notices were erected at several places in and around the proposed study area on 09 September 2020;

- Collation of comments received into a Comments and Responses Register (CRR); and
- Obtaining and documenting registration and comment sheets.

The Draft Scoping Report will be made available for a 30-day commenting period from 19 October to 17 November 2020 . All issues, comments and suggestions received from stakeholders will be reviewed and collated into a CRR. Where necessary, comments from stakeholders will also be incorporated into the Final Scoping Report that will be submitted to the DEDECT for decision-making. Depending on the responses received during the registration period and should it be required, a public meeting may be held during the Scoping Phase of the project pending COVID-19 restrictions.

Once the DEDECT has accepted the Final Scoping Report, the EAP will compile the EIAR and EMPr, which will also be made available to the stakeholders for a 30-day review and comment period. Comments received will be incorporated into the Final EIAR and EMPr which will be submitted to the DEDECT for final decision making. The comments will also be collated into the CRR, which will form an Appendix to the EIAR.

The stakeholders will be notified of DEDECT's Final decision on the project once it has been communicated to the EAP and applicant (RBMR).

Profile of the receiving Environment

The scoping report provides a general description of the status quo of the receiving environment in the project area. It serves to set the scene and provide context to the area within which the scoping exercise was conducted. This section also includes the main issues/impacts associated with each aspect and how the proposed expansion will affect the biophysical and social environment. A summary of the main baseline aspects is included in Table ES-1, with more detail included in Section 10 of the report.

Table ES – 1: Summary of the Profile of the Receiving Environment

Aspect	Description
Climate	The proposed bulk chemical storage facility will be located in the Rustenburg Local Municipal area. Rustenburg falls within the Summer Rainfall Climatic Zone. The area is characteristically warm with erratic and variable rainfall, ranging from 450 to 750 mm per annum. The rainfall in the area is almost exclusively due to thunderstorms that occur during the summer months (October to March); whilst winter months are normally dry. The region is classed under the calm category whereby wind speeds are relatively low, with between 19 and 24 days of frost per year. The area is fog free and hailstorms are a rare occurrence.
Topography	The region of Rustenburg Local Municipality comprises of escarpment hills and lowlands with parallel hills, plains, slightly undulating plains and undulating hills. A large series of ridges and koppies are situated mostly in the central parts, with various mountain ranges and ridges making up the most prominent topography of the area of Bafokeng. The area is mostly dominated by flat undulating slope ranging from 0 to 9%. However, the central part of the area is characterised by elevated slope ranging from 9 to 15% covering the MPE and Kgaswane Mountain Reserve. Some patches of the medium elevated slope ranging between 15 to 25% are also found in the central part. The elevation is an average of 1180 Meters Above Mean Sea Level (mamsl). The RBMR is located in an area with an elevation of between approximately 1 140 mamsl and 1 180 mamsl.
Geology	The project area is located in the Bushveld Igneous complex, in an area characterised by Gabbro and norite, with interlayered anorthosite. *The proposed project will not have any significant impacts on the geology of the area.*
Soils, land use and land capability	The soils are classified as moderate to deep clayey loam soils. The net primary agriculture production is classified as low (4-6%).

Aspect	Description
	The proposed project will have very low localised impacts on the soils and land capability of the area.
Air Quality	RBMR conducts air quality monitoring in and around the plant. The assessments include: Stack emission monitoring: The results show that at the time when the sampling was conducted, emissions from the RBMR were complying with the requirements of their Air Emission Licence (AEL). Dust Fallout in residential areas around the plant: The results show that dust fallout levels in all the monitored areas are below the SANS 1929:2005 Ambient Air Quality evaluation criteria for dust fall out monitoring for residential areas. The Rustenburg LM has three ambient air monitoring stations that monitor the levels of priority pollutants. The results from the sampling show that generally there is an improvement in the ambient air in the Rustenburg Local Municipality due to less exceedances recorded. *It is expected that during construction, the project will have low impact on the ambient air quality in the area as a result of emissions from construction and operational vehicles and machinery.*
Surface Water	The RBMR is situated within the Hex River catchment just upstream from the Bospoort Dam (Quaternary catchment A22H). Various continuous, seasonal or event-linked discharges of affected process water takes place into seasonal tributaries of the Hex River, which drains the processing areas. The tributaries affected by Anglo's Rustenburg Process Division that drain into the Hex River are the Klipfonteinspruit and Klipgatspruit. The water quality issues identified associated with the Rustenburg Process Operations are as follows: Raised salinity, calcium, magnesium, sodium, sulphate, chloride, nickel and inorganic nitrogen are indicative of the water type associated with the processing activities of the Rustenburg Process Division; Nitrate and salinity contamination are the most prominent parameters sourced from the processing activities. The salt loads in the receiving environments, particularly chloride, sulphate, sodium and calcium, and the base metal nickel, especially in the Klipfonteinspruit were also identified as being of concern. The sampling upstream and downstream of the Klipfonteinspruit revealed significant deteriorating conditions from the upstream to the downstream locality at RBMR. Sulphate, fluoride and nickel concentrations revealed the most significant increases and may be as a direct result of process water from the RBMR dams which are dominated by these constituents. The process water dams at RBMR were sampled and the water quality profiles for most of the sampled dams are similar with Sodium (Na) and Potassium (K) as the main contributing cation and sulphate as the main contributing anion. Fluctuating concentrations of TDS and metals were recorded in all samples. *Although highly unlikely, the project may potentially have low significant surface water impacts during construction and operational phases, especially where the Stormwater Management Plan (SWMP) to be developed for the project is not implemented.*
Groundwater	Three distributed components of the groundwater system have been identified, of which all three have been affected to some extent. These form part of the lower part of the Main Zone and the Critical Zone of the Layered Bushveld Igneous complex. There are three aquifer types identified in the area; floodplain alluvial aquifers. Deep aquifer system and shallow bedrock aquifers in the weathered zone. In terms of the Parsons Aquifer classification system the aquifers in the project area are classified as minor or non-aquifers. RBMR is currently undertaking annual groundwater quality monitoring at 15 boreholes located in and around the RBMR. According to the groundwater monitoring report, the larger part of the surface area underlying the actual refinery is lined by concrete surfaces, but historical leaks and dumping caused the formation of a large diffuse source area for contamination. Seepage and leachate formation thus still emanate from the RBMR area and remediation plans target the RBMR as the priority area. The RBMR is situated on the southern banks of the Klipfonteinspruit directly opposite the Waterval Processing area. The groundwater flow and mass transport from the site is northwards in the direction of the Klipfonteinspruit. The annual report on Groundwater Monitoring 2018/2019 indicates that significant pollution impacts from the RBMR occur on the groundwater environment. This

Aspect	Description
	processing complex consists of a large base metal refinery area with associated effluent dams for storage of process water. The most notable of these are the sodium sulphate solution area to the south-east of the refinery where highly concentrated sodium sulphate solution by-product is treated and dried. The groundwater pollution in this area is by far the dominant impact of the RBMR area as a result of leachate formation as well as seepage from effluent dams where historical liners were not fully impervious. *It is expected that the proposed bulk chemical storage facility will be bunded and will therefore have minimal additional impact on groundwater. During construction of the project, potential groundwater water impacts will emanate from possible spillage of hydrocarbons from construction vehicles.*
Wetlands	According to the wetlands study that was conducted for the RBMR and surrounding areas, there are no wetlands associated with the proposed bulk chemical storage facility site. This is supported by the South African National Biodiversity Institute (SANBI) National Wetlands database which show no wetlands located in the area.
Heritage Resources	The cultural landscape within which the Project is located is characterised by the archaeological features, representing primarily the Farming Community period, specifically the LFC. This notwithstanding, other archaeological material representing the MSA and the historical period (including the historical built environment and burial grounds) are present within the regional study area. The field assessment undertaken found that there are no heritage resources located on the proposed project site. *Although the heritage field assessment found no heritage resources located on the proposed project area, the EIAR and EMPr will include mitigation and management measures that must be implemented should there be chance findings of heritage resources.*
Biodiversity	The biodiversity assessment identified three floral habitat units within the study area, namely the Transformed Habitat, Degraded Thornveld Habitat and Degraded Grassland Habitat. These habitat units are considered a single unit for the fauna, namely, Degraded Habitat. The study area is situated within an area that comprises peri-urban development with mining infrastructure surrounding the study area. Only a small corridor to the north exists which is fenced from other natural areas. Within the study area the habitat has been exposed to various historic disturbances, resulting in degraded habitat with generally low floral and faunal abundance and diversity. Much of the study area is dominated by species associated with disturbance, including alien and invasive plants (AIPs). Faunal assemblages within the area composed of commonly occurring and widespread species that have adapted to the peri- urban surroundings. The assessment found that the proposed bulk chemical storage facility will not have an impact on any species of conservation concern (SCC) in terms flora and fauna and that, due to degraded nature of the environment and historical impacts they also say the likelihood of any SCC occurring there is low. It must however be noted that clearance of vegetation for the construction of the bulk chemical storage facility will still result in loss of biodiversity and habitats for flora and fauna. *The loss of biodiversity is expected be of low significance as it will be limited to the footprint of the project site. The full impact assessment conducted by the specialist will be included in the EIAR and EMPr.*
Areas of Conservation Concern	The proposed bulk chemical storage facility is not located on a Critical Biodiversity Areas (CBAs) or Ecological Support areas (ESAs) and the biodiversity status of the area is classified as hardly protected. In addition, there are no protected areas that are located in close proximity to the RBMR. There are no protected and conservation areas that are in close proximity to the proposed site. *The proposed plant will therefore not have any impacts on areas of conservation concern per the North West Provincial Biodiversity Conservation Plan.*
Visual	The project area is located within the jurisdiction of the Rustenburg Local Municipality within the Bojanala District Municipality in the North West Province. Photshaneng and Bokamoso are the closest residential areas, approximately 6.5 km North and North East respectively of RBMR and Rustenburg is the closest town, being approximately 4.9 km North Westerly of the complex. *Due to current operations at RBMR and its associated mines in close vicinity to the proposed bulk chemical storage facility location, it is expected that the plant will not*

Aspect	Description
	result in any significant additional visual impacts. The impact assessment phase of the EIA will include an assessment of the visual impacts and the EMPr will provide for practical mitigation measures that may be implemented to avoid and/or minimise the impacts.
Socio-Economy	This site falls within the Bojanala Platinum District and Rustenburg Local Municipality. The RLM accommodates about 16% of the provincial population, and it is estimated that it will in future experience significant population growth (up to 32.9% of the provincial population growth). Rustenburg town represents the centre of population concentration, employment opportunities and shopping opportunities. This attracted urban development towards the town. With 645 000 people, the Rustenburg Local Municipality housed 1.1% of South Africa's total population in 2017. Based on the present age-gender structure and the present fertility, mortality and migration rates, Rustenburg's population is projected to grow at an average annual rate of 1.7% from 645 000 in 2017 to 700 000 in 2022. The primary sector consists of two broad economic sectors namely the mining and the agricultural sector. Between 2007 and 2017, the agriculture sector experienced the highest growth in 2017 with an average growth rate of 43.3%. The mining sector reached its highest point of growth of 19.5% in 2015. The agricultural sector experienced the lowest growth for the period during 2015 at -18.2%, while the mining sector reaching its lowest point of growth in 2014 at -13.0%. Both the agriculture and mining sectors are generally characterised by volatility in growth over the period. The secondary sector consists of three broad economic sectors namely the manufacturing, electricity and the construction sector. Between 2007 and 2017, the manufacturing sector experienced the highest growth in 2010 with a growth rate of 3.6%. The construction sector reached its highest growth in 2007 at 14.6%. The manufacturing sector experienced its lowest growth in 2010 of -11.6%, while construction sector reached its lowest point of growth in 2010 with -4.6% growth rate. The electricity sector experienced the highest growth in 2009 at 10.9%, while it recorded the lowest growth of -13.4% in 2008. *The RBMR Rustenburg Operations employs locals as far as possible and have implemented several community initiatives, both of which are improving the local socioeconomic situation in the area.* *The relocation of the bulk chemical storage facility to reduce the risk of the current plant and impacts associated with the failure, should it occur. It is estimated that the financial cost of such failure would be in the order of R 11 billion rand a month in deferred cash (only considering major Platinum Group Metals (PGM) and base metals at current prices), which represents approximately 2% of South Africa's Gross Domestic Product (GDP).* *A total failure of the plant would cause job and tax revenue loss, making it imperative to ensure that such failure does not occur.* *It is also expected that the proposed project will result in temporary creation of employment during the construction phase.* *The EIA team will include a socio-economic impact assessment and statement in the EIAR and will provide management and mitigations measure to prevent and/or minimise the proposed impacts.*

Anticipated Impacts

The scoping Phase aims to identify the potential positive and negative biophysical, socio-economic and cultural impacts that the proposed project. Anticipated impacts that have been identified by the project team are summarised in Table ES-2.

All impacts in terms of construction, operation and decommissioning together with the recommended mitigation measures will be and addressed in the EIA/EMPr Phase of the project.

Table ES – 2: Anticipated Impacts

Element of Environment	Potential Impact Descriptions
Socio-Economic	Possible limited and temporary job opportunities during the construction phase of the Bulk Chemical Storage Facility

Element of Environment	Potential Impact Descriptions
Hydrogeology	Possible groundwater contamination from hydrocarbons leaking from construction vehicles.
Surface water	Possible, but unlikely surface water contamination.
Air Quality	Possible, but unlikely impact on air quality in the area.
Noise	Possible generation of noise during the construction phase of the bulk chemical storage facility
Heritage Resources	Possible, but highly unlikely impact on heritage resources due to chance finds
Visual	It is not anticipated that any additional visual impacts will be associated with the proposed bulk chemical storage facility
Soils/Land Use/Land Capability	Localised loss of soil resource and change in land capability and land use due to the clearance of vegetation is expected.
Visual	It is not anticipated that any additional significant visual impacts will be associated with the proposed bulk chemical storage facility
Traffic	Possible impacts on traffic due to transportation of construction material
Biodiversity	Loss of biodiversity due to vegetation clearance for construction.
Wetland	None, there are no wetlands that are located on the proposed Bulk Chemical Storage Facility site.

Specialist Studies

The DEA Screening Tool classified the area as being an area of high biodiversity value. The DEA environmental screening tools indicates the proposed location of the facility to be of high biodiversity sensitivity, therefore a biodiversity specialist has been appointed to conduct the biodiversity specialist studies. In addition to the biodiversity assessment, a heritage impact assessment will also be conducted. RBMR has also appointed a hydrologist to assist with compiling a Stormwater Management Plan that will ensure proper and adequate management of stormwater from the facility.

Quantification of Impacts

The anticipated impacts associated with the proposed project will be assessed according to SRK's standardised impact assessment methodology which is presented Section 11.3

This methodology has been utilised for the assessment of environmental impacts where the consequence (severity of impact, spatial scope of impact and duration of impact) and likelihood (frequency of activity and frequency of impact) have been considered in parallel to provide an impact rating and hence an interpretation in terms of the level of environmental management required for each impact.

Plan of Study for the EIA

The Scoping Report is concluded with a Plan of Study (PoS0 for the EIA which explains how the EIA will be conducted for the project in accordance with the following:

- Key environmental issues identified during the scoping phase to be investigated further in the EIA phase;
- Feasible alternatives to be assessed further in the EIA phase;
- Development of an EMPr;
- Specialist investigations which need to be finalised;

- The public participation process to be followed;
- Contents of the EIA/EMPr Report; and
- Consultation with the authorities.

Conclusion and Recommendation

The aim of this Scoping Report is to provide an indication of the identified, positive and negative environmental and socio-economic impacts associated with the proposed project activities. The stakeholder engagement in the Scoping Phase will play an important role in determining possible impacts and allowing the concerns by the public to be adequately addressed in the Impact Assessment Phase of the EIA process.

The Draft Scoping Report has presented:

- The environmental process undertaken so far;
- A brief description of the proposed project;
- A baseline description of the current environment;
- The potential environmental and social impacts identified to date; and
- The recommended environmental process to be followed to develop the EIA/EMPr Report.

Once the Scoping Report comment period is concluded, the report will be updated with the additional issues, and submitted to DEDECT. An EIA, including a Draft EMPr, will be compiled and subjected to a round of public comment. The EIA will then be presented to the authorities for decision-making. On submission of the EIA and EMPr to the DEDECT, notification will be sent to registered I&AP's to inform them of the submission of the documents; and the opportunity to request copies of the Final reports.

Extensive consideration has been given to the proposed location and design of the project and no fatal flaws have been identified during this draft scoping phase. The DEA environmental screening tools indicates the proposed location of the facility to be of high biodiversity sensitivity, therefore a biodiversity specialist has been appointed to conduct the biodiversity specialist studies. In addition, heritage resources impact assessment will also be conducted by a heritage specialist. A hydrologist will compile a SWMP for the proposed project or the effective management of stormwater emanating from the bulk chemical storage facility area. The heritage and biodiversity specialists have conducted field assessments and found no resources of significant importance that will be affected by the project.

Findings from specialist studies will be incorporated into the EIAR and EMPr during the EIA phase. The proposed comprehensive stakeholder engagement process in the PoS will ensure that the stakeholders are involved in the process, from the conception of the EA application process to the end. It is anticipated that implementation of the PoS presented in this report will result in an adequate EIA process which will result in the formulation of a sound EMPr to be integrated into the overall management system of the RBMR area.

YOUR COMMENT ON THE SCOPING REPORT

This Draft Scoping Report will be available for comment for a period of 30 days from 19 October 2020 to 17 November 2020. Copies of the Scoping Report have been made available at the following public places for review:

Public Place	Locality	Telephone
Rustenburg Library	Heystek/Thabo Mbeki Drive, Rustenburg	014 590 3701 plouw@rustenburg.gov.za
SRK	OneDrive	A link will be created and shared with the stakeholders
SRK	Dropbox	A link will be created and shared with the stakeholders
SRK Website	www.srk.co.za	(012) 361 9821

An electronic copy will also be available on CD on request from the stakeholder engagement officers. I&AP's are requested to provide comments and information on the following aspects of the proposed project:

1. Information on how I&AP's consider that the proposed activities will impact on them or their socio-economic conditions;
2. Written responses stating their suggestions to mitigate the anticipated impacts of each activity;
3. Information on current land uses and their location within the area under consideration;
4. Information on the location of environmental features on site to make proposals as to how and to what standard the impacts on site can be remedied; and
5. How to mitigate the potential impacts on their socio-economic conditions and to make proposals as to how the potential impacts on their infrastructure can be managed avoided or remedied.

DUE DATE FOR COMMENT

17 November 2020

Please submit comments to the stakeholder engagement officers:

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Disclaimer

The opinions expressed in this Report have been based on the information supplied to SRK Consulting (South Africa) (Pty) Ltd (SRK) by Rustenburg Base Metal Refiners (RBMR) The opinions in this Report are provided in response to a specific request from RBMR to do so. SRK has exercised all due care in reviewing the supplied information. Whilst SRK has compared key supplied data with expected values, the accuracy of the results and conclusions from the review are entirely reliant on the accuracy and completeness of the supplied data. SRK does not accept responsibility for any errors or omissions in the supplied information and does not accept any consequential liability arising from commercial decisions or actions resulting from them. Opinions presented in this report apply to the site conditions and features, as they existed at the time of SRK's investigations, and those reasonably foreseeable. These opinions do not necessarily apply to conditions and features 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

AAP	Anglo American Platinum
AEL	Air Emission Licence
Ag	Silver
AIP	Alien Invasive Plant
As	Arsenic
BA	Basic Assessment
Ba	Barium
Be	Beryllium
BMR	Base Metals Refiners
CA	Competent Authority
CARA	Conservation of Agricultural Resources Act
CBA	Critical Biodiversity Areas
Cd	Cadmium
CO	Carbon monoxide
Co	Cobalt
CO_2	Carbon Dioxide
Cr	Chrome
CRR	Comments and Responses Report
Cu	Copper
DEA	Department of Environmental Affairs
DEAT	Department of Environmental Affairs and Tourism
DEDECT	North West Department of Economic Development, Environment, Conservation
DEFF	Department of Environment, Forestry and Fisheries
DM	District Municipality
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EAPASA	Environmental Assessment Practitioners Association of South Africa
EFC	Early Farming communities

EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMF	Environmental Management Framework
EMPr	Environmental Management Programme
ESA	Ecological Support Areas
ESA	Early Stone Age
GDP	Gross Domestic Product
GIS	Geographic Information Systems
GN	Government Notice
GNR	Government Notice Regulation
Hg	Mercury
I&APs	Interested and Affected Parties
IDP	Integrated Development Plan
LFC	Late Farming Communities
LSA	Later Stone Age
LM	Local Municipality
mamsl	Meters Above Mean Sea Level
mbs	Depth of groundwater level from surface
MC	Magnetic Concentrator
Mn	Manganese
MSA	Middle Stone Age
NEM: AQA	National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004)
NEM: WA	National Environmental Management: Waste Act 2008 (Act No. 59 of 2008)
NEM:BA	National Environmental Management: Biodiversity Act 2004 (Act No. 10 of 2004)
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NFA	National Forestry Act, 1998 (Act No. 84 of 1998)
NHRA	National Heritage Resources Act, 1999(Act No 25 of 1999)
Ni	Nickel
NOx	Nitrogen Oxide
NWA	National Water Act, 1998 (Act No. 36 of 1998)

O2	Oxygen
P	Phosphorus
PAIA	Promotion of Access to Information Act, 2000 (Act No. 2 of 2000)
Pb	Lead
PGM	Platinum Group Metals
PM	Particulate Matter
PoS	Plan of Study
PPP	Public Participation Process
RBMR	Rustenburg Base Metals Refiners
RLM	Rustenburg Local Municipality
S&EIA	Scoping and Environmental Impact Assessment
SACNASP	South African Council for Natural Science Professions
SAHRA	South African Heritage Resources Agency
SANBI	South African National Biodiversity Institute
SANS	South African National Standards
Sb	Antimony
SCC	Species of Conservation Concern
SDF	Spatial Development Framework
Se	Selenium
SO_2	Sulphur dioxide
TDS	Total Dissolved Solids
Tl	Thallium
ToR	Terms of Reference
V	Vanadium
WML	Waste Management Licence
WRD	Waste Rock Dump
WUL	Water Use Licence
Zn	Zinc

1 Introduction

1.1 Background

Rustenburg Base Metals Refiners (RBMR) requiresreagents that are critical in the processing applicationsat their Magnetic Concentrator (MC) Plant and BMR plants. The chemicals are received, stored and distributed from a centralised Bulk Chemical Storage facility shown in Figure 1-1 as the current plant.

srk consulting	**RBMR Bulk chemical storage facility Relocation** Project Location	Project No. 561608

Figure 1-1: Project Location

However, continuous leaks and loss of bund integrity have resulted in the contamination of the current site's substrate resulting in heaving of the foundations. It is therefore essential that he bulk chemical storage facility to be relocated. It is suspected that the heaving of the foundation has been a comibation of issues which include:

- Soil movement that has led to the installed tanks moving (tilting) due to prolonged acid seepage (mixture of caustic and sulphuric acid) onto the ground over the years, the ground has saturated and heaved, leading to structural damage (civil).
- The area (acid offloading tank farm) is more the 35 years, and the infrastructure has reached end of useful life. Inspection and maintenance of the area is ongoing.

- Drought and flood rainfall cycles in the area have also contributed to the heaving which in turn resulted in the tilting of the tank structures and the bund wall infrastructure being compromised.

The damage to the current plant was first observed in the sulfuric acid bund in 2018. It was determined that the root cause was a leak from the caustic bund into the sulfuric bund. The heaving soils caused the sulfuric bund walls to lean over. At the time the problem was first identified, RBMR instituted repairs to the facility, which was followed by a complete replacement of all the soils within the sulfuric acid bund and the rebuilding of all the concrete bund walls in 2019.

Subsequently, another caustic leak into the newly repaired bund occurred and caused catastrophic damage to the newly repaired sulfuric acid bund. This time the heaving resulted in the failure of the flange of the sulfuric acid tank. Emergency measures were put in place and sulfuric acid was transferred to adjacent tanks. An additional project was launched to attempt to isolate individual caustic tanks in order to complete a soil replacement and concrete repair. This was however abandoned, due to persistent leaks and unsafe working conditions around the plant. All work completed was nullified as soon as a spill or rain event occurred. Figure 1-2 provides photos of the current bulk chemical storage facility.

Figure 1-2: Situation at the Current Bulk chemical storage facility

In addition to implementing repairs to the plant, RBMR also appointed a specialist to undertake a weekly monitoring programme of laser scanning of the bunded area, which commenced in October 2018. Figure 1-3 provides the location and layout of the current bulk chemical storage facility at RBMR and Table 1-1 provides a summary of the movements observed up to the time of the last monitoring report (Croeser Structural Engineering, 2020).

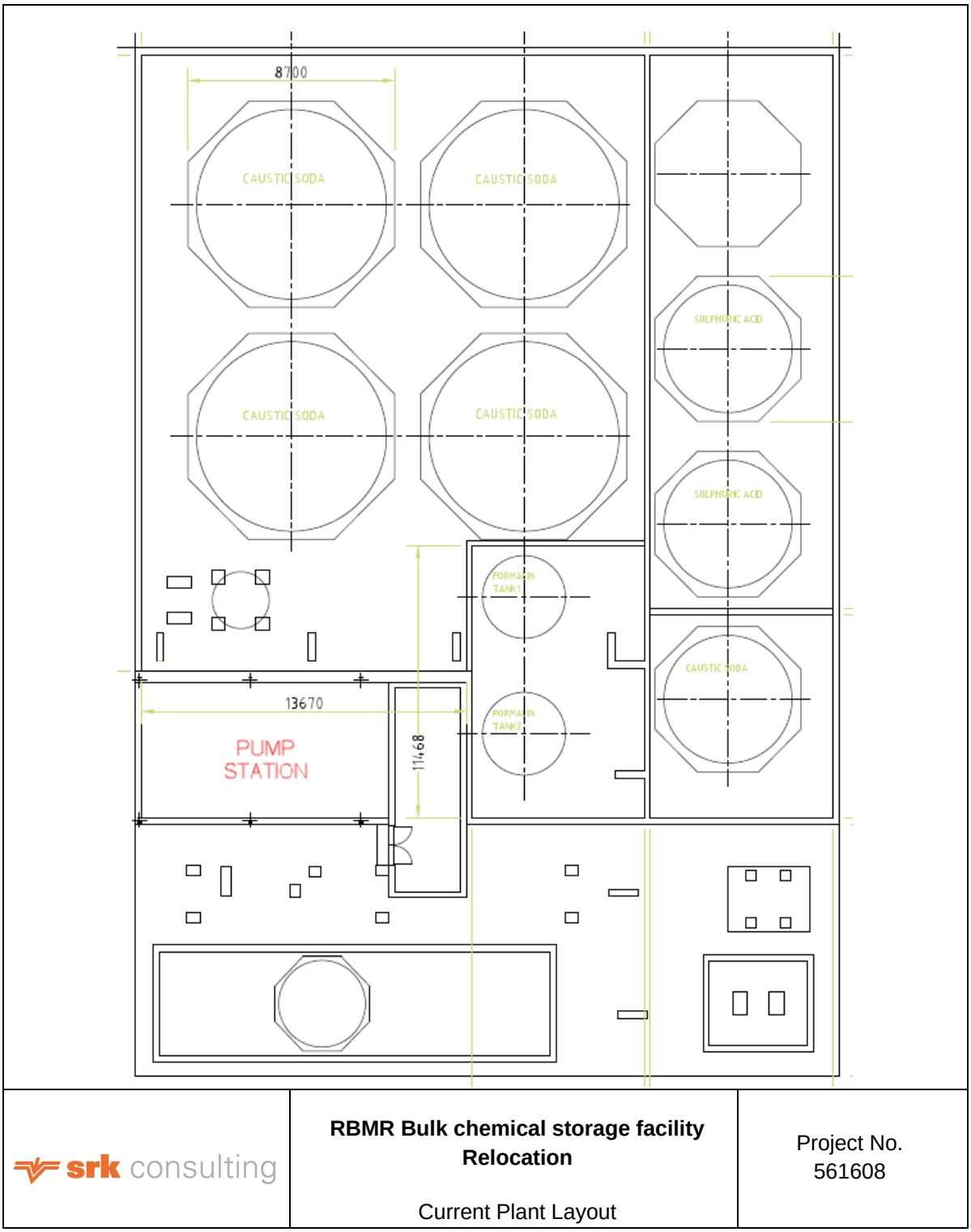


Figure 1-3: Current Layout Plan of the Tanks

Table 1-1: Summary of Tank Movements

Tank No	Chemical Stored	Scan 20(02/06/2020)	Scan 21(15/06/2020)	Scan 22(29/06/2020)
Tank 1	Caustic Soda	The tank and surroundings are stable with little to no movement. Slab South	The tank and surroundings are stable with little to no movement. Slab South west has lifted **285mm**	The tank and surroundings are stable with little to no movement. Slab South west has lifted **282mm**
Tank 2		The tank is stable. Bund wall on North side stable. Bund wall on East side **117mm** upwards movement	The tank is stable. Bund wall on North side stable. Bund wall on East side **123mm** upwards movement	The tank is stable. Bund wall on North side stable. Bund wall on East side **129mm** upwards movement
Tank 3		The tank is stable. Bund wall on the East side **117mm** upwards movement	The tank is stable. Bund wall on East side **117mm** upwards movement	The tank is stable. Bund wall on East side **117mm** upwards movement
Tank 4		The tank is stable with little to no movement. Slab on North West has lifted about **270mm**	The tank is stable with little to no movement. Slab on North West has lifted about **285mm**	The tank is stable with little to no movement. Slab on North West has lifted about **282mm**
Tank 5	Sulphuric Acid	The tank is leaning to the South East side. The Top of the tank has an offset of **342mm**. The slab in the area lifted **189mm**. North bund wall has been demolished. East Bund wall **67mm** lift and **108mm** movement in east direction. West bund wall **117mm** lift. Bottom movement: South direction: **73mm** East Direction: **47mm**	The tank is leaning to the South East side. The Top of the tank has an offset of **360mm**. The slab in the area lifted **86mm.** North bund wall has been demolished. East Bund wall **67mm** lift and **102mm** movement in east direction. West bund wall **117mm** lift. Bottom movement: South direction: **80mm** East Direction: **51mm**	The tank is leaning to the South East side. The Top of the tank has an offset of **367mm**. The slab in the area lifted **71m**m. North bund wall has been demolished. East Bund wall **67m**m lift and **106mm** movement in east direction. Bottom movement: South direction: **80mm** East Direction: **51mm**
Tank 6		The tank is leaning to the South West side. The Top of the tank has an offset of **208mm**. East Bund wall **67mm** lift and **108mm** movement in East direction. West bund wall **117mm** lift. Bottom movement: South direction: 28mm West Direction: **22mm**	The tank is leaning to the South West side. The Top of the tank has an offset of **220mm**. East Bund wall **67mm** lift and **108mm** movement in East direction. West bund wall **117mm** lift. Bottom movement: South direction: **28mm** West Direction: **22mm**	The tank is leaning to the South West side. The Top of the tank has an offset of **212mm**. East Bund wall 67mm lift and **108mm** movement in East direction. West bund wall **117mm** lift. Bottom movement: South direction: **28mm** West Direction: **22mm**
Tank 7		The tank and surroundings are stable with little to no movement.	The tank and surroundings are stable with little to no movement.	The tank and surroundings are stable with little to no movement.

RBMR decided in late 2019 that a repair of the current facility would not be possible and that a new facility was urgently required. A summary of the chemical tanks required at the new location is provided in Table 1-2.

Table 1-2: Details of the tanks requiring relocation

Tank Description	No. of Tanks	Volume per tank (m^3)	Tank Dimensions
Caustic Storage	8	539	Ø7950mm x 10 865mm High
Sulphuric Acid	2	271	Ø5510mm x 11 358mm High
Formalin	2	13	Ø2450mm x 2722mm High

The decommissioning of the existing plant and the construction of a new bulk chemical storage facility triggers activities listed in terms of Listing Notices 1 (Activities 24, 27, 31, 60 and 64) and Listing Notice 2 (Activities 4 and 7) of the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA) (as amended) and will require an Environmental Authorisation (EA) from the North West Department of Economic Development, Environment, Conservation (DEDECT). Since the project triggers activities in Listing Notice 2 of the NEMA, a full Environmental Impact Assessment (EIA) including Scoping and Impact Assessment will be followed as stipulated in Government Notice Regulation (GNR) 326 of the NEMA.

SRK Consulting (SA) (Pty) Ltd (SRK) has been appointed by RBMR as the independent Environmental Assessment Practitioner (EAP) to conduct the EA application process for the project. The reports and documentation for the EA application process will be compiled and finalised for submission to the DEDECT in terms of the NEMA for consideration and decision making. The DEDECT will consult with other government authorities as required in terms of Section 24(K) of the NEMA.

2 Purpose and context of this document

2.1 Objectives of this Report

This document serves as the draft Scoping Report for the first phase of the overall EIA process and includes the following objectives as a minimum:

- Providing an overview of the legal requirements with regard to the proposed project, the proposed project description and anticipated environmental and social issues and impacts that will be further investigated in the EIA;
- To identify and engage with Interested and Affected Parties (I&APs) and allow for adequate participation in the process;
- To assess the receiving environment in terms of current state and determine potential positive or negative impacts which may result due to the proposed development;
- To consider alternatives for achieving the project's objectives;
- To identify significant issues to be investigated further during the execution of the EIA phase; and
- Setting out the scope of the EIA process and the Terms of Reference (ToR) for specialist studies and outlining the approach and methodologies to be used in the EIA process, e.g. the proposed impact rating methodology.

This report will be submitted to the DEDECT for review and decision making.

2.2 Environmental Authorisation Application Process

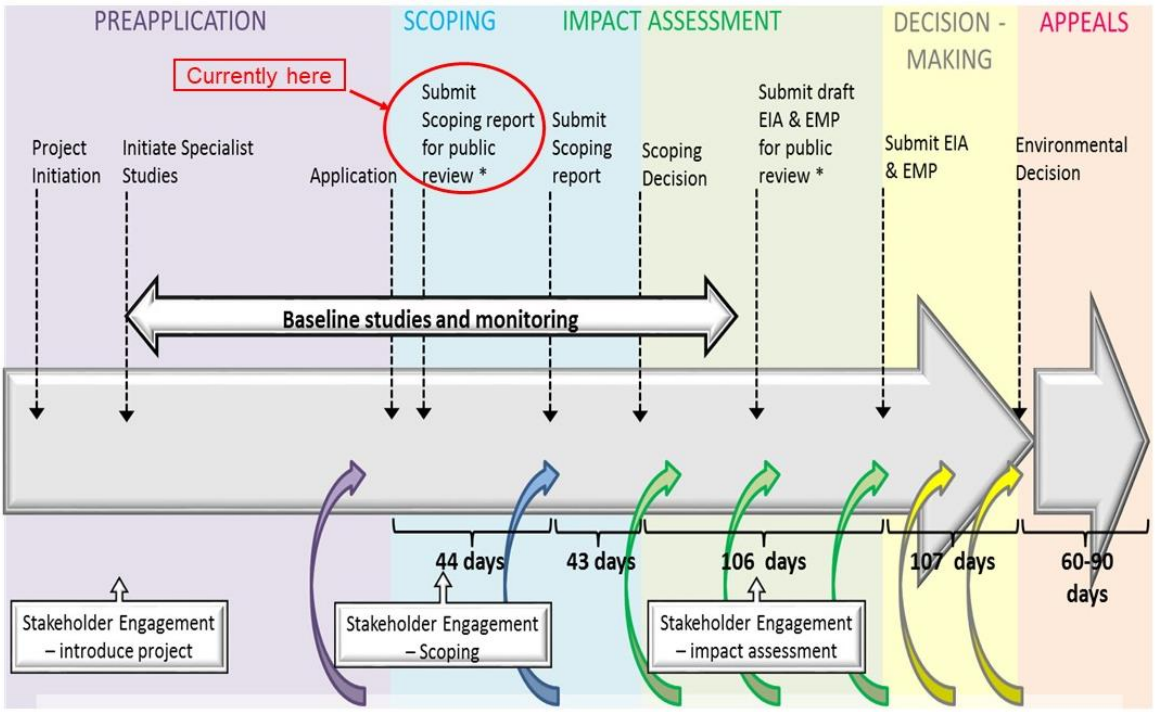
The first Phase of the EA application process is the scoping phase, which will inform the Impact Assessment Phase. This phase provides I&APs) an opportunity to provide the EAP with issues and concerns with respect to the proposed project in order to inform the technical studies so that they can evaluate these concerns during the Impact Assessment Phase of the project.

This Draft Scoping Report provides a description of the proposed project and sets out the proposed scope of the EIA and EMPr that will be undertaken for the proposed decommissioning of the existing bulk chemical storage facility and construction and operation of the proposed new bulk chemical storage facility and associated infrastructure. This includes alternatives that will be evaluated for various aspects of the project, the anticipated potential environmental impacts, issues raised by stakeholders, the specialist studies that will be undertaken including the terms of reference of the specialist studies, and the qualifications and experience of the study team.

Stakeholder engagement is a key element of the environmental decision-making process, and forms part of the scoping phase as well as the impact assessment phase.

The Draft Scoping Report will be made available for public review prior to submission to DEDECT for authorisation. All the comments received will be captured and addressed where feasible in the Scoping Report as well as the Environmental Impact Assessment Report (EIAR).

Error! Reference source not found. provides an illustration of the EIA process that will be followed.



srk consulting	RBMR BULK CHEMICAL STORAGE FACILITY RELOCATION PROJECT Overview of the Process	Project No. 561608

Figure 2-1: Overview the Environmental Impact Assessment Process

2.3 Report Index in Relation to the NEMA Regulations

Regulation 2, Appendix 2 of GNR 326 published in terms of NEMA stipulates the minimal requirements and issues that need to be addressed in the Scoping Report. This report strives to address all these requirements as per regulations. Table 2-1 indicates the regulations that have been addressed and the section of the Scoping Report where these requirements can be found.

Table 2-1: Requirements of Regulation 2 of GNR 326

Section of the EIA Regulations, 2014	Description of EIA Regulations Requirements for Scoping Reports	Section
Appendix 2 (a)	Details of – the EAP who prepared the report; and the expertise of the EAP, including a curriculum vitae	Section 3.1.2
Appendix 2 (b)	The location of the activity, including – The 21-digit Surveyor General code of each cadastral land parcel; Where available, the physical address and farm name; Where the required information in items (i) and (ii) is not available, coordinates of the boundary of the property or properties.	Section 4
Appendix 2 (c)	A plan which locates the proposed activity or activities applied for at an appropriate scale, or, if it is – A linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or On land where the property has not been defined, the coordinates within which the activity is to be undertaken; or.	Figure 4-2

Section of the EIA Regulations, 2014	Description of EIA Regulations Requirements for Scoping Reports	Section
Appendix 2 (d)	A description of the scope of the proposed activity, including – All listed and specified activities triggered; A description of the activities to be undertaken, including associated structures and infrastructure.	Section 5 Table 7-2
Appendix 2 (e)	A description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process.	Section 7
Appendix 2 (f)	A motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location.	Section 9
Appendix 2 (g)	A full description of the process followed to reach the proposed preferred activity, site and location within the site, including-	
	Details of all alternatives considered;	Section 6
	Details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;	Section 8
	A summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;	Section 8.5
	The environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Section 10
	The impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration, and probability of the impacts, including the degree to which the impacts- (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed, or mitigated.	Section 12
	The methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;	Section 11.9
	Positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographic, physical, biological, social, economic, heritage and cultural aspects;	Section 12
	The possible mitigation measures that could be applied and level of residual risk;	Section 12
	The outcome of the site selection matrix;	
	If no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such and;	Section 6.4
	A concluding statement indicating the preferred alternatives, including preferred location of the activity.	Not Applicable Section 14

Section of the EIA Regulations, 2014	Description of EIA Regulations Requirements for Scoping Reports	Section
Appendix 2 (h)	A plan of study for undertaking the environmental impact assessment process to be undertaken including- A description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity; A description of the aspects to be assessed as part of the environmental impact assessment process; Aspects to be assessed by specialists; A description of the proposed method of assessing the environmental aspects, including a description of the proposed method of assessing the environmental aspects including aspects to be assessed by specialists; A description of the proposed method of assessing duration and significance; An indication of the stages at which the competent authority will be consulted; Particulars of the public participation process that will be conducted during the environmental impact assessment process; A description of the tasks that will be undertaken as part of the environmental impact assessment process; Identify suitable measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored.	Section 11
Appendix 2 (i)	An undertaking under oath or affirmation by the EAP in relation to- The correctness of the information provided in the report; The inclusion of the comments and inputs from stakeholders and interested and affected parties; 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 and affected parties.	Section 13
Appendix 2 (j)	An undertaking under oath or affirmation by the EAP in relation to the level of agreement between the EAP and interested and affected parties on the plan of study for undertaking the environmental impact assessment.	Section 13
Appendix 2 (k)	Where applicable, any specific information required by the competent authority.	Not Applicable
Appendix 2(l)	Any other matter in terms of Section 24(4)(a) and (b) of the NEMA	Not Applicable

3 Contact Person and Correspondence

SRK Consulting (South Africa) (Pty) Ltd (SRK) has been appointed by RBMR as the independent Environmental Assessment Practitioner (EAP) to undertake the necessary environmental authorisation process and associated stakeholder engagement process to meet the requirements of the NEMA.

3.1.1 Applicant

Table 3-1 presents the details of the applicant and facility owner's representative.

Table 3-1: Applicant Contact Details

Contact details of the Applicant:
Anglo American Platinum's Rustenburg Base Metals Refinery (RBMR)
Physical Address: 55 Marshall Street, Marshall Town, Johannesburg, 2001
Contact Person: Prakashim Moodliar
Tel: 011 373 6292
E mail: prakashim.moodliar@angloamerican.com

3.1.2 Environmental Assessment Practitioner

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 Table 3-2.

Table 3-2: EAP Contact Details

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

The project manager, Ndomupei Masawi is a registered Professional Natural Scientist (SACNASP Reg Number 400045/14) and EAP (EAPASA Reg Number 2020/401) with a Masters 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 Post Graduate Diploma in Integrated Water Resource Management. Ms Masawi is a Registered EAP with the EAPASA (Reg:2020/401).

Manda Hinsch 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.

The Curriculum Vitae of the EAP team and the background on experience gained by SRK in the field of Environmental Impact Assessments is provided in Appendix A and Appendix B respectively.

3.1.3 Competent Authority Details

The details of the competent authorities are provided in Table 3-3.

Table 3-3: Competent Authority Details

Department	Contact Person	Contact Details	
DEDECT	Ms Gasewabone Ellis Thebe	Tel	018 389 5099
		Email	gethebe@nwpg.gov.za>

3.1.4 Local Authority Details

The project area is located within the jurisdiction of the Rustenburg Local Municipality, Bojanala District Municipality in the North West Province. Photshaneng and Bokamoso are the closest residential areas, approximately 6.5 km North and North East respectively of RBMR and Rustenburg is the closest town, being approximately 4.9 km North Westerly of the complex.

Details of the relevant municipality are provided in Table 3-4.

Table 3-4: Local and District Municipality Details

Department	Contact Person	Contact Details	
Bojanala Platinum District Municipality	Mr P Shikwane / Ms Tsholofelo B Dikgole	Tel	014 590 4502
		Email	tsholofelod@bojanala.gov.za/ pogisos@bojanala.gov.za
Rustenburg Local Municipality	Lillian Sefike/ Kelebogile Mekgoe (Environmental Officer)	Tel	0145903075
		Email	lsefike@rustenburg.gov.za/ kmekgoe@rustenburg.gov.za

Figure 3-1 provides an illustration of the relevant district and local municipalities surrounding the proposed project.

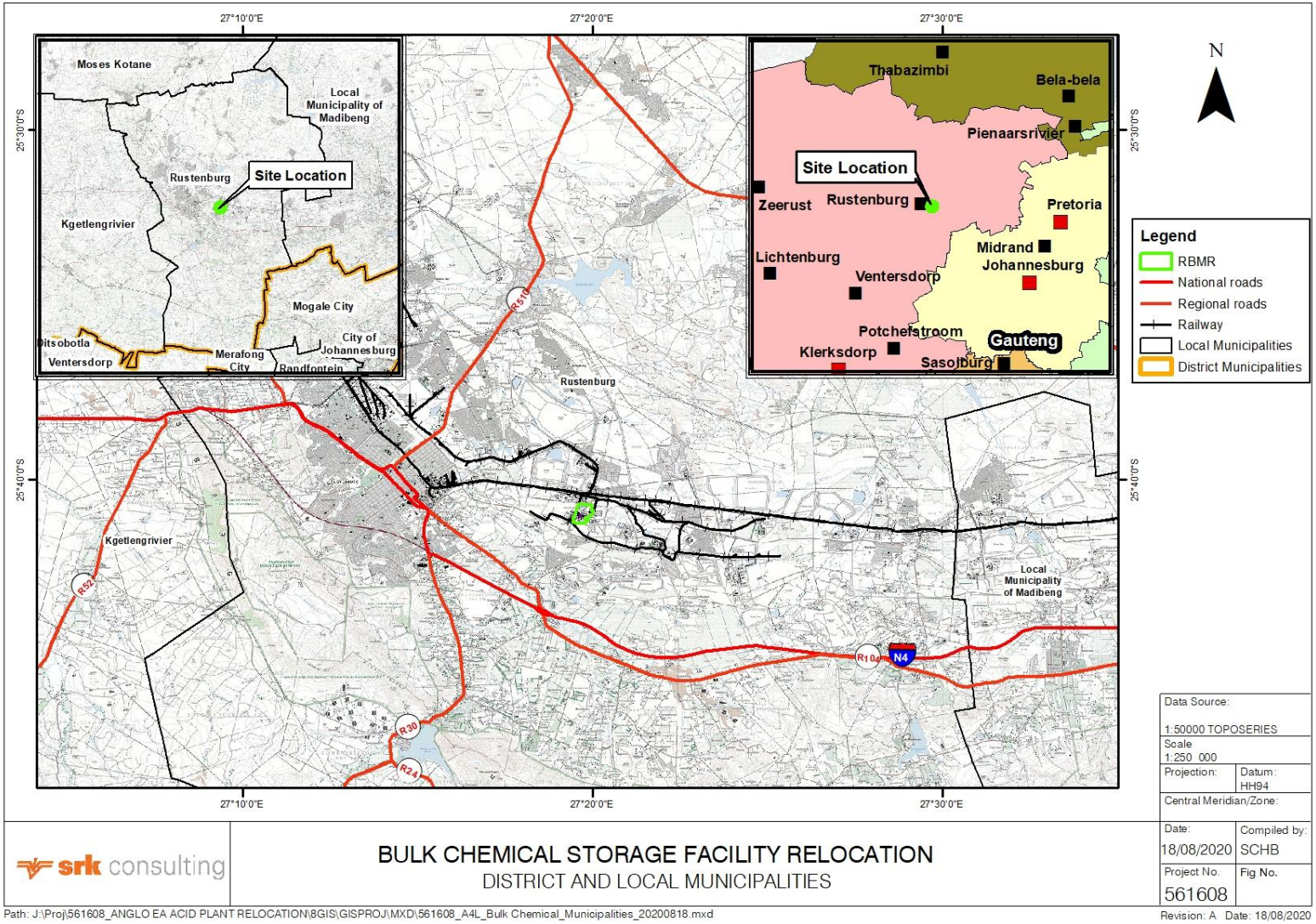


Figure 3-1: Relevant District and Local Municipalities Relevant to the Proposed Project

4 Project Location

The proposed project is located on the farm portion as illustrated in Figure 4-1. Table 4-1 provides a description of the proposed activities located on the property.

Table 4-1: 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 T0JQ00000000030300042	42	Anglo Platinum's RBMR	Decommissioning of an existing bulk chemical storage facility within the existing complex and construction and operation of a new bulk chemical storage facility and associated infrastructure outside the RBMR boundary.

The affected property is owned by the applicant, RBMR.

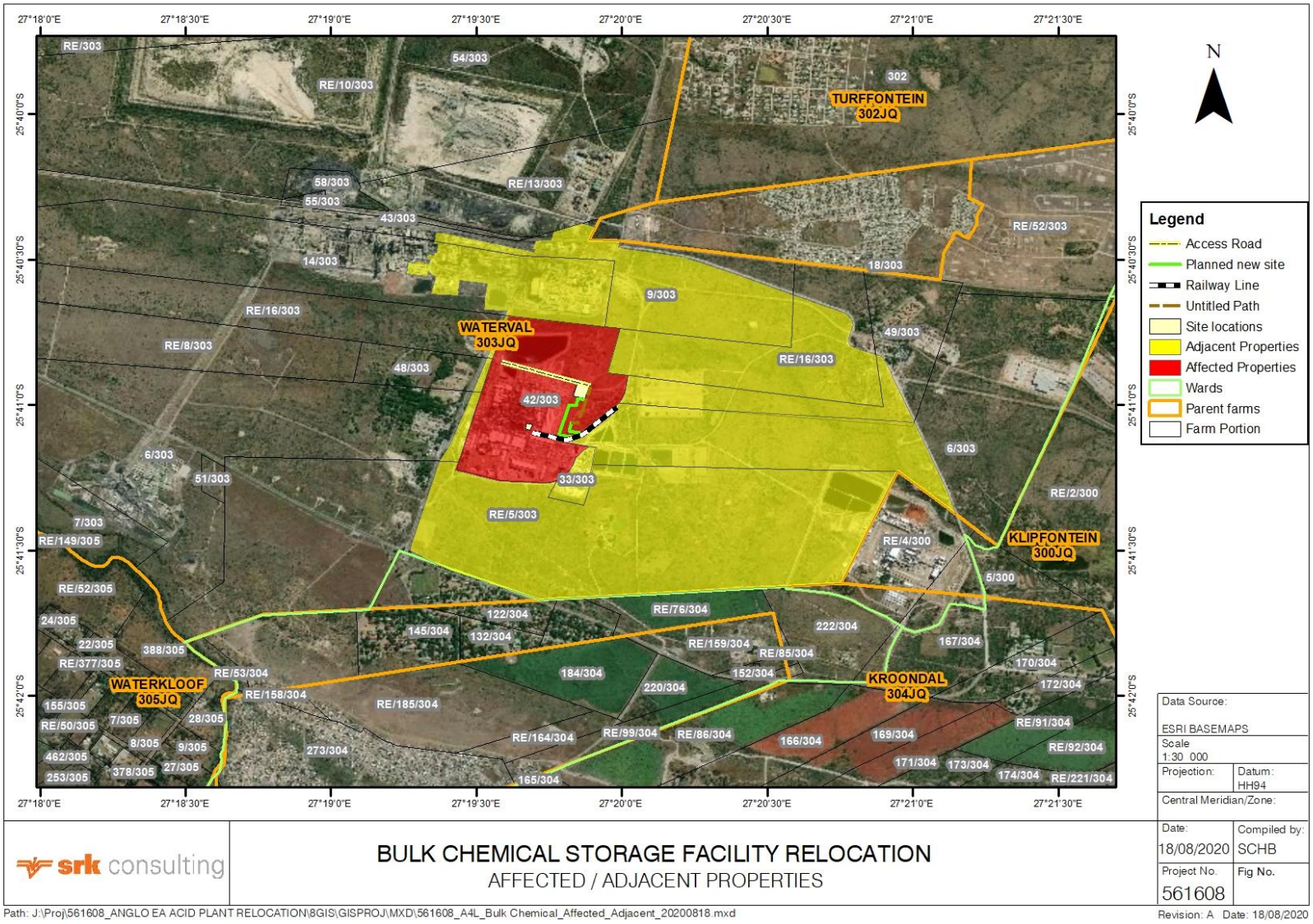


Figure 4-1: Affected Property

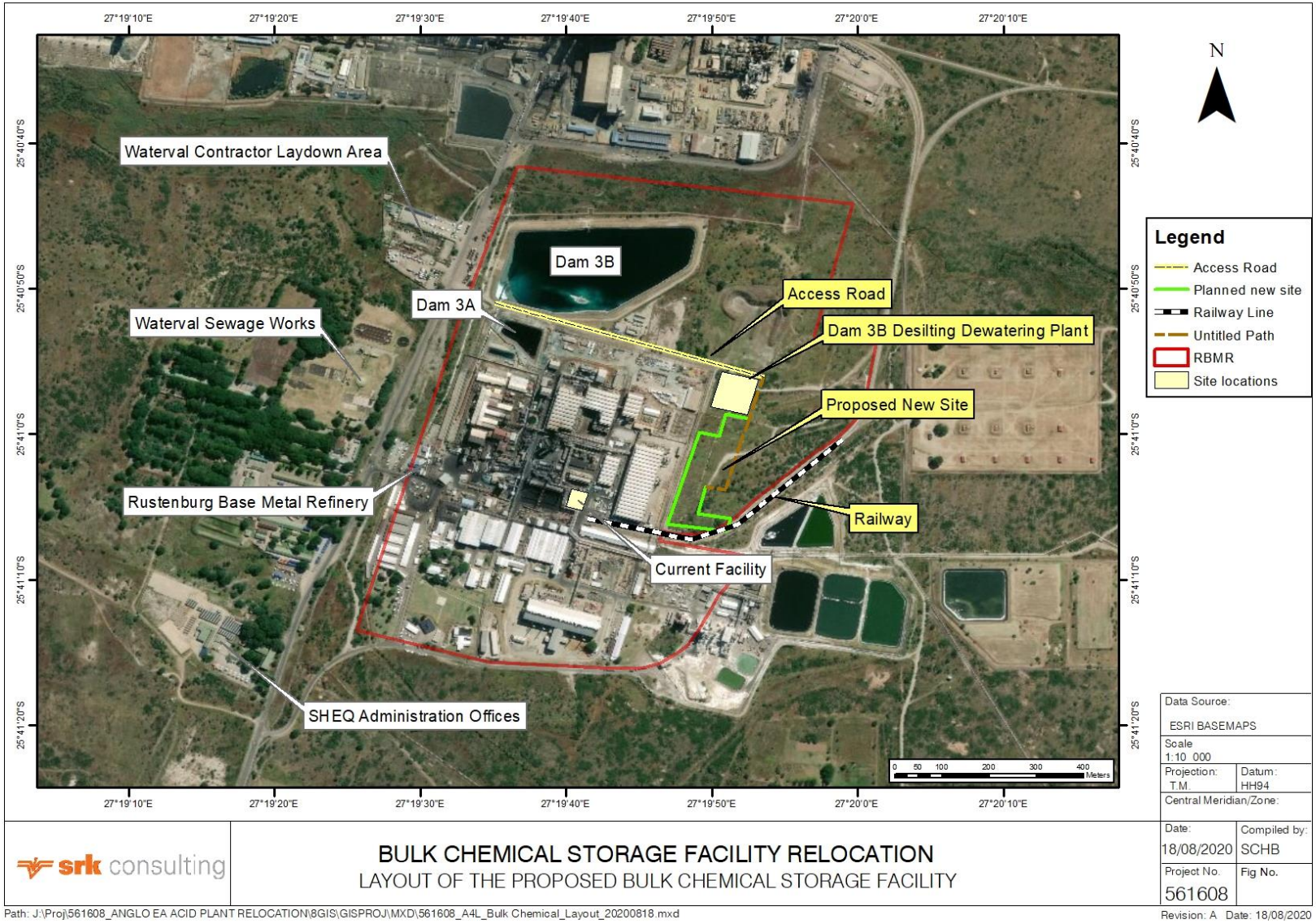


Figure 4-2: Layout Plan

5 Project Description

The proposed project will include decommissioning of the current bulk chemical storage facility and construction and operation of a new bulk chemical storage facility.

5.1 Decommissioning of the Current Plant

The following actions will be implemented to affect demolition of the existing chemical tanks infrastructure:

- Chemical tanks will be emptied;
- Existing infrastructure will be removed to ground level including:
    - Removal of building material. Building material will be treated/re-used or recycled or disposed as a last resort onto a registered waste disposal facility; and
    - Dismantling and removal of the tanks and associated infrastructure.
- All infrastructure for which there is no approved third-party post closure use will be dismantled. Infrastructure where there is a third-party use will be legally transferred to the relevant parties and any other valuable items salvaged during demolition will be sold;
- All equipment will be rinsed with water and where required decontaminated by washing or chemical decontamination as appropriate;
- Equipment and materials will be sold and removed from the site;
- Removal of any hazardous material and re-use, recycling or disposal as a last resort at a licenced facility;
- Removal of any general waste and re-use, recycling or disposal as a last resort at a registered waste disposal facility; and
- Excavation, removal and replacement of contaminated soil/substrate and treatment, re-use, recycling or disposal as a last resort at a registered waste disposal facility.

5.2 Rehabilitation of the current plant area

The area where the current facility is located will require rehabilitation. Remediation of the affected area will include:

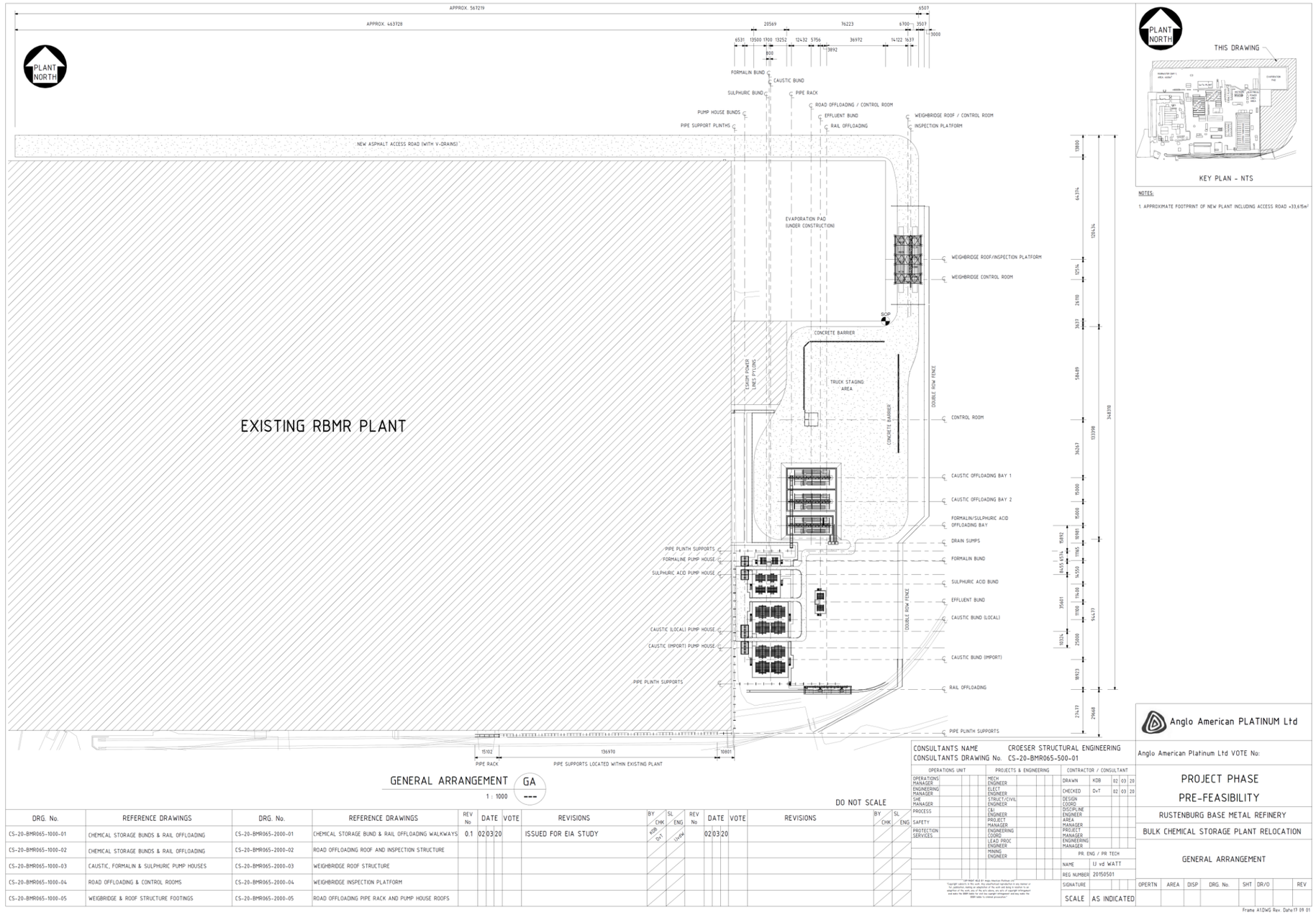
- Geotechnical investigations will be conducted on the ingress by acids encountered on the fill material and the underlying norite rock;
- The geological map from the Council for Geosciences indicates that the site is underlain by gabbro, norite and anorthosite of the Pyramid Gabbro-norite (Vg). Very soft gabbro norite rock is encountered from a depth of 1.2m below ground level. Studies indicates ground water level to be between 15 to 30m;
- Contaminated ground will be excavated, removed, treated, re-used, recycled or disposed-off as a last resort to an authorized landfill site; and
- Suitable material will be imported. All backfilling and compaction and testing thereof will be done in accordance with the Engineer's specifications.

5.3 Construction of the new plant and associated infrastructure

The proposed bulk chemical storage facility relocation project will include the construction of the following:

- Construction of chemical tanks (8 for caustic soda, 2 for sulphuric acid and 2 for Formalin);
- Construction of parking and weighbridge areas;
- Resurfacing of the existing gravel access road with tar for the transportation of imported chemicals; and
- Construction of a rail siding from the existing railway line to the bulk chemical storage facility for the transportation of locally acquired chemicals.

The layout plans of the proposed bulk chemical storage facility are provided in Figure 5-1 and Figure 5-2.



DRG. No.	REFERENCE DRAWINGS	DRG. No.	REFERENCE DRAWINGS
CS-20-BMR065-1000-01	CHEMICAL STORAGE BUNDS & RAIL OFFLOADING	CS-20-BMR065-2000-01	CHEMICAL STORAGE BUND & RAIL OFFLOADING WALKWAYS
CS-20-BMR065-1000-02	CHEMICAL STORAGE BUNDS & RAIL OFFLOADING	CS-20-BMR065-2000-02	ROAD OFFLOADING ROOF AND INSPECTION STRUCTURE
CS-20-BMR065-1000-03	CAUSTIC, FORMALIN & SULPHURIC PUMP HOUSES	CS-20-BMR065-2000-03	WEIGHBRIDGE ROOF STRUCTURE
CS-20-BMR065-1000-04	ROAD OFFLOADING & CONTROL ROOMS	CS-20-BMR065-2000-04	WEIGHBRIDGE INSPECTION PLATFORM
CS-20-BMR065-1000-05	WEIGBRIDGE & ROOF STRUCTURE FOOTINGS	CS-20-BMR065-2000-05	ROAD OFFLOADING PIPE RACK AND PUMP HOUSE ROOFS

REV No	DATE	VOTE	REVISIONS	BY CHK	SL ENG
0.1	02 03 20		ISSUED FOR EIA STUDY	KDB DvT	LH/PK

REV No	DATE	VOTE	REVISIONS	BY CHK	SL ENG
	02 03 20				

OPERATIONS UNIT	PROJECTS & ENGINEERING	CONTRACTOR / CONSULTANT
OPERATIONS MANAGER	MECH ENGINEER	DRAWN KDB 02 03 20
ENGINEERING MANAGER	ELECT ENGINEER	CHECKED DvT 02 03 20
SHE MANAGER	STRUCT/CIVIL ENGINEER	DESIGN COORD
PROCESS	C&I ENGINEER	DISCIPLINE ENGINEER
SAFETY	PROJECT MANAGER	AREA MANAGER
PROTECTION SERVICES	ENGINEERING COORD	PROJECT MANAGER
	LEAD PROC ENGINEER	ENGINEERING MANAGER
	MINING ENGINEER	PR. ENG / PR TECH
		NAME IJ vd WATT
		REG NUMBER 20150501
		SIGNATURE

OPERTN	AREA	DISP	DRG. No.	SHT	DR/O	REV

Frame A1DWG Rev. Date:17 09 01

srk consulting

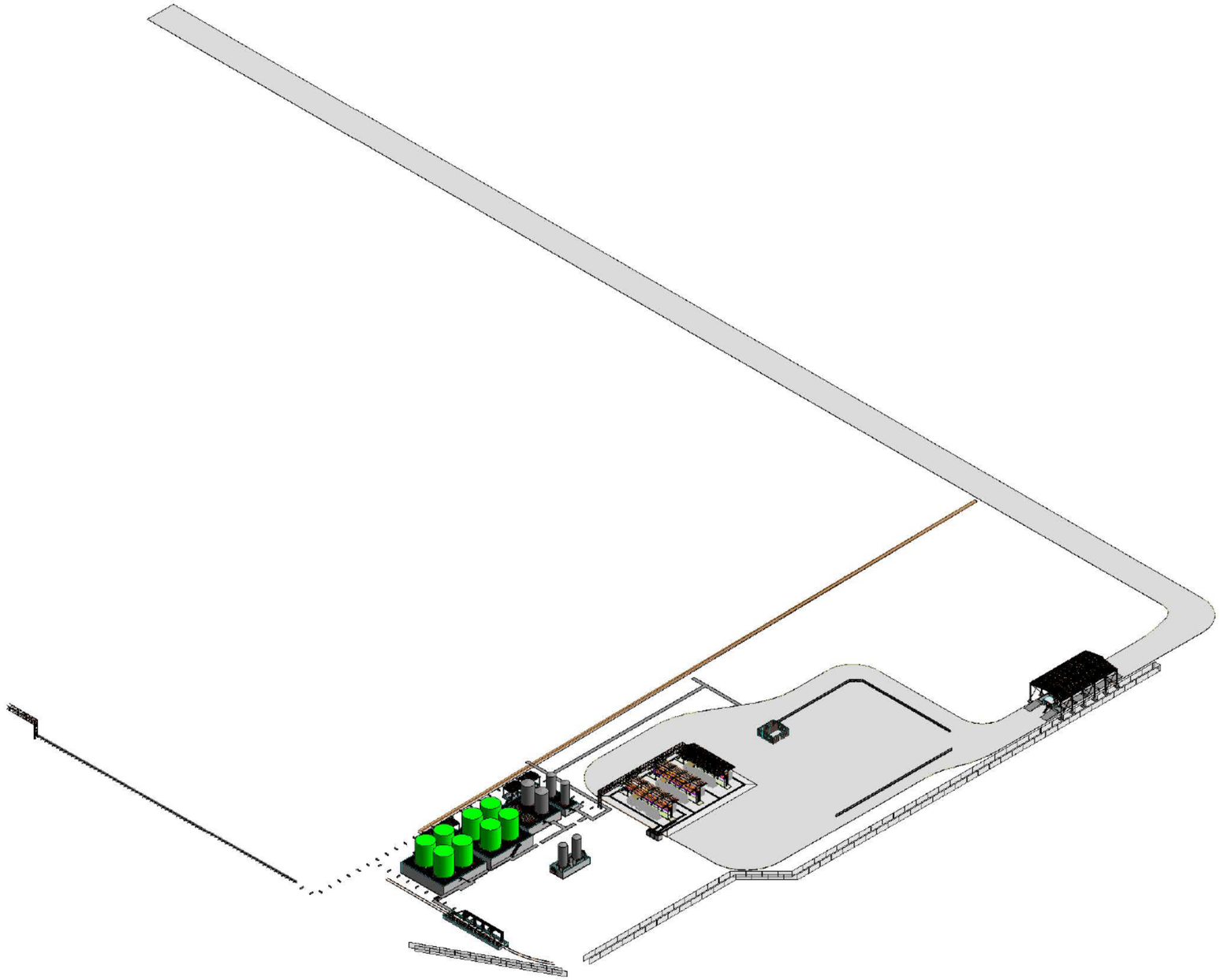
RBMR BULK CHEMICAL STORAGE FACILITY RELOCATION

PROPOSED PROJECT LAYOUT PLAN

Project No.

561608

Figure 5-1: Proposed Layout Plan of the bulk chemical storage facility



srk consulting	**RBMR BULK CHEMICAL STORAGE FACILITY RELOCATION** 3 D LAYOUT	Project No. 561608

Figure 5-2: Proposed 3 D Layout Plan of the bulk chemical storage facility

5.3.1 Construction

The bulk chemical storage facility and associated infrastructure will be constructed in a brownfield area located next to the RBMR facility. RBMR will appoint contractor (s) for the construction process, which will be carried out under the instruction of the RBMR production manager. The generic construction process will entail:

- Earthworks : Establishment of foundations.
- Civil works:
    - Erection of structures and general building activities associated with the bulk chemical storage facility, road pavement and rail siding;
    - 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.

5.3.2 Operation

The operation of the plant will be undertaken within the existing RBMR structures. All chemicals will be delivered to the plant by road (imported chemicals) and by rail (locally acquired chemicals), where the chemicals will be offloaded into the different assigned tanks as shown in Figure 5-2.

5.4 Employment

RBMR will appoint contractors for the construction phase of the project. The contractors responsible for the construction of the plant will appoint a team manager and a supervisor who will ensure that:

- All work to be conducted have been assessed in terms of risk;
- 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.

6 Alternatives Considered

Three location alternatives were considered.

6.1 Preferred Option

The preferred site alternative is location will be in a brownfield area located to the East of the Copper Tank house, outside the RBMR's current boundary fence as shown in Figure 6-1.

Figure 6-1: Location of the Preferred Option

6.2 Alternative 1

Alternative 1 is sited within the RBMR boundary (brownfields) to the East of the Copper Tank house as shown in Figure 6-2.

srk consulting	**RBMR BULK CHEMICAL STORAGE FACILITY RELOCATION** ALTERNATIVE 1 LOCATION	Project No. 561608

Figure 6-2: Location of Alternative 1

6.3 Alternative 2

Alternative 2 is located within the RBMR boundary (brownfields) to the East of the Nickel Tank House as shown in Figure 6-3.

srk consulting	**RBMR BULK CHEMICAL STORAGE FACILITY RELOCATION** ALTERNATIVE 2 LOCATION	Project No. 561608

Figure 6-3: Figure 6-4: Location of Alternative 2

6.4 Location Trade-off

RBMR undertook an assessment of the desirability of the locations and technical issues as summarised in Table 6-1.

Table 6-1: Technical Assessment of Alternatives

Item Description	Preferred Option	Alternative 1	Alternative 2
Operation would minimize interactions with operations and reduce construction delays.	Positive	Negative	Negative
Reduced movement of traffic inside of the base metal refinery.	Positive	Positive	Negative
An installation of dedicated weighbridge	Negative	Negative	Negative
Close proximity of the reagent tank to the railways.	Positive	Positive	Negative
Modification to the railway system to enable the trailers to be parked would be required.	Negative	Negative	Negative
The offloading pumping systems will reduce power requirements and reduce piping runs.	Positive	Positive	Negative
The close proximity to existing piping rack, thus reducing piping lengths	Positive	Positive	Negative
Close proximity to MV substation 990SGM001, thus reducing cable length distances.	Positive	Positive	Negative
Adequate space for the turning circles and parking bays.	Positive	Positive	Negative
Requirement for Major earthwork, including possibility of hard rock, requiring either blasting and/or alternative methods to be established in the next phase of the project.	Negative	Negative	Negative
Integration of the control system to PCS7	Positive	Positive	Negative
Access to existing roads, of less than 500m	Negative	Negative	Positive
New turnstiles, and security fence	Negative	Negative	Positive
Requirement for a dedicated weighbridge with its control room for ablutions.	Negative	Negative	Negative

The preferred option was based on:

- Reduce vehicle - pedestrian interaction by reducing number of acid offloading trucks;
- Eliminate rail deliveries traffic within the RBMR facility; and
- Reduce congestion at RBMR entrance Gates and Weighbridge.

Furthermore, this option will be engineered to mitigate many of the significant risks identified and associated with this option.

6.5 No-Go Alternative

The assessment will include a no-go option as required by the EIA regulations. However, it must be noted that although various monitoring and preventative measures have been put in place and implemented to avoid any further spills at the current plant and repairs have been implemented around the bund to attempt to contain any further contamination or leaks, these measures are unfortunately not long-term solutions and they will not contain a catastrophic failure or major rain event. The heaving of soils is predicted to continue for the foreseeable future and will increase with the advent of the rainy season and any further leaks, which are highly likely. With the unpredictable rainfall pattern, RBMR

needs to ensure 100% integrity of the structures at the plant. The behaviour of the underground soil movements is unpredictable. i.e. when and how much of the heaving is going to continue. The unforeseen and unpredictable nature of the heaving soils within the various bunds, combined with the condition of the steel and concrete structures and walls makes this project an extreme emergency.

Should the current plan fail, the implication of it are far reaching from both an environmental, socio-economic and plant safety perspective (See Section 9).

7 Legal and Policy Framework

Table 7-1 provides a summary of the applicable legislation, policies and guidelines identified as relevant to the proposed project. In addition, a description of how the proposed activity complies with and responds to the legislation and policy context, is provided. This list is not exhaustive but rather represents an indication of the most applicable pieces of environmental legislation relevant to the project.

Table 7-1: Policy and Legislative Context of Proposed Project

Legislation	Description and Relevance	Responsible Authority
Constitution of the Republic of South Africa, (Act No. 108 of 1996)	Chapter 2 – Bill of rights Section 24 – Environmental Rights *The proposed activities shall be implemented in such a manner that significant environmental impacts are avoided, where significant impacts cannot all together avoided be minimised and mitigated (as per the Environmental Management Programme that will be compiled to guide the process) in order to protect the environmental rights of South Africans.*	N/A
Promotion of Access to Information Act, 2000 (Act No. 2 of 2000) (PAIA)	The Promotion of Access to Information Act (Act No. 2 of 2000) (PAIA) recognises that everyone has a right of access to any information held by the state and by another person when that information is required to exercise or protect any right. The purpose of the Act is to promote transparency and accountability in public and private bodies and to promote a society in which people have access to information that enables them to exercise and protect their right. *The EIA/EMPr process will be undertaken in terms of the NEMA, where the associated stakeholder consultation process was aligned with the PAIA in the sense that all I&APs will be given an opportunity to register as an I&AP prior to the initiation of the project and all registered stakeholders were in turn provided a fair opportunity to review and comment on any reports submitted to the competent authorities for decision making.*	N/A
National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA)	Section 24 – Environmental Authorisation (control of activities which may have a detrimental effect on the environment) Section 28 – Duty of care and remediation of environmental damage *Environmental management principles will be incorporated into the EIA and EMPr, which the applicant will be required to comply with to ensure that negative impacts on the environment are avoided or kept to a minimum and that positive impacts are enhanced.*	DEDECT
NEMA EIA Regulations 2014 (Government Notice (GN) 324, 325 and 327), as amended	The EIA Regulations (GNR 326) were promulgated in terms of Sections 24 of the NEMA, to manage the process, methodologies and requirements for the undertaking of an EIA. The GNR 326 stipulates that the applicant for activities listed under GNR 324, 325 or 327 must appoint an independent EAP to manage the EIA process. Listed Activities are activities identified in terms of Section 24 of the NEMA which are likely to have a detrimental impact on the environment, and which may not commence without an EA from the Competent Authority (CA). EA required for Listed Activities is subject to the completion of either a	

Legislation	Description and Relevance	Responsible Authority
	Basic Assessment (BA) process or full Scoping and Environmental Impact Assessment (S&EIA) with applicable timeframes associated with each process. The EA must be obtained prior to the commencement of those listed activities. *The project triggers activities listed in Listing Notices 1(GNR 327) and 2 (NGR 325) and require a full EIA (scoping and impact assessment). The applicable listed activities that will be triggered by the project is provided in Table 7-2.*	
Department of Environmental Affairs (DEA) Integrated Environmental Management Guideline Series, Guideline 5: Assessment of the EIA Regulations, 2012 (Government Gazette 805)	*Environmental impacts will be generated primarily in the construction phase of this project. These, together with associated operational phase impacts will be assessed.*	
Integrated Environmental Assessment Guideline Series 11, published by the DEA in 2004	*An Environmental Assessment is required for the proposed project as activities are triggered under GNR 325 and GN R327.*	
Review in Environmental Impact Assessment, Integrated Environmental Management, Information Series 13, Department of Environmental Affairs and Tourism (DEAT), Pretoria.		
DEA Integrated Environmental Management Guideline Series, Guideline 7: Public Participation in the Environmental Impact Assessment Process, 2012 (Government Gazette 807)	*Public participation is a requirement of the EIA Process and will be conducted for the proposed project as stipulated in Chapter 6 of the NEMA and will take into account various public participation guidelines as stipulated in Section 8.*	
National Water Act, 1998 (Act No. 36 of 1998) (NWA)	*The proposed project does not constitute a water use as per Section 21 of the NWA. A Water Use Authorisation will therefore not be required.*	Department of Water and Sanitation (DWS)

Legislation	Description and Relevance	Responsible Authority
National Environmental Management Waste Act (Act No. 59 of 2008) (NEM: WA)	*The project does not trigger activities listed in GNR921 of the NEM: WA and will therefore not require a Waste Management Licence (WML).*	DEDECT/ Department of Environment, Forestry & Fisheries (DEFF)
National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) (NEM: AQA)	Air quality management Section 32 – Dust control. Section 34 – Noise control. Section 35 – Control of offensive odours. *No listed activities in terms of NEM: AQA will be triggered as a result of the proposed project, however the principles of the act, focusing on minimisation of pollutant emissions will be taken cognisance of in the development of the EMPr during the EIA.*	DEFF and Rustenburg Local Municipality
National Forestry Act, 1998 (Act No. 84 of 1998) (NFA)	The NFA protects against the cutting, disturbance, damage, destruction or removal of protected trees. *The proposed project will include the clearance of vegetation and trees from the project footprint. A biodiversity assessment has been conducted as part of the EIA. The assessment found that there are no species of conservation concern that will be affected by the proposed project. However, the clearance of vegetation will still result in loss of biodiversity and the EIA will include mitigation measures that will be required to minimise impacts on flora.*	Department of Environment, Forestry and Fisheries (DEFF)
National Disaster Management Act, 2002 (Act No. 57 of 2002)	Annexure 3 of the Department of Environment, Forestry and Fisheries (DEFF) Disaster Management Directions of 5 June 2020. The Directions require that a person (proponent/ applicant, specialist, EAP) or other professional) who undertakes actions as part of an environmental authorisation process must: • Prepare a written Public Participation Plan (PPP) or Stakeholder Engagement Plan, containing proposals on how the identification of and consultation with all potential Interested and Affected Parties (I&APs) will be ensured in accordance with regulation 41(2)(a) to (d) of the Environmental Impact Assessment (EIA) Regulations (2014, as amended) or proposed alternative reasonable methods as provided for in regulation 41(2)(e) of the EIA Regulations, for the purposes of the application and submit such plan to the competent authority; • Request a meeting or pre-application discussion with the relevant competent authority to determine the reasonable measures to be followed to identify potential I&APs and register IA&Ps for purposes of conducting public participation on an application requiring adherence to Chapter	DEFF

Legislation	Description and Relevance	Responsible Authority
	6 of the EIA Regulations as set out in the PPP and obtain agreement from the relevant competent authority on the Public Participation Plan; o For new applications, the PPP agreed with the competent authority, must be attached to the application form; and o Unless part of a site visit, virtual or telephonic meetings to be arranged with the relevant competent authority as set out in Annexure 2. *A pre-application discussion was held with the DEDECT on 11 August 2020 where the proposed stakeholder engagement process was discussed. This stakeholder engagement plan will form an appendix to the application that will be submitted to the DEDECT and will be implemented throughout the EIA process.*	
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEM:BA)	The National Environmental Management: Biodiversity Act (Act No. 10 of 2004) (NEMBA) provides for the management and conservation of South Africa's biodiversity within the framework of NEMA, as well as the protection of species and ecosystems that warrant national protection and the sustainable use of indigenous biological resources. The Act provides for listing of threatened or protected ecosystems, in one of four categories: critically endangered, endangered, vulnerable or protected *The management and control of alien invasive species on the impacted areas during all the phases of the project will be governed by the NEM: BA. The NEM: BA ensures that provision is made by the site developer to remove any alien species, which have been introduced to the site or are present on the site. As such, the management and control of potential alien invasive plant species will be assessed in detail during the EIA and mitigation measures have been included in the EMPr.*	DEFF/DEDECT
Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983) (CARA)	Control measures for erosion Control measures for alien and invasive plant species *The EMPr will include measures to control and manage alien invasive plant species.*	DEFF
National Heritage Resources Act, 1999(Act No 25 of 1999) (NHRA)	Heritage Permit for structures 60 years or older. *A heritage specialist was appointed to undertake a phase 1 Heritage Impact Assessment (HIA) for the proposed project as part of the EIA process. The specialist found that there are no heritage resources located on the project site, however the specialist will provide mitigation measures that must be implemented should by chance graves and heritage resources be affected by the project.*	North West Heritage Resource Authority

Legislation	Description and Relevance	Responsible Authority
Restitution of Land Rights Act, 1994 (Act No. 22 of 1994), as amended in 2014.	Land Claims. *The proposed plant location is owned by the applicant, RBMR.*	Department of Rural Development and Land Reform

7.1 Provincial and Municipal Bylaws

The Bojanala Platinum District Municipality, Rustenburg Local Municipality and the North West Province have developed local bylaws and various policies relating to waste disposal, water, economic development, air quality, etc. The proposed project must ensure that such policies and bylaws are adhered to as far as possible during the construction and operation of the bulk chemical storage facility and associated infrastructure.

7.2 Guidelines

The following documents will be taken into account during the impact assessment process and compilation of the EMPr of the proposed project:

- North West Provincial Biodiversity Management Plan;
- Rustenburg Local Municipality Integrated Development Plan (IDP) (2019-2020);
- Bojanala Platinum District Municipality Spatial Development Framework (SDF) (2007);
- DWS, 2010. Operational Guideline: Integrated Water and Waste Management Plan. Resource Protection and Waste;
- Department of Water Affairs and Forestry, 2006. Best Practice Guideline G1 Storm Water Management;
- Department of Water Affairs and Forestry, 2006. Best Practice Guideline G3. Water Monitoring Systems;
- Department of Water Affairs and Forestry, 2008. Best Practice Guideline G4: Impact Prediction;
- DEAT. 2002. Integrated Environmental Management, Information series 3: Stakeholder Engagement. Department of Environmental Affairs and Tourism (DEAT. 2002);
- DEAT. 2002. Integrated Environmental Management, Information series 12: Environmental Management Programmes. Department of Environmental Affairs and Tourism (DEAT. 2002);
- DEA. 2010. Companion to the EIA Regulations 2010 for Comment, Integrated Environmental Management Guideline Series 5, Department of Environmental Affairs;
- DEA. 2010. Companion to the EIA Regulations 2010 for Comment, Integrated Environmental Management Guideline Series 7, Department of Environmental Affairs;
- DEA. 2012. Companion to the EIA Regulations 2010, Integrated Environmental Management Guideline Series 5, Department of Environmental Affairs;
- DEA. 2012. Companion to the EIA Regulations 2010, Integrated Environmental Management Guideline Series 7, Department of Environmental Affairs; and
- Western Cape Department of Environmental Affairs and Tourism. 2010. EIA Guideline and Information Document Series: Guideline on Need and Desirability.

7.3 Listed Activities Triggered

The proposed projects triggers activities listed in Listing Notices 1 and 2 of the NEMA and requires an EA from the DEDECT. A summary of the activities is provided in Table 7-2.

Table 7-2: NEMA Listed Activities Triggered by the proposed project

Government Notice and Activity Number	Relevant Activity as per the relevant Listing Notice	Describe the portion of the development as per the project description that relates to the applicable listed activity
Listing Notice 1 (GNR 327): Activity 24	*The development of a road—* *(i) [a road] for which an environmental authorisation was obtained for the route* *determination in terms of activity 5 in Government Notice 387 of 2006 or activity* *18 in Government Notice 545 of 2010; or* *(ii) [a road] with a reserve wider than 13,5 meters, or where no reserve exists where* *the road is wider than 8 metres;*	The proposed project will include tarring of an existing gravel access road.
Listing Notice 1 (GNR 327): Activity 27	*The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for—*	Construction of the proposed plant will require clearance of land with a footprint more than 1 hectare and less than 20 ha.
Listing Notice 1 (GNR 327): Activity 31	*The decommissioning of existing facilities, structures or infrastructure…*	The relocation of the bulk chemical storage facility will require the decommissioning of the existing plant.
Listing Notice 1 (GNR 327): Activity 60	*The expansion and related operation of facilities or infrastructure for the bulk transportation of dangerous goods—* *(ii) in liquid form, outside an industrial complex or zone, by an increased throughput capacity of 50 cubic metres or more per day;*	The proposed project will require transportation of chemicals considered to be dangerous goods.
Listing Notice 1 (GNR 327): Activity 64	*The expansion of railway lines, stations or shunting yards where there will be an increased development footprint, excluding—*	A railway siding running from the existing railway line running in RBMR will be constructed for the transportation of chemicals to the new plant.
Listing Notice 2 (GNR 325): Activity 4	*The development and related operation of facilities or infrastructure, for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of more than 500 cubic metres.*	The proposed bulk chemical storage facility will have storage capacity of more than 500m^3.
Listing Notice 2 (GNR 325): Activity 7	*The development and related operation of facilities or infrastructure for the bulk transportation of dangerous goods— ii) in liquid form, outside an industrial complex, using pipelines, exceeding 1 000 metres in length, with a throughput capacity of more than 50 cubic metres per day; or*	The plant will require pipelines that will be used to transport chemicals from the bulk chemical storage facility to the RBMR facilities where the chemicals will be used.

8 Stakeholder Engagement Process

The stakeholder engagement process forms an important part of the scoping phase of the project. The stakeholder engagement process is primarily aimed at affording I&AP's the opportunity to gain an understanding of the proposed project. In addition, the purpose of consultation with the landowners, key stakeholders, and I&AP's is to provide them with the necessary information about the proposed project so that they can make informed decisions as to whether the project will affect them, and provide the EIA team with local knowledge of the area and raise concerns relating to the biophysical, socio-economic and cultural impacts that may arise.

The stakeholder engagement process will be conducted in terms of NEMA, which provides clear guidelines for stakeholder engagement during an EIA as summarised in Table 8-1.

Table 8-1: NEMA Stakeholder Guidelines

NEMA Section	Applicability to Stakeholder Engagement
Chapter 1	Outlines the principles of environmental management, several pertaining to public consultation (e.g. Chapter 1, subsections (2), (3), (4) (f), (g), (h), (k), (q) and (r).
Chapter 6	Regulations 39 – 44 of the amended EIA Regulations GNR 326, promulgated on 8 December 2014 and amended on 7 April 2017, specify the minimum requirements for stakeholder engagement in an EIA process conducted under the NEMA.
Section 24J of the NEMA	In 2017, the Minister of Environmental Affairs published, Section 24J of the NEMA in terms of**,** Public Participation Guidelines which guide the Public Participation Process in order to give effect to Section (2)(4)(f), (o) and 24 (1A)(C) of the NEMA.

All the above guidelines have been incorporated into this stakeholder engagement process. The application will be submitted to the DEDECT for authorisation as the competent authority. Identified commenting authorities on this application include:

- DWS – NW Regional Office;
- SAHRA – NW Provincial Department;
- Rustenburg Local Municipality;
- Bojanala Platinum District Municipality; and
- Royal Bafokeng Nation.

The stakeholder engagement plan was submitted to the DEDECT with the application.

8.1 Authority Pre-Application Consultation

A pre-application consultation meeting and site was held with the DEDECT at the RBMR on 11 August 2020. The purpose of the meeting was to:

- Notify the DEDECT of the project and application;
- To discuss and confirm the proposed processes (Section 30 A Emergency situation and EA), including the required specialist studies;

- To discuss the stakeholder engagement process to be followed; and
- To discuss any other DEDECT requirements.

During the Section 30 A emergency situation discussion, the DEDECT indicated that the proposed project does not qualify to be treated as an emergency situation as it did not meet all the criteria in the definition. The Department therefore declined to grant RBMR with permission to commence with construction before the EA has been issued. The DEDECT however indicated that they would be willing to assist in fast tracking the EIA process and shorten timeframes where possible but also emphasized that there would be no guarantees with respect to fast tracking of the process.

A copy of the pre-application authority consultation meeting presentation and attendance register and response from the DEDECT are included in Appendix C 3.

8.2 Stakeholder Identification Interested and Affected Parties

Interested and Affected Parties (I&APs) were identified using the existing database from previous projects, GIS and cadastral information. The affected and adjacent property owners were identified using the surveyor general website, www.deedsweb.gov.za. In addition, registered I&AP's were also sourced from responses to the advertisements, site notices and written notification to I&AP's associated with the project. I&APs will also include the staff working at RBMR who will be notified of the proposed project and EIA process.

The identification, registration, and comments from I&APs will be an on-going activity and the I&APs register will be maintained for the duration of the EIA process, where the details of stakeholders are captured and automatically updated upon communication with the EAP. Please refer to Appendix C 4 for a copy of the I&AP register.

The affected properties are provided in Table 8-2.

Table 8-2: List of Affected Farm and Farm Portions

Farm	Portions	21 Digit Survey General Code
WATERVAL 303 JQ	42	T0JQ00000000030300042

Table 8-3 provides a list of the adjacent properties.

Table 8-3: List of Adjacent Farms and Farm Portions

Farm	Portions	21 Digit Survey General Code
WATERVAL 303 JQ	33/303	T0JQ00000000030300033
	73/303	T0JQ00000000030300073
	74/303	T0JQ00000000030300074
	75/303	T0JQ00000000030300075
	76/303	T0JQ00000000030300076
	67/303	T0JQ00000000030300067
	68/303	T0JQ00000000030300068
	69/303	T0JQ00000000030300069
	70/303	T0JQ00000000030300070
	71/303	T0JQ00000000030300071

A map of the affected and adjacent farm portions and farm portions of the site are illustrated in Figure 8-1.

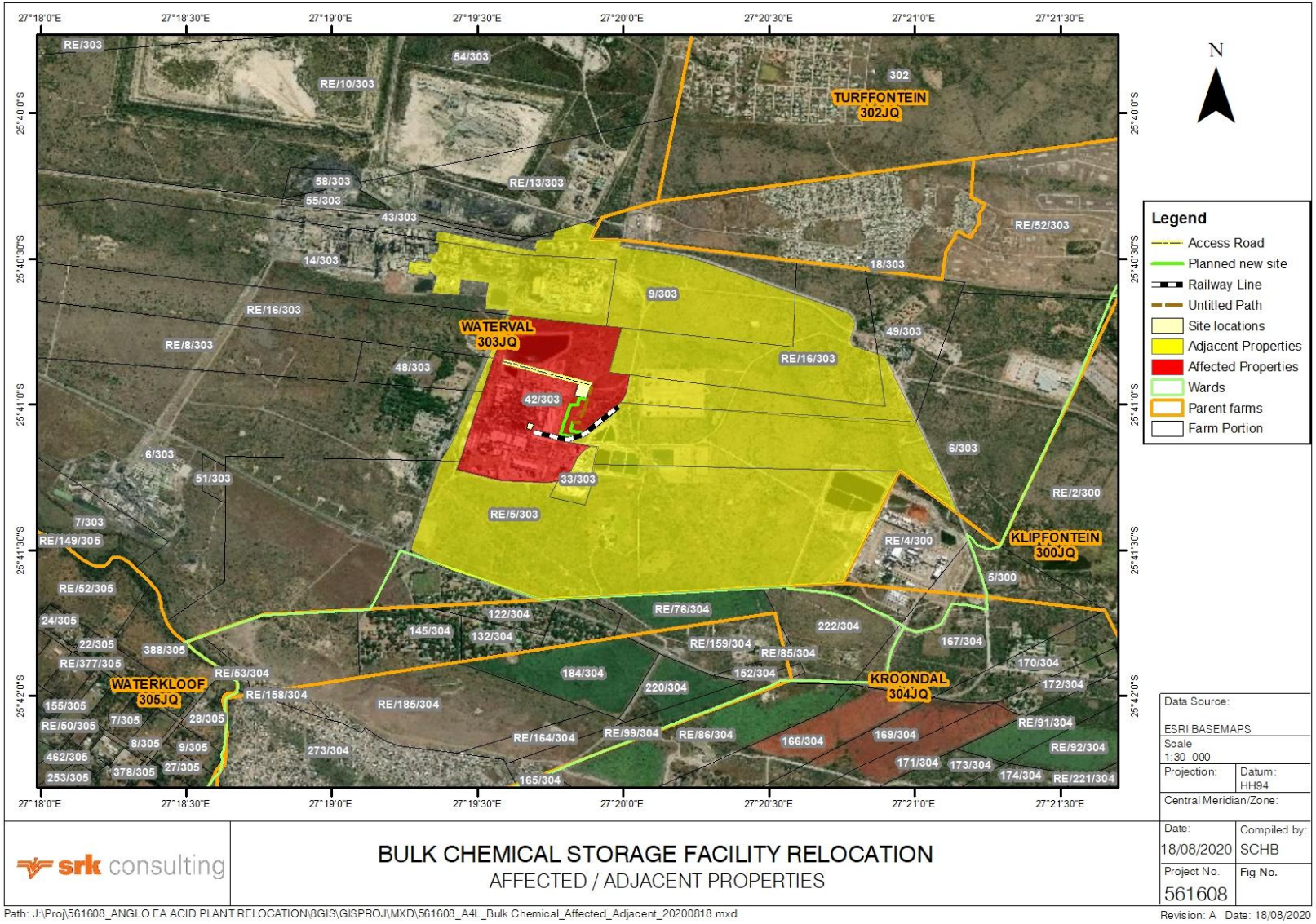


Figure 8-1: Affected and Adjacent Properties

8.3 Project Announcement

Stakeholders were provided with the opportunity to participate and register as I&AP's during the announcement phase of the project. SRK made use of various methods to inform stakeholder of RBMR's intention to undertake the required and environmental processes and EA application.

8.3.1 Distribution of Notification Letters

Notification letters were sent to identified I&AP's on 03 September 2020, informing them of the proposed project. A copy of the notification letter is attached as Appendix C 5.

8.3.2 Site Notice Placements

Sites notice boards (Size A2: 600 mm X 420 mm) notifying stakeholders and I&AP's of the proposed Bulk chemical storage facility were placed at conspicuous places in the project area on 09 September 2020. A copy of the site notices and proof of their placement is provided in Appendix C 6. Table 8-4 provides a list of these site locations.

Table 8-4: Site Notice Location and Coordinates

Site Notice	Location	Coordinates	
		Longitude	Latitude
1	Notice Board at Anglo Canteen Area	27°19'32.01"E	25°41'9.73"S
2	Anglo Big Notice Board	27°19'36.17"E	25°41'9.53"S
3	Cross Road from Anglo to Waterkloof	27°20'8.21"E	25°41'50.97"S
4	Rustenburg Library	27°14'14.10"E	25°40'10.63"S

8.3.3 Newspaper Advertisements

Newspaper advertisements notifying stakeholders about the proposed project and the opportunity to participate in the EIA process were placed in the newspapers listed in Table 8-5 on 11 September 2020 and can be found in Appendix C 6.

Table 8-5: Newspaper Advertisements

Newspaper Advertisements			
Newspaper	**Distribution**	**Languages**	**Date**
Rustenburg Herald	32 000	English and Tswana	11 September 2020

8.4 Public Review of the Draft Scoping Report

The Draft Scoping was compiled in terms of the requirements of GNR 326. All comments received during the announcement phase of the stakeholder engagement process have been incorporated into draft Scoping Report and collated into a Comments and Responses Report (CRR) attached as Appendix C 6 C 7 to this draft Scoping Report. The draft Scoping Report will be made available for a 30-day commenting period from 19 October 2020 to 17 November 2020.

The availability of the draft Scoping Report was announced by means of SMSes, letters and emails to registered I&APs. Copies of the draft Scoping Report will be made available at the venues listed in Table 8-6.

Table 8-6: List of places the Draft Scoping Report will be placed for public review

Public Place	Locality	Telephone
Rustenburg Library	Heystek/Thabo Mbeki Drive, Rustenburg	014 590 3701 plouw@rustenburg.gov.za
SRK	OneDrive	A link will be created and shared with the stakeholders
SRK	Dropbox	A link will be created and shared with the stakeholders
SRK Website	www.srk.co.za	(012) 361 9821

The draft Scoping Report will also made available to the competent and commenting authorities during the 30-day review and comment period.

Depending on the responses received during the registration period, and where requested by the stakeholders, a public meeting may be held during the Scoping Phase of the project, ensuring that the COVID-19 Regulation requirements are met. This would preferably be undertaken through, where possible, online meetings. In cases where stakeholders do not have internet access, the meetings will be held with no more than 50 stakeholders in attendance. Stakeholders will be informed of the COVID-19 Regulation requirements that will be enforced during the meeting.

Where necessary, comments and concerns received from I&AP's, including commenting authorities, will be incorporated and addressed in the Final Scoping Report. All comments and concerns received from I&AP's and responses to those concerns will also be collated into the CRR prior to submission of the Final Scoping Report to the competent authority, who will decide as to whether the EIA Phase can continue.

Once all the comments and concerns have been incorporated into the Final Scoping Report, the EIA team will submit the Final Scoping Report to the DEDECT for decision-making.

8.5 Key Comments Received

Table 8-7 describes the comments received to date following the newspaper advert, site notices, and written notification.

Table 8-7: Key Comments Received

Comment Date	Comment raised by	Comment	SRK Response
Comments on the Initial Phase			
	No comments have been received from stakeholders to date		

8.6 Comments and Response Report

All issues and concerns raised by I&AP's during the Scoping and EIA process, will be recorded and responded to in the Comments and Responses Report (CRR) which will form part of the Final Scoping and EIA Reports. A copy of the current CRR is included as Appendix C 6 C 7.

9 Need and Desirability of the Proposed Project

The environmental right is contained in the Constitution of the Republic of South Africa, Act 108 of 1996 (hereafter referred to as "The Constitution") Section 24 of the Constitution enshrines environmental rights in South Africa, which are interpreted to have a two-fold purpose. The first part guarantees a healthy environment to every person. The second part mandates the State to ensure compliance with the first part. The State is prohibited from infringing on the right to environmental protection and is further required to provide protection against any harmful conduct towards the environment.

The construction and installation of the proposed bulk chemical storage facility will reduce the risk of failure of the current facility which would have environmental, socio-economic as well as health and safety implications.

Various monitoring and preventative measures have been put in place and implemented to avoid any further spills at the current plant, including repairs done around the bund to attempt to contain any further contamination or leaks. These measures are unfortunately not long-term solutions and they will not contain a catastrophic failure or major rain event. The ingress of caustic soda into the substrate under the bunds has led to the supporting soil to [1]heave, causing catastrophic damage to the concrete and steel structures within the existing bunds. The heaving is predicted to continue for the foreseeable future and will increase with the advent of the rainy season and any further leaks, which are highly likely. The caustic ingress has now also compromised all the lining systems, and effluent is seeping out of the bund. Further, the supporting plinths off all the tanks are extremely compromised and their integrity cannot be assured.

With the unpredictable rainfall pattern, RBMR needs to ensure100% integrity of the structures at the plant. The behaviour of the underground soil movements is unpredictable. i.e. when and how much of the heaving is going to continue. The unforeseen and unpredictable nature of the heaving soils within the various bunds, combined with the condition of the steel and concrete structures and walls makes this project a necessity. In addition, the project presents RBMR with an opportunity to construct a new bulk chemical storage facility that will comply with international standards.

Should the application for an EA to construct a new bulk chemical storage facility be rejected, and there is failure at the current plant, the implication is far reaching from both an environmental, socio-economic and plant safety perspective.

9.1 Environmental Implications in case of a failure

Environmentally, a failure of the bund would result in an environmental disaster should the RBMR not be able to contain the runoff from the plant, with potential for the chemicals to ultimately flow into the surrounding environment, contaminating ground and surface water resources and land.

9.2 Health and Safety Implication in case of a failure

Without a competent bund all personnel and the entire BMR operation is at extreme risk both from a safety and operational perspective. RBMR is currently monitoring the situation to ensure a timeous response should a failure occur. However, should a catastrophic failure occur, it may result in multiple fatalities.

Ground **heave** is the upward movement of the ground usually associated with the expansion of **clay** soils which swell when wet. As the soil generally cannot expand downwards or sideways, the result is that the exposed upper surface of the soil rises up[1]

9.3 Socio-Economic Impacts In case of a failure

In a case where there is failure resulting in the discontinuation of caustic or acid, the whole platinum pipeline will be affected, deferring Anglo American Platinum (AAP)'s production for the duration of the stop. This would have economic implications for the whole operation in terms of the interest of the deferred cash as well as on the company's image and reduced market confidence. It is estimated that the financial cost of such failure would be in the order of R 11 billion rand a month in deferred cash (only considering major Platinum Group Metals (PGM) and base metals at current prices), which represents approximately 2% of South Africa's Gross Domestic Product (GDP).

A total failure of the plant would cause serious job and tax revenue loss, making it imperative to ensure that such failure does not occur.

9.4 Needs and Desirability as per Government Regulation Notice 792 of 2012

The needs and desirability assessment of the proposed bulk chemical storage facility as per GNR 792 of 2012 is provided in Table 9-1.

Table 9-1: Need and Desirability Assessment of the Proposed Bulk Chemical Storage Facility

Questions (Notice 792, NEMA, 2012)		Response
PART I: NEED		
1.	Is the land use associated with the activity being applied for considered within the timeframe intended by the existing approved SDF agreed to be the relevant environmental authority?	No. The proposed project will be located on a property owned by the RBMR property and has no bearing on the SDF.
2.	Should the development, or if applicable, expansion of the town/area concerned in terms of this land use occurs here at this point in time?	Yes. Authorising the project will allow RBMR to construct and operate a new plant that meets international standards and will ensure that failure of the current plant and associated impacts is avoided.
3.	Does the community/area need the activity and the associated land use concerned? This refers to the strategic as well as local level.	Yes. Authorising the project will allow RBMR to construct a new bulk chemical storage plant and avoid failure and associated impacts at the current plant.
4.	Are the necessary services with adequate capacity currently available (at the time of application) or must additional capacity be created to cater for the development?	No additional capacity will be required for the project. The bulk chemical storage plant will be constructed by a contractor and operation will be undertaken by current RBMR personnel. It is not envisaged that additional water and power will be required from the providers as a result of the plant.
5.	Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of the services and opportunity cost)?	Not applicable. The objective of the project is to construct and operate a bulk chemical storage facility for RBMR precinct and will have no bearing on the infrastructure planning of the municipality.
6.	Is the project part of a national programme to address an issue of national concern or importance?	The objective of the project is to construct and operate a bulk chemical storage facility at RBMR, which will reduce potential environmental impacts that may be incurred should the project not be authorised in terms of potential failing of the plant which may result in contamination of water

Questions (Notice 792, NEMA, 2012)		Response
		resources should the RBMR not be able to contain the chemicals. The protection of water resources forms part of the National Water Resources Strategy II that was adopted by the Government in 2013. The water resource protection theme emphasises the need to protect our freshwater ecosystems, which are under threat because of pollution from many sources. The NWRS (II) states that South Africa's water ecosystems are not in a healthy state. Of the 223 river ecosystem types, 60% are threatened, with 25% of these critically endangered. Less than 15% of river ecosystems are located within protected areas, many of which are threatened and degraded by upstream human activities.
PART II: DESIRABILITY		
7.	Is the development the best practicable environmental option for this land/site?	Yes. Authorising the construction of the bulk chemical storage facility will result in a reduction in potential environmental impacts that may be incurred should the proposed project not be authorised, and the current plant fails. Failure of the current plant has potential to contaminate water resources and land. The biodiversity and heritage resources assessment undertaken found no fatal flaws associated with the site, with no species of conservation concern and heritage resources on the site.
8.	Would the approval of this application compromise the integrity of the existing approved and credible IDP and SDF as agreed to by the relevant authorities?	No. The project has no bearing on the IDP or SDF of the Rustenburg LM, Bojanala DM and/or North West Province. The objective of the project is to construct and operate a bulk chemical storage plant which will reduce the risk of failure of the current plant.
9.	Would the approval of this application compromise the integrity of the existing environmental management priorities for the area (e.g. as defined in EMFs), and if so, can it be justified in terms of sustainability considerations?	No. The project will be located on the RBMR property and will have no implications on the integrity of the EMFs.
10.	Do location factors favour this land use at this place? (this relates to the contextualization of the proposed land use on this site within its broader context).	Yes. The proposed site is not earmarked for any particular municipal landuse. The proposed bulk chemical storage facility will be located on the RBMR property, just outside the current RBMR boundary, which will allow the RBMR to integrate the plant with the rest of the plant whilst: • Reducing the vehicle - pedestrian interaction by reducing number of acid offloading trucks; • Eliminating rail deliveries traffic within the RBMR facility; and • Reducing congestion at RBMR entrance Gates and Weighbridge.

Questions (Notice 792, NEMA, 2012)		Response
		The RBMR will ensure mitigation of significant impacts that may occur as a result of the project.
11.	How will the activity of the land use associated with the activity being applied for, impact on sensitive natural and cultural areas (built and rural/natural environment)?	The biodiversity and heritage specialist studies found no sensitive natural and cultural areas located on the proposed project site. The wetlands assessment conducted for RBMR also found that there are no wetlands associated with the proposed project.
12.	How will the development impact on people's health and well-being? (E.g. In terms of noise, odours, visual character and sense of place, etc.)?	During construction, there will be particulate emissions (dust) related to debris handling, materials transportation, storage, handling and transfer; open areas (windblown emissions). Gas emissions are also expected to occur due to vehicle and construction equipment activity (exhaust fumes). These impacts, however, taking into consideration, the area where the proposed bulk chemical storage facility will be located, are expected to be of low significance and can be mitigated and managed to acceptable levels, with a post mitigation impact that is negligible. Movement of construction vehicles and machinery result in the production of construction related noise which may cause a nuisance to people working and living in the vicinity of the RBMR. However, the implementation of appropriate mitigation measures would reduce the noise levels to remain within applicable and acceptable SANS levels (SANS 10103:2008). Occupational health and safety standards will apply. It is expected that the project will not have an impact on the visual character and sense of place, especially since the bulk chemical storage facility will be located in close proximity to the RBMR plant.
13.	Will the proposed activity or the land use associated with the activity being applied for, result in unacceptable opportunity costs?	No. The objective of the project is to construct and operate an bulk chemical storage facility, which will result in a reduction in potential environmental impacts that may be incurred should the plant not be authorised in terms of potential failure of the plant which would result in contamination of land and on water resources.

Questions (Notice 792, NEMA, 2012)		Response
		The property affected by the proposed facility is owned by the RBMR and is currently no earmarked for other use.
14.	Will the proposed land use result in unacceptable cumulative impacts?	No. It is expected that the project may result in negligible cumulative impacts on water and air quality. The impacts will be short lived, during the construction phase. It is however expected that implementation of the mitigation measures included in the EMPr will reduce the significance of the impact.

10 Description of the Baseline Environment

The following section presents an overview of the biophysical and socio-economic environment in which the proposed project is located, so as to:

- Understand the general sensitivity of and pressures on the affected environment;
- Inform the identification of potential issues and impacts associated with the proposed project, which was assessed during the Impact Assessment Phase;
- Identify gaps in available information to inform specialist study requirements; and
- Start conceptualising practical mitigation measures.

This section has been compiled, based on the following:

- Available information from the existing specialist studies and monitoring reports. The specialist reports are attached as Appendix D;
- Existing information on the environmental parameters of the area;
- Agricultural GIS;
- SANBI; and
- South African Weather Service.

10.1 Climate

Rustenburg falls within the Summer Rainfall Climatic Zone. The area is characteristically warm with erratic and variable rainfall, ranging from 450 to 750 mm per annum. The rainfall in the area is almost exclusively due to thunderstorms that occur during the summer months (October to March); whilst winter months are normally dry. Temperatures vary between the extremes of – 6.0°C and 40°C, with an average of 19°C. The region is classed under the calm category whereby wind speeds are relatively low, with between 19 and 24 days of frost per year. The area is fog- free and hailstorms are a rare occurrence.

The mean circulation of the atmosphere is predominantly anti-cyclonic throughout the year, except near the surface where meso-scale circulations prevail. Fine conditions and light variable winds with a northerly component occur over the region. Elevated inversions, which occur as a result of the anti-cyclonic subsidence, suppress the diffusion and vertical dispersion of pollutants by reducing the depth of the mixing layer.

Seasonal variations in the position and the intensity of the high-pressure cells determine the extent to which the tropical easterly circulation and the circumpolar westerlies are able to impact on the atmosphere over the region. The tropical easterlies, and the occurrence of easterly waves and lows, affect the region throughout the year resulting in airflow with a north-easterly to north- westerly component, but their influence is generally weaker during the winter months.

The winter weather is dominated by perturbations in the westerly circulation as a result of the succession of cold fronts moving over the region. The passage of a cold front is characterised by pronounced variations in wind direction, wind speed, temperature, humidity and surface pressure. Airflow ahead of the cold front has a distinct north north-westerly to north-easterly component.

Following the cold front, the northerly wind is replaced by winds with a distinct southerly component.

During the summer months, the anti-cyclonic belt weakens and shifts southwards, allowing the tropical easterly flow to resume its influence over the region. The predominant wind is from the south west with greater variation during summer months (Figure 10-1) (Anglo, 2016).

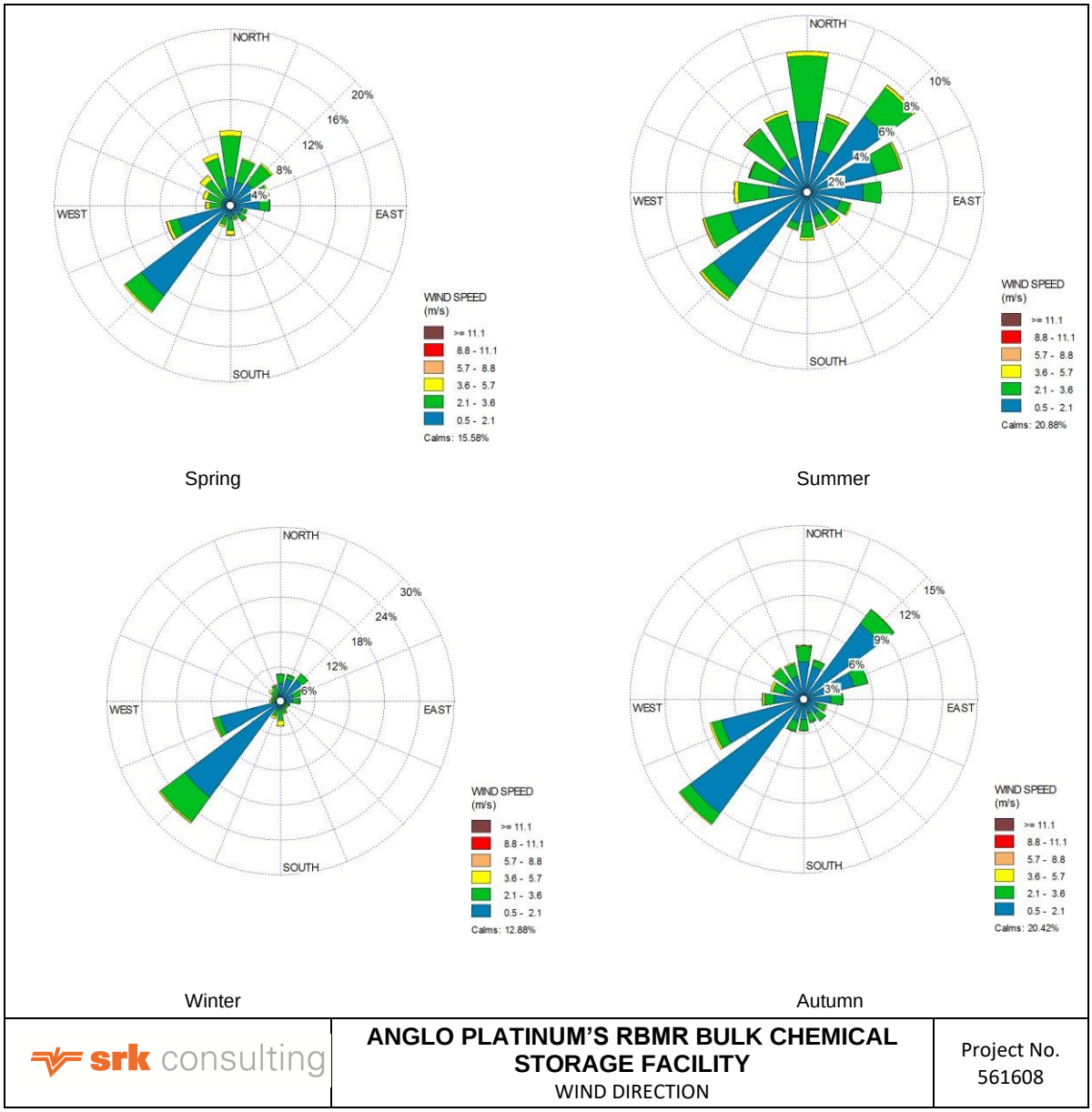


Figure 10-1: Wind Roses for the project area

10.2 Topography

The region of Rustenburg Local Municipality comprises of escarpment hills and lowlands with parallel hills, plains, slightly undulating plains and undulating hills. A large series of ridges and koppies are situated mostly in the central parts, with various mountain ranges and ridges making up the most prominent topography of the area of Bafokeng. The area is mostly dominated by flat undulating slope ranging from 0 to 9%. However, the central part of the area is characterised by elevated slope ranging from 9 to 15% covering the MPE and Kgaswane Mountain Reserve. Some patches of the medium elevated slope ranging between 15 to 25% are also found in the central part. The elevation is an average of 1 180 Meters Above Mean Sea Level (mamsl) (Anglo, 2016).

The study area consists of wide-stretched, flat to gently sloping foot slopes (with a 1 - 4% gradient) sloping to the drainage lines (watercourses) which eventually feed the Boskop Dam in the north. The Hex River is the main drainage line cutting south-north through the area while minor non-perennial drainage lines occur throughout the area. A rocky ridge, stretching south north, occurs to the east of the site, with slopes varying from moderate to steep (Anglo, 2016).

The RBMR is located in an area with an elevation of between approximately 1 140 mamsl and 1 180 mamsl as shown in Figure 10-2.

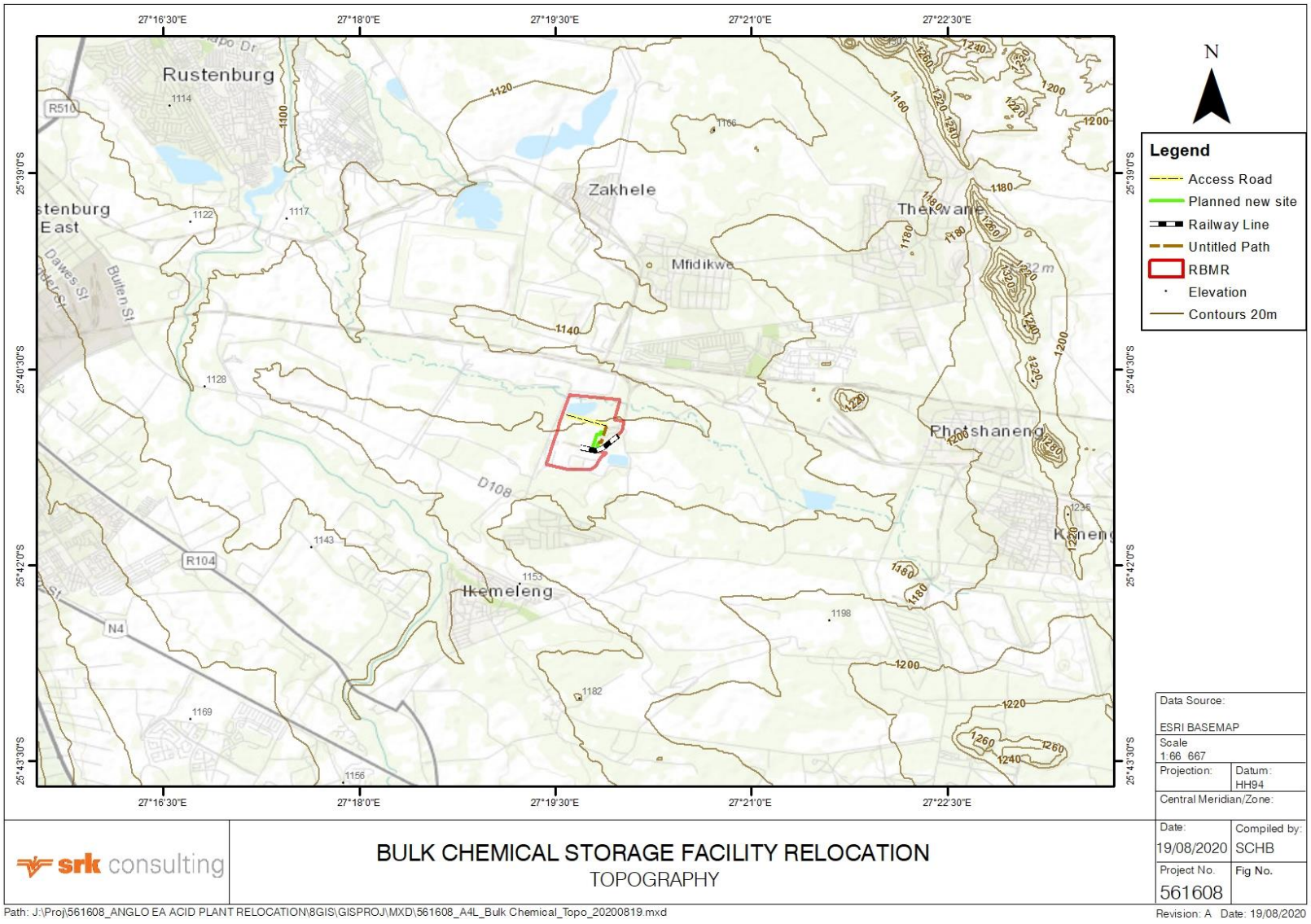


Figure 10-2: Topography

10.3 Geology

The project area is located within one of the largest layered mafic intrusions in the world, namely the Bushveld Igneous Complex. The Bushveld Igneous Complex system is divided into an eastern and western limb with a further northern extension. It contains some of the richest ore deposits on Earth.

The Bushveld Igneous Complex is extensive in size, covering an area of 65 000 km^2; stretching approximately 350 km east to west and 250 km north to south. It is roughly saucer-shaped with the edges dipping inwards towards the centre. At the rim of the 'saucer', pyroxenites, norites, gabbros and chromitites are found inter-layered in a variety of combinations ((Anglo, 2016).

The Bushveld Igneous Complex comprises a suite of layered ultramafic/mafic rock, up to nine (9) km thick (known as the Rustenburg Layered Suite), roofed by Rooiberg Group Felsic volcanics and granophyres and a suite of late Bushveld granites. This layered suite is preserved in five (5) lobes: the far western, western, eastern and northern, and the south-eastern lobe. According to Cawthorne et al 1999, the Rustenburg Layered Suite, which ranges in composition from dunite to ferro diorite, is subdivided into five (5) composite zones as provided in Figure 10-3.

Marginal Zone (this is not always present, comprises up to 880m of heterogeneous noritic rocks along the basal contact of the Bushveld Igneous Complex);

- Lower Zone (this comprises of dunnites, harzburgites and pyroxenites);
- Critical Zone (this is characterised by spectacular layering and hosts world-class chromite and platinum deposits in several reefs);
- Main Zone (this is the thickest zone, comprising of a succession of gabbronorites in which olivine and chromite are absent and anorthosites are rare); and
- Upper Zone (this is 200m thick and is characterised by lithologies of Anorthosite, tractolite and ferro gabbro to diorite).

Unique to the Bushveld Igneous Complex is the presence of two (2) stratiform deposits, known as the Merensky reef and the UG2 reef, that can be traced for hundreds of kilometres along the rim of the deposits and contain economically exploitable quantities of PGMs. The Bushveld Igneous Complex remains Anglo American Platinum's primary source of reserves and resources (RDNW(KL) 6/2/2/195(4), 2009).

PGE's are recovered from the tabular Merensky reef that is present along the entire strike length of the South Eastern parts of the Bushveld Igneous Complex. The UG2 (present only in certain pockets along the South Eastern limb) also contains economic quantities of PGE's. The Merensky reef is the predominant ore body, but the UG2 reef is also mined in certain pockets (Anglo, 2016).

The project area is characterised by Gabbro and norite, with interlayered anorthosite (Figure 10-3)

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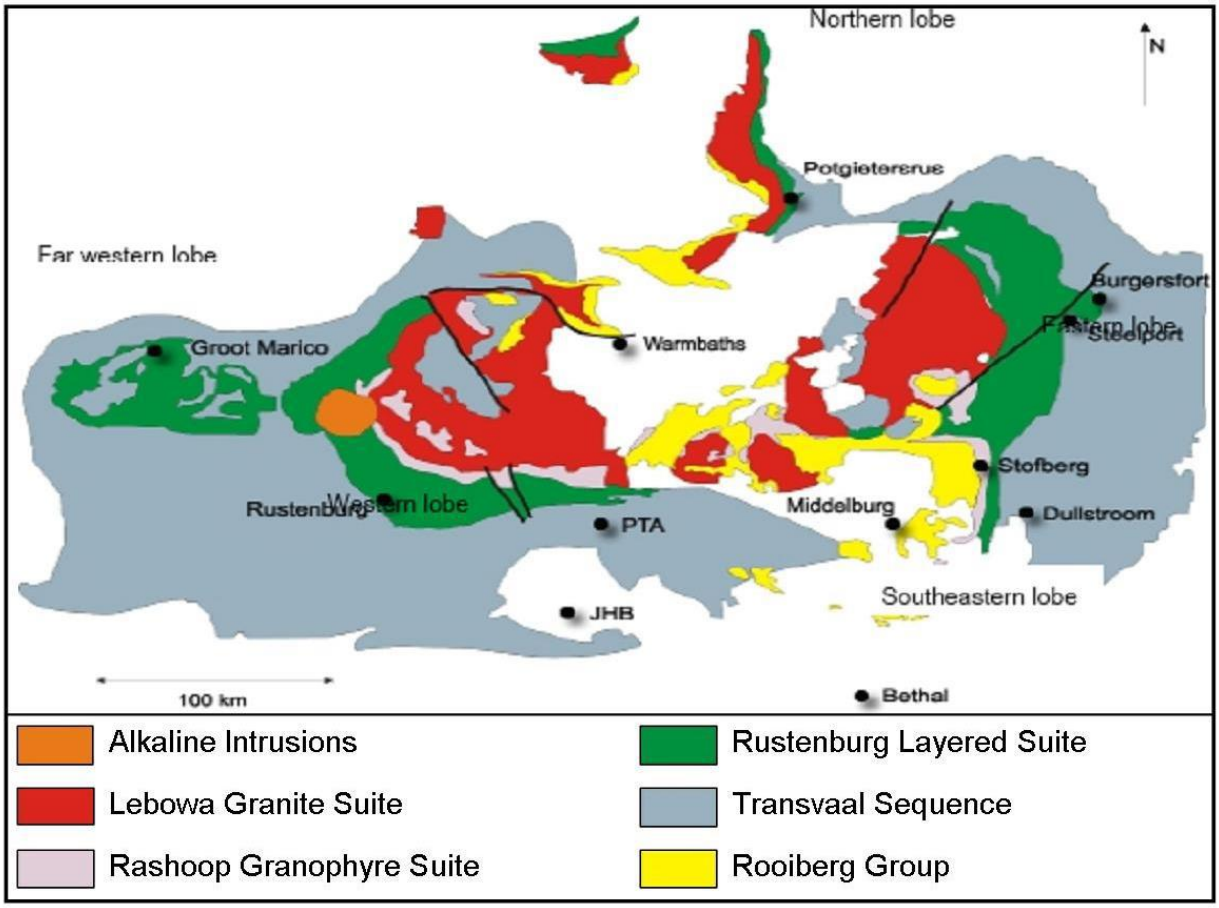

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Figure 10-3: General Geology

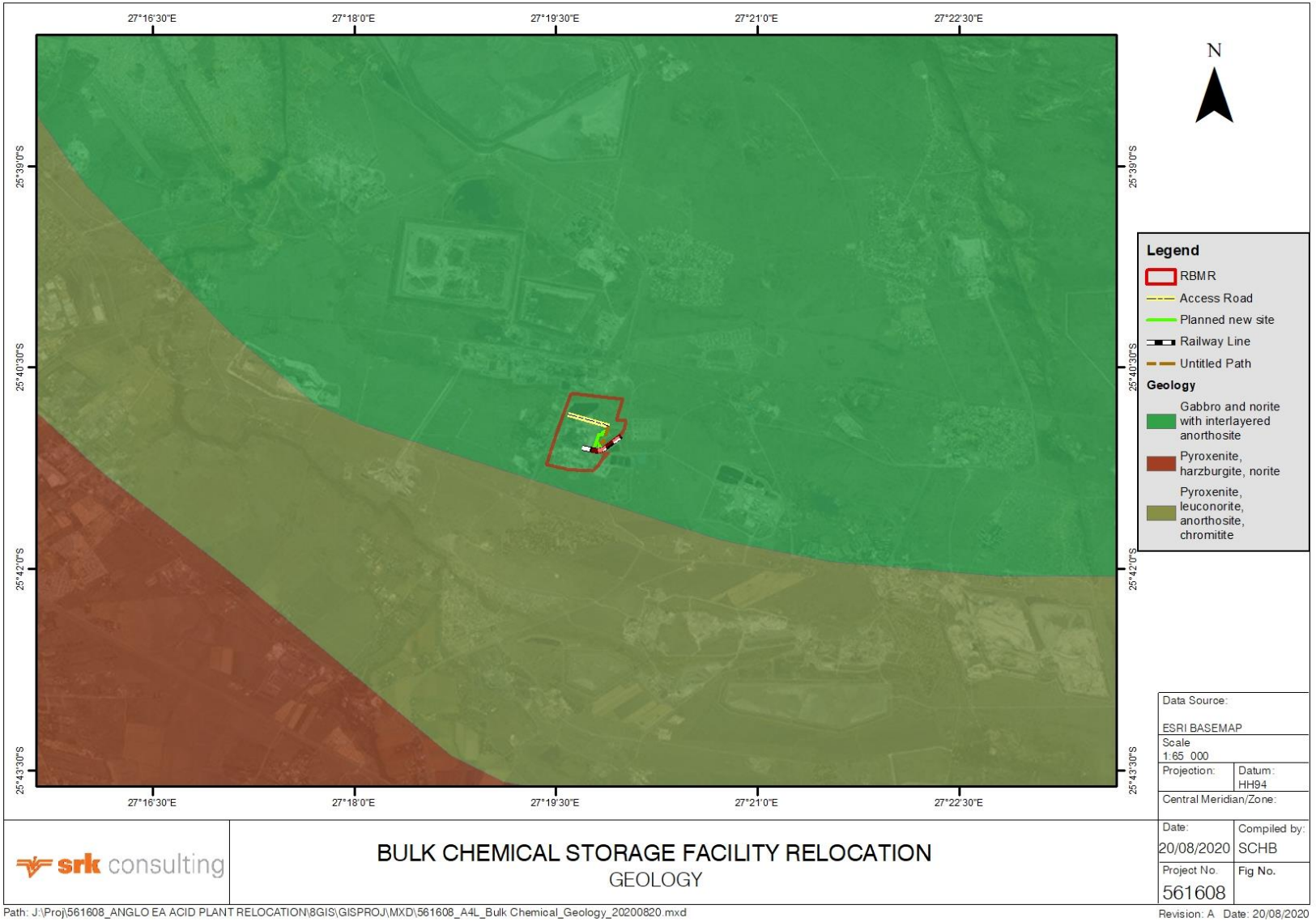


Figure 10-4: RBMR Geology

10.4 Soils and Land-Use and Land capability

The soils of the region are derived from norite which is a mafic rock, rich in basic cations. Generally, the soils are deep, dark brown to black, clayey and have a very coarse blocky or prismatic structure with distinctive slickened sides. Calcium carbonate nodules are abundant throughout the soil profile and on the soil surface. Soils in the wetter areas (along the riverbanks etc.) are generally underlain by gleyed material while soils in the drier regions are abruptly underlain by norite. The dominant soil forms in the region are Arcadia and Rensburg. Shallower soils occur between rocky outcrops. These soils show less structure and are better described by the Milkwood form which comprises of the Melanic A (dark, well-structured A) horizon directly overlying unweathered rock.

A study conducted by Clean Stream Environmental Services in 2015 identified a total of 5 soil units; Ar1, Ar2, Ar/R, Hu and R. The soils are classified as moderate to deep clayey loam soils.

The net primary agriculture production is classified as low (4-6%) (Figure 10-5). The area covered by Rustenburg Section is predominantly used for subsistence farming, in the form of ad hoc grazing of the livestock from many of the formal and informal settlements in the area. The remaining land uses consist of mining, residential and to a limited extent, conservation. It must however be noted that the land has already been changed as a result of the construction of the existing RBMR plant. The area where the Bulk chemical storage facility will be located in characterised by plant infrastructure, concrete paving and tarred roads.

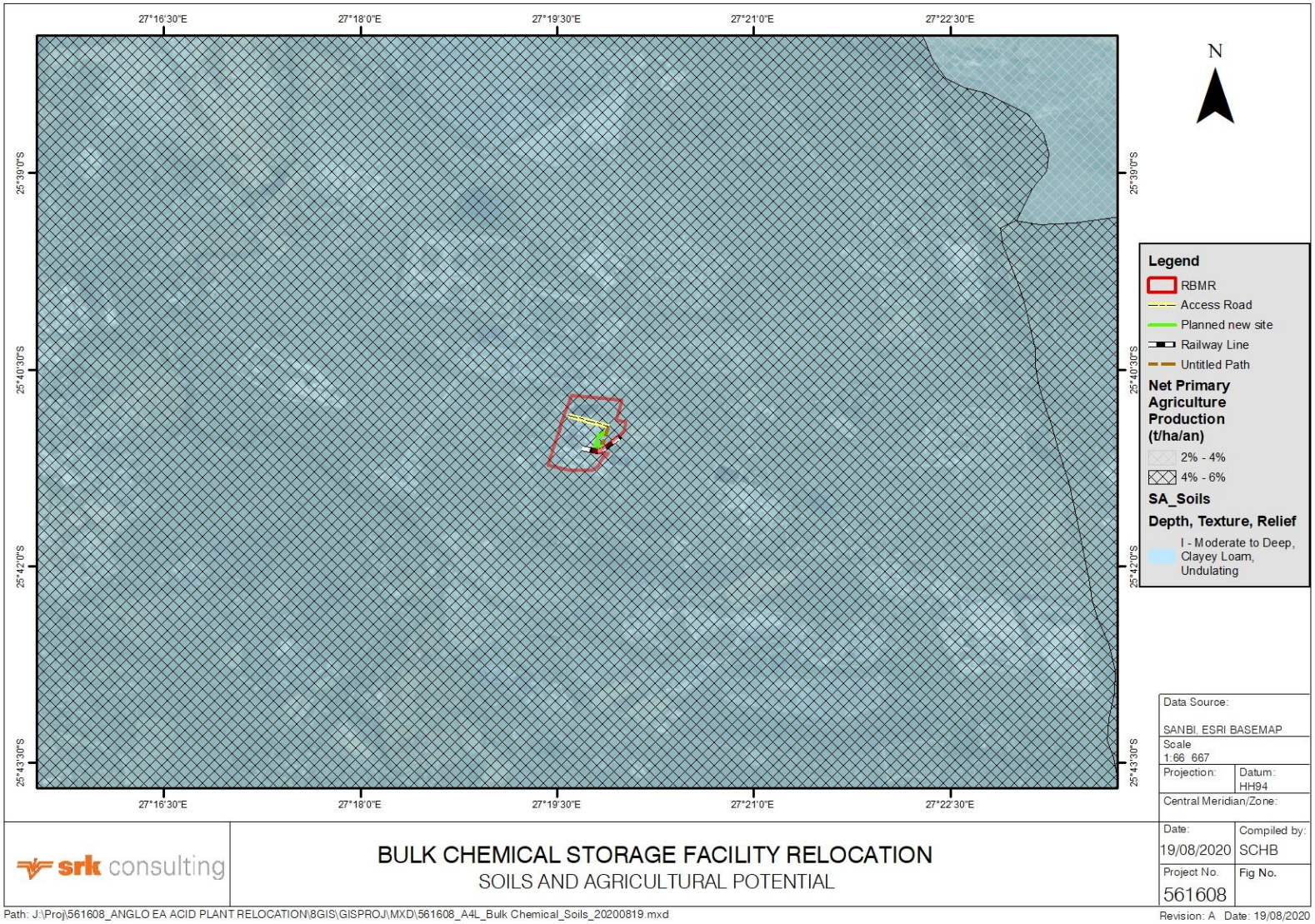


Figure 10-5: Soils

10.5 Air Quality

10.5.1 Stack Emissions

The RBMR conducts annual stack emission monitoring to establish compliance with the National Environmental Management: Air Quality Act (Act No. 39 of 2004) (NEM: AQA). The results from the latest available monitoring report are provided in Table 10-1.

Table 10-1: Boiler Stack; Stack Conditions and Isokinetic Particulate Emissions (C&M, 2019)

Description	Unit	Test 1	Test 2	Test 3	Average
Date	-	23/07/2019		24/07/2019	-
Test Start Time	-	10h17	13h57	10h19	-
Test Duration	min	60	60	60	60
Barometric Pressure	kPa	88.90	88.50	88.40	88.60
Duct Static Pressure (Gauge)	kPag	0.0785	0.0785	0.0785	0.0785
Gas Temperature (Average)	°C	41	42	42	41
Gas Velocity	$m.s^{-1}$	7.8	7.7	7.4	7.6
Stack Diameter	m	2.25			
Volumetric Flow Rate (Actual)	$m^3.h^{-1}$	111 000	110 000	106 000	109 000
Volumetric Flow Rate (NTP, wet)	$Nm^3.h^{-1}$	84 800	83 500	80 100	82 800
Volumetric Flow Rate (NTP, dry)	$Nm^3.h^{-1}$	80 200	79 700	74 600	78 200
Particulate Concentration (Actual)	$mg.m^{-3}$	45.1	9.1	BDL	18.1
Particulate Concentration (NTP, wet)	$mg.Nm^{-3}$	59.0	12.0	BDL	23.7
Particulate Concentration (NTP, dry)	$mg.Nm^{-3}$	62.3	12.6	BDL	25.0
Particulate Concentration (NTP, dry, 10% O_2 corrected)	$mg.Nm^{-3}$	120	22.8	BDL	47.7
Particulate Emission Rate	$kg.h^{-1}$	5.0	1.0	BDL	2.0
Water Concentration	% (V/V)	5.4	4.5	6.82	5.57
Total Isokinetic Volume Sampled (NTP, wet)	Nm^3	0.92	0.79	0.81	0.84
Total Isokinetic Volume Sampled (NTP, dry)	Nm^3	0.87	0.75	0.76	0.79
Isokinetic Efficiency	%	110	97.7	104	104

Table 10-2: Boiler Stack; Summary of Combustion Gas Analyser Components per Test (C&M, 2019)

Component	**O_2**	**CO**	**NO**	**NO_2**	**NOx**	**SO_2**
Unit	**%**	**mg.Nm^{-3} (NTP, dry, 10% O_2 corrected)**				
Test 1 on 23/07/2019						
Average	15.3	463	400	18.6	632	4.3
Minimum	14.7	BDL	227	BDL	349	BDL
Maximum	19.5	1020	470	27.7	749	66.1
Median	15.0	480	408	19.8	646	BDL
Test 2 on 23/07/2019						
Average	14.9	407	409	32.4	660	BDL
Minimum	13.2	159	255	18.6	410	BDL
Maximum	17.5	904	524	41.0	845	BDL
Median	14.9	379	401	33.5	648	BDL
Test 3 on 24/07/2019						
Average	14.8	214	366	39.2	601	BDL
Minimum	14.2	144	328	36.5	540	BDL
Maximum	15.9	286	390	43.8	642	BDL
Median	14.6	220	366	40.1	602	BDL

Table 10-3: Cu Tank House Stack; Stack Conditions and Isokinetic Particulate Emissions (C&M, 2019)

Description	**Unit**	**Test 1**	**Test 2**	**Test 3**	**Average**
Date	**-**	**25/07/2019**			
Test Start Time	**-**	**10h02**	**11h27**	**12h41**	**-**
Test Duration	**min**	**60**	**60**	**60**	**60**
Barometric Pressure	kPa	89.70	89.70	89.70	89.70
Duct Static Pressure (Gauge)	kPag	-0.04511	-0.04119	-0.03138	-0.03923
Gas Temperature (Average)	°C	25	29	31	28
Gas Velocity	m.s^{-1}	6.4	6.3	6.4	6.4
Stack Diameter	m	1.35			

Description	Unit	Test 1	Test 2	Test 3	Average
Date	**-**	**25/07/2019**			
Test Start Time	**-**	**10h02**	**11h27**	**12h41**	**-**
Test Duration	**min**	**60**	**60**	**60**	**60**
Volumetric Flow Rate (Actual)	$m^3.h^{-1}$	32 900	32 700	32 700	32 800
Volumetric Flow Rate (NTP, wet)	$Nm^3.h^{-1}$	26 700	26 100	26 000	26 300
Volumetric Flow Rate (NTP, dry)	$Nm^3.h^{-1}$	26 300	25 700	25 600	25 900
Particulate Concentration (Actual)	$mg.m^{-3}$	BDL	BDL	BDL	BDL
Particulate Concentration (NTP, wet)	$mg.Nm^{-3}$	BDL	BDL	BDL	BDL
Particulate Concentration (NTP, dry)	$mg.Nm^{-3}$	BDL	BDL	BDL	BDL
Particulate Emission Rate	$kg.h^{-1}$	BDL	BDL	BDL	BDL
Water Concentration	% (V/V)	1.4	1.4	1.5	1.4
Total Isokinetic Volume Sampled (NTP, wet)	Nm^3	0.76	0.76	0.71	0.74
Total Isokinetic Volume Sampled (NTP, dry)	Nm^3	0.75	0.75	0.70	0.73
Isokinetic Efficiency	%	91.3	99.8	93.1	94.7

Table 10-4: Cu Tank House Stack; Summary of Combustion Gas Analyser Components per Test (C&M, 2019)

Component	O_2	CO	NO	NO_2	NOx	SO_2
Unit	**%**	**$mg.Nm^{-3}$ (NTP, dry)**				
Test 1 on 25/07/2019						
Average	21	BDL	0.20	0.063	0.38	BDL
Minimum	20.8	BDL	BDL	BDL	BDL	BDL
Maximum	21	BDL	1.3	2.1	4.1	BDL
Median	21	BDL	BDL	BDL	BDL	BDL
Test 2 on 25/07/2019						
Average	21	BDL	0.055	0.070	0.16	BDL
Minimum	20.6	BDL	BDL	BDL	BDL	BDL
Maximum	21	BDL	6.7	2.1	12.3	BDL

Component	**O_2**	**CO**	**NO**	**NO_2**	**NOx**	**SO_2**
Unit	**%**	**mg.Nm^{-3} (NTP, dry)**				
Median	21	BDL	BDL	BDL	BDL	BDL
Test 3 on 25/07/2019						
Average	20.9	BDL	0.12	BDL	0.18	BDL
Minimum	20.7	BDL	BDL	BDL	BDL	BDL
Maximum	21	BDL	1.3	BDL	2.1	BDL
Median	20.9	BDL	BDL	BDL	BDL	BDL

Table 10-5: Cu Tank House Stack; Stack Conditions and Isokinetic Particulate Emissions (C&M, 2019)

Description	**Unit**	**Test 1**	**Test 2**	**Test 3**	**Average**
Date	**-**	**25/07/2019**			
Test Start Time	**-**	**10h02**	**11h27**	**12h41**	**-**
Test Duration	**min**	**60**	**60**	**60**	**60**
Barometric Pressure	kPa	89.70	89.70	89.70	89.70
Duct Static Pressure (Gauge)	kPag	-0.04511	-0.04119	-0.03138	-0.03923
Gas Temperature (Average)	°C	25	29	31	28
Gas Velocity	m.s^{-1}	6.4	6.3	6.4	6.4
Stack Diameter	m	1.35			
Volumetric Flow Rate (Actual)	m^3.h^{-1}	32 900	32 700	32 700	32 800
Volumetric Flow Rate (NTP, wet)	Nm^3.h^{-1}	26 700	26 100	26 000	26 300
Volumetric Flow Rate (NTP, dry)	Nm^3.h^{-1}	26 300	25 700	25 600	25 900
Particulate Concentration (Actual)	mg.m^{-3}	BDL	BDL	BDL	BDL
Particulate Concentration (NTP, wet)	mg.Nm^{-3}	BDL	BDL	BDL	BDL
Particulate Concentration (NTP, dry)	mg.Nm^{-3}	BDL	BDL	BDL	BDL
Particulate Emission Rate	kg.h^{-1}	BDL	BDL	BDL	BDL
Water Concentration	% (V/V)	1.4	1.4	1.5	1.4
Total Isokinetic Volume Sampled (NTP, wet)	Nm^3	0.76	0.76	0.71	0.74

Description	Unit	Test 1	Test 2	Test 3	Average
Date	**-**	**25/07/2019**			
Test Start Time	**-**	**10h02**	**11h27**	**12h41**	**-**
Test Duration	**min**	**60**	**60**	**60**	**60**
Total Isokinetic Volume Sampled (NTP, dry)	Nm^3	0.75	0.75	0.70	0.73
Isokinetic Efficiency	%	91.3	99.8	93.1	94.7

Table 10-6: Cu Tank House Stack; Summary of Combustion Gas Analyser Components per Test (C&M, 2019)

Component	O_2	CO	NO	NO_2	NOx	SO_2
Unit	**%**	**mg.Nm^{-3} (NTP, dry)**				
Test 1 on 25/07/2019						
Average	21	BDL	0.20	0.063	0.38	BDL
Minimum	20.8	BDL	BDL	BDL	BDL	BDL
Maximum	21	BDL	1.3	2.1	4.1	BDL
Median	21	BDL	BDL	BDL	BDL	BDL
Test 2 on 25/07/2019						
Average	21	BDL	0.055	0.070	0.16	BDL
Minimum	20.6	BDL	BDL	BDL	BDL	BDL
Maximum	21	BDL	6.7	2.1	12.3	BDL
Median	21	BDL	BDL	BDL	BDL	BDL
Test 3 on 25/07/2019						
Average	20.9	BDL	0.12	BDL	0.18	BDL
Minimum	20.7	BDL	BDL	BDL	BDL	BDL
Maximum	21	BDL	1.3	BDL	2.1	BDL
Median	20.9	BDL	BDL	BDL	BDL	BDL

Table 10-7: Ni Tank House Stack; Stack Conditions and Isokinetic Particulate Emissions (C&M, 2019)

Description	Unit	Test 1	Test 2	Test 3	Average
Date	**-**	**29/07/2019**			
Test Start Time	**-**	**09h50**	**11h05**	**12h17**	**-**
Test Duration	**min**	**60**	**60**	**60**	**60**
Barometric Pressure	kPa	89.40	89.30	89.20	89.30
Duct Static Pressure (Gauge)	kPag	-0.05295	-0.03432	-0.03138	-0.03955
Gas Temperature (Average)	°C	30	32	35	32
Gas Velocity	$m.s^{-1}$	12.3	11.8	11.2	11.8
Stack Diameter	m	1.17			
Volumetric Flow Rate (Actual)	$m^3.h^{-1}$	47 700	45 700	43 400	45 600
Volumetric Flow Rate (NTP, wet)	$Nm^3.h^{-1}$	37 900	36 100	33 800	35 900
Volumetric Flow Rate (NTP, dry)	$Nm^3.h^{-1}$	36 800	34 500	32 300	34 600
Particulate Concentration (Actual)	$mg.m^{-3}$	24.3	10.8	BDL	10.6
Particulate Concentration (NTP, wet)	$mg.Nm^{-3}$	30.6	13.6	BDL	13.4
Particulate Concentration (NTP, dry)	$mg.Nm^{-3}$	31.5	14.3	BDL	13.8
Particulate Emission Rate	$kg.h^{-1}$	1.2	0.49	BDL	0.51
Water Concentration	% (V/V)	2.9	4.4	4.5	3.9
Total Isokinetic Volume Sampled (NTP, wet)	Nm^3	1.0	0.99	0.93	0.97
Total Isokinetic Volume Sampled (NTP, dry)	Nm^3	0.97	0.94	0.89	0.94
Isokinetic Efficiency	%	101	104	104	103

Table 10-8: Ni Tank House Stack; Summary of Combustion Gas Analyser Components per Test (C&M, 2019)

Component	**O_2**	**CO**	**NO**	**NO_2**	**NOx**	**SO_2**
Unit	**%**	**mg. Nm^{-3} (NTP, dry)**				
Test 1 on 29/07/2019						
Average	21	0.86	2.3	BDL	3.5	BDL
Minimum	20.1	BDL	1.3	BDL	2.1	BDL
Maximum	21	1.3	2.7	BDL	4.1	BDL
Median	21	1.3	2.7	BDL	4.1	BDL
Test 2 on 29/07/2019						
Average	21	0.64	6.7	BDL	10.2	BDL
Minimum	21	BDL	2.7	BDL	4.1	BDL
Maximum	21	1.3	9.4	BDL	14.4	BDL
Median	21	1.3	9.4	BDL	14.4	BDL
Test 3 on 29/07/2019						
Average	21	1.1	11.9	BDL	18.2	BDL
Minimum	21	BDL	9.4	BDL	14.4	BDL
Maximum	21	1.3	13.4	BDL	20.5	BDL
Median	21	1.3	12.1	BDL	18.5	BDL

Table 10-9: Wet Chemical Method; Oxides of Nitrogen Components per Test (C&M, 2019)

ID	Test Number	Test Start Time	Test Duration (min)	NOx as NO_2
				mg.Nm^{-3} (NTP, dry)
Boiler Stack (23&24/07/2019)	1	10h16	60	160
	2	13h52	60	182
	3	15h17	60	93.3
	Average Concentration			145
	Average Emission Rate (kg.hr^{-1})			11.3
Cu Tank House Stack (26/07/2019	1	08h45	60	2.1
	2	09h53	60	4.6
	3	11h00	60	9.8
	Average Concentration			5.5
	Average Emission Rate (kg.hr^{-1})			0.14
Ni Tank House Stack (30/07/2019)	1	08h50	60	8.7
	2	10h02	60	6.3
	3	11h12	60	12.8
	Average Concentration			9.3
	Average Emission Rate (kg.hr^{-1})			0.32

Table 10-10: Wet Chemical Method; Oxides of Sulphur Gas Components per Test (C&M, 2019)

ID	Test Number	Test Start Time	Test Duration (min)	SO_2	SO_3
				M6	
	mg.Nm^{-3} (NTP, dry)				
Boiler Stack (23&24/07/2019)	1	10h16	60	3.3	10.2
	2	13h52	60	1.4	79.2
	3	15h17	60	1.8	9.0
	Average Concentration			2.2	32.8
	Average Emission Rate (kg.hr^{-1})			0.17	2.6
Cu Tank House (25/07/2019)	1	10h23	60	1.2	0.55
	2	11h31	60	8.9	0.52

ID	Test Number	Test Start Time	Test Duration (min)	SO_2	SO_3
				M6	
	mg.Nm^{-3} (NTP, dry)				
	3	12h40	60	6.3	0.086
	Average Concentration			5.5	0.39
	Average Emission Rate (kg.hr^{-1})			0.14	0.01
Ni Tank House (29/07/2019)	1	09h35	60	0.86	1.5
	2	10h44	60	0.94	424
	3	11h55	60	0.48	188
	Average Concentration			0.76	205
	Average Emission Rate (kg.hr^{-1})			0.026	7.1

The results show that at the time when the sampling was conducted, emissions from the RBMR were complying with the r emission standards identified in terms of Section 21 of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) as gazetted on 22 November 2013 in Government Notice Number 37054 (Listed Activities):

This is notwithstanding whether the two boilers are exempted from the emission standards as a small boiler is defined by Government Notice Number 36973 as: “any small boiler with a design capacity equal to 10 MW but less than 50 MW net heat input per unit, based on the lower calorific value used.”

According to the report, RBMR is complying with all the controlled emission pollutants. It not expected that the proposed Bulk chemical storage facility will result in any material changes to the emissions at RBMR.

10.5.2 Ambient Air Monitoring

The Rustenburg Local Municipality has three ambient Air Monitoring stations that monitors the levels of priority pollutants. The three Air Monitoring stations are situated at Boitekong Library, Reatile Educational Centre at Tlhabane and Marikana at Regional Community Centre. The following pollutants and meteorological parameters are monitored on a continuous basis:

- Pollutants: Sulphur dioxide (SO_2), Nitric oxide (NO), Nitrogen dioxide (NO_2), Nitrogen oxides (NO_x), Carbon monoxide (CO), Ozone (O_3), Particulate matter (PM_{10}) and Particulate matter ($PM_{2.5}$); and
- Meteorological parameters: Wind speed and direction, ambient temperature, relative humidity, atmospheric pressure and global radiation (Rusteburg LM, 2019/2020).

The results from the sampling show that generally there is an improvement in the ambient air in the Rustenburg Local Municipality due to less exceedances recorded.

From an air quality perspective, the winter period, especially June and July offer the conditions necessary for pollution episodes. These months have low rainfall and low temperatures, factors which could create less turbulence and possible atmospheric stability. In the event of such stable atmospheric conditions, pollutants could be trapped degrading air quality. (Rusteburg LM, 2019/2020)

The pollutants and meteorological data monitored by the RLM Air Monitoring network from the Ambient Air Quality 2018 Report indicates the average, maximum and minimum $PM_{2.5}$ daily concentrations as captured in Table 10-11. This information is based on a daily averaged data. No exceedances of the $PM_{2.5}$ daily average NAAQS was recorded during this reporting period. (Rusteburg LM, 2019/2020)

Table 10-11: Data statistics for $PM_{2.5}$ daily average concentrations for the RLM monitoring network stations for November 2018

Station	Particulate Matter – PM2.5 (µg/m³)			
	Average	Max	Min	Date of Max
Boitekong	11.99	23.79	4.65	15/11/2018
Marikana	12.35	22.44	6.88	01/11/2018

The data statistics for the SO_2 daily average data are presented in Table 10-12, which show that no exceedances of the 48-ppb daily guideline were recorded during the 2018 reporting period

Table 10-12: Statistical analysis of the SO_2 daily averaged data November 2018

Station	Sulphur dioxide – SO_2 (ppb)			
	Average	Max	Min	Date of Max
Boitekong	8.64	23.60	0.60	13/11/2018
Marikana	3.03	7.28	0.82	29/11/2018
Reatile	-	-	-	-

10.5.3 Dust

In addition to the stack emissions monitoring, RBMR is also conducting monthly dust fallout monitoring at seven locations around the plant. (Aquatico, 2020)

The results from the latest sampling round are provided in Table 10-13.

Table 10-13: Dust Fallout Sampling Results (July-August 202)

VARIABLE	Dust - Insoluble	Dust - Soluble	Dust - Rate	Dust - Rate	Complies with / exceeds dustfall guideline
UNITS	**g/m²/day**	**g/m²/day**	**g/m²/day**	**mg/m²/day**	
ASSESSMENT SET	**0.6**	**-**	**0.6**	**600**	
DB Bokamoso	0.241	0.03	0.271	271	Complies
DB Mfidikwe	0.396	0.036	0.432	432	Complies
DB Photsaneng	0.178	0.027	0.205	205	Complies
DB Thekwane 1	0.046	0.027	0.073	73	Complies
DB Thekwane 2	0.03	0.028	0.058	58	Complies
DB Zakhele	0.163	0.025	0.188	188	Complies

The results show that dust fallout levels in all the monitored areas are below the SANS 1929:2005 Ambient Air Quality evaluation criteria for dust fall out monitoring for residential areas.

10.6 Water

10.6.1 Receiving Environment Water Quality

The RBMR is situated within the Hex River catchment just upstream from the Bospoort Dam (Quaternary catchment A22H). Various continuous, seasonal or event-linked discharges of contaminated process water takes place into seasonal tributaries of the Hex River, which drains the processing areas. The tributaries affected by the Rustenburg Process Division that drain into the Hex River are the Klipfonteinspruit and Klipgatspruit. (Aquatico , 2018/2019)

Raised salinity, calcium, magnesium, sodium, sulphate, chloride, nickel and inorganic nitrogen are indicative of the water type associated with the processing activities of the Rustenburg Process Division, whilst raised ammonium and phosphate in the receiving environment is due to sewage pollution (both RPM and non-RPM related). The Integrated Water and Waste Management Plan (IWWMP) for Anglo's Rustenburg Process Division recommends that impacted or affected water at the business units in the particular catchments be contained within the operation's dirty water circuit to minimize the pollution potential towards the different streams, and ultimately to the Hex River and Bospoort Dam. Discharges and seepages of process dams should be prevented, and their freeboard maintained. Water from the process dams should not be allowed to enter the receiving environment untreated as impacted water could contaminate natural watercourses and groundwater. (Aquatico , 2018/2019)

Nitrate and salinity contamination are the most prominent parameters sourced from the processing activities. Additionally, of concern are the salt loads in the receiving environments, particularly chloride, sulphate, sodium and calcium, and the base metal nickel, especially in the Klipfonteinspruit. Although discharges, effluents and dam overflows are kept to a minimum, the groundwater, of which quality is poor in some areas, could contribute to baseflow in rivers. (Aquatico , 2018/2019)

Organic pollution most probably from sewage and industrial effluents is also a hazard in the greater Hex River catchment. Various point and diffuse sources of pollution (most of which are not RPM-related) are suspected to contribute towards the organic and nutrient load of the Hex River. These include sewage discharges from formal and informal settlements and treatment plants. A nutrient impact downstream from Waterval Sewage, which is a Central Services responsibility, on the Klipfonteinspruit is evident although the point of actual discharge is unknown and should be investigated. (Aquatico , 2018/2019)

10.6.2 Receiving environment at RBMR

The upstream locality of RBMR, (Klipfonteinspruit between PMR and RBMR on old road to magazine) was sampled in January, February and April 2019, recording dry conditions throughout the rest of the annual period. The downstream locality of RBMR was sampled throughout the year. The average water quality revealed significant deteriorating conditions from the upstream to the downstream locality at RBMR. Sulphate, fluoride and nickel concentrations revealed the most significant increases and may be as a direct result of process water from the RBMR dams which are dominated by these constituents. (Aquatico , 2018/2019)

10.6.3 Process Water at RBMR

The Process water dams at RBMR are sampled by RBMR staff and samples are then submitted to Aquatico for analysis. Most RBMR pollution control dam samples were submitted throughout the annual period on a quarterly basis. Water quality profiles for most of the sampled dams at RBMR are

similar with Sodium (Na) and Potassium (K) as the main contributing cation and sulphate as the main contributing anion. The concentrations (mq/l) were however different between the dams, with on average, acidic water quality being found at K160 and K161, while most other analysed dam samples had alkaline water quality. RBMR dams 3A and 3B (K160 and K161) also recorded significantly high metal concentrations (copper, nickel, etc.). Fluctuating concentrations of TDS and metals were recorded in all samples. (Aquatico , 2018/2019)

A summary of the surface water quality monitoring points is presented in Table 10-14.

Table 10-14: Summary of Surface Water Quality Monitoring Points at RBMR (Aquatico, 2018/2019)

Site Name	Site description	Y-coordinates	X-coordinates
K023	Klipfonteinspruit at base of RBMR dump	-25.67855	27.33039
K028	Klipfonteinspruit after confluence of RBMR west ditch system at Waterval smelter bridge	-25.67849	27.32638
K012	Klipfonteinspruit between PMR and RBMR on old road to magazine	-25.68096	27.34029
K024	Outflow of RBMR Dam 3 stormwater dam	-25.68091	27.32634
K044	Trench to the west of the RBMR dam 3B	-25.68087	27.32612
K059	Culvert at railway entry to RBMR	-25.68543	27.3306
K062	Spillway overflow RBMR stormwater dam 3B	-25.68015	27.32625
K158	RBMR Dam1	-25.68188	27.32676
K159	RBMR Dam2	-25.68163	27.32644
K160	RBMR Dam3A	-25.68157	27.32700
K161	RBMR Dam3B	-25.68034	27.32847
K162	RBMR Triangular Dam	-25.68511	27.33229
K163	RBMR SSSS Dam	-25.68618	27.33532
K187	Trench upstream of RBMR at culvert on access road to South gate	-25.68735	27.32416
K220	RBMR Effluent dam 1	-25.685799	27.331835
K221	RBMR Effluent dam 2	-25.685799	27.331835
K222	RBMR Effluent dam 3	-25.685799	27.331835
K223	RBMR E&S feed dam 1	-25.687804	27.330812
K224	RBMR E&S feed dam 2	-25.687661	27.330610

Figure 10-6 provides the location of the surface water monitoring points at the RBMR.

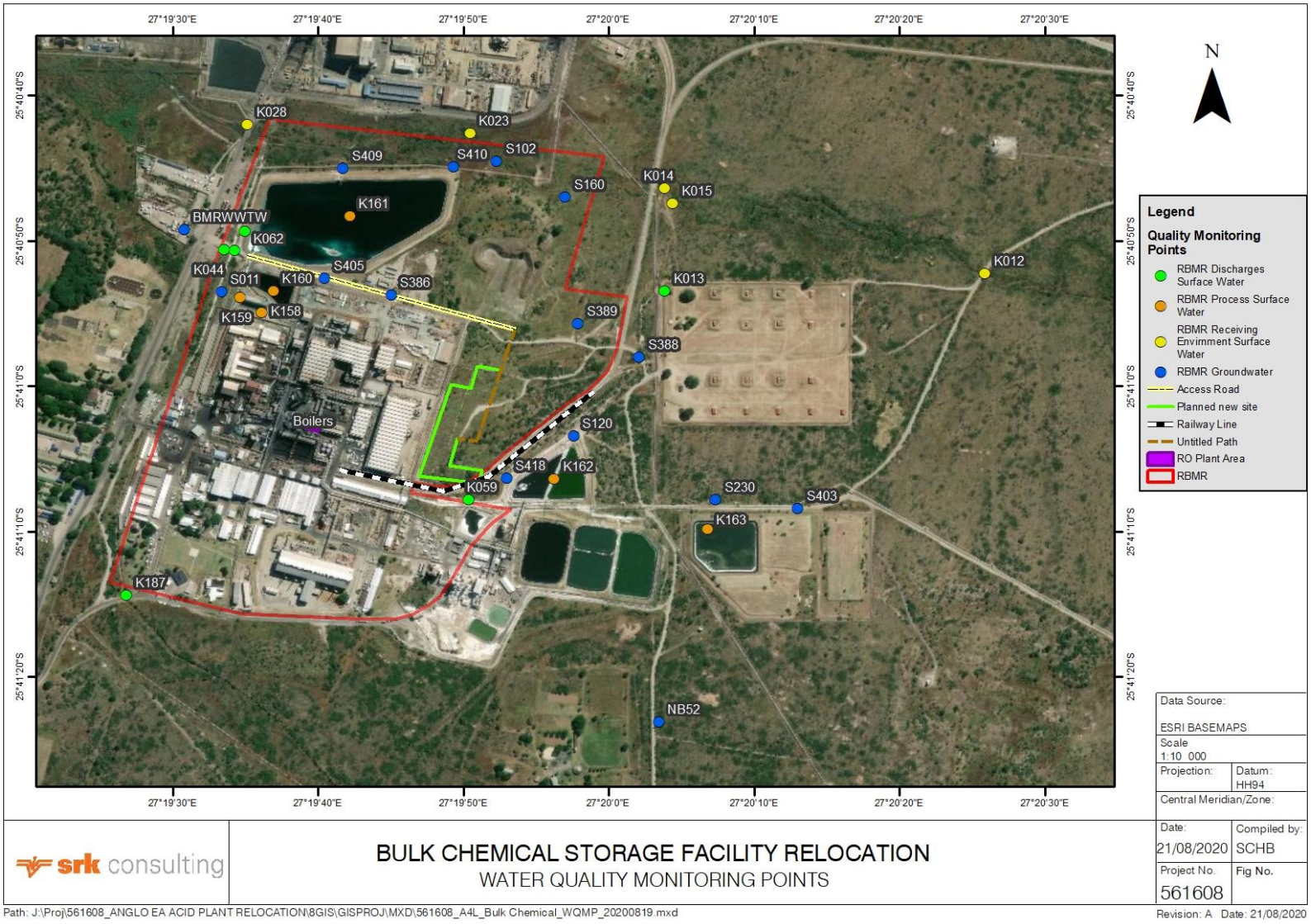


Figure 10-6: RBMR Surface water monitoring points and the major catchment basin

10.7 Geohydrology

Three distributed components of the groundwater system have been identified, of which all three have been affected to some extent. These form part of the lower part of the Main Zone and the Critical Zone of the Layered Bushveld Igneous complex.

10.7.1 Aquifers

There are three aquifer types identified in the RPM-RS lease area that are listed and briefly characterized in Table 10-15. Apart from the floodplain alluvial type aquifers and the deep aquifer system, the remaining aquifers identified are collectively regarded as shallow bedrock aquifers in the weathered zone. In terms of the Parsons Aquifer classification system, the aquifers in the project area are classified as minor or non-aquifers. (Aquatico , 2018/2019)

Table 10-15: Types and characteristics of groundwater systems

Type of aquifer		Main characteristics
Shallow Groundwater systems	Floodplain alluvial aquifers	Restricted to alluvium along the Hex River. Groundwater quality is generally good, water levels between 1 and 10 mbs, yields of up to 10 l/s.
	Shallow bedrock aquifer	Developed in transmissive fractures and grains in shallow weathered zone. Occur most widespread over the lease area in the weathered zone within 25 mbs. Rest water levels 3-20 mbs, qualities generally good (TDS of 450) but can be poor where compartments occur. Yields between 0 to 4 l/s with a mean around 0.3 l/s.
Deep aquifer system		Very heterogeneous, developed in transmissive fractured in the solid bedrock at depths of more than 50 mbs. Rest water levels deeper than 30mbs, qualities generally poor with salinity often in excess of 2000 mg/l TDS.

10.7.2 Groundwater

Groundwater studies have been conducted and a decision was taken to combine and reinterpret all available geohydrological information. Seven boreholes were historically used to monitor groundwater impacts at RBMR. The distribution and number of monitoring boreholes were insufficient during previous monitoring years, after which boreholes were drilled and existing ones were added to the more extensive monitoring programme. A total of 15 boreholes were monitored in the RBMR area during the 2018/2019 monitoring period. A summary of the groundwater monitoring points is provided in Table 10-16 and the monitoring points

are shown in Figure 10-7

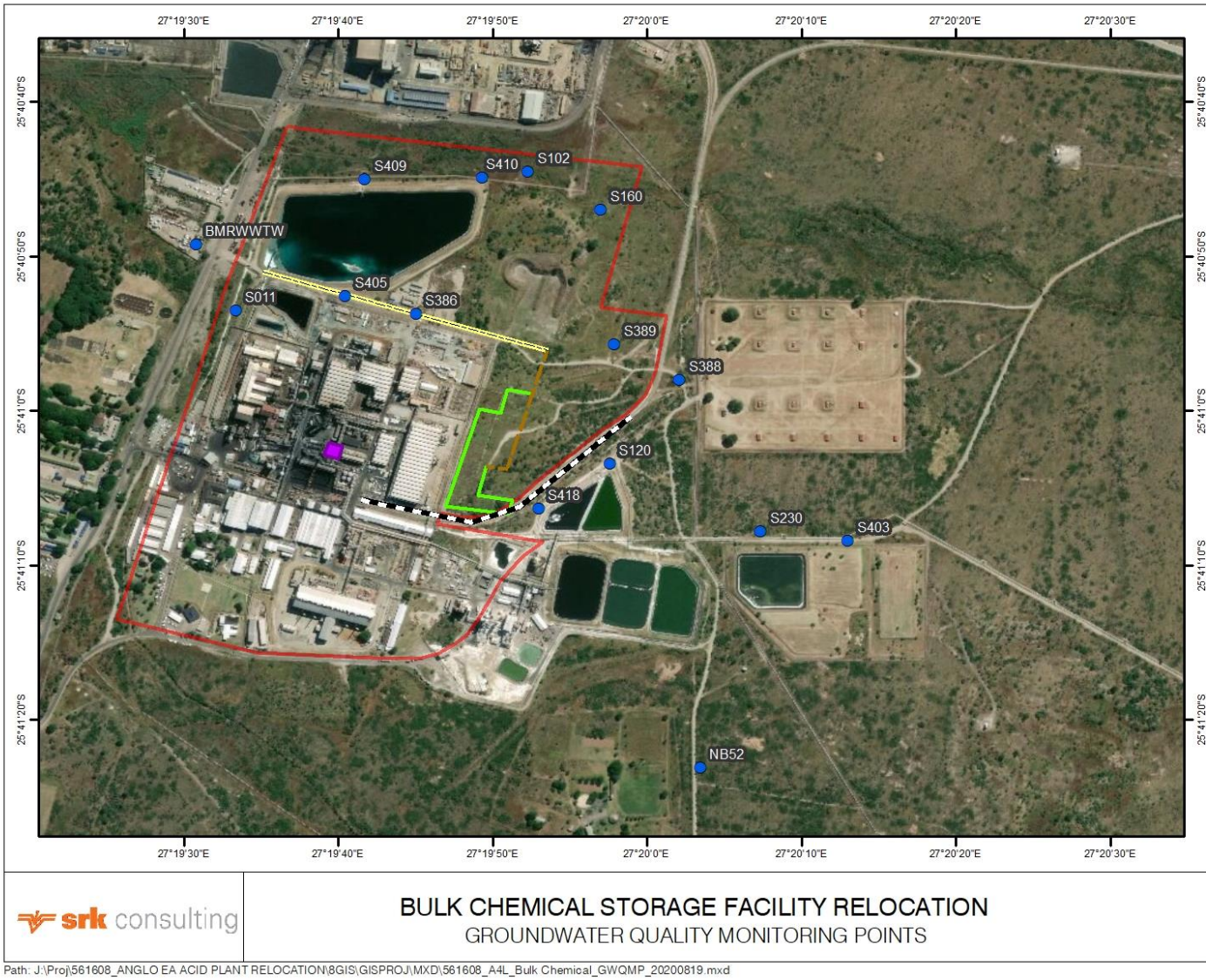


Figure 10-7 (Aquatico , 2018/2019)

Table 10-16: Summary of Groundwater Monitoring Points (Aquatico, 2018/2019)

Site Name	Site description	Y-coordinates	X-coordinates	Monitoring Frequency
BMRWWTW	Downgradient of Waterval treatment works	-25.680378	27.325227	Quarterly
S011	BMR downgradient west towards Klipfonteinspruit	-25.681508	27.325960	Quarterly
S102	BMR downgradient north of north dump towards Klipfonteinspruit	-25.679347	27.331812	Quarterly

Site Name	Site description	Y-coordinates	X-coordinates	Monitoring Frequency
S120	BMR downgradient north of SSS effluent dams	-25.684282	27.332675	Quarterly
S160	BMR downgradient north-east of north dump towards Klipfonteinspruit	-25.679735	27.332518	Quarterly
S230	BMR downgradient of SSS effluent dams	-25.685518	27.335377	Quarterly
S386	BMR upgradient east of BMR rainwater dam	-25.681567	27.329112	Quarterly
S388	Borehole west of BMR magazines	-25.682787	27.333922	Quarterly
S389	BMR upgradient south of north dump	-25.682130	27.332737	Quarterly
S403	BMR downgradient east of SSS effluent dams	-25.685688	27.336937	Quarterly
S405	BMR upgradient south of BMR rainwater dam	-25.681318	27.328167	Quarterly
S409	BMR downgradient north towards Klipfonteinspruit	-25.679103	27.328003	Quarterly
S410	BMR downgradient north-east towards Klipfonteinspruit	-25.679132	27.330390	Quarterly
S418	BMR downgradient northwest of SSS effluent dams	-25.685108	27.331415	Quarterly
NB52	BMR upgradient of SSS effluent dams	-25.689740	27.334303	Quarterly

The larger part of the surface area underlying the actual refinery is lined by concrete surfaces, but historical leaks and dumping caused the formation of a large diffuse source area for contamination. Seepage and leachate formation thus still emanate from the RBMR area and remediation plans target the RBMR as the priority area. The RBMR is situated on the southern banks of the Klipfontein Spruit directly opposite the Waterval Processing area. The groundwater flow and mass transport from the site is northwards in the direction of the Klipfontein Spruit. (Aquatico , 2018/2019)

The annual report on Groundwater Monitoring 2018/2019 Report indicates that significant pollution impacts from the RBMR occur on the groundwater environment. This processing complex consists of a large base metal refinery area with associated effluent dams for storage of process water. The most notable of these are the sodium sulphate solution area to the south-east of the refinery where highly concentrated sodium sulphate solution by-product is treated and dried. The groundwater pollution in this area is by far the dominant impact of the RBMR area as a result of leachate formation as well as seepage from effluent dams where historical liners were not fully impervious. (Aquatico , 2018/2019)

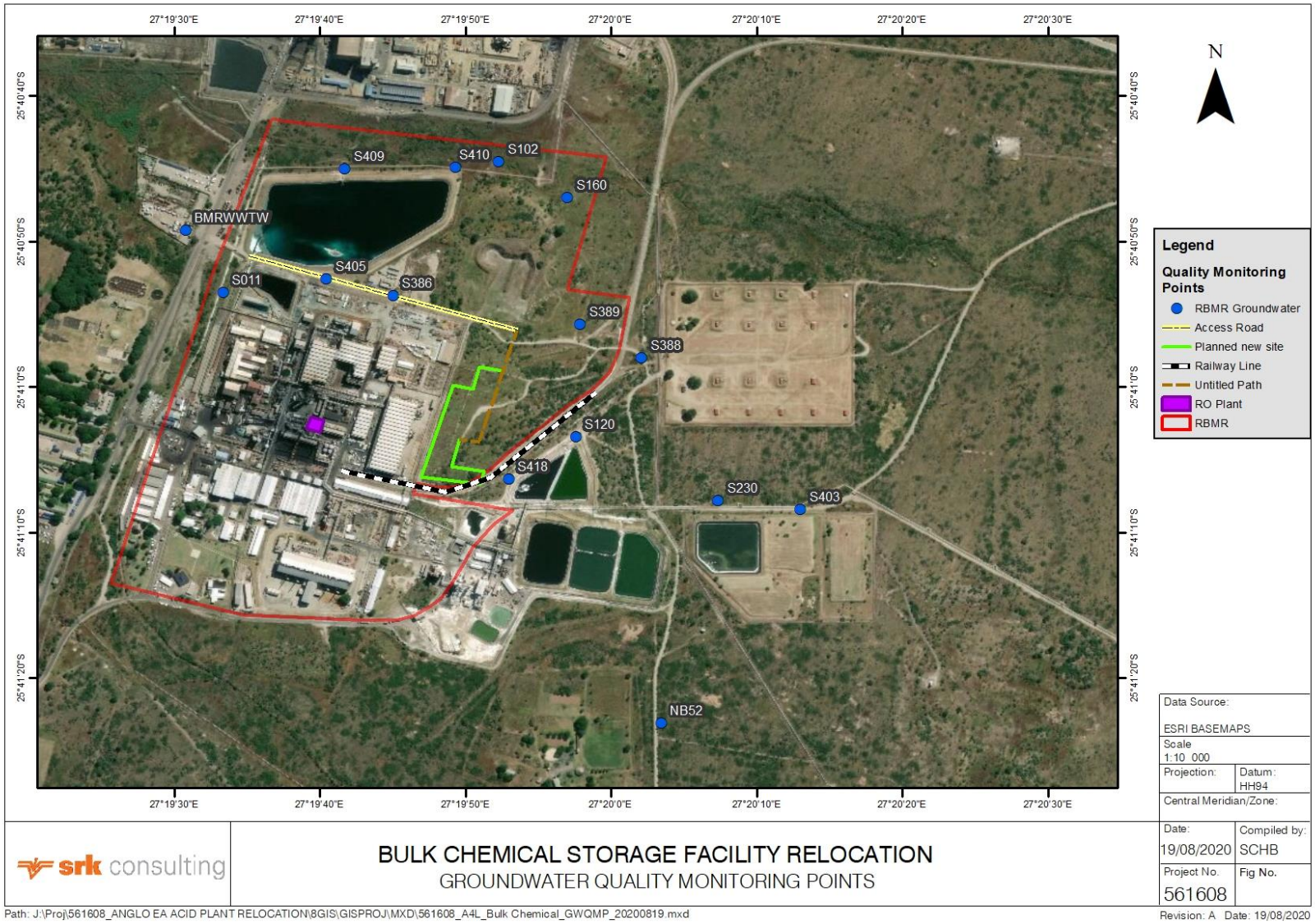


Figure 10-7: Groundwater Sampling Positions

10.7.3 Groundwater Users

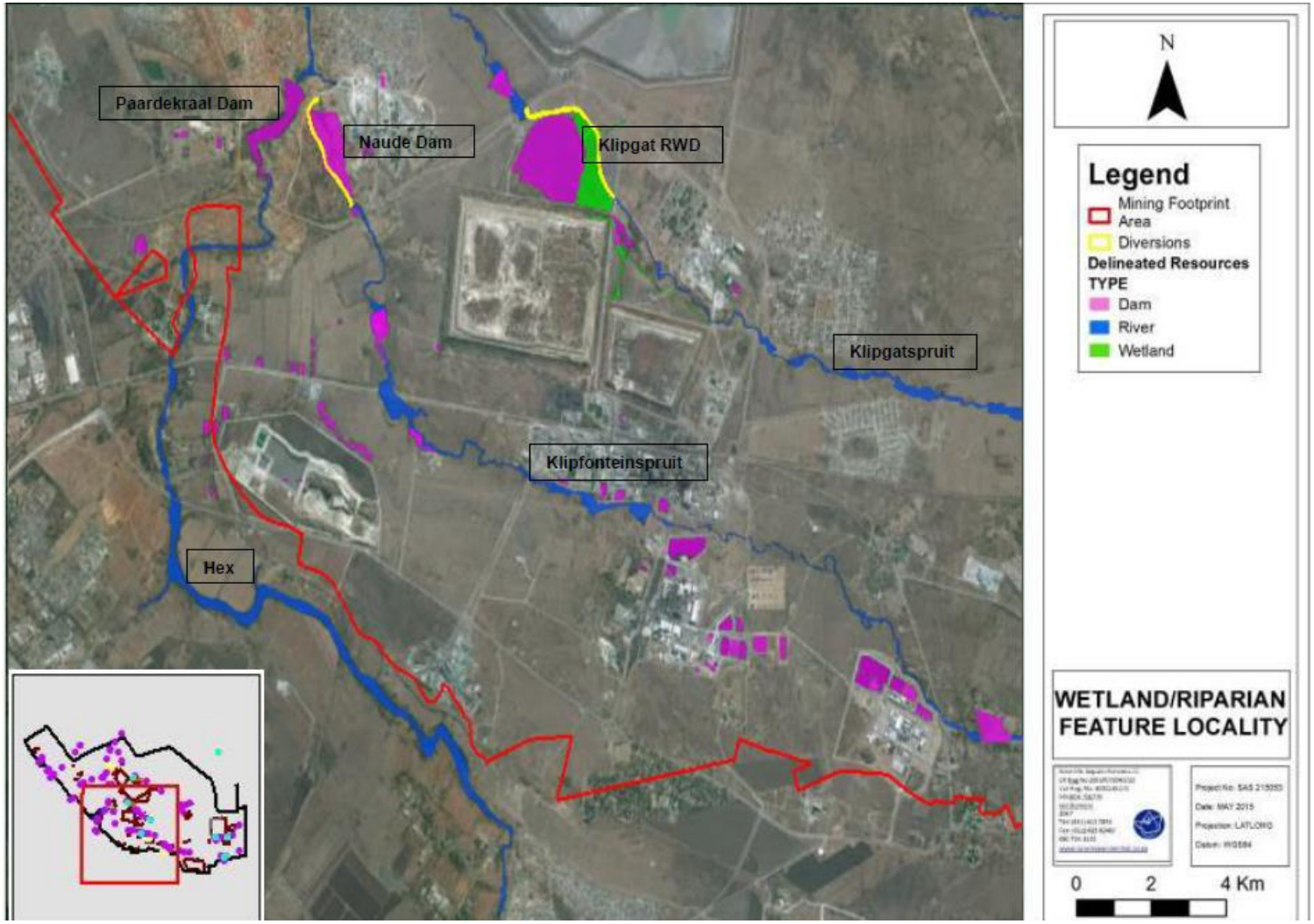
Groundwater users at and downstream of the RBMR were identified as follows:

- Domestic and limited agricultural use on farm smallholdings along the Hex River takes place. The source is the Hex River valley aquifer and the UG2 pyroxenite aquifer.
- Historical use (domestic, livestock, and gardens) of groundwater in the townships of Mfidikwe (Klipgat sub-catchment), Kwa Photsaneng (Klipgat sub-catchment) and Thekwane (Klipgat and Paardekraal sub-catchments) was recorded but studies in Mfidikwe and Thekwane during 2007could not locate any active groundwater use. The source was the shallow weathered bedrock aquifer. The communities indicated that only municipal water is currently being utilised. (Aquatico , 2018/2019)

10.8 Wetlands

According to the South African National Biodiversity Institute (SANBI) National Wetlands database, there are no wetlands associated with the proposed bulk chemical storage facility site (Figure 10-8).

This is supported by a wetlands delineation that was conducted for the Rustenburg Platinum Mines Ltd area, which includes the RBMR area. The delineation found that there are no wetlands associated with or within 500m of the RBMR and the proposed bulk chemical storage facility (SAS, 2015).



srk consulting	**ANGLO PLATINUM'S RBMR BULK CHEMICAL STORAGE FACILITY** WETLANDS	Project No. 561608

Figure 10-8: Rivers and Wetlands relating to the Study Area

10.9 Areas of Conservation Concern

Areas of high biodiversity was identified from the North West Province Biodiversity Sector Plan and includes, amongst others, Critical Biodiversity Areas (CBAs) and Ecological Support areas (ESAs). The RBMR is not located on a CBA or ESA and the biodiversity status of the area is classified as hardly protected (Figure 10-9). In addition, there are no protected areas that are located in close proximity to the RBMR.

The affected area where the proposed bulk chemical storage facility will be located is highly disturbed due to the construction and operation of the RBMR.

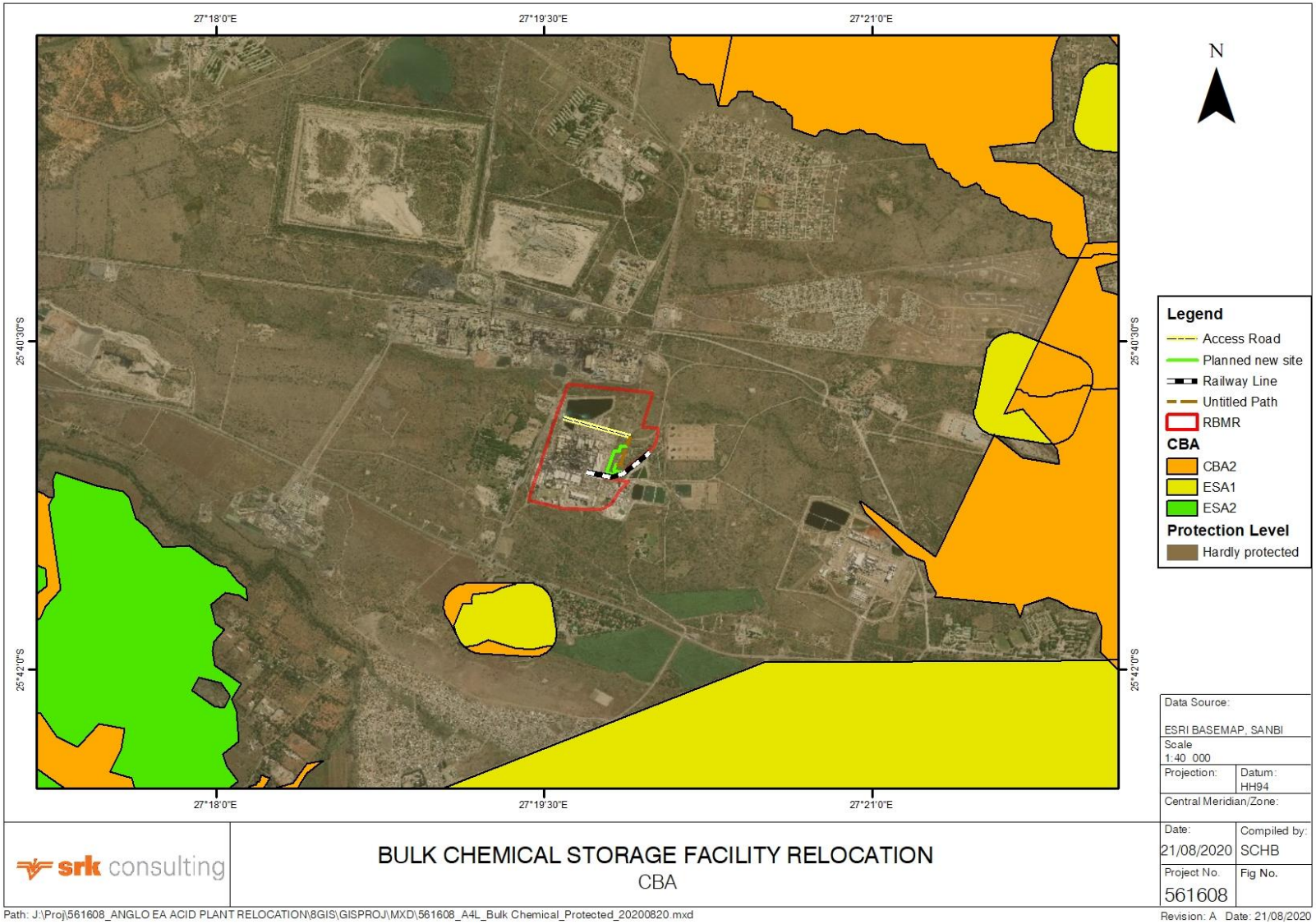


Figure 10-9: Areas of Conservation Concern

10.10 Visual

The project area is located within the jurisdiction of the Rustenburg Local Municipality within the Bojanala District Municipality in the North West Province. Photshaneng and Bokamoso are the closest residential areas, approximately 6.5 km North and North East respectively of RBMR and Rustenburg is the closest town, being approximately 4.9 km North Westerly of the complex.

Due to current operations at RBMR and its associate mines in close vicinity to the proposed RO location, it is expected that the plant will not result in any significant additional visual impacts. The impact assessment section of the report includes an assessment of the visual impacts and the EMPr provides for practical mitigation measures that may be implemented to avoid and/or minimise the impacts.

10.11 Biodiversity

A specialist was appointed to undertake a biodiversity assessment. The study found that overall, the habitat within which the study area is located is typical of an peri-urban setting and includes built-up areas (industrial, commercial and for human settlement), degraded areas that support a high abundance of Alien And Invasive Plant (AIP) species, agricultural fields, and some patches of natural veld. These anthropogenic areas reduce the potential for important landscape processes, such as fire and migration, to operate. The study area itself comprises of what appears to be an old Waste Rock Dump (WRD), established 1975, and is moderately vegetated by medium-height microphyllus (i.e. fine-leaved) acacias. Adjacent to the WRD is an open grassland with stormwater infrastructure interspersed which was installed to manage drainage in 2011 (STS, 2020).

The study area falls within the Marikana Thornveld vegetation type (listed as endangered in Mucina and Rutherford, 2006), i.e. the reference state. Mucina and Rutherford (2006) describe the Marikana Thornveld as Open Vachellia karroo woodland, occurring in valleys and slightly undulating plains, and some lowland hills. The remaining patches of natural veld within the study area have, however, been exposed to various historic and ongoing impacts/disturbances, rendering the remaining savanna a poor representative of the reference state. The historic and ongoing impacts/disturbances were identified as follows:

- Clearing of vegetation on several separate occasions but notable transformation occurred throughout the study area;
- Waste Rock Dump established in 1975;
- Historic alteration of the degraded grassland through earthworks and stormwater infrastructure establishment;
- Encroachment of woody species (both indigenous and alien); and
- Long-term fragmentation of the study area from source populations necessary for proper re-establishment of vegetation and of animal species. This fragmentation comprises the construction of buildings and major roads around the study area.

Within the anthropogenically altered landscape, conditions for fauna and flora are suboptimal due to a lack of suitable habitat and habitat fragmentation. Ongoing anthropogenic activities within and around this habitat unit have pushed out populations of species that would normally be expected to occur in such an area.

10.11.1 Habitat Unit Identification and Sensitivity Analysis

During the field assessment, three floral habitat units were identified within the study area, namely the Transformed Habitat, Degraded Thornveld Habitat and Degraded Grassland Habitat as shown in Figure 10-10. These habitat units are considered a single unit for the fauna, namely, Degraded Habitat. The study area is situated within an area that comprises peri-urban development with mining infrastructure surrounding the study area. Only a small corridor to the north exists which is fenced from other natural areas. Within the study area the habitat has been exposed to various historic disturbances, resulting in degraded habitat with generally low floral and faunal abundance and diversity. Much of the study area is dominated by species associated with disturbance, including alien and invasive plants (AIPs). Faunal assemblages within the area composed of commonly occurring and widespread species that have adapted to the peri- urban surroundings.

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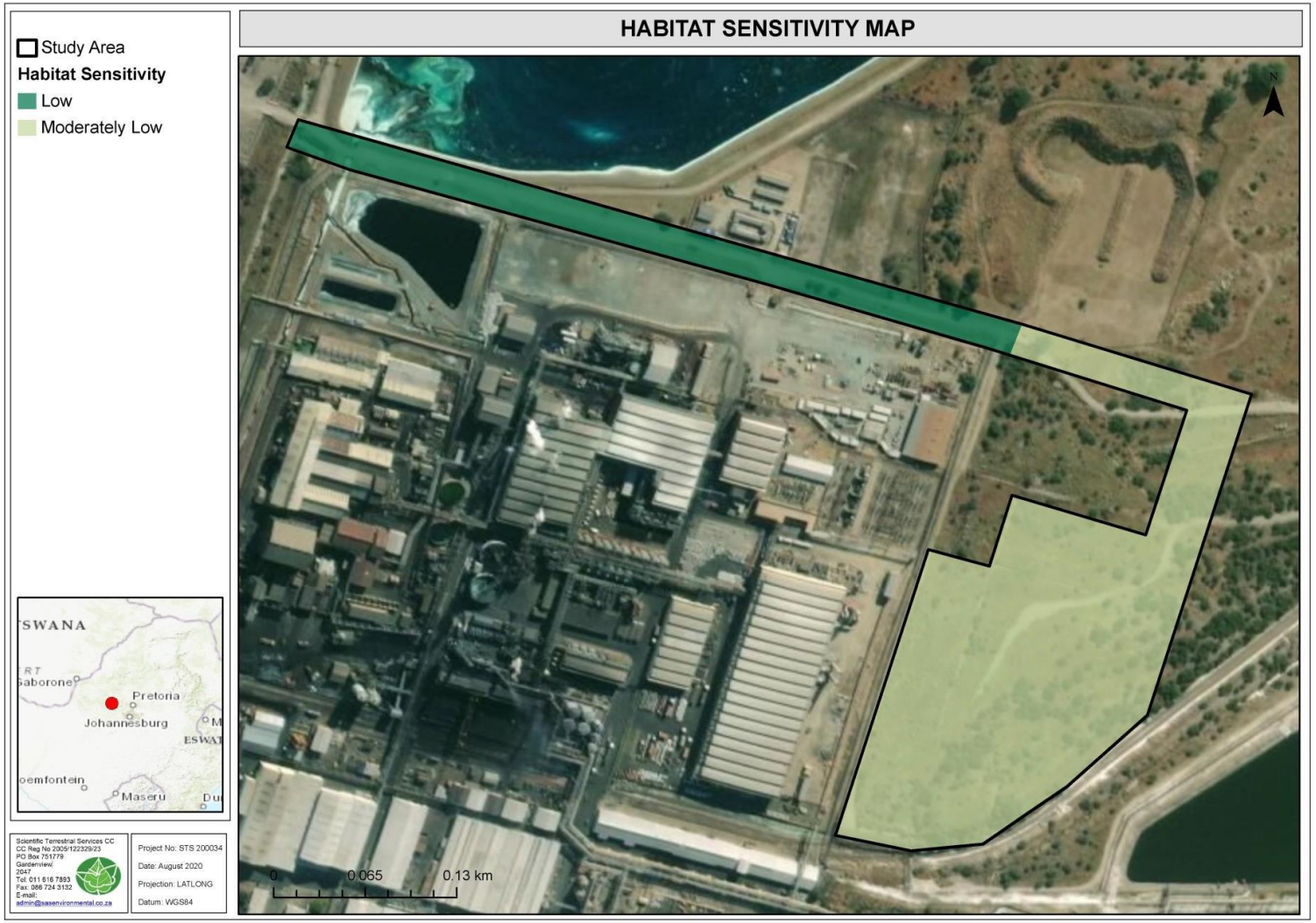
Figure 10-10: Habitat Units associated with the study area (STS, 2020)

A biodiversity sensitivity assessment was conducted and the area's ecological sensitivity – depicting a combined fauna-flora sensitivity was mapped (Figure 10-11). The areas are depicted according to their sensitivity in terms of the presence or potential for SCC, habitat integrity and levels of disturbance, threat status of the habitat type, the presence of unique landscapes and overall levels of diversity.

Table 10-17 presents the sensitivity of each identified habitat unit along with an associated conservation objective and implications for development.

Table 10-17: A summary of the sensitivity of each habitat unit and implications for development (STS, 2020)

Habitat Unit	Sensitivity	Conservation Objective	Development Implications
Degraded Thornveld and Degraded Grassland Habitats	Moderately Low	Optimise development potential while improving biodiversity integrity of surrounding natural habitat and managing edge effects.	This habitat unit is of moderately low ecological importance and sensitivity due to the level of historic habitat modification and the high degree of fragmentation limiting the potential for fauna and flora to augment the habitat. The likelihood of a high abundance and diversity of faunal species utilising these areas is low, with the potential for indigenous plants to flourish also being low. Lastly, no floral or faunal SCC are expected to occur on the site. Development within the anthropogenically altered landscapes will have a low impact on native faunal and floral biodiversity; however, were development to proceed, edge effects would need to be mitigated – most notably the spread of AIP species. It is advised that an AIP management plan be implemented to control the spread of listed invaders.
Transformed	Low	Optimise development potential.	This habitat unit is of low ecological importance and sensitivity and development related activities are unlikely to have any significant impact on the faunal community. This portion of the study area is an existing road and road verge which offer little value in terms of faunal habitat and do not provide important ecoservices or functions.



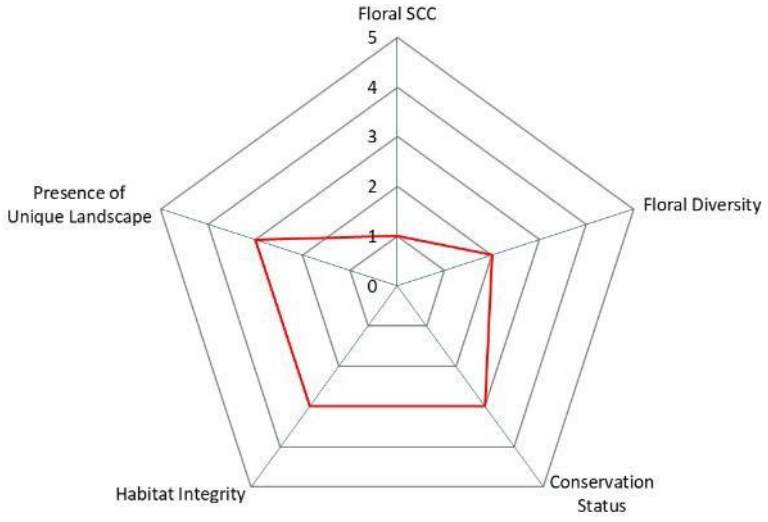
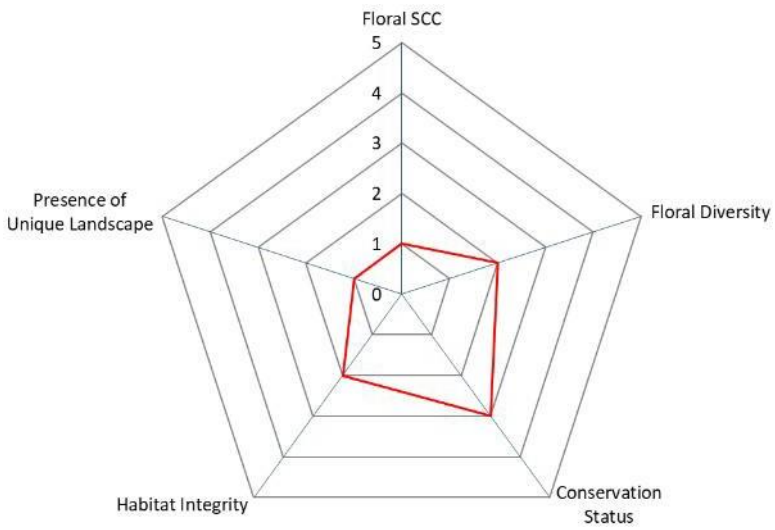
srk consulting	**ANGLO PLATINUM'S RBMR BULK CHEMICAL STORAGE FACILITY** HABITAT SENSITIVITY	Project No. 561608

Figure 10-11: Habitat sensitivity map for the study area (STS, 2020)

10.11.2 Floral Assessment

A summary of the floral assessment is presented in Table 10-18.

Table 10-18: Floral Assessment Results (STS, 2020)

<table>
<tr><td> 
</td><td> 
</td></tr>
<tr><td colspan="2">REPRESENTATIVE PHOTOGRAPHS AND SENSITIVITIES OF THE GRASSLAND HABITAT WITHIN THE STUDY AREA</td></tr>
<tr><td>Degraded Thornveld
  </td><td>Degraded Grassland with encroaching AIPs
  </td></tr>
</table>

Representative Photos:




Left: Degraded Thornveld and areas encroached by *Dichrostachys cinerea* (Sickle bush). Right: Photos representative of the degraded grassland. Hardened surfaces can be seen.

SCC Discussion

During the field assessment, no floral SCC were recorded within the study area. Activities associated with earthmoving, railway construction, WRD establishment and water management installation has potentially destroyed potential habitat for the establishment and persistence of SCC on the site. The absence of suitable dispersal corridors, as a result of peri-urban development, together with the removal of many dispersal agents has significantly reduced the potential of SCC re-establishment and persistence. Habitat for floral species within the anthropogenically modified landscape has been modified to the extent where the likelihood of SCC establishment is low.

Ecological Discussion

From a floral perspective, the Degraded Grassland Habitat and Degraded Thornveld Habitat Unit have been exposed to several historic disturbances resulting in sub-optimal habitat conditions, decreased habitat integrity and a low species diversity. This is evident when comparing the identified habitat units to reference vegetation type, which is expected to be species rich. The degraded nature of the study area thus supports species that favour disturbed conditions, e.g. alien and invasive species such as *Melia azedarach* (NEMBA Category 1b), *Tecoma stans* (NEMBA Category 1b), *Tipuana tipu* (NEMBA Category 3), *Agave sisalana* (NEMBA Category 2), *Cereus jamacaru* (NEMBA Category 1b), *Argemone ochroleuca* (NEMBA Category 1b), *Flaveria bidentis*, as well as native weedy species such as *Tagetes minuta* and *Sesbania bispinosa* which have established within the study area. Although the study area supports a small number of indigenous trees, the habitat units are mostly homogenous throughout supporting an overall low species richness of indigenous species.
The proposed development is likely to have an impact on the overall functioning of the system. The major mechanisms which drive the development and maintenance of savanna's are fire and herbivory, the suppression of these factors on the surrounding vegetation will impact the overall functioning of the system. Furthermore, the fragmented nature of the study area and the absence of suitable dispersal corridors and reduced abundance of faunal dispersal agents will limit the rate at which vegetation re-establishes within the study area.

Business Case and Conclusion:

The overall sensitivity of the floral habitat units is moderately low. Anthropogenic activities and proliferation of alien plant species have resulted in the degradation of the available habitat and the proposed development is not deemed likely to have significant negative impacts on the species poor floral assemblages. Although habitat modifications have occurred vegetation has re-established relatively well although species diversity remains low. Regardless, it is imperative that the development footprint be restricted to the approved demarcated area, and edge effects strictly managed so as to limit the impact on the surrounding natural vegetation.

Important considerations:

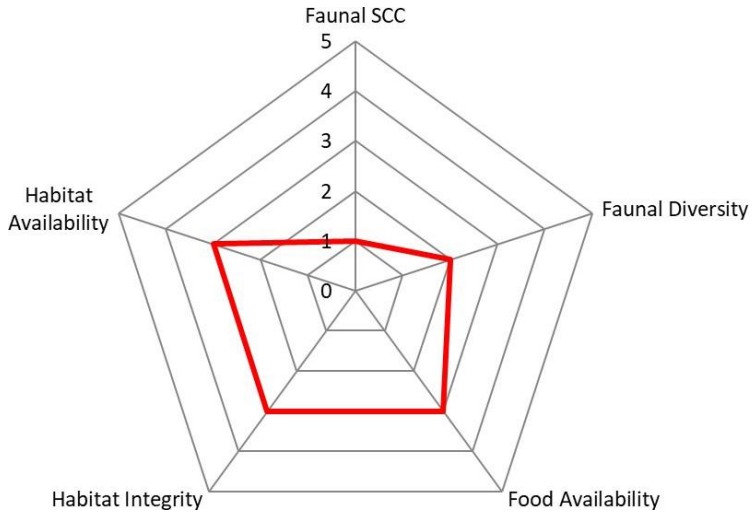
- Several AIPs occur within the study area of which some species are listed as NEMBA category 1b and NEMBA category 3. The NEMBA regulations do not require that Category 3 species be removed but rather that further planting, propagation or trade of these species is prohibited. It is still recommended that these species be monitored to ensure they do not spread to adjacent areas where they do not yet occur. Category 1b species require compulsory control;
- The proposed development is unlikely to significantly impact SCC species as none were found in the study area; however, species may disperse and establish within the study area. It is therefore recommended that if any SCC (as identified in section 4.3) are found within the footprint area they should be rescued and relocated by a suitably qualified specialist and either relocated to suitable habitat (outside the development footprint) within the study area, or moved to registered nurseries such as the Agricultural Research Council (ARC) or the South African National Biodiversity Institute (SANBI); and
- According to the North West Biodiversity Sector Plan the study area is not considered to be of importance and no conservation status has been issued.

10.11.3 Faunal Assessment

A summary of findings from the faunal assessment is presented in Table 10-19.

Table 10-19: Faunal Assessment Results (STS, 2020)

Degraded Habitat Sensitivity	Moderately Low	FAUNAL SPECIES OBSERVED DURING THE FIELD ASSESSMENT



Left - Evidence of a rodent feeding on a tubor. Middle - *Pleceus velatus* (Southern Masked Weaver) nests and Right - *Lepus saxatilis* (Scrub Hare) dropping

Left - *Cisticola lais* (Wailing Cisticola). Middle - *Pachydactylus affinis capensis* (Thick-Toed Gecko) and Right –Hairy Darkling Beetle (Tenebrionidae).

SCC Discussion

No faunal SCC were encountered during the field assessment, and the probability of any such species utilising the study area is highly unlikely as habitat within the study area is historically transformed and currently degraded and highly fragmented providing unsuitable habitat to support faunal SCC. The study area is almost completely fenced-off from the surrounding natural areas where suitable habitat for SCC could occur, thereby limiting the potential for these species to utilise the study area.

Ecological Discussion

Faunal species diversity within the study area was moderately low due to the highly fragmented nature of the habitat and the large-scale transformation which surrounds the area. Species observed were limited to common and widely occurring species known to survive in areas of decreased sensitivity that have integrated well into peri-urban environments. Limited potential for important landscape processes such and fire and herbivory to occur exists due to this peri-urban setting, nor is this location considered an ecological support area. This area lacks potential as a location for faunal conservation due to its degraded nature.

The habitat within the study area is fragmented and isolated (fenced-off) from surrounding natural habitat via man-made barriers such as railway tracks, built-up areas and wired fences. These barriers influence the presence of expected fauna – although this applies mostly to larger mammal species. Smaller mammals can move through fences to inhabit the study area, e.g. the burrows of rodents were observed on site. Mammal species also likely to utilise the study area for foraging include *Herpestes sanguinea* (Slender Mongoose), whilst species such as *Lemniscomys rosalia* (Single-striped Grass Mouse) and *Mus musculus* (House mouse) are likely to permanently reside and forage within the study area.

The Degraded Grassland Habitat is more suitable for granivorous species as the dense, patchy graminoid layer produces an abundance of seed. The Degraded Thornveld would have been favoured by mammals and avifauna as the more complex structure offers both opportunity for foraging and shelter. Rocky areas where boulders were stacked along the WRD offer reptiles suitable shelter and basking areas. The Degraded Grassland Habitat is also expected to harbour a low diversity of common reptilian species. Reptile species that may occur within the study area are likely to be the more common, non-threatened species that are mobile enough to migrate to more suitable refugia within areas surrounding the study area or which are well adapted to inhabiting human dominated and developed areas. No amphibian species were encountered during the field assessment and due to the lack of any wetland, riparian or suitable water habitat within the study area it is unlikely that any notable amphibians occupy the study area.

Business Case and Conclusion:

The overall sensitivity of the faunal habitat associated with the study area was considered moderately low, based on habitat and food availability. The faunal habitat has been altered as a result of historic and ongoing mining activities and the establishment of a railway line adjacent the site. The impact that the proposed development will have on faunal habitat, diversity and SCC, is not considered detrimental, due to the lack of sensitive species and/or habitat to harbour sensitive and range-restricted species.

Several sections within the study area have been compromised by the proliferation of AIPs. To prevent further habitat loss for fauna in any adjacent natural areas, it is recommended that an alien and invasive control plan be implemented for the study area during construction activities. It is important that cleared alien plants not be dumped within the adjacent habitat.

10.11.4 Species of Conservation Concern (SCC)

No floral or faunal Species of Conservation Concern (SCC) were noted and none are expected to occur within the study area. There are several floral SCC which have a low probability of occurring on the site. These species are provincially important and if found should be rescued and relocated to similar habitat within the study area before any construction commences. The rescue and relocation must be under the supervision of a qualified specialist and relocation should be to suitable, similar habitat near its original location, but outside of the development footprint. No faunal SCC were encountered during the field assessment within the study area. It is furthermore considered unlikely that any faunal SCC will permanently utilise the study area, due to the location of the study area within a peri- urban setting and the limited habitat and food resources necessary to support expected faunal SCC.

10.12 Heritage Resources

According to the Heritage Scoping Assessment, the project area is predominantly underlain by geological layers comprising the Bushveld Complex (Johnson, et al., 2006). These layers are comprised of intrusive igneous rocks and are of zero or insignificant palaeontological sensitivity[2] (SAHRA, 2013). Figure 10-12 presents the palaeontological sensitivity of the area within which the Project is located, adapted from the SAHRIS Palaeosensitivity Map (PSM).

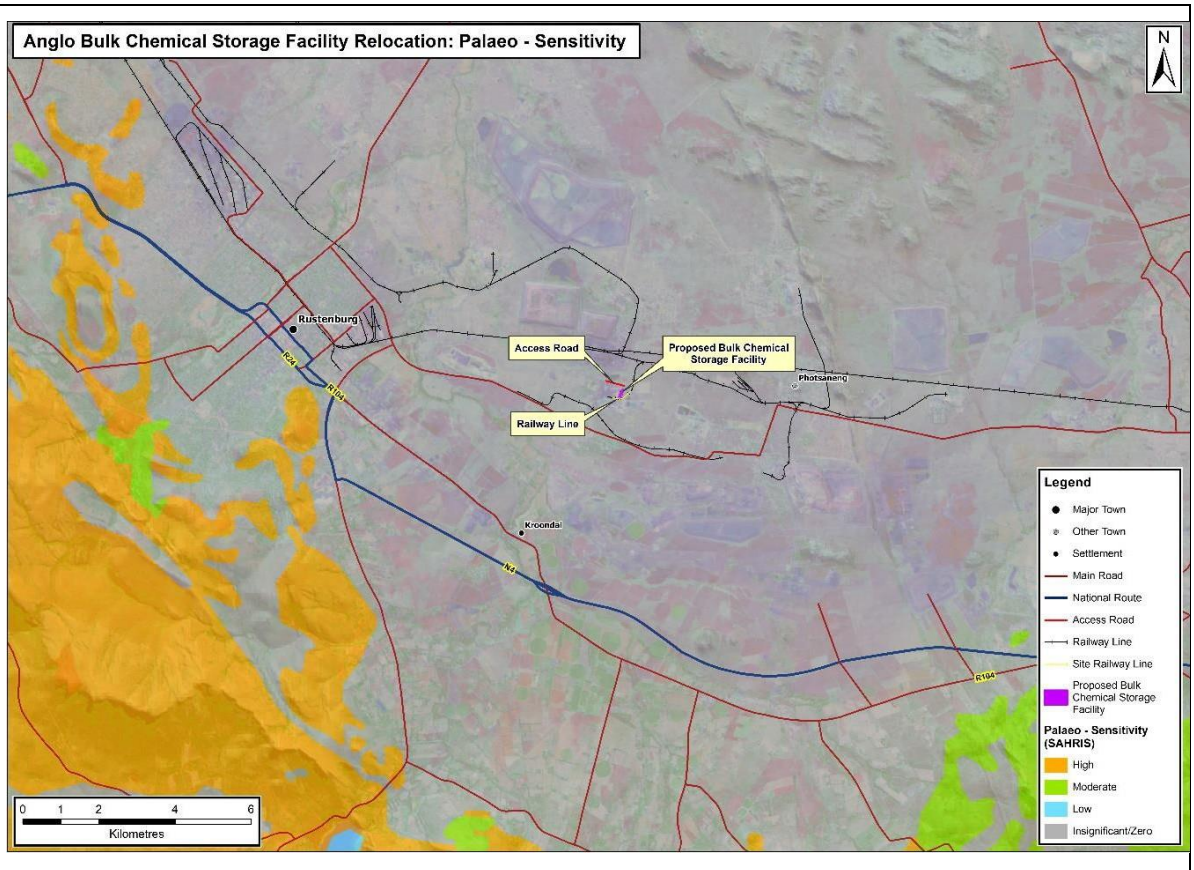


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Figure 10-12: Palaeontological Context of the Project

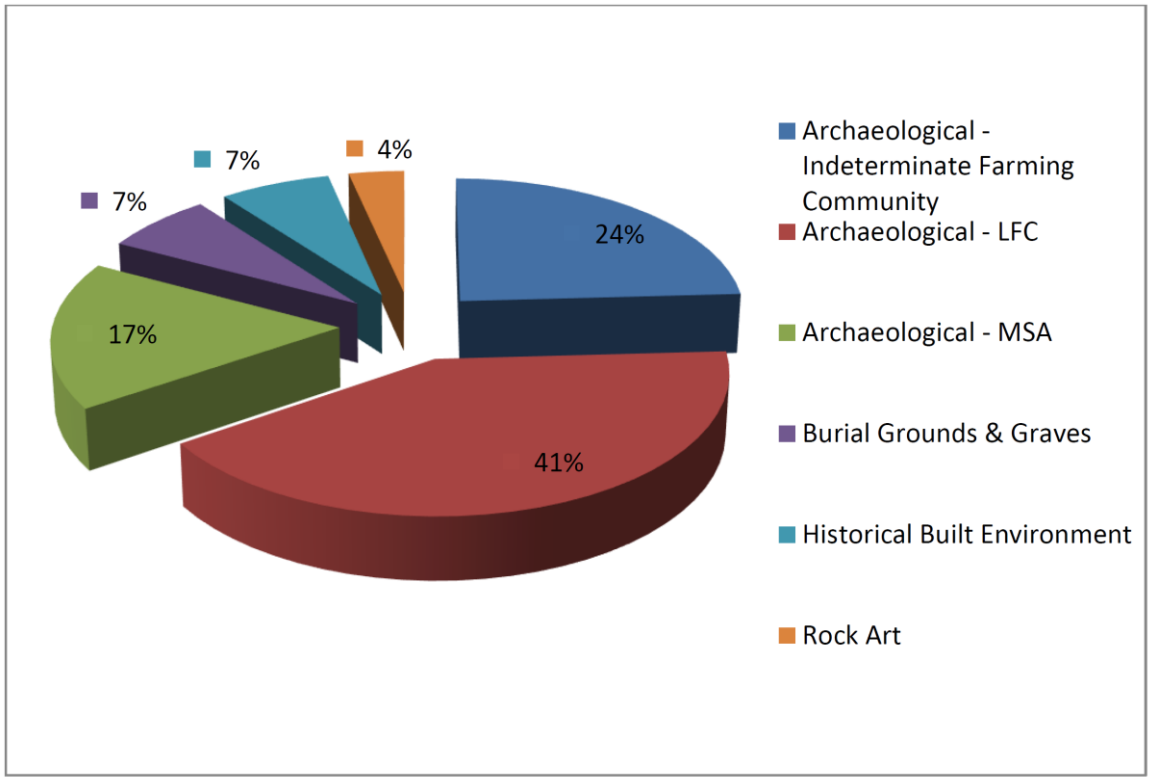
The cultural heritage baseline description considered the predominant cultural landscape based on the identified heritage resources within the regional and local study area. Table 10-20 presents the broad timeframes for the major periods of the past in South Africa.

Table 10-20: Archaeological Periods in South Africa

The Stone Age	Early Stone Age (ESA)	2 million years ago (mya) to 250 thousand years ago (kya)
	Middle Stone Age (MSA)	250 kya to 20 kya
	Later Stone Age (LSA)	20 kya to 500 CE (Common Era[3])
Farming Communities	Early Farming communities (EFC)	500 to 1400 CE
	Late Farming Communities (LFC)	1100 to 1800 CE
Historical Period	-	1500 CE to 1994 (Behrens & Swanepoel, 2008)

In total, 29 heritage resources were identified in the literature applicable to the regional, local and site-specific study areas. Figure 4-2 presents the breakdown of the identified heritage resources in terms of the archaeological periods. The predominant tangible heritage resources recorded in the area under consideration demonstrate affiliations with Farming Community Period, particularly the LFC and including one expression of rock art linked to this time period. This notwithstanding, expressions of the MSA and historical period (including burial grounds and graves and the historical built environment) have been recorded in the greater study area.

This section defines the cultural landscape through providing a brief description that offers the reader contextual information, as well as assists the identification of potential risks and impacts to the heritage resources.



srk consulting	**ANGLO PLATINUM'S RBMR BULK CHEMICAL STORAGE FACILITY** REGIONA HERITAGE CONTEXT	Project No. 561608

Figure 10-13: Heritage Resources Identified within the Regional Study Area

The Stone Age in southern Africa comprises three broad periods, namely the ESA, MSA and LSA. These periods are characterised by the lithic tools and material culture produced by the various hominid species through time.

The ESA occurred between 2 mya and 250 kya. Lithics from this period comprise predominantly of large handaxes and cleavers made of coarse-grained materials (Esterhuysen & Smith, 2007). These tools are associated with *Australopithecus* and early *Homo* hominid species.

The MSA dates between approximately 300 kya and 20 kya. High proportions of minimally- modified blades, created using the Levallois technique, the use of good quality raw material and the use of bone tools, ochre and pendants characterise the early MSA lithic industries (Clark, 1982; Deacon & Deacon, 1999). These tools were made and used by archaic *Homo sapiens.*

The LSA dates from approximately 40 kya to the historical period. LSA lithics are specialised as specific tools each have specific uses (Mitchell, 2002). Assemblages from this period commonly include diagnostic tools such as scrapers and segments and may include bone points as well.

A review of the available literature demonstrated that the regional study area contains few expressions of the Stone Age (five records or 17% of the previously identified heritage resources). All these records represent the MSA and occur as scatters of artefacts and one isolated lithic (Huffman & Schoeman, 2002; Higgitt, et al., 2015).

The farming community period correlates to the movements of Bantu-speaking agro- pastoralists moving into southern Africa. Heritage resources associated with this period, specifically the LFC, were recorded in the regional study area. The 20 resources representing the LFC and indeterminate farming

community period combined account for 69% of the identified heritage resources in the regional study area. These heritage resources occur as:

- Artefact scatters including decorated and undecorated pottery, grinding stones and hammer stones (van Schalkwyk & Pelser, 1999; Higgitt, et al., 2015);
- One instance of Rock Art engravings (Huffman & Schoeman, 2002); and
- Stonewalling of varying complexity, both with and without additional archaeological artefacts (van Schalkwyk & Pelser, 1999; 2001; Huffman & Schoeman, 2002; Coetzee, 2008; WITS, 2010; Higgitt, et al., 2015).

Archaeological material cultural remains serve as tangible markers of previous occupation. The most visible indicators include ceramics and stonewalling. Stonewalling is the most visible and easily identifiable indicator of occupation. Several variations based on construction technique, coursing, height, shape and internal divisions are known to occur within southern Africa (Huffman, 2007).

Molokwane type settlements are most commonly identified in the literature applicable to the area under consideration. These types of settlements are characterised by:

- Multiple arcs in the outer wall delineating the back courtyards of individual households surrounding a core;
- Small livestock kraals between cattle enclosures and front courtyards; and
- Daga houses in the centre establishing bilobial arrangement of households.

Table 10-21: Stonewalling types within the regional study area

Central Cattle Pattern			
Moor Park Cluster		**Ntsuanatsatsi Cluster**	
Moor Park	14th to 16th century	Type N	15th to 17th century
Melora	16th century onwards	Badfontein / Bokoni	16th century
Kwamaza	18th century to historic period.	Doornspruit	19th century
		Klipriviersberg	19th century
		Type V	19th century
		Molokwane	
		Type Z	19th century
		Type B	19th century
		Tukela	19th century

Ceramics were an active part of cultural group dynamics, providing a social function through conveying symbols and metaphors. Because of this, archaeologists can use ceramics to show a relative cultural-

historical temporal sequence to recognise ceramic users in the archaeological record (Huffman, 2007). Ceramic classification is universally used by archaeologists to establish relative cultural-historical temporal sequences within southern African Farming Communities. In this way, relative dates can be assigned to sites, as well as inferring tenuous cultural similarities or associations.

Table 10-22: Ceramic facies within the local study area

Facies	Period	Characteristics
Ntsuanatsatsi	1450 - 1650 CE	Broad stamping in the neck and stamped arcades on the shoulder. Appliqué.
Uitkomst	1650 – 1820 CE	Stamped arcades, appliqué and blocks of parallel incisions. Also includes stamping and chord impressions.
Rooiberg	1650 – 1750 CE	Stamped rim band and a mixture of stamped and incised bands with arcades and triangle in the neck.

The historical period is commonly regarded as the period characterised by contact between Europeans and Bantu-speaking African groups and the written records associated with this interaction. However, the division between the LFC and historical period is artificial, as there is a large amount of overlap between the two.

The town of Kroondal is approximately 10 km away from the town of Rustenburg. Kroondal was established in 1843 on the farm Kronendal (which is now also known as Kroondal) (Tourism North West, 2020). The farm was registered in 1858 in the name Jan Michiel van Helsdingen. A German Lutheran mission was established on the farm. When the mission society could not afford to pay maintenance for anyone but the missionaries, workers left the mission station and settled nearby as independent farmers. The town was surveyed in 1889 and the school was established in 1892.

Rustenburg was originally settled in the 1840s by burghers led by Andries Pretorius (Tourism North West, 2020). The town was founded in 1851 and is the third oldest town within the former Transvaal Province.

Within the literature survey, four records of historical resources were identified. These resources account for 14% of the identified heritage resources. These resources occur as:

- Two instances of individual graves (van Schalkwyk & Pelser, 1999; 2001); and
- The historical built environment, including structural remains and the historical townscape of Kroondal (van Schalkwyk & Pelser, 1999).

10.13 Socio – Economical Environment

This site falls within the Bojanala Platinum District and Rustenburg Local Municipality. The RLM accommodates about 16% of the provincial population, and it is estimated that it will in future experience significant population growth (up to 32.9% of the provincial population growth). Rustenburg town represents the centre of population concentration, employment opportunities and shopping opportunities. This attracted urban development towards the town. With 645 000 people, the Rustenburg Local Municipality housed 1.1% of South Africa's total population in 2017. Based on the present age-gender structure and the present fertility, mortality and migration rates, Rustenburg's population is projected to grow at an average annual rate of 1.7% from 645 000 in 2017 to 700 000 in 2022 ((Rusteburg LM, 2019/2020).

The primary sector consists of two broad economic sectors namely the mining and the agricultural sector. Between 2007 and 2017, the agriculture sector experienced the highest growth in 2017 with

an average growth rate of 43.3%. The mining sector reached its highest point of growth of 19.5% in 2015. The agricultural sector experienced the lowest growth for the period during 2015 at -18.2%, while the mining sector reaching its lowest point of growth in 2014 at -13.0%. Both the agriculture and mining sectors are generally characterised by volatility in growth over the period (Rusteburg LM, 2019/2020).

The secondary sector consists of three broad economic sectors namely the manufacturing, electricity and the construction sector. Between 2007 and 2017, the manufacturing sector experienced the highest growth in 2010 with a growth rate of 3.6%. The construction sector reached its highest growth in 2007 at 14.6%. The manufacturing sector experienced its lowest growth in 2010 of -11.6%, while construction sector reached its lowest point of growth in 2010 with a -4.6% growth rate. The electricity sector experienced the highest growth in 2009 at 10.9%, while it recorded the lowest growth of -13.4% in 2008 (Rusteburg LM, 2019/2020).

The RBMR Rustenburg Operations employs locals as far as possible and have implemented several community initiatives, both of which are improving the local socioeconomic situation in the area (Rusteburg LM, 2019/2020).

11 Plan of Study for the Environmental Impact Assessment

A full EIA process will be conducted for the proposed project, where an EIR and EMPr will be compiled and submitted to the DEDECT. A summary of the approach to be followed is provided in Figure 2-1**Error! Reference source not found.**.

This Plan of Study (PoS for the EIA is provided to give an indication of further studies and assessments to be undertaken for the project and the impact assessment methodology that will be used to qualify and quantify the identified impacts.

The scoping process is designed to identify impacts and determine if these impacts are sufficiently significant to warrant a specialist investigation in the EIA Phase. Issues requiring further investigation require a common set of assessment criteria against which the impacts can be described, evaluated and the significance determined.

11.1 Purpose of this Plan of Study

The purpose of the scoping phase of this EIA process is to identify potential environmental impacts, and to discuss the alternatives considered. This PoS outlines the process to be followed during the course of the EIA and will be submitted to the DEDECT for review and comment as part of the Draft Scoping Report. The Draft Scoping Report, with the PoS will also be made available to all the stakeholders for review and comment. Comments received will be incorporated into the Final Scoping Report and PoS, which will be submitted to the DEDECT for approval. Depending on the responses received during the registration period, a public meeting may be held during the Scoping Phase of the project.

The purpose of the PoS is to layout an effective methodology to be followed during the assessment of impacts, should this be deemed necessary, in order to meet the requirements of the NEMA.

11.2 Purpose of the EIA/EMPr

The objectives of the EIA/EMPr will be to:

- Identify and assess the environmental (biophysical, socio-economic, and cultural) impacts of the construction, operation, decommissioning and post closure impacts of the proposed project. The cumulative impacts of the proposed development will also be identified and evaluated;
- Identify and evaluate potential management and mitigation measures that will reduce the negative impacts of the proposed development and enhance the positive impacts;
- Compile monitoring, management, mitigation and training needs in the EMPr; and
- Provide the decision-making authorities with sufficient and accurate information in order to make a sound decision on the proposed development.

11.3 Methodology

This report presents the biophysical, socio–economic and cultural impacts that have been identified and assessed at a scoping level.

A comprehensive and standardized methodology will be used to assess the environmental impacts during the EIA Phase of the project. A plan will be prepared to mitigate and manage these impacts.

The EMPr will focus on the appropriate management of the proposed impacts resulting from the construction, operation and decommissioning of the proposed project.

11.4 Environmental Impact Assessment Report

Upon acceptance of the Final Scoping Report by the DEDECT, a Draft EIAR and EMPr will be compiled in terms of Appendix 3 of GNR 326 promulgated in terms of the NEMA. The purpose of the impact assessment phase of this EIA process is to systematically assess the impacts of the proposed project on the immediate and surrounding biophysical and socio environment. All comments received on the Draft EIAR will be addressed and taken into consideration prior to submission of the Final EIAR to the DEDECT.

11.5 Environmental Management Programme

The EMPr will be compiled in accordance with Appendix 4 of GNR 326 of the NEMA. This will provide effective management and mitigation measure pertaining to the proposed development relating to the identified environmental impacts. These management and mitigation measures will strive to minimise the negative impacts of the proposed development and enhance the positive impacts.

11.6 Stakeholder Engagement Going Forward

The stakeholder engagement process conducted thus far is provided in Section 8. The PoS for the proposed development should achieve the following:

- Describe the tasks that are undertaken as part of the EIA/EMPr process and the process followed in undertaking these tasks;
- Describe the authority consultation process and an indication when consultation will be conducted;
- Provide the assessment methodology used to assess the potential environmental impacts; and
- Provide an overview on the on-going I&AP consultation process.

11.6.1 Submission of Environmental Impact Assessment Report and Environmental Management Programme for Review

Upon acceptance of the Final Scoping Report by the DEDECT, a draft Environmental Impact Assessment Report (EIAR) will be compiled in terms of Appendix 3 of GNR 326 promulgated in terms of the NEMA. The purpose of the impact assessment Phase of this EIA process is to systematically assess the impacts of the proposed project on the immediate and surrounding biophysical and socio environment.

The draft EIAR and EMPr will be made available for a 30-day commenting period. Registered I&AP's will be notified of the availability of the draft EIAR and EMPr Report through email, fax, SMS and posted registered letters. Depending on the responses received during the registration period, and where requested by the stakeholders, a public meeting may be held during the impact assessment phase of the project, ensuring that the COVID-19 Regulation requirements are met. Should a meeting be required, where possible online meetings will be held, and where stakeholders do not have internet access, the meetings will be held with no more than 50 stakeholders in attendance. Stakeholders will be informed of the COVID-19 Regulation requirements that will be enforced during the meeting.

Where necessary, comments and issues raised by I&AP's during the commenting period will be consolidated into the Final EIAR and EMPr with the relevant response issued by the EAP. The Final

EIAR and EMPr will then be submitted to the DEDECT for decision making. The comments will also be collated into the CRR that will form an Appendix to the Final EIAR.

11.6.2 Authority Consultation

Ongoing consultation with the different authorities will be conducted during the course of the EIA process. Further consultations with the competent authorities will be conducted should they become necessary. Authority consultation is considered an on-going process until a decision is made on the environmental application.

Other authorities that will be included are the local and district municipalities, ward councillors, and others identified during the scoping Phase of the project.

11.7 Alternatives

According to GNR 326 promulgated in term of the NEMA, feasible alternatives need to be considered and assessed during the scoping Phase of the project. During the scoping phase, based on professional judgement of the EAP, the engineering design consultants and I&AP comments, alternatives have been considered for the location of the bulk chemical storage facility. Three possible locations within and around the RBMR were considered. In addition to these alternatives, the “no–go” alternative was also assessed. All alternatives, including the no-go option will eb subject to the impact assessment.

11.8 Specialist Studies

The DEA Screening Tool classified the area as being an area of high biodiversity value. The following specialist studies will be conducted:

- Biodiversity;
- Heritage Resources; and
- Stormwater Management Plan.

The generic terms of reference (ToR) for each specialist study are to:

- Describe the existing baseline characteristics of the study area and place this in a regional context;
- Identify and assess potential impacts resulting from the project (including impacts associated with the construction and operation of the project), using SRK’s prescribed impact rating methodology;
- Identify and describe potential cumulative impacts resulting from the proposed development in relation to proposed and existing developments in the surrounding area;
- Recommend mitigation measures to avoid or minimise impacts and/or optimise benefits associated with the proposed project; and
- Recommend and draft a monitoring programme, if applicable.

Certain impacts that are anticipated to be of limited or lower significance, either by virtue of the scale of the impacts, their short duration (e.g. construction phase only), disturbed nature of the receiving environment and/or distance to communities, will be assessed by EAP Team and reported directly into the EIA Report.

11.9 Impact Assessment Methodology

The anticipated impacts associated with the proposed project will be assessed according to SRK's standardised impact assessment methodology, which is presented below. This methodology has been utilised for the assessment of environmental impacts where the consequence (severity of impact, spatial scope of impact and duration of impact) and likelihood (frequency of activity and frequency of impact) have been considered in parallel to provide an impact rating and hence an interpretation in terms of the level of environmental management required for each impact.

The first stage of any impact assessment is the identification of potential environmental activities[2], aspects[3] and impacts, which may occur during the commencement, and implementation of a project. This is supported by the identification of receptors[4] and resources[5], which allows for an understanding of the impact pathway and an assessment of the sensitivity to change. Environmental impacts[6] (social and biophysical) are then identified based on the potential interaction between the aspects and the receptors/resources.

The significance of the impact is then assessed by rating each variable numerically according to defined criteria as outlined in Table 11-1.

The purpose of the rating is to develop a clear understanding of influences and processes associated with each impact. The severity[7], spatial scope[8] and duration[9] of the impact together comprise the consequence of the impact and when summed can obtain a maximum value of 15. The frequency of the activity[10] and the frequency of the impact[11] together comprise the likelihood of the impact occurring and can obtain a maximum value of 10. The values for likelihood and consequence of the impact are then read off a significance rating matrix table as shown in Table 11-2.

This matrix thus provides a rating on a scale of 1 to 150 (low, medium low, medium high or high) based on the consequence and likelihood of an environmental impact occurring.

Natural and existing mitigation measures, including built-in engineering designs, are included in the pre-mitigation assessment of significance. Measures such as demolishing of infrastructure, and reinstatement and rehabilitation of land, are considered post-mitigation.

[2]An ***activity*** is a distinct process or task undertaken by an organisation for which a responsibility can be assigned. Activities also include facilities or pieces of infrastructure that are possessed by an organisation.
[3]An ***environmental aspect*** is an 'element of an organisations activities, products and services which can interact with the environment'. The interaction of an aspect with the environment may result in an impact.
[4]***Receptors*** comprise, but are not limited to people or man-made structures.
[5]***Resources*** include components of the biophysical environment.
[6]***Environmental impacts*** are the consequences of these aspects on environmental resources or receptors of particular value or sensitivity, for example, disturbance due to noise and health effects due to poorer air quality. Receptors can comprise, but are not limited to, people or human-made systems, such as local residents, communities and social infrastructure, as well as components of the biophysical environment such as aquifers, flora and palaeontology. In the case where the impact is on human health or well-being, this should be stated. Similarly, where the receptor is not anthropogenic, then it should, where possible, be stipulated what the receptor is.
[7]***Severity*** refers to the degree of change to the receptor status in terms of the reversibility of the impact; sensitivity of receptor to stressor; duration of impact (increasing or decreasing with time); controversy potential and precedent setting; threat to environmental and health standards.
[8]***Spatial scope*** refers to the geographical scale of the impact.
[9]***Duration*** refers to the length of time over which the stressor will cause a change in the resource or receptor.
[10]***Frequency of activity*** refers to how often the proposed activity will take place.
[11]***Frequency of impact*** refers to the frequency with which a stressor (aspect) will impact on the receptor.

Table 11-1: Criteria for Assessing Significance of Impacts

SEVERITY OF IMPACT	RATING
Insignificant / non-harmful	1
Small / potentially harmful	2
Significant / slightly harmful	3
Great / harmful	4
Disastrous / extremely harmful	5

SPATIAL SCOPE OF IMPACT	RATING
Activity specific	1
Project Area specific	2
Local area (within 5 km of the plant boundary)	3
Regional (Rustenburg area)	4
National	5

DURATION OF IMPACT	RATING
One day to one month	1
One month to one year	2
One year to ten years	3
Life of operation	4
Post closure / permanent	5

CONSEQUENCE

FREQUENCY OF ACTIVITY / DURATION OF ASPECT	RATING
Annually or less / low	1
6 monthly / temporary	2
Monthly / infrequent	3
Weekly / life of operation / regularly / likely	4
Daily / permanent / high	5

FREQUENCY OF IMPACT	RATING
Almost never / almost impossible	1
Very seldom / highly unlikely	2
Infrequent / unlikely / seldom	3
Often / regularly / likely / possible	4
Daily / highly likely / definitely	5

LIKELIHOOD

Table 11-2: Interpretation of Impact Rating

Likelihood \ Consequence	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
2	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30
3	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45
4	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60
5	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
6	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90
7	7	14	21	28	35	42	49	56	63	70	77	84	91	98	105
8	8	16	24	32	40	48	56	64	72	80	88	96	104	112	120
9	9	18	27	36	45	54	63	72	81	90	99	108	117	126	135
10	10	20	30	40	50	60	70	80	90	100	110	120	1	140	150

	High	76 to 150	Improve current management
	Medium High	40 to 75	Maintain current management
	Medium Low	26 to 39	
	Low	1 to 25	No management required

SIGNIFICANCE = CONSEQUENCE x LIKELIHOOD

12 Anticipated Environmental, Social and Cultural Impacts

The scoping Phase aims to identify the potential positive and negative biophysical, socio-economic and cultural impacts that the proposed project. Anticipated impacts that have been identified by the project team are summarised in Table 12-1.

All impacts in terms of construction, operation and decommissioning together with the recommended mitigation measures will be and addressed in the impact assessment phase of the project.

Table 12-1: Summary of Potential Environmental Impacts Associated with the Proposed Development

Element of Environment	Potential Impact Descriptions
Socio-Economic	Possible limited and temporary job opportunities during the construction phase of the Bulk Chemical Storage Facility
Hydrogeology	Possible groundwater contamination from hydrocarbons leaking from construction vehicles.
Surface water	Possible, but unlikely surface water contamination.
Air Quality	Possible, but unlikely impact on air quality in the area.
Noise	Possible generation of noise during the construction phase of the bulk chemical storage facility
Heritage Resources	Possible, but highly unlikely impact on heritage resources due to chance finds
Visual	It is not anticipated that any additional visual impacts will be associated with the proposed bulk chemical storage facility
Soils/Land Use/Land Capability	Localised loss of soil resource and change in land capability and land use due to the clearance of vegetation is expected.
Visual	It is not anticipated that any additional significant visual impacts will be associated with the proposed bulk chemical storage facility
Traffic	Possible impacts on traffic due to transportation of construction material
Biodiversity	Loss of biodiversity due to vegetation clearance for construction.
Wetland	None, there are no wetlands that are located on the proposed Bulk Chemical Storage Facility site.

12.1 Socio Economic

The relocation of the bulk chemical storage facility to reduce the risk of the current plant and impacts associated with the failure, should it occur. In a case where there is failure resulting in caustic or acid stop, the whole platinum pipeline will be affected, deferring Anglo American Platinum (AAP)'s production for the duration of the stop. This would have economic implications for the whole operation in terms of the interest of the deferred cash as well as on the company's image and reduced market confidence. It is estimated that the financial cost of such failure would be in the order of R 11 billion rand a month in deferred cash (only considering major Platinum Group Metals (PGM) and base metals at current prices), which represents approximately 2% of South Africa's Gross Domestic Product (GDP).

A total failure of the plant would cause serious job and tax revenue loss, making it imperative to ensure that such failure does not occur.

It is also expected that the proposed project will result in temporary creation of employment during the construction phase.

The EIA team will include a socio-economic impact assessment and statement in the EIAR and will provide management and mitigations measure to prevent and/or minimise the proposed impacts.

12.2 Hydrogeology

The construction and operational phases of the project may result in the possible contamination of groundwater from hydrocarbons leaking from vehicles and machinery used in the construction and operational phases to transport material.

A groundwater impact assessment and statement will be included in the EIAR and mitigation measures included in the EMPr for RBMR to ensure that the proposed project will have minimal impacts on the groundwater resources.

12.3 Surface water

Although it is considered highly unlikely that the project will have impacts on the surface water resources in the area due to the location of the proposed facility, the following possible impacts may occur:

- Reduced water quality as a result of possible hydrocarbon spills;
- Siltation of watercourses as a result of cleared areas and erosion;
- Incorrect separation of clean and dirty water; and
- Leaching of contaminated ground water into water resources.

The EIAR will include an assessment of the likelihood and significance of the impacts of the bulk chemical storage facility on the hydrology of the area, as well as the management and mitigation measures required to minimise the impacts.

A hydrologist has been appointed to compile a Stormwater Management Plan (SWMP) that will be integrated into the overall RBMR SWMP to ensure that stormwater from the proposed facility is properly managed.

12.4 Air Quality

The proposed project may result in air quality impacts due to vehicle emissions and dust emissions during construction and vehicular movement around the site. The impact will be short term and will be greatly reduced during the operational phase of the project.

The EIAR will include an assessment of the significance of the impacts of the proposed bulk chemical storage plant on air quality, as well as the management and mitigation measures required to minimise the impacts.

12.5 Noise

It is expected that noise will be generated from the movement of vehicles and the use of heavy equipment during the construction and operational phases of the project. Due to the existing activities associated with the RBMR it is expected that the noise associated with the bulk chemical storage facility will be masked by the noise already existing on site as a result of the other activities.

The EIAR will include an assessment of the significance of the impacts of the bulk chemical storage facility on noise, as well as the management and mitigation measures required to minimise the impacts.

12.6 Visual

Due to current operations at RBMR and its associate mines in close vicinity to the proposed bulk chemical storage facility location, it is expected that the plant will not result in any significant additional visual impacts.

During the construction phase, clearing of vegetation and the presence of construction vehicles and equipment may result in visual intrusion and impact on sense of place. There is also a possibility of indirect visual impact due to dust generation as a result of the movement of vehicles and materials, to and from the site area. This will be short lived and is expected to be of low significance, considering the activities already taking place at RBMR.

An impact assessment will be conducted, and mitigation and management measures will be included in the EIAR and EMPr.

12.7 Soils, Land Use and Land Capability

It is expected that during the construction phase, the proposed project will have short lived, low significance impacts on soils, land use and land capability as follows:

- Movement of construction vehicles, machinery and workers in unprotected areas (bare) may result in compacting of the soil;
- Clearing of vegetation will result in the soils being particularly more vulnerable to soil erosion. The impact can persist long after cessation of construction activities depending on mitigation and rehabilitation strategies. The strategic SWMP being compiled for the facility will ensure that soil losses are minimised;
- Soil contamination as a result of construction activities can be as a result of a number of activities (i.e. incorrect hazardous substance storage, incidental hydrocarbon leakages from construction vehicles);
- Loss of soil resource and utilisation as a result of the cleaning and topsoil stripping of the construction footprint. Although soils will be stripped and stockpiled, loss of seed reserve and organic matter depletion through decomposition during stockpiling will reduce soil quality and its ecological function if not managed appropriately; and
- In areas of permanent changes where the infrastructure will be permanently located (weigh bridge, parking, tanks and railway siding), the current land capability and land use will be lost permanently. This will however be localised to the footprint of the infrastructure.

The impacts on soils, landuse and land capability will be localised to the project footprint. A soil, landuse and land capability impact assessment will be conducted, and mitigation and management measures will be included in the EIAR and EMPr.

12.8 Biodiversity

The biodiversity assessment field work conducted for the project found that the proposed bulk chemical storage facility will not have an impact on any species of conservation concern (SCC) in terms of flora and fauna and that due to degraded nature of the environment and historical impacts, the likelihood of any SCC occurring there is low. The study area the habitat has been exposed to various historic disturbances, resulting in degraded habitat with generally low floral and faunal abundance and diversity. Much of the study area is dominated by species associated with disturbance, including alien and invasive plants (AIPs). Faunal assemblages within the area composed of commonly occurring and widespread species that have adapted to the peri- urban surroundings.

The impacts on the floral and faunal habitat, diversity and SCC are considered to range from very low to low significance impacts prior to the implementation of mitigation measures.

The full impact assessment conducted by the specialist will be included in the EIAR and EMPr.

12.9 Wetland

There are no wetlands in the project area.

12.10 Heritage

Although the heritage field assessment found no heritage resources located on the proposed project area, the EIAR and EMPr will include mitigation and management measures that must be implemented should there be chance findings of heritage resources.

12.11 Traffic

Although trips can be optimised, transportation of material during the construction phase will result in increased traffic count in the area. However, during the operational phase of the project, it is expected that since RBMR is already operating a chemical storage facility which will cease to operate once the new one is commissioned, there will be no material additional impacts on traffic. The proposed location of the bulk chemical storage facility will result in less traffic congestion around RBMR.

The impact assessment phase will include an assessment and quantification of possible traffic impacts and mitigation measures that can be implemented to reduce the significance of the impacts.

12.12 Cumulative impacts

Incomparable activities can result in several complex effects on the natural biophysical and social environment. These impacts are mainly identified as direct and immediate effects on the environment by a single entity affecting a variable of the environment. These direct impacts have the potential to combine and interact with other activities, depending on the surrounding environmental state and land use. These impacts may aggregate or interact with other impacts to cause additional effects, not easily quantified when assessing an individual entity.

The NEMA EIA Regulation of 2014 (as amended in 2017) specifically requires that cumulative impacts be assessed. The impact assessment phase will include a description and analysis of the potential cumulative effects of the proposed bulk chemical storage facility, and past and present projects hereby considering the effects of any changes on the:

- Biophysical; and
- Socio – Economic conditions.

The EAP team and specialists will identify significant past and present projects and activities that may interact with the bulk chemical storage facility project to produce cumulative impacts. The preliminary assessment indicates that the project will have low to negligible cumulative impacts on:

- Ground and Surface Water;
- Air quality
- Noise; and
- Biodiversity.

The EAP team and specialists will include mitigation and management measures in the EMPr that RBMR will be required to implement to, where possible avoid the negative impact and/or minimise the significance of the impacts.

13 Undertaking of Oath by the EAP

Section 16 (1) (b) (iv), and Appendix 3 Section 2 (j) of the EIA Regulations, 2014 and amended in 2017 (promulgated in terms of the NEMA, require an undertaking under oath or affirmation by the EAP in relation to:

- The correctness of the information provided in the report;
- The inclusion of comments and inputs from stakeholders and I&AP's;
- Any information provided by the EAP to I&AP's and any responses by the EAP to comments or inputs made by I&AP's; and
- The level of agreement between the EAP and I&AP's on the Plan of Study for undertaking the EIA.

SRK and the EAP's managing this project hereby affirm that:

- To the best of our knowledge the information provided in the report is correct, and no attempt has been made to manipulate information to achieve a particular outcome. Some information, especially pertaining to the project description, was provided by the applicant and/or their sub-contractors. In this respect, SRK's standard disclaimer pertaining to information provided by third parties applies.
- To the best of our knowledge all comments and inputs from stakeholders and I&AP's have been captured in the report and no attempt has been made to manipulate such comment or input to achieve a particular outcome. Written submissions are appended to the report while other comments are recorded within the report. For the sake of brevity, not all comments are recorded verbatim, and in instances where many stakeholders have made similar comments, they are grouped together, with a clear listing of who submitted which comment(s).
- Information and responses provided by the EAP to I&AP's are clearly presented in the report. Where responses are provided by the applicant (not the EAP), these are clearly indicated.
- With respect to EIA Reports, SRK will take account of I&AP's comments and, insofar as comments are relevant and practicable, accommodate these during the EIA/EMPr process

14 Conclusions and Recommendations

The aim of this Scoping Report is to provide an indication of the identified, positive and negative environmental and socio-economic impacts associated with the proposed project activities. The stakeholder engagement in the scoping phase will play an important role in determining possible impacts and allowing the concerns by the public to be adequately addressed in the Impact Assessment Phase of the EIA process.

The Draft Scoping Report has presented:

- The environmental process undertaken so far;
- A brief description of the proposed project;
- A baseline description of the current environment;
- The potential environmental and social impacts identified to date; and
- The recommended environmental process to be followed to develop the EIA/EMPr Report.

Once the Scoping Report comment period is concluded, the report will be updated with the additional issues, and submitted to DEDECT for decision making. Once the scoping report has been accepted by the DEDECT, an EIA, including a Draft EMPr, will be compiled and subjected to a round of public comment. The EIA will then be presented to the authorities for decision-making. On submission of the EIA and EMPr to the DEDECT, notification will be sent to registered I&AP's to inform them of the submission of the documents; and the opportunity to request copies of the Final reports.

Extensive consideration has been given to the proposed design and location of the project. No fatal flaws have been identified during the scoping phase of this project. The DEA environmental screening tools indicates the proposed location of the facility to be of high biodiversity sensitivity, therefore a biodiversity specialist has been appointed to conduct the biodiversity specialist studies. In addition, heritage resources impact assessment will also be conducted by a heritage specialist. A hydrologist will compile a SWMP for the proposed project for the effective management of stormwater emanating from the bulk chemical storage facility area. The heritage and biodiversity specialists have conducted field assessments and found no resources of significant importance that will be affected by the project.

Findings from specialist studies will be incorporated into the EIAR and EMPr during the EIA phase. The proposed comprehensive stakeholder engagement process in the PoS will ensure that the stakeholders are involved throughout the process, from the conception of the EA application process to the end. It is anticipated that implementation of the PoS presented in this report will result in an adequate EIA process which will result in the formulation of a sound EMPr to be integrated into the overall management system of the RBMR area.

15 References

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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.

Appendices

Appendix A: Curriculum Vitae of the Project Team

Appendix B: Project Experience

Appendix C: Stakeholder Engagement

Appendix C 1: Pre-application Authority Consultation Documents

Appendix C 2: Stakeholder Engagement Plan and DEDECT Response

Appendix C 3: Stakeholder Database

Appendix C 4: Announcement Phase Notifications

Appendix C 5: Site Notices

Appendix C 6: Newspaper Advertisements

Appendix C 7: Comments and Responses Report

Appendix C 8: Stakeholder Communications

Appendix C 9: Commenting Authority Correspondence

Appendix D: Specialist Studies Reports

SRK Report Distribution Record

Report No.	561608/Draft Scoping Report
Copy No.	5

Name/Title	Company	Copy	Date	Authorised by
Competent Authority				
Ms Gasewabone Ellis Thebe	DEDECT	1 (HC)	October 2020	HINM
Commenting Authority				
Mr P Shikwane / Ms Tsholofelo B Dikgole	Bojanala Platinum District Municipality	2 (HC)	October 2020	HINM
Lillian Sefike/ Kelebogile Mekgoe (Environmental Officer)	Rustenburg Local Municipality	3 (HC)	October 2020	HINM
Mr. Chadwick M Lobakeng	Department Water and Sanitation	4 (HC)	October 2020	HINM
SAHRA Website	North West Provincial Heritage Resources Agency	5 (PDF)	October 2020	HINM
Dipeneneng Serage	North West Department of Agriculture, Forestry and Fisheries	6 (HC)	October 2020	HINM
Mr. Pumudzo Nethwadzi	Department of Mineral Resources	7 (HC)	October 2020	HINM
	South African Civil Aviation Authority	8(PDF)	October 2020	HINM
Public Places				
Mr. Pieter Louw	Rustenburg Public Library in Rustenburg	9 (HC)	October 2020	HINM
Client				
Verona Buitenbag	RBMR	2 (PDF)	October 2020	HINM
SRK				
SRK Library	SRK Consulting	3 (PDF)	October 2020	HINM
SRK File	SRK Consulting	4 (PDF)	October 2020	HINM
SRK Server	SRK	5 (PDF)	October 2020	HINM

Approval Signature: