Universal Chrome Minerals (Pty) Ltd

SECTION 24G APPLICATION: IMPACT ASSESSMENT REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME FOR THE CHROME PROCESSING PLANT ON PORTION 50 OF FARM BOSCHFONTEIN 458 JQ, BOJANALA PLATINUM DISTRICT MUNICIPALITY, NORTH WEST PROVINCE

Draft Environmental Impact Assessment and Environmental Management Programme Report for Public Review

May 2025

PROJECT INFORMATION:	
EIA & EMPr Report	Section 24G Rectification Application combined with a Water Use Licence Application (WULA) for the Universal Chrome Minerals Proposed Chrome Processing plant on portion 50 of farm Boschfontein 458 JQ within Madibeng Local Municipality in the Bojanala Platinum District Municipality, North West Province.
Competent Authority	North West Department of Economic Development, Environment, Conservation and Tourism (DEDECT)
Applicant	Universal Chrome Minerals (Pty) Ltd.
Environmental Assessment Practitioner	Segope Water and Environmental Services
Report Type	EIA & EMPr
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Where site inspections, testing or fieldwork have taken place, the report is based on the information made available by the client during the visit, visual observations and any subsequent discussions with regulatory authorities. The data and information used in this report were provided to Segope Consulting by the client and also referred to other outside sources (including historical site investigation information and third- party expert research).

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EXECUTIVE SUMMARY

Background

Universal Chrome Minerals (Pty) Ltd, hereinafter referred to as UCM appointed Segope Water and Environmental Services (Segope Consulting), as an independent Environmental Assessment Practitioner (EAP), to carry out an application for Section 24G (S24G) rectification for the unlawful commencement of listed activities in terms of the National Environmental Management Act (Act No. 107 of 1998), as amended (NEMA) relating to the proposed chrome processing plant on portion 50 of farm Boschfontein 458 JQ.

Segope Consulting had a pre-application engagement with the North West Department of Economic Development, Environment, Conservation and Tourism (DEDECT) on the 22nd of April 2025 and intends to lodge an application for S24G as well as the authorisation of activities that will be triggered by the proposed processing plant development in accordance to NEMA Environmental Impact Assessment (EIA) regulations and National Environmental Management: Waste Act (NEMWA, Act 59 of 2008). In addition to the above-mentioned applications, a Water Use Licence (WUL) with reference number WU41699 was lodged to the Department of Water and Sanitation (DWS), Hartbeespoort Office.

The Chrome Processing Plant is located in the above-mentioned farm within the Madibeng Local Municipality, Bojanala Platinum District Municipality in the North West Province.

Most of the information contained in this report is the information collected during the pre-liminary site assessments by various specialist as well as sensitivity analysis conducted using the Department of Forestry, Fisheries and the Environment (DFFE) screening tool. **This report will be updated after the incorporation of views and comments from the public, that will be obtained throughout the Public Participation Process (PPP).**

Project Description

The extent of the project site at farm Boschfontein 458 JQ encloses an area of approximately 11.7 hectares. An application is being made to rectify the clearance of indigenous vegetation to develop the processing plant without an Environmental Authorisation (EA) and also to authorize further NEMA listed activities that are triggered by the development of the plant. The clearance of indigenous vegetation commenced in December 2024.

The key components of the proposed infrastructures associated with the application include:

- Boreholes,
- Clean Water Dam,
- Tailings Dam,

- Tailings Sludge Sedimentation Zone,
- Tailings,
- Stockpile Zone,
- Sedimentation Dams (three units),
- Equipment Zone,
- ROM Stockpile Zone, and
- Concentrate Stockpile Zone.

Project Need and Desirability

If the processing plant doesn't go ahead, the local communities around the proposed operation and South Africa as a whole will sacrifice the benefits of employment and income generation in the area as well as the development of Broad-Based Black Economic Empowerment (BBBEE) opportunities during construction, operation and eventual closure and rehabilitation. This implies lost opportunities for economic growth, community development, and global competitiveness in a vital industry. Furthermore, not undertaking the proposed project also hinders the continued recognition of the country's mineral capability at a global scale.

The project, if approved, would be managed responsibly, with strict environmental safeguards, a commitment to social responsibility, and a clear plan for rehabilitation. By rejecting the project, the decision-makers would lose out on these economic and social benefits. However, it is far more beneficial to **approve the project** with the necessary oversight and management than to miss out on the many advantages it offers.

A number of benefits associated with the proposed chrome processing plant have been identified by UCM and include:

- Exploiting the natural mineral resources as appropriate under the Mineral and Petroleum Resource Development Act (MPRDA, Act 28 of 2002)
- Creating employment opportunities during construction, operational and decommissioning phase;
- Contribution to economic benefits for local communities, particularly in terms of job creation, infrastructure development, and long-term economic upliftment in the surrounding areas;
- Retaining, and possible creation, of employment opportunities on local and regional scale during operational phase.

Process followed

The Environmental Impact Assessment (EIA) was conducted according to NEMA and the S24G Fine Regulations (2017), to date the following activities have been conducted:

- A pre-liminary site assessment by Segope Consulting on the 24th of November 2024.
- A site inspection by the Environmental Management Inspectors (EMIs) of the NW DEDECT on the 7th of February 2025.
- Notice of intention to issue a compliance notice from DEDECT dated 11 March 2025.
- The letter of response to pre-compliance notice by Segope Consulting received by DEDECT on the 31 March 2025.
- The Section 24G pre-application meeting enquiry submitted to the North West Department of Economic Development, Environment, Conservation and Tourism (DEDECT) on the 10th of April 2025.
- S24G pre-application meeting on the 22nd of April 2025.
- Identification of additional listed activities under NEMA EIA regulations and NEMWA.
- Submission of the draft of Environmental Impact Assessment and Environmental Management Programme (EIA & EMPr) for the public review.
- Public participation meeting during the application stage (Scheduled for the 14th of May 2025).
- Submission of final EIA&EMPR to the DEDECT scheduled to be done after the public review.

Public Participation

Public participation will be undertaken during the course of compiling this report in reference to Section 39-42 of the EIA Regulations (2014) GN R.982, as amended.

To date, various stakeholders were identified at local and regional level through consultations via emails. A newspaper advert was placed in the Britspos newspaper, and site notices were placed at the **UCM project site, Brits Library** as well as **Kearona Shopping Centre in Bapong**. Registration and comments sheet will be shared via emails and hard copies will be shared during the Public Participation Meeting.

The full EIA includes the assessment of potential environmental and socio-economic impacts, further investigations by specialists in their respective fields, and the undertaking of the legislated required participation of interested and affected parties (I&APs).

The public review period will be from **23 May 2025 to 22 June 2025**. The draft EIA&EMPr has been made available at the following locations for public comment:

Name of Public Place	Address	Contact Details	Operating Hours
Brits Library	51 Van Velden St, Brits, 0250, South Africa Coordinates: 25°38'5.74"S, 27°46'41.94"E	012 318 9318	Mon to Fri 9 am to 5pm | Sat 9 am to 12 pm

UCM Project site	Portion 50 of Farm Boschfontein 458 JQ. Coordinates: 25°43'14.42"S, 27°43'2.92"E	060 870 1998	Mon-Sat 8am to 17h30 |Sun 8am to 14 pm
Online Link	https://segope.co.za/		
QR Code			

Summary of key components raised by stakeholders

So far, a few I&APs have commented on the project and raised several issues and complaints through emails. **Additional issues raised throughout the PPP will be recorded in the final EIA&EMPr report that will be submitted to DEDECT**. The key components raised so far include the following:

- Environmental Authorisation process
- Public Participation Process
- Roads and Traffic Impact
- Health Issues
- Water Use
- Location of the project site in terms of biodiversity
- Management measures
- Local customs and protocols

Summary of Baseline Environment

Geology and Topography - The topography of the project area is characterized by a broad relatively flat land with an altitude of between 1000-1300 metres above mean sea level (mamsl). The study area overlies the Vlakfontein Subsuite which along with Skilpadnest Subsuite, Norite Formation, Dwars River Subsuite, Kolobeng Norite Formation, and Croydon Subsuite Formation forms the Lower Zone of the Bushveld Igneous Complex within its Rustenburg Layered Suite. These formations are mafic and ultramafic layered deposits of igneous rock and can be classed under the Mafic Igneous Sulphides. The rocks in this study area are primarily pyroxenite, harzburgite and norite towards the South, the Vlakfontein Subsuite begins contact with the eastern Transvaal basin, particularly the Rayton Formation and Magaliesberg Formation.

Land use and Climate - The study area is located in a semi-arid region in the North West Province of South Africa. The climate of the area is characterized by warm summers, cold to moderate winters, with the main rainy season being in summer from October through to April. Average daily maximum temperatures range from 30.3°C in January to 21.2°C in July, with daily minimum ranging from 17°C in January to just above 1.3°C in July.

Soil and Land Capability- The study area is largely dominated (66.8% of the study area) by the soils, which are disturbed by anthropogenic influences such as intentional transportation and severe physical disturbance due to the chrome processing activities taking place. Although these activities are taking place in originally shallow soils of the Mispah/Glenrosa formation, thus leading to the loss of soil, which can be potentially utilized for grazing and horticulture purposes. The soils within the study area have been disturbed since 2004. From an agricultural standpoint, the anticipated effects stemming from the proposed development are deemed to have moderate significance. This is primarily due to most of the proposed activities being situated within the previously identified natural veld areas, primarily serving as grazing and wilderness.

Biodiversity- The North West province is home to a diverse number of faunal species. The number of recorded mammalian species is 121, reptile species is 102, amphibian species is 23 and 480 bird species. No mammalian, amphibian species, avian species and reptiles were observed during the site visit. According to the screening tool, the proposed site falls within CBA2 and ESA2. Through the ground-truthing exercise of a site visit that took place on **15 November 2024**. It was noted that the proposed site has been transformed and has been used for agricultural activities, it is there no longer in its natural state. In terms of plant species identified on site, no Species of Conservation Concern (SCC) or protected species were found during the site assessment by an ecologist.

Wetland delineation- The wetland delineation was completed with the aid of aerial imagery, as well as verification in the field. The project area covers approximately 11.7 hectares, and no wetlands were spotted or observed onsite. The delineation was conducted using the four specific indicators, namely Terrain Unit, Soil form, Vegetation, and Hydrology indicators

Surface Water – The proposed chrome processing plant will be situated in the Crocodile (West) and Marico Water Management Area (WMA), in quaternary catchment A21J. The A21J catchment is drained mainly by the Crocodile River from the outflow Hartbeespoort Dam to inflow Roodekopjes Dam, together with its tributaries. A Non-perennial stream was identified north-west of the project site. The stream flows approximately at 93 m away from the project site to join another non-perennial stream which then joins the Kareespruit River.

Groundwater- The geohydrological report was constructed by first identifying what information is valuable or known as well as what gaps need to be filled; then constructive recommendations were made to protect groundwater. The impact of the proposed chrome processing plant and related infrastructures was investigated through field investigations and data analyses. The aquifer at the project site was classified as a minor aquifer system. A GQM Index of medium was estimated for the study area from the ratings of the Aquifer System Management Classification. According to this estimate, a medium level groundwater protection is required. Reasonable and sound groundwater protection measures are therefore recommended to ensure that no cumulative pollution affects the aquifer, even in the long term.

Traffic- The following roads and streets are relevant to the study area, and they are categorized into different classes according to the Rural Functional Road Classification: The **Regional Road (R104)** functions as a Collector Street (class 4). This road is a surfaced single carriageway road with no median and one (1) lane in each direction and has a T-junction stop with Lebidike Road. The **R566 Road** functions as a Local or Access Street (Class 5) an it connects R104 and N4. The road is a surfaced single carriageway road with no median and one (1) lane in each direction. There is also an **Unknown Tar Road** which functions as a Local or Access Street (Class 5). This road is a surfaced single carriageway road with no median and one (1) lane in each direction, and has a T-junction stop with R104 at Majakaneng Settlement. The predicted impacts of the traffic generated by the proposed chrome plant on the surrounding road network were quantitatively evaluated to assign relative significance to the predicted impacts associated with the project and to determine the manner in which these impacts are to be avoided, mitigated, or managed, if needed.

Socio-economic- A community survey was conducted on the 13th and 14th of May 2025 to have a direct, relevant insights into the life experiences, needs, and concerns of the population affected by this project. The proposed project is in proximity to the two communities, namely Majakaneng, situated approximately 4.5 km southwest, and Bapong Community, which is located approximately 3.84 km northwest of the plant. The areas are characterized by high poverty levels, lack of access to municipal services, and poor service delivery relating to water, sanitation, and electricity. The area is solely dependent on government handouts and migrant labour income for survival. Unemployment is very high due to low educational levels, which are caused by the lack of training facilities and tertiary institutions.

Summary of Impact Assessment

The potential environmental and socio-economic impacts of the Chrome Processing Plant development were identified through a process of developing a baseline; through both desktop studies and site visits. The proposed development infrastructure and associated activities were analyzed against this baseline and impacts were predicted using quantitative and qualitative methods. A variety of impacts were identified for the Bio-Physical Environment and the Socio-economic Environment. A summary of the footprint areas that will be disturbed due to further construction and operation of the proposed infrastructures is given below. All infrastructures will be located on farm Boschfontein 458JQ.

The significance of impacts was assessed through a scoring matrix, for the construction, operational and decommissioning phases of the site. Potential impacts during all project phases, including generation of non-hazardous and hazardous wastes, potential soil and groundwater contamination and emission of pollutants. During the assessment phase, the cumulative impact associated with the proposed project was assessed and determined to be of Moderate significance, however, through the implementation of the mitigation measures, the overall impact significance of the proposed activities can be lowered to Low. The table below provides a summary of the potential impacts associated with the proposed project as well as the proposed mitigation measures.

Impact	Impacts 'status before mitigation	Proposed mitigation/improvement measures/ recommendations
Surface and groundwater		
Ground and surface water contamination	Negative	➢ Vegetation clearance and the exposure of soils must be kept to an absolute minimum. ➢ Temporary erosion control measures (eg, sediment nets, berms, etc.) must be employed around working areas. ➢ Erosion and sediment control, as well as the containment and management of dirty water runoff, are the most important aspects of preventing negative impacts on the water resources. ➢ Energy dissipation measures need to be implemented at steep sections as well as at the exits of the proposed stormwater channels. ➢ Sufficient freeboard in the dirty water dams must be ensured at all times. The dams must be strictly managed following GN704 regulations. ➢ The construction of suitably sized dirty water dams should be investigated. ➢ Dirty water must not be discharged to the environment. Excess water within the plant circuit must be appropriately dealt with, in agreement with the DWS. ➢ It is recommended that runoff is diverted off the access roads through suitably spaced berms. ➢ Post- closure rehabilitation must ensure that erosion prevention is adequate for the long term. **<u>The following mitigation measures are recommended in the operation phase:</u>** ➢ It is recommended that there should be regular testing or monitoring of surrounding soil, and water resources to detect any change in chemistry so that remedial measures are implemented in time. ➢ Throughout the existence of the project, the chemical and physical parameters of the water samples should be tested and compared with the SANS 241: 2015 and WUL standards.

Impact	Impacts 'status before mitigation	Proposed mitigation/improvement measures/ recommendations
		➢ There should be soil, water resources and land pollution mitigation measures on-site. ➢ Wastewater sources should be identified, and mitigation measures put in place to prevent groundwater contamination. ➢ Regarding the stockpile, there should be regular monitoring of any heavy metal which could be exposed, as such could result in leaching during rainfall. ➢ Since the proposed project triggers listed NWA S21 activities, a Water Use Licence (WUL) has been lodged with the DWS. ➢ It is recommended that compliance of relevant legislations such as NEMA, NWA and NEMWA be ensured. ➢ It is recommended that during the existence of the project, there should also be regular maintenance of ablution facilities, to avoid leakage of waste into the ground.
Excavated materials that are stockpiled in incorrect areas can interfere with natural drainage, and cause sedimentation and water pollution.	Negative	➢ The areas excavated must have been vegetated if unused. ➢ Berms to separate dirty and clean water systems and serve as an erosion control measure should be constructed. ➢ The stockpiles must be vegetated to prevent erosion and subsequent siltation of water streams. ➢ Upslope diversion and down-slope silt containment structures should be constructed.
Terrestrial Ecology		

Impact	Impacts 'status before mitigation	Proposed mitigation/improvement measures/ recommendations
Not rehabilitating the disturbed areas to allow for agriculture.	Negative	➢ Since rivers are highly sensitive areas or no-go areas, no plant activity should occur within 100m of the identified drainage line without determining the conditions for WUL from the DWS to avoid unnecessary disturbance of water resources. ➢ The identified water resources provide habitat for aquatic animals, water sources for livestock, and form part of the sources of freshwater in South Africa. ➢ Proper rehabilitation and after-care of the disturbed area during plant operation should take place to prevent colonization by invader species. ➢ All mitigation measures proposed in this report must be implemented during all phases of the proposed project. ➢ It is recommended that the management measures stipulated in this report be included in the proposed project's official EMPr and that these be assessed for efficacy during all phases of the project and adapted accordingly to ensure minimal disturbance of the study area ecology.
Geology and Soils		
Land use change will affect the soil and land use capability both during the construction phase and post-operations. Loss of agricultural soils and land expected.	Negative	➢ Wherever possible, restore areas damaged by the processing plant so they may be used as agricultural land. If not, additional land uses that are regarded socially, economically, or ecologically appropriate throughout the decommissioning period must be considered. ➢ Stormwater management should be implemented daily throughout the site establishment/construction phase. ➢ Minimize the period of exposure to soil disturbances through a planning schedule. ➢ Bulk delivery of materials should be maximized to reduce the frequency of deliveries. ➢ Implementation of waste management during construction phase and throughout the plant operation. ➢ Soils will be stripped according to the soil types and recommended depths.

Impact	Impacts 'status before mitigation	Proposed mitigation/improvement measures/ recommendations
Hydrocarbon spills can occur when using heavy machinery, as they all use oils and diesel to run. There is a chance of these breaking down and/or leaking during construction activities of roads, removal of topsoil and digging excavations for building and plant foundations. Contamination of area with hydrocarbons or hazardous waste materials.	Negative	➢ Prevent any spills from occurring. ➢ If a spill occurs, it is to be cleaned up immediately and reported to the appropriate authorities. ➢ All storage areas (for fuels and lubricants) will be compacted and have bunded containers to prevent soil pollution and appropriate oil separators installed. ➢ Hydrocarbon management procedure to contain details of emergency clean-up procedures and, ➢ Leaking vehicles will have drip trays placed under them where the leak is occurring
Storage of topsoil	Negative	➢ Some topsoil has been stripped on site and is located along the fence. During project continuation, topsoil will further be stripped from all areas where physical surface disturbance will occur and stored at a designated area for future topsoil backfilling. ➢ Topsoil is to be stripped when the soil is dry (as far as practical possible), to reduce compaction; and ➢ To be stripped according to the stripping guideline and management plan, contained within this report and further recommendations contained within the rehabilitation plan and stockpiled accordingly. ➢ The handling of the stripped topsoil will be minimized to ensure the soil's structure does not deteriorate. ➢ Ensure stockpiles are placed in a free-draining location to limit erosion loss. ➢ Compaction of the removed topsoil should be avoided by prohibiting traffic on stockpiles. ➢ Prevent unauthorized borrowing of stockpiled soil. ➢ Minimize the period of exposure to soil disturbances through a planning schedule. ➢ The stockpiles will be vegetated to reduce the risk of erosion.

Impact	Impacts 'status before mitigation	Proposed mitigation/improvement measures/ recommendations
Pollution		
Waste Management/Pollution Control	Negative	➢ Completely remove all the waste material from the site and transport it to another location for treatment and proper disposal. This so-called off-site solution is usually the most expensive option. An alternative is on-site remediation, which reduces the production of leachate and lessens the chance of groundwater contamination. On-site remediation may include temporary removal of the hazardous waste, construction of a secure landfill on the same site, and proper replacement of the waste. It may also include treatment of any contaminated soil or groundwater. Treated soil may be replaced on-site and treated groundwater returned to the aquifer by deep- well injection. ➢ A less costly alternative is full containment of the waste. This is done by placing an impermeable cover over the hazardous-waste site and by blocking the lateral flow of groundwater with subsurface cut-offs walls. It is possible to use cut off walls for this purpose when there is a natural layer of impervious soil or rock below the site. The walls are constructed around the perimeter of the site, deep enough to penetrate to the impervious layer. They can be excavated as trenches around the site without moving or disturbing the waste material. The trenches are filled with bentonite clay slurry to prevent their collapse during construction, and they are backfilled with a mixture of soil and cement that solidifies to form an impermeable barrier. Cut-off walls thus serve as vertical barriers to the flow of water, and the impervious layer serves as a barrier at the bottom. ➢ Prevention of soil and groundwater contamination should be prioritized.
Socio-economic		
Recruitment strategies for the Plant	Positive	Not Applicable (N/A)

Impact	Impacts 'status before mitigation	Proposed mitigation/improvement measures/ recommendations
Advantage to previously disadvantage individuals	Positive	N/A
Upgrades and expansion of services will benefit local area	Positive	N/A
Increased income generation for local community	Positive	N/A
Economic injection to the area and Northwest Province	Positive	N/A
Noise		
Noise emanating from machinery and transport vehicles	Negative	➢ Noise barriers in the form of berms should be constructed as close to the noise sources as possible. ➢ Processing plant-related machines and vehicles must be serviced regularly to ensure noise suppression mechanisms are effective, e.g. installing exhaust mufflers where possible. ➢ Noisy machinery must be used predominately during daylight hours. ➢ A grievance mechanism to record complaints should be kept on-site and investigated. ➢ Regular monitoring of noise to take place.
Visual		

Impact	Impacts 'status before mitigation	Proposed mitigation/improvement measures/ recommendations
Location of stockpiles, Recycling dams and discard dumps	Negative	➢ Place as far away as possible from roads and settlements. ➢ Topsoil stockpiles must be vegetated as soon as possible, to reduce erosion and decrease visual disturbance. ➢ Keep stockpiles as low as possible to reduce visual impact. ➢ Plant fast-growing indigenous trees around the dams to enhance visual.
Traffic		
Increased traffic volumes on the existing road networks	Negative	➢ It is expected that workers will use both private and public transport. There will also be incoming and outgoing of trucks on site bringing ore materials and collecting final product, respectively. The proposed development can be supported from a traffic flow point of view with provision being made on site to accommodate the safe loading and off-loading of staff using public transport as well as an in-house traffic management plan. The development of a traffic management plan for the trucks entering and leaving the site is also crucial.
Safety		
Roads and vehicles	Negative	➢ Speed limits must be in place on site and before access roads on a provincial or national road. ➢ Ensure drivers are trained in road safety.
Surrounding neighbours	Negative	➢ Personnel are not permitted on other property without permission. ➢ Avoid conflict with surrounding landowners. ➢ Safety specialist should be appointed, and assessments should be conducted. ➢ Recommendations should be implemented.
Air Quality		
Dust pollution	Negative	➢ The removal of vegetation will be minimized during stripping to reduce the effects of dust pollution as a result of exposed soil. ➢ Water or dust control agents must be used in working areas, and roads will be sprayed for dust suppression on a regular basis in designated susceptible areas during

Impact	Impacts 'status before mitigation	Proposed mitigation/improvement measures/ recommendations
		heavy usage. ➢ Dust monitoring must be undertaken in accordance to the dust monitoring programme. ➢ It is recommended that topsoil stockpiles be vegetated to sustain biological components and prevent dust emissions. ➢ Reduction of dust fallout levels and particulate matter.

Closure and Rehabilitation

The main activity that takes place during this phase of the project is the demolition and removal of certain plant infrastructure. The potential impacts associated with demolition activities are similar to the anticipated impacts to occur during the construction phase. The impacts and mitigation measures have been identified during the discussions of the construction activities. Section ***10.2*** of this report gives details relating to closure and rehabilitation.

Post Closure

This is a period of maintenance and monitoring of the areas that would have been associated with the various project-related structures and infrastructure. The activities are limited to monitoring activities and limited erosion and vegetation repair if necessary. It is not anticipated that any significant impacts will arise during this period. Please refer to Section ***10.5*** for specific post-closure measures relating to monitoring and closure objectives.

Environmental Management

In terms of the proposed UCM chrome processing plant operation, all negative environmental impacts identified will be managed and mitigated whilst positive impacts will be enhanced through the implementation of the commitments stipulated in the EMPr. UCM will be responsible for ensuring that all environmental obligations pertinent to the project are met. The implementation of the EMPR and the meeting of the environmental objectives and targets is also the responsibility of UCM. An EMPr specific to the proposed plant has been prepared and documented in **PART B** of this report.

Conclusion

Segope Consulting is undertaking the EIA & EMPr for the proposed UCM Chrome Processing plant in accordance with the requirements of the NEMA. This will include a comprehensive stakeholder engagement process which will sought to identify stakeholders. These parties will be provided with an adequate opportunity to participate in the project process and guide technical investigations that will take place as part of the impact assessment phase of this study.

Specialists input has been sought for all key environmental aspects. To date, there are no serious flaws that have been identified for the proposed Chrome Processing Project. However, certain identified potential impacts require careful mitigation and monitoring.

An EMPr is being developed as part of this EIA process to ensure the mitigation of these impacts as far as practically possible. It is anticipated that it will be possible to successfully mitigate the environmental impacts to acceptable levels and the implementation will be monitored and audited to determine the effectiveness of the measures taken.

It is recommended that the proposed project is allowed to proceed, given the relatively small potential contribution of the project to cumulative impacts (given appropriate environmental management) and also considering the positive social impacts associated with the project. UCM should, however, continue to examine its existing management measures for their entire operations and should put initiatives in place to reduce its contribution to the existing environmental condition in the plant area.

There are multiple baseline and specialist studies have been identified and are being conducted as part of the Impact Assessment and these include but not limited to:

- Environmental screening
- Terrestrial biodiversity and ecological impact assessment
- Hydrological impact assessment
- Surface and stormwater management plan
- Wetland delineation
- Ecological impact assessment
- Hydrogeological impact assessment
- Soil and land capability assessment
- Socio-Economic Impact Assessment
- Air Quality study
- Rehabilitation plan
- Traffic Impact Assessment

It is the EAP's reasoned opinion that this project should be authorised based on the following:

- Where unavoidable, the identified impacts can be mitigated through the implementation of the identified mitigation measures indicated in the EMPr.

- When managed in accordance with the management/ mitigation measures specified in the EMPr, the proposed project is unlikely to result in any significant cumulative impacts, and
- Should the proposed project not be implemented, the land use of the area will not change but there will not be realization of additional local economic development opportunities as well as procurement of local goods and services that would have emanated from the proposed plant.

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LIST OF ACRONYMS

Acronym	Description
alms	Above Mean Sea Level
ABA	Acid Base Accounting
BA	Basic Assessment
BGIS	Biodiversity Geographic Information System
BID	Background Information Document
BPG	Best Practice Guidelines
BAP	Biodiversity Action Plan
CPI	Consumer Price Inflation
CRR	Comment and Response Report
DD	Due Diligence
DFFE	Department of Forestry, Fisheries and Environment
DMRE	Department of Mineral Resources and Energy
DP	Development Planning
DWA	Department of Water Affairs
DWAF	Department of Water Affairs and Forestry
DWS	Department of Water and Sanitation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EIS	Ecological Importance and Sensitivity
EMP	Environmental Management Programme
FET	Further Education Colleges
GN	General Notice
I&AP	Interested and Affected Parties
IHIA	Invertebrate Habitat Integrity Assessment
IHAS	Invertebrate Habitat Assessment System
IWUL	Integrated Water Use Licence
IWWMP	Integrated Water and Waste Management Plan
ktpm	kilo tonnes per month
MAR	Mean Annual Rainfall
mbs	Meters below surface
NBA	National Biodiversity Assessment
NEM:BA	National Environmental Management: Biodiversity Act
NEMA	National Environmental Management Act (Act No. 107 of 1998)

NPAES	National Protected Area Expansion Strategy
NWA	National Water Act (Act No. 36 of 1998).
RSIP	Rehabilitation Strategy and Implementation Programme
SANBI	South African National Biodiversity Institute
SANS	South African National Standards
TA	Tribal Authority
TSF	Tailings Storage Facility
TDS	Total Dissolved Solids
TOR	Terms of Reference
VIA	Visual Impact Assessment
WUL	Water Use Licence
WULA	Water Use Licence Application
ZOI	Zone of Influence

PART A:
ENVIRONMENTAL IMPACT ASSESSMENT REPORT

EIA FOR UNIVERSAL CHROME MINERALS

THE PROPOSED CHROME PROCESSING PLANT ON PORTION 50 FARM BOSCHFONTEIN 458 JQ SITUATED WITHIN THE BOJANALA PLATINUM DISTRICT MUNICIPALITY, NORTH WEST PROVINCE

1. INTRODUCTION

1.1 Background

Universal Chrome Minerals (UCM) appointed Segope Water and Environmental Services (Segope Consulting) to undertake a Section 24G (S24G) rectification application process in terms of the National Environmental Management Act (Act No. 107 of 1998), as amended (NEMA) on their behalf. The application for S24G rectification was necessitated by the clearance of indigenous vegetation on site to prepare for the development of a Chrome Processing Plant before an Environmental Authorisation (EA) was issued by the Competent Authority (CA).

UCM is committed to ensure that facilities under their control are fully compliant with relevant South African environmental laws and regulations and has taken an internal decision to enter into a S24G rectification process to rectify the unlawful commencement for their plant and apply for authorization, and with reference to Section 28 of NEMA: "Duty of Care and Remediation of Environmental Damage". UCM has followed the conservative approach of applying for a S24G rectification and would like this to be considered by the relevant authorities when reviewing this application.

UCM plans to develop a Chrome Processing Plant on Portion 50 of farm Boschfontein 458 JQ near Brits Town in the North West Province. The proposed site is located within the Madibeng Local Municipality under the Bojanala Platinum District Municipality. ***Figure 1.1*** below shows the locality of the project site. The facility will process low-grade chrome minerals sourced from operating mines, utilizing a combination of mechanized processing equipment and manual hand-picking techniques to ensure efficiency and quality control. The planned operations will encompass several key activities, including stockpiling, screening, washing, and loading of chrome minerals for further use or distribution.

This report details the impact assessment process undertaken as required by the North West Department of Economic Development, Environment, Conservation and Tourism Affairs (DEDECT) in their letter dated **29 April 2025**.

1.2 Purpose of the Environmental Impact Assessment Report

The purpose of the impact assessment report is outlined as follows:

- Determine the policy and legislative context within which the activity is located and how the activity complies with and responds to the relevant policy and legislation;
- State the need and desirability of the activity;
- Provide a description of the receiving environment that is affected by the proposed activity;

- Determine the significance, duration and probability of the impacts that has/will occur as a result of the activity;
- Identify, assess and rank the significant impacts and risks that the activity will impose on the site through the lifetime of the activity;
- Identify suitable measures to avoid, reverse, mitigate or manage identified impacts;
- Identify residual risks that need to be managed and monitored;
- Outline the Public Participation Process (PPP) that was undertaken; and
- Provide relevant information and recommendations for the Competent Authority (CA) to make an informed decision.

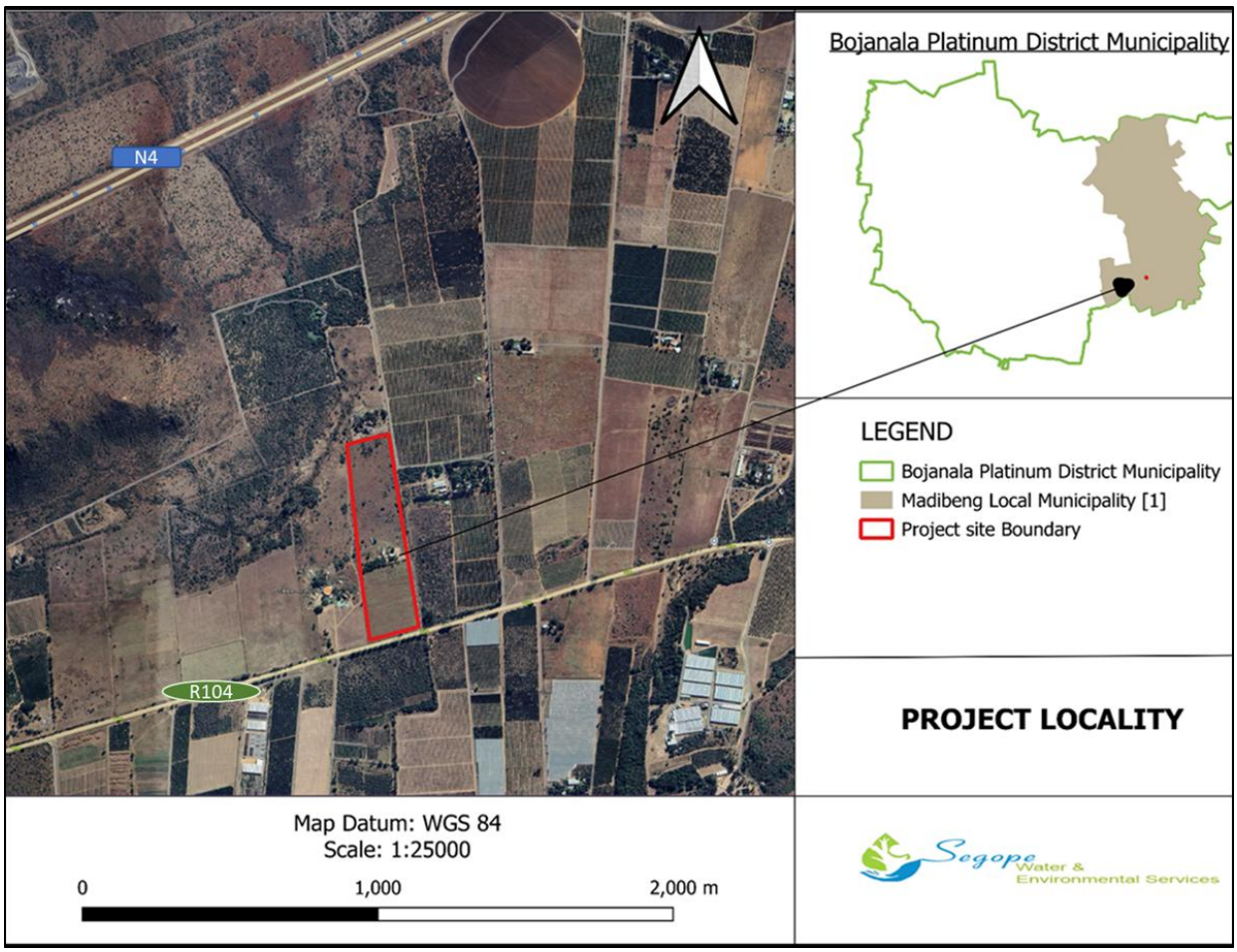

Figure 1.1: Project Locality

1.3 Directive Requirements

In response to the Directive issued by the DEDECT (received on the **29th of April 2025**), this section provides information as outlined in Annexure A, B and D of the NEMA Regulations relating to the procedure to be followed and criteria to be considered when determining an appropriate fine in terms of S24G (GN R.698, July 2017) when issuing a directive.

Table 1.1: Annexture A Requirements

No.	Section A: Directive	Response/ Relevant Document Part
i.	Immediately cease with the activity pending a decision on the application submitted in terms of this subsection.	Requirement noted.
ii.	investigate, evaluate and assess the impact of the activity on the environment.	Refer to Sections *9* and *10* of this report.
iii.	remedy any adverse effects of the activity on the environment.	Refer to Section *10* for impact assessment and mitigation measures.
iv.	cease, modify or control any act, activity, process or omission causing pollution or environmental degradation.	Refer to Section *10* for impact assessment and mitigation measures.
v.	contain or prevent the movement of pollution or degradation of the environment	Requirement noted.
vi.	eliminate any source of pollution or degradation	Requirement noted.
vii.	compile a report containing-	
a.	a description of the need and desirability of the activity	Please refer to Section *5* of this report.
b.	an assessment of the nature, extent, duration and significance of the consequences for or impacts on the environment of the activity, including the cumulative effects and the manner in which the geographical, physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed activity	Refer to Sections *9* and *10* of this report.
c.	a description of mitigation measures undertaken or to be undertaken in respect of the consequences for or impacts on the environment of the activity	Refer to Section *10* for impact assessment and mitigation measures.

d.	a description of the public participation process followed during the course of compiling the report, including all comments received from interested and affected parties and an indication of how the issues raised have been addressed	Please refer to Section 7 and Appendix F.		
e.	an environmental management programme	Refer to Part B of this report.		
viii.	Provide such other information or undertake such further studies as the Minister, Minister responsible for mineral resources or MEC, as the case may be, may deem necessary.	Not specified at this stage		
Section B: Deferral		**Response/ relevant Document Part**		
Are you, the applicant, being investigated for a contravention of section 24F (1) of the NEMA in respect of a matter that is not subject to this application and in any province in the Republic?		~~YES~~	NO	~~UNCERTAIN~~
If uncertain provide details of the activity or activities in relation to which you suspect, you may be under investigation		Not applicable.		
Are you, the applicant, being investigated for the contravention of section 20(b) of the National Environmental Management Waste Act (NEMWA) in respect of a matter that is not subject to this application and in any province in the Republic?		~~YES~~	NO	~~UNCERTAIN~~
If yes provide details of the offence being investigated and authority conducting the investigation. If uncertain provide details of the activity or activities in relation to which you suspect, you may be under investigation.		Not applicable.		
Are you, the applicant, being investigated for an offence in terms of section 24F (1) of the NEMA or section 20(b) of the NEMWA in terms of which this application directly relates?		~~YES~~	NO	~~UNCERTAIN~~
If yes provide details of the offence being investigated and authority conducting the investigation. If uncertain provide details of the activity or activities in relation to which you suspect, you may be under investigation.		Not Applicable		
Section D: Preliminary Advertisement		**Response/ Relevant Document Part**		
Proof of PPP		Please refer to Section 7 and Appendix F.		

2. PROJECT DETAILS

This section provides details of the parties involved in the UCM chrome processing plant project, as well as the affected surface areas.

2.1 Applicant's details

The applicant's details are provided in ***Table 2.1*** below.

Table 2.1: Applicant's details

Name of the Applicant	Universal Chrome Minerals
Contact Person	Mr. Charles Gao
Physical Address	377 Rivonia Boulevard, Rivonia, Johannesburg, Gauteng 2128
Postal Address	377 Rivonia Boulevard, Rivonia, Johannesburg, Gauteng 2128
Email	chael_12@163.com
Telephone	0608701998

2.2 Details of the Environmental Assessment Practitioner

Segope Consulting was appointed by UCM to facilitate the S24G application process for its proposed activities. Segope Consulting has appointed a lead Environmental Assessment Practitioner (EAP) and associated project team to undertake the necessary process. The project team's details are given in ***Table 2.2*** below. Refer to ***Appendix A*** for the EAP Curriculum Vitae.

Table 2.2: Project team details

Environmental Assessment Practitioner	Description	Role	Email
Mr. Phathutshedzo Mudau	Lead Environmental Assessment Practitioner	Report Compiler	phathumudau88@gmail.com
Ms. Tshimangadzo Rasifudi	Environmental Scientist	Report Compiler Project Manager	Tshimangadzo.rasifudi@segope.co.za
Ms. Lorato Rakuba	Environmental Scientist	Report Reviewer	Lorato.rakuba@segope.co.za
Ms. Dineo Makhubela	Environmental Scientist	Report Reviewer	Dineo.Makhubela@segope.co.za

Mr. Letladi Maisela	Director	Report Review and Approval	Letladi.maisela@segope.co.za

2.3 Competent Authorities Details

Authorizations for the proposed chrome processing plant project is required from the DEDECT, DWS and DFFE. Details of the competent authorities are given in ***Table 2.3*** below.

Table 2.3: Competent authority details and department

Authority	Contact Person	Contact Details	
DEDECT (North West)	Khumo Molefe	**Tel:**	082 892 6086
		Email:	khumomolefe@nwpg.gov.za
DWS (Hartbeespoort)	Herbert Kutama	**Tel:**	079 952 5091
		Email	KutamaH@dws.gov.za
DFFE (Pretoria)	Lucas Mahlangu	**Tel:**	012 399 9791
		Email	lmahlangu@dffe.gov.za

2.4 Municipalities' Details

The project area is located within the jurisdiction of the Madibeng Local Municipality and Bojanala Platinum District Municipality. Details of the relevant municipalities are provided in ***Table 2.4*** below.

Table 2.4: Relevant Municipalities Details

Municipality	Contact Person	Contact Details	
Madibeng Local Municipality	Kelebogile Nthodi	**Tel:**	060 942 6820
		Email:	KelebogileNthodi@madibeng.gov.za
Bojanala Platinum District Municipality	Iketleng Monyeki	**Tel:**	067 032 1544
		Email:	iketlengm@bojanala.gov.za

2.5 Declaration of Independence

Segope Consulting has no vested interest in the project and hereby declares its independence as required by the EIA Regulations.

3. LEGISLATIVE FRAMEWORK

3.1 Legislative Requirements for Environmental Authorisation

In terms of Section 24G of the NEMA, it is possible to obtain authorisation for activities listed in terms of the EIA Regulations, 2014 as amended, and the list of waste management activities and facilities requiring waste management licensing in terms GN R.921 (2013), as amended, that were undertaken without obtaining such authorisation via the legislated Environmental Impact Assessment process.

Section 24G (5) states that the applicant must pay an administrative fine, not exceeding R5 million, and the fine will be determined in accordance with the requirements stipulated in GN R. 698 Regulations Relating to the Procedure to be Followed and Criteria to be Considered when Determining an Appropriate Fine in terms of Section 24 G (2017).

The provisions of Section 24G Fine Regulations are applicable to activities and facilities undertaken since the promulgation of the EIA Regulations published under Environmental Conservation Act (ECA, Act 73 of 1989), including:

- EIA Regulations GN R.1182 and GN R.1183 in terms of ECA, as implemented in September 1997.
- Regulations GN R. 385, GN R.386, and GN R.387 in terms of NEMA on 3 July 2006 (and subsequently 13 February 2009) that replaced Regulations GN R.1182 and GN R.1183.
- EIA Regulations GN R.544, GN R.545 and GN R.546 in terms of NEMA on 18 June 2010.
- EIA Regulations GN R.983, GN R.984 and GN R.985 in terms of NEMA on 04 December 2014.
- GN R. 327, GN R.324 and GN R.325 (on 07 April 2017) and corrected on 13 July 2018.
- The waste management activities listed in GN R.718, published in terms of NEMWA (and subsequently updated by GN R. 921 of 29 November 2013, GN R.633 of 24 July of 2015, GN 1094 of 11 October 2017 and GN 1757 of 11 February 2022.

3.2 Listed Activities Triggered by the development

Activities unlawfully commenced with in December 2024.

Table 3.1: EIA Contraventions

Listed Activity(ies)	Listed Activities Triggered/Legal Process to be Followed	Description of Activities undertaken by UCM	Competent Authority
NEMA (Act No. 107 of 1998): GN. R 327: EIA Regulations, Listing Notice 1, 2017, as amended, 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- (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	An area of more than 1 ha of indigenous vegetation was cleared on site to prepare for the Chrome wash infrastructures without an EA.	DEDECT North West
NEMA (Act No. 107 of 1998): GN. R 324: EIA Regulations, Listing Notice 3, 2017, as amended Activity 12	The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. **North West** (iv) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority; (v) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; or (vi) Areas within a watercourse or wetland, or within 100 metres from the edge of a watercourse or wetland.	More than 300 square metres of indigenous vegetation was cleared on site to cater for the proposed chrome processing plant in a CBA2 area.	

The development of a Chrome Processing plant will trigger additional listed activities according to NEMA, NWA and NEMWA and these will need authorizations from Competent Authorities. A number of listed activities, as shown in ***Table 3.2*** have been identified in terms

of NEMA GN R. 327, GN R.324 and GN R.325 (April 2017), NWA and NEMWA.

Table 3.2: Additional Activities Triggered by the UCM Chrome Processing Plant

Listed Activity(ies)	Listed Activities Triggered/Legal Process to be Followed	Description of activities to be undertaken by UCM	Competent Authority
NEMA (Act No. 107 of 1998): GN. R 327: EIA Regulations, Listing Notice 1, 2017, as amended, Activity 28	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture or afforestation on or after 01 April 1998 and where such development: (i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare; excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes.	The proposed Chrome Washing Plant will be developed on an area that was previously used for agriculture after 01 April 1998 outside urban area and the development is approximately 11.7 ha. The project site is surrounded mainly by farming activities and a several washing plants and mining activities.	DEDECT North West
NWA (Act No. 36 of 1998): Section 21	21a: Abstraction of water from a watercourse	Abstraction of water from underground through 3 boreholes infrastructure.	DWS Hartbeespoort Office
	21b: Storage of Water	Storage of water in a clean water dam	
	21g: Disposing of waste	Dust suppression, waste rock dump, ROM stockpile, concentrate stockpile, Tailings feedstock, Recycling Dam.	
NEM: Waste Act GN R. 921, 29 November 2013, as amended, Category B	Activity 2: The reuse or recycling of hazardous waste in excess of 1 ton per day, excluding reuse or recycling that takes place as an integral part of an internal manufacturing process within the same premises.	The reprocessing of tailing feedstock will occur at the chrome processing Plant.	DFFE Head Office (Pretoria)

Listed Activity(ies)	Listed Activities Triggered/Legal Process to be Followed	Description of activities to be undertaken by UCM	Competent Authority
	Activity 7: The disposal of any quality of hazardous waste to land	WRD, ROM stockpiles, concentrate stockpile, Tailing Feedstock.	
	Activity 10: The construction of a facility for a waste management activity listed in Category B of this Schedule (not in isolation to associated waste management activity).	The construction of the Pollution Control Dam, WRD, concentrate stockpiles etc.	
	Activity 11: The establishment or reclamation of a residue stockpile or residue deposit resulting from activities which require a mining right in terms of MPRDA	The reuse of waste rock.	

4. BACKGROUND OF THE PROJECT

4.1 Overview of operation

The chrome ore processing plant will be divided into the following key areas:

- Boreholes,
- Clean Water Dam,
- Tailings Dam,
- Tailings Sludge Sedimentation Zone,
- Tailings,
- Stockpile Zone,
- Sedimentation Dams (three units),
- Equipment Zone,
- ROM Stockpile Zone and
- Concentrate Stockpile Zone.

These areas will be interconnected via dedicated pipelines and conveying systems to ensure the cyclic flow and treatment of materials and water according to predefined processes.

Table 4.1: Overview of the operation and water and waste management systems

Aspect	Method/system
Source of Water	Water will be sourced from three boreholes. Since an advanced water recycling system is used, the consumption of borehole water can be minimized efficiently.
Clean Water Dams	The Clean Water Dam serves as the primary water supply unit for the entire processing system. Its capacity is designed to meet peak water demand while incorporating redundancy for emergencies. The rectangular dam features leak-proof walls to maximize water efficiency.
Tailings Dam	The Tailings Dam stores slurry generated during ore processing. It is reinforced structurally to withstand slurry weight and pressure, it includes a sloped base to facilitate sedimentation and subsequent transport.
Tailings Sludge Sedimentation Zone	This zone temporarily stores semi-dry tailings transferred from the Tailings Dam. A channel connects it to the Tailings Dam to recycle residual water back into the system.
Tailing Stockpile Zone	Dried tailings from the sedimentation zone are transported here for long-term storage. This large-capacity zone accommodates bulk tailings.
Sedimentation Dams (Recycling Dams - Three Units)	These dams are critical for multi-stage sedimentation, enhancing slurry concentration and water purification. Overflow pipes link the dams to enable staged slurry flow. Bottom discharge ports remove settled slurry, and regular sludge cleaning ensures operational efficiency.

Equipment Zone	This core area houses processing equipment (e.g., jaw crushers, hammer mills, jigging machines) arranged sequentially to align with the workflow. Conveyors and pumps ensure smooth material transfer.
ROM Stockpile Zone	Storage of ROM materials. Stockpiles are categorized by grade and supplier for efficient management.
Concentrate Stockpile Zone	Hardened flooring and drainage systems protect chromium concentrate from moisture. Stockpiles are categorized by grade and particle size for efficient management and sales
Life of operation	The closing phase of the project is not envisioned at this point.

4.2 Process flow

4.2.1 Ore Processing Flow

a) **Crushing**: Raw chromite ore is reduced to optimal size using jaw crushers.
b) **Grinding**: Hammer mills further grind crushed ore to liberate mineral particles.
c) **Jigging Separation**: Jigging machines exploit density differences between chromite and gangue minerals. Pulsating water stratifies dense chromite (settling as concentrate) and lighter gangue (discharged as tailings).
d) **Concentrate Handling**: Concentrate flows to the Concentrate Dam; tailings slurry enters the Tailings Dam.

4.2.2 Water Recycling Flow

a) Clean water from the Clean Water Dam feeds into processing equipment.
b) Tailings slurry flows into the Tailings Dam for initial sedimentation. Residual water from the sludge zone returns via channels.
c) Slurry undergoes multi-stage sedimentation in four ponds.
d) Clarified water recirculates to the Clean Water Dam, minimizing freshwater use and environmental impact.

4.2.3 Equipment Coordination

a) Crushers and mills work in tandem to prepare ore for separation.
b) Jigging machines separate chromite efficiently.
c) Conveyors, pumps, and pipelines ensure seamless material transfer between equipment

Figure 4.1 below shows the proposed layout for the Chrome Processing Plant.

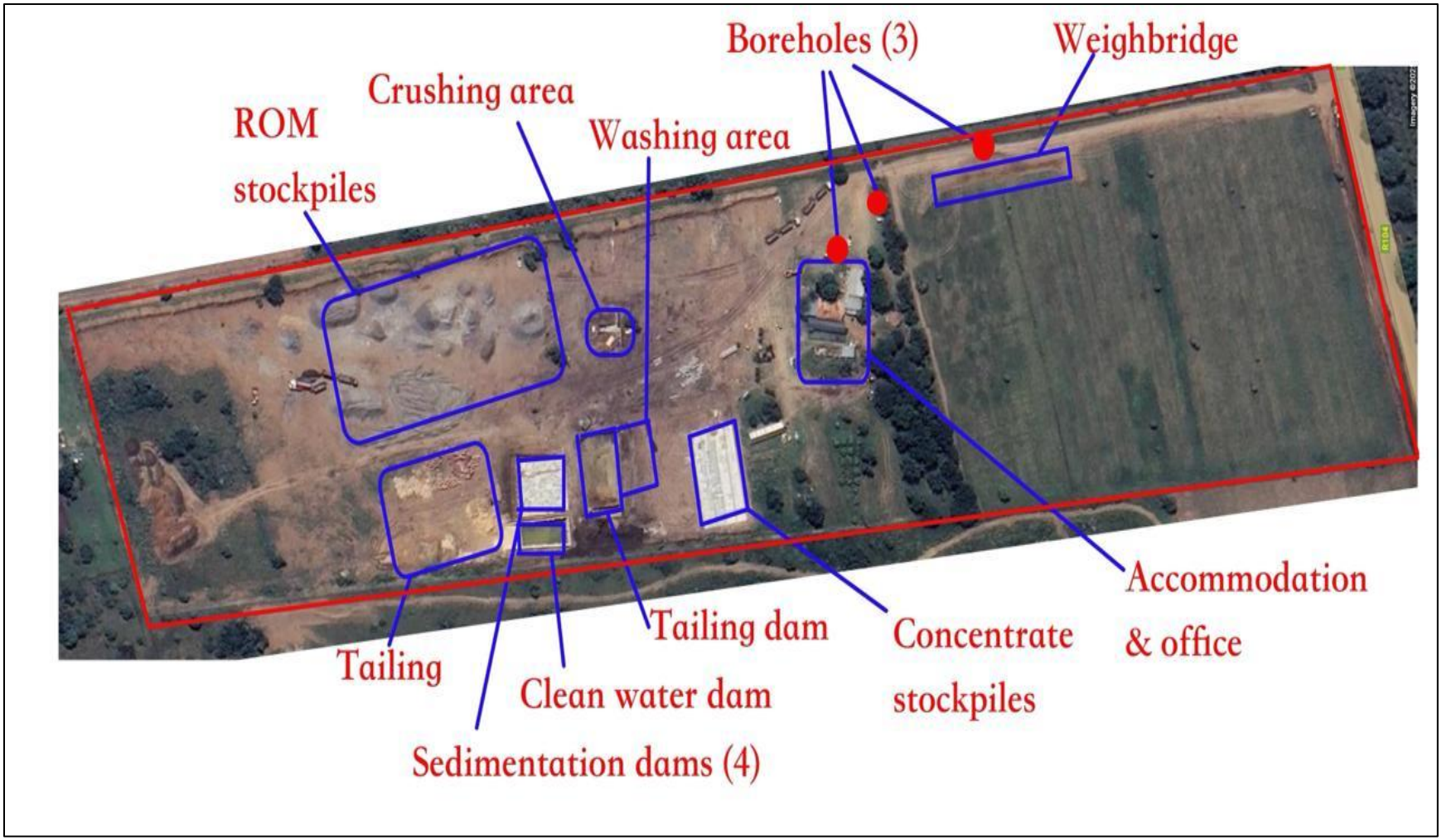

Figure 4.1: General Site Layout Plan

4.3 Details of the properties affected by the proposed project

Table 4.2 below shows the property ownership relating to the processing plant and the farms in relation to the proposed infrastructures. Land ownership has been determined using documentations provided by the client and the property information obtained from the screening tools. Documents of land ownership are shown as **Appendix B.**

Table 4.2: Properties where the proposed project will occur

Farm Name	Portion	Owner
Boschfontein 458JQ	Ptn 50	Universal Chrome Minerals

5. PROJECT NEED AND DESIRABILITY

If the processing plant doesn't go ahead, South Africa and the local communities around the proposed operation will sacrifice the benefits of employment and income generation in the area as well as the development of Broad-Based Black Economic Empowerment (BBBEE) opportunities during construction, operation and eventual closure and rehabilitation. This implies lost opportunities for economic growth, community development, and global competitiveness in a vital industry. Furthermore, not undertaking the proposed project also hinder the continued recognition of the country's mineral capability at a global scale. The limited agricultural activities which are currently being undertaken will continue and the benefits will not be realized.

The project, if approved, would be managed responsibly, with strict environmental safeguards, a commitment to social responsibility, and a clear plan for rehabilitation. By rejecting the project, the decision-makers would lose out on these economic and social benefits. However, it is far more beneficial to **approve the project** with the necessary oversight and management than to miss out on the many advantages it offers.

A number of benefits associated with the proposed chrome processing plant have been identified by UCM and these include:

- Exploiting the natural mineral resources as appropriate under the MPRDA;
- Creating employment opportunities during construction, operational and decommissioning phase;
- Contribution to economic benefits for local communities, particularly in terms of job creation, infrastructure development, and long-term economic upliftment in the surrounding areas;
- Retaining, and possible creation, of employment opportunities on local and regional scale during operational phase.

6. TECHNICAL INVESTIGATIONS AND REPORTING

6.1 Terms of Reference

During on-site and desktop assessments, a number of potential environmental, social and cultural impacts associated with the proposed development were identified. A Terms of Reference (ToR) was developed for specialists to undertake specific studies to investigate these.

6.2 Specialist Studies

The following specialist studies have been identified based on the outcome of the screening report and will also be updated following issues that will be raised during the stakeholder engagement process. The specialist studies include the baseline of the existing environment which is summarized in **Section 9** of this report. Findings of these studies have been used to prepare the final EIA and EMPR Report (**Part A** and **Part B** of this document, respectively).

- Environmental screening
- Terrestrial Biodiversity and Ecology impact assessment
- Surface and Stormwater Management Plan
- Wetland Delineation
- Hydrogeological Impact Assessment
- Socio-economic study
- Waste Management Plan
- Rehabilitation Plan
- Traffic Impact Assessment
- Air Quality Impact Assessment.

6.3 Assessment of Impacts

An assessment of the anticipated impacts was undertaken for both pre- and post-mitigation. The impact assessment methodology is provided in **Section 9.**

6.4 Reporting and Development of an Environmental Management Program

An EMPr for the UCM Project was developed to mitigate, or enhance, the anticipated impacts of the project, refer to **Part B of this document.** The pre-liminary results of this study, impact assessment and environmental management programme were collated and recorded in this report and have been released for public comment.

7. PUBLIC PARTICIPATION PROCESS

This section describes the PPP followed during the course of compiling this. The PPP for the Section 24G Rectification was undertaken in a staged approach, in reference to Section 39 – 42 of the EIA Regulations (2014) GN R.982.

In essence, the PPP is one of the general objectives of integrated environmental management laid down in Section 23(2)(d) of NEMA Act and is set out to "ensure adequate and appropriate opportunity for public participation in decisions that may affect the environment". This also ensures transparency throughout the process and to promote informed decision making. A detailed public participation report will be compiled and included in this report as **Appendix F** The engagement process involved the following key phases:

7.1 Objectives

7.1.1 During Pre-Application Phase

To provide sufficient and accessible information to stakeholders in an objective manner to enable them to:

- Ensure that stakeholder engagement meets legal and regulatory obligations;
- Raise issues of concern and suggestions for enhanced benefits;
- Verify that the issues raised by the stakeholders have been recorded;
- Identify and manage risks early in the project cycle;
- Secure an informed decision-making process;
- Provide input for consideration in the ToR for specialist studies, impact assessment and management planning; and
- Contribute relevant local and traditional knowledge to the environmental assessment.

Furthermore, stakeholder engagement during the pre-application phase will assist with building trust, addressing concerns, mitigating risks, and maximizing benefits for all parties involved.

7.1.2 During Impact Assessment Phase

- Verify that their issues have been considered in the environmental assessment;
- Comment on the findings of the environmental assessment;
- Lay a foundation for informed, transparent, and responsible decision-making. This will ensure that the project considers all aspects (for instance, environmental, social, economic impacts, etc.) while promoting community trust, regulatory compliance, and long-term sustainability;
- Prevention of Delays and Conflicts - Early identification and resolution of potential issues through stakeholder engagement can prevent costly delays and conflicts later in the project; and
- Incorporation of Traditional Knowledge and Cultural Considerations.

7.1.3 During the Decision-making Phase

- Advise stakeholders of the outcome, i.e. the CA's decision on the project, and how and by when the decision can be appealed;
- Provide stakeholders with clear information about how and why decisions are made;
- Building Consensus and Support in order to foster buy-in and support for decisions by involving those affected by the outcome;
- Addressing possible concerns and conflicts through identifying, understanding, and mitigating potential conflicts or concerns before finalizing decisions;
- Identify and reduce the likelihood of negative outcomes or unintended consequences.

7.2 Consultation with Competent Authorities

Consultations and correspondences made with and/or received from the CA i.e., DEDECT regarding this rectification application to date are as follows:

- A pre-liminary site assessment by Segope Consulting on the 24th of November 2024.
- A site inspection by the Environmental Management Inspectors (EMIs) of the NW DEDECT on the 7th of February 2025.
- Notice of intention to issue a compliance notice from DEDECT dated 11 March 2025.
- The letter of response to pre-compliance notice by Segope Consulting received by DEDECT on the 31 March 2025.
- The Section 24G pre-application meeting enquiry submitted to the North West Department of Economic Development, Environment, Conservation and Tourism (DEDECT) on the 10th of April 2025.
- S24G pre-application meeting on the 22nd of April 2025.

7.3 Stakeholder Register/ Database

A register of Interested and Affected Parties (I&APs) has been opened and will be maintained throughout the process. The stakeholder database is attached to this draft as **Appendix F1**.

7.4 Site Notices

Site notices (A2 size) was placed at the following locations on **21st of May 2025**.

- Shoprite, Kea Rona Shopping Centre, Bapong (25°43'18.53"S, 27°39'21.38"E)
- Brits Library, Madibeng (25°38'5.74"S, 27°46'41.94"E)
- Universal Chrome Minerals Plant Site (25°43'14.42"S, 27°43'2.92"E)

The aim of fixing the site notices was to inform the I&APs about the S24G application process and the relevant contact details should they wish to formally object to and/or provide opportunity to comment on the process. Refer to **Appendix F2** for the copy of site notice and proofs of placements thereof. No comments were received during the pre-application phase PPP.

7.5 Written Notifications

Key stakeholders and commenting authorities were identified and informed of the Section 24G application process through email distribution of the following:

- Notification emails; and
- Registration and Comment Sheet.

The above-mentioned documents provided the essential information regarding the S24G application process to the following key stakeholders and commenting authorities:

- **Government departments:**
  - DFFE,
  - DEDECT, and
  - DWS
- **Non-governmental organizations (NGOs).**
- **Civil society:**
  - Community based organizations (CBOs),
  - General public and other I&APs, and
  - Potential indirectly affected stakeholders.

The draft EIA&EMPr report provided background to the application, a clear description of the activities applied for, the application process to be followed, how and when stakeholders can participate in the process, contact details should stakeholders like to comment or seek further information, and commenting period.

Refer to **Appendix F4** for Registration and Comment Sheet and proof of written notifications.

7.6 Advertisements

Advertisements were placed in Britspos newspapers on **21st of May 2025** during the pre-application phase. The newspaper advert is aimed at notifying and inviting the I&APs and stakeholder to comment and/or make objections on the application process and to invite them to the public participation (PP) meeting. Refer to **Appendix F3** for proof of advertisement.

7.7 On-Going Communication

Segope Consulting's contact details were provided on all written communication to ensure that I&APs can interact with the PP team and comments raised can be communicated to the EAP team.

7.8 Comments Obtained During the Public Participation Process

All issues and concerns raised by I&APs during their review of the Draft EIA&EMPr will be recorded and responded to in the Comments and Response Report (CRR), which will form part of the Final report to be submitted to DEDECT. The CRR will include, but not be limited to, the following, where applicable:

- Place and time of formal engagement events and level of participation including by specific stakeholder groups (e.g., business owners or NGOs);
- Type of communication, e.g., by mail, telephone and other means of communication;
- Comments received by government authorities and other stakeholders; and
- Number of comments by topic and type of stakeholder, and details of feedback provided.

7.9 Summary of key components raised by stakeholders

So far, a few I&APs have commented on the project and raised several issues and complaints through emails. Additional issues raised throughout the PPP will be recorded in the final EIA&EMPr report that will be submitted to DEDECT. The key components raised so far include the following:

- Environmental Authorisation process
- Public Participation Process
- Roads and Traffic Impact
- Health Issues
- Water Use
- Location of the project site in terms of biodiversity
- Management measures
- Local customs and protocols

7.10 Submission and Availability of The Draft EIA&EMPr Report for Public Review

All registered I&APs and stakeholders on database were notified of the availability of the draft EIA&EMPr for their review and comment. The draft report was made available for public review from **23 May 2025 to 22 June 2025**. The report was available at the public places listed below and posted to the Segope Consulting website.

Table 7.1: Locations were the Draft EIA&EMPr report was placed

Name of Public Place	Address	Contact Details	Operating Hours
Brits Library	51 Van Velden St, Brits, 0250, South Africa Coordinates: 25°38'5.74"S, 27°46'41.94"E	012 318 9318	Mon to Fri 9 am to 5pm | Sat 9 am to 12 pm
UCM Project site	Portion 50 of Farm Boschfontein 458 JQ. Coordinates: 25°43'14.42"S, 27°43'2.92"E	060 870 1998	Mon-Sat 8am to 17h30 |Sun 8am to 14 pm
Online Link	https://segope.co.za/		

QR Code	

7.11 Submission of Final EIA&EMPR Report to the Authority

The EIA&EMPr will be submitted to the CA for decision making, in line with the EIA regulations. I&APs will be notified of DEDECT decision, detailing any process requirements as stipulated in the decision.

8. DESCRIPTION OF BASELINE ENVIRONMENT

This section outlines the receiving environment within which the site exists. The available information was taken from the specialist baseline studies commissioned as part of the proposed project were used for this section. Specialists have been appointed to undertake the necessary specialist impact assessments. During this study a baseline description as well as the potential impacts of the proposed project on them has been reported on, and all findings are incorporated into this EIA &EMPr Report.

8.1 Geology

*The information provided in the geology section is a summary of the information provided in the Groundwater Specialist Report. Please refer to **Appendix G1** for the full Report.*

The study area overlies the Vlakfontein Subsuite which along with Skilpadnest Subsuite, Norite Formation, Dwars River Subsuite, Kolobeng Norite Formation, and Croydon Subsuite Formation forms the Lower Zone of the Bushveld Igneous Complex within its Rustenburg Layered Suite. These formations are mafic and ultramafic layered deposits of igneous rock and can be classed under the Mafic Igneous Sulphides. The rocks in this study area are primarily pyroxenite, harzburgite and norite towards the South, the Vlakfontein Subsuite begins contact with the eastern Transvaal basin, particularly the Rayton Formation and Magaliesberg Formation. ***Figure 8.1*** below shows the geology of the project site.

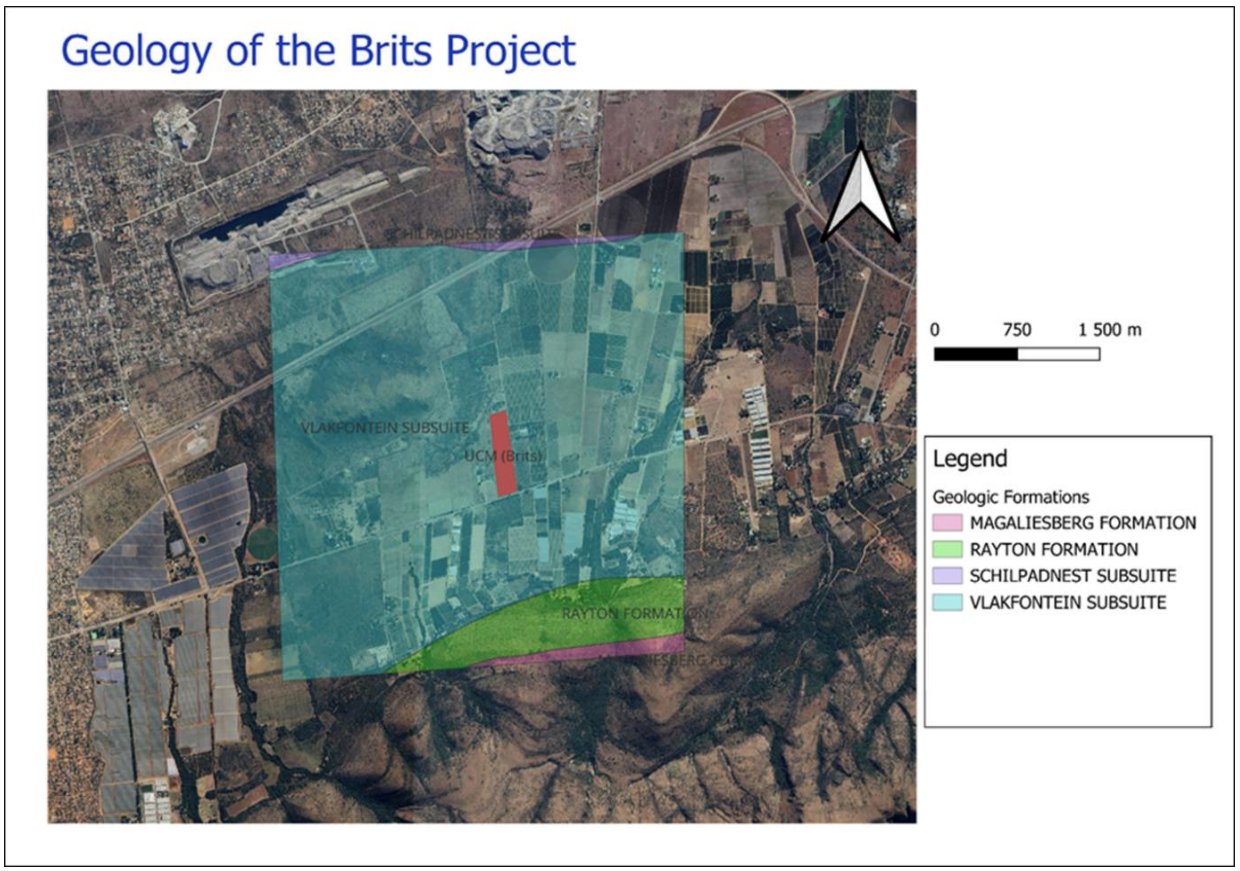

Figure 8.1: Geological Map of the project

8.2 Topography

The topography of the project area is characterized by a broad relatively flat land with an altitude of between 1000-1300 metres above mean sea level (mamsl). The topography of the project site is highly influenced and, in most cases, is directly related to the underlying geology, and the past and present climatic/drainage conditions. The topography of the project site is shown in ***Figure 8.2*** below.

8.3 Surface Water

The proposed chrome processing plant will be situated in the Crocodile (West) and Marico Water Management Area (WMA), in quaternary catchment A21J. The A21J catchment is drained mainly by the Crocodile River from the outflow Hartbeespoort Dam to inflow Roodekopjes Dam, together with its tributaries. A Non-perennial stream was identified north-west of the project site. The stream flows approximately at 93 m away from the project site to join another non-perennial stream which then joins the Kareespruit River. No wetlands were identified within the project site. The hydrology of the project site is indicated below.

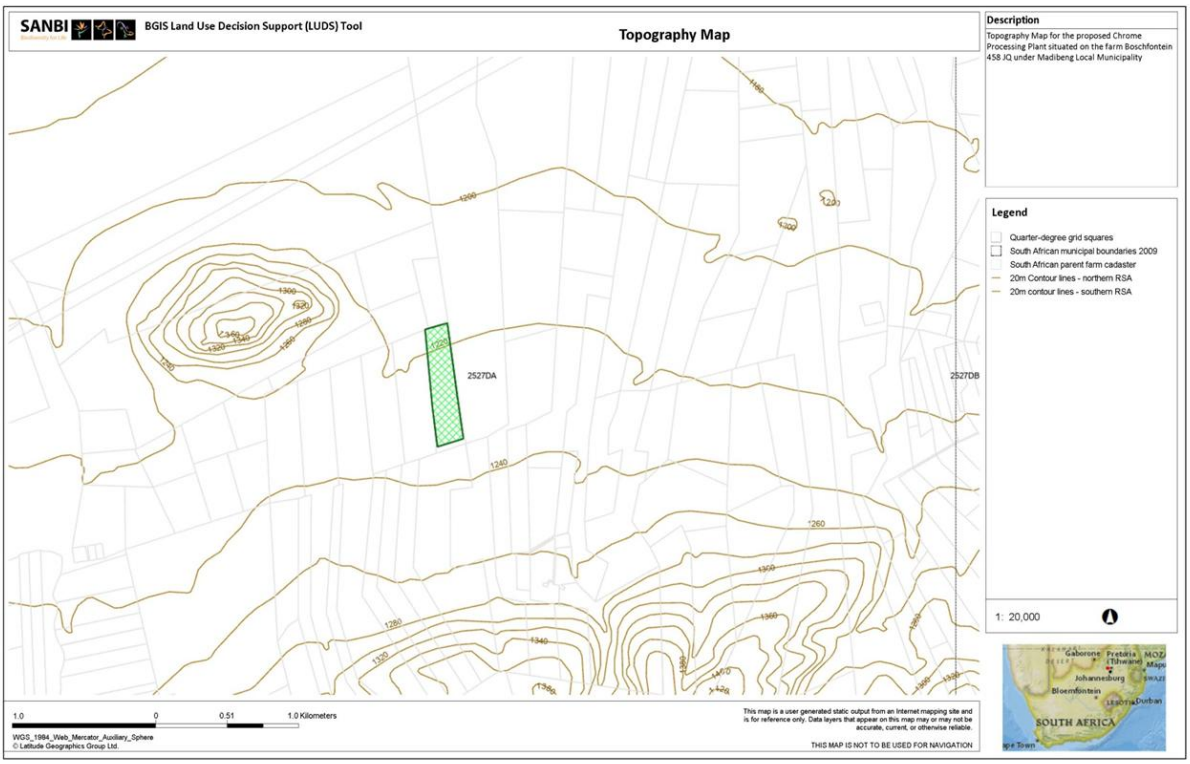

Figure 8.2: Topography of the project site

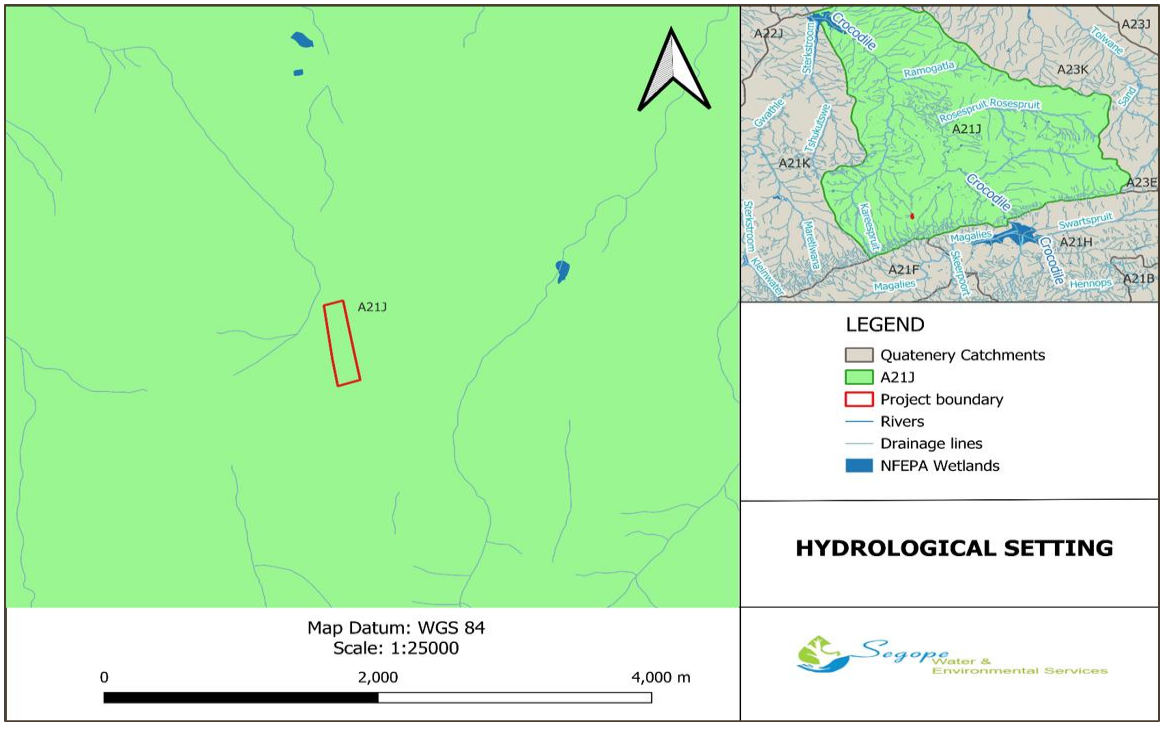

Figure 8.3: Hydrological Setting

8.4 Climate

The study area is located in a semi-arid region in the North West Province of South Africa. The climate of the area is characterized by warm summers, cold to moderate winters, with the main

rainy season being in summer from October through to April. Average daily maximum temperatures range from 30.3°C in January to 21.2°C in July, with daily minimum ranging from 17°C in January to just above 1.3°C in July.

The average annual rainfall is 651 mm/year, which falls mainly as thundershowers during the summer months of October through April. The average annual evaporation is 2185 mm/year which means that the climatic water balance is therefore in deficit, resulting in an effective annual average evaporation of 1534 mm/year. Extreme conditions of rainfall can occur with the 24-hour events for various return periods which can vary between 79 mm (1:5 yrs.) to 125 mm (1:50 yrs.) to 138 mm (1:100 yrs.).

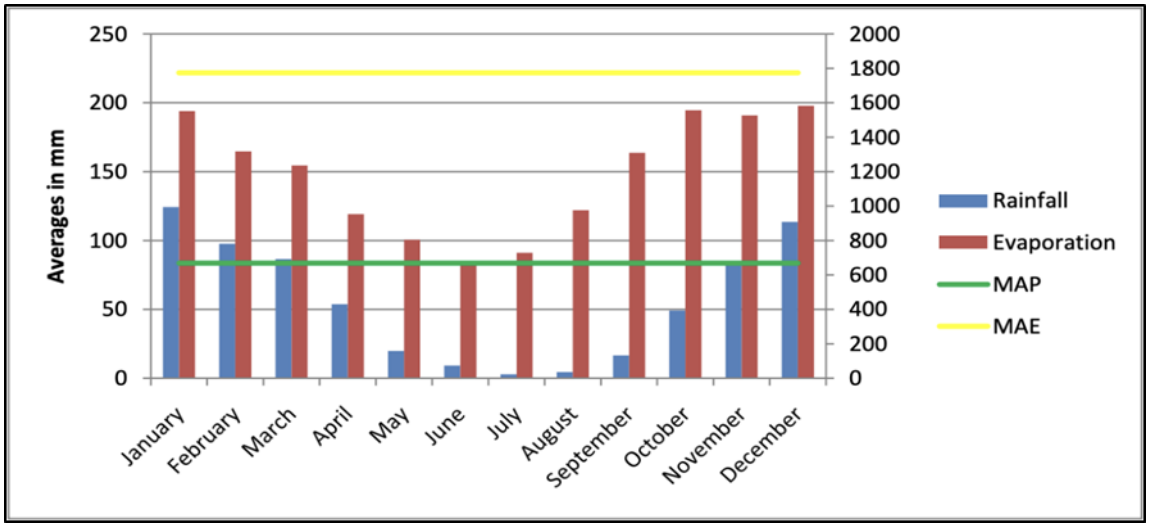

Figure 8.4: Climatic Conditions of the project site

8.5 Soils and Land Capability

*The information provided in the Soil and Land Capability baseline description is a summary of the information provided in the Biodiversity Specialist Report. Please refer to **Appendix G2** for the full report.*

The study area is primarily characterized by soils of Clovelly and Witbank/Johannesburg formations were identified within the study area. The majority of the soils occurring within the study area do not meet the conditions for agricultural suitability to a certain extent, and these conditions include:

- Adequate depth (greater than 60 cm) to accommodate root development for the majority of cultivated crops;
- Good structure, as in water-stable aggregates, which allows for root penetration and water retention;
- Sufficient distribution of high-quality and potential soils within the study area to constitute a viable economic management unit and
- Good climatic conditions, such as sufficient rainfall and sunlight, increase crop variety.

Table 8.1 present summary table depicting the area of coverage of each specified soil form for the study area respectively.

Table 8.1: Soil forms in hectares (ha) occurring within the study area.

Study Area					
Soil Forms	Area (Ha)	Percentage (%)	Land Capability Class – According to (Smith, 2006)	Agricultural Potential	DAFF (2017) Classification
Clovelly	4.36	33.2	Arable (Class III)	High	11. High
Witbank/Johannesburg	8.78	66.8	Wilderness (Class VIII)	Very Low	1. Very Low
Total Enclosed	310,06	100			

The study area is largely dominated (66.8% of the study area) by the soils, which are disturbed by anthropogenic influences such as intentional transportation and severe physical disturbance due to the chrome processing activities taking place. Although these activities are taking place in originally shallow soils of the Mispah/Glenrosa formation, thus leading to the loss of soil, which can be potentially utilized for grazing and horticulture purposes. An agricultural impact refers to any change that affects the future capacity for agricultural production in a specific land area. Such changes often arise when agriculture is excluded from regions undergoing development. Additionally, the potential for agricultural production can be diminished due to factors like soil erosion, compaction, pollution, and overall deterioration.

Vegetation clearing and soil stripping prior to the commencement of construction activities will result in the direct loss of most grazing land and a small portion of the area that could potentially be cultivated on. In addition, these activities will lead to the potential loss and degradation of productive soil material through edge effects if not managed and mitigated appropriately. The proposed development is not expected to significantly impact agriculture, as it will not affect the regional area's future capacity for agricultural production.

The soils within the study area have been disturbed since 2004. As a result, these soils are unsuitable for agricultural activities and have likely been exposed to by-products from the processing plant residues. From an agricultural standpoint, the anticipated effects stemming from the proposed development are deemed to have moderate significance. This is primarily due to most of the proposed activities being situated within the previously identified natural veld areas, primarily serving as grazing and wilderness.

In this case, the study area is considered below the threshold for needing conservation as agricultural production land due to its limitations, which make the majority of it unsuitable for cropping. If this land were used for non-agricultural purposes, it would lead to minimal loss of agricultural production potential in relation to national food security. As a result, the overall adverse agricultural impact of the development (loss of future agricultural production potential) is regarded as having moderate significance, mainly related to grazing capacity losses.

The proposed development is expected to significantly boost stainless steel production and other critical infrastructure within the country, leading to enhanced energy generation at power stations Furthermore, the initiative promises to bring valuable benefits to local communities by creating a

variety of employment opportunities for both skilled and unskilled labourers, fostering economic growth and stability in the region.

In accordance with the procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of Sections 24(5)(a) and (h) and 44 of the NEMA, 1998, when applying for environmental authorisation the current use of the land and the environmental sensitivity of the site under consideration as identified by the national web-based environmental screening tool, must be confirmed by undertaking a site sensitivity verification.

The outcome of this site sensitivity verification is to:

- Confirm or dispute the current use of the land and the environmental sensitivity as identified by the screening tool; and
- Motivate and provide evidence of either the verified or different use of the land and environmental sensitivity of the site.

The allocated sensitivities for the agricultural theme are presented on ***Table 8.2*** below.

Table 8.2: Allocated sensitivity for the agricultural theme

Study Area	Screening Tool Assigned Sensitivity	Verified Sensitivity	Reasoning for verification outcome verification
Study Area	Very High Sensitivity	Medium Sensitivity	Most of the study areas have shallow soils of the Dresden and Mispah/Glenrosa formations that are more suitable for grazing than for arable farming. In addition, most of the proposed activities will be situated within the natural veld areas, primarily serving as grazing lands.

8.6 Terrestrial Ecology and Biodiversity

*The information provided in the flora baseline description is a summary of the information provided in the Biodiversity Specialist Report. Please refer to **Appendix G3** for the full report.*

8.6.1 Flora Assessment Results

The following species were identified during the site visit that took place on the 15th of November 2024 and an additional site visit which was conducted on the 18th of March 2025.

***Table 8.3**: Tree and grasses species found on site*

Scientific Name	Common Name	Conservation Status	Ecology
Afrocarpus falcatus	Outeniqua yellowwood	Least Concern	Indigenous
Faidherbia albida (Delilw) A. Chev	Ana Tree	Least Concern	Indigenous
Ledebouria revolute (L.F) Jessop	Common African hyacinth	Least Concern	Indigenous

Scientific Name	Common Name	Conservation Status	Ecology
Aloe greatheadii Schonland	Spotted Aloe	Least Concern	Indigenous
Vachellia Karoo (Hayne) Banfi & Galasso	Sweet Thorn	Least Concern	Indigenous
Ziziphus mucronata wild.	Buffalo thorn	Least Concern	Indigenous
Erythrina lysislemon Hutch.	Common coral tree	Least Concern	Indigenous
Paspalum disticum L.	Knot grass	Least Concern	Indigenous
Microchloa kunthii	Kunth's small grass	Least Concern	Indigenous

Table 8.4: Invasive species found on site

Scientific Name	Common Name	Rating
Cyanthillium cinereum	Little iron weed	Not rated
Veronica peregrina L	Purslane speedwell	Not rated
Lantana viburnoides Forsak. Vahl	Common Lantana	Category 1b- NEMBA
Albizia Lebbeck (L) Benth. Biris Tree	Lebbeckboom	Category 1b- NEMBA

No SCC and no protected species were found during the site visit of the 15th November 2024 and 18th March 2025.

According to the screening tool, the proposed site falls within CBA2 and ESA2. Through the ground-truthing exercise of a site visit that took place on **15 November 2024**. It was noted that the proposed site has been transformed and has been used for agricultural activities, it is there no longer in its natural state.

8.6.2 Faunal Assessment Results

The North West province is home to a diverse number of faunal species. The number of recorded mammalian species is 121, reptile species is 102, amphibian species is 23 and 480 bird species.

Mammalian species

No mammalian species were observed during the site visit.

Amphibians species

No amphibian species were observed during the site visit

Reptiles species

No reptiles were observed on site during the site visit

Avian species

No avian species were observed on site.

8.7 Wetlands

*The information provided in the wetland baseline description is a summary of the information provided in the Biodiversity Specialist Report. Please refer to **Appendix G4** for the full Biodiversity Specialist Report.*

8.7.1 Wetland delineation

The wetland delineation was completed with the aid of aerial imagery, as well as verification in the field. The project area covers approximately 11.7 hectares, and no wetlands were spotted or observed onsite. The delineation was conducted using the four specific indicators, namely Terrain Unit, Soil form, Vegetation, and Hydrology indicators.

8.7.2 Terrain Unit Indicator

The project area consists of two terrain units, namely midslope and valley bottom, the mentioned terrain unit alone does not qualify for the wetland to be formed. It should be noted that the terrain unit indicator is an important practical index for identifying those parts of the landscape where wetlands are likely to occur.

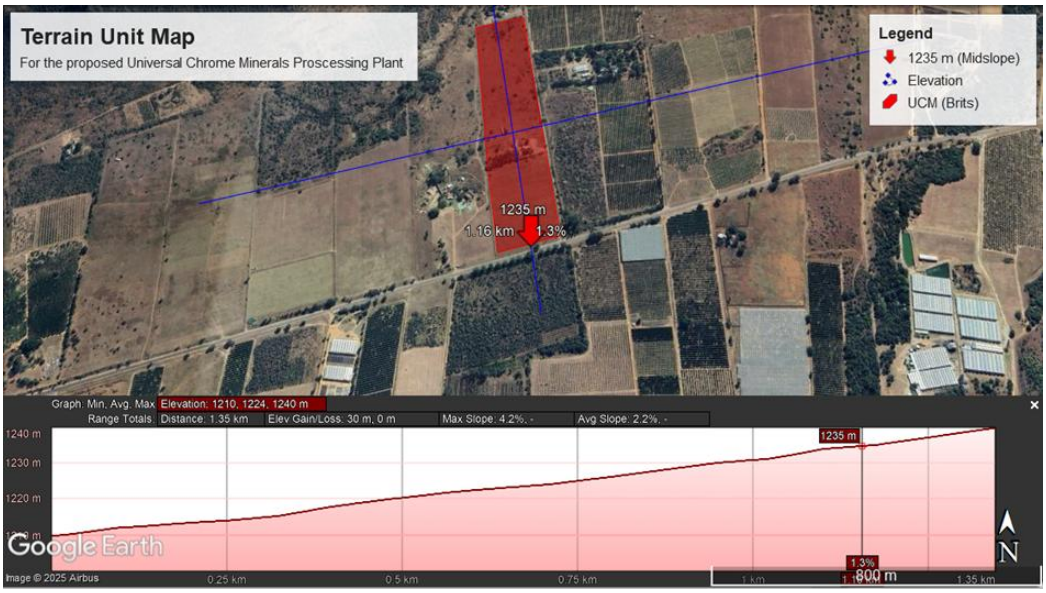

Figure 8.5: Terrain Unit Map for the proposed project (Segope Consulting, 2025)

8.7.3 Wetland plants (Hydrophytes)

The proposed project area is situated within the Moot Plains Bushveld vegetation ecosystem, which is considered Least Concern according to the South African National Biodiversity Institute (SANBI) 2022 Ecosystem Red list. The ecosystem consists of predominantly open to closed, low, often thorny savanna dominated by various species of Acacia in the bottomlands and plains, as well as woodlands of varying height and density on the lower hillsides. The herbaceous layer is dominated by grasses.

This ecosystem has a broad range of pressures. Agriculture is a key pressure on this ecosystem type, with 185.78 km² of the ecosystem consisting of croplands and a further 307.46 km² of old fields. Urban development has also been a pressure, with 169.29 km2 of built-up areas. Mining impacted 11.53 km² of the ecosystem. Artificial water bodies cover 34.72 km². Additionally, the ecosystem is degraded by alien invasion by Cereus jamacaru, Eucalyptus species, Jacaranda mimosifolia, Lantana camara, Melia azedarach, and Schinus species, as well as erosion, which has degraded 0.93 km² of the ecosystem (Rutherford et al. 2006).

8.8 Groundwater

*The information provided in the groundwater section is a summary of the information provided in the Groundwater Specialist Report. Please refer to **Appendix G1** for the full report.*

The geohydrological report was constructed by first identifying what information is valuable or known as well as what gaps needs to be filled; then constructive recommendations to protect groundwater were made. The impact of the proposed chrome wash plant and related infrastructures was investigated through field investigations, data analyses, and the use of numerical models (flow and transport models). The following subsections will discuss the work completed to compile the groundwater report.

8.8.1 Desktop Study

This included gathering of information through the collation, scrutiny and evaluation of available and relevant meteorological, geographical, geological, hydrogeological and water quality data.

The following information sources were reviewed:

- Geological Map (Scale 1:250 000) published by the Council for Geoscience.
- National Groundwater Database (NGDB) information managed by DWA (2005).
- General Surface Layout plan and Drawings by the UCM.
- DWA (2003) A Protocol to Manage the Potential of Groundwater Contamination from on-site sanitation. Technical Version. Edition 2, March 2003.
- Parsons R (1995) A South African Aquifer System Management Classification. Water.
- Research Commission Report no KV 77/95.

8.8.2 Hydrocensus

The Hydrocensus was done to be familiar with the site and to collect data from the study area and surrounding environments. It comprised a census of key boreholes, wells, springs and any other groundwater related information. Two boreholes were found at the project site.

8.8.3 Aquifer Classification

The aquifer(s) underlying the subject area were classified in accordance with "A South African Aquifer System Management Classification, December 1995". The main aquifers underlying the area were classified in accordance with the Aquifer System Management Classification document (DWAF and WRC, 1995). The aquifers were classified by using the following definitions:

- **Sole Aquifer System**: An aquifer which is used to supply 50% or more of domestic water for a given area, and for which there is no reasonably available alternative sources should the aquifer be impacted upon or depleted. Aquifer yields and natural water quality are immaterial.
- **Major Aquifer System**: Highly permeable formations, usually with a known or probable presence of significant fracturing. They may be highly productive and able to support large abstractions for public supply and other purposes. Water quality is generally very good (Electrical Conductivity of less than 150 mS/m).
- **Minor Aquifer System**: These can be fractured or potentially fractured rocks which do not have a high primary permeability, or other formations of variable permeability. Aquifer extent may be limited and water quality variable. Although these aquifers seldom produce large quantities of water, they are important for local supplies and in supplying base flow for rivers.
- **Non-Aquifer System**: These are formations with negligible permeability that are regarded as not containing groundwater in exploitable quantities. Water quality may also be such that it renders the aquifer unusable. However, groundwater flow through such rocks, although imperceptible, does take place, and needs to be considered when assessing the risk associated with persistent pollutants.

The aquifer at the project site was classified as a minor aquifer system.

8.8.4 Aquifer Vulnerability

Aquifer vulnerability is the intrinsic characteristics that determine the aquifer's sensitivity to the adverse effects resulting from the imposed pollutants (Rivera and Guerrero, 2008). It is determined to indicate the tendency or likelihood for contamination to reach a specified position in the groundwater system after introduction of a contaminant at some location above the uppermost aquifer.

The following factors have an effect on groundwater vulnerability:

- **Depth to groundwater**: Indicates the distance and time required for pollutants to move through the unsaturated zone to the aquifer.
- **Recharge**: The primary source of groundwater is precipitation, which aids the movement of a pollutant to the aquifer.
- **Aquifer media**: The rock matrices and fractures which serve as water bearing units.
- **Soil media**: The soil media (consisting of the upper portion of the vadose zone) affects the rate at which the pollutants migrate to groundwater.
- **Topography**: Indicates whether pollutants will run off or remain on the surface allowing for infiltration to groundwater to occur.
- **Impact of the vadose zone**: The part of the geological profile beneath the earth's surface and above the first principal water-bearing aquifer. The vadose zone can retard the progress of the contaminants (DWAF, 2007).

8.8.5 Aquifer Protection Classification

A GQM Index of medium was estimated for the study area from the ratings for the Aquifer System Management Classification. According to this estimate, a medium level groundwater protection is required for the aquifer. Reasonable and sound groundwater protection measures based on the modelling will therefore be recommended to ensure that no cumulative pollution affects the aquifer, even in the long term. DWS water quality management objectives are to protect human health and the environment. Therefore, the significance of this aquifer classification is that measures must be taken to limit the risk, the protection of the underlying aquifer and the protection of potential groundwater users.

Table 8.5: GQM index

GQM Index	Level of Protection	Study Area
<1	Limited	
1 – 3	Low Level	
3 – 6	Medium Level	4
6 – 10	High Level	
>10	Strictly non-degradation	

8.9 Air Quality

*The information provided in this section is a summary of the information provided in the Air Quality Impact Assessment Specialist Report (**Appendix G8**).*

8.9.1 National Dust Control Regulations

The National Dust Control Regulations (GNR 517, dated 25 May 2018), published in terms of the NEM: AQA (as amended). GNR 517 states that dust fallout may not exceed 1 200 mg/m2/day for activities undertaken in non-residential areas, over an average of thirty (30) days and to ensure that the level of fallout dust is below 600mg/m2/day over a 30-day average for the areas defined as residential (***Table 8.6***).

The regulations also specify that the method to be used for measuring dust fallout and the guideline for locating sampling points shall be ASTM D1739 (1970), or equivalent method approved by any internationally recognized body.

It is important to note that dust fallout is assessed for nuisance impact and not inhalation health impact.

Table 8.6: Acceptable dust fallout rates in terms of GNR 517, dated 25 May 2018.

Restriction Areas	Dustfall rate (D) (mg/m²/day, 30-days average)	Permitted frequency of exceeding Dustfall rate
Residential area	D < 600	Two within a year, not sequential months.

Non-residential area	D ≤ 1 200	Two within a year, not sequential months.

8.9.2 Sources of Dust

It is important for each source to be identified so that customised dust control measures can be applied to each specific source. Chapter 11 of the USEPA AP-42 Document characterises fugitive dust from aggregate handling and storage as three (3) forms of particulate matter (PM). These are, namely, PM, PM10 and PM2.5. PM is representative of total particulate matter, whereas PM10 and PM2.5 represent the respirable fraction of particulates and can potentially have an impact on human health. Most of the dust, which may be generated at the plant, consists of inert mineral aggregate. Dust created in the production process can be categorised as the open fugitive type.

Open fugitive dust may be generated from the delivery, storage and handling of aggregates or from general plant and yard activities. Potential points of origin include stockpiles, crusher, traffic areas, conveyor belts, screens and material transfer points. Ducted dust, on the other hand, is typically generated during the aggregate drying process.

The potential sources of fugitive dust emissions, emanating from Universal Chrome Minerals, are discussed in ***Table 8.7*** below:

Table 8.7 : Fugitive dust emission sources at Universal Chrome Minerals.

Fugitive Dust Source	Description
Roads	Unpaved roadways and traffic areas.
Movement of Vehicles	Truck traffic, truck loading and on-site intermediate truck transportation.
Bulk Material (Exposed Aggregate Stockpiles)	Storage and handling of aggregate that will be fed into the hopper via conveyor belts.
Front-End Loader	Feeding of the stockpile aggregate into the crusher.
Incline Conveyor Belt	Transporting of cumulative aggregate onto a jigger.
Crusher	Stockpile aggregate is fed into selected bins, per aggregate size, by a front-end loader. Controlled quantities are fed onto a collector belt which collects the cumulative aggregate and feeds it onto an incline conveyor, transporting the cumulative aggregate onto a jigger.
Jigger (Ore Washbox)	A pulsating water column is used to create a jigging action. Heavier ore particles settle to the bottom, while lighter waste material floats to the surface and is removed.

8.10 Traffic Impact Assessment

*The information provided in this section is a summary of the information provided in the Traffic Impact Assessment Specialist Report (**Appendix G7**).*

8.10.1 Surrounding Road Network

The following roads and streets are relevant to the study area, and they are categorized into different classes Rural Functional Road Classification **(COTO, 2012):**

- **Regional Road (R104):** This road functions as a Collector Street (class 4). This road is a surfaced single carriageway road with no median and one (1) lane in each direction and has a T-junction stop with Lebidike Road.
- **R566 Road:** This road functions as a Local or Access Street (Class 5) an it connects R104 and N4. The road is a surfaced single carriageway road with no median and one (1) lane in each direction.
- **Unknown Tar Road:** This road functions as a Local or Access Street (Class 5). This road is a surfaced single carriageway road with no median and one (1) lane in each direction, and has a T-junction stop with R104 at Majakaneng Settlement.

8.11 Data Collection and Description of Traffic Conditions

8.11.1 Traffic Survey

The traffic count was conducted for two days on the 13th and 14th of May 2025. Local Technicians were picked by the community leader to assist with the process, two (2) males and six (6) Females. The Traffic Impact assessment was conducted on two T-junctions, namely the Majakaneng Junction (Unknown Tar Road & R104 Road) and the Elegant Fuel Station Junction (R566 & R104 Roads) for both AM peak (06h00-09h00) and PM peak (15h00-18h00)

The survey was conducted to monitor the peak morning hours traffic of heavy and light vehicles and the afternoon peak hours of the light and heavy vehicles near the project area. Recordings were made on all three sides with the understanding that the vehicles may turn to any side (North, South, and East) at both T-junctions stops. The morning peak was recorded in 15-minute intervals from 6:00 am to 09:00 am, the afternoon peak was recorded in 15-minute intervals from 15:00 pm to 18:00 pm (***Table 8.8***), and ***Figure 8.6*** shows a schematic diagram of how the traffic count was conducted.

Table 8.8: Different Peaks

Symbol	Meaning
Light vehicles	Private cars, taxis, and bakkies
Heavy vehicles	Trucks and buses
Morning peak	06:00am - 09:00am
Afternoon peak	15:00 pm -18:00 pm

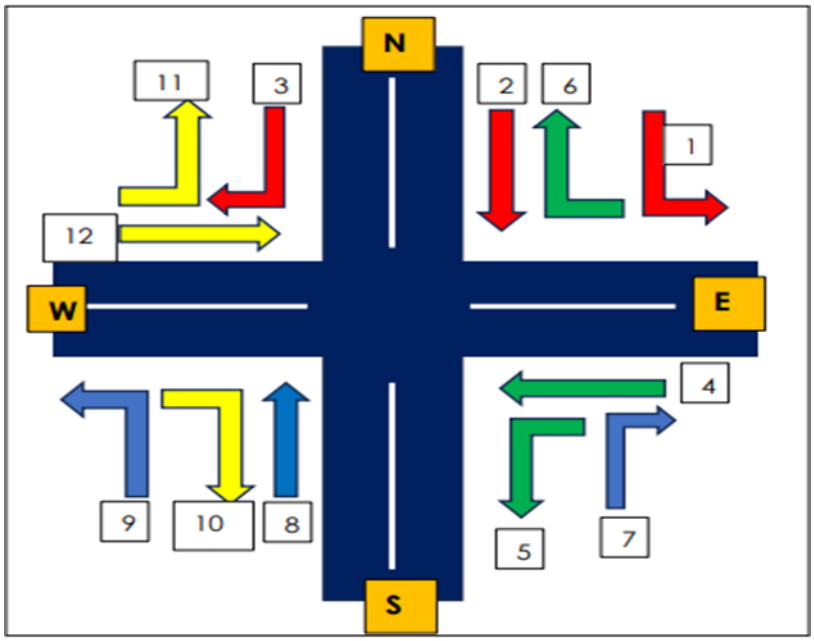

Figure 8.6: Illustration of the road along which the traffic count was conducted

8.11.2 Observations on Elegant Fuel Station

Observations on the 13th of May 2025

At the Elegant Fuel Station Junction, traffic during the AM peak period showed increased movement along the R104, particularly in the north and south directions. Between 06h15 and 07h30, around 30 to 45 light vehicles passed every 15 minutes, with additional traffic entering from the R566 heading westward or turning onto the R104.

In the PM peak (15h00–18h00), a noticeable number of heavy vehicles were observed, especially from the R566 turning onto the R104 (north or south directions). Traffic conditions remained orderly, though slightly heavier than the AM peak.

Observations on the 14th of May 2025

On the following day, traffic during the AM peak at the Elegant Fuel Station Junction followed a similar pattern. Light vehicle flow was again highest between 06h30 and 07h30, with approximately 35 to 50 vehicles moving through the junction every 15 minutes, primarily along the R104.

During the PM peak, there was a slight increase in traffic volume, particularly involving freight and delivery trucks turning from the R566 onto the R104. The overall flow of traffic remained consistent with no major disruptions reported.

8.11.3 Observations on Majakaneng Junction

Observations on the 13th of May 2025

During the AM peak period (06h00–09h00), traffic at the Majakaneng Junction was observed to be heavier between 06h30 and 07h30. Vehicle flow was most prominent along the R104 in both the north and south directions, where approximately 40 to 50 light vehicles passed through the intersection every 15 minutes. The increase in traffic is attributed to regular morning commutes

and local school transport activity. The eastbound approach (Unknown Tar Road) experienced light but steady vehicle movement.

In the PM peak period (15h00–18h00), traffic volumes slightly increased again, with a noticeable presence of heavy vehicles moving north or south along the R104. However, traffic volumes remained moderate and did not result in significant congestion.

Observations on the 14th of May 2025

On the second day of observation, similar trends were recorded. The AM peak once again showed the highest traffic volume between 06h30 and 07h45, with around 35 to 50 light vehicles passing every 15 minutes along the R104. School drop-offs and worker commuting patterns contributed to the consistent north-south vehicle flow.

During the PM peak, the traffic volume was slightly more dispersed, with an increase in heavy vehicle movement particularly heading south along the R104. Despite this, the junction continued to operate within acceptable traffic flow levels.

8.12 Socio-Economic Impact Assessment

*The information provided in this section is a summary of the information provided in the Socio-Economic Impact Assessment Specialist Report (**Appendix G5**).*

8.12.1 Compilation of a Socio-economic Baseline

Baseline\existing conditions and past trends associated with the human environment in which the proposed activity is to take place must be considered. The information collected through the desktop review and onsite investigations was used to compile a socio-economic baseline profile. The information found provides an update of the baseline information on the likely scope and nature of impacts, providing a useful analysis of the changes to the socio-economic factors of the area and offering proposals for the enhancement of positive project impacts.

Baseline data sources include the following:

- S24G as well as the authorisation of activities that will be triggered by the proposed processing plant development in accordance to NEMA Environmental Impact Assessment (EIA) regulations and National Environmental Management: Waste Act (NEMWA, Act 59 of 2008)
- UCM specialist studies such as Traffic Impact Assessment, Dust, Geohydrology, Wetland Impact Assessment, and Waste Classification Report.

8.12.2 Socio-Economic Profile of Affected Communities

The information for the profile was sourced from the Integrated Development Plans (IDP's) of the local (MLM's 2024/25 IDP). Additionally, the community survey was conducted on the 13th and 14th of May 2025 at the two communities, namely Madibeng Local Municipality (MLM), situated approximately 4.5km southwest, and Bapong Community, which is located approximately 3.84km northwest of the plant. About eighty (80) houses were surveyed.

Comparative analysis between survey findings and municipal data revealed alignment in most areas, except when it came to the perceived needs of local communities. Despite their proximity to economic activity, including active mining and industrial zones, communities such as Bapong and Majakaneng continue to experience high unemployment, inadequate housing, and limited access

to essential services such as sanitation, clean water, and education infrastructure.

This study records specific requests raised by these communities, with employment and secondary school access ranking highest among the concerns. The chrome processing plant and the broader supply and logistics ecosystem it supports hold the potential to make a substantial contribution to socio-economic upliftment. Its most meaningful contributions will come through local procurement, employment creation, and expenditure within the local economy. Moreover, development programmes linked to UCM's commitments, along with its sustainable development objectives, can serve to alleviate longer- term social and economic vulnerabilities, both during operations and after decommissioning.

One of the significant challenges highlighted is that processing plants often source their inputs and skilled labour from distant provinces like Gauteng, bypassing local suppliers and job seekers. This practice limits the developmental impact that such infrastructure can have on host communities. Therefore, UCM's project presents an opportunity to localize procurement, prioritize community-based training, and strengthen the skills base in Madibeng's rural wards. Data trends indicate that Madibeng is experiencing continued population growth due to in-migration by job seekers drawn to processing and mining activities. However, a skills mismatch prevents many residents from benefitting directly from such developments. To bridge this gap and support inclusive growth, the following community needs identified through participatory engagement should be prioritized by UCM in partnership with the municipality:

- Reliable access to clean water and dignified sanitation;
- Upgrading of roads, stormwater systems, and installation of streetlights;
- Adequate housing and electrification (including renewable energy options like solar panels);
- Establishment of a local clinic;
- Construction and support for secondary education and training centres;
- Expanded employment opportunities for locals through skills development; and
- Improved refuse removal and environmental services.

In conclusion, the development of the UCM chrome processing plant holds transformative potential for the surrounding communities of MLM. With responsible planning, active community engagement, and targeted investment in infrastructure and skills, the plant can serve as a catalyst for long-term socio- economic development and resilience in the region.

9. METHODOLOGY FOR ASSESSMENT OF IMPACTS

All specialists were required to assess each identified potential impact according to the following Impact Assessment Methodology as described below. This methodology has been formalized to comply with Regulation 31(2)(l) of NEMA, which states the following:

(2) An environmental impact assessment report must contain all information that is necessary for the competent authority to consider the application and to reach a decision …, and must include –

(l) an assessment of each identified potentially significant impact, including –

(i) ***cumulative impacts****;*

(ii) the ***nature*** *of the impact;*

(iii) the ***extent*** *and* ***duration*** *of the impact;*

(iv) the ***probability*** *of the impact occurring;*

(v) the ***degree*** *to which the impact can be* ***reversed****;*

(vi) the ***degree*** *to which the impact may* ***cause irreplaceable loss of resources****; and*

(vii) the ***degree*** *to which the impact can be* ***mitigated****.*

Based on the above, the EIA Methodology will require that each potential impact identified is clearly described (providing the nature of the impact) and be assessed in terms of the following factors:

- extent (spatial scale): will the impact affect the national, regional or local environment, or only that of the site?
- duration (temporal scale): how long will the impact last?
- magnitude (severity): will the impact be of high, moderate or low severity? and
- probability (likelihood of occurring): how likely is it that the impact may occur?

To enable the scientific approach for the determination of the environmental significance (importance) of each identified potential impact, a numerical value has been linked to each factor. The ranking scales indicated in ***Table 9.1*** are applicable:

Table 9.1: Environmental Impact Ranking Scale

Occurrence	**Duration:** 5 – Permanent 4 - Long-term (ceases with the operational life)3 - Medium-term (5-15 years) 2 - Short-term (0-5 years) 1 – Immediate	**Probability:** 5 – Definite/don't know 4 – Highly probable 3 – Medium probability 2 – Low probability 1 – Improbable 0 – None

Severity	**Extent/scale:** 5 – International 4 – National 3 – Regional 2 – Local 1 – Site onlyo – None	**Magnitude:** 10 - Very high/uncertain 8 – High 6 – Moderate 4 – Low 2 – Minor

Once the above factors had been ranked for each identified potential impact, the environmental significance of each impact was calculated using the following formula:

Significance *= (duration + extent + magnitude) x probability*

The maximum value that can be calculated for the environmental significance of any impact is 100. The environmental significance of any identified potential impact is then rated as either: high, moderate or low on the following basis:

- More than 60 significance value indicates a high (H) environmental significance impact;
- Between 30 and 60 significance value indicates a moderate (M) environmental significance impact; and
- Less than 30 significance value indicates a low (L) environmental significance impact.

In order to assess the degree to which the potential impact can be reversed, cause irreplaceable loss of resources and be mitigated, each identified potential impact was assessed twice.

- Firstly, the potential impact was assessed and rated prior to implementing any mitigation and management measures; and
- Secondly, the potential impact was assessed and rated after the proposed mitigation and management measures have been implemented.

The purpose of this dual rating of the impact before and after mitigation is to indicate that the significance rating of the initial impact is and should be higher in relation to the significance of the impact after mitigation measures have been implemented.

Specialists were required to list and describe all identified impacts in indicated in **Table 11.2** below. Provision was made in the table for the description of the potential impact identified, the rating of the potential impact without mitigation measures, description of the management measures to mitigate the potential impact, and rating of the potential impact after the management measures have been implemented.

The Specialist assessment of the rating of the identified impact and mitigation and management proposed by UCM, and/or the Specialist, was based on sound, validated scientific information and professional judgement in the context of the specific project and site conditions, and not emotion.

Table 9.2: Example of EIA Table

Nature of the impact	Significance of potential impact ***before*** mitigation						Mitigation measure	Significance of potentialimpact ***after*** mitigation					
	Pr	Du	Ex	Ma	Significance			Pr	Du	Ex	Ma	Significance	
Construction Phase													
Description	3	4	3	6	39	**Moderate**	*Description*	1	4	3	6	13	**Low**
Operational Phase													
Description	5	4	3	6	65	**High**	*Description*	3	4	3	6	39	**Moderate**
Rehabilitation and Decommissioning Phase													
Description	3	4	3	6	39	**Moderate**	*Description*	1	4	3	6	13	**Low**

10. IMPACT ASSESSMENT

The UCM Chrome Processing Plant is anticipated to have a low/negligible impact on the biophysical aspects and a positive impact on the social aspect. The National Environmental Screening Tool developed by the Department of Environmental Forestry and Fisheries (DFFE) was utilized to determine specialist studies required to support the Environmental Authorisation process, as required by GN R. 960 of July 2019. The results of the screening report (appended in ***Appendix G6***) are presented in ***Table 10.1***.

Table 10.1: Site environmental sensitivity in terms of the DFFE screening tool

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Agriculture Theme	X			
Animal Species Theme		X		
Aquatic Biodiversity Theme				X
Archaeological and Cultural Heritage Theme				X
Civil Aviation Theme		X		
Defense Theme				X
Paleontology Theme			X	
Plant Species Theme			X	
Terrestrial Biodiversity Theme	X			

The results indicate that there is a very high sensitivity related to the aquatic and terrestrial themes and was also confirmed using the South African National Biodiversity (SANBI) GIS software. The screening report was used to direct the environmental assessments to be included in this EIA&EMPr report.

10.1 Activities to be Undertaken during different Phases

Table 10.2 below lists the main project related activities that will be undertaken during the implementation of the different phases of the proposed project.

Table 10.2: Proposed project related activities during different project phases

Project Phase	Activity
Construction	• Construction of the required infrastructures, including all stormwater and water management infrastructure
	• Construction of sewage treatment facilities
Operation	• Operation, management and maintenance of the stockpiles and associated access routes.
	• Operation, management and maintenance of machineries.
	• Operation, management and maintenance of the stormwater management infrastructure
	• Operation, management and maintenance of the sewage
Rehabilitation	• The area where the operations were will be rehabilitated.
Post-closure	• Demolition of all other project related infrastructure.
	• Removal of all access roads.
	• Handling of potential contaminated soils.
	• Monitoring of groundwater.

The footprint areas that will be disturbed in terms of the construction and operation of the proposed infrastructure are summarized below. All of these infrastructures will be located on the farm Boschfontein 458JQ.

The total of 11.7 ha is covered by the project boundary and approximately 3.8 ha is currently disturbed. The following sections provide further details on the potential impacts (negative and positive), in terms of the various environmental aspects for each aforesaid activity and associated actions that will be undertaken during the implementation of the overall chrome processing plant.

The potential identified impacts were rated, in terms of the Probability, Duration, Extent and Magnitude that may be associated with the potential impact. The following abbreviations were used in the Impact Assessment Tables to indicate the said impact assessment aspects:

- Pr: Probability;
- Du: Duration;
- Ex: Extent; and
- Ma: Magnitude.

10.2 Construction Phase

During the construction phase, the following activities will take place:

Activities:

- Construction of dams and stockpiles areas

- Construction of all required stormwater management infrastructure.

Actions:

- The construction of all project related and required stormwater management infrastructures associated with the stockpiles, the plant area and the proposed dams.

Potential impacts and mitigation measures during the construction phase are indicated in ***Table 10.3*** below.

Table 10.3: Potential impacts and mitigation measures associated with the construction WRD and dams including all stormwater and water management infrastructure

Potential Impact Description in terms of each Environmental Aspect		Potential Impact Rating					Mitigation/management measures	Potential Impact Rating				
		Pr	Du	Ex	Ma	Significance		Pr	Du	Ex	Ma	Significance
Geology	The activities are unlikely to materially affect or be affected by the local geology. No material impact anticipated.						No mitigation measures are required as no material impact is anticipated.					
Topography	The construction of the required infrastructures, including all stormwater and water management infrastructure is unlikely to materially affect or be affected by the local topography. No material impacts are anticipated.						No mitigation measures are required as no material impact is anticipated.					
Air quality	Increase in fugitive dust due to an increase in light construction vehicle activity.	5	2	1	4	**35 Moderate**	• The relevant exposed construction site areas and access gravel roads will be irrigated on a regular basis, with just enough moisture to keep the dust down without creating undue runoff. • Construction material and debris will be kept wet with just enough moisture to keep the dust down without creating undue runoff. • Where resident moisture content is not adequate to control dust and dispersion of particulates during transportation, dust raising materials will be transported in closed body vehicles and/or material will be covered with a tarpaulin. • Transportation of dust raising material without covering must be restricted to an appropriate speed level (roughly 40 km/h) if dispersion of particulates and fugitive dust are observed leaving the transportation vehicles.	4	2	3	2	**28 Low**
	Increase in fugitive dust due to construction work and movement of material					**70 High**		3	4	1	4	**27 Low**

Potential Impact Description in terms of each Environmental Aspect		Potential Impact Rating					Mitigation/management measures	Potential Impact Rating				
		Pr	Du	Ex	Ma	Significance		Pr	Du	Ex	Ma	Significance
							• Engine idle speeds during operating times should be reduced. • All vehicles and equipment used during the construction phase will be serviced and maintained on a regular basis. • A dust monitoring programme must be implemented that effectively monitors dust related impacts from the project area.					
	Increased levels of ambient air pollutants; i.e. particulate matter (PM10): • During the construction phase it can be anticipated that the PM10 ambient air concentration may increase in the immediate vicinity of the project area as a result of the combined effect of the construction and construction activities.	5	2	1	4	**35** **Moderate**		5	1	2	2	**25** **Low**
Soils, Land Use and Land Capability	• Localized loss of soil utilization potential. • Localized loss of vegetative cover and topsoil protection • Possible erosion and impact of sedimentary load on streams and river systems. • Localized loss of soil resource and utilization potential due to contamination by reagents and hydrocarbons spills and/or dirty water. • Localized loss of resource	5	5	2	4	**55** **Moderate**	• Minimize the footprint area of impact by conducting site clearing activities associated with the construction of the required infrastructure on a footprint as small as practically possible. • Strip soils with vegetative cover in tacked, and stockpile utilizable soils in accordance to the Soil Utilization Plan. • Protect the existing topsoil stockpile area from impacts of erosion, compaction and contamination. If necessary, vegetate and/or cover with appropriate and suitable	4	3	1	2	**24** **Low**

Potential Impact Description in terms of each Environmental Aspect		Potential Impact Rating					Mitigation/management measures	Potential Impact Rating				
		Pr	Du	Ex	Ma	Significance		Pr	Du	Ex	Ma	Significance
	and its utilization potential due to compaction over unprotected ground/soil. • Localized loss of soil and land capability due to reduction in nutrient status. • De-nitrification and leaching due to soil stripping from infrastructure footprint areas						indigenous grass species. • If deemed necessary, erosion berms can be installed to prevent gully formation. • Restrict vehicle movement to areas of need. • All vehicles should be serviced on a regular basis at the specific demarcated areas. • Any spillage from vehicles should be cleaned up immediately once occur. • Rehabilitate areas once usefulness is completed. • All soils compacted as a result of the construction activities falling outside the infrastructure footprint areas should be ripped • and profiled.					
Flora	The construction of the dams, stockpile areas and all stormwater and water management infrastructure may lead to: • Localized loss of floral habitat within areas of ecological sensitivity; • Localized loss of floral species diversity; and	5	5	2	8	**75 High**	• The proposed development footprint areas should remain as small as possible. • A sensitivity map has been developed for the study area, indicating areas which are considered to be of increased ecological importance. • It is recommended that this sensitivity map be considered during all development phases to aid in the conservation of floral diversity within the study area. • All development footprint areas and areas affected by the proposed development should remain as small as possible and should not	4	3	1	4	**32 Moderate**

Potential Impact Description in terms of each Environmental Aspect		Potential Impact Rating					Mitigation/management measures	Potential Impact Rating				
		Pr	Du	Ex	Ma	Significance		Pr	Du	Ex	Ma	Significance
							encroach unnecessarily into the surrounding sensitive areas and the associated buffer zones. • The boundaries of the development footprint areas are to be clearly defined and it should be ensured that all activities remain within defined footprint areas. • Sensitive flora species are to be handled with care and the relocation of sensitive plant species is to be overseen by a botanist. • Informal fires in the vicinity of plant activities should be prohibited throughout the life of operation. • Any spillage from vehicles should be cleaned up immediately once occur.					
	Potential spreading of alien invasive species	5	5	2	8	**75** **High**	An alien invasive eradication plan should be developed and include, but not be limited to the following: • Care should be taken with the choice of herbicide to ensure that no additional impact or loss of indigenous plant species occur due to the use of the herbicides. • Footprint areas should be kept as small as possible when removing alien plant species. • No vehicles should be allowed to drive through riparian areas during the eradication of alien and weed species.	2	4	1	6	**22** **Low**

Potential Impact Description in terms of each Environmental Aspect		Potential Impact Rating					Mitigation/management measures	Potential Impact Rating				
		Pr	Du	Ex	Ma	Significance		Pr	Du	Ex	Ma	Significance
							• Removal of alien and weed species must take place in accordance with existing legislation process and procedures.					
Fauna	The construction of infrastructures including all stormwater and water management infrastructure may lead to: • Localized loss of faunal habitat within areas of ecological sensitivity; • Localized loss of faunal species diversity; and •	5	5	2	6	**65** **High**	• The boundaries of the development footprint areas are to be clearly defined and it should be ensured that all activities remain within defined footprint areas. • No trapping or hunting of fauna is to take place. • It must be ensured that migratory connectivity between sensitive areas is maintained where possible. • It is recommended that a speed limit of 40 km/h is implemented on all roads running through the project area in order to minimize risk to fauna species from vehicles. Speed humps may be constructed to help slow vehicles and help mitigate collision with faunal species. • During induction of all personnel and contractors, awareness training in terms of faunal species is recommended to increase awareness, respect and responsibility towards the environment. • All informal fires in the vicinity of the plant operations and new construction areas should be prohibited	3	4	1	4	**27** **Low**

Potential Impact Description in terms of each Environmental Aspect		Potential Impact Rating					Mitigation/management measures	Potential Impact Rating				
		Pr	Du	Ex	Ma	Significance		Pr	Du	Ex	Ma	Significance
Riparian Areas	The construction of infrastructures including all stormwater and water management infrastructure may lead to: • Localized changes to riparian features' ecological and socio-cultural service provision; • Localized changes to riparian features' hydrological function; and • Localized loss of riparian habitat and ecological structure.	5	5	2	8	**75** **High**	• The proposed development footprint areas should remain as small as possible. • A sensitivity map has been developed for the study area, indicating areas which are considered to be of increased ecological importance. • It is recommended that this sensitivity map be considered during all development phases to aid in the conservation of floral diversity within the study area. • All development footprint areas and areas affected by the proposed development should remain as small as possible and should not encroach onto surrounding sensitive areas and the associated buffer zones. • The boundaries of the development footprint areas are to be clearly defined and it should be ensured that all activities remain within defined footprint areas. • All sensitive areas outside the construction area must be kept off-limits to construction vehicles and personnel. • It must be ensured that migratory connectivity between sensitive areas is maintained where possible. • The infrastructure footprints associated with the proposed project should fall outside the 1:100-year floodline of the riparian	3	4	1	4	**27** **Low**

Potential Impact Description in terms of each Environmental Aspect		Potential Impact Rating					Mitigation/management measures	Potential Impact Rating				
		Pr	Du	Ex	Ma	Significance		Pr	Du	Ex	Ma	Significance
							features or 100 m from the edge of the feature, which ever distance is the greatest unless exemption from Regulation 704 is applied for and obtained. • All project affected riparian features should be visually inspected and monitored for erosion and incision on a monthly basis, and immediately after heavy rainfall events. • A riparian feature inspection programme and reporting system should be developed and implemented during the life of processing plant. • Where existing road crossings over riparian features are situated that may require upgrading in terms of the proposed project, upgrading should be undertaken in such a manner as to ensure that hydrological connectivity upstream and downstream of the crossings are maintained. • Future processing plant planning should ensure that plant activities do not lead to a reduction of stream flow or dewatering of any riparian features and connectivity of the riparian features in the vicinity of the plant activities should be maintained.					

Potential Impact Description in terms of each Environmental Aspect		Potential Impact Rating					Mitigation/management measures	Potential Impact Rating				
		Pr	Du	Ex	Ma	Significance		Pr	Du	Ex	Ma	Significance
Groundwater	Potential contamination of groundwater resources due to potential accidental spillages of hazardous substances from the vehicles and equipment used for construction activities.	4	2	2	6	**40 Moderate**	• All spillages will need to be cleaned up as soon as practically possible. • Proper management of stormwater drainage infrastructure should be ensured. • Implement specific management measures as detailed in the Groundwater Impact Assessment Report.	1	1	1	2	**4 Low**
Noise	During the construction phase, a slight increase in the ambient noise levels is anticipated due to the movement of vehicles and construction activities undertaken.	3	2	2	6	**30 Moderate**	• Machinery and/or vehicles with low noise levels to be used. • Adhere to the speed limit of 40 km/h for all vehicles within the construction areas. • The reverse signal of the earthmoving equipment and the trucks to be monitored not to create a noise disturbance and/or noise nuisance. • Machinery will be fitted with silencers and regular monitoring will be undertaken to ensure compliance to noise levels. • Limit the construction working hours from 6am to 6pm. • Develop a mechanism to record and respond to complaints relating to noise levels.	3	2	2	4	**24 Low**
Visual	Indirect visual impact due to dust generation during construction activities.	5	2	2	4	**40 Moderate**	The relevant exposed construction site areas and access gravel roads will be irrigated on a regular basis, with just enough moisture to keep the dust down without creating undue runoff. • Ensure harvesting of plants from	4	2	2	2	**24 Low**

Potential Impact Description in terms of each Environmental Aspect		Potential Impact Rating					Mitigation/management measures	Potential Impact Rating				
		Pr	Du	Ex	Ma	Significance		Pr	Du	Ex	Ma	Significance
							this area and preserve in the nursery for rehabilitation purposes, where practical. Any revegetation of affected area to be rehabilitated after construction should be done in consultation with the Botanical Specialist. • The on-site nursery must be expanded and maintained by the plant if possible, during the Life of plant to assist with the mitigation and progressive rehabilitation phases. • Natural vegetation, wherever practical, must be retained on and around the construction sites. • Litter and dust management measures should be in place at all times. • The sites should be kept neat and tidy at all times. • All lights used for illumination (except for lighting associated with security) should be faced inwards and shielded to avoid light escaping above the horizon. • Construction activities will be limited to be undertaken between 6am and 6pm.					
Socio-Economic	Potential positive Impact on Livelihoods - Potential increase in employment opportunities	5	2	2	6	**50 Moderate**	• Use local labor as far as possible.	5	2	2	3	**30 Moderate**

Potential Impact Description in terms of each Environmental Aspect		Potential Impact Rating					Mitigation/management measures	Potential Impact Rating				
		Pr	Du	Ex	Ma	Significance		Pr	Du	Ex	Ma	Significance
	Potential negative impact on Health in terms of potential dust pollution	3	5	2	8	**45 Moderate**	• Develop a mechanism to record and respond to complaints during the construction phase. • Ensure that the plant's Health and Safety policies are implemented.	2	5	2	4	**22 Low**
Cumulative Impact	In terms of the site clearing and grubbing of the footprint areas it is anticipated that the significance of the cumulative impact will be MODERATE, due to the impact occurring on site and over a short duration of time although the activity may affect the local areas' biodiversity and has a likely potential of occurring.	5	2	2	4	**40 Moderate**	• Through the implementation of all the above-mentioned mitigation measures, the overall significance of the activity's impact can be lowered to LOW.	3	2	1	1	**12 Low**

10.3 Operation, management and maintenance of the dams and stockpiles areas.

Activity

Operation, management and maintenance of all infrastructures on site

Actions:

- The continuous placement of material onto the demarcated stockpiles area that has been prepared and stripped of topsoil and vegetation during the pre-construction phase.
- Maintenance of stormwater management infrastructures.

Potential impacts and mitigation measures: Refer to ***Table 10.4*** below.

Table 10.4: Potential impacts and mitigation measures associated with the operation, management and maintenance of the dams and stockpiles area

Potential Impact Description in terms of Environmental Aspects:		Potential Impact Rating					Mitigation / Management Measures	Potential Impact Rating				
		Pr	Du	Ex	Ma	Significance		Pr	Du	Ex	Ma	Significance
Potential impacts and mitigation measures associated with the operation, management and maintenance of the infrastructures on site												
Geology	The activities are unlikely to be affect or be affected by the local geology. No material impact anticipated.						No mitigation measures are required as no material impact is anticipated.					
Topography	The continuous placement of stockpile material onto the area will modify the local topography of the site-specific area.	5	5	1	4	**50 Moderate**	• Progressively shape the stockpiles • If feasible, larger indigenous shrubby vegetation can be planted between the stockpiles and the visually impacted Community.	3	4	1	4	**27 Low**
Air quality	Increase in fugitive dust due to an increase in light vehicle activity.	5	4	2	6	**60 Moderate**	• Waste rock material and debris will be kept wet with just enough moisture to keep the dust down without creating undue runoff. • Where resident moisture content is not adequate to control dust and dispersion of particulates during transportation, dust raising materials will be transported in closed body vehicles and/or	3	4	1	4	**27 Low**
	Increase in fugitive dust due to an increase in movement of vehicles transporting waste rock material.	5	2	1	4	**35 Moderate**		4	2	3	2	**28 Low**

Potential Impact Description in terms of Environmental Aspects:		Potential Impact Rating					Mitigation / Management Measures	Potential Impact Rating				
		Pr	Du	Ex	Ma	Significance		Pr	Du	Ex	Ma	Significance
	Increase it the quantity of noxious vehicle exhaust fumes	5	4	2	6	**60 Moderate**	material will be covered with a tarpaulin. • Transportation of dust raising material without covering must be restricted to an appropriate speed level (roughly 30 km/h) if dispersion of particulates and fugitive dust are observed leaving the transportation vehicles. • Engine idle speeds during operating times should be reduced. • All vehicles and equipment used during the construction phase will be serviced and maintained on a regular basis. • A dust monitoring programme must be implemented that effectively monitors dust related impacts from the project area.	4	4	1	2	**28 Low**
Soils, Land Use and Land Capability	Localized loss of soil resources and utilization potential due to the potential impact of increase soil erosion that may occur around the toe of the WRD areas.	5	5	2	4	**55 Moderate**	• Restrict area of impact to as small an area as practical and manage WRD for erosion by wind and water. • The implementation of adequate stormwater controls to reduce water velocity will mitigate erosion. These controls could include: ○ earth berms, bunds and/or channels; ○ energy dissipaters such as gabions; ○ introduce vegetation; etc. • ensure that the soils conservation plan is adhered to.	4	3	1	2	**24 Low**
	Localized loss of soil utilization due to potential contamination from spillage of raw product, reagents and hydrocarbons from vehicles	5	5	2	4	**55 Moderate**	• Restrict vehicle movement to areas of need. • All vehicles should be serviced on a regular basis at the specific demarcated areas. • Any spillage from vehicles should be cleaned up immediately once occur. • Training and awareness regarding the management of hydrocarbons is included in the induction programme	3	3	1	2	**18 Low**

Potential Impact Description in terms of Environmental Aspects:		Potential Impact Rating					Mitigation / Management Measures	Potential Impact Rating				
		Pr	Du	Ex	Ma	Significance		Pr	Du	Ex	Ma	Significance
Flora	**Impact on habitat for floral species:** • Ongoing disturbance of soils with general operational activities leading to altered floral habitat • Increased introduction and proliferation of alien plant species and further transformation of natural habitat due to disturbance during operations • Discharge and contamination from operational facilities may pollute receiving environment • Seepage affecting soils and the groundwater regime • Runoff and seepage from operational facilities may lead to habitat loss • Ongoing disturbance may lead to erosion and sedimentation	5	5	2	8	**75 High**	• A sensitivity map has been developed for the study area, indicating areas which are considered to be of increased ecological importance. It is recommended that this sensitivity map be considered during all development phases to aid in the conservation of floral diversity within the study area. • All development footprint areas and areas affected by the proposed development should remain as small as possible and should not encroach unnecessarily into the surrounding sensitive areas and the associated buffer zones • The boundaries of the development footprint areas are to be clearly defined and it should be ensured that all activities remain within defined footprint areas. • Informal fires in the vicinity of plant activities should be prohibited throughout the life of processing plant. • Any spillage from vehicles should be cleaned up immediately once occur	4	3	1	4	**32 Moderate**

Potential Impact Description in terms of Environmental Aspects:		Potential Impact Rating					Mitigation / Management Measures	Potential Impact Rating				
		Pr	Du	Ex	Ma	Significance		Pr	Du	Ex	Ma	Significance
	Impact on floral diversity: • A potential increase in alien plant species leading to altered plant community structure and composition. • Potential erosion and sedimentation as a result of operational activities leading to a loss of floral species diversity. • Increased vehicular and pedestrian movement may lead to loss of floral species. • Potential increase in informal fire frequency and intensity, as well as uncontrolled fires during plant operations due to increased human activity impacting on floral communities.	5	5	2	8	**75 High**	An alien invasive eradication plan should be developed and include, but not be limited to the following: • Care should be taken with the choice of herbicide to ensure that no additional impact or loss of indigenous plant species occur due to the use of the herbicide; • Footprint areas should be kept as small as possible when removing alien plant species; and • No vehicles should be allowed to drive through riparian areas during the eradication of alien and weed species. • Further removal of alien and weed species must take place in accordance with existing legislation process and procedures. • During induction of all personnel and contractors, awareness training in terms of flora species is recommended to increase awareness, respect and responsibility towards the environment.	3	3	1	4	**24 Low**

Potential Impact Description in terms of Environmental Aspects:		Potential Impact Rating					Mitigation / Management Measures	Potential Impact Rating				
		Pr	Du	Ex	Ma	Significance		Pr	Du	Ex	Ma	Significance
Fauna	**Impact on habitat for faunal species:** • Ongoing disturbance of soils with general operational activities leading to altered faunal habitat • Increased introduction and proliferation of alien plant species and further transformation of natural habitat due to disturbance during operations • Discharge and contamination from operational facilities may pollute receiving environment • Seepage affecting soils and the groundwater regime • Runoff and seepage from operational facilities may lead to habitat loss • Ongoing disturbance may lead to erosion and sedimentation	5	5	2	6	**65 High**	• A sensitivity map has been developed for the study area, indicating areas which are considered to be of increased ecological importance. It is recommended that the sensitivity map be considered during all development phases to aid in the conservation of floral diversity within the study area. • All development footprint areas and areas affected by the proposed development should remain as small as possible and should not encroach onto surrounding sensitive areas and the associated buffer zones. • The boundaries of the development footprint areas are to be clearly defined and it should be ensured that all activities remain within defined footprint areas. • No trapping or hunting of fauna is to take place. • It must be ensured that migratory connectivity between sensitive areas is maintained where possible. • It is recommended that a speed limit of 40 km/h is implemented on all roads running through the project area in order to minimize risk to fauna species from vehicles. Speed humps may be constructed to help slow vehicles and help mitigate collision with faunal species. • During induction of all personnel and contractors, awareness training in terms of faunal species is recommended to increase awareness, respect and responsibility towards the environment. • All informal fires in the vicinity of the plant operations and new construction areas should be prohibited	3	3	1	4	**24 Low**

Potential Impact Description in terms of Environmental Aspects:		Potential Impact Rating					Mitigation / Management Measures	Potential Impact Rating				
		Pr	Du	Ex	Ma	Significance		Pr	Du	Ex	Ma	Significance
Surface Water	Increase in silt laden runoff from the WRD due to silt in the waste material.	5	5	2	4	**55 Moderate**	• Stormwater runoff will be handled on surface and directed towards natural watercourses. • Stormwater culverts and clean water diversions will be designed and constructed to accommodate the 1:50 year storm event.	3	5	1	2	**24 Low**
	Increase in erosion due to diversion of stormwater.	4	5	1	6	**48**		3	5	1	2	**24**
Groundwater	Due to the absence of acid generating minerals like pyrite and the abundance of silicate minerals that may to some extent provide Neutralizing Potential to counteract Acid Potential that may be produced. It can be concluded that metal mobilization is unlikely; however, the dominant salts that will become enriched within the seepage are Ca, Na, Mg, Cl and HCO_3. The consequence is that the leachate can recharge into the underlying groundwater environment.	4	4	3	8	**60 High**	• Compaction of the WRD area before storage activities begins to reduce seepage into underlying aquifers. • Other mitigation measures will include up gradient surface water diversion to ensure the containment of runoff and subsequent seepage into underlying aquifers and the installation of down gradient paddocks. • The requirements for appropriate practical management measures for the protection of the groundwater resource will be discusses with DWS. • Implement the groundwater monitoring programme during the life of the project.	1	1	2	4	**7 Low**
Noise	Hauling activities along the access road during operational activities.	3	5	2	8	**45 Moderate**	• Develop a mechanism to record and respond to complaints during the operational phase.	2	5	2	6	**26 Low**

Potential Impact Description in terms of Environmental Aspects:		Potential Impact Rating					Mitigation / Management Measures	Potential Impact Rating				
		Pr	Du	Ex	Ma	Significance		Pr	Du	Ex	Ma	Significance
	Dumping of waste rock and top soil on waste rock dump and existing top soil dump	3	5	2	8	45 Moderate	• Machinery and/or vehicles with low noise levels to be used. • Machinery will be fitted with silencers and regular monitoring will be undertaken to ensure compliance to noise levels. • Adhere to the speed limit of 40 km/h for all vehicles within the operational areas. • The reverse signal of the earthmoving equipment and the trucks to be monitored not to create a noise disturbance and/or noise nuisance.	2	5	2	6	26 Low
Visual	The continuous placement of waste rock material onto the demarcated WRD area	5	5	1	6	60 High	• Progressively shape the WRD. • If feasible, larger indigenous shrubby vegetation can be planted between the WRD and the Community that could be visually impacted by the WRD.	3	4	1	4	27 Low
Socio-Economic	Positive Impact on Livelihoods	3	4	3	8	45 Moderate	UCM to increase the probability of retaining staff by implementing the policy of upskilling employee skills where necessary and possible.	5	5	2	3	50 Moderate
	Positive Impact on Local Livelihoods and Local Economic Development	1	4	1	2	7 Low	UCM must inform companies it procures goods and services from of any procurement gaps during the development so that affected companies can plan accordingly.	3	4	2	6	36 Moderate
	Positive Impact on Economic Development	3	4	2	6	36 Moderate	To increase magnitude of the impact, increase the probability of retaining staff by implementing the policy of upskilling employees where necessary	4	4	2	6	48 Moderate

10.4 Closure/Rehabilitation Phase

The main activity that will take place during this phase of the project is the demolition and removal of the plant related infrastructure. The potential impacts associated with demolition activities are similar to the anticipated impacts to occur during the construction phase. The impacts and mitigation measures have been dealt with during the discussions of the construction activities and will not be recaptured in this section, only references will be made where applicable.

10.4.1 Demolition of Project Related Infrastructure

The following activities will be associated with the demolition of majority of the Project Related Infrastructure:

- Demolish and remove all infrastructure not required during post-closure.

10.4.2 Potential Impacts and Mitigation Measures

It is anticipated that the potential impacts of this activity in the rehabilitation phase will be the same as the anticipated impacts listed in the construction phase for the construction. It is therefore recommended that the mitigation/management measures applicable to the construction phase are implemented.

The following additional mitigation measures, as listed below, can be applied during the closure/rehabilitation phase in terms of the demolition of the project related infrastructure:

Environmental Aspect	Additional Mitigation Measure
Soils, land use and land capability	• During rehabilitation, preliminary soil quality monitoring should be carried out to accurately determine the fertilizer requirements that will be needed. • Replacement of nutrient and organic carbon needs and requirements at time of rehabilitation, landscaping of the topographic slope, cultivation of soils and replacement of vegetative cover as soon after replacement of materials as possible. • Monitoring of vegetative growth until self-sustaining.
Fauna and flora	• All soils compacted as a result of closure activities should be ripped and profiled. • Special attention should be paid to alien and invasive control within these areas. Alien and invasive vegetation control should take place throughout all development including decommissioning phases to prevent loss of faunal habitat. • All project related disturbed habitat areas must be rehabilitated and planted with indigenous floral species as soon as possible to ensure that faunal habitat is re-instated. • It must be ensured that plant related waste or spillage and effluent do not affect the sensitive habitat boundaries and associated buffer zones after closure. • Post closure groundwater management will need to be very carefully managed to ensure that no impact on the wetland areas and riparian resources in the area takes place after processing plant closure has taken place. • Utilize species propagated in the nursery for rehabilitation.

Surface water	• Demolition activities will be undertaken during the dry season, where possible to minimize the potential for stormwater runoff. • During closure and rehabilitation activities clean water diversion berms upstream of the area will be constructed • Routine surface water quality monitoring up and down stream of closure and rehabilitation activities will be undertaken as per the surface water monitoring programme.
Groundwater	• Implement the groundwater monitoring programme during the closure and rehabilitation phase.

10.5 Post Closure Phase

This is a period of maintenance and monitoring of the areas that would have been associated with the various project related structures and infrastructure. The activities are limited to monitoring activities and limited erosion and vegetation repair if necessary. It is not anticipated that any significant impacts will arise during this period.

11. REASONED OPINION AS TO WHETHER THE PROPOSED ACTIVITY SHOULD OR SHOULD NOT BE AUTHORISED

The findings of the specialist studies undertaken within this EIA report provide an assessment of both the benefits and potential negative impacts anticipated as a result of the proposed project. The findings conclude that, provided that the recommended mitigation and management measures are implemented, there are no environmental fatal flaws that post the provided mitigation, should prevent the proposed project from proceeding.

It is the EAP's reasoned opinion that this project should be authorised based on the following:

- Where unavoidable, the identified impacts can be mitigated through the implementation of the identified mitigation measures indicated in the EMPr.
- When managed in accordance with the management/ mitigation measures specified in the EMPr, the proposed project is unlikely to result in any significant cumulative impacts, and
- Should the proposed project not be implemented, the land use of the area will not change but there will not be realization of additional local economic development opportunities as well as procurement of local goods and services that would have emanated from the proposed processing plant.

PART B:
ENVIRONMENATAL MANAGEMENT PROGRAMME– UNIVERSAL CHROME MINERALS

EMPr FOR UNIVERSAL CHROME MINERALS

THE PROPOSED CHROME PROCESSING PLANT ON PORTION 50 OF FARM BOSCHFONTEIN 458JQ SITUATED WITHIN THE BOJANALA PLATINUM DISTRICT MUNICIPALITY, NORTH WEST PROVINCE

12. BACKGROUND OF THE EMPr

Universal Chrome Minerals (hereafter referred to as UCM) appointed Segope Water and Environmental Services (Segope Consulting) as an independent Environmental Assessment Practitioner (EAP) to undertake the Section 24G (S24G) rectification process on their behalf. During the period of December 2024, the applicant (UCM), cleared indigenous vegetation on site and as a result, carried out activities listed under EIA Regulations. The clearing of vegetation on site was done without the necessary Environmental Authorisation (EA) and the applicant is now applying for ex post facto approval.

Segope Consulting is responsible for lodging an application to rectify unlawful commencement of listed activities in Environmental Impact Assessment ("EIA") Regulations. This Environmental Impact Assessment and Environmental Management Programme (EIA&EMPr) Report constitutes a formal application for rectification to the North West Department of Economic Development, Environment, Conservation and Tourism *(*DEDECT*)* in terms of Sections 24(G) of the National Environmental Management Act (Act 107 of 1998), as amended.

Part B of this report is considered to be the first draft of the EMPr for public review and is subject to the approval by the DEDECT. An EMPr must consist of a set of mitigation, monitoring and institutional measures to be taken during implementation and operation to eliminate adverse environmental and social impacts, offset them, or reduce them to acceptable levels. The programme also includes the actions needed to implement these measures. Once approved, the EMPr must be finalized as a legally binding document that is to be read in conjunction with the EA.

12.1Purpose of the EMPr

An EMPr can be defined as, "*an environmental management tool used to ensure that undue or reasonably avoidable adverse impacts of the construction, operation and decommissioning of a project are prevented; and that the positive benefits of the project are enhanced*".

EMPr's are very important tools in the sound environmental management of projects, provided the specifications are implemented and the user understands the contents of the report and the reasons for the implementation of certain specifications. The EMPr aims to provide the necessary protection of potentially sensitive areas and provide environmental responsibility and a management framework, within which all future construction, operation and closure phase will occur.

The EMPr has the following objectives:

- To state standards and guidelines which are required to be achieved in terms of environmental legislation.
- To set out the mitigation measures and environmental specifications which are required to be implemented for all phases of the project in order to minimize the extent of

environmental impacts, and to manage environmental impacts and where possible to improve the condition of the environment.

- To provide guidance regarding method statements which are required to be implemented to achieve the environmental specifications.
- To define corrective actions, this must be taken in the event of non-compliance with the specifications.
- To prevent long-term or permanent environmental degradation.

The EMPr is an effective means of managing environmental performance by:

- Enabling the identification of important environmental issues;
- Developing action plans and setting targets;
- Ensuring environmental performance;
- Raising environmental awareness among management, staff and the community which it serves; and,
- Providing appropriate training.

The following principles have been used in the preparation of the EMPr:

- Compliance with relevant legislation, standards, codes, and practices in the application of safe technologies;
- Minimization of impacts on the environment and human beings;
- Performance of all activities in a safe and effective manner and maintenance of all equipment in good operating condition for the protection of the health and safety of all persons and to conserve the environment and property;
- Focus on environment risk prevention;
- Focus on occupational and public health, safety; and
- The undertaking of all necessary precautions to control, remove, or otherwise correct any leaks and/or spills of hazardous materials, or other health and safety hazards.

During the site visit and with the specialist engagement, various impacts were identified, and mitigation and management measures were designed and proposed for these impacts. These mitigation measures have been organized and coordinated into the EMPr, which will remain in force during the lifespan of the project and will be a subject of regular audits as well as updates. The EMPr will guide future constructions, operation and closure phases of the UCM Chrome Processing Plant project. It is a dynamic guideline document that will be updated regularly as the project proceeds, once approval has been granted by the Competent Authority (CA). The mitigation and management measures described in the EMPr will be incorporated into the contract agreements with the contractors to ensure their environmental compliance.

12.2 Contents of EMPr

The contents of the EMPr, as it is defined the Amended EIA Regulations 2014 published as Government Notice (GN) No R. 326 of 7 April 2017 in terms of Chapter 5 of the National

Environmental Management Act (NEMA) (Act No. 107 of 1998, as amended), must be consistent with requirements included in Appendix 4 of the Regulations (*Table 12.1*)

Table 12.1: Contents of the EMPr

EMPr REQUIREMENTS ACCORDING TO APPENDIX 4 OF GNR 982 OF 2014, AS AMENDED IN GNR 326 OF 2017		SECTION OF REPORT
1	An EMPr must comply with section 24N of the Act and include- a. Details of: i. the EAP who prepared the EMPr; and	Section *2.2* of Part A
	ii. the expertise of that EAP to prepare an EMPr, including a curriculum vitae.	Refer to Appendix A for the EAP detailed CV
	b. a detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;	Section *3.2* and Section *4*
	c. a map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers;	Appendix D **and** *Figure 4.1*
	d. a description of the impact management outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including-	Sections *12, 13, 14, 15*, and *17*
	i. Planning and design	
	ii. Pre-construction activities	
	iii. Construction activates	
	iv. rehabilitation of the environment after construction and where applicable post closure; and	
	v. where relevant, operation activities;	
	f. description of proposed impact management actions, identifying the manner in which the impact management outcomes contemplated in paragraphs (d) will be achieved, and must, where applicable, include actions to -	Sections *13, 14*, and *15*
	a. avoids, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;	
	b. comply with any prescribed environmental management standards or practices;	
	c. comply with any applicable provisions of the Act regarding closure, where applicable; and	
	d. comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable;	
	g. the method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Sections *15,16,17,*and *18*

	h. the frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);	
	i. an indication of the persons who will be responsible for the implementation of the impact management actions;	
	j. the time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	
	k. the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	
	l. a program for reporting on compliance, considering the requirements as prescribed by the Regulations;	
	m. an environmental awareness plan describing the manner in which-	
	a. the applicant intends to inform his or her employees of any environmental risk which may result from their work; and	
	b. risks must be dealt with in order to avoid pollution or the degradation of the environment; and	
	n. any specific information that may be required by the competent authority.	Not specified at this stage

12.3 Details of the EAP

Refer to **Section 2.2** of **Part A** of this report for the details of the EAP.

12.4 Description of the aspects of the activity

Refer to **Section 5** of **Part A** of this report, which detailed the aspects related to the activity.

12.5 Composite map

Layout plan, locality and sensitivity maps are attached as **Appendix C , D and E**, the maps are according to the required scale which details the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffer zones.

12.6 Environmental Management Programme approach

The EMPr in essence will be adopting the approach of the internationally recognized ISO 14001 Environmental Management System (EMS) standard that is essentially based on the Deming Cycle rationale which is a simplified continuous improvement model consisting of four main iterative steps. These steps are described as follows:

- **Plan** – Establish objectives and processes necessary to deliver results in accordance with the developed organizational environmental policy.
- **Do** – Implement the process.

- **Check** – Monitor and measure processes against environmental policy, objectives, legal and other requirements and report the results.
- **Act** – Act to continually improve environmental performance.

Continual improvement is achieved by periodically monitoring and reviewing the EMPr and implementing corrective actions when required. Therefore, this document should be considered as a living document which must be continuously updated and possibly improved. This approach taken in the development of the EMPr is in line with the requirements stipulated in GNR. 982 (2014 EIA regulations), as amended in GNR 326 of 2017.

Legislative compliance: Throughout the development of management measures all legislative and other requirements associated to the proposed chrome processing plant additional activities were considered and highlighted.

Specialist recommendations: A number of specialist investigations formed part of the EIA process and resulted in a number of findings and recommendations, **Part A, Section *8*** summarizes the findings and recommendations of the EIA. The specialist studies provided specific mitigation and management measures as a recommendation. These findings have been considered throughout the development of the EMPr.

13. DESCRIPTION OF MANAGEMENT OBJECTIVES INCLUDING MANAGEMENT STATEMENTS

A number of possible environmental and social impacts/risks have been identified in the **PART A** of this report. The sections to follow provides the management approach related to each potential impact/risk by defining management and outcome-based objectives.

The preliminary objectives have been developed against the background of the plant location in the Madibeng Region of North West. The objectives indicated below are therefore designed largely to manage residual risks and provide land that can be utilized after rehabilitation.

13.1 Determination of closure objectives

The closure objectives are based on an extensive environmental database and baseline information gathered during the life of operation so far, as well as the baseline studies undertaken as part of the specialist investigations. The closure vision for UCM is intended to inform the closure objectives. The vision for the plant is to progressively re-instate an area that is safe, stable and non-polluting with the final landform not adversely affecting water resources. This will be achieved by amongst others creating a free draining post operation landscape that has been returned to a productive post mining land use. All existing infrastructures will be removed, and no new fixed infrastructures will be established on closure. The closure objective regarding groundwater is zero discharge of contaminated water to the environment. UCM will develop detailed closure plan at least two years before cessation

of all activities detailing how they plan to finalize closure of the site.

The closure objectives which have been developed to support the closure vision are:

- To adhere to all statutory and other legal requirements.
- To develop landforms supporting stable and functioning ecosystems that are aesthetically acceptable on closure and will gradually sustain the desired land-uses post closure.
- Ensure safety and health of all stakeholders during closure and post closure and that communities using the site after closure are not exposed to unacceptable risks.
- Ensure that closure supports productive uses considering pre-operation conditions and agree with commitments to stakeholders.
- Physically and chemically stabilize remaining structures to minimize residual risks.
- Promote biodiversity and biological sustainability to the maximum extent practicable.
- Utilize closure strategies that promote a self-sustaining condition with little or no need for ongoing care and maintenance.
- To achieve agreed quality targets set by the Catchment Management Authority (CMA) and the DWS as far as practical relative to impacts and reasonability to achieve.

13.2 Project specific mitigation and management commitments

Please refer to **Section *10*** of the EIA (**Part A**) for all relevant mitigation and management comment as prescribed by the various specialists in accordance to the specific activity that will be undertaken during the different phases of the Chrome Processing Plant.

14. PROCESSING PLANT SPECIFIC DESIGN MANAGEMENT MEASURES

The following section provides the surface and groundwater management measures relating to the design criteria which will be implemented during future construction and operational phases specifically.

14.1Surface Water

As part of the proposed project, the new infrastructure will require specific water management infrastructure to enable clear separation of clean and dirty water areas in line with the requirements of Regulation 704.

The following is a brief pre-liminary description of what will be covered by the Surface Water Management Plan infrastructure proposed for the UCM (***A detailed Storm Water Management plan (SWMP) is currently being designed by the civil engineers and will be incorporated in the final EIA&EMPr***). Special design developments will be conducted covering

the overall scope for the SWMP that will be submitted in support of the Water Use Licence (WUL) application as required by the DWS.

The General Layout Plans is shown as **Appendix C**.

The following will be covered in the SWMP:

- The drawings done to a scale of 1: 25 000 showing the terrain contours.
- The clean vs dirty water canals clearly shown within the plant area.
- The Dirty Water System comprise the following:
  - Infrastructure Area
  - Waste Rock Dump
  - Dirty water canals
- The Clean Water System is the remainder of the plant area where the clean-water areas in- between are diverted with canals and berms away from the impacted plant areas. The following is of importance for the clean water system:
  - Clean water diversion canals/ berms strategically throughout the plant area where the clean water is diverted away from the impacted areas to the natural environment.
- Floodline Study: A detailed floodline study will be undertaken for the project. The 1:100 flood event will be shown on the General Layout Plan. All infrastructure and plant developments will be shifted outside these floodlines and limiting buffers.
- Clean Water Storm Water Discharge: No flood attenuation will be required for the clean water.

14.2 Ground water management measures associated with the plant area and stockpiles

- Compaction of the area before storage activities begins to reduce seepage into underlying aquifers.
- Other mitigation measures will include up-gradient surface water diversion to ensure the containment of runoff and subsequent seepage into underlying aquifers.
- The installation of down-gradient paddocks.
- Numerical groundwater model must be updated and recalibrated every year to properly quantify and characterize the impacts.

14.3 Biodiversity specific actions:

The following biodiversity specific management measures will be implemented during all phases of the plant:

- Removal of alien and invasive species within and surrounding plant activities to increase biodiversity value by the rehabilitation of disturbed areas.
- Prevent damages to uncleared sensitive habitat from the plant and stockpiling activities.

- Ensure that exposed soils and steep slopes are stable and not eroding.
- Ensure that dust associated with the chrome processes activities has minimal impact upon the regional ecology.
- Ensure that soil contamination does not impact on the ecological integrity of the area.
- Ensure that all future developments take biodiversity management issues into consideration.
- Ensure that surface water resources are monitored for changes during all phases of the plant.
- Ensure that groundwater resources feeding surrounding watercourses are not contaminated by seepage or discharge.
- Greening of facility grounds with indigenous species to improve aesthetic qualities of the facility.
- Maintain and increase species diversity of the area and create a green consciousness among staff.

The following biodiversity specific management measures will be applied during the rehabilitation and post-closure phase of the proposed project:

- Ensure that rehabilitation and closure activities are at a suitable level to ensure that no latent impacts on the receiving environment occur and the Present Ecological State of the system is maintained wherever possible.
- Post-closure edge effects of activities undertaken during the rehabilitation phase, including erosion and alien/weed controls, need to be strictly managed in the disturbed areas.
- Post-closure groundwater management will need to be very carefully managed to ensure that no negative impact after plant closure has taken place.

Factors that will need to be considered with respect to implementation of these plans include the following:

- Alignment with the applicable emergency action plans e.g. spillage management procedure and fire prevention plan, and the rehabilitation plan and/or rehabilitation strategy and implementation programme, a standard requirement of WUL;
- Identification and liaison with stakeholders and neighboring properties especially with respect to weed/invader and erosion control action plans;
- Post closure land use; and
- Available budget and manpower for implementation, management and maintenance.
- The conditions of the Licence will be adhered to and the management plan will be implemented.

14.4 Soils, Land Use and Land Capability management measures.

The following soil utilization guidelines (albeit that they are generic) should be adhered to wherever possible:

- Protect from contamination and erosion by rock cladding or vegetation cover and adequate drainage of surface runoff.
- At rehabilitation replace the soft overburden followed by the calcrete, compact in situ followed by the soil to appropriate soil depths, and cover areas to achieve an appropriate topographic aspect and attitude to achieve a free draining landscape as close as possible the pre- operation/construction land capability rating.
- Over areas planned for less invasive structures and any material stockpile or storage, strip the top 500 mm of usable soil over all affected areas including terraces, and strip remaining usable soil and calcrete (if present in profile) where founding conditions require further soil removal.
- Store the soil in stockpiles or berms of not more than 1.5 m around infrastructure area ready for closure rehabilitation purposes. Stockpile hydromorphic (wet) soils separately from the dry materials, and the "calcrete" separately from all other materials.
- Protect all stockpiles from water and wind erosion (loss of materials) and contamination by dust and runoff water. Clad stockpiles with larger rock or vegetate the stored materials.
- Over areas of WRD, strip usable soil to a depth of 750 mm where possible and/or in areas of arable soils, and between 300 mm and 500 mm in areas of soils with grazing land capability. Stockpile hydromorphic soils separately from the dry and friable materials.
- Before rehabilitation remove all gravel and other rocky material and recycle as construction material or place in open voids. Remove foundations to a maximum depth of 1 m. Replace soil to appropriate soil depths and in appropriate topographic position so as to achieve pre-mining land capability. Protect the stored materials from erosion and contamination using vegetation or rock cladding.
- Over areas to be utilized for General Access Roads, Protect from erosion and contamination.
-

14.4.1 Soils Conservation and Utilization Plan

a) Construction Phase

The construction methods and final end land use are important in deciding if the utilizable soils need to be stripped and retained, and ultimately how much of the materials will be needed for the rehabilitation (stripping volumes). The construction phase soil utilization plan is detailed in ***Table 14.1*** below.

Table 14.1: Construction Phase – Soil Utilization Plan

Phase	Step	Factors to consider	Comments
Construction	Delineation of areas to be stripped further		Further Stripping of vegetation on site will only occur where soils are to be disturbed by activities that are described in the design report, and where a clearly defined end rehabilitation use for the stripped soil has been identified.
	Reference to biodiversity action plan		It is recommended that all vegetation is stripped and stored as part of the utilizable soil. However, the requirements for moving and preserving fauna and flora according to the biodiversity action plan should be consulted.
	Stripping and handling of soils	Handling	If practical soils will be handled in dry weather conditions so as to cause as little compaction as possible. Utilizable soil must be removed and stockpiled separately from the lower "B" horizon, and wet based soils separated from the dry soils if they are to be impacted.
		Stripping	The "Utilizable" soil will be stripped to a depth of 750 mm or until hard rock/calcrete and/or Ferricrete is encountered. These soils will be stockpiled together with any vegetation cover present (only large vegetation to be removed prior to stripping). The total stripped depth should be 750 mm, wherever possible.
	Delineation of stockpiling areas	Location	Stockpiling areas will be identified in close proximity to the source of the soil to limit handling and to promote reuse of soils in the correct areas.
		Designation of Areas	Soils stockpiles will be demarcated, and clearly marked to identify both the soil type and the intended area of rehabilitation.

This "Soil Utilization Plan" is intimately linked to the "development plan", and it should be understood that the clearing of soil has already commenced on site and this plan must be applied where practically possible to the already stockpiled area and be utilized for any future clearing that will happen. Should the construction changes, these recommendations will probably have to change as well.

b) Operational Phase

Maintenance and care of the soil and land resources will be the main management activity and objective required during the operational phase. Management of material loss, compact and contamination are the main issues of consideration. Operational phase soil conservation plan is described in ***Table 14.2*** below.

Table 14.2: Operational Phase – Soil Conservation Plan

Phase	Step	Factors to consider	Comments
Operation	Stockpile management	Vegetation establishment and erosion control	Enhanced growth of vegetation on the soil stockpiles and berms will be promoted (e.g. by means of watering and/or fertilization), or a system of rock cladding will be employed. The purpose of this exercise will be to protect the soils and combat erosion by water and wind.
		Storm water control	Stockpiles will be established/engineered with storm water diversion berms in place to prevent run off erosion.
		Stockpile height and Slope Stability	Soil stockpiles and berms height will be restricted where possible to <1.5 m so as to avoid compaction and damage to the soil seed pool. Where stockpiles higher than 1.5m cannot be avoided, these will be benched to a maximum height of 15m. Each bench should ideally be 1.5 m high and 2 m wide. For storage periods greater than 3 years, vegetative or rock cover will be essential, and should be encouraged using fertilization and induced seeding with water and/or the placement of waste rock. The stockpile side slope should be stabilized at a slope of 1 in 6. This will promote vegetation growth and reduce run-off related erosion.
		Waste	Only inert waste rock material will be placed on the soil stockpiles if the vegetative growth is impractical or not viable (due to lack of water for irrigation etc.). This will aid in protecting the stockpiles from wind and water erosion until the natural vegetative cover can take effect.
		Vehicles	Equipment, human and animal movement on the soil stockpiles will be limited to avoid topsoil compaction and subsequent damage to the soils and seedbank.

c) Decommissioning and closure

The decommissioning and closure phase will see:

- The removal of all infrastructure;
- The demolishing of all concrete slabs/plinths and the ripping of any hard/compacted surfaces;
- The backfilling of all voids and deep foundations and the reconstruction of the required barrier layer (compaction of calcrete/Ferricrete and clay rich materials) wherever feasible and possible;
- Topdressing of the disturbed and backfilled areas with the stored "utilizable" soil ready for re- vegetation;
- Fertilization and stabilization of the backfilled materials and final cover materials (soil and vegetation) and

- The landscaping of the replaced soils to be free draining.

There will be a positive impact on the soil and land capability environments as the area of disturbance is reduced, and the soils are returned to a state that can support low intensity wildlife grazing or sustainable conservation. ***Table 14.3*** describes the decommissioning and closure phase soil conservation plan.

Table 14.3: Decommissioning and Closure Phase – Soil Conservation Plan

Phase	Step	Factors to consider	Comments
Decommissioning & Closure	Rehabilitation of disturbed land & restoration of soil utilization Pollution of soil	Placement of soils	Stockpiled soil will be used to rehabilitate disturbed sites either ongoing as disturbed areas become available for rehabilitation and/or closure. The utilizable soil (500 mm to 750 mm) removed during the construction phase, must be redistributed in a manner that achieves an approximate uniform stable thickness consistent with the approved post development end land use (conservation land capability and/or low intensity grazing), and will attain a free draining surface profile. A minimum layer of 300 mm of soil will be replaced.
		Fertilization	A representative sampling of the stripped and stockpiled soils will be analyzed to determine the nutrient status and chemistry of the utilizable materials. As a minimum the following elements will be tested for: EC, CEC, pH, Ca, Mg, K, Na, P, Zn, Clay % and organic carbon. These elements provide the basis for determining the fertility of soil. Based on the analysis, fertilizers will be applied if necessary.
		Erosion control	Erosion control measures will be implemented to ensure that the soil is not washed away and that erosion galleys do not develop prior to vegetation establishment.
		In-situ remediation	If soil whether stockpiled or in its undisturbed natural state) is polluted, the first management priority is to treat the pollution by means of in situ bioremediation. The acceptability of this option must be verified by an appropriate soils' expert and by the local water authority on a case-by-case basis, before it is implemented.
		Offsite disposal of soil	If in situ treatment is not possible or acceptable then the polluted soil must be classified according to the minimum requirements for the handling, classification and disposal of hazardous waste DWS and disposed of at an appropriate, permitted, off-site waste facility.

14.5 Solid waste management

- No on-site burning, burying or dumping of any waste materials, litter or refuse shall occur.
- The Contractor shall provide vermin and weatherproof bins with lids of sufficient number and capacity to store the solid waste produced on a daily basis. The lids shall be kept firmly on the bins at all times.
- Bins shall not be allowed to become overfull and shall be emptied at least once a day.
- The waste from bins may be temporarily stored on Site in a central waste area that is weatherproof and scavenger-proof, and which the ECO has approved.
- Recyclable waste shall be disposed of into separate skips/bins and removed off-site for recycling.

All solid waste shall be disposed of off-site at an approved registered landfill site. The Contractor shall supply the ECO with the appropriate disposal certificates.

14.6 Hazardous substances

- The transportation and handling of hazardous substances must comply with the provisions of the Hazardous Substances Act (Act No.187 of 1993).
- The Contractor shall also comply with all other applicable regional and local legislation and regulations with regard to the transport, use and disposal of hazardous substances. Hazardous chemical substances (as defined in the Regulations for Hazardous Chemical Substances) used during construction shall be stored in secondary containers. The relevant Material Safety Data Sheets (MSDS) shall be available on site. Procedures detailed in the MSDSs shall be followed in the event of an emergency situation.
- The Contractor shall be responsible for the training and education of all personnel on site who will be handling hazardous materials about their proper use, handling and disposal.
- If potentially hazardous substances are to be stored or used on site, the Contractor shall submit a Method Statement to the ECO detailing the substances / materials to be used, together with the transport, storage, handling and disposal procedures for the substances.

14.7 Dust Control

14.7.1 Daily Dust Management

The dust fallout monitoring programme must be used to determine if additional actions are required to control the fallout dust levels from the site. If the results at one of the units exceed

the applicable non- residential action level over a 30-day period, then additional dust control measures will be implemented, and the dust management plan upgraded to prevent future exceedances. If the dust levels are below the applicable action level, then it is in an indication that the current dust control measures are adequate for the site and that the dust management plan is being implemented successfully.

Site Dust

Roadways must be planned and demarcated for the site so that trucks and light vehicles only travel on these roads. Road surfaces must be maintained, and adequate drainage must be provided from the road. Sprinklers should be used to wet down open areas, roads and stockpiles that are identified as a source of dust. The use of a watering truck is optional, as the sprinklers, if working reliably will be sufficient.

Stockpiles

The height of the stockpiles must be no higher than 8m, provided they are not determined to be a source of dust, either visually or by the fallout dust monitoring programme. If other materials are stored in the future that do have a high fine dust component, then additional dust control measures will be required, and the plan updated to manage them.

Off-site sources of dust

The gravel road to the south-west of the site is a potential source of dust and many vehicles from different companies use this road. UCM must apply dust control measures to the roadway for the section of the road directly to the south-west of their site to assist with the control measures on this road and to minimise dust levels on the site. Dust control measures include slowing down vehicles and maintaining the road surface adequately. The use of sprinklers is also an option for this road.

15. MONITORING AND PERFORMANCE ASSESSMENT

The on-going monitoring of groundwater, surface water, and air quality will be conducted at the UCM. In addition, the monitoring of the implementation of the UCM EMP will be undertaken. A formal audit of the performance assessment of the EMPr will take place every two years as stipulated in Regulation 55 (2)(b) of the MPRDA, or at any period as required by the Minister.

15.1 Roles and Responsibilities

15.1.1 Parties responsibilities

Table 15.1 below indicate roles and responsibilities of various parties in terms of monitoring

and performance assessment of the EMPr.

Table 15.1: Parties Responsibilities

Party	Responsibility
Applicant	• Ensure adherence to, and compliance with, the EMPr in a legal and timely manner. This relates to all phases of the project lifecycle. • Appoint an Independent Environmental Control Officer (ECO) during both Construction and Operation Phases. • Ensure that a monitoring programme is drafted and implemented to assess compliance with the EMPr during the construction phase. • Ensure that contractors and operators undertake to adhere to the provisions of the EMPr as part of their respective contracts. • Ensure that independent Environmental Audits, including a Post Construction Close-Out audit is undertaken. The results of all audits must be forwarded to the Environmental Authority within 30 days after completion of the audit. • Ensure that all monitoring and audit reports are submitted to the Environmental Authority and that the contractor and operator implement recommendations. • Ensure that the EMPr is included as part of the tender documentation and / or included within any service level agreements made, thereby making it part of the enquiry document to make the recommendations & constraints as set out in this document, enforceable under the general conditions of contract.
Contractor	• Development of an Environmental Method Statement to be submitted and approved by the ECO. • Ensure adherence to, and compliance with, the Construction EMPr in a legal and timely manner. • Ensure that all staff members, sub-contractors and suppliers have a comprehensive understanding of the EMPr and adhere to the provisions for the duration of the construction phase. • Designate a permanent Environmental Officer (EO) to monitor environmental compliance on a day-to-day basis on the construction site. • Ensure that all staff members, sub-contractors and suppliers are aware of the environmental issues relating to the construction

Party	Responsibility
	activities that they are undertaking on site and of all mitigating and precautionary measures that must be implemented. • Ensure that training is undertaken for construction supervisors and crews to recognize environmental 'red flags' and ensure that these will: ➢ not be disturbed, damaged or removed and ➢ Be brought to the immediate attention of the EO or ECO to determine an action plan and way forward. • Ensure that all recommendations made in monitoring and audit reports are implemented throughout the construction phase. • Accept liability for any and all Work required in terms of the environmental specifications, resulting from environmental negligence, mismanagement and / or non-compliance.
Operator	• Ensure adherence to, and compliance with, the Operational EMPr in a legal and timely manner. • Ensure that all staff members and suppliers have a comprehensive understanding of the EMPr and adhere to the provisions for the duration of the operational phase. • Designate an Environmental Officer (EO) to monitor environmental compliance on a day-to-day basis. • Ensure that all staff members and suppliers are aware of potential environmental issues and of all mitigating and precautionary measures that must be implemented. • Ensure that staff members and suppliers are able to recognize environmental 'red flags' and ensure that these will: ➢ Not be disturbed, damaged or removed; and ➢ Be brought to the immediate attention of the EO or ECO to determine an action plan and way forward. • Ensure that all recommendations made in monitoring and audit reports are implemented throughout the operational phase. • Accept liability for any and all Work required in terms of the environmental specifications, resulting from environmental negligence, mismanagement and / or non-compliance.
Environmental Officer (EO)	• Manage the day-to-day on-site implementation of the environmental specifications during the construction and operational phases, and provide support and input where required. • Compile regular (usually weekly) monitoring reports for submission to the contractor / operator, and copied to the ECO. • Act as liaison and advisor on all environmental and related issues,

Party	Responsibility
	and seek advice from the ECO where required. • Understand the provisions and limitations of the project in terms of the EMPr and relevant regulations (such as NEMA, NWA and NEMWA) and provide advice accordingly. • Respond to incidents and keep records and reports as required.
Environmental Control Officer (ECO)	• Understand, interpret, monitor, audit and implement the EMPr from the "cradle to grave" stage. • Retain independence and report on environmental compliance in an objective manner. • Explain the contents of the EMPr to the Contractor, the site staff, supervisors, operators and any other relevant personnel or I&A's as required. • Undertake environmental audits for the duration of the construction and operational phases as required. • Act as quality controller regarding all environmental concerns by conducting periodic site inspections, attending regular site meetings, pre-empting problems, suggesting mitigation and being available to advice on incidental issues that arise. • Submit audit reports to the applicant, contractor / operator and the Environmental Authority, including performance rating, recommendations and reports of non- compliance.

15.2 Monitoring Requirements

15.2.1 Surface Water

Surface Water Monitoring will be undertaken on the upstream and downstream points of the unnamed drainage lines during flow according to South African National Standards (SANS) and as per thDWS requirements on a monthly basis, for water quality and sedimentation.

15.3Groundwater

Groundwater monitoring will be undertaken to establish the following according to the programme stipulated in ***Table 15.2*** below.

Table 15.2: Groundwater monitoring programme

Monitoring position	Sampling interval	Analysis	Water Quality Standards
Construction, Operational and Decommissioning Phases			

All monitoring boreholes	Monthly: measuring the depth of groundwater levels	No analysis required	
Collecting of groundwater samples	Quaterly	Macro elements and full ICP-OES scan for trace elements.	SANS: 2015 Drinking Water Groundwater Quality. WUL recommendations.
All monitoring boreholes	Quaterly	Macro elements and full ICP-OES scan for trace elements	SANS: 2015 Drinking Water Groundwater Quality. WUL recommendations.
Post-closure phase for 2 to 5 years after operations ceases			
All monitoring boreholes	Annually	Macro elements and full ICP-OES scan for trace elements Groundwater level	SANS: 2015 Drinking Water Groundwater Quality, WUL Recommendations.

Laboratory analysis techniques will comply with SANS guidelines. The groundwater monitoring database will be updated on a monthly basis as information becomes available. The database will be used to analyses the information and evaluate trends noted.

15.4 Water Reporting Requirements

Reporting requirements are proposed as follows:

- Water quality monitoring results are to be recorded in a format that allows a clear and concise review and comparison with baseline and historical data for the project. In the event that an exceedance is recorded then the contingency plan will be enacted to attempt to manage the factors contributing to the water quality impact.
- Environmental performance will be reported in accordance with the WUL and included in the Annual Water Report to DWS.
- Any incidents that cause water or environmental pollution or have the potential to water or environmental pollution will be reported to DWS as soon as possible as per the relevant WUL condition.
- Data from water quality and flow monitoring will be assessed against the applicable limits in and subjected to trend analysis and waste load calculations.
- Should any concerning trends become evident, measures to minimize the impact should be investigated and implemented as appropriate.
- Solid waste monitoring in the form of recorded disposal volumes, all waste removal documents, waste manifests and certificates of safe disposal will be kept for audit purposes for at least the life of mine or as required by legislation.

15.5 Soils Monitoring

15.5.1 Monitoring and maintenance

During the rehabilitation exercise preliminary soil quality monitoring should be carried out to accurately determine the fertilizer requirements that will be needed. Additional soil sampling should also be carried out until the levels of nutrients, specifically magnesium, phosphorus and potassium, are at the required levels for sustainable growth.

If growth problems develop, ad hoc, sampling should be carried out to determine the problem. Monitoring should always be carried out at the same time of the year and at least six weeks after the last application of fertilizer.

The following maintenance during closure and rehabilitation is recommended:

- The area must be fenced, and all animals kept off the area until the vegetation is self-sustaining;
- Newly seeded/planted areas must be protected against compaction and erosion;
- Traffic should be limited were possible while the vegetation is establishing itself;
- Plants should be watered and weeded as required on a regular and managed basis were possible and practical;

15.6 Air Quality and Dust Fallout

A continuous dust fallout monitoring programme must be instituted at Universal Chrome Minerals. Monthly dust fallout should be sampled from eight (8) sampling points, located along the fence-line of the premises. The collection and processing of the monthly samples should be done according to the American Standard for Testing and Materials Method D1739, which is the standard test method for the collection and measurement of dustfall (ASTM D1739: 1970). The dust fallout monitoring programme will also assist in ensuring compliance with the legal requirements, as stipulated in terms of the NEM: AQA (as amended).

15.6.1 Appointment of a Consultant to perform dust fallout monitoring

In terms of the Quality Act, 2004 (Act No.39 of 2004) the Consultant is required to implement a fallout dust monitoring programme. Gomelelo Environmental Consulting (Pty) Ltd should be contracted to perform these services.

15.6.2 Dust Management Plan Implementation

UCM is required to perform daily inspections and if necessary, cease operations if conditions are such that it warrants such action. UCM must appoint a dedicated staff member, or an employee of the environmental consulting company for this, but responsibility will be vested

with UCM Operations Manager or Site Manager.

All control measures are to be in place prior to any production activities. Control measures shall also remain in place so long as UCM remains in operation.

15.6.3 Dust fallout reporting

Reporting of the fallout dust levels monthly to UCM will be required. UCM will then be responsible for reporting to the Bojanala Platinum District Municipality (BPDM). The dust fallout monitoring reports will be received monthly in arrears after completion of the month (21-day turnaround time from bucket changing to reporting). A copy of the report will be filed in UCM's Dust File and copies will be distributed to BPDM.

These reports must be made available for both internal and external audit purposes. Compliance with the Dust Control Regulations of 2013 is achieved if regular reporting is done, and if the dust management plan is maintained and implemented adequately.

15.6.4 Monthly Watering Sheet

The weekly watering sheet must be placed in the Dust File after completion of the calendar month. The sheet will indicate when area watering has taken place on specific days and at what time. This record will include stockpile watering.

The watering sheet must include the following information for each day:

- the volume of water used by any sprinkler system.
- volume of water used, (if a watering truck is being used).
- the number of vehicle watering trips per day (if a watering truck is being used).

15.6.5 Non-compliance

Non-compliance to the legislated fallout levels will typically be indicated on the monthly fallout dust reports. Where a month exceeds the fallout levels this will be investigated, and a record must be kept of the corrective measures taken to alleviate the problem. These measures must be filed in the Dust File and the Dust Management Plan updated so that the measures can be actioned as part of the future daily procedures.

15.7 Biodiversity

15.7.1 Floral, Faunal and Riparian Data Capturing

Monitoring should occur on an annual basis in the summer growing season. In order to ensure

that temporal comparisons can be made assessments should take place at the same time each year.

15.8 Post rehabilitation monitoring and maintenance

The objective of the monitoring program is to track the recovery of the site towards the long-term post-closure land use goals, in accordance with the overall closure objectives. The monitoring program is designed to collect information to demonstrate that the Relinquishment criteria have been achieved. The anticipated monitoring will include:

- **Surface Water** – Quality monitoring against parameters as required by the WUL. Sampled bi-annually for a three-year post-closure period;
- **Groundwater** – Quality monitoring of both the shallow and deep aquifers against the parameters required by the WUL. Sampled annually for a three-year post-closure period;
- **Erosion monitoring**-This will take the form of developing a representative reference site on both footprints and undertaking visual and topographic assessments to determine erosion rate, using standard erosion monitoring techniques. This will be undertaken once a year at the end of the wet season for a three-year post-closure period;
- **Vegetation establishment**- Vegetation will be monitored using standard field techniques to determine whether the vegetation has been established with a species composition and density similar to that of a reference analogue site established in a similar ecotype, for a three-year post-closure period; and
- Photographic records should be maintained together with findings, follow up actions and close out records as part of the UCM Environmental Management System.

16. ENVIRONMENTAL OBJECTIVES AND GOALS

The sections below provide details relating to the Environmental Objectives and Goals associated with the proposed Chrome Processing Project.

16.1 Environmental Goals

Environmental impacts will be mitigated and managed through the implementation of the management and mitigation measures as stipulated in **Section 10** of this report**.**

The EMPr aims to:

- achieve compliance with the relevant environmental legislation;
- managing identified impacts; and
- provide a reference by which future audits can be assessed.

UCM will strive to prevent incidents and to minimize their impact on the environment through a total integrated Safety, Health and Environment (SHE) Management approach. Specifically,

with regard to environmental aims, the following is noted:

- Promote environmental awareness amongst all employees, contractors and partners through appropriate training and ongoing awareness programmed so as to achieve the agreed objectives and targets;
- Design, construct and operate their facilities in such a manner as to mitigate and manage environmental impacts;
- Minimize and manage the generation of waste and recycle waste products wherever technically and economically feasible;
- Optimize water utilization;
- Prevention of pollution in all areas through the use of the best available technology not entailing excessive cost;
- Comply with all applicable legislation and other requirements; and
- Conduct periodic audits and reviews to ensure continuous improvement in performance.

16.2 Environmental Impact Management

Identified negative environmental impacts will be managed and mitigated whilst positive impacts will be enhanced through the implementation of the EMPr. UCM is responsible for ensuring that all environmental obligations are met. The implementation of the EMPr and meeting the environmental objectives and targets is also a responsibility of UCM.

The implementation of the environmental mitigation and management measures is monitored through the EMPr Performance Assessment process, which is reported on to the DEDECT.

16.3 Socio-economic Objectives

UCM indicates that it strives to maintain a positive impact on the socio-economic environment during the life of operation.

16.4 Principles of Operation

The following principles will be implemented with respect to operation:

- The environmental coordinator of UCM will be on site to monitor the operation activities; and
- Environmental specifications will be included in the contract specifications and induction process should contractors be used.

16.5 Closure Objectives

The closure objectives which will drive the closure criteria and which have been developed to support the closure vision are:

- Adhere to all statutory and other legal requirements;
- Ensure safety & health of all stakeholders during closure and post closure and that communities using the site after closure are not exposed to unacceptable risks;
- Ensure that closure supports productive uses considering pre-mining conditions and agree with commitments to stakeholders;
- Physically and chemically stabilize remaining structures to minimize residual risks; and
- Promote bio-diversity and biological sustainability to the maximum extent practicable.

16.6 Waste management protocol

Waste (other than plant residues) will be stored, handled, transported and disposed of in accordance with the plant's waste management strategy, procedures and protocols. The protocols address:

- the compilation and maintenance of a waste inventory detailing the volumes, types and classification of wastes generated, stored and disposed of;
- where and how wastes are stored;
- criteria for handling, transporting and disposing of wastes;
- what monitoring is required;
- the health and safety requirements;
- monitoring of water quality for storm flow and seepage; and
- reporting requirements.

16.7 Submission of Information

Information which is required for submission to the relevant authorities is done on a planned basis in order to ensure that environmental management requirements are met. When and if needed the necessary updating of reports are undertaken and submitted to the relevant authorities.

17. REHABILITATION ACTION PLAN

The actions that the plant intends to undertake at the end of the life of project are described below. These actions are designed to comply with the requirements of this rehabilitation plan's objectives, as well as the requirements of Best Practice Guidelines (BPG5). The actions described relates to all infrastructure associated with plant.

17.1 Infrastructure

All infrastructure for which there is no approved third-party post closure use will be

decommissioned and the footprints reclaimed for the establishment of pre-construction land use. Infrastructure where there is a third-party use will be legally transferred to the relevant parties.

The hydrocarbons inventories will be managed near the end of operations to minimise any surplus materials at closure. Where practical, equipment and materials with value will be sold and removed from the site. All other equipment will be demolished and disposed of off-site. Equipment with scrap or salvage value will be removed from the plant and stored in a temporary area designated for this purpose during the closure period. A soil contamination investigation will be conducted on completion of demolition activities, particularly in excavations remaining open following decommissioning. The purpose of this is to identify areas of possible contamination and design and implement appropriate remedial measures to ensure that the soil closure criteria are obtained.

Excavations remaining following demolition and foundation and slab removal and those where contamination remediation has been undertaken will be filled with soil to a depth required to establish the post closure land capability.

Closure actions will include:

- All power and water services to be disconnected and certified as safe prior to commencement of any demolition works;
- Salvageable equipment will be removed and transported offsite prior to the commencement of demolition;
- All fittings, fixtures and equipment within buildings will be dismantled and removed to a designated temporary disposal yard;
- All tanks, pipes and sumps containing hydrocarbons to be flushed or emptied prior to removal to ensure no hydrocarbon/chemical residue remains;
- All above ground electrical, water and other service infrastructure and equipment to be removed and disposed of as general waste or if they have a salvage value removed to a designated temporary salvage yard;
- All liners to be removed from dams and water storage facilities. These will require testing to determine whether there are secondary precipitate adhering to the liner surface, which may render these liners as hazardous. Liners to be disposed of in commercial facilities as either general or hazardous waste depending on the outcomes of the testing;
- Electrical, water and other services that are more than 700 mm below ground surface will remain, all others at a shallower depth will be excavated and disposed of;
- Concrete slabs and footings will be broken and disposed of as general waste.

17.2 Fuel Storage and dispensing

Closure of these facilities will focus on physical closure and investigation of potential subsurface contamination from petroleum products. Closure of these facilities will include:

- Removing remaining fuel inventory;

- Decontaminating equipment including tanks, piping, and dispensing equipment, as needed;
- Removing equipment;
- Demolishing all storage tanks and buildings;
- Removing any appurtenances including piping and electrical;
- Breaking walls and foundations to grade;
- Hauling non-hazardous demolition debris to pit;
- Sampling soils beneath and surrounding the facility;
- Classifying and removing any contaminated soils identified and treating them on site to acceptable standards or to a licensed facility if hazardous; and
- Regarding the footprints in line with adjacent yard footprints.

A portion of the fuel inventory will be used during closure. Near the end of the closure period, after the primary earthwork is complete, the fuel storage and dispensing facilities will be decommissioned.

17.3 Waste Rock Dump and Stockpiles

The WRD and stockpiles activities will result in a stable landform capable of supporting a vegetation community, where the generation of contact waters limited by the incorporation of appropriate covers in the closure design. Closure activities will be implemented for all facilities where there is limited potential that the contained waste would ever be utilized as aggregate in construction activities. Where the potential use as aggregate exists as determined by the physical and geochemical characteristics of the waste rock, the waste rock facilities will remain open for processing by third parties. Closure actions will include:

- Slopes steeper than 18°, will be reshaped to 18° on condition that the extended footprint remains within the permitted boundary;
- Growth medium likely consisting of recovered soils, will be placed to form an average of 300 mm of cover on the dumps; and
- Vegetation will be established to limit the wind and water erosion of the dump, to limit dust generation and to improve the aesthetic appearance of the dump in the landscape.

The efficacy of the growth medium and vegetation cover will be monitored during the closure period to assess the sediment release from the cover.

17.4 Footprints

Following demolition of infrastructure and the ripping of road surfaces, the remaining footprints will be returned to a land use as far as reasonably and practically possible similar to that which existed prior to construction. This will be achieved by implementing the following

closure actions:

- Re-graded to topography consistent with the surrounds to control storm water runoff and erosion;
- Deep ripping with a tine of at least 500mm will be undertaken. Where space allows, cross ripping to be undertaken, with the final rip to be parallel to contours;
- Placement of soil stockpiled ahead of construction.
- Soil ameliorants will be added dependent on soil fertility analyses after placement;
- Footprints to be ploughed parallel to the contours after soils and ameliorants placed to mitigate compaction which may have occurred during soil placement; and

17.5 Relinquishment criteria

Following the implementation of the Action Plan, it is necessary to have measurable criteria against which to assess the effectiveness of the plan and its implementation. These criteria will assist UCM in identifying when the standard of closure achieved is sufficient to relinquish responsibility for a specific area. The site-specific relinquishment criteria for the processing plant are documented **Table 17.1**. Also included in the table are the indicators required to demonstrate achievement with the relinquishment criteria and the reporting requirements. The reporting requirements are those that are expected to fulfil the monitoring requirements set out by legislation.

Table 17.1Relinquishment criteria

Category	Closure criteria	Indicators	Reporting requirements
Ground & Surface Water	Compliance with the WUL	Downstream/gradient water quality monitoring	Monitoring report
Air	Compliance with the standards as per the National Environmental Management: Air Quality (Act 39 of2004)	Records of air quality measurements for PM10 and PM2.5	Monitoring report
Soil quality	Soil quality as assessed against the Norms and Standards to support Chapter 8 of NEM: WA	Soil quality in areas where contamination identified	Results of soil quality and risk assessment
Land productivity	Land capability and productivity similar to that which existed prior to mining	Land capability and productivity	Comparison to analogue areas and pre- mining aerial photographs
			Socioeconomic survey
Erosion	Implementation or construction of erosion control measures	Establishment of vegetation	See Vegetation below

Safety / stability	The site is safe for use by humans and animals, including in the foreseeable future in compliance with Occupational Health and Safety Act 85 of 1993 and relevant Regulations	Geotechnical and hydrological studies of existing structures - outer batter slopes of WRDs & terraces	Evidence in rehabilitation report that appropriate risk assessment has been undertaken and control measures are in place.
Vegetation	Establishment of self-sustaining vegetation population which stabilizes soils and is not invasive.	Species cover and composition	Monitoring report

17.6 Post rehabilitation monitoring and maintenance

The objective of the monitoring program will be to track the recovery of the site towards the long-term post-closure land use goals, in accordance with the overall closure objectives. The monitoring program will be designed to collect information to demonstrate that the Relinquishment criteria have been achieved. The anticipated monitoring will include:

- *Surface Water* – Quality monitoring against parameters as required by the WUL. Sampled bi-annually for a three-year post-closure period;
- *Groundwater* – Quality monitoring of both the shallow and deep aquifers against the parameters required by the WUL. Sampled annually for a three-year post-closure period;
- *Erosion monitoring* - This will take the form of developing a representative reference site on both footprints and undertaking visual and topographic assessments to determine erosion rate, using standard erosion monitoring techniques. This will be undertaken once a year at the end of the wet season for a three-year post-closure period;
- *Vegetation establishment*: Vegetation will be monitored using standard field techniques to determine whether the vegetation has been established with a species composition and density similar to that of a reference analogue site established in a similar ecotype, for a three-year post-closure period;
- Photographic records should be maintained together with findings, follow up actions and close out records as part of the UCM Environmental Management System.

18. ENVIRONMENTAL MONITORING AND AUDITING

Monitoring and auditing are an essential environmental management tool that is used to assess, evaluate, and manage environmental and sustainability issues:

- In order to ensure that the objectives of sustainable development and integrated

environmental management are met and to obtain data, which can inform continuous improvement of environmental practices at the site (adaptive management), monitoring and reporting will be an essential component of the proposed operations.

- Monitoring and management actions associated with the project are contained in this report.
- The appointment of a suitably qualified on-site ECO is essential to the successful implementation of this project, although this role can be fulfilled by the SHE Representative. The ECO will be responsible for the implementation of the EMPr, applicable environmental legislation and any stipulations/conditions set by the relevant CA (including but not limited to the DEDECT, DFFE and DWS). The Environmental Officer will conduct formal monthly site inspections during construction phase and conduct an internal and external annual audit during the construction and operational phase.
- An Independent ECO should monitor the success and effective implementation of the environmental management measures stipulated by applicable legislation, the EIA & EMPr, and any conditions set by the competent authorities. Following each site visit, the ECO should submit a report to the DEDECT documenting the success/failure of the implementation of the management measures at the operations.

18.1Specific Monitoring Requirements

Monitoring of the proposed development (both on site and where appropriate in the surrounding environments) should be considered a high priority and should be conducted in accordance with the relevant specialist recommendations as summarized below:

- **Monitoring Protocol**: It is essential that during the construction and operational phase of the proposed development, the monitoring of certain elements is carried out to ensure compliance with regulatory bodies. A monitoring protocol for both the construction phase and the operational phase will be required. The monitoring only includes those activities identified in the EMPr and excludes any monitoring that should take place according to the WUL.
- **Monitoring requirements and record keeping**: To ensure that the procedures outlined throughout the EMPr are implemented effectively it will be necessary to monitor the implementation of the EMPr and evaluate the success of achieving the objectives listed in the EMPr. To ensure that all personnel on site are aware of their obligation to protect the environment, induction training will also include environmental awareness. Records for all audits and compliance status should be filed in the Environmental Management System File.

19. CONCLUSION

Segope Consulting has undertaken the EIA&EMPr for the proposed Chrome Processing Plant Project in accordance with the requirements of NEMA. The current report is in a draft state for public comment. The final EIA&EMPr will include a comprehensive public participation process which will sought to identify stakeholders, provide these parties with an adequate

opportunity to participate in the project process and guide further technical investigations that will take place as part of the impact assessment phase of this study. Extensive specialist input has been sought for all key environmental aspects.

- An EMPr has been developed as part of this EIA to ensure the mitigation of these impacts as far as practically possible. It is anticipated that it will be possible to successfully mitigate the majority of the environmental impacts to acceptable levels and the implementation will be monitored and audited to determine the effectiveness of the measures implemented.
- It is recommended that the proposed Chrome Processing Plant Project be allowed to proceed, given the relatively small potential contribution of the project to cumulative impacts (given appropriate environmental management) and also considering the positive social impacts associated with the project.
- UCM should, however, continue to examine its management measures for its operation and should put initiatives in place to reduce its contribution to the existing environmental condition.

20. UNDERTAKING

20.1 Regarding Correctness of Information

I, **Phathutshedzo Mudau** herewith undertake that the information provided in the foregoing report is correct, and that the comments and inputs from stakeholders and Interested and Affected Parties has been correctly recorded in the report.

Signature of the EAP

PHATHUTSHEDZO MUDAU
Registered Environmental
Assessment Practitioner
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BSc Environmental Sciences
631 Lievaart Str, Pretoria West
Cell: 081 701 2276

20/05/2025

Date

20.2 Regarding Level of Agreement

I, **Phathutshedzo Mudau** herewith undertake that the information provided in the foregoing report is correct, and that the comments and inputs from stakeholders and Interested and Affected Parties has been correctly recorded in the report.

Signature of the EAP

PHATHUTSHEDZO MUDAU
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APPENDICES