THE VALLEY SILT EXPANSION PROJECT

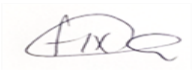
Integrated Water and Waste Management Plan (IWWMP) Report

DATE: 23 April 2025

DWS Reference: WU38176

Report Information

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Verification	Capacity	Name	Signature	Date
Author:	Junior Environmental Consultant	Anela Fixi		09 April 2025
Reviewed by:	Environmental Consultant	Phumla Mngwengwe		17 April 2025
Authorised by:	Chief Executive	Bradly Thornton		23 April 2025

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Executive Summary

Kongiwe Environmental (Pty) Ltd ('Kongiwe') has been appointed as the Independent Environmental Service Provider tasked with facilitating the Water Use Licence Application (WULA) process for the proposed **Valley Silts Expansion Project** (hereafter the Proposed Project).

As part of the WULA process, the applicant is required to compile an Integrated Water and Waste Management Plan (IWWMP) for mining related activities. The draft version of the IWWMP will be made available to Interested and Affected Parties (I&APs) for a 60-day public commenting period from **Thursday 24 April 2025 until Thursday, 26 June 2025**. Following this commenting period, this report will be updated to include all comments received and submitted to the Department of Water and Sanitation (DWS) for consideration.

Project Background

Ergo Mining (Pty) Ltd (Ergo) obtained an Environmental Authorisation (EA) and an Integrated Water Use Licence (IWUL) for the mechanical reclamation of gold bearing silts from a section of the Russell Stream north of Nasrec near Booysens Reserve, in Johannesburg. The authorisation for the removal of silts falls within Mining Right GP 184 MR. Further to this, Ergo - a subsidiary of DRDGOLD Limited - holds various Mining Rights (MR) in respect of slimes dams and sand dumps extending 65 km from Western Johannesburg to Eastern Ekurhuleni with most activities occurring on the central and eastern sections of the Witwatersrand mining belt.

Ergo intends to expand its Valley Silts reclamation operation. The expansion involves mechanically excavating gold-bearing silts from the dam wall to Nasrec Road (Blocks N1 to N20), situated immediately west of the authorised Valley Silts project area and the remaining Blocks (N21 and N22) being located either side of Crownwood Road. This is the Valley Silts Expansion Project.

The removal of silts within the already authorised Valley Silts Project area has been ongoing for a period of time and as such, it is now necessary to prepare for the Valley Eastern Expansion, Southern Expansion, and Valley Expansion Northwest, to maintain an efficient reclamation operation as well as a sustainable feed source to the process plant.

Existing infrastructure to be utilised at stages during the project include:

- City Deep Plant;
- Stockpile area;
- Main haul roads;
- Existing site access roads;
- Electricity reticulation for domestic purposes;
- Hauling road: access roads and main roads,
- Administration buildings, including change houses and ablution facilities,

- Mechanical excavation equipment (Backhoes or Excavators);
- 30 ton Articulated Dump Trucks (ADT's);
- 30 ton Dump Trucks;

The proposed reclamation activity will require authorisation in terms of the National Water Act, 1998 (Act No. 36 of 1998) (NWA) for Section 21 water uses. An Integrated Water Use Licence Application (IWULA) will be prepared and submitted in accordance with the Water Use Licence Application and Appeals Regulations 2017 published in GNR 267 on 24 March 2017 and will be supported by an Integrated Water and Waste Management Plan (IWWMP).

Purpose and Scope

The purpose of this document is to provide sufficient information that will enable informed decision making through a detailed description of the proposed water use scenario and shortcomings in respect to the relevant water management measures. A list of the general and specific management measures pertaining to this IWWMP is also included to show Ergo's commitment towards continuous improvement in water management and to reduce the impacts on water resources to as low as reasonably practicable. This IWWMP is also the technical information document in support of the WULA for the relevant water uses under Section 21 of the NWA. This document is based on the following technical guidelines:

Best Practice Guideline 1.1: Integrated Mine Water and Waste Management developed by the Department of Water Affairs (DWAF, 2008);
Operational Guideline to assist in the compilation of an Integrated Water and Waste Management Plan, First Edition: February 2010;
External Guideline: Generic Water Use Authorisation Application Process, as compiled by the DWA, dated November 2007; and
Regulations regarding the procedural requirements for water use licence applications and appeals, Government Notice 267, dated 24 March 2017.

In summary, this IWWMP presents:

General information pertaining to the operation and a background description of the activity, description of the property and the specific purpose for the development of the IWWMP;
A broad description of the Valley Silts Expansion project, products, business and corporate policies;
Water uses (new, existing, lawful, exemptions and general authorisations);
Environmental context (climate, surface water, groundwater and socio-economic environment);
Analysis and characterisation of activities (organisational structure, training, awareness, monitoring and control);
Risk assessment in relation to process water, stormwater, groundwater and waste (methodology, potential impacts and significance of risks to the environment);
Water and waste management strategies, specifically focussing on process water, stormwater,

groundwater and waste; and
The regulatory status of water use activities accompanied by the section 27 motivation.

Water Use Activities

A detailed list of water use activities and description of these activities are included in Chapter 3 below. However, the following water use activities will be applied for as part of the Proposed Project.

Section 21(a) of the NWA: Taking water from a water resource;
Section 21 (c) of the NWA: Impeding or diverting the flow of water in a watercourse;
Section 21(i) of the NWA: Altering the bed, banks, course or characteristics of a watercourse; and
Section 21 (g) of the NWA: Disposing of waste in a manner which may detrimentally impact on a water resource.

Main Water and Waste Related Risks and Mitigation Measures

A detailed risk assessment for the activities of the Project is included in Chapter 5 of this report. The main water uses and waste related risks for the activities are associated with wetland, surface and groundwater impacts. Mitigation measures are discussed in Chapter 5 of this report, with a detailed water and waste management plan included in Chapter 6 of the report. The water and waste management plan focuses on minimising the impact of the activities on water resources.

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Abbreviations

AMD	Acid Mine Drainage
CARA	Conservation of Agricultural Resources Act (No. 43 of 1983)
CBA	Critical Biodiversity Areas
CBD	Central Business District
CoJ	City of Johannesburg
COP	Code of Practice
CRG	Central Rand Group
DFFE	Department of Forestry, Fisheries and the Environment
DMRE	Department of Mineral Resources and Energy
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EC	Electrical Conductivity
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
EMO	Ergo Mining Operations Proprietary Limited
ESA	Ecological Support Areas
GDARD	Gauteng Department of Agriculture and Rural Development
GPEMF	Gauteng Province Environmental Management Framework
GN R704	Government Notice No. R704
ha	Hectares
IDP	Integrated Development Plan
IS	Important and Sensitive
IWQO	In-stream Water Quality Objectives
IWULA	Integrated Water Use Licence Application
IWWMP	Integrated Water and Waste Management Plan
mamsl	Metres above mean sea level
MAP	Mean Annual Precipitation
MAR	Mean Annual Runoff
mbgl	metres below ground level
mm	millimetres
MPRDA	Mineral and Petroleum Resources Development Act, 2002 (Act No 28 of 2002)
NBSAP	National Biodiversity Strategy and Action Plan
NDP	National Development Plan, 2030
NFEPA	National Freshwater Ecosystem Priority Area
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEM:BA	National Environment Management: Biodiversity Act, 2004 (Act No. 10 of 2005)
NEMLAA	National Environmental Management Laws Amendment Act, 2014 (Act No. 25 of 2014)
NEM:PAA	National Environmental Management: Protected Areas Act, 2003 (Act 57 of 2003)
NEM:WA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
NWA	National Water Act, 1998 (Act No. 39 of 1998)

PAIA	Promotion of Access to Information Act, 2000 (Act 2 of 2000)
PAOI	Project Area of Interest
PES	Present Ecological Status
PPP	Public Participation Process
REC	Recommended Ecological Category
SAIIAE	South African Inventory of Inland Aquatic Ecosystems
SANS	South African National Standards
SEP	Stakeholder Engagement Plan
SWMP	Stormwater Management Plan
SDF	Spatial Development Framework
S&EIR	Scoping and Environmental Impact Report
SPLUMA	Spatial Planning and Land Use Management Act, 2013 (Act No. 16 of 2013)
SO	Strategic Objectives
SOP	Standard Operating Procedure
SWMP	Stormwater Management Plan
SWSA	Strategic Water Source Areas
TSF	Tailings Storage Facility
WMA	Water Management Area
WQO	Water Quality Objectives
WULA	Water Use Licence Applications
WUL	Water Use Licence

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1 Introduction

Kongiwe Environmental (Pty) Ltd ('Kongiwe') has been appointed as the independent Environmental Service Provider, tasked with conducting the Integrated Water Use Licence Application (IWULA), as well as the compilation of the Integrated Water and Waste Management Plan (IWWMP) for the proposed **Valley Silts Expansion Project** (hereafter the Proposed Project).

1.1. Structure of this Integrated Water and Waste Management Plan

Table 1-1: Structure of the IWWMP in line with Appendix D of GNR 267.

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1.2. Project Background

Ergo Mining (Pty) Ltd (Ergo) intends to expand its Valley Silts reclamation operation. The expansion involves mechanically excavating gold-bearing silts from the dam wall to Nasrec Road (Blocks N1 to N20), situated immediately west of the authorised Valley Silts project area and the remaining Blocks (N21 and N22) being located either side of Crownwood Road. The Proposed Project is located within the Russell Stream valley, near Booysens Reserve. The project area stretches from New Canada Road, following the valley southeast, past the Nasrec Road bridge and past Crownwood Road until the stream meets the M1.

The Proposed Project is situated in the City of Johannesburg Metropolitan Municipality (CoJMM). The Russell Stream (also referred to as the Klipspruit) is surrounded by industrial, commercial, residential and undeveloped land. The closest residential area to the project is Riverlea.

Existing infrastructure to be utilised at stages during the project include:

- City Deep Plant;
- Stockpile area;
- Main haul roads;
- Existing site access roads;
- Electricity reticulation for domestic purposes;
- Hauling road: access roads and main roads,
- Administration buildings, including change houses and ablution facilities,
- Mechanical excavation equipment (Backhoes or Excavators);
- 30 ton Articulated Dump Trucks (ADT's);
- 30 ton Dump Trucks;

The proposed reclamation activity will require authorisation in terms of the National Water Act, 1998 (Act No. 36 of 1998) (NWA) for Section 21 water uses. An Integrated Water Use Licence Application (IWULA) will be prepared and submitted in accordance with the Water Use Licence Application and Appeals Regulations 2017 published in GNR 267 on 24 March 2017 and will be supported by an Integrated Water and Waste Management Plan (IWWMP).

1.2.1 Project Rehabilitation and Future Land Use

After the removal of silts from the targeted areas, decommissioning will commence with the removal of all associated vehicles and infrastructure from the site as well as the removal of berms, paddocks, diversion trenches, infrastructure, and anything else installed during construction and operations.

Rehabilitation will take place as and when excavation progresses to other target areas. Care will be taken to ensure that the material and excavated soil required for backfilling are free of contamination from hydrocarbons. Ergo aims to rehabilitate the Valley Silts area by shaping the areas where silts were removed and make the area free draining. Thereafter, appropriate species will be planted to stabilise the soil.

Post-decommissioning activities will entail the assessment of rehabilitation and will address any further rehabilitation requirements. Monitoring will occur for at least five years after decommissioning and rehabilitation, or until satisfactory results are achieved.

Maintenance will specifically need to focus on the rehabilitated areas in accordance with the approved EMPr. Continuous erosion monitoring of rehabilitated areas and slopes will be undertaken and zones with excessive erosion will be identified. The cause of the erosion should be identified and rectified. Zones with erosion will need to be repaired with topsoil.

Above all, Ergo aim to remove the silts from the valley in specific target areas, thereby improving the water flow dynamics and assisting in ameliorating current flooding issues experienced in the area of Riverlea. The proposed rehabilitation, extent and viability will need to be evaluated through specialist studies during the EIA phase, in consultation with the City of Johannesburg and Department of Water and Sanitation (DWS).

1.3. Applicant Details

The contact details of the responsible personnel are provided in Table 1-2 below.

Table 1-2: Contact Details of Applicant

Applicant:	Ergo Mining (Pty) Ltd
Registration No.:	2007/004886/07
Primary Contact:	Masala Tshamano
Head Office Address:	Constantia Office Park, Cnr 14th Avenue and Hendrik Potgieter Road, Cycad House, Building 17, Ground Floor, Weltevreden Park, 1709
Postal Address:	PO Box 12442, Selcourt, Springs, 1567
Telephone:	011 278 9600
E-mail:	masala.tshamano@drdgold.com

1.4. Environmental Consultant Details

Table 1-3: Environmental Consultant

Company Name:	Kongiwe Environment (Pty) Ltd
EAP:	Anela Fixi
Physical Address	150 Bryanston Drive, Bryanston, 2191, South Africa
Telephone:	010 140 6508
E-mail:	afixi@kongiwe.com

1.5. Property Description

This IWULA process is being conducted for a Water Use Licence (WUL) to expand the Valley Silts reclamation operation project. The expansion phase of the project will be confined to the Langlaagte 224 IQ and Mooifontein 225 IQ properties, see Table 1-5.

The Proposed Project is located within the Russell Stream valley, near Booysens Reserve. The project area stretches from New Canada Road, following the valley southeast, past the Nasrec Road bridge and past Crownwood Road until the stream meets the M1, with existing infrastructure. The potential negative and positive impacts of the Proposed Project on the environmental and social aspects will be objectively considered though studies undertaken by specialist professionals.

Section 2.6 contains a detailed description of the Proposed Project infrastructure.

Table 1-4: Valley Silts Expansion Project Details

Application Area (ha)	The Proposed Project site covers an area of **54 ha**
Magisterial District	City of Johannesburg Metropolitan Municipality (CoJ).
Distance and Direction from Nearest Town	The site is within the City of Johannesburg. Riverlea, Nasrec, Theta and Amalgam are located in close proximity to the Russell stream and the Valley Silts area.

Table 1-5: Project area land tenure

Property	Portion	Owner
Langlaagte 224 IQ	298	PRASA
Langlaagte 224 IQ	299	PRASA
Langlaagte 224 IQ	300	PRASA
Langlaagte 224 IQ	9	Industrial Zone (Pty) Ltd (iProp)
Langlaagte 224 IQ	107	Trans-Atlas Ltd
Langlaagte 224 IQ	296	PRASA
Mooifontein 225 IQ	RE	Industrial Zone (Pty) Ltd (iProp)
Langlaagte 224 IQ	RE/106	Trans-Atlas Ltd
Langlaagte 224 IQ	RE/8	Industrial Zone (Pty) Ltd (iProp)
Mooifontein 225 IQ	10	PRASA
Langlaagte 224 IQ	381	South African National Roads Agency Soc Ltd (SANRAL)
Langlaagte 224 IQ	RE/3	Industrial Zone (Pty) Ltd (iProp)
Langlaagte 224 IQ	RE/11	Industrial Zone (Pty) Ltd (iProp)

1.6. Regional Setting and Location of Activity

As specified in Table 1-4, the Valley Silts is situated within Ward 124 of the CoJMM. Figure 1-1 for the local orientation of the Proposed Project area.

The current land uses of the surrounding areas are typified by industrial, commercial, residential and undeveloped land. The Proposed Project site covers a combined area of approximately **54 ha.**

1.7. Purpose of IWWMP

Regulation 267 dated March 2017 under the NWA, regarding the procedural requirements for water use licence applications (WULA) requires that an IWWMP must be submitted with the WULA if the purpose of a water use is for industry or mining.

The original intent of an IWWMP was aimed at collating and rationalising the information submitted for water use licence applications, but subsequently it has also developed to:

- Provide the regulatory authorities with focused and structured information to meet their general information needs;
- Articulate the required management measures and actions to achieve the water and waste related performance on an ongoing basis; and
- Provide direction and guidance to the water user on water and waste management of any activity.

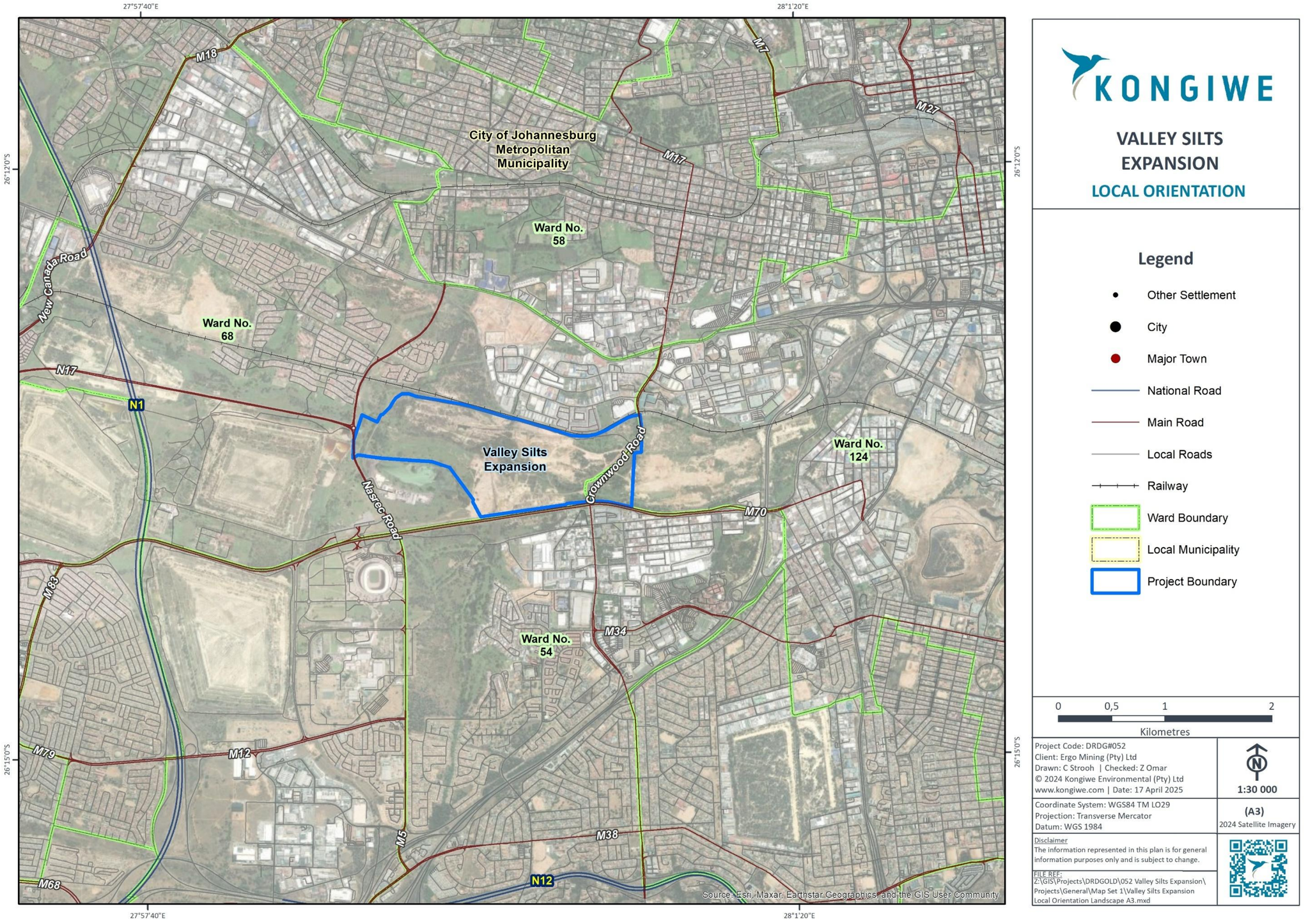


Figure 1-1: Local orientation of the Proposed Project area.

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2 Conceptualisation of Activity

This section describes a broad description of the activity(ies), processes and products. It also provides the background information of the organizational structure of the water user i.e., Ergo, and all the business and corporate policies related to the environment.

2.1. Description of Activity

As described in Section 1.1 above, it is Ergo's intention to expand its Valley Silts reclamation operation.

2.2. Extent of Activity

The excavation and drying area cover an area of approximately **54 ha.**

2.3. Key Activity Related Processes and Products

The proposed silts reclamation method involves mechanically excavating the gold-bearing silts from the Valley Silts Expansion project area. These silts will then be temporarily stockpiled and dried in the stockpile areas directly north and south of Blocks N1 to N18. Once dried, the silts will be loaded onto dump trucks and transported to the City Deep Plant for preprocessing. The trucks transporting the material follow Crownwood Road until they reach Main Reef Road and will then join the M2 East. The trucks follow the M2 until they reach Heidelberg Road which is followed to the City Deep Plant where they will be offloaded.



Figure 2-1: Example of silts removal.



Figure 2-2: Example of silts being transported for stockpiling



Figure 2-3: Example of silts which are stockpiled according to wetness. Coarse materials such as stones and rock are stockpiled and sold / donated to external parties.



Figure 2-4: Example of a typical hauling truck to be used for the Valley Silts Expansion Project.

2.4. Activity Life Description

The reclamation method involves mechanically excavating gold-bearing silts from Russell Stream. The silts removal project process is divided into several stages, as shown in Figure 2-5: Project Process.

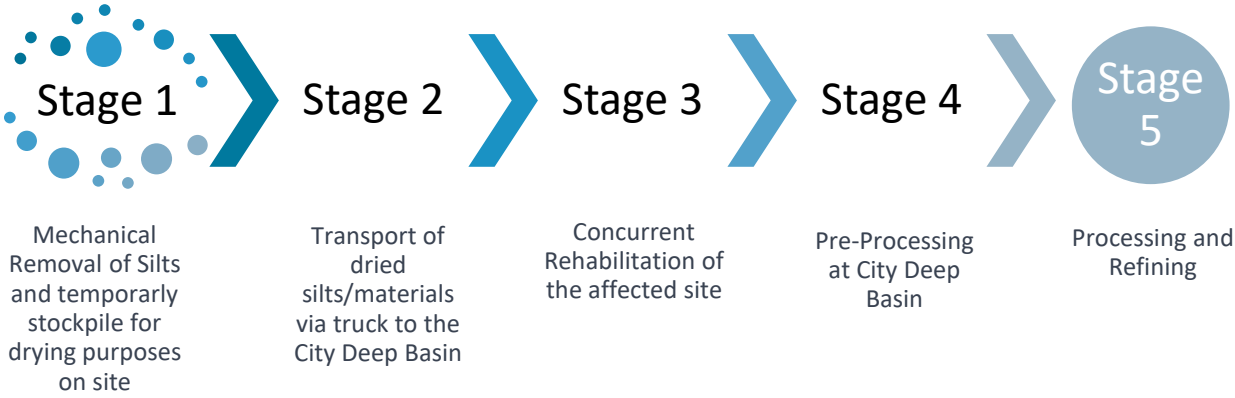


Figure 2-5: Project Process

2.4.1 Estimated Project Timeframes

The anticipated life span of the project is approximately 5 years: a 3-year Life of Operation where active excavation would take place and 2 years to rehabilitate the Valley Silts target sites.

Table 2-1 gives an indication of the estimated timeframes in relation to the implementation of the actions, activities or processes of the reclamation phases (construction, operation and decommissioning) for the proposed project.

Table 2-1: Estimated timeframes and deadlines of the different phases associated with the Valley Silts Project

Phase	Timeframe	Year Start and End Date
Construction and Operations	3 years	2026 - 2028
Decommissioning and Rehabilitation	2 years	2029 - 2030

2.4.2 Life-Cycle Phases of the Project

The following table is the summary of the activities that will occur at the different phases of this project.

Table 2-2: Summary of activities per phase

Activity	Description
Pre-Construction	
1	Permitting and approvals
2	Initiation of a community forum for engagement throughout the project life cycle
3	Start implementing monitoring plans, Authorisation, Licensing and EMPr conditions
4	Employment of workers should this be required (minimal)
Construction phase	
5	Removal of vegetation and site clearance
6	Preparation of access roads should this be required
7	Expansion of the stormwater management infrastructure
8	Instatement of waste management and dust control measures on site
9	Instatement of traffic signage, access
10	Operation of construction machinery and vehicles
Operational Phase	
11	Reclamation activities
12	Stockpiling silts
13	Transporting silts
14	Continued community engagement
Decommissioning and rehabilitation	
15	Demolition of infrastructure and rehabilitation of the Valley Silts area
16	Closure forum to be established with key stakeholders.
Post-Closure	
17	Post-closure monitoring.

Activity	Description
18	Rehabilitation activities

2.4.3 Pre-Construction Activities

The pre-construction activities for the Valley Silts Expansion Project are crucial for ensuring that all elements are in place for a successful and responsible execution of the project.

The pre-construction involves obtaining the necessary Environmental Authorisation and other relevant permits and licenses as well as implementation of the monitoring plans and initiation of a community forum for engagement throughout the Valley Silts Expansion project life cycle. Additionally, the Proposed Project will involve the employment of workers, although this will be kept to a minimal level to align with operational needs.

During the pre-construction phase it is advised that community complaints register, and procedure is drafted and put in place throughout all of the phases of the proposed operation.

2.4.4 Construction Phase Activities

The construction phase will be short as most of the site infrastructure already exists. The removal of silts within the already authorised Valley Silts Project area has been ongoing since May 2023. The construction and site establishment began in October 2022 and as such, it is now necessary to prepare for the Valley Eastern Expansion, Southern Expansion and Valley Expansion Northwest, to maintain an ongoing operation.

As part of expansion project, the removal of vegetation and site clearance will be undertaken, and access will be prepared where required. As far as possible, existing access roads will be utilised.

The current existing stormwater management infrastructure for the Valley Silts project will be extended to cover the Valley Silts Expansion Project area. This expansion will include additional silt traps and stormwater control berms/paddocks to capture any stormwater in the dirty water areas.

2.4.5 Operational Phase Activities

Once the site preparation and construction are completed, mechanical reclamation of silts can begin as described in Section 2.3

It is proposed that before the activity enters the decommissioning phase of the project, Ergo should establish a Closure Forum. This Closure forum will encompass the following:

Discuss and develop joint action plans and strategies with key stakeholders to achieve sustainable closure;

Identification and analysis of problems and challenges impacting the operations during the closure phase of the Project;

Accountability for the implementation of action plans and strategies;

Review of current economic trends and programmes within the province to ensure that the strategies in place are best suited;

Generating awareness around the decommissioning and closure of the project; and

Alignment with the Social and Labour Plan (SLP).

During the operational phase, it is advised that continual monitoring of both surface and ground water is conducted. This information needs to be collected and used to update specific water models, and to monitor and evaluate the impact of the operation. During the operation it is also advised that the required monitoring and mitigation measures be implemented to ensure that the dolomitic conditions are monitored on site and that all the required safety and mitigation measures be implemented. It is additionally advised that the required community complaints and engagement forum be established and operational

2.4.6 Decommissioning and Rehabilitation Phase Activities

During typical decommissioning activities, all project infrastructure will be removed. The rehabilitation should invariably be evaluated in view of the future land use.

The rehabilitation plan is comprised of the following basic stages:

Removal of existing infrastructure;
Re-shaping of the landforms;
Re-vegetation of the landscape; and
Monitoring and maintenance.

2.4.7 Post - Decommissioning Phase Activities

Post-decommissioning activities will entail the assessment of rehabilitation and will address any further rehabilitation requirements. Monitoring must occur for at least two years after decommissioning and rehabilitation, or until satisfactory results are achieved. During this phase, preparatory work will be done to apply for closure as per the MPRDA requirements.

Maintenance and Aftercare

Maintenance will specifically need to focus on the rehabilitated areas. Furthermore, groundwater and surface water monitoring will have to take place surrounding in the specialist studies and EMPr. The monitoring process will be used to assess whether the rehabilitation process has been successful or not and to indicate that no further deterioration on water quality is foreseen.

Maintenance will specifically focus on the rehabilitated in accordance with the approved Environmental Management Programme (EMPr). Continuous erosion monitoring of rehabilitated areas and slopes should

be undertaken and zones with excessive erosion should be identified. The cause of the erosion should be identified, and rectified. Zones with erosion will need to be repaired with topsoil.

2.5. Health and Safety

Regarding the safety of both the public and the employees, Ergo has completed a workers safety assessment as well as a public safety assessment for the Valley Silts reclamation Project. The public safety assessment in connection with the proposed expansion operations will be updated.

2.6. Activity Infrastructure Description

The Valley Silts Project site is already established with fully fenced hard park facilities, solar powered security lights, well maintained haul roads, and site offices. Ingress/egress is fully controlled by security for all vehicles.

Existing infrastructure to be utilised at stages during the project include:

City Deep Plant;
Stockpile area;
Main haul roads;
Existing site access roads;
Electricity reticulation for domestic purposes;
Hauling road: access roads and main roads,
Administration buildings, including change houses and ablution facilities,
Mechanical excavation equipment (Backhoes or Excavators);
30 ton Articulated Dump Trucks (ADT's);
30 ton Dump Trucks;

The following infrastructure is not existing and will be established and utilised on site:

Drying stockpiles (8 locations);
Stormwater control berms/paddocks;
Culverts (8); and
Additional site access roads.

2.7. Key Water Uses and Waste Streams

The Project will not need process water for the mechanical excavation of gold bearing silts. Potable drinking water will be provided to the employees on site.

The anticipated waste streams for the project are:

Domestic/General waste from the offices, change houses, canteen and workshops which can include paper and cardboard, wood, plastic, metal, glass and organic articles such as food residue.

Hydrocarbons and waste oils are hazardous waste as they display some hazardous properties.

2.8. Organisational Structure of Activity

Ergo has a simple and efficient structure. All operations are consolidated into one operating entity, Ergo Mining Proprietary Limited (Ergo). Ergo is wholly owned by Ergo Mining Operations Proprietary Limited (EMO). Following the roll-up of the stake of the broad-based black economic empowerment (BBBEE) partners in EMO into DRDGOLD Limited, EMO is now a wholly owned subsidiary of DRDGOLD. The roll-up involved the substitution by the BBBEE partners, Khumo Gold SPV Proprietary Limited (Khumo) and the DRDSA Empowerment Trust (the Trust) for a direct holding in DRDGOLD. The agreement provided Khumo with an 8.1% interest and the Trust with a 2.4% interest in DRDGOLD.

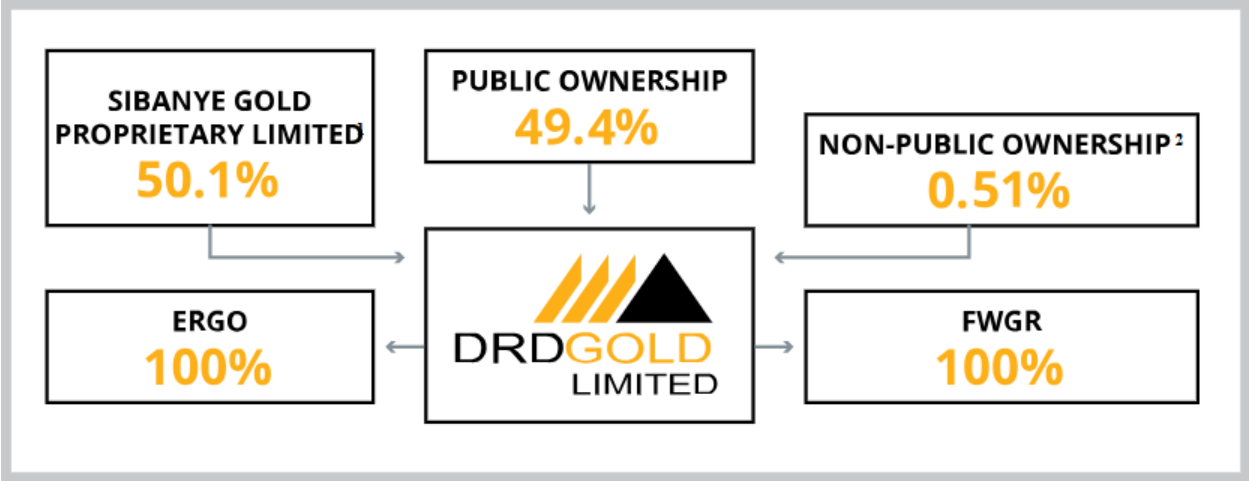


Figure 2-6: Ergo Group Structure

2.9. Business and Corporate Policies

DRDGOLD has a Sustainability Policy in place. The sustainability focus areas, which support and are sustained by DRDGOLD's financial, intellectual and manufactured capital, include:

Natural capital: water, land and energy;

Social and relationship capital: communities and broader society, including government and regulators; and

Human capital and intellectual capital: employees – their development and protection.

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Strategic approach to sustainability

Johannesburg has a unique story and would, but for the discovery and mining of gold, not exist. The mines, however, did not come to the city, rather the city came to the mines. What resulted was poorly regulated urbanisation and hundreds of thousands of people living in close proximity to former mining infrastructure and mine dumps. Conventional environmental and closure standards are proving inadequate at containing the impacts of mining on surrounding communities.



A strategy informed by sustainable development

DRDGOLD's operating footprint spans this legacy in Johannesburg, the East Rand and Far West Rand. An integral part of our mining process is to remedy the negative aspects of that legacy by rehabilitation and land restoration through mining (the recycling of old mine dumps and slimes dams) and by vegetating those that have been a permanent feature of the surrounding landscape.

We take an integrated approach to both social and natural capital. They are inextricably linked, and delivering value in respect of the one, also brings us closer to our goals in respect of the other. Our aim is to leave an enduring legacy by permanently removing many of the old mine dumps scattered around the Witwatersrand basin that were either built where they did not belong in the first place, or had become inappropriately situated because of the movement of people and the establishment of a new urban reality.

We do this by reprocessing the dumps and redepositing the mine-waste onto tailings storage facilities (TSF) that are managed in accordance with contemporary standards of environmental and geo-technical standards, cleaning environmentally sensitive areas in the process and freeing up land for redevelopment. This yields both an environmental dividend as well as a social dividend in improving the quality of life for affected communities, while also creating financial value and allowing sustainable land use to take place in areas previously sterilised. The value delivery is therefore truly integrated and firmly aligned with the principles of sustainable development.

Our process is technologically-driven, requiring a specialised skillset on the part of our employees. Hazardous reagents are used in our metallurgical processes which requires sharp focus on safety and governance, while the prominence of water and electricity consumption requires acute awareness and ongoing development to limit and reduce our impact on the environment. ESG is key to our commitment to sustainable development and our goals of reversing the environmental legacy of early mining, limiting and reducing our impact on natural resources and improving the quality of life for our affected communities.

With every project we challenge ourselves to ensure that our values, ambitions and actions are aligned.

We ask ourselves:

- Do we provide an inclusive workspace that promotes diversity?
- Do we provide our employees, and women in particular, with a working environment that is both physically and emotionally safe?
- Is our workforce trained and equipped to deal with the ever-changing factors influencing our business and the increasingly prominent role of technology?
- Is our water usage optimal and do we minimise the extent to which we rely on potable water?
- Are we managing effluent effectively and preventing the discharge of pollutants into surrounding water sources?
- Are we doing enough to reduce our reliance on the power utility, Eskom Holdings SOC Limited (Eskom), and thus our reliance on coal-fired electricity and its associated carbon footprint, and promoting sustainability through strategies that soften the impact of Eskom's pricing policy, and the unreliable and erratic nature of electricity supply?
- Is our dust monitoring programme effective in reducing the nuisance to affected communities?
- Do we have the relevant regulatory compliance requirements to address uncertainty?

ABOUT THIS FACT SHEET | STRATEGIC APPROACH | ESG RISKS | MATERIAL ISSUES

Strategic approach to sustainability continued

These questions also inform an integrated thinking process in the execution of our overall business strategy by the board of directors (Board) of the Company.

A very prominent part of our business focus is that of TSF safety. We subscribe to the contemporary imperative of greater transparency and enhanced governance in terms of the technical standards, safety and the environmental impact of TSFs, a commitment that has so far led us to implement the following:

- **A Group-wide review of the TSF management policy to align with best practice**
- **Tailings Performance Management System for dedicated data collection, storage and processing**
- **Quarterly drone and satellite surveillance**
- **Review of various technologies which could be used to enhance TSF observation and monitoring**
- **External Tailings Review Panel**

Our strategic focus areas with a direct link to ESG include:

3	4	5
Using technology and information to enhance operational performance and to minimise impact on the environment	**Create a value driven culture of employee safety, empowerment, diversity and inclusivity**	**Improving the quality of life of communities surrounding our operations**

Refer to the Strategy and outlook section on page 26 of the Annual Integrated Report 2024.

Sustainability governance

The Board is ultimately responsible for setting the governance standards of the Company to ensure that business is conducted ethically, responsibly and in accordance with principles of good corporate governance. The Social and Ethics Committee assists the Board in executing this responsibility. The Board is satisfied that the chairman of the Social and Ethics Committee has sufficient expertise and experience to oversee sustainability-related issues, as he is a qualified ESG Competent Director and Climate Change Competent Director. In addition to this, the Board resolved that the other two non-executive directors on the committee also have the requisite skills and expertise to serve as members of this committee and on the other Board committees on which they serve.

Key activities of the Social and Ethics Committee include:

- Monitoring the Group's activities with regard to the Ten Principles of the United Nations Global Compact and the Organisation for Economic Co-operation and Development's recommendations regarding corruption; the Global Industry Standards on Tailings Management; the United Nations SDGs; the Employment Equity Act 55 of 1998; and the Broad-Based Black Economic Empowerment Act 53 of 2003
- Monitoring principles governing sponsorship, donations and charity
- Monitoring the impact of the Group's activities on the environment and on public healthy and safety
- Monitoring labour and employment practices
- Reviewing the Group's Code of Ethics
- Providing guidance on corporate citizenship initiatives
- Reviewing cases of employee conflicts of interests, misconduct or fraud, or any other unethical activity by employees of the Group

The executive committee (Exco) led by the Chief Executive Officer is responsible for executing the ESG strategy and reporting back to the Board.

During the financial year, the Chairman shared regular updates on practices in relation to sustainability matters with Board members as and when they became available. Furthermore, as the whole aspect of ESG and climate change in relation to sustainability reporting is fast evolving, it has become imperative to have a structured approach to sustainability-related issues on our meeting agendas and management reports to ensure that we are incorporating the requisite themes and requirements.



Figure 2-7: DRDGOLD's sustainability policy (DRDGOLD Limited ESG Fact Sheet 2024)

3 Regulatory Water and Waste Management Framework

3.1. Legislative Framework

This chapter provides an overview of the policy and legislative context relevant to the Valley Silts Expansion project. It identifies all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to the planned activities and are to be considered in the assessment process which may be applicable or have relevance to the Proposed Project.

The foundation for Environmental Preservation is entrenched in the Constitution of South Africa, 1996. Following the birth of democracy in South Africa, legislative and environmental policies and regulations have undergone a large transformation, and various laws and policies were promulgated with a strong emphasis on environmental concerns and the need for sustainable development. The Constitution provides environmental rights (contained in the Bill of Rights, Chapter 2 (Section 24) and includes implications for environmental management. The environmental rights are guaranteed in Section 24 of the Constitution, and state that:

"*Everyone has the right –*

To an environment that is not harmful to their health or well-being and
To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that:
Prevent pollution and ecological degradation;
Promote conservation and
Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development."

To ensure that the various spheres of the social and natural environmental resources are not overlooked, additional legislation and regulations have been promulgated in addition to those contained within the Constitution. The additional legislature and regulations ensure that there remains a key focus on various industries or components of the environment, and to ensure that the objectives of the Constitution are effectively implemented and upheld on an on-going basis. In terms of Section 7, a positive obligation is placed on the State to give effect to the environmental rights.

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Table 3-1: Applicable National Legislation and Guidelines

Legislation
Constitution of the Republic of South Africa, 1996 Describes the Bill of Rights and is the cornerstone of democracy in South Africa, enshrining the rights of all people and affirming the democratic values of human dignity, equality and freedom. Section 24 is directly relevant to environmental law. The Bill of Rights states that everyone has the right to an environment that is not harmful to their health or well-being.
National Water Act (Act No. 36 of 1998) (NWA) Section 19 of the NWA sets out the principles for "an owner of land, a person in control of land or a person who occupies or uses land" to: Cease, modify or control any act or process causing pollution; Comply with any prescribed waste standard or management practice; Contain or prevent the movement of pollutants; Eliminate any source of pollution; Remedy the effects of the pollution; and Remedy the effects of any disturbance to the bed and banks of a watercourse. It also describes the actions that can be taken by the catchment management agency to enforce the requirements of the NWA.
The NWA Amendment Act (Act No. 27 of 2014) This Act makes provision for integration and alignment of the WULA process with applications in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) and the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA).
NWA Regulations: **Regulation GN R704** This regulation enforces the separation of clean and dirty water systems including restrictions on activities within the 1:100 floodline or 100 m from a watercourse.

Legislation
Regulations regarding the procedural arrangements for water use licence applications and appeals (GN R267, Gazette No. 40713, 24 March 2017) The final decision on the WULA is required within 90 calendar days from submission of the Phase 3 of the WULA, submitted via the electronic Water Use Licence Application and Authorisation System (e-WULAAS). **The General Authorisation (GA) for Section 21(c) and (i) water uses (GN 49833, Gazette Notice 4167, 8 December 2023)** Defines a regulated area of a watercourse as: the outer edge of the 1:100 year flood line and/or delineated riparian habitat, whichever is the greatest distance, measured from the middle of the watercourse of a river, spring, natural channel, lake or dam; in the absence of a determined 1 in 100 year flood line or riparian area, the area within 100 m from the edge of a watercourse where the edge of the watercourse (excluding flood plains) is the first identifiable annual bank fill flood bench (*subject to compliance to section 144 of the National Water Act 36 of 1998*); or In respect of a wetland: a 500 m radius from the delineated boundary (extent) of any wetland (including pans).
Water Services Act (Act No. 108 of 1997) (WSA) Provides for the regulation of water boards and the setting of national water quality standards.
National Environment Management Act (Act No. 107 of 1998) (NEMA) Sections 28 (1) and (3) of NEMA set out the duty of care principle, which is applicable to all types of pollution and must be taken into account in considering any aspects of potential environmental degradation. Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment.
National Environment Management: Waste Act, 2008 (Act No. 59 of 2008) (NEM:WA) Follows the principle that waste generation must be avoided, or if it cannot be avoided, that it is reduced, reused, recycled or recovered, and as a last resort treated and/or

Legislation
safely disposed of. The objectives of this Act are- to protect health, well-being and the environment by providing reasonable measures for- minimising the consumption of natural resources; avoiding and minimising the generation of waste; reducing, re-using, recycling and recovering waste; treating and safely disposing of waste as a last resort; preventing pollution and ecological degradation; securing ecologically sustainable development while promoting justifiable economic and social development; promoting and ensuring the effective delivery of waste services; remediating land where contamination presents, or may present, a significant risk of harm to health or the environment; and achieving integrated waste management reporting and planning; to ensure that people are aware of the impact of waste on their health, well-being and the environment; to provide for compliance with the measures set out in paragraph (a); and generally, to give effect to section 24 of the Constitution in order to secure an environment that is not harmful to health and well-being.
Waste Classification and Management Regulations The Waste Classification and Management Regulations require that all waste generators must ensure that the waste they generate is classified in accordance with SANS 10234 within 180 days of generation and if the waste is to be disposed of to landfill that the waste is assessed in accordance with the Norms and Standards for Assessment of Waste for Landfill Disposal.
The National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEM:BA) The Act seeks amongst other things, to manage and conserve biological diversity, to protect certain species and ecosystems, to ensure the sustainable use of biological resources and to promote the fair and equitable sharing of benefits arising from bio-prospecting involving those resources. The NEM:BA includes a Regulation related to the management of threatened and protected species. A similar Regulation is applied to Threatened Ecosystems. NEM:BA has a set of norms and standards for the development of management plans for both species (e.g. Threatened or Migratory Species) and ecosystems (Endangered or Critically Endangered).

3.2. Summary of all Water Uses

Section 21 of the NWA defines water uses which are governed in terms of the Act and for which a WUL is required. In terms of section 40 (1) of the NWA "a person who is required or wishes to obtain a licence to use water must apply to the relevant responsible authority for a licence." These water uses, in terms of Section 21, are as follows:

1) **taking water from a water resource;**
2) storing water;
3) **impeding or diverting the flow of water in a watercourse;**
4) engaging in a stream flow reduction activity contemplated in section 36;
5) engaging in a controlled activity identified as such in section 37(1) or declared under section 38(1);
6) discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit;
7) **disposing of waste in a manner which may detrimentally impact on a water resource;**
8) disposing in any manner of water which contains waste from, or which has been heated in, any industrial or power generation process;
9) **altering the bed, banks, course or characteristic of a watercourse;**
10) removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people; and
11) using water for recreational purposes.

The following Section 21 subsections are applicable to the project:

- Section 21 (a) - abstraction of water from reclamation block for use in dust suppression and removal of water for the continued operation.
- Section 21 (c) - Removal of silts and rehabilitation, and the construction, operation and rehabilitation of the Culvert within 100m of a stream and within the 1:100-year floodline.
- Section 21 (i) - Infrastructure which occurs within 500m of a wetland and/or within 100 m of a watercourse.
- Section 21 (g) - Use of dirty stormwater collected from reclamation blocks for dust suppression.

3.3. Existing Lawful Water Uses

Section 32(1) of the NWA defines an Existing Lawful Water Use (ELU) as follows:

"*An existing lawful water use means a water use:*

Which has taken place at any time during a period of two years immediately before the date of commencement of this Act and which;
was authorised by or under any law which was in force immediately before the date of commencement of this Act;
is a stream flow reduction activity contemplated in section 36(1); or
is a controlled activity contemplated in section 37(1)."

OR
Which has been declared an existing lawful water use under section 33."

The Proposed Project is an expansion of a project that was authorised in 2022 and, therefore, not declared as an ELU.

3.4. Relevant Exemptions

3.4.1 GN 704 Exemption Motivation

Regulations on use of water for mining and related activities aimed at the protection of water resources (**GN R704**) have been considered for the Proposed Project. According to Section 4 of Regulation **GN R704,** no person in control of a mine or activity may**:**

- locate or place any residue deposit, dam, reservoir, together with any associated structure or any other facility within the 1:100 year flood-line or within a horizontal distance of 100 metres from any watercourse or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become waterlogged, undermined, unstable or cracked;
- except in relation to a matter contemplated in regulation 10, carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood-line or within a horizontal distance of 100 metres from any watercourse or estuary, whichever is the greatest;
- place or dispose of any residue or substance which causes or is likely to cause pollution of a water resource, in the workings of any underground or opencast mine excavation, prospecting diggings, pit or any other excavation; or
- use any area or locate any sanitary convenience, fuel depots, reservoir or depots for any substance which causes or is likely to cause pollution of a water resource within the 1:50 year flood-line of any watercourse or estuary.

Therefore, **Table 1-1**Table 7-1 details the project activities, where Regulation GN 704 exemptions are applicable, as well as motivations for these exemptions.

a) and (b) will be required for the **excavation of accumulated Silts in the desilting area,** as well as all associated stormwater management infrastructure, as these structures already fall within the 1:100 year floodline or are within a horizontal distance of 100 metres from any watercourse and are likely to trigger a water use in terms of section 21 (c) and (i) of the NWA.

3.5. Generally Authorised Water Uses

No general authorisations are applicable as the application is for a reclamation project which requires full licensing of water use activities.

3.6. New Water Uses to be Licensed

The new water uses to be licensed for the Valley Silts expansion project are listed in Table 3-2.

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Table 3-2: Water Uses for the Valley Silts Expansion Project

Map Number	Proposed Infrastructure/Activity	Description	Purpose of activity	Dimensions/capacity within water use areas	Materials used in building the structure (s)	Farm Portion(s)	Co-ordinates
Section 21 (c) and (i)							
1	N1 – N18 and N19 Reclamation Blocks and associated infrastructure (culvert 1, 2, 3, 4 & 5; silt trap 1 & 2 and a channel) within an HGM 1 unchanneled valley-bottom (UVB) wetland	Removal of silts from N1 – N18 and N19 reclamation blocks and rehabilitation within an HGM 1 UVB wetland and within the 1:100-year floodline as well as construction, operation and rehabilitation of the associated infrastructure (culvert 1, 2, 3, 4 & 5; silt trap 1 & 2 and a channel) within an HGM 1 UVB wetland and within the 1:100-year floodline.	Removal of silts. Vehicle crossing over a stream. Stormwater management Rehabilitation.	Length: 1 070 m Width: 466 m Height: 3 m Area: 18 ha	Concrete, in situ material	Langlaagte 224 IQ RE/3/224 Langlaagte 224 IQ RE/11/224 Mooifontein 225 IQ RE/225	Start: 26°13'11.17"S 27°59'13.86"E End: 26°13'27.72"S 27°59'37.21"E
2	N20 Reclamation Block within an HGM 1 UVB wetland	Removal of silts from N20 reclamation block	Removal of silts.	Length: 465 m	Not applicable	Langlaagte 224 IQ 381/224	Start:

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Map Number	Proposed Infrastructure/Activity	Description	Purpose of activity	Dimensions/capacity within water use areas	Materials used in building the structure (s)	Farm Portion(s)	Co-ordinates
		and rehabilitation within an HGM 1 unchanneled valley-bottom (UVB) wetland and within the 1:100-year floodline.		Width: 277 m Height: 0 m Area: 3.2 Ha			26°13'23.28"S 27°58'50.62"E End: 26°13'17.85"S 27°58'58.72"E
3	N21 Reclamation Block and culvert 6 within an HGM 1 UVB wetland.	Removal of silts from N21 reclamation block and rehabilitation, and the upgrading, operation, and rehabilitation of culvert 6 within an HGM 1 unchanneled valley-bottom (UVB) wetland and within 100m of a stream and within the 1:100 year floodline.	Removal of silts. Vehicle crossing over a stream. Rehabilitation.	Length: 451 m Width: 412 m Height: 3 m Area: 4.8 Ha	Concrete	Mooifontein 225 IQ RE/225 Langlaagte 224 IQ RE/11/224	Start: 26°13'43.20"S 28° 0'2.58"E End: 26°13'36.31"S 28° 0'10.79"E

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Map Number	Proposed Infrastructure/Activity	Description	Purpose of activity	Dimensions/capacity within water use areas	Materials used in building the structure (s)	Farm Portion(s)	Co-ordinates
4	N22 Reclamation Block and Drying Stockpile 8 within an HGM 1 UVB wetland	Removal of silts from N22 reclamation block and Drying Stockpile 8 and rehabilitation within an HGM 1 unchanneled valley-bottom (UVB) wetland and within the 1:100 year floodline.	Removal of silts. Drying of Silts. Rehabilitation.	Length: 790 m Width: 533 m Height: 5 m Area: 8.9 Ha	In-situ material	Mooifontein 225 IQ RE/225 Langlaagte 224 IQ RE/11/224	Start: 26°13'42.60"S 28° 0'10.48"E End: 26°13'35.08"S 28° 0'20.75"E
5	Drying Stockpile 1 & 2 along with 2 (two) Paddocks	Drying Stockpile 1 & 2 along with the construction, operation and rehabilitation of the 2 Paddocks as well as rehabilitation within 500m of a HGM 1 UVB wetland.	Drying of silts. Stormwater management.	Length: 259 m Width: 194 m Height: 5 m Area: 5.1 Ha	In situ material	Langlaagte 224 IQ RE/3/224 Langlaagte 224 IQ RE/8/224	Start: 26°13'11.11"S 27°59'14.68"E End: 26°13'18.45"S 27°59'20.23"E
6	Culvert 4 & 5 and 3 (three) Paddocks	The construction, operation and	Stormwater management	Length: 1 722.06 m	Concrete	Langlaagte 224 IQ RE/3/224	Start:

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Map Number	Proposed Infrastructure/Activity	Description	Purpose of activity	Dimensions/capacity within water use areas	Materials used in building the structure (s)	Farm Portion(s)	Co-ordinates
		rehabilitation of 3 paddock and culvert 4 & 5 within 500m of a HGM 1 UVB wetland.	and vehicle crossing over stream	Width: 242 m Height: 3 m Area: 10.7 Ha	In situ material	Langlaagte 224 IQ 9/224	26°13'16.72"S 27°59'10.29"E End: 26°13'25.81"S 27°59'34.25"E
7	Drying Stockpiles 3, 4 & 5 along with 3 (three) Paddocks	Drying Stockpile 3, 4 & 5 and the construction, operation and rehabilitation of the 3 Paddocks as well as rehabilitation within 500m of a HGM 1 UVB wetland.	Drying of silts Stormwater management	Length: 1 722.06 m Width: 242 m Height: 5 m Area: 7 Ha	In situ material	Mooifontein 225 IQ RE/225 Langlaagte 224 IQ RE/3/224	Start: 26°13'25.56"S 27°58'56.27"E End: 26°13'29.70"S 27°59'28.47"E
8	Drying Stockpiles 6 & 7 and culvert 7 within an HGM 1 wetland and stream	Drying Stockpile 6 & 7 and upgrading, operation and rehabilitation of culvert 7 within an HGM 1 UVB wetland and the	Drying of silts Vehicle crossing over stream	Length: 1 743m Width: 803 m Height: 5 m Area: 17 Ha	In situ material	Mooifontein 225 IQ RE/225	Start: 26°13'33.93"S 27°59'35.11"E

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Map Number	Proposed Infrastructure/Activity	Description	Purpose of activity	Dimensions/capacity within water use areas	Materials used in building the structure (s)	Farm Portion(s)	Co-ordinates
		stream and within the 1:100-year floodline.					End: 26°13'39.82"S 28° 0'2.37"E
9	Current reclamation and culvert 7 within an HGM 1 UVB wetland and stream	Current reclamation and the construction, operation and rehabilitation of culvert 7 within an HGM 1 UVB wetland and within the 1:100-year floodline	Vehicle crossing over Russel Stream.	Length: 232 m Width: 130 m Height: 3 m Area: 0.43 Ha	Concrete, in situ material	Langlaagte 224 IQ RE/11/224 Mooifontein 225 IQ RE/225	Start: 26° 13' 27,84" S 27° 59' 43,05" E End: 26° 13' 36,25"S 28° 0' 2,92" E
10	Hard Park 1	Operation and rehabilitation of the Hard Park 1 within 500m of an HGM 1 UVB wetland.	Vehicle parking area	Length: 133 m Width: 103 m Height: 0m Area: 0.3 Ha	In situ material	Langlaagte 224 IQ RE/11/224	Start: 26°13'30.55"S 28° 0'1.37"E End: 26°13'28.31"S 28° 0'3.19"E

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Map Number	Proposed Infrastructure/Activity	Description	Purpose of activity	Dimensions/capacity within water use areas	Materials used in building the structure (s)	Farm Portion(s)	Co-ordinates
11	Hard Park 2	Operation and rehabilitation of the Hard Park 2 within 500m of an HGM 1 UVB wetland.	Vehicle parking area	Length: 55m Width: 43m Height: 0m Area: 0.1 Ha	In situ material	Mooifontein 225 IQ RE/225	Start: 26°13'31.33"S 27°59'30.23"E End: 26°13'32.23"S 27°59'30.93"E
12	Haul road 1 crossing the stream	Construction, operation and rehabilitation of the Haul Road 1 crossing the stream and within 500m of an HGM 1 UVB wetland.	Haul road for access to reclamation blocks	Length: 573m Width: 10m Height 0m	In situ material	Langlaagte 224 IQ RE/11/224 Langlaagte 224 IQ RE/8/224	Start: 26° 13' 19,52" S27° 59' 41,17" End: 26°13'15.77"S 27°59'21.78"E
13	Haul road 2 crossing an HGM 1 UVB wetland	Construction, operation and rehabilitation of Haul Road 2	Haul road for access to reclamation blocks	Length: 488 m Width: 10 m Height: 0m	In situ material	Langlaagte 224 IQ RE/8/224 Mooifontein 225 IQ RE/225	Start: 26°13'18.33"S

Map Number	Proposed Infrastructure/Activity	Description	Purpose of activity	Dimensions/capacity within water use areas	Materials used in building the structure (s)	Farm Portion(s)	Co-ordinates
		crossing an HGM 1 UVB wetland.					27°59'22.73"E End: 26°13'29.94"S 27°59'16.33"E
14	Silt trap 1 & 2 within an HGM 1 UVB wetland.	Silt trap 1 & 2 within an HGM 1 UVB wetland.	Management of suspended silts	Length: 64m Width: 53 m Height: 0m Area: 0.22 Ha	In situ material	Langlaagte 224 IQ RE/11/224	Start: 26°13'29.83"S 27°59'38.66"E End: 26°13'32.24"S 27°59'38.98"E
Section 21 (g)							
15	Dust suppression of Haul Road 1 & 2	Use of dirty stormwater collected from reclamation blocks for use as dust suppression Haul Road 1 & 2	Dust suppression	Volume: 19 440 m^3/annum	N/A	Langlaagte 224 IQ RE/11/224	26° 13' 19,16" S 27° 59' 32,35" E

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Map Number	Proposed Infrastructure/Activity	Description	Purpose of activity	Dimensions/capacity within water use areas	Materials used in building the structure (s)	Farm Portion(s)	Co-ordinates
16	Drying Stockpile 1	Stockpile 1 to dry excavated silts from N19 reclamation block	Drying of silts	Volume: 15618 m^3/annum	In situ material	Langlaagte 224 IQ RE/3/224	26°13'12.98"S 27°59'18.46"E
17	Drying Stockpile 2	Stockpile 2 to dry excavated silts from N19 reclamation block	Drying of silts	Volume: 15618 m^3/annum	In situ material	Langlaagte 224 IQ RE/3/224	26°13'16.04"S 27°59'16.33"E
18	Drying Stockpile 3	Stockpile 3 to dry excavated silts from N10 to N18 reclamation block	Drying of silts	Volume: 23 040 m^3/annum	In situ material	Mooifontein 225 IQ RE/225	26°13'25.62"S 27°59'2.00"E
19	Drying Stockpile 4	Stockpile 4 to dry excavated silts from N6 to N9 reclamation block	Drying of silts	Volume: 23 040 m^3/annum	In situ material	Mooifontein 225 IQ RE/225	26°13'28.31"S 27°59'11.61"E
20	Drying Stockpile 5	Stockpile 5 to dry excavated silts from N2 to N5 reclamation block	Drying of silts	Volume: 23 040 m^3/annum	In situ material	Mooifontein 225 IQ RE/225	26°13'29.57"S 27°59'22.63"E
21	Drying Stockpile 6	Stockpile 6 to dry excavated silts from N1 and N21 reclamation blocks	Drying of silts	Volume: 23 040 m^3/annum	In situ material	Mooifontein 225 IQ RE/225	26°13'40.69"S 27°59'33.97"E
22	Drying Stockpile 7	Stockpile 7 to dry excavated silts	Drying of silts	Volume: 23 040 m^3/annum	In situ material	Mooifontein 225 IQ RE/225	26°13'42.07"S 27°59'50.62"E

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Map Number	Proposed Infrastructure/Activity	Description	Purpose of activity	Dimensions/capacity within water use areas	Materials used in building the structure (s)	Farm Portion(s)	Co-ordinates
		from N21 reclamation block					
23	Drying Stockpile 8	Stockpile 8 to dry excavated silts from N22 reclamation block	Drying of silts	Volume: 23 040 m^3/annum	In situ material	Langlaagte 224 IQ RE/11/224	26°13'35.92"S 28° 0'17.76"E
Section 21 (a)							
24	Abstraction from N19 reclamation block pit	Water abstracted from N19 reclamation block pit for use in dust suppression.	Removal of water for the continued operations	Volume: 1611.41 m^3/annum Area: 4.12 ha	N/A	Langlaagte 224 IQ RE/3/224	26°13'13.35"S 27°59'8.64"E
25	Abstraction from N10 to N18 reclamation block pit	Water abstracted from N10 to N18 reclamation block pit for use in dust suppression.	Removal of water for the continued operations	Volume: 1106.87 m^3/annum Area: 2.83ha	N/A	Langlaagte 224 IQ RE/11/224	26°13'27.53"S 27°59'27.55"E
26	Abstraction from N6 to N9 reclamation block pit	Water abstracted from N6 to N9 reclamation block pit for use in dust suppression.	Removal of water for the continued operations	Volume: 1185.09 m^3/annum Area: 3.03ha	N/A	Langlaagte 224 IQ RE/3/224	26°13'24.64"S 27°59'13.22"E
27	Abstraction from N1 to N5 reclamation block pit	Water abstracted from N1 to N5 reclamation block for use in dust suppression.	Removal of water for the continued operations	Volume: 2526.63 m^3/annum Area: 6.46 ha	N/A	Langlaagte 224 IQ RE/3/224	26°13'20.86"S 27°59'0.00"E

Map Number	Proposed Infrastructure/Activity	Description	Purpose of activity	Dimensions/capacity within water use areas	Materials used in building the structure (s)	Farm Portion(s)	Co-ordinates
28	Abstraction from N20 reclamation block pit	Water abstracted from N20 reclamation block pit for use in dust suppression.	Removal of water for the continued operations	Volume: 1263.31 m^3/annum Area:3.23 ha	N/A	Langlaagte 224 IQ 381/224	26°13'22.69"S 27°58'52.97"E
29	Abstraction from N21 reclamation block pit	Water abstracted from N21 reclamation block pit for use in dust suppression.	Removal of water for the continued operations	Volume: 1611.41 m^3/annum Area:4 12 ha	N/A	Mooifontein 225 IQ RE/225	26°13'38.19"S 28° 0'1.33"E
30	Abstraction from N22 reclamation block pit	Water abstracted from N22 reclamation block for use in dust suppression.	Removal of water for the continued operations	Volume: 2679.16 m^3/annum Area: 6.85 ha	N/A	Mooifontein 225 IQ RE/225	26°13'39.48"S 28° 0'14.43"E
31	Abstraction from the authorised valley silts project reclamation pit (current reclamation area)	Water abstracted from the authorised valley silts project reclamation pit (current reclamation area) for use in dust suppression.	Removal of water for the continued operations	Volume: 7216.13 m^3/annum Area: 18.45ha	N/A	Mooifontein 225 IQ RE/225	26°13'33.48"S 27°59'43.95"E

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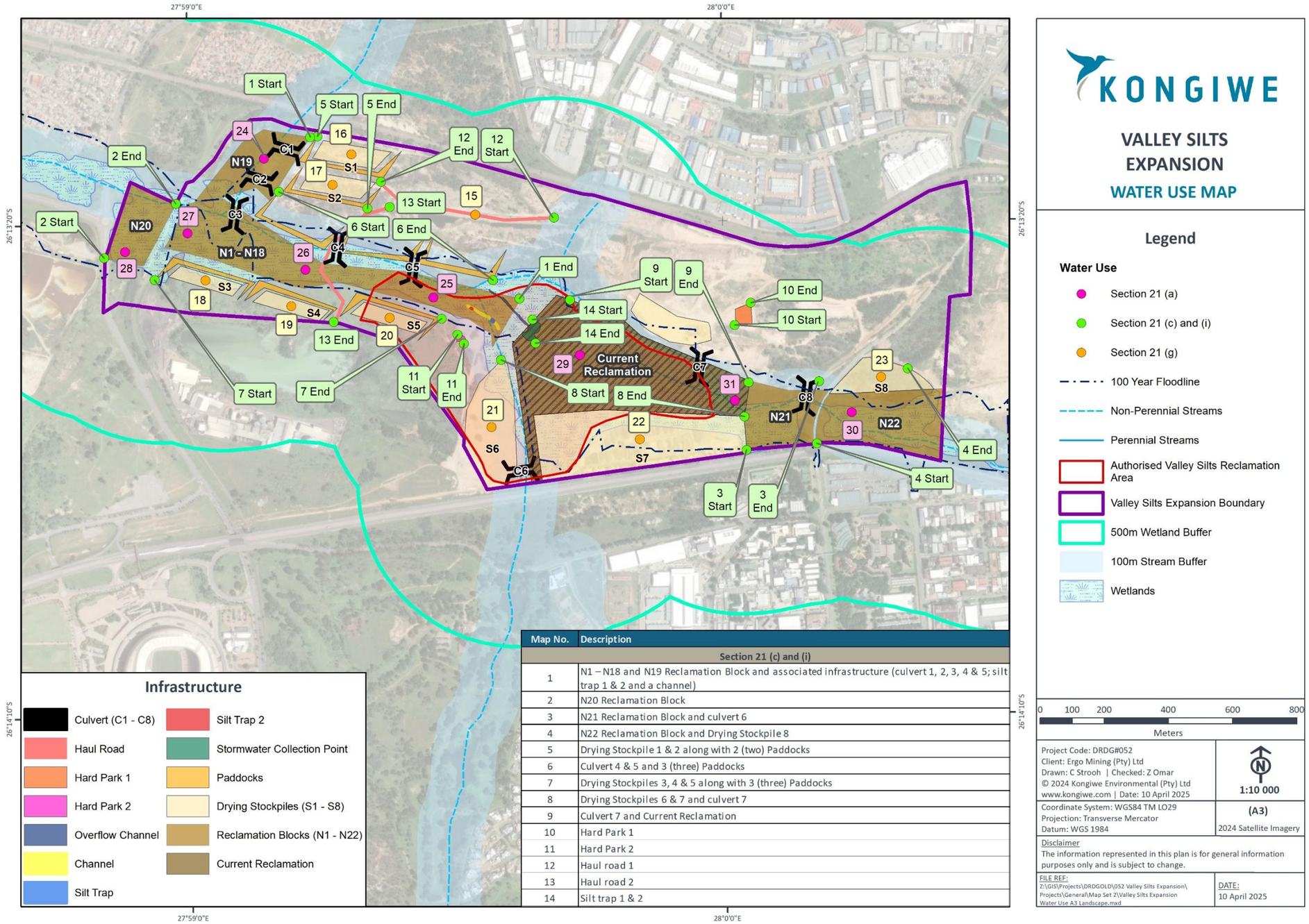


Figure 3-1: Valley Silts water uses

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3.7. Waste Management Activity (NEM: WA)

Activity 11 under Category B of the Waste Management Activities is "*The establishment or reclamation of a residue stockpile or residue deposit resulting from activities which require a mining right, exploration right or production right in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)*".

Accordingly, although none of the other activities in the List of Waste Management Activities that have, or are likely to have, a Detrimental Effect on the Environment are applicable, a Waste Management Licence (WML) will be required for the Valley Silts Expansion.

3.8. Waste Related Authorisations

The Environmental Authorisation (EA) and Waste Management Licence (WML) are being dealt with as integrated applications and have been submitted to the Department of Mineral Resources and Energy (DMRE).

3.9. Other authorisations (EIAs, EMPs, RODs, Regulations)

Ergo is the holder of various Mining Rights entitling it to reclaim and process various sand and slime TSFs throughout the Witwatersrand. Some of the authorisations held by Ergo include:

- GP 158 MR
- GP 184 MR
- City Deep Limited – GP 185 MR
- GP 186 MR
- Knights Mining Right – GP 187 MR
- GP 30/5/1/1/2 (000007BP) BAR

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4 Present Environmental Situation

This Chapter provides a description of the environment that may be affected by the Proposed Project. The information is provided to assist the reader in understanding the receiving environment within which the project is proposed, and features of the biophysical, social, and economic environment that could be directly or indirectly affected by, or alternatively could impact on, the proposed development.

4.1. Climate

The Valley Silts Expansion project area is situated southwest of Johannesburg and falls within the Highveld climatic zone characterised by summer rainfall.

4.1.1 Rainfall

Monthly patched rainfall data for weather station 0476040 W, located 7 km north-east of the Project, was adopted to represent the rainfall of the Project area. Monthly rainfall data was available for the period of October 1915 to September 2010 and was downloaded from the WR2012 website. The mean monthly rainfall is indicated Figure 4-1 below. The area has a Mean Annual Precipitation of 799 mm. Rainfall is highest over the summer months of November to March and lowest over the months of May to September.

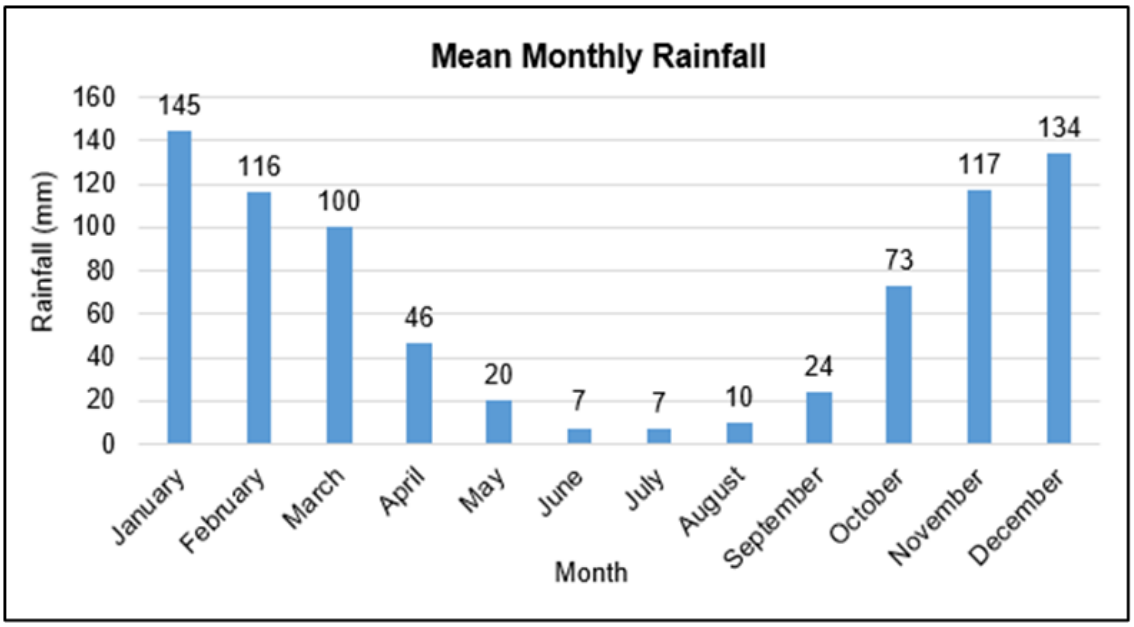


Figure 4-1: Monthly rainfall data for the Project area

4.1.2 Storm Rainfall Depths

The storm rainfall depths for the centre position of the Project area were extracted from the Design Rainfall Estimation in South Africa software programme (Smithers and Schulze, 2002). The programme uses the six closest rainfall stations to a user specified coordinate, to calulate the storm rainfall depths. The extracted storm rainfall depths for the Project are indicated in Table 4-1.

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Table 4-1: Storm rainfall depths for the Project area.

Storm Duration	Return Period / Storm Rainfall Depth (mm)						
min / hr / day	**1:2 yr**	**1:5 yr**	**1:10 yr**	**1:20 yr**	**1:50 yr**	**1:100 yr**	**1:200 yr**
5 min	9	12	15	17	21	25	28
10 min	13	18	21	25	31	36	41
15 min	16	22	26	31	38	44	50
30 min	20	28	34	40	49	56	65
45 min	23	32	39	46	56	65	75
1 hr	26	36	43	51	63	72	83
1.5 hr	30	41	50	59	72	84	96
2 hr	33	46	55	65	80	93	106
4 hr	40	55	66	78	96	111	127
6 hr	44	61	74	87	107	124	142
8 hr	48	66	80	94	115	133	153
10 hr	51	70	84	100	122	141	162
12 hr	53	73	88	105	128	148	170
16 hr	57	79	95	113	138	160	183
20 hr	61	84	101	120	147	169	194
24 hr	64	88	106	125	154	178	204
1 day	55	76	92	109	133	154	177
2 day	68	94	113	134	164	190	218
3 day	77	106	128	151	185	214	246
4 day	83	115	139	165	202	233	268
5 day	89	123	149	176	216	249	286
6 day	94	130	157	186	228	263	302
7 day	99	136	164	195	239	276	316

4.1.3 Evaporation

Evaporation data was obtained from the DWS weather station C2E007, located 18 km south-west of the Project area. C2E007 measures evaporation using a Symon's Pan (S-Pan). S-Pan evaporation measurements are not a true reflection of evaporation from natural open water bodies, as the water temperatures in the S-Pan are higher, resulting in higher evaporation rates. To convert S-Pan measurements to open water evaporation, monthly open water evaporation conversion factors were used, which were obtained from the WR2012 study. The adopted monthly evaporation for the Project is indicated in Table 4-2. Evaporation is highest over the months of September to March, and lowest over the cooler months of April to August (Hydrospatial, 2024).

Table 4-2: Symons Pan and open water evaporation for the Project

Month	S-Pan Evaporation (mm)	Evaporation Factor	Open Water Evaporation (mm)
January	169	0.84	142
February	138	0.88	122
March	129	0.88	113
April	102	0.88	89
May	85	0.87	74
June	68	0.85	57
July	75	0.83	63
August	106	0.81	86
September	145	0.81	117
October	163	0.81	132
November	166	0.82	136
December	170	0.83	141
Total	**1 515**	**N/A**	**1272**

4.1.4 Temperature

The project area has a mean monthly minimum temperature of around 10,42˚C and a mean monthly maximum temperature of around 23,17◦C, with the hottest months of the year being January, February, October and December (summer), dropping to daily minimum temperature of around 3˚C in July (winter). The area is characterised by warm to hot days and cool evenings. Refer Figure 4-2 this illustrates the average min and max temperature in Riverlea.

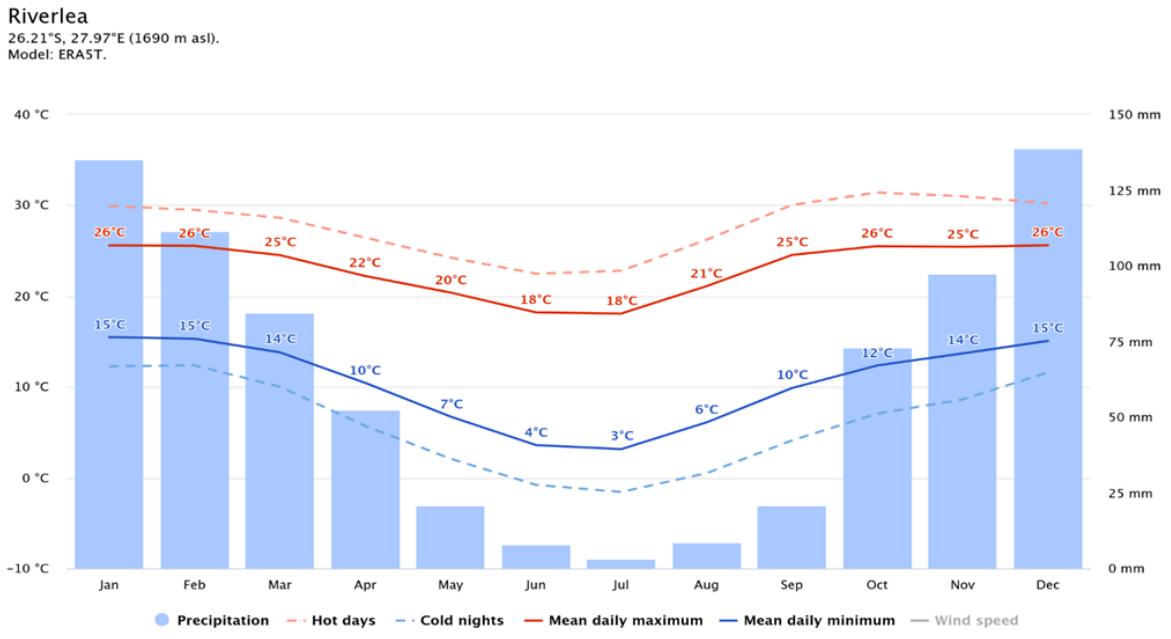


Figure 4-2: Average min and max temperature in Riverlea. Source: (Meteoblue, 2025).

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4.1.5 Wind Direction

The predominant winds at the Valley Silts Expansion project area (as given by the WRF data for the period from 2021 to 2023) are from the north-north-westerly direction for approximately 12% of the time, followed by the north-westerly and south-south-westerly directions (Figure 4-3). The highest number of winds with speeds greater than 4 m/s are expected from the north-westerly direction. The average hourly wind speed predicted by the WRF model is approximately 1.5 m/s. Calm conditions (wind speeds below 0.5 m/s) are predicted for approximately 0.9 % of the time (Gondwana Environmental Solutions, 2024).

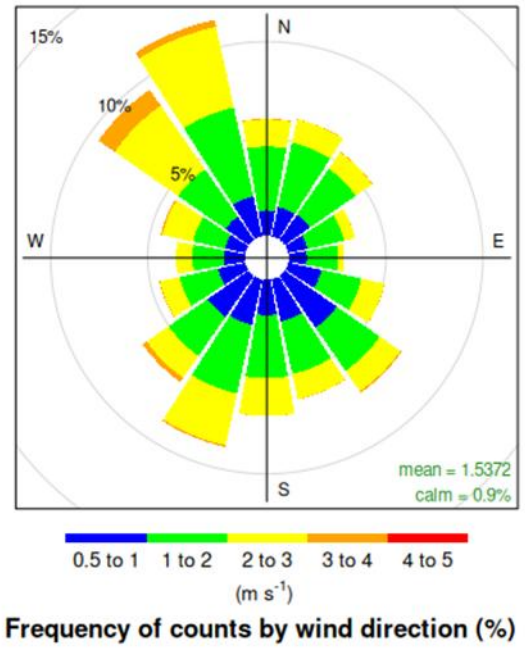


Figure 4-3: Wind rose of the average winds produced by the WRF model for the Valley Silts Expansion project area for the years 2021-2023 (Gondwana Environmental Solutions, 2024).

There is a clear diurnal variation in the predominant wind direction. During the day, most winds originate from a north-westerly direction, while at night most winds blow from the north-north-westerly direction. Most frequent winds with speeds above 4 m/s are expected from a north-westerly direction during the day. There are very few winds expected with speeds above 3 m/s at night. On average, calm conditions are expected for approximately 1 % of the time during the day, and average wind speeds are approximately 1.8 m/s. During the night, calm conditions are expected for approximately 0.8 % of the time, and average wind speeds are approximately 1.3 m/s (Figure 4-4) (Gondwana Environmental Solutions, 2024).

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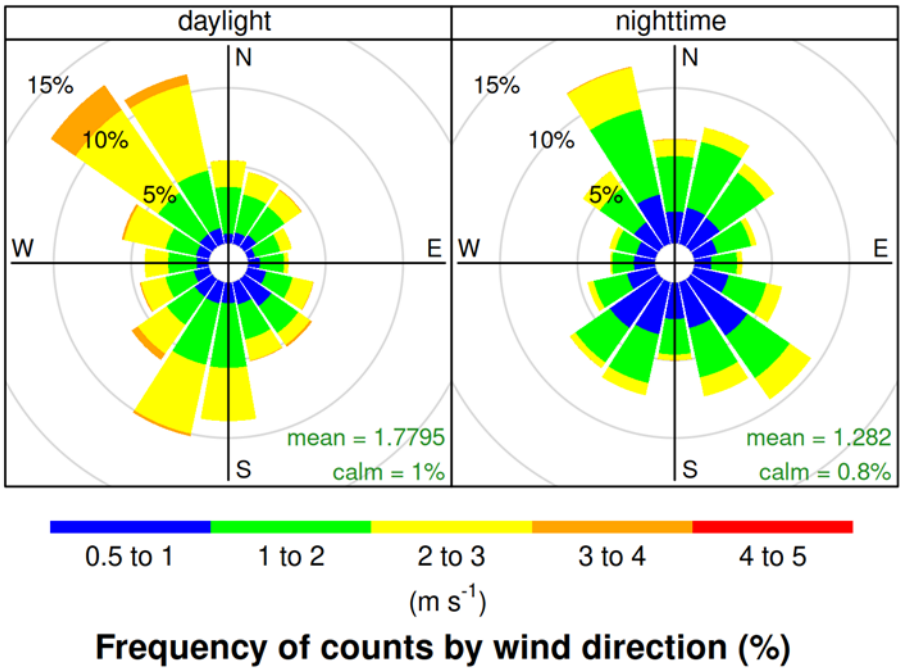


Figure 4-4: Diurnal wind roses predicted by the WRF model for the Valley Silts Expansion Project area for the years 2021-2023 (Gondwana Environmental Solutions, 2024).

The seasonal variations in wind direction for the Valley Silts Expansion project area are illustrated in Figure 4-5. The predominant wind direction in spring and summer is from the north-north-westerly direction. During autumn, the predominant wind direction is from the south-south-west, while in winter, it is from the north-westerly direction. Most winds with speeds over 3 m/s tend to be from the north-west in all seasons. Average wind speeds are highest in spring, and most of the calm conditions are experienced in autumn (Gondwana Environmental Solutions, 2024).

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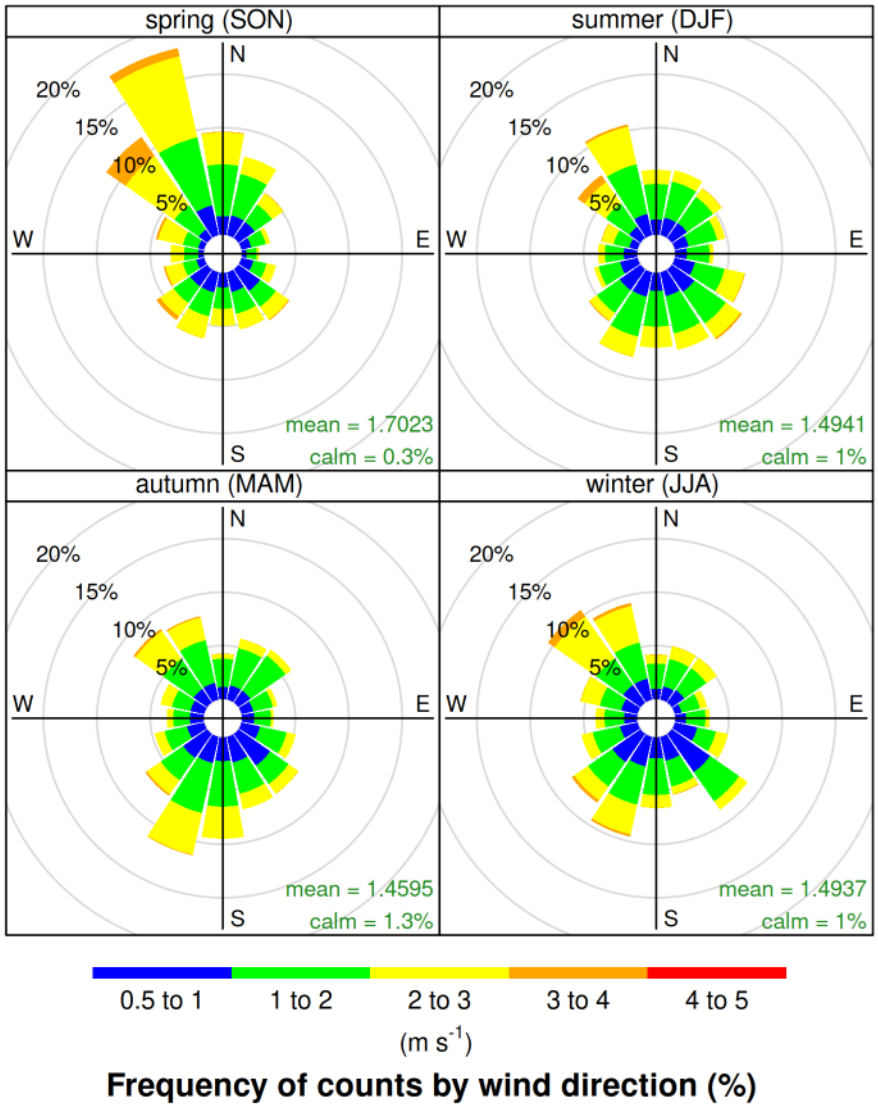


Figure 4-5: Seasonal wind roses of winds predicted by the WRF model for the Valley Silts Expansion project area for the years 2021-2023 (Gondwana Environmental Solutions, 2024)

4.2. Topography

Figure 4-6 indicates the topography of the Russell Stream catchment. The elevation varies from 1 705 metres above mean sea level (mamsl) in north-eastern corner of the catchment, to 1 640 mamsl towards the west at the outlet of the catchment. The catchment is dominated by flat slopes (slopes less than 10 %), with an average catchment slope of 7.5 %. Moderate slopes (10 to 30 %) occur along the sides of the Russell Stream valley, whilst steep slopes in excess of 30 %, occur along the sides of the old mining dumps within the catchment area (Hydrospatial, 2024).

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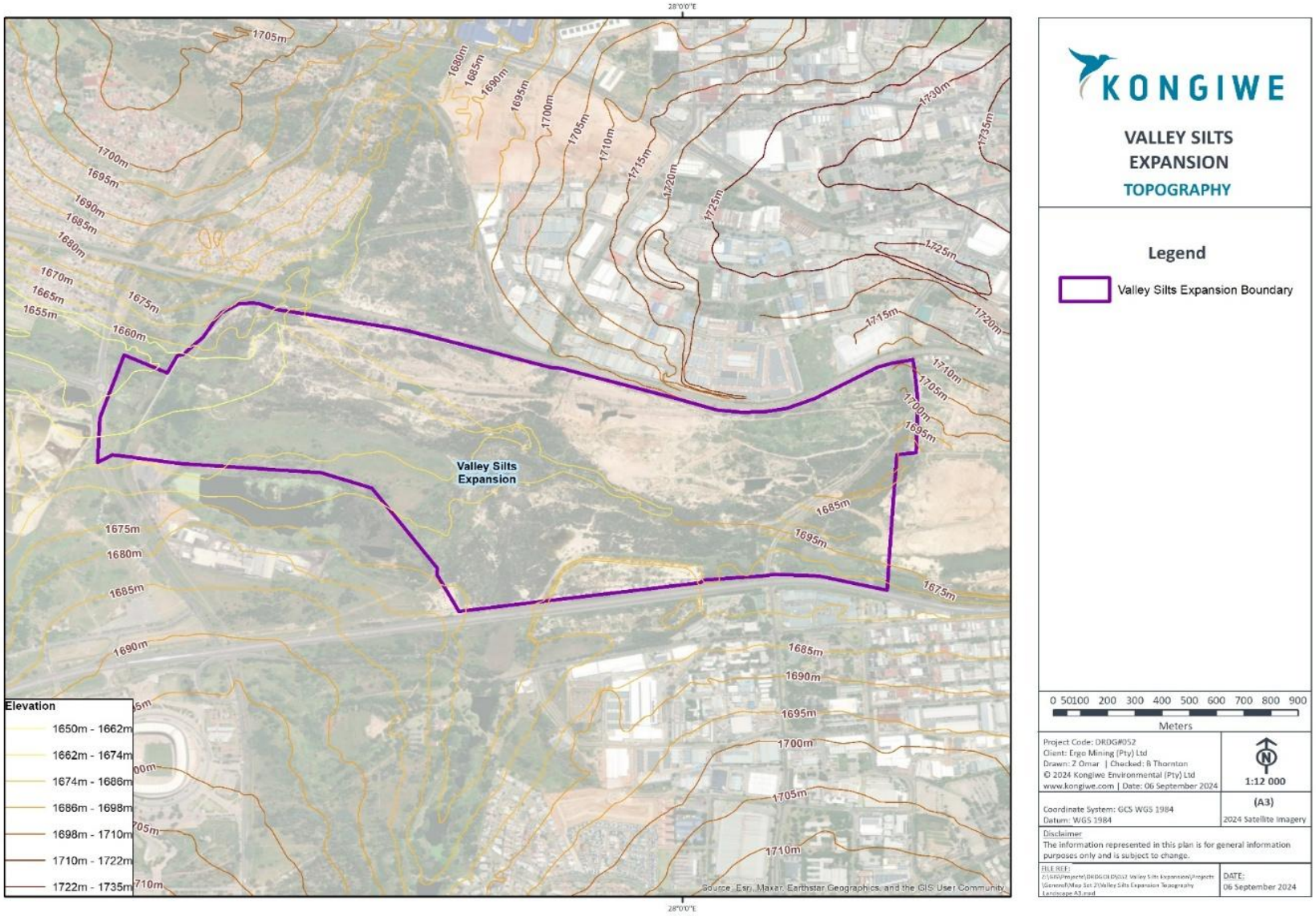


Figure 4-6: Topography

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4.3. Geology

The Witwatersrand Basin lies on the Kaapvaal Craton and is one of the world's largest gold placer deposits. The basin stretches over an arc of roughly 400 km, traversing across the Free State, North West and Gauteng Provinces. The gold occurs in coarse-grained conglomerates, forming the upper portions of the Witwatersrand Supergroup. It is found in association with uranium, quartz, carbon seams, phyllo-silicates and pyrite. The mineralisation of the Witwatersrand reefs is extensive and approximately 70 ore minerals, including diamonds, have been documented from the Witwatersrand conglomerates.

Gold-bearing reefs within the Witwatersrand sediments have been mined from the Far West Rand to the East Rand, and these operations yielded the mine dumps that contributed to the silt in the Russell Stream. Several of these dumps are currently being reclaimed by Ergo.

The Valley Silts Expansion Project is located on the Central Rand Group, of the Witwatersrand Supergroup. The Witwatersrand Supergroup is a sequence of conglomerate, shale and quartzite, ranging in age from 2.7 Ga for the Hospital Hill Subgroup to 2.4 Ga for the Turffontein Subgroup. The Lower Witwatersrand is composed mainly of argillaceous clays and shale, with occasional banded ironstone, tillite and intercalated lava flow, while the Upper Witwatersrand consists almost entirely of quartzite and conglomerate.

The Russell Stream is underlain predominantly by the Booysens Subgroup (shale) of the Witwatersrand Supergroup. To the south is the younger Turffontein Subgroup (quartzite, conglomerate and shale) and to the north, conglomerate and quartzite of the older Johannesburg Subgroup.

A characteristic of the Witwatersrand mining area is a series of cross-cutting faults and diabase dykes. The dykes are not 100% impermeable. Fault appearance varies from small localised fractured zones to large breccia filled zones. Faults are commonly filled with intrusive material. The composition ranges from diabase (or quartz diabase) to norite.

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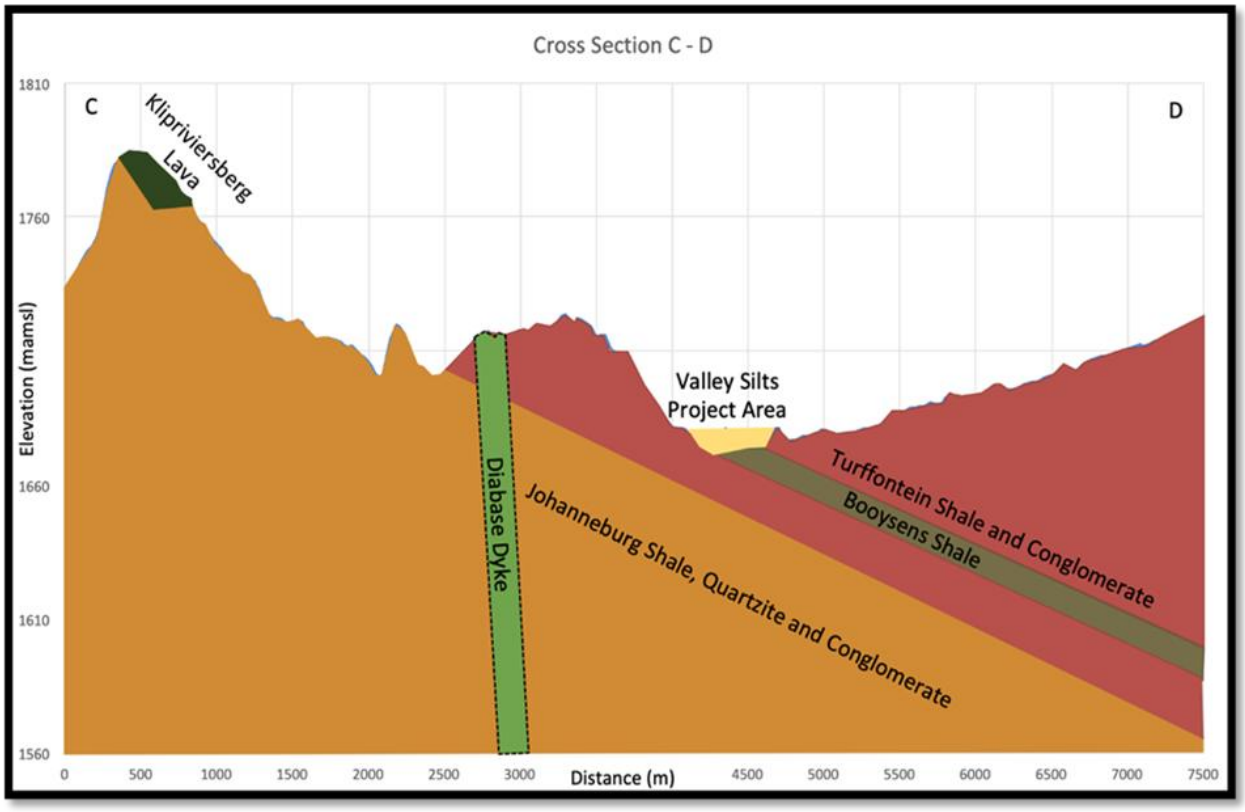


Figure 4-7: Geology cross section.

4.4. Soils, Land Capability and Land Use

4.4.1 Soils

The soil composition of South Africa is vast and unique and is composed of 73 soil forms. Soil forms are defined by the nature of the topsoil (organic, humic, vertic, melanic, silicic, Calcic, duplex, podzolic, plinthic, oxidic, gleyic, cumulic, lithic and anthropic) (Fey, 2010). The proposed study area is underlain by a quartzite rock layer. The soils surrounding the project area are shallow sandy soils. Vertic, Melanic, Duplex, Plinthic, Oxidic, Gleyic, Cumulic and lithic soils all have a possibility of being present in the proposed study area (Fey, 2010).

Mucina and Rutherford (2006) describes the prominent features of the soils found within the project area as; Shale, sandstone or mudstone originating from the Karoo Supergroup or the intrusive Karoo Suite Dolerites. These soils tend to be deep, reddish and on flat plains. These soils are typically Ea, Ba and Bb land types.

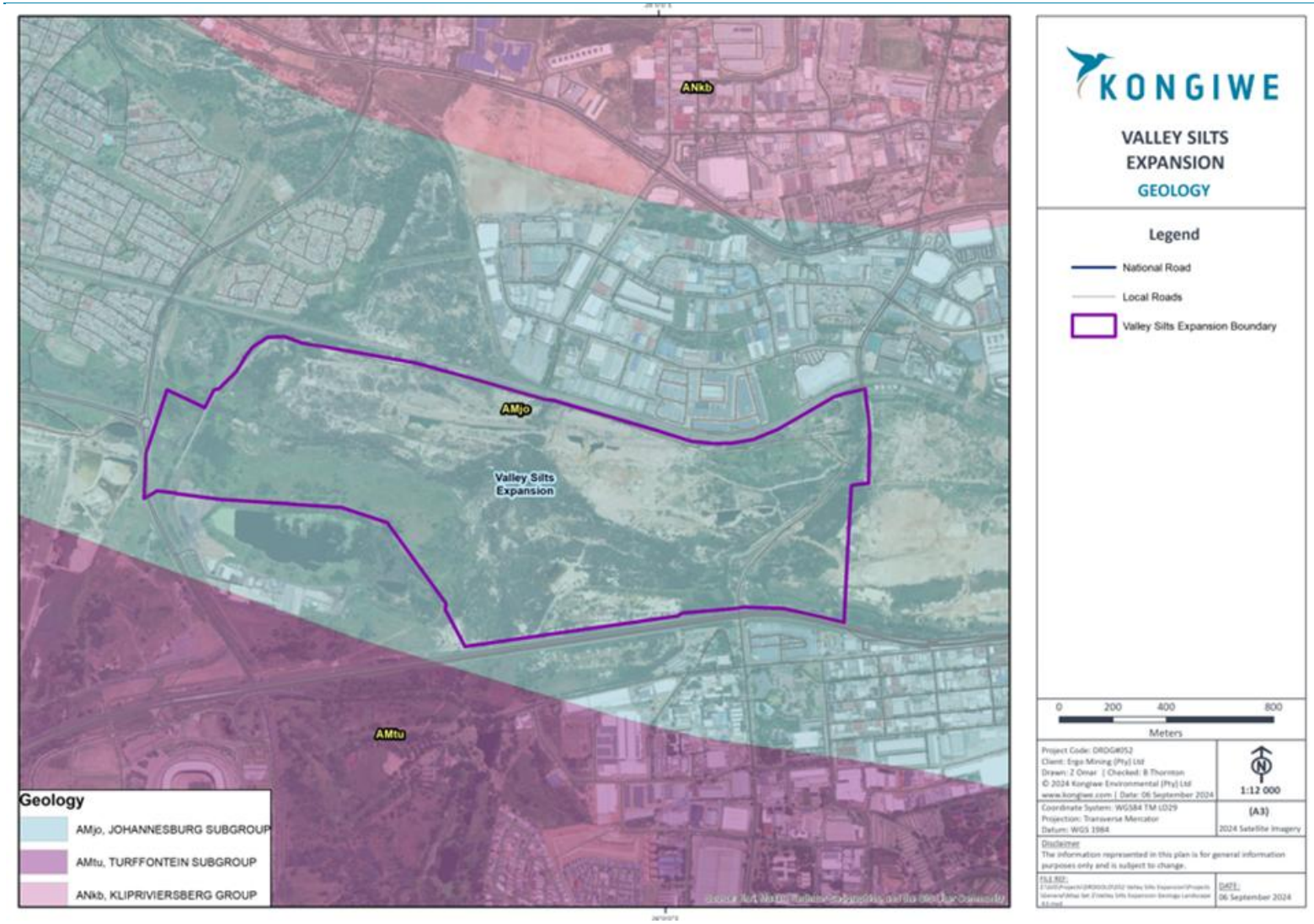


Figure 4-8: Geology map

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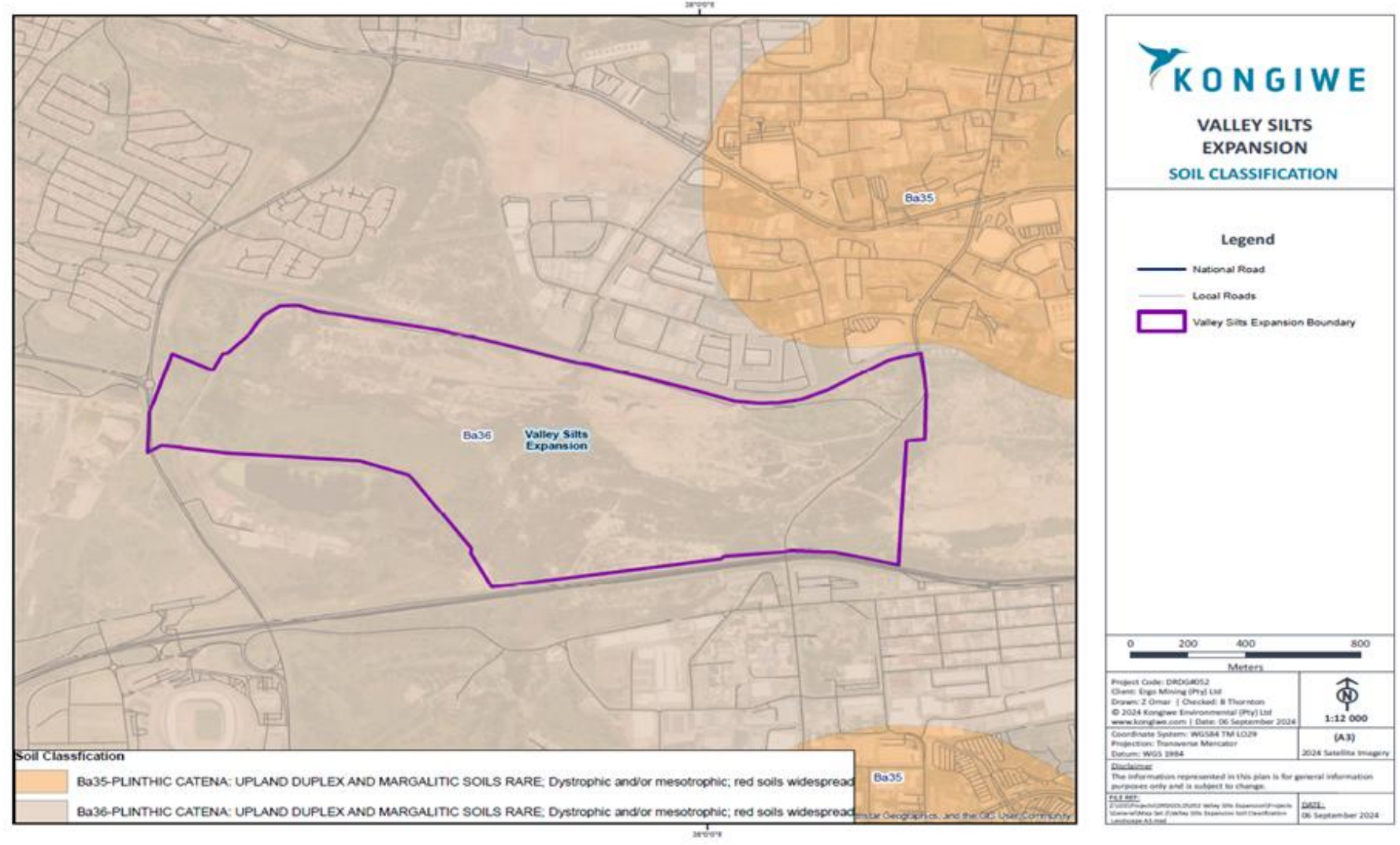


Figure 4-9: Soil map of the project area

4.4.2 Land capability

Due to the mining and industrial history of the area, the land has been significantly modified and degraded. The clean-up and removal of the gold bearing silts from the Russell Stream will help rehabilitate and restore the natural element of the local environment.

4.4.3 Land use

The land uses in the immediate project area can be classified mainly as wetlands, waterbodies, woodland/open bush and mines. Other land uses in the proximity include industrial activities, transport systems, natural areas, electricity reticulation, water infrastructure and historic mine dumps and dams.

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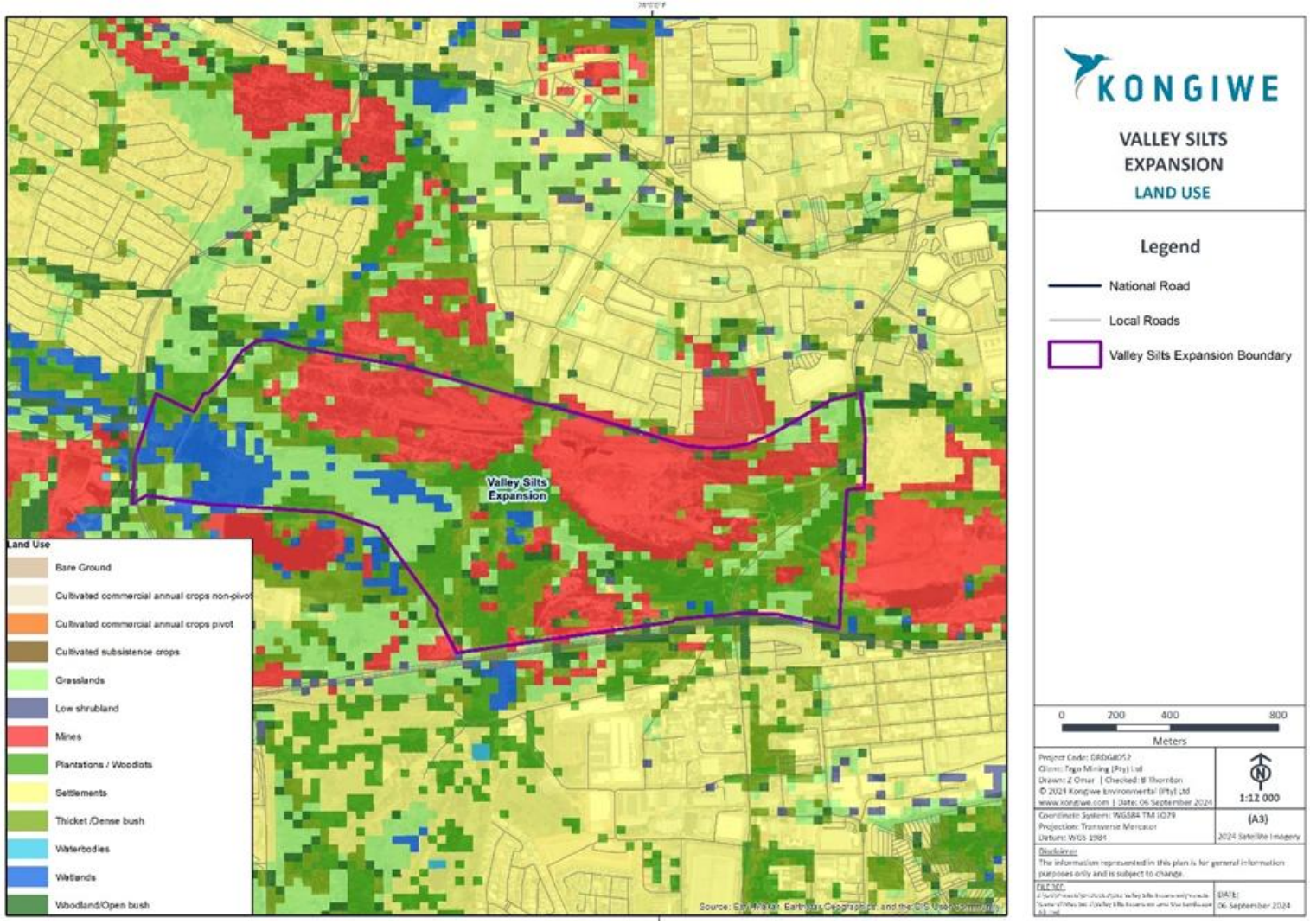


Figure 4-10: Land uses of the Proposed Project site and surrounding area

4.5. Surface Water

Refer to Specialist Study: Appendix A– Surface Water Assessment

4.5.1 Regional Catchment

The DWS has divided South Africa into primary, secondary, tertiary and quaternary catchments. Primary catchments are the largest defined catchments for South Africa, of which there are 22, and are assigned a letter ranging from A – X (excluding O). Secondary catchments are subdivisions of the primary catchments, and are the second largest catchments in South Africa, and are assigned the primary catchment letter within which they are located, and a number e.g. C2 (secondary catchment 2 located within primary catchment C). Similarly, tertiary catchments are subdivisions of secondary catchments and are represented for example by C22 (tertiary catchment 2 located within secondary catchment C2). Lastly, quaternary catchments are the smallest defined catchments and are assigned the tertiary catchment number, along with a quaternary catchment letter e.g. C22A (quaternary catchment A located within tertiary catchment C22). Further divisions into sub-quaternary reaches have also been implemented.

Further to the above, the DWS has divided South Africa into 9 Water Management Areas (WMAs). The 9 WMAs include the Limpopo, Olifants, Inkomati-Usuthu, Pongola-Mtamvuna, Vaal, Orange, Mzimvubu-Tsitsikamma, Breede-Gouritz and Berg-Olifants. Not all of the WMAs have been formalised.

The Proposed Project is located within the quaternary catchment C22A, of the Upper Vaal Management Area. The Upper Vaal WMA is the most developed, industrialised and populous of the Orange/Vaal WMAs (DWAF, 2002). Large quantities of water are transferred into this WMA from the Usutu to Mhaltuze and the Thukela WMAs as well as from the Senqu (Orange) River in Lesotho. This WMA releases similar quantities of water into the Vaal River which leads to the Middle Vaal and Lower Vaal WMAs. Water is also transferred from here to the Crocodile West, Marico and Olifants WMAs (DWAF, 2002).

The Klip River drains this catchment, flowing in a southerly direction. The Klip River then flows in a south-westerly direction past the town of Meyerton and into the Vaal River above the Vaal Barrage, near the town of Vereeniging. The Klip River is situated to the south of the Proposed Project area and has several unnamed tributaries. The river has a defined wetland along its watercourse and flows through several dams along its course.

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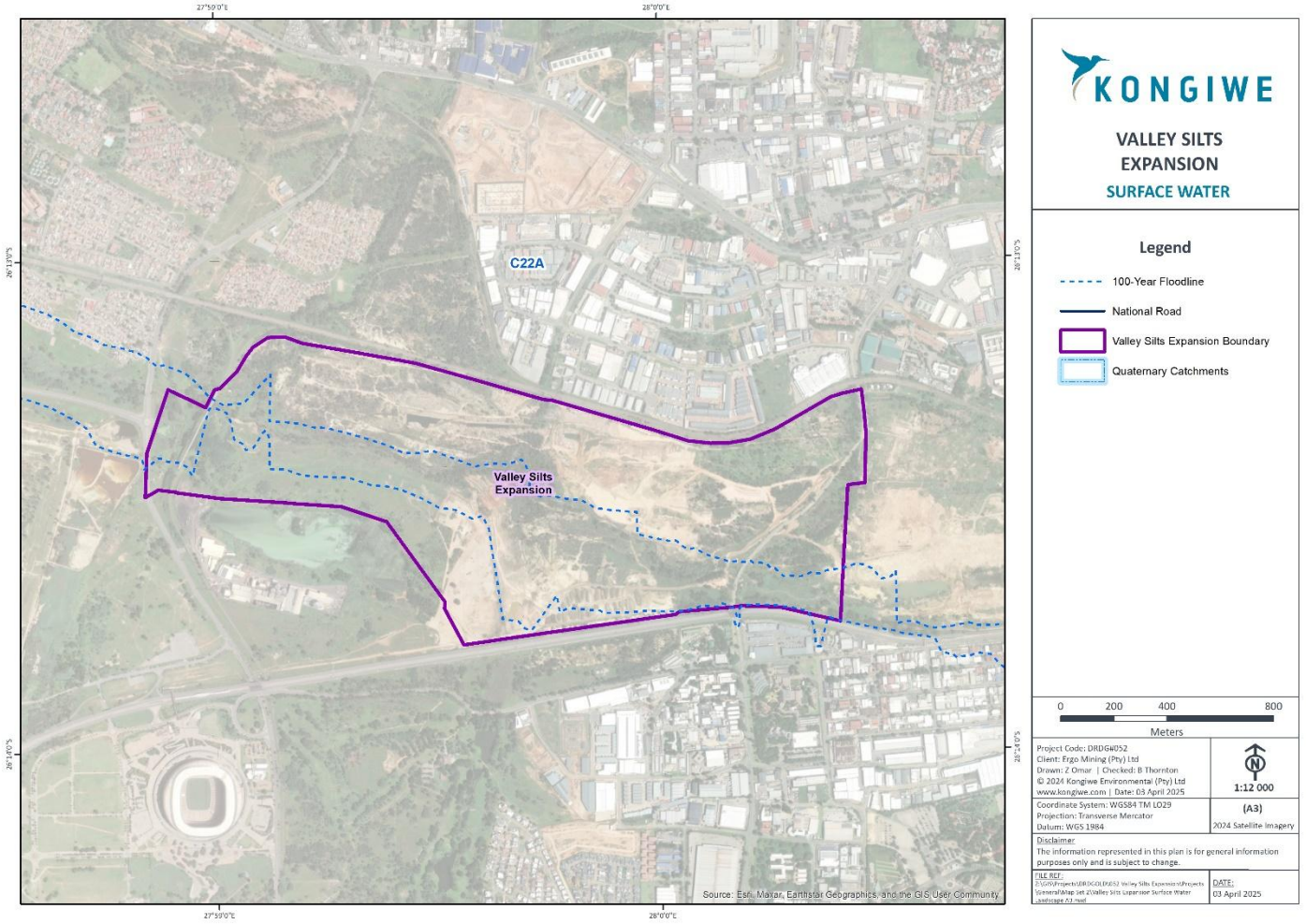


Figure 4-11: Quaternary catchment around the project location

4.5.2 DWS Classes and Resource Quality Objectives

The NWA specifies that water resources are to be protected and managed through the classification of water resources and Resource Quality Objectives (RQOs) and the setting of the reserve. The Classes and RQOs of Water Resources for Catchments of the Upper Vaal (Government Notice No. 468, 22 April 2016) (DWS, 2016), was consulted to obtain the classes and RQOs for the quaternary catchments within which the Valley Silts Expansion project is located. Quaternary catchments C22A does not have any classes or RQOs set.

4.5.3 Surface Water Runoff

Gauging stations with streamflow data were not available for the Russell Stream, and therefore, the WRSM/Pitman model was setup to estimate the monthly runoff for the catchment. The simulated monthly runoff was compared to measured flows at surrounding gauging stations with good comparison. The simulated mean monthly runoff is indicated in Figure 4-12The catchment has an estimated Mean Annual Runoff (MAR) of 9.15 million cubic metres (mcm). Runoff is highest over the high rainfall months of November to March, and lowest over the months of May to September (HydroSpatial, 2025).

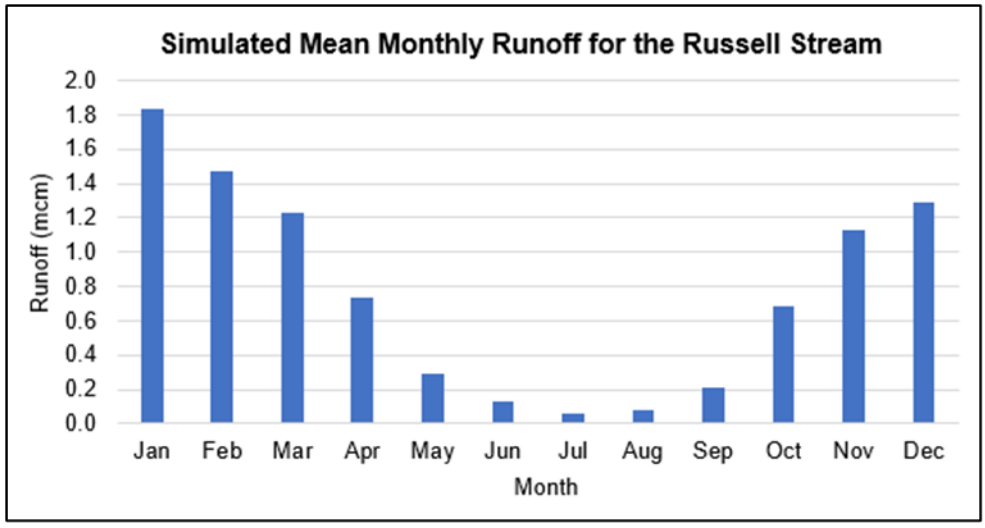


Figure 4-12: Simulated mean monthly runoff for the Russell Stream catchment

4.5.4 Surface Water Quality

4.5.4.1 Data Sources

Water quality data for the area was obtained from the following sources:

- Water quality monitoring undertaken by Ergo;
- Monitoring undertaken by the DWS along the Russell Stream, which was downloaded from the Klip River Forum website (https://reservoir.org.za/klip-river-forum/#toggle-id-4-closed); and

- The Council Geoscience's report: Contamination of wetlands by Witwatersrand gold mines – processes and the economic potential of gold in wetlands (Council for Geosciences, 2005). Water quality and sediment sampling from the report were assessed.

4.5.4.2 Monitoring Locations

Details of the monitoring locations are summarised in Table 4-3 and their locations are shown on Figure 4-13.

Table 4-3: Description of the surface water quality sampling locations

Sampling Point	Monitored by	Monitoring Period Assessed	Location from Project	Location Description	Latitude	Longitude
CR1	Ergo	Jun 2021 – Jan 2025	Upstream of Project	Russell Stream - Lake Road	-26.226111°	28.024167°
CR4	Ergo	Jun 2021 – Jan 2025	Upstream of Project	Small bridge at CGR (Crownwood Road)	-26.226667°	28.002778°
CR7	Ergo	Jun 2021 – Jan 2025	Downstream of Project	Russell Stream - bridge at Randshow Road (Riverlea)	-26.220556°	27.981667°
CR11	Ergo	Jun 2021 – Jan 2025	Downstream of Project	New Canada Road bridge	-26.210556°	27.952778°
DWS1	DWS	Apr 2014 – Sep 2024	Downstream of Project	Russell Stream at New Canada Road	-26.211111°	27.951944°
JV04/077	Council for Geoscience (2005)	Sep 2004	Downstream of Project	Russell Stream at New Canada Road	-26.21042°	27.9525°
JV04/091	Council for Geoscience (2005)	Oct 2004	Upstream of Project	Russell Stream at Crownwood Road	-26.227222°	28.002333°
JV04/095	Council for Geoscience (2005)	Oct 2004	–	Mooifontein TSF PCDs	-26.223139°	27.979028°
JV04/096	Council for Geoscience (2005)	Oct 2004	–	Mooifontein TSF PCDs	-26.223139°	27.979028°

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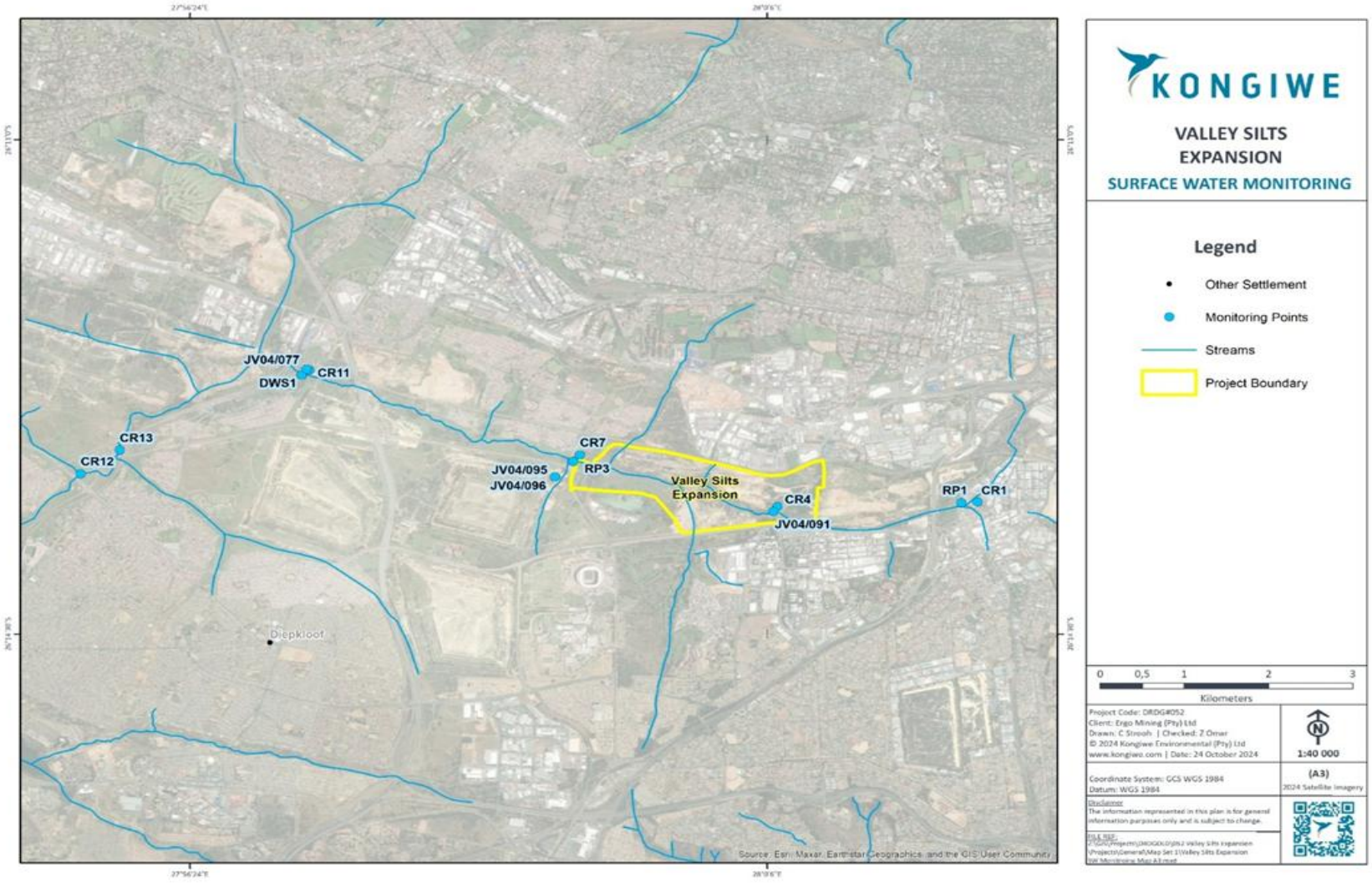


Figure 4-13: Surface water quality monitoring locations

4.5.4.3 Water Quality Status

Ergo water quality monitoring results are presented in Table 4-4 to Table 4-5 with trends in selected parameters shown in Figure 4-14 . The following provides a summary of the water quality:

- pH was within limits at all monitoring locations except in December 2022 at CR1, CR4 and CR11, and at DWS1 in May 2014 and February 2019. This, however, was before the reclamation of silt began at Sector 1 in May 2023;
- Electrical Conductivity (EC) and Total Dissolved Solids (TDS), which provides an indication of the dissolved salts in water, were within acceptable limits at all monitoring locations;
- Nutrients (Ammonia, Nitrate and Phosphate), E. coli and Chemical Oxygen Demand (COD), were regularly elevated at DWS1, indicating sewage contamination of the Russell Stream;
- Elevated levels of heavy metal concentrations for Iron, Manganese, Aluminium, Nickel and Arsenic were recorded at most of the monitoring locations. This has been occurring since before the current reclamation operation at Sector 1 commenced in May 2023;
- Uranium was within limits at all of the Ergo monitoring locations; and
- Suspended Solids (SS) was regularly elevated above unacceptable limits at all monitoring locations. A comparison between the upstream (CR1 and CR4) and downstream (CR7) monitoring locations showed no significant increase in SS as a result of the current reclamation operation.

It can be concluded that the water quality of the Russell Stream has a neutral pH of approximately 7.2, dissolved salts within the ideal range of the Klip River catchment guideline limits, high nutrient and E. coli levels, elevated Suspended Solids, as well as at times elevated metals in terms of Iron, Manganese, Aluminium, Nickel and Arsenic. Uranium was found to be within limits.

Based on the current water quality available, it appears that the current reclamation operation at Sector 1 is not having a significant impact on the water quality of the Russell Stream. This is likely due to current measures that are implemented onsite, such as berms that contain runoff from dirty areas, as well as silt traps that settle out silt.

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Table 4-4: Ergo water quality results – June 2021 to June 2022

Parameter	Units	Klip River Catchment Limits		SANS 241:2015 Limits		June 2021				September 2021				December 2021				March 2022				June 2022			
		Tolerable	Unacceptable	Risk	Limit	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11
pH - Value @ 25 ºC	pH units		< 6.0; > 9.0	Operational	≥ 5 to ≤ 9.7	7.50	6.70	6.50	7.10	7.30	6.20	7.30	6.20	7.40	6.70	7.30	7.10	7.10	7.00	7.20	7.00	6.00	6.50	6.90	6.80
Electrical Conductivity @ 25°C	mS/m	100 - 150	> 150	Aesthetic	≤ 170	25.10	56.20	95.20	81.30	38.50	50.70	61.30	114.00	46.90	97.40	64.10	66.70	41.70	77.60	79.90	87.20	88.20	102.00	83.50	76.20
Total Dissolved Solids @ 180°C	mg/ℓ	---	---	Aesthetic	≤ 1200	150.00	318.00	610.00	364.00	220.00	320.00	360.00	358.00	246.00	636.00	408.00	444.00	248.00	446.00	468.00	562.00	514.00	640.00	478.00	448.00
Total Acidity as CaCO3	mg/ℓ	---	---	---	---	<5	<5	<5	<5	16.00	36.00	20.00	70.00	<5	<5	<5	<5	<5	<5	<5	<5	28.00	28.00	28.00	24.00
Chloride as Cl	mg/ℓ	75 - 100	> 100	Aesthetic	≤ 300	15.00	37.00	44.00	49.00	31.00	36.00	37.00	45.00	35.00	48.00	36.00	35.00	26.00	55.00	45.00	40.00	75.00	63.00	49.00	40.00
Sulphate as SO4	mg/ℓ	350 - 500	> 500	Acute health	≤ 500	30.00	98.00	326.00	186.00	32.00	45.00	86.00	7.00	27.00	188.00	84.00	58.00	47.00	100.00	138.00	213.00	165.00	301.00	176.00	198.00
Fluoride as F	mg/ℓ	0.7 - 1.00	> 1.00	Chronic health	≤ 1.5	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.50	0.30	0.20	0.20	0.20	0.30	0.30	0.40	0.40	0.20	0.30	0.30	0.20
Nitrate as N	mg/ℓ	4.0 - 7.0	> 7.0	Acute health	≤ 11	1.10	0.20	0.30	0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.80	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nitrite as N	mg/ℓ	---	---	Acute health	≤ 0.9	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.30	<0.05	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	0.07
Bromide as Br	mg/ℓ	---	---	---	---	<0.1	<0.1	<0.1	0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

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Parameter	Units	Klip River Catchment Limits		SANS 241:2015 Limits		June 2021				September 2021				December 2021				March 2022				June 2022			
		Tolerable	Unacceptable	Risk	Limit	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11
Ortho Phosphate as P	mg/ℓ	---	---	---	---	<0.1	<0.1	<0.1	<0.1	0.60	<0.1	0.10	12.00	1.20	<0.1	<0.1	0.10	0.80	0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Cyanide as CN	mg/ℓ	---	---	---	---	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
Free and Saline Ammonia as N	mg/ℓ	---	---	---	---	0.10	7.00	13.00	15.00	4.70	5.50	11.00	119.00	8.10	13.00	5.80	9.40	5.20	11.00	12.00	9.10	16.00	14.00	16.00	12.00
Sodium as Na	mg/ℓ	80 - 100	> 100	Aesthetic	≤ 200	12.00	30.00	44.00	44.00	21.00	38.00	33.00	39.00	28.00	46.00	27.00	33.00	20.00	42.00	39.00	37.00	52.00	54.00	49.00	36.00
Potassium as K	mg/ℓ	---	---	---	---	4.10	10.30	12.30	12.60	5.10	8.90	8.80	14.30	8.50	12.50	8.00	8.60	4.60	14.50	10.70	10.00	19.60	18.20	11.40	9.60
Calcium as Ca	mg/ℓ	---	---	---	---	23.00	33.00	72.00	47.00	26.00	31.00	35.00	37.00	26.00	80.00	43.00	42.00	33.00	47.00	49.00	61.00	50.00	72.00	45.00	50.00
Magnesium as Mg	mg/ℓ	30-70	> 70	---	---	7.00	13.00	25.00	20.00	11.00	13.00	17.00	16.00	11.00	21.00	18.00	18.00	12.00	18.00	20.00	24.00	22.00	26.00	20.00	24.00
Aluminium as Al (Dissolved)	mg/ℓ	0.3 - 0.5	> 0.5	Operational	≤ 0.3	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	0.10	<0.100	<0.100	<0.100
Antimony as Sb (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.02	0.00	<0.001	<0.001	0.00	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic as As (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.01	<0.001	0.001	<0.001	<0.001	0.001	0.003	0.002	0.009	<0.001	<0.001	<0.001	0.001	<0.001	0.001	<0.001	<0.001	0.017	0.015	0.015	0.013
Barium as Ba (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.7	0.10	0.11	0.11	0.10	0.14	0.14	0.14	0.06	0.06	0.05	0.04	0.05	0.05	0.04	0.05	0.04	0.06	0.05	0.04	0.04

Parameter	Units	Klip River Catchment Limits		SANS 241:2015 Limits		June 2021				September 2021				December 2021				March 2022				June 2022			
		Tolerable	Unacceptable	Risk	Limit	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11
Beryllium as Be (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Bismuth as Bi (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Boron as B (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 2.4	<0.025	0.06	0.06	0.05	0.11	<0.025	0.04	0.04	<0.025	0.06	0.05	0.03	<0.025	0.06	0.06	0.06	<0.025	<0.025	<0.025	0.03
Cadmium as Cd (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Hexavalent Chromium as Cr	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Total Chromium as Cr (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.05	0.01	0.01	<0.010	<0.010	<0.010	0.02	0.01	<0.010	<0.010	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cobalt as Co (Dissolved)	mg/ℓ	---	---	---	---	<0.025	0.04	0.30	0.16	<0.025	<0.025	<0.025	<0.025	<0.025	0.15	<0.025	0.10	<0.025	<0.025	<0.025	0.25	0.09	0.18	0.19	0.22
Copper as Cu (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 2	0.01	<0.010	<0.010	<0.010	0.03	0.03	0.03	0.01	0.01	0.01	<0.010	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Iron as Fe (Dissolved)	mg/ℓ	1.0 - 1.5	> 1.5	Chronic health	≤ 2	0.03	4.46	20.00	8.13	0.26	2.61	1.75	0.62	0.21	<0.025	<0.025	0.20	0.21	0.62	2.84	0.99	4.36	8.52	3.51	0.10
Ferrous Iron as	mg/ℓ	---	---	---	---	0.03	0.46	0.62	0.53	<0.025	0.24	0.20	0.43	0.12	<0.025	<0.025	0.11	0.04	<0.025	0.32	<0.025	4.42	8.69	3.79	0.09

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Parameter	Units	Klip River Catchment Limits		SANS 241:2015 Limits		June 2021				September 2021				December 2021				March 2022				June 2022			
		Tolerable	Unacceptable	Risk	Limit	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11
Fe2+ (Dissolved)																									
Ferric Iron as Fe3+ (Dissolved)	mg/ℓ	---	---	---	---	<0.025	4.00	19.00	7.60	0.27	2.37	1.55	0.20	0.09	<0.025	<0.025	0.09	0.17	0.62	2.52	0.99	<0.025	<0.025	<0.025	<0.025
Lead as Pb (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.01	<0.001	<0.001	<0.001	<0.001	0.00	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lithium as Li (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.03	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Manganese as Mn (Dissolved)	mg/ℓ	2.0 - 4.0	> 4.0	Chronic health	≤ 0.4	<0.025	1.07	5.08	3.23	0.04	0.95	2.43	1.73	0.07	3.34	0.77	2.63	0.11	1.38	3.40	4.32	1.81	4.13	3.44	3.97
Mercury as Hg (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.006	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Molybdenum as Mo (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Nickel as Ni (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.07	<0.025	0.04	0.31	0.15	<0.025	<0.025	<0.025	<0.025	<0.025	0.17	0.13	0.16	<0.025	<0.025	0.03	0.33	0.09	0.23	0.22	0.28
Phosphorus as P (Dissolved)	mg/ℓ	---	---	---	---	<0.025	0.39	0.05	0.15	0.88	0.42	0.65	17.00	1.78	0.20	0.15	0.15	0.80	0.35	0.10	0.03	3.20	3.15	3.60	3.11
Selenium as Se (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.04	<0.001	<0.001	<0.001	<0.001	<0.001	0.00	<0.001	<0.001	0.00	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00	0.00	<0.001	<0.001
Silicon as Si (Dissolved)	mg/ℓ	---	---	---	---	5.80	6.20	6.30	6.60	9.20	8.70	8.00	16.00	6.50	5.70	5.60	6.10	7.10	6.60	6.20	5.60	6.60	6.50	7.70	6.50

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Parameter	Units	Klip River Catchment Limits		SANS 241:2015 Limits		June 2021				September 2021				December 2021				March 2022				June 2022			
		Tolerable	Unacceptable	Risk	Limit	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11
Silver as Ag (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Strontium as Sr (Dissolved)	mg/ℓ	---	---	---	---	0.10	0.12	0.20	0.15	0.14	0.14	0.15	0.18	0.11	0.18	0.16	0.15	0.16	0.18	0.19	0.21	0.20	0.21	0.17	0.17
Thallium as Tl (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Thorium as Th (Dissolved)	mg/ℓ	---	---	---	---	<0.001	<0.001	<0.001	0.00	<0.001	<0.001	<0.001	<0.001	0.00	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00	0.00	<0.001	<0.001	<0.001
Tin as Sn (Dissolved)	mg/ℓ	---	---	---	---	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Titanium as Ti (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Tungsten as W (Dissolved)	mg/ℓ	---	---	---	---	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium as U (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.03	0.001	0.001	0.005	0.007	<0.001	0.001	0.006	<0.001	<0.001	0.002	0.005	0.006	<0.001	0.003	0.010	0.010	0.002	0.006	0.006	0.007
Vanadium as V (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Zinc as Zn (Dissolved)	mg/ℓ	---	---	Aesthetic	≤ 5	<0.025	0.03	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.04	0.03	<0.025	<0.025	<0.025	<0.025	<0.025	0.03	0.15	0.04	0.08
Zirconium as Zr (Dissolved)	mg/ℓ	---	---	---	---	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Parameter	Units	Klip River Catchment Limits		SANS 241:2015 Limits		June 2021				September 2021				December 2021				March 2022				June 2022			
		Tolerable	Unacceptable	Risk	Limit	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11
Suspended Solids	mg/ℓ	30 - 55	> 55	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Turbidity	NTU	---	---	Aesthetic	≤ 5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Table 4-5: Ergo water quality results – September 2024 to January 2025

Parameter	Units	Klip River Catchment Limits		SANS 241:2015 Limits		September 2024				October 2024				November 2024				December 2024				January 2025			
		Tolerable	Unacceptable	Risk	Limit	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11
pH - Value @ 25 ºC	pH units		< 6.0; > 9.0	Operational	≥ 5 to ≤ 9.7	7.30	7.30	7.20	7.20	---	7.20	7.20	---	---	7.10	7.10	---	7.20	7.10	7.20	7.10	---	6.00	6.80	---
Electrical Conductivity @ 25°C	mS/m	100 - 150	> 150	Aesthetic	≤ 170	70.20	65.50	70.50	74.40	---	50.40	78.80	---	---	64.10	84.50	---	68.70	50.60	78.90	72.80	---	119.00	104.00	---
Total Dissolved Solids @ 180°C	mg/ℓ	---	---	Aesthetic	≤ 1 200	328.00	439.00	472.00	499.00	---	272.00	354.00	---	---	294.00	358.00	---	284.00	284.00	412.00	378.00	---	802.00	646.00	---
Total Acidity as CaCO3	mg/ℓ	---	---	---	---	8.00	8.00	396.00	8.00	---	20.00	207.00	---	---	12.00	166.00	---	20.00	24.00	259.00	56.00	---	24.00	47.00	---
Chloride as Cl	mg/ℓ	75 - 100	> 100	Aesthetic	≤ 300	50.00	33.00	46.00	44.00	---	31.00	55.00	---	---	40.00	53.00	---	40.00	35.00	52.00	47.00	---	42.00	40.00	---
Sulphate as SO4	mg/ℓ	350 - 500	> 500	Acute health	≤ 500	47.00	43.00	69.00	73.00	---	44.00	47.00	---	---	44.00	50.00	---	27.00	40.00	53.00	41.00	---	473.00	333.00	---

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Parameter	Units	Klip River Catchment Limits		SANS 241:2015 Limits		September 2024				October 2024				November 2024				December 2024				January 2025			
		Tolerable	Unacceptable	Risk	Limit	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11
Fluoride as F	mg/ℓ	0.7 - 1.00	> 1.00	Chronic health	≤ 1.5	0.20	0.40	0.30	0.20	---	0.20	0.20	---	---	0.20	0.30	---	<0.2	<0.2	<0.2	<0.2	---	<0.2	<0.2	---
Nitrate as N	mg/ℓ	4.0 - 7.0	> 7.0	Acute health	≤ 11	1.40	1.00	1.50	1.10	---	0.80	0.80	---	---	<0.1	<0.1	---	<0.1	<0.1	<0.1	<0.1	---	0.10	<0.1	---
Nitrite as N	mg/ℓ	---	---	Acute health	≤ 0.9	<0.05	0.10	0.20	0.20	---	<0.05	<0.05	---	---	<0.05	<0.05	---	<0.05	<0.05	<0.05	<0.05	---	<0.05	<0.05	---
Bromide as Br	mg/ℓ	---	---	---	---	<0.1	<0.1	<0.1	<0.1	---	<0.1	<0.1	---	---	<0.1	<0.1	---	<0.1	<0.1	<0.1	<0.1	---	<0.1	<0.1	---
Ortho Phosphate as P	mg/ℓ	---	---	---	---	2.20	2.00	1.30	2.70	---	0.60	2.10	---	---	0.70	1.80	---	2.20	0.20	1.00	3.20	---	<0.1	<0.1	---
Total Cyanide as CN	mg/ℓ	---	---	---	---	<0.35	<0.35	<0.35	<0.35	---	<0.07	<0.07	---	---	<0.07	<0.07	---	0.12	<0.07	<0.07	<0.07	---	0.27	0.10	---
Free and Saline Ammonia as N	mg/ℓ	---	---	---	---	22.00	26.00	19.00	24.00	---	9.30	27.00	---	---	13.00	26.00	---	30.00	9.40	27.00	18.00	---	16.00	17.00	---
Sodium as Na	mg/ℓ	80 - 100	> 100	Aesthetic	≤ 200	48.00	37.00	52.00	45.00	---	31.00	54.00	---	---	37.00	50.00	---	35.00	28.00	48.00	54.00	---	51.00	46.00	---
Potassium as K	mg/ℓ	---	---	---	---	12.20	11.10	11.70	11.50	---	10.10	17.10	---	---	10.50	13.30	---	10.30	9.00	13.60	12.70	---	11.00	10.10	---
Calcium as Ca	mg/ℓ	---	---	---	---	34.00	31.00	33.00	33.00	---	34.00	35.00	---	---	35.00	31.00	---	33.00	34.00	36.00	35.00	---	126.00	97.00	---
Magnesium as Mg	mg/ℓ	30-70	> 70	---	---	13.00	12.00	14.00	15.00	---	13.00	14.00	---	---	12.00	13.00	---	12.00	12.00	14.00	14.00	---	31.00	28.00	---
Aluminium as Al (Dissolved)	mg/ℓ	0.3 - 0.5	> 0.5	Operational	≤ 0.3	<0.100	<0.100	<0.100	<0.100	---	0.49	0.74	---	---	<0.100	<0.100	---	0.19	<0.100	<0.100	<0.100	---	<0.100	<0.100	---

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Parameter	Units	Klip River Catchment Limits		SANS 241:2015 Limits		September 2024				October 2024				November 2024				December 2024				January 2025			
		Tolerable	Unacceptable	Risk	Limit	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11
Antimony as Sb (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.02	0.00	0.00	0.00	<0.001	---	<0.001	<0.001	---	---	0.00	<0.001	---	0.00	<0.001	<0.001	<0.001	---	<0.001	<0.001	---
Arsenic as As (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.01	0.021	0.010	0.016	0.005	---	0.007	0.007	---	---	0.017	0.007	---	0.012	0.003	0.009	0.018	---	0.002	0.001	---
Barium as Ba (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.7	0.04	0.03	0.03	<0.025	---	0.06	0.06	---	---	0.03	0.03	---	0.04	0.04	0.03	<0.025	---	<0.025	<0.025	---
Beryllium as Be (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---
Bismuth as Bi (Dissolved)	mg/ℓ	---	---	---	---	0.03	0.04	<0.025	<0.025	---	<0.025	<0.025	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---
Boron as B (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 2.4	0.24	0.15	0.09	0.09	---	<0.025	<0.025	---	---	<0.025	0.04	---	0.43	0.17	<0.025	0.05	---	0.10	0.09	---
Cadmium as Cd (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.003	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---	---	<0.001	<0.001	---	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---
Hexavalent Chromium as Cr	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---
Total Chromium as Cr (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.05	0.02	0.01	0.02	0.01	---	<0.010	<0.010	---	---	<0.010	0.02	---	0.02	0.01	0.02	0.02	---	<0.010	<0.010	---
Cobalt as Co (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025	---	0.31	0.25	---

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Parameter	Units	Klip River Catchment Limits		SANS 241:2015 Limits		September 2024				October 2024				November 2024				December 2024				January 2025			
		Tolerable	Unacceptable	Risk	Limit	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11
Copper as Cu (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 2	<0.010	<0.010	<0.010	<0.010	---	<0.010	0.02	---	---	<0.010	<0.010	---	<0.010	<0.010	<0.010	<0.010	---	0.01	<0.010	---
Iron as Fe (Dissolved)	mg/ℓ	1.0 - 1.5	> 1.5	Chronic health	≤ 2	0.53	0.56	0.57	0.52	---	2.13	3.12	---	---	0.23	0.21	---	1.34	0.69	0.57	0.35	---	0.94	0.03	---
Ferrous Iron as Fe2+ (Dissolved)	mg/ℓ	---	---	---	---	0.27	0.05	0.10	<0.025	---	<0.025	0.12	---	---	0.05	0.10	---	<0.025	0.03	0.03	<0.025	---	<0.025	<0.025	---
Ferric Iron as Fe3+ (Dissolved)	mg/ℓ	---	---	---	---	0.27	0.51	0.47	0.52	---	2.12	3.00	---	---	0.18	0.11	---	1.33	0.65	0.54	0.33	---	0.94	0.03	---
Lead as Pb (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.01	0.02	0.01	0.00	<0.001	---	0.07	0.03	---	---	<0.001	<0.001	---	0.04	0.00	0.00	0.00	---	<0.001	<0.001	---
Lithium as Li (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---
Manganese as Mn (Dissolved)	mg/ℓ	2.0 - 4.0	> 4.0	Chronic health	≤ 0.4	0.28	0.35	0.97	1.27	---	0.44	1.07	---	---	0.41	0.92	---	0.33	0.50	1.64	1.34	---	6.33	5.56	---
Mercury as Hg (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.0006	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---	---	<0.001	<0.001	---	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---
Molybdenum as Mo (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---
Nickel as Ni (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.07	<0.025	<0.025	0.03	<0.025	---	<0.025	0.05	---	---	0.09	0.10	---	<0.025	<0.025	0.03	<0.025	---	0.41	0.33	---
Phosphorus as P (Dissolved)	mg/ℓ	---	---	---	---	1.54	1.55	0.96	2.90	---	0.39	1.51	---	---	1.19	2.87	---	3.36	0.65	1.80	4.23	---	0.04	0.03	---

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Parameter	Units	Klip River Catchment Limits		SANS 241:2015 Limits		September 2024				October 2024				November 2024				December 2024				January 2025			
		Tolerable	Unacceptable	Risk	Limit	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11
Selenium as Se (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.04	<0.001	<0.001	<0.001	<0.001	---	0.00	0.00	---	---	<0.001	<0.001	---	<0.001	0.00	0.00	<0.001	---	<0.001	<0.001	---
Silicon as Si (Dissolved)	mg/ℓ	---	---	---	---	5.60	4.20	4.80	4.20	---	5.30	5.80	---	---	5.00	4.70	---	5.50	4.00	4.20	4.30	---	3.10	3.60	---
Silver as Ag (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---
Strontium as Sr (Dissolved)	mg/ℓ	---	---	---	---	0.16	0.14	0.14	0.13	---	0.15	0.13	---	---	0.15	0.13	---	0.15	0.14	0.14	0.12	---	0.26	0.22	---
Thallium as Tl (Dissolved)	mg/ℓ	---	---	---	---	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---	---	<0.001	<0.001	---	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---
Thorium as Th (Dissolved)	mg/ℓ	---	---	---	---	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---	---	<0.001	<0.001	---	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---
Tin as Sn (Dissolved)	mg/ℓ	---	---	---	---	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---	---	<0.001	<0.001	---	0.00	<0.001	<0.001	<0.001	---	<0.001	<0.001	---
Titanium as Ti (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	0.04	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---
Tungsten as W (Dissolved)	mg/ℓ	---	---	---	---	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---	---	<0.001	<0.001	---	0.00	<0.001	0.00	<0.001	---	<0.001	<0.001	---
Uranium as U (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.03	0.002	0.002	0.003	0.001	---	0.002	0.002	---	---	0.002	0.001	---	0.001	0.001	0.002	0.002	---	0.002	0.003	---
Vanadium as V (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---	---	<0.025	0.03	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---

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Parameter	Units	Klip River Catchment Limits		SANS 241:2015 Limits		September 2024				October 2024				November 2024				December 2024				January 2025			
		Tolerable	Unacceptable	Risk	Limit	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11
Zinc as Zn (Dissolved)	mg/ℓ	---	---	Aesthetic	≤ 5	<0.025	<0.025	<0.025	<0.025	---	0.07	0.10	---	---	<0.025	<0.025	---	0.05	<0.025	<0.025	<0.025	---	0.25	<0.025	---
Zirconium as Zr (Dissolved)	mg/ℓ	---	---	---	---	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---	---	<0.001	<0.001	---	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---
Suspended Solids	mg/ℓ	30 - 55	> 55	---	---	172	113	136	136	---	385	92	---	---	717	56	---	1373	74	46	548	---	41	28	---
Turbidity	NTU	---	---	Aesthetic	≤ 5	104	48	8	53	---	70	20	---	---	55	16	---	160	12	16	54	---	127	24	---

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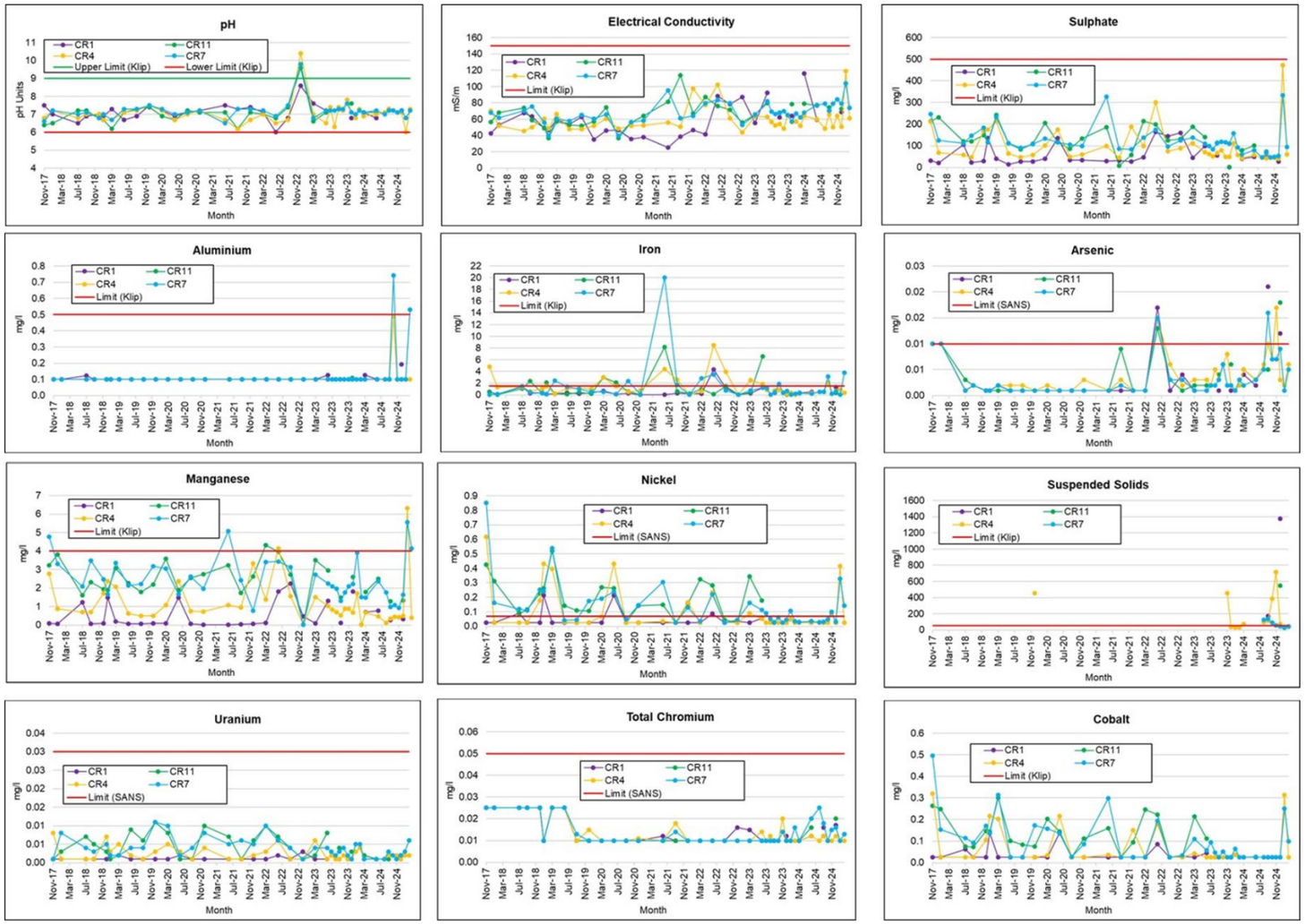


Figure 4-14: Trends in the Ergo water quality results for selected parameters

4.5.5 Flood line

The floodlines and 100 m stream buffer are shown in Figure 5-5. The following proposed infrastructure is impacted by either the floodlines or 100 m stream buffer:

- Blocks N1 – N22;
- Drying stockpiles to the north, south and west of the current reclamation area as well as to the north of block N22;
- All Culverts;
- Sump;
- Overflow channel;
- Channel and two silt traps; and
- Paddocks to the north and south of blocks N1-N18.

The following is recommended:

- Berms should be placed along the downslope side of the reclamation blocks and drying stockpiles to prevent flooding. The berms should be constructed to withstand a 1:100 year flood at a height above the floodline; and
- It is recommended that exemption from GN R704 is applied for, for the infrastructure listed above, which are located within the floodlines and 100 m watercourse buffer.

4.6. Groundwater

Refer to Specialist Study: Appendix B– Groundwater Impact Assessment

4.6.1 Site Investigations

4.6.1.1 Hydrocensus

A hydrocensus was conducted across the study area during February 2025. The survey included the Valley Silts Project area, plus accessible properties within a 2 km radius, and concentrated on identifying existing boreholes to enhance the knowledge of the groundwater systems and current groundwater use. Six boreholes and two old mine shafts were identified, all on neighbouring properties (Table 4-6).

During the hydrocensus the following information was collected for each site:

- Borehole position (X, Y, Z-coordinates);
- Information relating to equipment installed;
- Borehole construction details;
- Borehole yield – if known by the land owner;
- Groundwater level, if possible; and
- Current use.

Only one of the six boreholes is in use (borehole VAL4), with the majority historically used for groundwater monitoring purposes (4 of the 6 boreholes). Two of the six boreholes are privately owned boreholes and include VAL4 and VAL5 (Figure 4-15).

Shaft 1 was accessible with a shallow water level visible just inside the shaft entrance. Shaft 2 is sealed and fenced off with no access possible (Figure 4-15). A summary of the hydrocensus information is available in Table 4-6. All coordinates were taken with a hand-held Garmin GPS (Global Positioning System) (WGS84).

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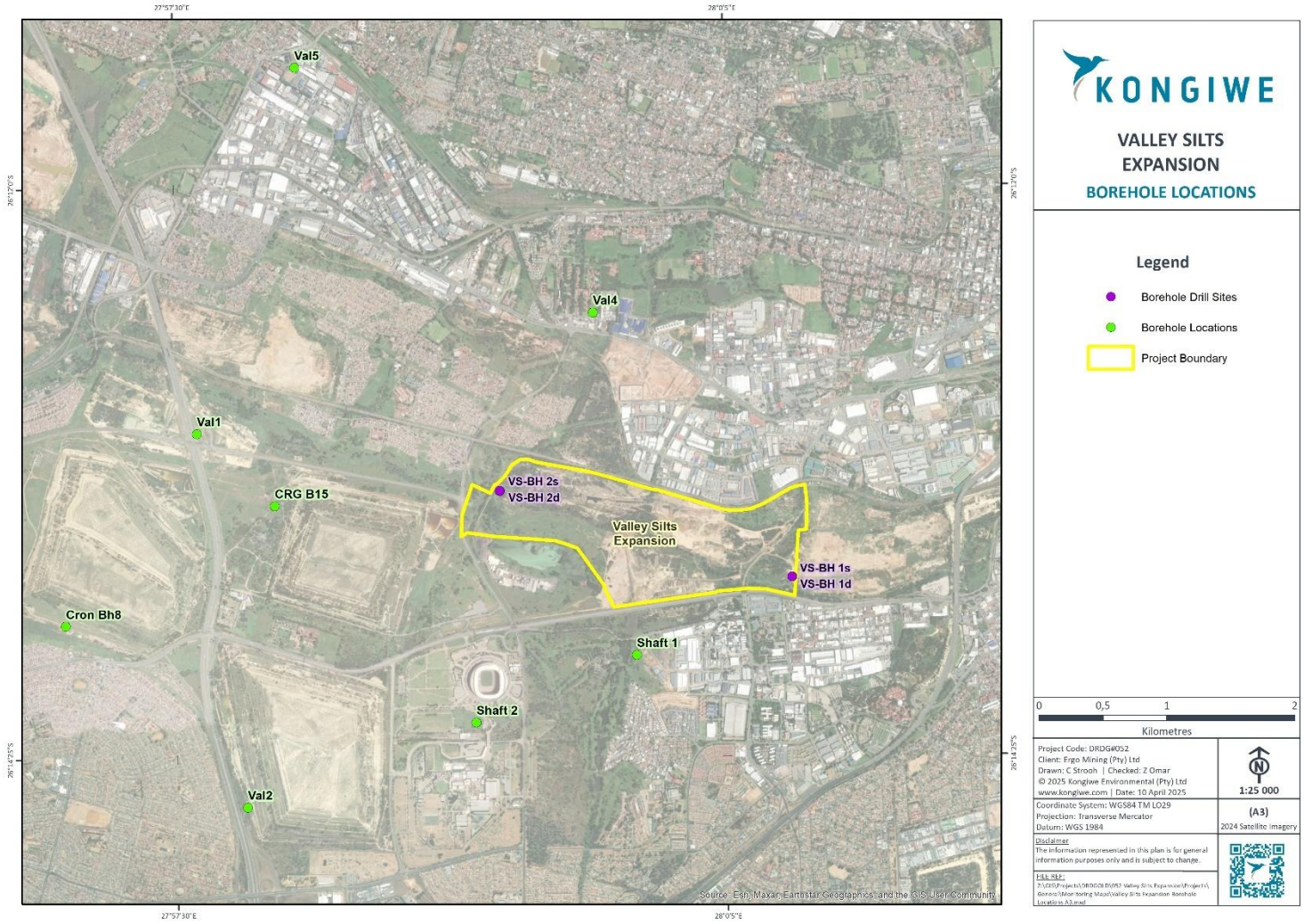


Figure 4-15: Borehole locality map

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Table 4-6: 2025 Hydrocensus data

Site ID	Lat (WGS84)	Long	Elev (mamsl)	Locality	Water depth (mbgl)	Collar height (m)	Water elevation (mamsl)	BH depth (m)	Yield (L/hr)	Casing diameter (mm)	Sampled	Pump type	Use	Note
Val 1	26°13'02.23"S	27°57'36.22"E	1664	N1 Riverlea offramp	2,32	0,55	1662,23	30	80,00	100	Yes	None	Monitoring	On the offramp to Riverlea from the N1 highway
Val 2	26°14'37.38"S	27°57'49.80"E	1692	GMTS (3L8) TSF	0,10	0,60	1692,50	--	--	110	Yes	None	Monitoring	Artesian. Casing damaged. No lid
Val 4	26°12'32.08"S	27°59'28.09"E	1689	Abraham Kriel Bambanani	3,90	0,00	1685,10	40	good	165	Yes	Submersible	Swimming pool	Inside brick building. Very old BH
Val 5	26°11'29.30"S	27°58'04.45"E	1691	Vitafoam Industrial West	30,85	0,40	1660,55	--	--	165	No	None	Not in use	Inside deep manhole at office
CRON BH8	26°13'50.98"S	27°56'58.88"E	1663	Homestead (3L5) TSF	1,20	0,44	1662,24	80	--	110	No	None	Monitoring	Casing damaged. No lid
CRG B15	26°13'20.77"S	27°57'57.99"E	1675	Mooifontein (3L7) TSF	2,86	0,42	1672,56	50	--	110	No	None	Monitoring	Sealed. Can't sample
Shaft 1	26°13'59.23"S	27°59'39.80"E	1679	iProp office	5,50	0,00	1673,50	--	--	--	No	Submersible	Gardens	Old decline shaft next to big lake
Shaft 2	26°14'16.10"S	27°58'54.41"E	1712	FNB Stadium	no access	--	--	--	--	--	No	None	Not in use	Old vertical shaft. Sealed. No access

4.6.1.2 Drilling Program

Based on the geophysical survey, an upstream- and a downstream drilling position was identified along the boundary of the Valley Silts Project.

Two groundwater characterisation and monitoring boreholes were drilled at the two target areas – the one borehole was drilled to a depth of 80 m below surface, with the aim of characterising and monitoring the deeper fractured aquifer. The second borehole was drilled 30 m deep, with the aim of monitoring potential groundwater flow, quality and possible connection between the deeper fractured aquifer and the shallow weathered aquifer in the area.

Not one of the four new percussion boreholes produced a measurable blow yield, but a groundwater level could be measurable in all four boreholes shortly after completion (Table 4-7). In general, borehole yields throughout the area are low. After several days the groundwater level in boreholes VS-BH2s and VS-BH2d were still near the bottom of the borehole.

Table 4-7: Drilling summary March 2025

		Borehole ID	VS-BH 1s	VS-BH 1d	VS-BH 2s	VS-BH 2d
Borehole Location	WGS84	Latitude	26°13'39.64"S	26°13'39.59"S	26°13'17.35"S	26°13'17.31"S
		Longitude	28°00'23.73"E	28°00'23.73"E	27°59'01.50"E	27°59'01.48"E
		Elevation	1677 mamsl	1677 mamsl	1663 mamsl	1663 mamsl
Borehole Data	Borehole Depth (m)		30	80	30	80
	Blow Yield (L/hr)		dry	dry	dry	dry
	Water Strike depth (m)		--	--	--	--
	Main Strike Geology		--	--	--	--
	Borehole Geology		Quartzite	Quartzite and lava	Quartzite and conglomerate	Black clay, quartzite with pyrite
	Solid Steel Casing (170mm ID)		0 – 18m	0 - 30m	0 – 18m	0 - 30m
	Perforated Steel Casing (170mm ID)		18 – 30m	none	18 – 30m	none
	Static Water Level (mbgl)		3.43 m	57.48 m	8.15 m	41.07 m
	Depth of Weathering (m)		10	10	12	8

From Table 4-7 it can be concluded that the area where the characterisation/monitoring boreholes were drilled area primarily underlain by quartzite of the Witwatersrand Supergroup. The weathered – solid formation contact yielded little water – only seepage water. A fractured zone in the quartzite in borehole VS-BH2d, plus the quartzite-lava and the quartzite-conglomerate contacts also yielded little water. The depth of weathering varies between 8 and 12m below ground level.

4.6.1.3 Aquifer Testing

Following completion of the drilling program, an aquifer test program was initiated to determine the hydrogeological characteristics of the local aquifers.

For this project full drawdown and recovery pump tests were conducted on two of the four new boreholes (VS-BH1s and VS-BH1d) and a slug test was also completed on borehole VS-BH1s. Boreholes VS-BH2s and VS-BH2d were not tested due to the low volume of water inside the boreholes.

The recovery of the groundwater table after abstraction is a good indicator of the aquifer's transmissivity, recharge and the borehole's potential yield. The recovery data (for the tested boreholes) indicate that the recovery is slow, and that full recovery (100%) was not achieved within the predetermined testing timeframe (Table 4-8).

The low borehole yields, fast water level drawdown and slow recovery observed during the aquifer testing indicate low transmissivity aquifers, with low recharge. The average T-values calculated from the pumping tests range between 0.005 and 0.048 m^2/d.

Table 4-8: Summary of the 2025 borehole testing

Borehole ID	Borehole Depth (m)	Static Water Level (m bgl)	Test pump depth (m bgl)	Available drawdown (m)	Startup yield (L/hr)	Test duration (min)	Recovery	K value (m/d)	T value (m2/day)	Water Sample
VS-BH1s	30	3.43	28	24.5	1000	10	100% in 208 min	0.1455	0.005	yes
VS-BH1d	80	57.48	78	20.5	1000	10	100% in 270 min	--	0.048	yes
VS-BH2s	No testing possible due to limited volume of water inside the borehole									yes
VS-BH2d	No testing possible due to limited volume of water inside the borehole									yes

4.6.1.4 Groundwater Quality

No historical, long-term groundwater quality information could be sourced for the project area. Three groundwater samples were collected from the Valley Silts Extension project area during the hydrocensus, and four water samples were also collected from the newly drilled boreholes.

The water samples were submitted to Aquatico Laboratories for analysis. Aquatico is a SANAS accredited laboratory (South African National Accreditation System). The water samples were analysed for basic

inorganic parameters (Table 4-10 and Table 4-11) and the results were compared against the SANS 241:2015 Drinking Water Standards.

The water quality results for the Valley Silts project area are presented in Table 4-9 to Table 4-11. Table 4-9

Table 4-9 presents the water quality data for the Valley Silts area during the 2019 groundwater study. Table 4-10 and Table 4-11 present the groundwater qualities during the 2025 hydrocensus and the 2025 aquifer testing programs respectively.

The groundwater in the project area represents a Calcium/ Magnesium-Sulphate water, indicating contaminated water. Only borehole VAL4 (Abraham Kriel Bambanani borehole approx. 1.6 km north of the Russell Stream) presents a Calcium/Magnesium-Bicarbonate water, indicating recent recharge water.

Based on the 2025 groundwater quality results (Table 4-10 and Table 4-11), the following conclusions were drawn:

- Health impact:
    - **Iron** – An elevated iron concentration was measured for all 7 boreholes (hydrocensus and newly drilled) sampled during the 2025 fieldwork program, with Iron concentrations varying between 4.59 mg/L (borehole VAL4) and 441 mg/L (borehole VS-BH1s), versus the maximum allowable concentration of 2 mg/L. The concentration of dissolved Iron in the 4 newly drilled boreholes, adjacent to the Russell Stream vary varies between 72.7 mg/L and 441 mg/L, with lower concentrations measured for the two downgradient boreholes (VS-BH2s and d).

      The concentration of dissolved Iron in water is dependent on the occurrence of other heavy metals, such as manganese, and the pH of the water.

    - **Manganese** – Manganese is a relatively abundant element, constituting approximately 0.1% of the earth's crust. Six of the 7 boreholes sampled during the 2025 study measured a Manganese concentration that exceeds the health impact limit. The measured Mangansee concentration for borehole VAL4 (Abraham Kriel Bambanani borehole) exceeds the Aesthetic Limit of 0.1 mg/L, but is below the Health Impact limit of 0.4 mg/L.

      Manganese concentrations vary between 5.45 mg/L (borehole VAL1) and 74.3 mg/L (borehole VS-BH2d), versus the maximum allowable concentration of 0.4 mg/L. The concentration of dissolved Manganese in the 4 newly drilled boreholes, adjacent to the Russell Stream varies between 34.7 mg/L and 74.3 mg/L, with lower concentrations measured for the 2 upstream boreholes (VS-BH1s and d).

      Manganese tends to precipitate out of solution to form a black hydrated oxide which is responsible for staining problems.

    - **Cadmium** – The 4 newly drilled boreholes measured a Cadmium concentration that could result in chronic health effects (0.008 to 0.117 mg/L). The health impact limit is set at 0.003mg/L. Elevated Cadmium concentrations were not measured for the 3 hydrocensus boreholes.

Cadmium has a low solubility under conditions of neutral or alkaline pH and is highly soluble under acidic conditions, where toxic concentrations can easily arise from the dissolution of cadmium from cadmium-plated materials. Cadmium sulphide, carbonate and hydroxide salts are insoluble in water, whereas cadmium chloride, nitrate and sulphate salts are highly soluble in water. Cadmium is not usually found in water at concentrations greater than 0.001 mg/L, unless the water has been subject to pollution from cadmium containing industrial effluents. Cadmium is used in electroplating, in alloys, in certain solders and in nickel-cadmium batteries. Salts of cadmium are used in photography, pottery, the electronics industry and as pigments in many different applications (DWAF, 1996).

- **Nickel** – An elevated dissolved Nickel concentration was measured at the 4 newly drilled boreholes, plus hydrocensus borehole VAL2. Nickel may be present in groundwater because of dissolution from nickel ore-bearing rocks.

  There are many anthropogenic sources of these chemicals. Industrial uses include alloys, paints, pigments, electroplating, batteries, automotive parts, coatings and electrical wiring.

- **Sulphate** – Sulphate forms salts with various cations such as potassium, sodium, calcium, magnesium, barium, lead and ammonium (DWAF, 1996). Sulphate is a common constituent of water and arises from the dissolution of mineral sulphates in soil and rock. Since most sulphates are soluble in water it tends to accumulate to progressively increasing concentrations. Contamination by sulphate is to be expected in waters contaminated by Witwatersrand mining activities, due to the oxidation of sulphides in the ores and wastes.

  Sulphate concentrations were elevated in 6 of the 7 boreholes sampled during the 2025 study. It was only borehole VAL4 where the measured Sulphate concentration was within acceptable health and aesthetic limits.

  The elevated Sulphate concentrations vary between 1125 mg/L (borehole VAL1) and 3126 mg/L (borehole VS-BH1d), versus the maximum allowable concentration of 500 mg/L. The concentration of Manganese in the 4 newly drilled boreholes, adjacent to the Russell Stream vary between 2011 mg/L and 3126 mg/L, with lower concentrations measured for the two downstream boreholes (VS-BH2s and d).

- **Lead** – An elevated Lead concentration was measured for borehole VS-BH2d (0.012mg/L) and borehole VAL2 (0.012 mg/L), with the health limit defined as 0.01mg/L. The Lead concentration in all other boreholes were below the detection limit.

  The occurrence of Lead in its elemental state is rare. Lead tends to accumulate in sediments and soils in the environment. Lead has many industrial applications which can give rise to sources of Lead contamination in water. Lead is used in batteries, in domestic water distribution pipes, in paints and as an organic lead compound, alkyl lead, in gasoline.

- **Total Organic Carbon** – High TOC values (between 11.2 and 19.1 mg/L) were measured for

boreholes VAL1, VAL2, VS-BH2s and VS-BH2d. In groundwater, the main natural sources of organic matter include buried peat, kerogen and coal; soil and sediment organic matter; and organic matter present in water infiltrating into the subsurface from rivers or dams/ pans.

- **E. coli** – borehole VAL4 produced a measurable E. coli count – 7 counts per 100 ml; the count must be zero. E. coli is a type of faecal coliform bacteria commonly found in the intestines of animals and humans. Of the five general groups of bacteria that comprise the total coliforms, only E. coli is generally not found growing and reproducing in the environment. Consequently, E. coli is the species of coliform bacteria that is the best indicator of faecal pollution and the possible presence of pathogens.

  Borehole VAL4 is in an old residential and industrial area, and it has been assumed that leaking sewer lines are possibly contaminating the groundwater around this borehole.

❖ Aesthetic effects:

- **Aluminium** – The aluminium concentration for boreholes VS-BH1s and VS-BH1d (25.1mg/L and 2.07 mg/L respectively) exceed the SANS241:2015 guideline value of 0.3 mg/L. Aesthetic effects (discolouration) occur in the presence of iron or manganese. Aluminium is the most common metal in the earth's crust. Aluminium does not occur in the elemental form, but its minerals, particularly the silicates of aluminium (clay minerals), are widespread. The sampled groundwater from the BH1 cluster set was very muddy during the sampling process and this could have contributed to the elevated Aluminium concentrations.
- Zinc – The Zinc concentration for borehole VS-BH1s (7.99 mg/L) exceeds the SANS241:2015 guideline value of 5 mg/L. The measured Zinc concentrations for the other 3 newly drilled boreholes were below the aesthetic impact limit.

  Zinc is an essential nutritional trace element for plants and animals. Humans have a high tolerance level to elevated Zinc concentrations, while fish are highly susceptible to poisoning.

  The most common mineral form of Zinc is the sulphide (sphalerite). Zinc is also found as a carbonate, oxide or silicate and may occur in association with many other metal ores such as Copper and Arsenic. The Chloride, Sulphate and Nitrate salts of Zinc are highly soluble in water, but at neutral and alkaline pH they hydrolyse to form relatively insoluble hydroxides which tend to be associated with sediments. On acidification of the water, the insoluble hydroxides are released back into solution. If the water is acidic, Zinc leaching caused by dissolution of the protective zinc hydroxide layer of galvanised piping can give rise to relatively high concentrations of Zinc in solution.

  Zinc and zinc salts are used in many industrial processes. Zinc itself is extensively used in galvanising processes and in alloys (DWAF, 1996).

- **Ammonium** – The chemistry of ammonia is very complex, especially where transition metals are present in water, and while ammonia itself is of relatively low toxicity, this is not necessarily the case for some of its organometallic complexes. Taste and odour complaints are likely to occur if the ammonia concentration exceeds 1.5 mg/L. High concentrations of ammonia can also give rise to Nitrite. The Ammonium concentration for borehole VAL1 exceeds the aesthetic limit for drinking water (14.6mg/L). The aesthetic limit set at 1.5 mg/L. The ammonia concentrations in the other boreholes vary between 0.19 and 0.88 mg/L.
- **Sodium** – Sodium is abundant in the environment and usually occurs as sodium chloride, but sometimes as sodium sulphate, bicarbonate or even nitrate (DWAF, 1996). Sodium is highly soluble in water and does not precipitate when water evaporates, unless saturation occurs. The measured Sodium concentration for borehole VS-BH1d (210 mg/L) exceeds the aesthetic limits for drinking water (200mg/L). With the re-use or recycling of water, the Sodium concentration will tend to increase with each cycle or addition of Sodium to the water. For this reason, Sodium concentrations are elevated in runoffs or leachates.
- **Turbidity** – Turbidity is indicative of the concentration of suspended matter in water and is also related to clarity, a measure of the transparency of water and settleable material. Turbidity in water is caused by the presence of suspended matter which usually consists of a mixture of inorganic matter, such as clay and soil particles, and organic matter. The latter can be both living matter such as micro-organisms and non-living matter such as dead algal cells. Turbidity was high in all boreholes with units varying between 42.5 NTUs and 730 NTUs.
- **Calcium** – The measured Calcium concentration was elevated for all sampled boreholes, with concentrations varying between 37.5 mg/L and 493 mg/L. Calcium is an alkaline earth metal and exists as the doubly positively-charged ion, Ca(II) (DWAF, 1996). Calcium occurs naturally in varying concentrations in most waters and, together with magnesium, is one of the main components of water hardness. Soft waters contain low, while hard waters contain high concentrations of Calcium; see Total Hardness. Calcium is an essential element for all living organisms and is an important constituent of the bony skeleton of mammals, which consists of phosphates of calcium. Mineral deposits of calcium are common, usually as calcium carbonate, phosphate or sulphate (DWAF, 1996).
- **Magnesium** – Magnesium is an alkaline earth metal which reacts with oxygen and water to form magnesium oxide and magnesium hydroxide, respectively. Magnesium is a common constituent of water, and the solubility is governed by the carbonate/bicarbonate equilibrium and the pH. Magnesium, together with calcium, is responsible for the hardness of water. High Magnesium concentrations were measured in 5 of the 7 boreholes and were thus in acceptable limits for boreholes VAL1 and VAL4.
- **Total Hardness** – The Total hardness value was elevated for all boreholes except borehole VAL4, indicating very hard water. Water hardness is influenced by the presence of calcium and magnesium salts. Other metals such as strontium, iron, aluminium, zinc and manganese may occasionally contribute to the hardness of water, but the calcium and magnesium hardness usually predominates. Temporary hardness is due to the presence of bicarbonates of calcium and magnesium and can be removed by boiling, whereas

permanent hardness is attributed to other salts such as sulphate and chloride salts, which cannot be removed by boiling. Excessive hardness of water can give rise to scaling in plumbing and household heating appliances.

- **Total Coliform** – Total coliform bacteria are common in the environment (soil or vegetation) and are generally harmless. The total coliform count was elevated for borehole VAL4 (40 counts per 100 ml) and for borehole VS-BH1d (20 counts per 100 ml). The operational limit is set at 10 counts per 100 millilitres (ml).

  Total coliform bacteria are frequently used to assess the general hygienic quality of water and to evaluate the efficiency of drinking water treatment and the integrity of the distribution system. They should not be detectable in treated water supplies. If found, they suggest inadequate treatment, post-treatment contamination and/or aftergrowth or an excessive concentration of nutrients. In some instances, they may indicate the presence of pathogens. Some bacteria classified as coliforms are not of faecal origin. Total coliforms include bacteria that are found in the soil, in water that has been influenced by surface water, and in human or animal waste.

- **pH** – the pH value for the two newly drilled upstream boreholes (VS-BH1s and VS-BH1d) (4.87 and 4.52 respectively) is below the SANS guideline limit of 5.

  The mobility of trace elements is dependent on several parameters, including pH. All the trace elements examined are most mobile when the pH <4.5, and least mobile when the pH > 6. The pH for the two downstream groundwater samples was 5.6 and 6.2.

- The SANS 241 guideline limits for Electrical Conductivity (EC) and Total Dissolved Salts (TDS) were exceeded for all sampled sites, except for borehole VAL4. EC level varied between 222 and 403 mS/m. TDS varied between 1756 and 4134 mg/L.

The chemicals of concern for the Valley Silts project area are pH, Iron, Manganese, Sulphate, Cadmium, Lead, Nickel and Total Organic Carbon (and Table 4-11). Parameters exceeding aesthetic limits include Ammonium, Aluminium, Chloride, Calcium, Magnesium, Sodium, Zinc and Total Hardness and Turbidity. Most of these are elevated in the four newly drilled boreholes. Based on the SANS241 drinking water guidelines and on the sampled water results, the sampled water is not fit for human consumption (unless treated).

Groundwater near tailings dams is affected by salt loads. The groundwater quality improved with increasing distance down gradient from the pollution source, mainly because of dilution and solid speciation. Once contaminants have migrated through the unsaturated zone, into the groundwater zone, the rate of lateral movement increases by orders of magnitude. The implication of this is that although there is a dilution effect because of contact with groundwater, the potential impact on the environment is extended in a spatial and temporal sense.

The gold containing silt in Russell Stream and the adjacent TSF and sand dump facilities can potentially add sulphate, iron, chloride, calcium, magnesium, manganese and aluminium to the local groundwater system, if the management of contaminated water on site is not effective, but also through seepage from the

adjacent dumps. This has been confirmed by the 2019 and the 2025 water sampling results (Table 4-9 to Table 4-11). Metals like cobalt, copper, nickel and zinc can also be elevated. In general, sulphate concentrations around the tailings complexes south and west of Johannesburg vary between 417 and 4700 mg/L.

The pyrite present in the silt and sand material is oxidised in the presence of oxygen and water to form ferrous sulphate and sulphuric acid. Both reactions result in an acidic pH, and high sulphate and metal concentrations, leading to Acid Mine Drainage (AMD); often measured in leachate from these dumps. Pirite was also noted in the drill samples from borehole VS-BH2d.

The rate at which pyrite oxidation takes place within the surrounding dumps varies and decreases with depth. The addition of lime during the gold recovery process raises the pH to neutral conditions when tailings are deposited on the facilities. Negative quality impacts are expected when the silts are excavated and exposed to oxygen and water.

The Valley Silts Project area is surrounded by residential and industrial areas. Many pollution sources (industrial discharge, mining activities and poor waste and sanitation management) do exist that can contribute to groundwater contamination. It will be difficult to define the contaminants and concentration at all point sources in the area.

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Table 4-9: Hydrocensus groundwater quality – October 2019

Parameter	Unit	SANS241 Standard Limits		DHSWS Drinking Standards	B15	Storm 1	Val 1
Ammonium	mg N/ℓ	Aesthetic ≤1.5			0,451	0,202	3,61
Chloride	mg Cl/ℓ	Aesthetic ≤300			145	118	43,1
Aluminium	mg Al/ℓ	≤0.3			-0,002	19	-0,002
Cadmium	mg Cd/ℓ		Chronic health ≤0.003		-0,002	-0,002	-0,002
Calcium	mg Ca/ℓ			No health. Scaling intensifies from 32mg/L	330	577	76,4
Copper	mg Cu/ℓ		Chronic health ≤2		-0,002	-0,002	-0,002
Iron	mg Fe/ℓ	Aesthetic ≤0.3	Chronic health ≤2		-0,004	342	-0,004
Lead	mg Pb/ℓ		Chronic health ≤0.01		-0,004	-0,004	-0,004
Magnesium	mg Mg/ℓ			Diarrhoea and scaling issues from 70mg/L	249	93,6	37,7
Manganese	mg Mn/ℓ	Aesthetic ≤0.1	Chronic health ≤0.4		4,74	28,1	0,705
Nickel	mg Ni/ℓ		Chronic health ≤0.07		-0,002	-0,002	-0,002
Zinc	mg Zn/ℓ	Aesthetic ≤5			0,07	0,6	-0,002
Electrical Conductivity at 25°C	mS/m	Aesthetic ≤170			316	460	95,6
Fluoride	mg/ℓ		Chronic health ≤1.5		-0,263	0,615	-0,263
Nitrate	mg/ℓ		Acute health ≤11		0,303	-0,194	0,509
pH at 25°C		≥5 - ≤9.7			6,16	4,13	7,41
Potassium	mg K/ℓ			No aesthetic or health effects below 50mg/L	3,21	59,7	6,72
Sodium	mg Na/ℓ	Aesthetic ≤200			202	219	65,1
Sulphate	mg SO4/ℓ	Aesthetic ≤250	Acute health ≤500		1843	3208	417
Total Alkalinity	mg CaCO3/ℓ				55,4	13,1	39,2
Total Dissolved Solids	mg/ℓ	Aesthetic ≤1200			2807	4285	677
Total Hardness	mg CaCO3/ℓ	60–120 mg/l, moderately hard	120–180 mg/l, hard	more than 180 mg/l, very hard	1848	1826	346
Orthophosphate (PO4) as P	mg/ℓ				-0,005	-0,005	-0,005
Cobalt	mg/ℓ				0,208	0,945	0,041
Turbidity	NTU	Aesthetic ≤5			93	38,2	3,41
TOC			Chronic health ≤10		2,75	13,3	1,99

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Table 4-10: Hydrocensus groundwater quality – February 2025

Parameter	Unit	SANS241 Standard Limits		DHSWS Drinking Standards	Val 1	Val 2	Val 4
Ammonium	mg N/ℓ	Aesthetic ≤1.5			14,6	0,887	0,229
Chloride	mg Cl/ℓ	Aesthetic ≤300			81,9	145	25,6
Aluminium	mg Al/ℓ	≤0.3			-0,002	-0,002	-0,002
Cadmium	mg Cd/ℓ		Chronic health ≤0.003		0,003	0,003	-0,002
Calcium	mg Ca/ℓ			No health. Scaling intensifies from 32mg/L	232	376	37,5
Copper	mg Cu/ℓ		Chronic health ≤2		0,015	0,016	-0,002
Iron	mg Fe/ℓ	Aesthetic ≤0.3	Chronic health ≤2		11,7	18,3	4,59
Lead	mg Pb/ℓ		Chronic health ≤0.01		-0,004	0,012	-0,004
Acid Soluble Chromium	mg Cr/ℓ		Chronic health ≤0.05		-0,003	-0,003	-0,003
Magnesium	mg Mg/ℓ			Diarrhoea and scaling issues from 70mg/L	66,9	82,1	16,8
Manganese	mg Mn/ℓ	Aesthetic ≤0.1	Chronic health ≤0.4		5,45	53	0,294
Nickel	mg Ni/ℓ		Chronic health ≤0.07		-0,002	0,123	-0,002
Zinc	mg Zn/ℓ	Aesthetic ≤5			-0,002	-0,002	-0,002
Electrical Conductivity at 25°C	mS/m	Aesthetic ≤170			222	271	31,9
Fluoride	mg/ℓ		Chronic health ≤1.5		-0,263	-0,263	-0,263
Nitrate	mg/ℓ		Acute health ≤11		0,269	-0,194	4,19
TON	mg/ℓ				0,269	-0,194	4,19
pH at 25°C		≥5 - ≤9.7			7,49	7,55	8,17
Potassium	mg K/ℓ			No aesthetic or health effects below 50mg/L	28,2	12,9	1,28
Sodium	mg Na/ℓ	Aesthetic ≤200			164	92,3	5,78
Sulphate	mg SO4/ℓ	Aesthetic ≤250	Acute health ≤500		1125	1388	23,5
Total Alkalinity	mg CaCO3/ℓ				62,8	48	97,7
Total Dissolved Solids	mg/ℓ	Aesthetic ≤1200			1756	2127	189
Total Hardness	mg CaCO3/ℓ	60–120 mg/l, moderately hard	120–180 mg/l, hard	more than 180 mg/l, very hard	855	1278	163
E.coli	CFU/100ml		Not detected		-1	-1	7
Total Coliforms	CFU/100ml	≤ 10			5	-1	40
Turbidity	NTU	Aesthetic ≤5			302	317	42,5
TOC	mg/ℓ		Chronic health ≤10		18,9	11,2	2,18
Langelier Saturation Index	LSI	A negative Langelier index indicates a scale-dissolving tendency, with the possibility of corrosion			-0,39	-0,24	-0,21

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Table 4-11: Aquifer testing groundwater quality – March 2025

Parameter	Unit	SANS241 Standard Limits		DHSWS Drinking Standards	VSBH-1d	VSBH-1s	VSBH-2s	VSBH-2d
Ammonium	mg N/ℓ	Aesthetic ≤1.5			0,263	0,758	0,328	0,196
Chloride	mg Cl/ℓ	Aesthetic ≤300			31.0	59.0	77,2	78,1
Aluminium	mg Al/ℓ	≤0.3			2,07	25,10	0,023	0,071
Cadmium	mg Cd/ℓ		Chronic health ≤0.003		0,063	0,117	0,012	0,008
Calcium	mg Ca/ℓ			No health. Scaling intensifies from 32mg/L	493	341	334	414
Copper	mg Cu/ℓ		Chronic health ≤2		0,043	0,077	0,019	0,022
Iron	mg Fe/ℓ	Aesthetic ≤0.3	Chronic health ≤2		296	441	83,5	72,7
Lead	mg Pb/ℓ		Chronic health ≤0.01		-0,004	-0,004	-0,004	0,012
Acid Soluble Chromium	mg Cr/ℓ		Chronic health ≤0.05		-0,003	-0,003	-0,003	0,017
Magnesium	mg Mg/ℓ			Diarrhoea and scaling issues from 70mg/L	246	96,6	168	149
Manganese	mg Mn/ℓ	Aesthetic ≤0.1	Chronic health ≤0.4		38,2	34,7	68,3	74,3
Nickel	mg Ni/ℓ		Chronic health ≤0.07		5,21	10,2	1,4	5,83
Zinc	mg Zn/ℓ	Aesthetic ≤5			2,19	7,99	0,036	0,391
Electrical Conductivity at 25°C	mS/m	Aesthetic ≤170			403	317	299	341
Fluoride	mg/ℓ		Chronic health ≤1.5		-0,263	-0,263	-0,263	-0,263
Nitrate	mg/ℓ		Acute health ≤11		1,49	1,01	-0,194	-0,194
TON	mg/ℓ				1,49	1,01	-0,194	-0,194
pH at 25°C		≥5 - ≤9.7			4,52	4,87	6,22	5,69
Potassium	mg K/ℓ			No aesthetic or health effects below 50mg/L	9,09	6,94	18,50	26,90
Sodium	mg Na/ℓ	Aesthetic ≤200			210	77,7	121	145
Sulphate	mg SO4/ℓ	Aesthetic ≤250	Acute health ≤500		3126	2395	2011	2246
Total Alkalinity	mg CaCO3/ℓ				21,3	14,5	43,5	41,4
Total Dissolved Solids	mg/ℓ	Aesthetic ≤1200			4134	2991	2757	3085
Total Hardness	mg CaCO3/ℓ	60–120 mg/l, moderately hard	120–180 mg/l, hard	more than 180 mg/l, very hard	2243	1249	1525	1650
E.coli	CFU/100ml		Not detected		-1	-1	-1	-1
Total Coliforms	CFU/100ml	≤ 10			20	5	-1	-1
Turbidity	NTU	Aesthetic ≤5			626	730	566	133
TOC	mg/ℓ		Chronic health ≤10		4,18	5,42	19,1	12,3
Langelier Saturation Index	LSI	A negative Langelier index indicates a scale-dissolving tendency, with the possibility of corrosion			-3,51	-3,48	-1,69	-2,16

4.6.2 Conceptual Hydrogeological Model

This section presents a general understanding of the site conditions in terms of geology, groundwater occurrence, groundwater level and water quality. According to Barnard (2000) various aquifer types are found in the area i.e. weathered and fractured aquifers. The Witwatersrand formations present aquifers that have a combination of loose unconsolidated/ weathered material overlaying hard rock formations, in which fractures, fissures or joints potentially hold water. Groundwater is often encountered in both the saturated weathered material below the regional groundwater rest level and in the transition zone between weathered and fresh formations.

The available information was used to construct a conceptual model of the aquifers present in the project area. The conceptual model forms the basis of the numerical groundwater model constructed and calibrated to complete the impact assessment for this project.

A schematic cross section through the project area is presented in Figure 4-16.

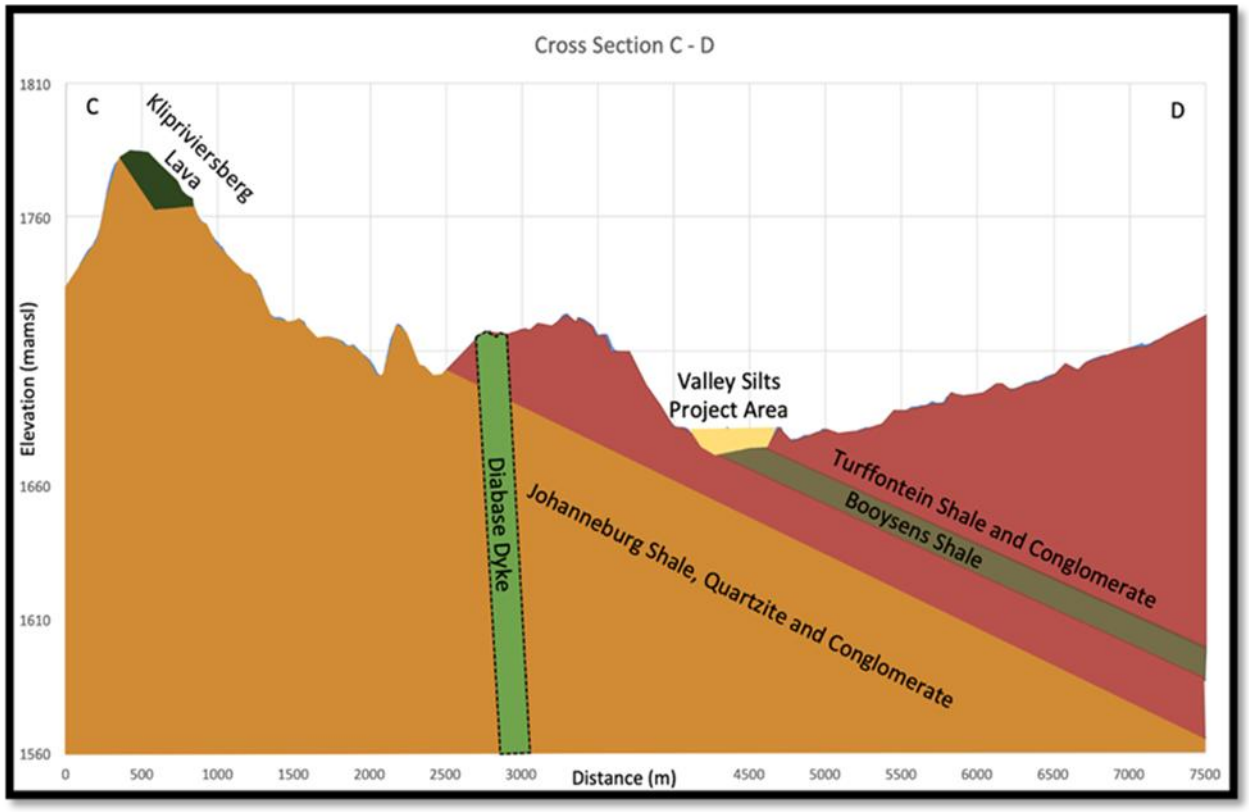


Figure 4-16 demonstrates the locations and extent of the various geological formations that are present. It is shown that

The Valley Silts Project footprint is underlain by formations of the Witwatersrand Supergroup, including Booysens shale and Turffontein quartzite and conglomerate. The rest groundwater table is shallow in the weathered Wits formations, as indicated by information gathered during the 2025 hydrocensus. The shallow groundwater conditions suggest that groundwater discharges to the Russell Stream, which is substantiated by the groundwater flow contours generated.

4.6.2.1 Unsaturated Zone

Published geological maps and the recent drilling program confirmed that the project area is underlain by quartzite. The soils surrounding the project area are shallow sandy soils. Vertic, Melanic, Duplex, Plinthic, Oxidic, Gleyic, Cumulic and lithic soils all have a possibility of being present in the study area (Kongiwe 2025).

It is further noted that the newly drilled monitoring boreholes were largely dry. This doesn't necessarily mean the shallow weathered aquifer is dewatered, only that aquifer permeabilities are very low and that the groundwater table slowly recovers after drilling is completed. Regionally, the groundwater table is about 6.3m below surface.

4.6.2.2 Saturated Zone

Various aquifer types are found in the area, including:

- Weathered aquifers: The project is underlain by shale Booysens Subgroups as well as quartzite of the Turffontein and Johannesburg Subgroups. Shallow aquifers typically form in the upper weathered zone of the geological succession due to the vertical retardation of infiltrated rainwater along the limit of weathering. The depth of weathering within the new monitoring boreholes varies between 8 and 12 m below surface. The depth of weathering is dependent on several factors, including the composition of the rock, the presence of shallow fractures or geological contact zones, climatic impacts like rainfall and the presence of water in soil, and chemical processes like oxidation and acidification. Groundwater occurrence in this aquifer manifests as seepage. No groundwater strikes were recorded during the 2025 drilling program in the weathered zone. The recharge to the Witwatersrand outcrop and the weathered aquifers is considered low due to the limited presence of the outcrop in the urban setting. Higher recharge rates may be associated with streams flowing through the project area, like the Russell Stream.
- Fractured aquifers: The deeper Witwatersrand formations (Johannesburg, Booysens and Turffontein Subgroups) form rock aquifers where water is stored in and moves preferentially through fractures. No fault and only one large fracture were identified in the formations intersected in the deeper monitoring boreholes. In fact, most of the deep boreholes were dry or yielded only groundwater seepage. No groundwater strikes were recorded in the deeper boreholes during the 2025 drilling programme. The results of aquifer and slug tests completed on the boreholes indicate low permeabilities. This is supported by the very slow groundwater level recovery after drilling of some of the boreholes, which is discussed in more detail below.

4.6.2.3 Groundwater Availability Assessment

No information could be recorded during the hydrocensus on the volumes of groundwater regionally used. It is noted that groundwater is used for swimming pool top-up, gardening and monitoring. The only private / production boreholes that were identified during the 2025 hydrocensus are VAL4 and VAL5 (Figure 4-15). Only VAL4 is in use. VAL4 is approximately 1.6 km north of Russell Stream and borehole VAL5 is approximately 2.5km north of Russell Stream.

The DWS' published 1:500 000 scale hydrogeological map borehole yield classification is summarised below. The map considers all available data, including blow yields. The general distribution of borehole yield on the published maps indicates the following:

- Witwatersrand quartzite, lava and shale form fractured aquifers with borehole yields varying between 0,5 and 2 L/s.

Information obtained from the aquifer tests completed on the new monitoring boreholes drilled upstream and downstream from the Valley Silts Project area indicate that borehole yields are low. The aquifer test information indicates that the weathered and fractured aquifers present underneath the Russell Stream do not have significant yields and are all considered minor aquifers with low permeabilities.

4.6.2.4 Groundwater Potential Contaminants

During the 2019 geohydrological study completed for the project (Groundwater Abstract, 2019), Sulphate and Iron were identified as the key indicators for the impacts on groundwater. This outcome was confirmed with data from the 2025 water sampling, as indicated in Table 4-12. Sulphate (SO_4) and Iron (Fe) concentrations are compared to pH conditions and TDS concentrations in the table.
Elevated Sulphate and Iron concentrations are associated with the dissolution of sulphide minerals in the tailings and silt material. Exposure of the sulphide minerals to oxygen and water often results in acid mine drainage of which sulphate is a by-product.

The information confirms that groundwater within the project area is acidic with elevated Sulphate and Iron concentrations. As discussed earlier, this is due to the impact of historical tailings deposition in the area. Sulphate concentrations in both the shallow and deep aquifers exceed 2000 mg/L and Iron concentrations are above 300 mg/L, on average. Human health risks associated with Sulphate concentrations measured on site include diarrhoea in all individuals and a very strong and bitter taste, as indicated in Table 4-13. At the Iron concentrations reported, the groundwater is likely to result in chronic and acute effects with acute toxicity at concentrations of 300 mg/L and above. Severe aesthetic impacts area also expected in terms of taste and impacts on plumbing.

Table 4-12: 2025 concentrations for indicator elements

Borehole	pH	TDS	SO4	Fe
Val1	7,49	1756	1125	11,7
Val2	7,55	2127	1388	18,3
Val4	8,17	189	24	4,6
VSBH1D	4,52	4134	3126	296
VSBH1S	4,87	2991	2395	441
CR7	7,20	408	94	3,8

Table 4-13: Effects of sulphate and iron on human health

Sulphate range (mg/L)	Effects
Sulphate	
0 – 250	No adverse health effects
250 - 500	Tendency to develop diarrhoea in sensitive and some non-adapted individuals. Slight taste noticeable
500 - 600	Diarrhoea in most non-adapted individuals. Definite salty or bitter taste
600 - 1000	Diarrhoea in most individuals. User-adaptations do not occur. Pronounced salty or bitter taste
>1000	Diarrhoea in all individuals. User-adaption does not occur. It has a very strong salty and bitter taste
Iron	
0 – 0.3	No adverse health effects
0.3 - 1	Adverse aesthetic effects (taste). No health effects
1 - 10	Pronounced aesthetic effects (taste and plumbing). Slight health effects in young children and sensitive individuals
10 - 100	Severe aesthetic effects (taste and plumbing). Chronic health effects in young children and sensitive individuals, increasing with higher concentrations
100 - 3000	Chronic and acute health effects and acute toxicity may begin to appear at concentrations of around 300 mg/L. Severe aesthetic effects (taste and plumbing)

Disturbance of the silt material during the reclamation is likely to temporarily affect water quality associated with the project, as indicated for monitoring data for surface water sampling point CR7. This impact is however not expected to result in acidification or significantly elevated salts and metals.

Groundwater quality diagnostic maps were prepared for Sulphate and Iron concentrations and are presented in Figure 4-17 and Figure 4-18.

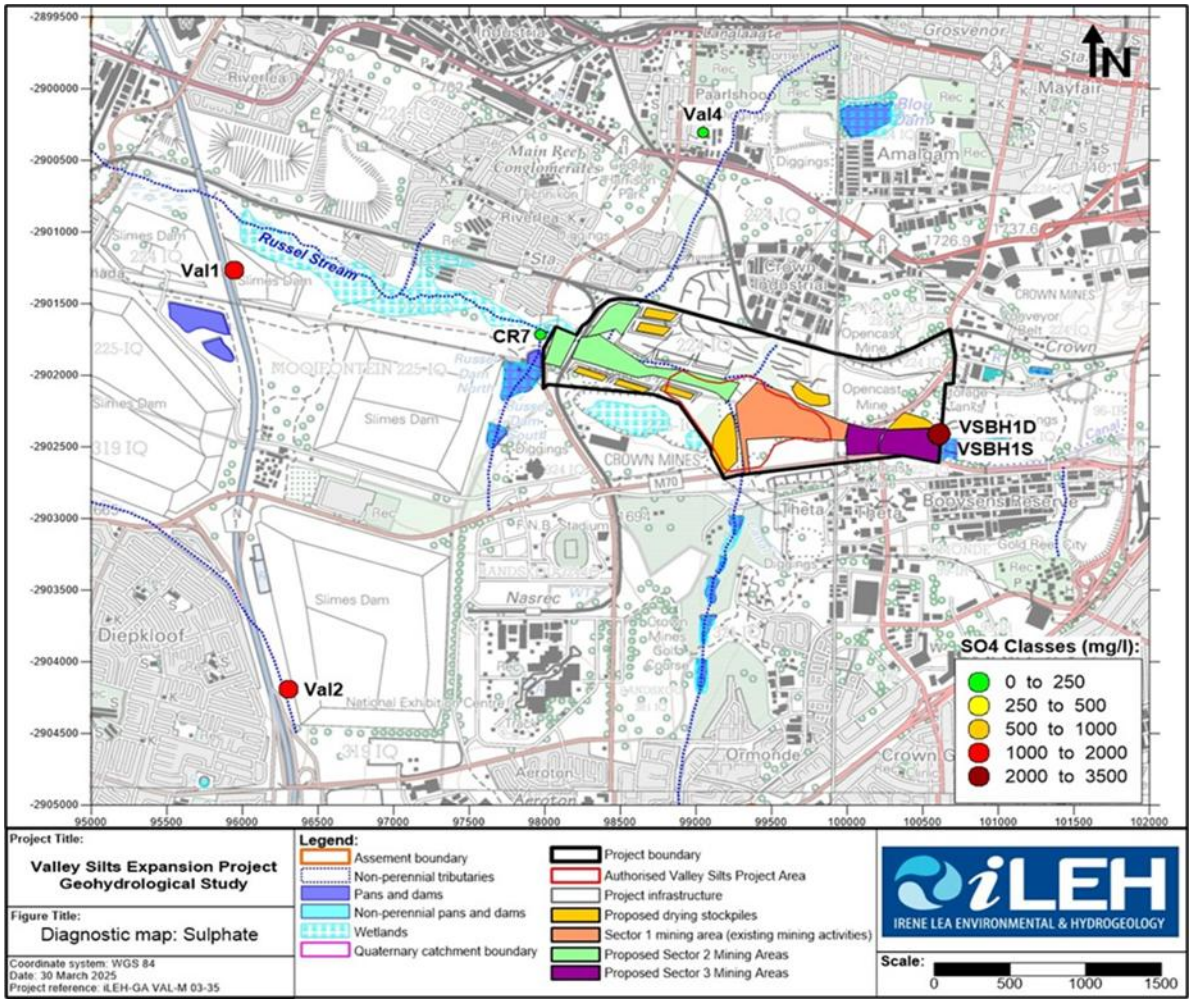


Figure 4-17: Groundwater quality diagnostic map for sulphate

It is shown that regionally groundwater quality is impacted by existing tailings storage facilities (TSF) located in the vicinity of the Valley Silts Project. For example, in boreholes VAL1 and VAL2, located down gradient of two TSFs not associated with the project, sulphate concentrations vary between 1000 and 2000 mg/L and iron concentrations between 10 and 30 mg/L, which is elevated above ambient conditions. These TSFs will continue to impact on groundwater quality after the Valley Silts Project is completed. This cumulative impact will be assessed during groundwater modelling, as discussed below.

On site, sulphate concentrations exceed 2000 mg/L and iron concentrations 300 mg/L, as discussed above. The removal of the silt material in the stream will improve groundwater quality in this area in the long-term, which is a positive outcome.

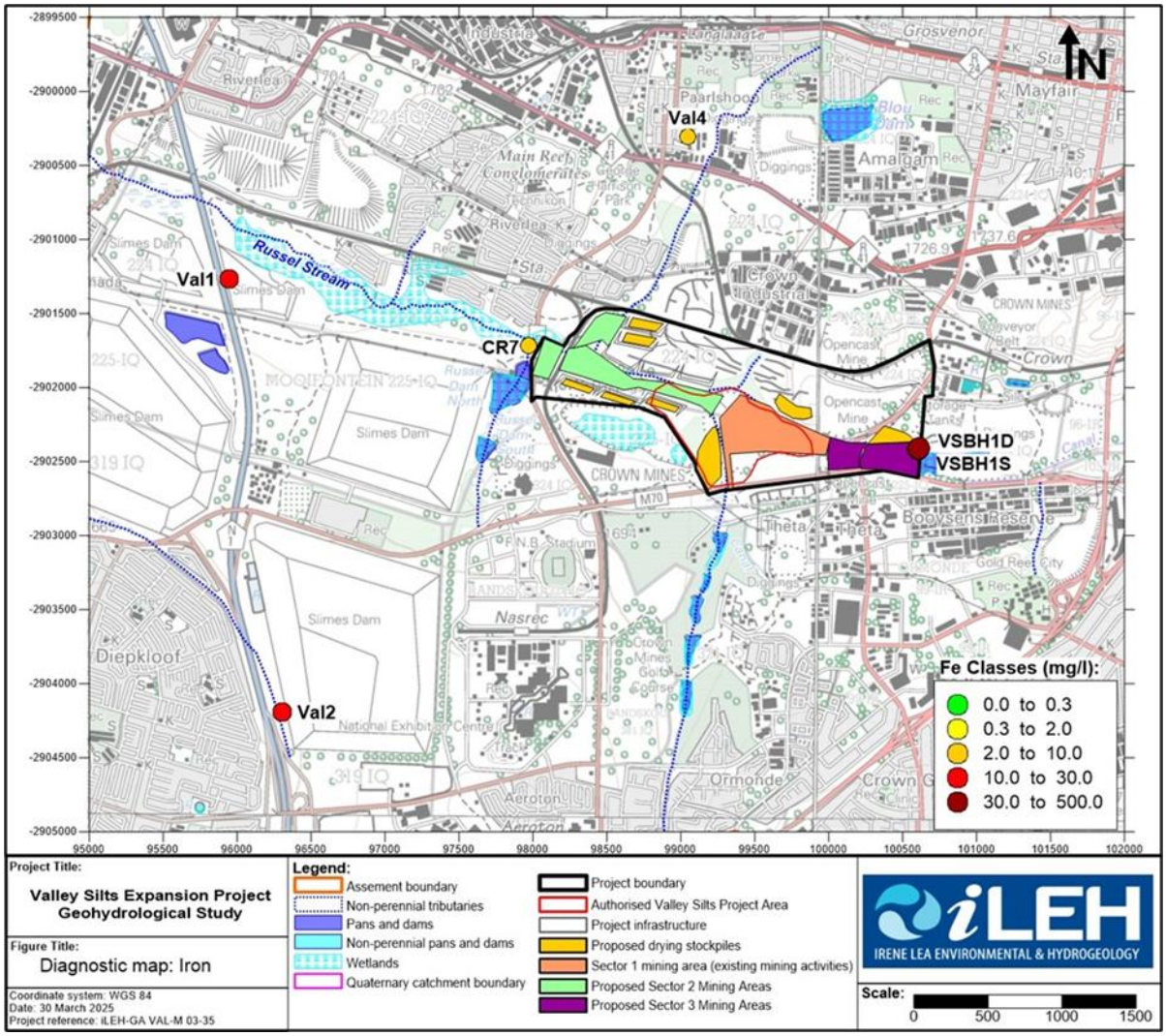


Figure 4-18: Groundwater quality diagnostic map for iron

The gold containing silt and the adjacent TSF and sand dump facilities can potentially add sulphate, iron, chloride, calcium, magnesium, manganese and aluminium to the local groundwater system, if the management of contaminated water on site is not effective, but also through seepage from the adjacent dumps. Metals like cobalt, copper, nickel and zinc can also be elevated. In general, sulphate concentrations around the tailings complexes south and west of Johannesburg vary between 417 and 4700 mg/L.

The pyrite present in the tailings and sand material is oxidised in the presence of oxygen and water to form ferrous sulphate and sulphuric acid. Both reactions result in an acidic pH, and high sulphate and metal concentrations, leading to Acid Mine Drainage. The rate at which pyrite oxidation takes place within the dump varies and decreases with depth. The addition of lime during the gold recovery process raises the pH to neutral conditions when tailings are deposited on these facilities. Negative quality impacts are expected when the silts are excavated and exposed to oxygen and water.

The Valley Silts Project area is surrounded by residential and industrial areas. Many pollution sources (industrial discharge, mining activities and poor waste and sanitation management) do exist that can

contribute to groundwater contamination. It will be difficult to define the contaminants and concentration at all point sources in the area.

4.6.2.5 Groundwater Levels

Based on the information available (2025 hydrocensus), the depth to groundwater in the Valley Silts Project area varies between 0.1m bgl around the TSFs and 5.5m bgl at Shaft 1 approximately 600m to 700m south of the Valley Silts Project area, with an average groundwater level depth of 2.65m bgl.

Since groundwater level measurements in the new monitoring boreholes do not reflect static groundwater conditions, groundwater flow patterns were approximated from the topography and the aquifer conceptualisation discussed above. It is shown that rest groundwater levels vary regionally between 0.1 and 30.9m below surface, with an average depth of 6.3m. The deeper groundwater level of 30.9m measured in boreholes VAL5 north of the project area is probably reflective of conditions in the Booysens shale aquifer.

The depth of groundwater in the new monitoring boreholes vary between 3.4m and 77.7m below surface. Within the project area, groundwater flow is in a westerly direction. Locally, groundwater flow is expected to be towards the Russell Stream, mimicking the topography. On a local scale groundwater movement might be in the opposite direction but adopt the regional trend / flow direction as the groundwater moves further away from the topographical feature.

For the Valley Silts Project area, the groundwater flow direction will be in a westerly to south-westerly direction, towards the Klip River (Figure 4-19).

4.6.2.6 Acid Generation Capacity

An assessment of the risk of acidification of process water associated with the project was completed using the Ergo surface water monitoring data immediately downgradient of the project, for sample site CR7. The location of this sample is indicated on Figure 4-15. This position will indicate impacts on water resources associated with the current silt reclamation activities.

The results of the monitoring programme are presented in Figure 4-19. The information indicates that the pH in surface water downgradient of the project is neutral with only occasional near-neutral results. The average pH over the period January 2018 to February 2025 is 7.2. The TDS concentrations at this position fluctuates seasonally between 250 and 650 mg/L, with an average concentration of 400 mg/L.

This information suggests that the surface water down gradient of the current activities has not acidified. This outcome will be assumed for the activities planned as part of the Valley Silts Expansion Project.

A comparison between pH and TDS in groundwater shows that groundwater in hydrocensus boreholes have neutral to alkaline pH conditions. Groundwater down gradient of TSFs situated near the project area (boreholes VAL1 and VAL2) however have elevated TDS concentrations.

The groundwater samples from the new monitoring boreholes drilled as part of this project indicate acidic conditions with significantly elevated TDS concentrations. These conditions are reflective of the historical impact of tailings and silt deposition in the Russell Stream. This information suggests that removal of the silt material, which has historically contaminated groundwater in this position, will result in a positive long-term impact on groundwater quality.

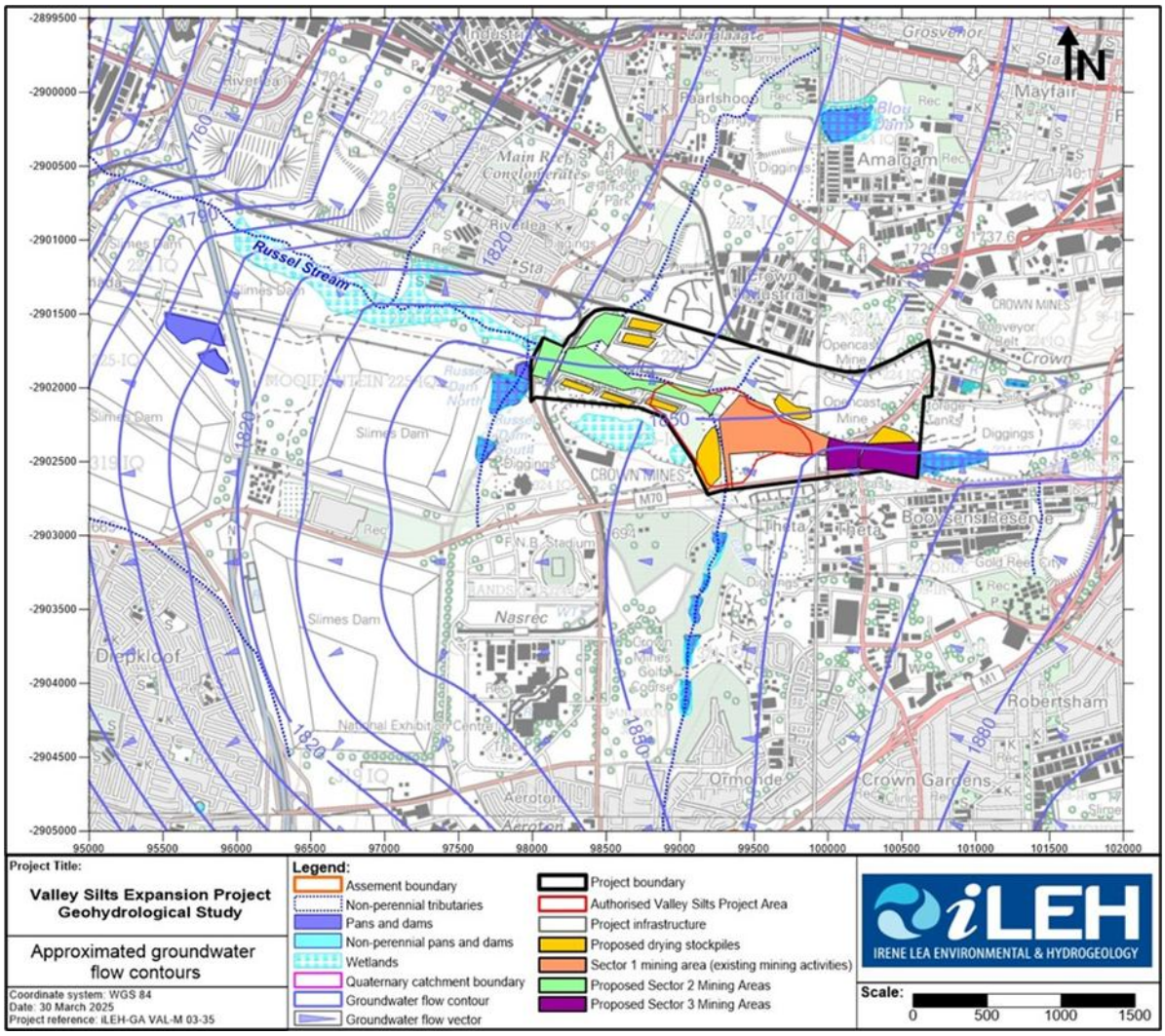


Figure 4-19: Estimated groundwater flow patterns

Based on aquifer classification methodology and regions published in the Aquifer Classification Map Series of South Africa (DWS, 2012), the aquifers present in the project area are minor aquifers with low yields and variable quality. No known groundwater use for domestic supply takes place downstream of the project, based on the 2025 hydrocensus. Ambient groundwater quality associated with the Wits sediments are generally acceptable for potable use except where mining, industrial or sewage discharge activities have affected groundwater quality. The aquifers fall in a moderate vulnerable category, which means they are vulnerable to some pollutants in the long-term when these are continuously discharged or leached. Overall, the aquifers presented are ranked with a medium susceptibility to the impacts of pollutants.

Based on the information above, as well as the methodology described by Parsons (1995), the aquifer protection classification is rated as medium. This is because groundwater has been impacted by industrial,

4.6.3 Groundwater Modelling

To assess the potential impacts of the proposed silt excavation from section of the Russell Stream, a groundwater model was constructed for the project area.

The objectives of the numerical modelling presented in this report are based on the requirements of the EIA process and the Water Use Licence Application requirements. The following objectives are therefore reported:

- Estimate the impact of the proposed Valley Silts Expansion Project during the construction and operational phases of the project on groundwater quality. No significant impacts on groundwater levels are expected.
- Predict the long-term impact of the project on groundwater quality post closure and rehabilitation.
- Evaluate the effect that silt removal and footprint rehabilitation would have on groundwater quality.
- Develop a groundwater monitoring program, based on the outcome of the impact prediction study.
- Develop a groundwater management program geared at reducing the impacts on groundwater quality identified.

4.6.4 Potential Pathways and Receptors

Based on the available dataset, the following aquifer pathways are identified for the project:

- Vertical flow through the unsaturated soil horizon from the silt reclamation areas to the underlying weathered and fractured rock aquifers.
- Vertical and horizontal flow through the weathered aquifer over the silt reclamation areas.
- It is noted that the formations of the Witwatersrand Supergroup are considered to be poor aquifers or aquitards. Groundwater is expected to flow slowly though these formations.

The following receptors were identified:

- Boreholes identified during the hydrocensus. None of these boreholes are however located downstream of the project area.
- The Russell Stream. Groundwater is expected to contribute to stream baseflow, specifically during the wet season when groundwater levels are expected to rise above the base of the streams because of the recharge of rainwater.
- The wetlands associated with the Russell Stream. Shallow groundwater is expected to contribute to the maintenance of these wetlands, especially during the dry season, when river water levels may be lowered.

The potential pathways and receptors are summarised in Table 4-14.

Table 4-14: Pathways and receptors

Pathways	Receptors
Runoff	Boreholes identified during the hydrocensus
Seepage	Russell Stream
Fractures, faults, joints and bedding planes in the upper fractured rock aquifer	Wetlands associated with the Russell Stream

4.6.5 Hydrogeological Impacts

4.6.5.1 General Outcomes for All Scenarios

The overall outcome of the simulations is summarised as follows:

- The cumulative impact of all historical TSFs located around the project area was included during simulations. These areas are included based on monitoring data from hydrocensus boreholes downgradient of two of these TSFs. Since these are likely dry as they are dormant, long-term impacts on groundwater quality associated with these could reduce. It is further noted that these TSFs are downgradient of the Valley Silts Expansion Project and are therefore not expected to directly impact on long-term water quality associated with the project.
- Also included is silt material present in the Russell Stream further downgradient and west of the Valley Silts Expansion Project. The extent of this material is inferred from information made available as part of the 2019 assessment. As this material will remain in the stream for now, it impacts on groundwater quality in this area will continue in future. This area is downgradient of the Valley Silts Project and will therefore not impact on long-term groundwater quality associated with the project.
- Only two of the boreholes and shafts identified during the 2025 hydrocensus are downgradient of the project, namely CRGB15 and VAL1. Borehole CRGB15 is downgradient of a historical TSF. For this reason, impacts on this borehole cannot be attributed to the Valley Silts Project. Borehole VAL1 is located approximately 2 km west of the Valley Silts Project, further along the flow of the Russell Stream. This borehole is located near the area where silts are likely to remain in the stream in future and is also downgradient of a historical TSF. Based on this it is concluded that groundwater is not currently used in the zone of impact associated with the Valley Silts Project.
- The project footprint is located on outcrops of Turffontein quartzite, Johannesburg quartzite and Booysens shale. Fieldwork completed during 2025 confirms that the aquifers associated with the shale and the Johannesburg quartzite have low permeabilities and recharge rates. As such, the sulphate and iron plumes associated with the project migrate very slowly in the aquifers. The advantage of this outcome is that contamination associated with the project is not likely to move more than a few hundred meters from the reclamation areas in the long-term.
- The disadvantage of the poorly developed aquifer conditions identified is that historical contamination will not be flushed in the long-term but will remain within the footprint area to a large extent. Removal of the silt material as part of the project is therefore likely to reduce the concentrations of contaminants but will not significantly do so. In addition to a reduction in concentration, the extent of the zone of impact on groundwater quality will reduce in the long-term after removal of the silt material from the stream.
- Groundwater plumes are expected to move towards the Russell Stream on a local scale, but regionally

in a westerly directly, but slowly.

- The volumes of contaminated groundwater that may reach the wetlands downgradient in the Russell Stream cannot be accurately assessed based on one dataset alone. It is however expected to be low, probably not exceeding 20 m^3/a.
- Most significant impacts on groundwater quality, as delineated by the simulated zones of unacceptable long-term impacts and zones of acceptable operational impacts are mainly restricted to the Valley Silts Project footprint areas. The zones of unacceptable impact are indicated by thick red lines at concentrations exceeding 1000 mg/L for sulphate and exceeding 10 mg/L for iron.
- The extent of the iron plume is larger compared to that of sulphate. This is because lower concentration standards are imposed on iron compared to sulphate.

4.6.6 Impact Prediction

4.6.6.1 Impact Prediction at the End of the Operational Phase

The impact of silt reclamation from the stream at the end of the operational phase is presented for iron and sulphate (Likely zone of impact on groundwater quality for SO_4 (Operational phase)Figure 4-20 and Figure 4-21. The simulations indicate the following:

- Due to the short duration of the project, the outcome of the operational impact on groundwater quality is mainly due to the impact of historical tailings deposition in the stream.
- Based on the current dataset, it is expected that sulphate concentrations would exceed 2000mg/L and iron concentrations would exceed 200 mg/L over the project footprint area at the end of the operational phase. The groundwater is currently not fit for use.
- The zone of impact on groundwater quality is not expected to significantly exceed the project boundary at the end of the operational phase. It is possible that the plumes can migrate a hundred meters west along the flow of the Russell Stream.
- No private boreholes fall within the delineated zone of impact of the Valley Silts Expension Project.

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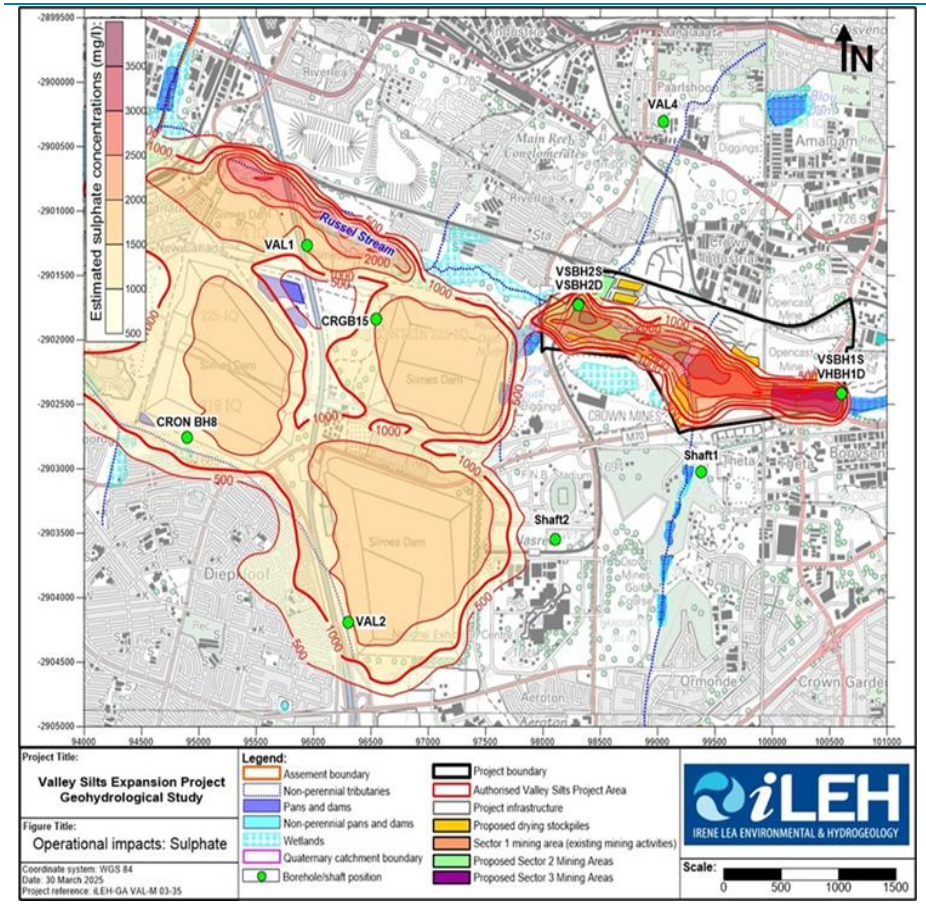


Figure 4-20: Likely zone of impact on groundwater quality for SO_4 (Operational phase)

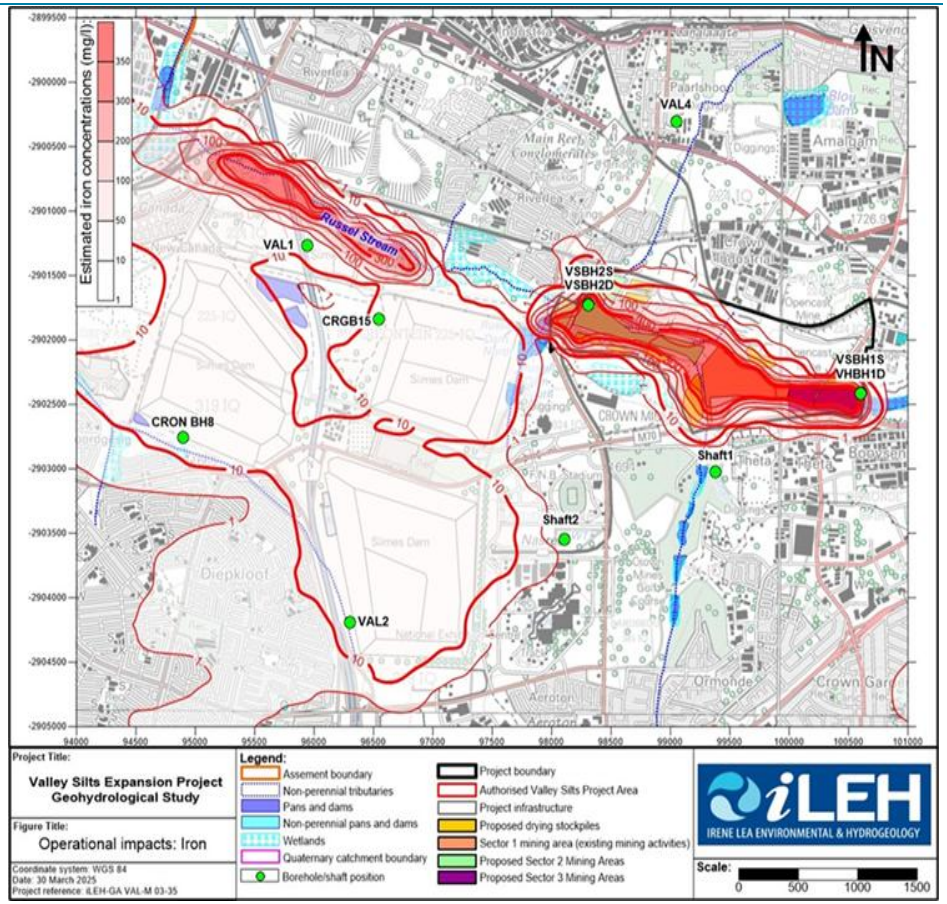


Figure 4-21: Likely zone of impact on groundwater quality for Fe (Operational phase)

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4.6.6.2 Likely Long-Term Scenarios

The likely outcome of the removal of silts from the Russell Stream in terms of groundwater quality is presented in Figure 4-22 and Figure 4-23. The following is concluded from the impact predictions completed:

- Sulphate concentrations are expected to reduce to below 1000 mg/L over large portions of the footprint. It is possible that pockets in the aquifer may have concentrations exceeding 1000 mg/L, but not significantly so. These zones where sulphate exceeds 1000 mg/L will remain inside the project footprint area in the long-term.
- In addition, the extent of the zone of impact is expected to reduce to within the project footprint.
- Iron concentrations are also expected to reduce significantly within the project area. It is anticipated that iron concentrations would reduce to below 100 mg/L over most of the project area, but as with sulphate, pockets may remain where concentrations exceed 100 mg/L, but not significantly so. While this will be a significant reduction in iron concentrations, long-term impacts over the project footprint will continue to pose a risk that could result in acute or chronic health impacts. The groundwater within the project area will therefore remain unfit for use. The positive outcome of the project is however a significant reduction in concentrations and a reduction in the extent of the zone of unacceptable impacts.

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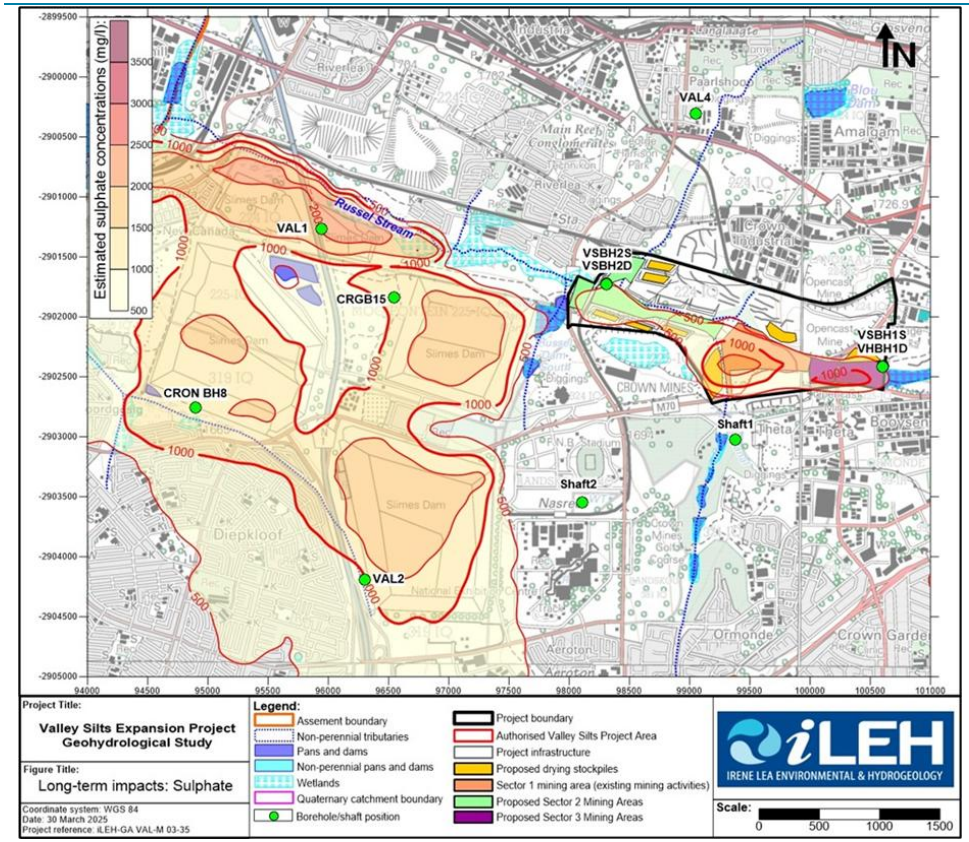


Figure 4-22: Likely long-term zone of impact on groundwater quality: SO4

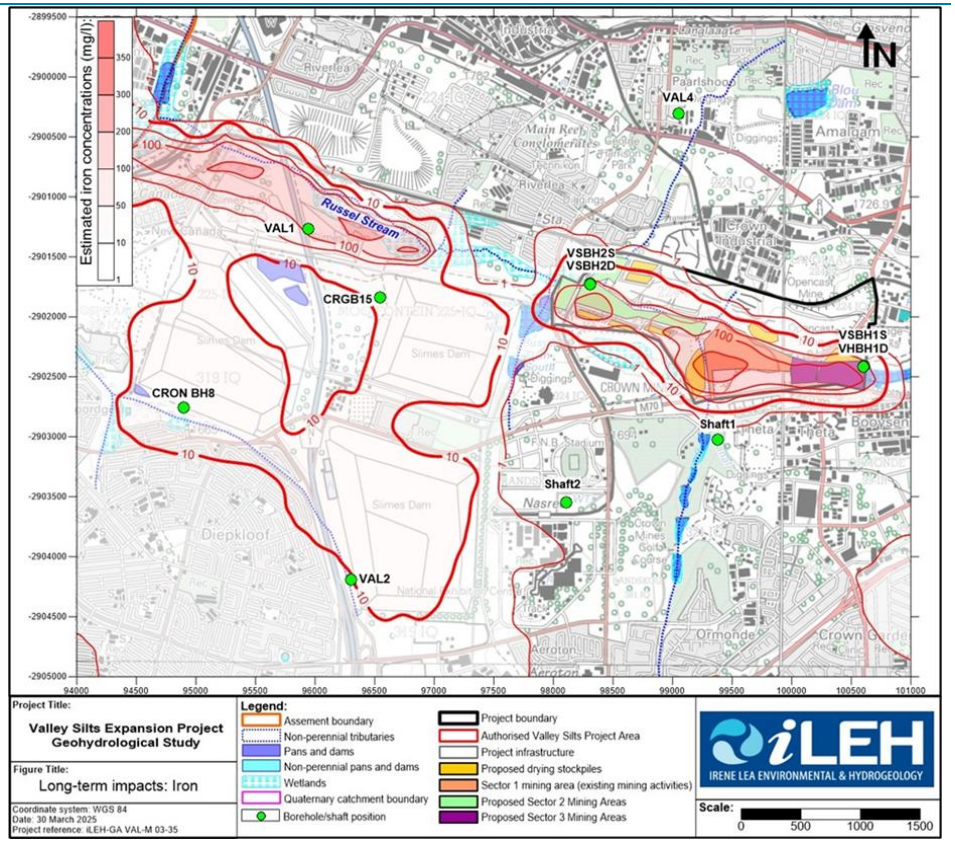


Figure 4-23: Likely long-term zone of impact on groundwater quality: Fe

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4.7. Biodiversity

Refer to Specialist Study: Appendix D1 – Terrestrial Ecology

4.7.1 Habitat Assessment

Three (3) main habitat types were identified across the PAOI and include:

- Modified;
- Water Resource; and
- Artificial Water Resource.

The habitat units for the PAOI can be seen delineated in Figure 4-24 and descriptions of the habitat units can be found in Table 4-15.

Table 4-15: Table providing descriptions of the habitat types delineated for the PAOI

Habitat	Description and Condition
Modified	This habitat unit includes all areas that maintain little to no native vegetation and/or where anthropogenic activity has substantially modified an area's primary ecological functions and species composition. Within the PAOI, these areas are mostly comprised of roads, mining areas, and other construction activities. These areas include very few, if any, indigenous species and are associated with alien and invasive plant species. No fauna or flora SCC were observed, and none are expected for the habitat unit.
Water Resource	This is a non-terrestrial habitat made up of wetlands and drainage features within the PAOI. Vegetation associated with this habitat unit includes hydrophytes. No fauna or flora SCC were observed, and none are expected for the habitat unit. Additional information regarding this habitat unit may be found in the accompanying wetland assessment (TBC, 2024).
Artificial Water Resource	This is a non-terrestrial habitat made up of artificial wetlands and water features within the PAOI. No fauna or flora SCC were observed, and none are expected for the habitat unit. Additional information regarding this habitat unit may be found in the accompanying wetland assessment (TBC, 2024).

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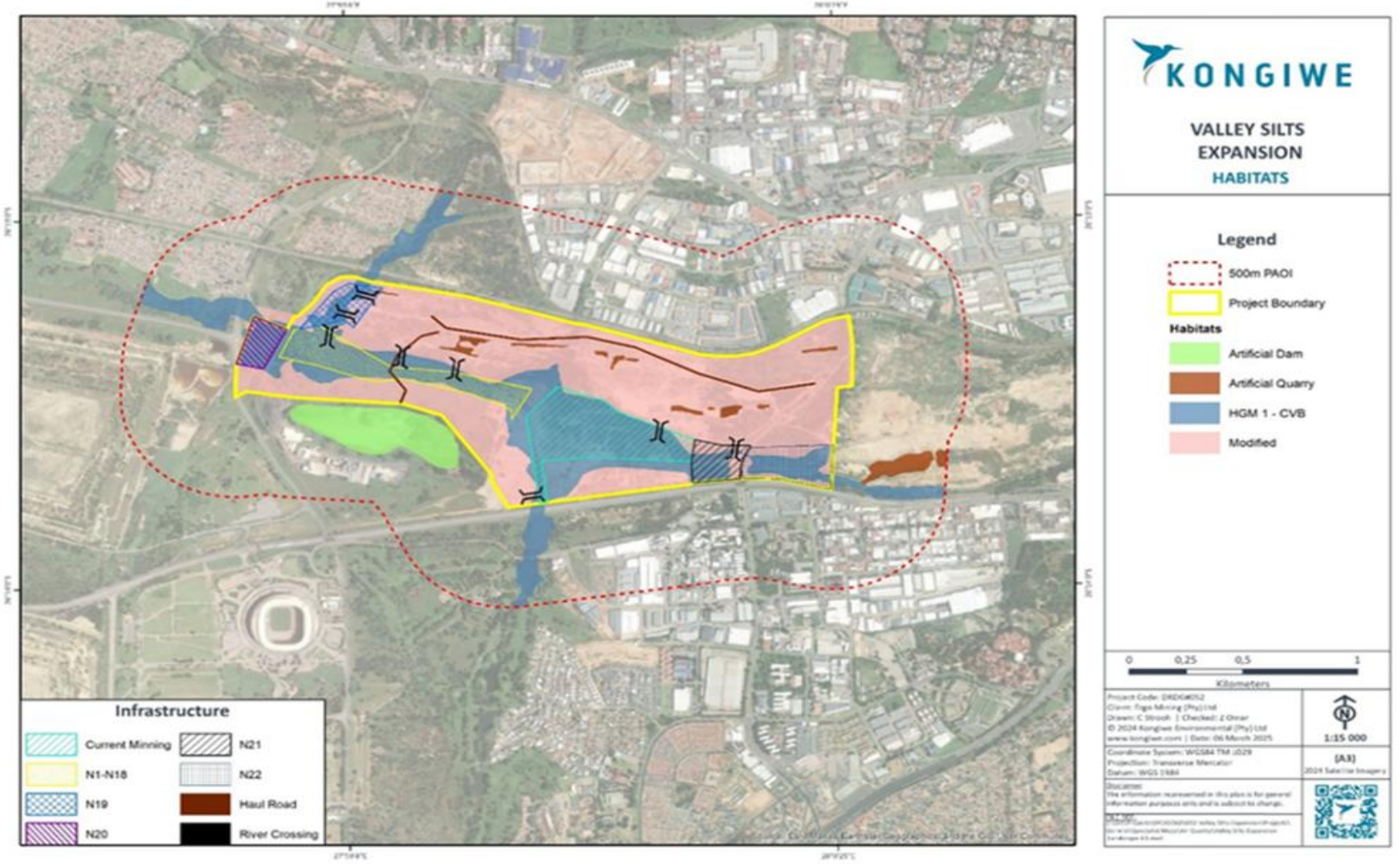


Figure 4-24: Habitats identified within the PAOI

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4.7.2 Site Ecological Importance

Based on the criteria provided in Appendix B of the Terrestrial Biodiversity compliance statement, all habitats within the PAOI were assigned a sensitivity category, i.e., a SEI category. The PAOI was categorised as possessing habitats with areas ranging from 'Very Low' to 'Low' SEI (The Biodiversity Company, 2024). This is illustrated below in Table 4-16

Table 4-16: Summary of habitat types delineated within the PAOI

Habitat Type	Conservation Importance	Functional Integrity	Biodiversity Importance	Receptor Resilience	Site Ecological Importance Guidelines
Modified	**Very Low**	**Very Low**	**Very Low**	**Very High**	**Very Low**
	No natural habitat remaining	Several major current negative ecological impacts.		Habitat that can recover rapidly (~ less than 5 years) to restore > 75% of the original species composition and functionality of the receptor functionality.	Minimisation mitigation – development activities of medium to high impact acceptable and restoration activities may not be required.
Water Resource	**Low**	**Low**	**Low**	**Low**	**Medium**
	No confirmed or highly likely populations of SCC	Almost no habitat connectivity but migrations still possible across some modified or degraded natural habitat		Habitat that is unlikely to be able to recover fully after a relatively long period: > 15 years required to restore ~ less than 50% of the original species composition and functionality of the receptor functionality, or species that have a low likelihood of: (i) remaining at a site even when a disturbance or impact is occurring, or (ii) returning to a site once the disturbance or impact has been removed.	Minimisation and restoration mitigation – development activities of medium impact acceptable followed by appropriate restoration activities..
	Low	**Low**	**Low**	**Medium**	**Low**

Habitat Type	Conservation Importance	Functional Integrity	Biodiversity Importance	Receptor Resilience	Site Ecological Importance Guidelines
Artificial Water Resource	No confirmed or highly likely populations of SCC	Almost no habitat connectivity but migrations still possible across some modified or degraded natural habitat		Will recover slowly (~ more than 10 years) to restore > 75% of the original species composition and functionality of the receptor functionality	Minimisation and restoration mitigation – development activities of medium to high impact acceptable followed by appropriate restoration activities.

4.7.3 Screening Tool Comparison

The allocated sensitivities for each of the relevant themes are either disputed or validated for the overall PAOI Table 4-17 below. A summative explanation for each result is provided as relevant. The specialist-assigned sensitivity ratings are based largely on the SEI process followed in the previous section, and consideration is given to any observed or likely presence of SCC species. A map illustrating the overall SEI allocations for the PAOI can be seen in Figure 4-24.

Table 4-17: Summary of the screening tool vs specialist assigned sensitivities

Screening Tool Theme	Screening Tool	Specialist	Tool Validated or Disputed by Specialist - Reasoning
Animal Theme	**Medium**	**Low**	Disputed – Habitat exists in a largely degraded or modified state with high levels of anthropogenic disturbance, particularly those associated with the reclamation activities on site. No SCC observed and unlikely to occur.
Plant Theme	**Medium**	**Low**	Disputed – Habitat exists in a largely degraded or modified state with high levels of anthropogenic disturbance, particularly those associated with the reclamation activities on site. High numbers of alien and invasive plants. No SCC observed and unlikely to occur.
Terrestrial Theme	Very High	**Low**	Disputed – Habitat exists in a largely degraded or modified state with high levels of anthropogenic disturbance, particularly those associated with the reclamation activities on site, and has therefore lost much of its ecosystem functionality. Habitat will not recover without human intervention and will continue to degrade over time without rehabilitation. No longer representative of a CBA or ESA. No SCC observed and unlikely to occur

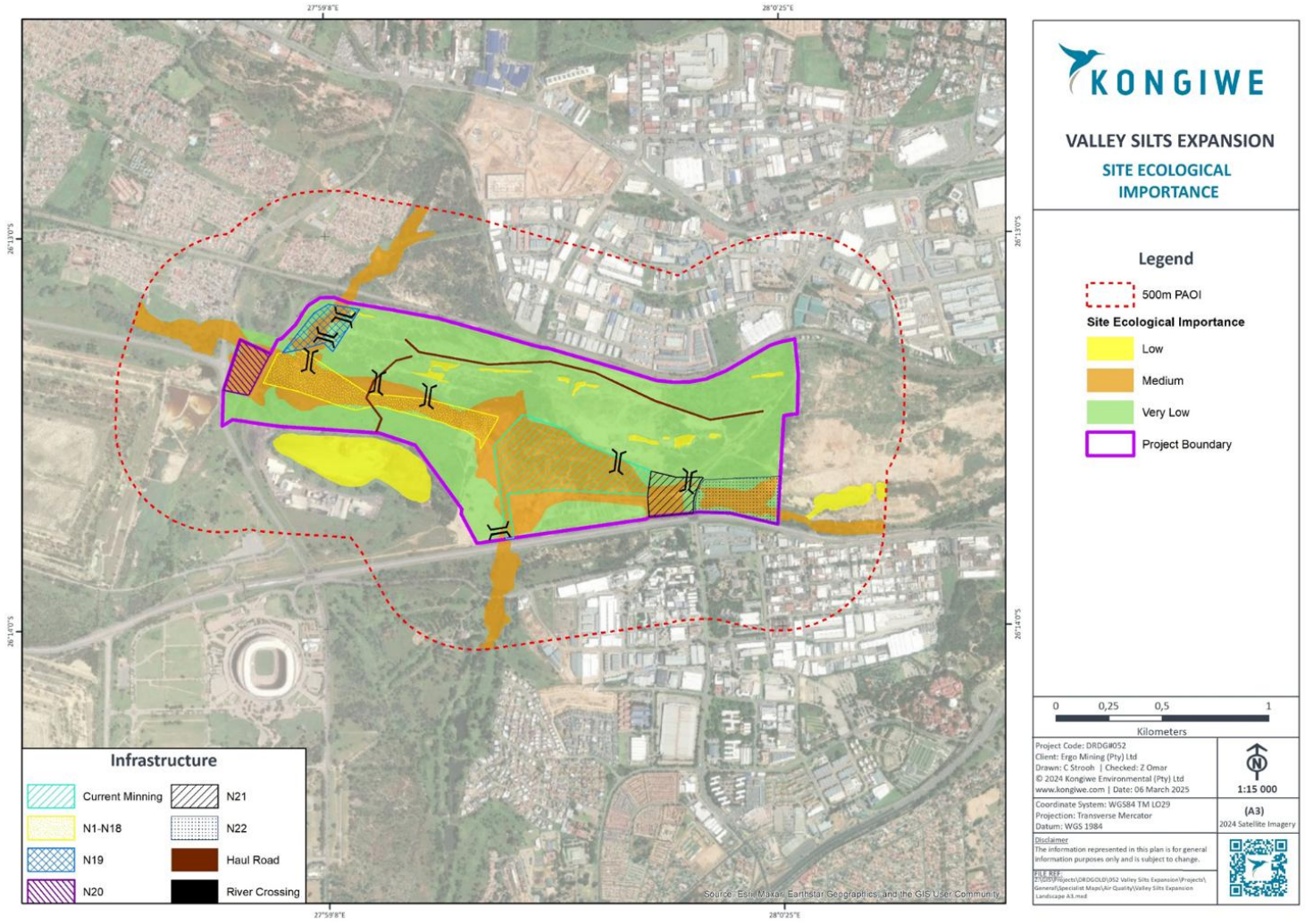


Figure 4-25: Map illustrating the site ecological importance for the PAOI

4.8. Wetland

Refer to Specialist Study: Appendix E – Wetland Impact assessment

4.8.1 South African Inventory of Inland Aquatic Ecosystems

One wetland type by means of the SAIIAE was identified within the Proposed Project area and its respective PAOI. This wetland type was identified as a unchannelled valley-bottom wetland Figure 4-26.

4.8.2 National Freshwater Ecosystem Priority Areas

One NFEPA wetland type was identified within the proposed project area and its respective PAOI, namely a seep wetland (Figure 4-27). Several seep wetlands were identified within the proposed project area and its respective PAOI and were all classified to be either artificial or natural, non-priority wetlands. All artificial wetlands were classified with a condition within the "Z3 – Less than 25% natural land cover remaining" category while all natural wetlands were classified within the "C – between 25-75% of natural land cover remaining" category, as per the dataset.

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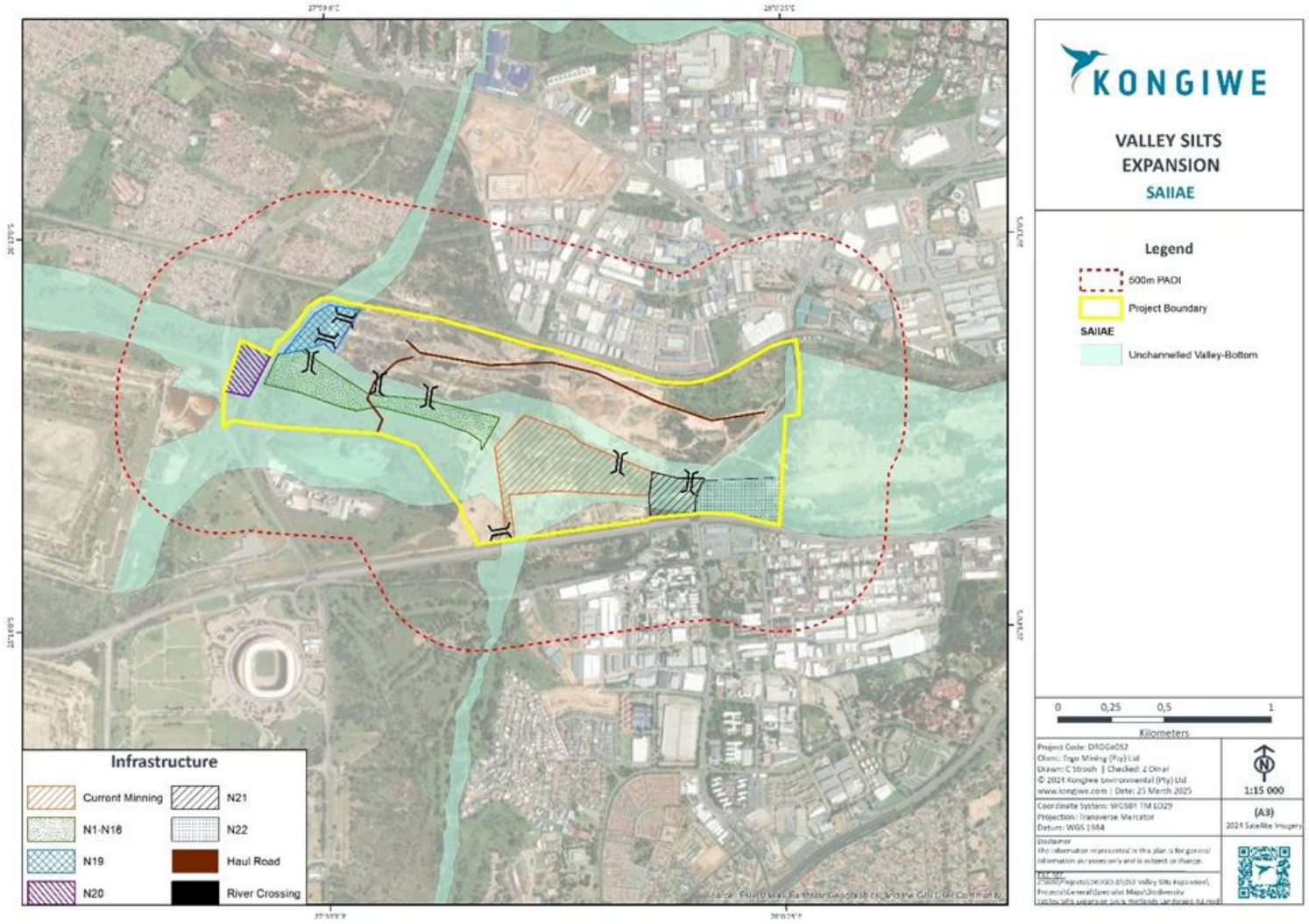


Figure 4-26: South African Inventory of Inland Aquatic Ecosystems of relevance to the project

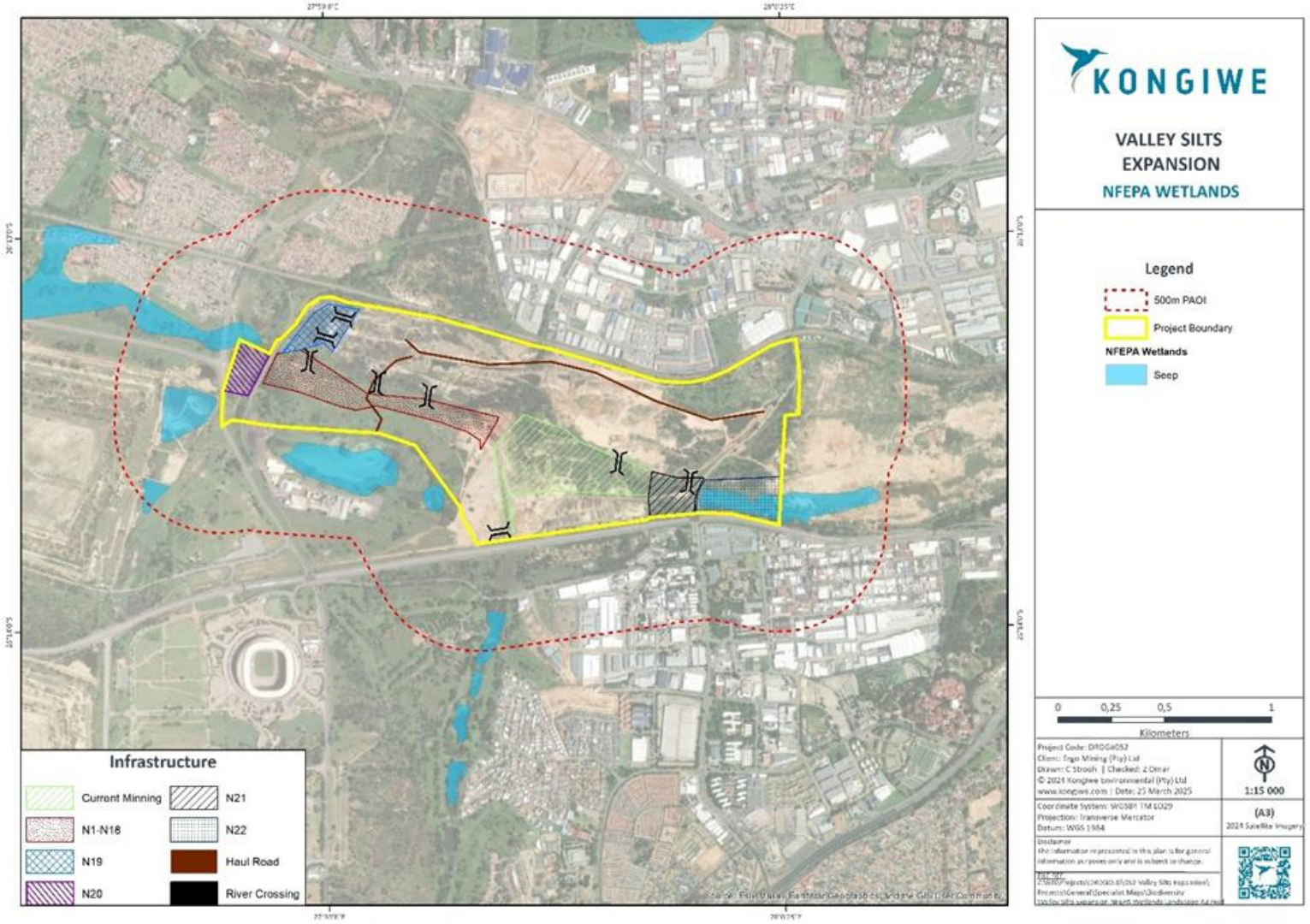


Figure 4-27: NFEPA Wetlands of relevance to the project

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4.8.3 Wetland Field Survey

4.8.3.1 Identification and Mapping

Topography and external wetland characteristics such as the presence of hydrophytes was used to identify wetland areas. Commonly encountered hydrophytes within wetland areas of the PAOI included sedges, reeds and grasses Figure 4-28.



Figure 4-28: Examples of the hydrophytic vegetation encountered within the project area of Influence

4.8.3.2 Delineation

One wetland type, consisting of one hydrogeomorphic (HGM) unit, has been identified in relation to the proposed project site and its respective PAOI (Figure 4-31). This wetland type has been classified as a channelled valley-bottom (CVB; HGM 1). Wetland functional assessment has only been conducted for natural wetlands.

HGM 1 has been identified to be within the proposed Valley Silts Expansion project area (Figure 4-31). The CVB has been critically modified for a considerable time and has received mine water discharge as well as tailings sediments and the contaminants that accompany it.

Apart from these features, several artificial quarries (as a result of historical mining activities) and one artificial dam were identified within the PAOI and project footprints (Figure 4-31).



Figure 4-29: Examples of the watercourses delineated within the project area. A & B) Artificial Quarries, C and D) Channelled valley-bottom (HGM 1)

4.8.4 Risk Screening

Table 4-18 and Figure 4-31 provides the results of risk screening for the delineated wetland and provides motivation for each of the determined categories.

Table 4-18: Risk status of the delineated wetlands

HGM unit	Risk Status	Rationale
HGM 1	At Risk	This HGM unit was identified to be traversed by the project area. The HGM unit has therefore been determined as "At Risk". If the proposed development layout cannot be amended to avoid the wetland and its calculated buffers, it is expected that direct impacts to the wetlands and consequent modifications to the systems will occur.
Artificial watercourses (quarries and dam	Not at Risk	The artificial watercourses are located in a position of the landscape that allows for potential impacts to be avoided or to be buffered by existing topographic features or infrastructure that allows for the buffering of impacts to the watercourses.

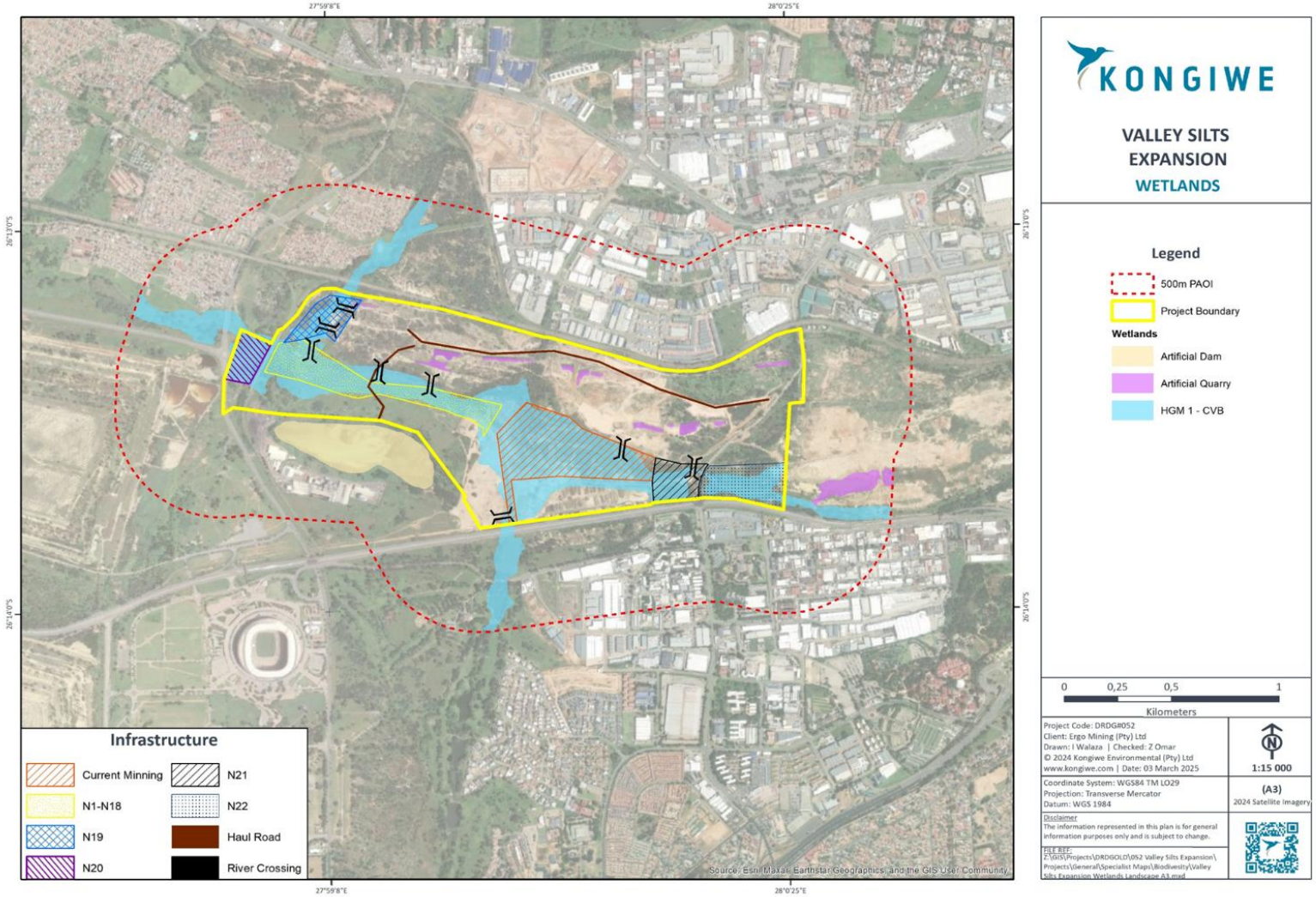


Figure 4-30: Delineation of wetland features within the Proposed Site and Project Area of Influence

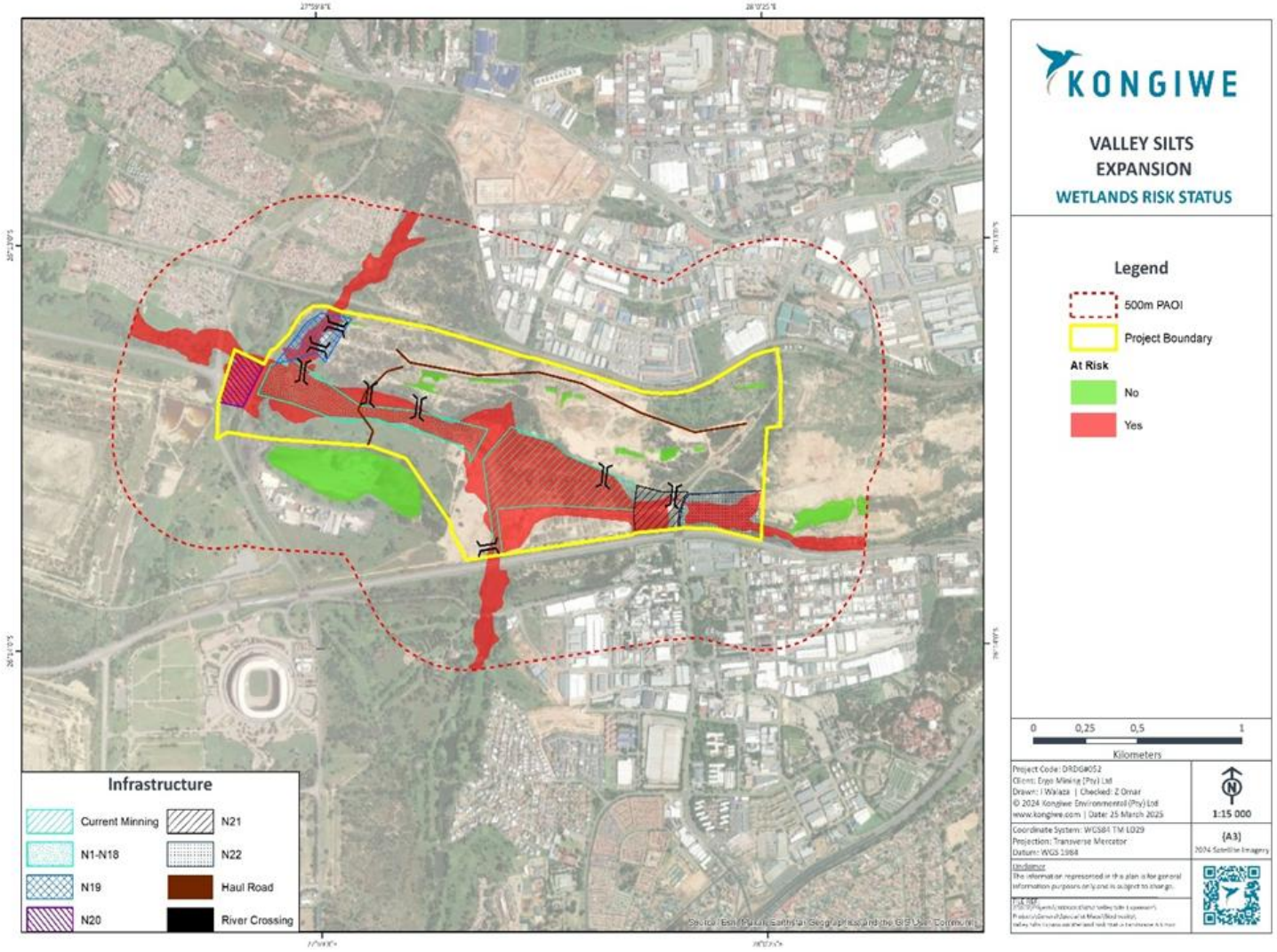


Figure 4-31: Risk status of the delineated wetland and other watercourses

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4.8.5 Functional and Ecological Assessment

Only wetlands at an appreciable level of risk in relation to the Proposed Project and related activities were considered for the Functional and Ecological Assessments.

The ecosystem services provided by the relevant wetland units on site were assessed and rated using the WET-EcoServices method (Kotze et al., 2008). The results of the assessment are presented in Table 4-19. Ecosystem services contributing to these scores include flood attenuation, stream flow regulation, nutrient and toxicant assimilation and the maintenance of biodiversity.

HGM 1 was scored within the "Intermediate" ecosystem service score range. HGM 1 being valley-bottom wetland plays an important role in other services such as erosion control, sediment trapping, and toxicant assimilation (from runoff) will be provided at higher rates due to the fact that the wetland is well-vegetated with hydrophytes. Due to the surrounding landscape being relatively disturbed the wetlands will provide a corridor and refugia for fauna.

The potential for all wetlands to be used for tourism and recreation is unlikely. Furthermore, the direct benefits such as the provisioning of harvestable resources and cultivated foods is unlikely due to the type of vegetation present. The use of the wetlands for cultural benefits and education and research is not supported.

Table 4-19: Summary of the average ecosystem scores of the assessed wetland unit

Wetland Unit					HGM 1
Ecosystem Services Supplied by Wetlands	Indirect Benefits	Regulating and supporting benefits	Flood attenuation		3.1
			Streamflow regulation		2.7
			Water Quality enhancement benefits	Sediment trapping	2.8
				Phosphate assimilation	3.2
				Nitrate assimilation	3.0
				Toxicant assimilation	3.2
				Erosion control	3.2
			Carbon storage		2.4
	Direct Benefits	**Biodiversity maintenance**			1.4
		Provisioning benefits	Provisioning of water for human use		0.9
			Provisioning of harvestable resources		0.8
			Provisioning of cultivated foods		0.8
		Cultural benefits	Cultural heritage		0.0
			Tourism and recreation		0.1
			Education and research		1.0
Overall					**28.6**
Average					**1.91**
Class					**Intermediate**

4.8.6 Recommended Ecological Category and Recommended Management Objective

The Recommended Ecological Category (REC) and Recommended Management Objective (RMO) for the wetland area was determined from the results of the PES and EIS assessments. These assessments indicated that all wetland features within the site, had to an extent, undergone transformation as a result of historical and current impacts. Nevertheless, despite the altered ecological integrity of these systems, they are considered to provide important ecological services. The appropriate REC and RMO estimated for the wetland area is presented in Table 4-20.

Table 4-20: Summary of the REC and RMO categories assigned to the relevant wetlands

HGM Unit	REC - RMO
HGM 1	E/F: Maintain

4.8.7 Screening Tool Comparison

The National Web-based Environmental Screening Tool has characterised the Aquatic Biodiversity Theme sensitivity as “Very High” for Valley Silts Expansion project area.

The allocated sensitivities for each of the relevant themes are either disputed or validated for the assessed areas in Table 4-21 below. A summative explanation for each result is provided as relevant. The specialist - assigned sensitivity ratings are based largely on the PES and EIS assessment processes followed in the previous section, and consideration is given to any observed or likely presence of sensitive fauna and flora. A map highlighting the Freshwater Sensitivities for the PAOI is depicted in Figure 4-32.

Table 4-21: Summary of the screening tool vs specialist assigned sensitivities

Features	Screening Tool Theme	Environmental Screening Tool Sensitivity	Specialist Sensitivity	Tool Validated or Disputed by Specialist - Reasoning
HGM 1	Aquatic Biodiversity Theme	High	Low	Screening Tool Sensitivity Disputed. Rationale for the specialist assigned ‘High’ rating: The wetland system has experienced historical impact related to reclamation as well as from the surrounding developments in the catchment. The wetland is perceived to be seasonal as surface water was observed in the wetland. Wetland vegetation within the system was abundant. The ecosystem services these wetlands provide together with the PES and EIS have contributed towards determining the sensitivity rating. The wetland has therefore been assigned a ‘High’ sensitivity rating.
Artificial watercourses	Aquatic Biodiversity Theme	Low	Low	Screening Tool Sensitivity Validated.

				Rationale for the specialist assigned 'Low' rating: These watercourses were all artificially created through mining activities and other developments such as the Gauteng Oil and Cake Milll. Therefore, a "Low" sensitivity has been assigned for these areas in relation to freshwater biodiversity.
Remaining Area	Aquatic Biodiversity Theme	Low	Low	Screening Tool Sensitivity Validated. Rationale for the specialist assigned 'Low' rating: Much of the area has been historically modified through mining and other developments. The proposed activities are not anticipated to significantly modify the hydrological characteristics of the entire area; therefore a "Low" sensitivity has been assigned for these areas in relation to freshwater biodiversity.

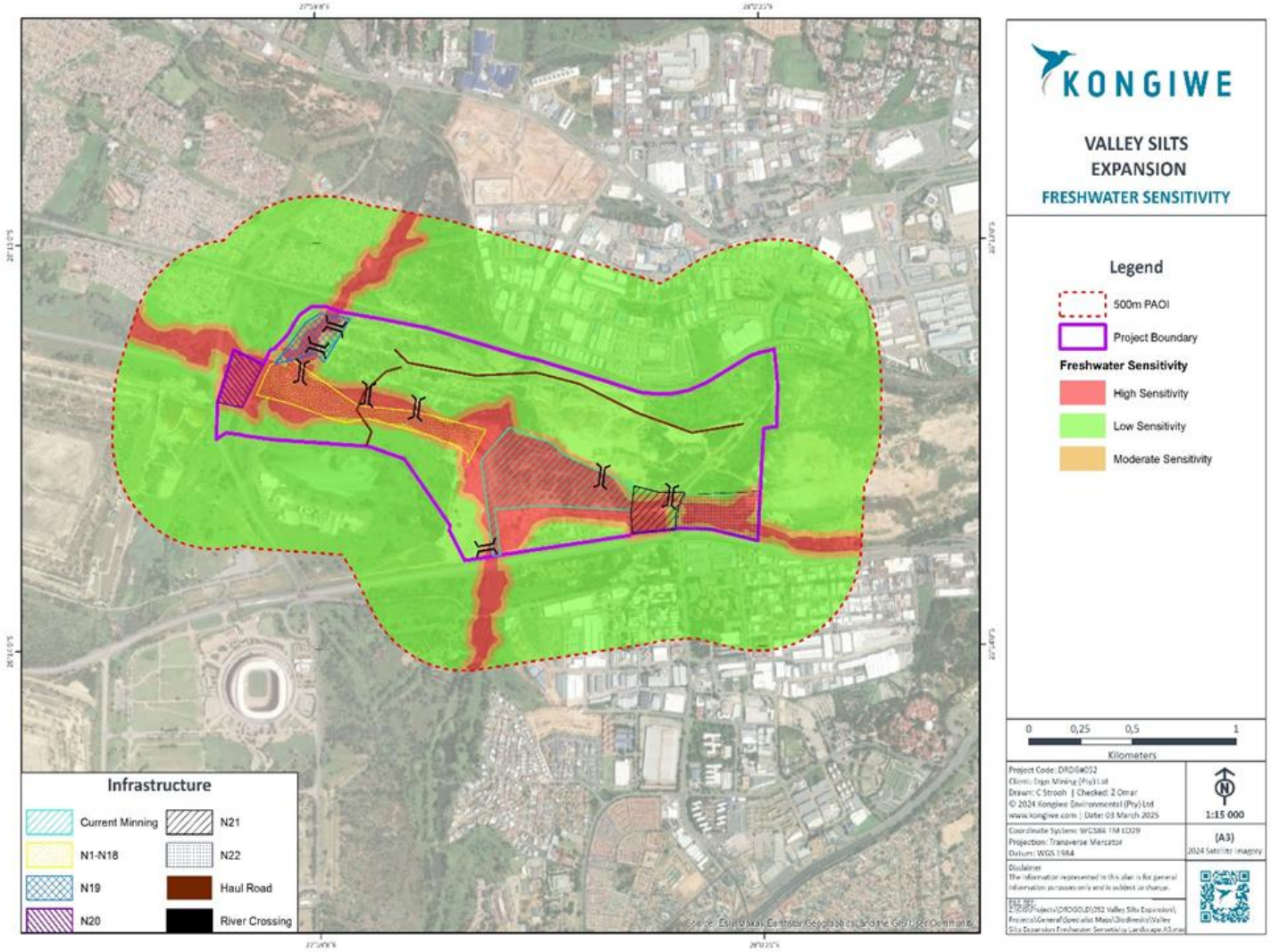


Figure 4-32: Sensitivity Map for the project area of interest

4.9. Socio-economic

In terms of locality, the project is situated in Gauteng in the central parts of the City of Johannesburg (CoJ) about 7km south of the Central Business District (CBD). The Ward is situated in CoJ Ward 68 with Wards 54 (south); 124 (east) and 125 (southwest) surrounding the project area. The main socio-economic characteristics of the local environment can be summarised as follows:

- Valley Silts is situated in an urban and industrial area of Johannesburg surrounded by industrial and business parks to the north and south east of the project area;
- Riverlea, the closest residential area to the project's north west. The other residential area is located in Ormonde to the south of the project area;
- The CoJ experienced relatively low population growth since 2011 signifying some exodes from the city to the other urban centres such as Ekurhuleni and the City of Pretoria;
- Compared to population growth m household growth remained high in the CoJ, possibly also due to the relative high number of low-cost housing programmes being rolled-out by CoJ the past decade;
- The relatively low female ratios and high ratios of economically active population in wards 124 and 125 close to the project area signifies to the presence of single male workers that have migrated to these areas in search of work;
- CoJ on average experienced lower municipal service backlogs in 2022 compared to provincial and national averages. The wards around the project area experienced lower municipal service backlogs compared to CoJ averages apart from the relatively high sanitation backlogs in Ward 68 (Riverlea). The lack of maintenance of municipal services in Riverlea furthermore poses a potential health and safety risks to the community.
- The education levels of the adult population are in higher in Gauteng and the CoJ than nationally. That is also the case in the project wards around the project area. The education levels of the population in Ward 68 are lower than in the other wards with 46% being unskilled (without matric) and only 8% with tertiary qualifications.
- There is a potential shortage in primary and secondary schools as well as educators in the CoJ The lack of schools and educators are also more pronounced in the Riverlea area;
- Apart from the possible shortage in public health facilities, other health challenges that the local community face include the compromised surface water quality in the local area, the lack of maintenance of municipal infrastructure and illegal dumping activities;
- The proximity of old gold tailings facilities in the area increases the exposure risk to elevated levels of Uranium (U) deposited within the gold tailings. Based on tests done in the Valley Silts area it was however found that the material in the area is not radioactive;
- Per capita crime rates are higher in CoJ than nationally and in particular high in the Riverlea area. The high crime levels in the Riverlea area could partially be ascribed the high levels of illegal mining in the surrounding areas;
- The finance and sectors are dominant sectors in CoJ in terms of output and employment. Sectors that made a relatively smaller contribution compared to their national contribution include the primary sectors (agriculture and mining) as well as manufacturing, utilities and transport;

- The mining and industrial sectors play a relatively large role in the project area with current Ergo reclamation activities as well as the industrial and warehouse activities taking place in the business and industrial zones adjacent to the project area;
- CoJ experienced low growth in employment and output with the mining sector in particular showing a steep decline the past decade;
- Low economic growth resulted in rising unemployment and poverty in CoJ in general and in particular in Ward 68 where the project is situated;
- Gauteng provincial development priorities revolve around output and employment growth and skills development. On a spatial level, focus areas include increasing available land from mine dumps to be used for other purposes, in line with government priorities;
- The Joburg Spatial Develop framework prioritises the rehabilitation and development of land in the mining belt area to unlock land for mixed use developments that could bridge the historic spatial divide between the developed north, and southern areas such as Soweto.

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5 Analysis and Characterization of Water Use Activity

5.1. Site Delineation for Characterisation

As previously mentioned, the Valley Silt Expansion project is situated within Ward 124 of the City of Johannesburg Metropolitan Municipality and covers an area of 54 ha. The project area stretches from New Canada Road, following the valley southeast, past the Nasrec Road bridge and past Crownwood Road until the stream meets the M1. The Russell Stream (also referred to as the Klipspruit) is surrounded by industrial, commercial, residential and undeveloped land. The closest residential area to the project is Booysens and Crown. Please refer to Figure 5-1 Project infrastructure map.

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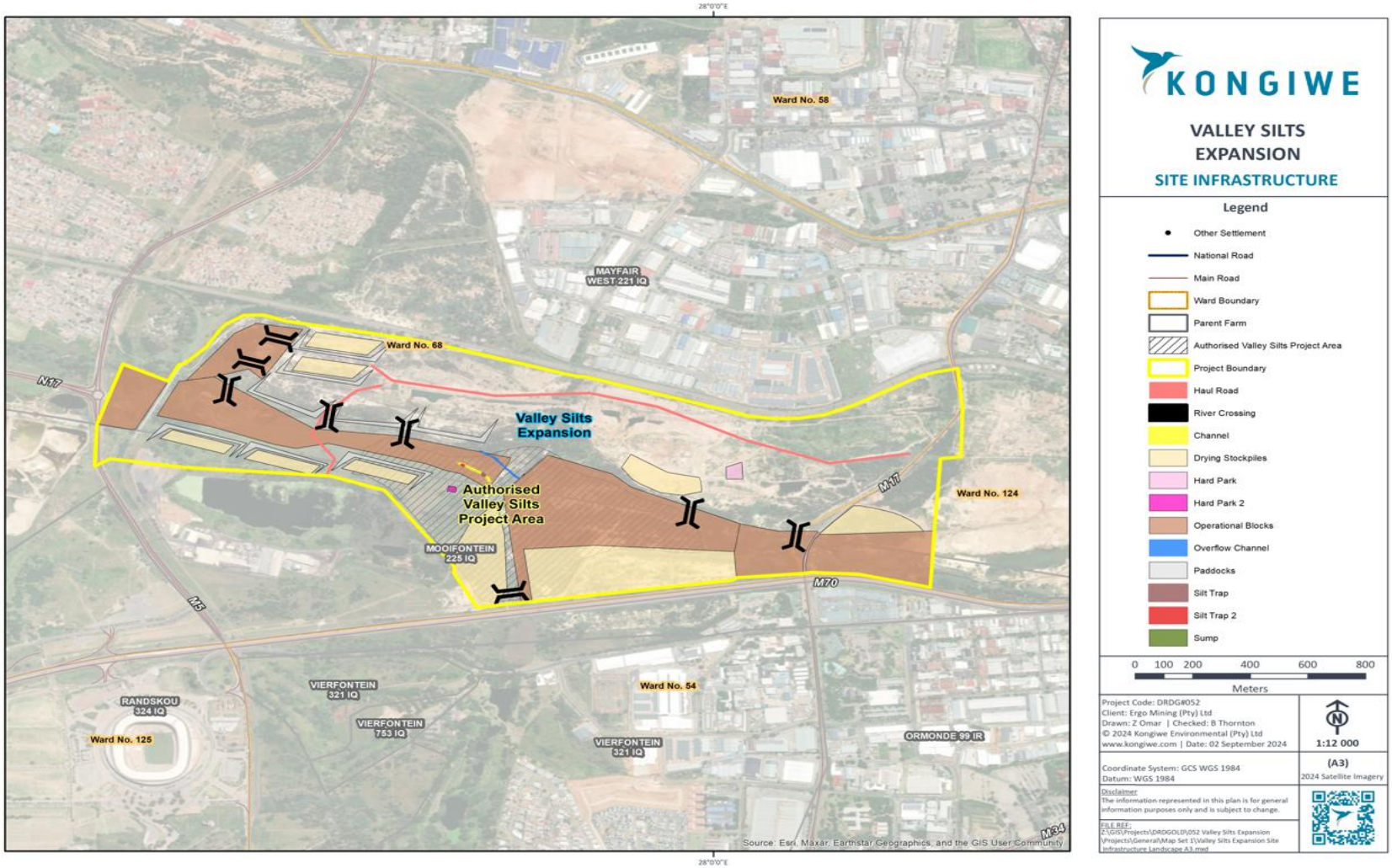


Figure 5-1: Valley Silt Site infrastructure

5.2. Water and Waste Management

5.2.1 Water Supply

The Proposed Project will not require any process water for the mechanical excavation of gold-bearing silts from the Russell Stream. However, retreated and recycled stormwater runoff may be used for dust suppression.

5.2.2 Water Balance

As there will be no process water or discharge, from the proposed mechanical excavations, there will not be a need for a water balance model.

5.2.3 Waste Management

Waste management will be uniformly conducted for the project.

5.2.3.1 Domestic Waste

Domestic waste will be stored in suitable containers, in designated areas on the project site. The waste will frequently be disposed of at a local municipal domestic waste handling facility. The waste containers will be demarcated as follows:

- General waste;
- Hazardous waste; and
- Steel / scrap waste.

5.2.3.2 Industrial Waste

Industrial waste will be contained in steel skips or bins and removed by licenced contractors and disposed of in a licenced industrial waste disposal site located off the project site.

5.2.3.3 Sewage Effluent

No sewage effluent will be generated on the project site as mobile toilets will be utilised and emptied on a weekly basis.

5.2.3.4 Reuse and Recycling

The water usage strategy for the project is designed to operate as a closed water system and therefore water on site will be captured and re-used as much as possible, thereby creating a complete balance

Measures will be taken to ensure that water is re-used/recycled as much as possible, these include:

- Water in the paddocks and sump, as a result of seepage or rainfall, will be reused for dust suppression. This will ensure that the water levels within the paddocks and sump are kept at a minimum at all times.

5.3. Stormwater (Clean and Dirty Water Management)

The purpose of the conceptual Stormwater Management Plan (SWMP) is to ensure that clean and dirty water are adequately separated, by diverting clean water away from dirty areas and ensuring that dirty water from the operation is captured, contained and managed appropriately in accordance with GN R704 regulations and DWS best practice guidelines.

The following design philosophy was adopted to guide the development of the SWMP, and is based on GN R704 and the DWS Best Practice Guideline (BPG) G1: Storm Water Management:

- Confine or divert any unpolluted water to a clean water system, away from a dirty area;
- Runoff from dirty areas must be captured, contained and managed appropriately;
- Clean and dirty water systems must be designed and constructed to prevent cross contamination;
- Dirty water must, as far as possible, be recycled and reused;
- Clean and dirty water systems must convey/contain runoff from the 50-year storm event, and should not lie within the 100 year floodline or within a horizontal distance of 100 m from any watercourse, whichever is the greater of the two; and
- Appropriate maintenance and management of stormwater related infrastructure should be ensured at all times.

5.3.1 Clean and Dirty Areas

Ergo Dirty areas include the following:

- Reclamation blocks –Reclamation of the silts has the potential to contaminate the Russell Stream with heavy metals, salts, acidic water and elevated suspended solids. Water within the reclamation blocks will need to be contained and managed;
- Drying stockpiles – moisture seeping from the stockpiled silts is expected to have similar water quality to that described above and will need to be contained and managed; and
- Hard Park areas – the two hard park areas will be used to park heavy machinery that have the potential to leak hydrocarbons. Drip mats or trays should be placed beneath parked machinery.

All areas surrounding the above-mentioned dirty areas should be treated as clean areas and should be diverted away from flowing into dirty areas.

All areas surrounding the above-mentioned dirty areas are treated as clean areas.

5.3.2 Proposed Stormwater Measures

The proposed conceptual SWMP is indicated on Figure 5-2 and is discussed below.

5.3.2.1 Reclamation Blocks

5.3.2.1.1 Dirty Water Management

All It is proposed that berms are constructed around the reclamation blocks to contain dirty water runoff. Dirty water within the reclamation blocks can be allowed to evaporate and can be used for dust suppression on the haul roads. Should there be a large accumulation of stormwater within the bermed off reclamation areas, then the excess stormwater will need to be released gradually to silt traps, that will settle out silts before entering the Russell Stream. This is currently done at the existing reclamation operation.

5.3.2.1.2 Clean Water Management

Upslope runoff will be diverted around the reclamation blocks by berms towards the Russell Stream.

5.3.2.2 Drying Stockpiles

5.3.2.2.1 Dirty Water Management

Runoff and seepage from the stockpiles will be captured and contained in paddocks and bermed off areas. Dirty water within the paddocks will be allowed to evaporate.

5.3.2.2.2 Clean Water Management

Upslope runoff will be diverted around the stockpile areas by berms towards the Russell Stream.

5.3.2.3 Flood Projection

The berms at the bottom of the reclamation blocks as well as the paddocks running along the Russell Stream, will prevent flooding of the reclamation and stockpile areas.

5.3.2.4 Berm Sizing

The berms and paddocks were sized to contain or divert the 1:50 year flood event as required by GN R704 and are provided in Table 5-1.

Table 5-1: Proposed berm and paddock heights

Berm/Paddock Section*	Berm Height (m)	Berm/Paddock Section*	Berm Height (m)
1 - 2	4	23 - 24	1.5
1 - 3	3	24 - 25	1.5
2 - 4	1.5	23 - 25	1.5
3 - 4	1.5	26 - 27	3
5 - 6	1.5	28 - 29	2
6 - 7	1.5	30 - 31	4
7 - 8	2.5	31 - 32	1.5

Berm/Paddock Section*	Berm Height (m)	Berm/Paddock Section*	Berm Height (m)
5 - 8	2.5	32 - 33	1.5
9 - 10	1.5	30 - 33	2
7 - 10	1.5	34 - 35	1.5
7 - 11	3.5	35 - 36	1.5
11 - 12	2	36 - 37	1.5
10 - 12	1.5	34 - 37	1.5
12 - 13	4	38 - 39	1.5
14 - 15	2	40 - 41	5
51 - 52	2	41 - 42	2
16 - 17	4	43 - 44	2
17 - 18	3	44 - 45	1.5
18 - 19	1.5	43 - 45	5.5
16 - 19	1.5	46 - 47	5
19 - 20	2	47 - 48	2
20 - 21	2	48 - 49	2
21 - 22	2	46 - 50	5.5

Figure 5-2 below illustrates the proposed conceptual stormwater management plan for the Valley Silts Expansion Project.

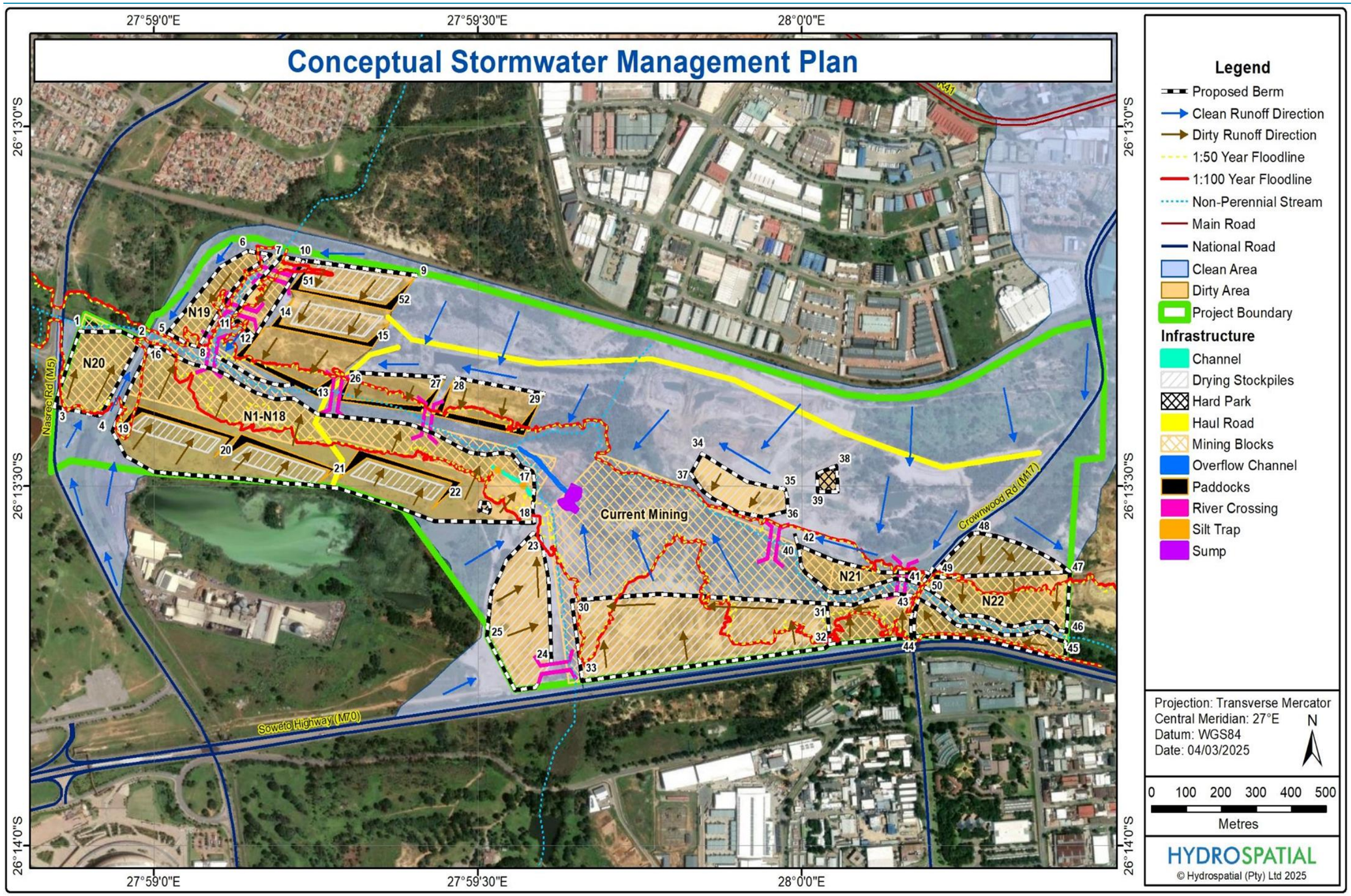


Figure 5-2: Proposed conceptual stormwater management plan for the Valley Silts Expansion Project

5.4. Operational Management

5.4.1 Organisational Structure

The organisational structure applicable to the Applicant is shown in Figure 5-3 below. As of January 2020, Sibanye holds a 50.1% interest in DRDGOLD which wholly owns the subsidiaries FWGR and Ergo. **The activities subject to this application will be operated under the entity Ergo**.

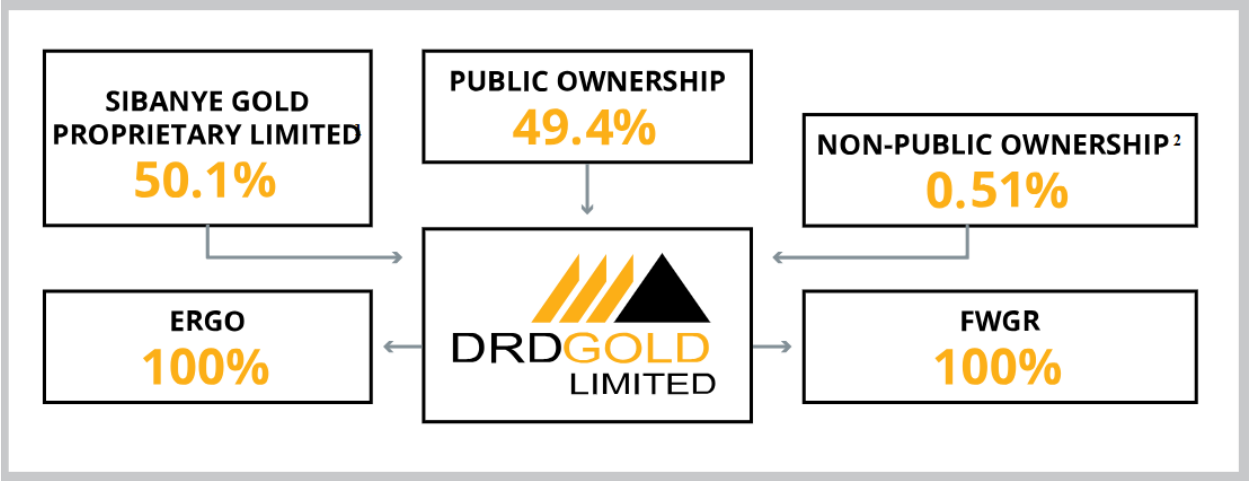


Figure 5-3: Organisational Structure

5.4.2 Resources and Competence

DRDGOLD has extensive experience and is solely focussed on the retreatment of surface gold tailings. The Proposed Project is in line with the company's expertise and a continuation of ongoing operations. The company currently employs over 900 permanent full-time employees with various service providers to assist with the execution of reclamation and tailings deposition.

5.5. Environmental Communication Strategies

Mine management is required to establish procedures for the internal communication between the various levels and functions of the organisation, and receiving, documenting and responding to environmental risks for each phase of the project will take place for the management, administrative and worker sectors of Ergo, as well as contractors. The organisation shall conduct processes for external communication on its significant environmental aspects and record its decision in line with Ergo communication policy as well as conditions stated in any EA or License.

5.5.1 Stakeholder Engagement Plan

A Stakeholder Engagement Plan (SEP) and Grievance Mechanism (GM) should be compiled for a project. The SEP needs to provide guidance for engagement with Stakeholders. This SEP has been developed to plan engagement activities for the Proposed Project.

Ergo will follow best practice and provide:

- A description of the regulatory and other requirements for Stakeholder Engagement (SE);
- A summary of the applicable South African legislation;
- A list of potential stakeholders identified for the project;
- Implementation plan for further consultation during the different phases of the project;
- A proposed grievance mechanism; and
- Management functions for the implementation of the SEP and grievance mechanism.

5.5.1.1 Internal Communication

Internal communication is done within the Administrative Sector.

5.5.1.2 External Communication Strategies

The following communication channels and media can be used to communicate environmental issues to individuals who are not employed by Ergo or its subcontractors:

- **Environmental Stakeholder engagement Forum**: An Environmental Stakeholder engagement Forum should be established and used to keep interested and affected parties informed of the significant environmental aspects identified through the Environmental Impact Assessments and Management Plans. This is also the forum where interested and affected parties get the opportunity to raise environmental concerns. Records are kept of all decisions and concerns. The Environmental Stakeholder engagement Forum meeting should be chaired by the Manager, or another appropriately appointed competent individual.
- **Publications**: Selected publications should be produced and used to communicate environmental issues to outside parties. Examples include newsletters and Annual Reports.
- **Communication from External Parties and Employees**: A clear communication point should be established within the company through the Ergo communication procedure that determines who is responsible for liaison with the media in respect of any crisis that may arise. A complete procedure for media liaison is available to all employees. Communication from external interested and affected parties may be received by email, fax, telephonically or by mail. Where required, a written response will be sent, on receiving such communication, by the appropriately appointed individual under signature of the Mine Manager, to the respective interested and / or affected party. All telephonic or facsimile correspondence received must be forwarded to the relevant department for action. All events or concerns will be captured and actioned on an existing and / or future database.
- **E-mail:** E-mail communication received must be stored, with replies, in an appropriate folder on a server. E-mail messages, relevant to environmental management, should be kept for a minimum of two years before deletion.
- **Mail:** Correspondence received by mail must be filed, along with the response (where relevant), within the relevant department's filing system for a minimum period of two years. Paper correspondence will be archived in this department.

- **Storage of Correspondence:** All original correspondence must be retained by the Mine Manager for a minimum period of three years.
- **Environmental Reports:** Copies of relevant specialist study reports and Environmental Impact Assessments will be available on request from an external party by the Mine Manager.
- **Queries from Interested and Affected Parties:** Response to queries about environmental impacts and aspects will be addressed by the relevant department and approved by the Mine Manager.
- **Queries and Requests from the Media**: Requests for articles from the media on environmental issues regarding the road construction will be co-ordinated by the Corporate Communication manager according to the public communication strategy, with input from the relevant department, as approved by the General Manager, in line with the Ergo Public and Community Communication and Liaison Strategy. Due to the environmental awareness generated by induction, on the job training etc., employees are able to identify environmental problems, issues, concerns and pollution timeously.

5.5.2 Evaluation of the Environmental Awareness Plan

The evaluation of the environmental awareness and training plan will be conducted by Ergo management. This evaluation will entail the auditing of the operation in both the construction and operation phase once activity has commenced. The environmental awareness and training plan described above is sufficient to make all those involved in the project aware of those risks that may occur as well as the necessary mitigation required to minimize these risks.

The environmental awareness and training plan indicates that Ergo is serious about the well-being of the environment and empowerment of the local people. Environmental issues will be discussed at monthly meetings scheduled at the reclamation site.

5.5.3 Emergency Incident Reporting

Environmental incident reporting is a vital part of communication in the project. Employees are required to report any and all environmentally related problems, incidents and pollution, so that the appropriate litigator action can be implemented timeously. In the event of an Environmental Incident, the incident must be reported according to the Incident Reporting Procedure.

An Emergency Incident Preparedness and Response Plan needs to be developed.

5.6. Monitoring and Control

5.6.1 Surface Water Monitoring

5.6.1.1 Surface Water Quality Monitoring

A surface water quality monitoring programme is essential as a management tool to detect negative water quality impacts as they arise and to ensure that the necessary mitigation measures are implemented. Should the project be approved, it is recommended that Ergo continues to monitor the upstream, middle and downstream sections of the Russell Stream (Table 5-2).

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Table 5-2: Description of the surface water quality sampling locations

Sampling Point	Monitored by	Monitoring Period Assessed	Location from Project	Location Description	Latitude	Longitude
CR1	Ergo	Jun 2021 – Jan 2025	Upstream of Project	Russell Stream - Lake Road	-26.226111°	28.024167°
CR4	Ergo	Jun 2021 – Jan 2025	Upstream of Project	Small bridge at CGR (Crownwood Road)	-26.226667°	28.002778°
CR7	Ergo	Jun 2021 – Jan 2025	Downstream of Project	Russell Stream - bridge at Randshow Road (Riverlea)	-26.220556°	27.981667°
CR11	Ergo	Jun 2021 – Jan 2025	Downstream of Project	New Canada Road bridge	-26.210556°	27.952778°

Water quality sampling should be done in accordance with the DWS Best Practice Guideline G3: Water Monitoring Systems. Samples must be kept cool (+-4°C), out of direct sunlight, and transported immediately to an accredited laboratory for water quality analysis within 24 hours of sampling. The impacts on water quality should be determined by comparing the monitoring results against the Klip River Catchment guideline limits and SANS 241:2015, and importantly against previous results, to determine any deviations in trends over time. If the trend analysis indicates any deviations to the baseline monitoring, in terms of deteriorating water quality, then an immediate investigation must be undertaken to determine whether the operation may be responsible. If responsible, urgent action must be undertaken to implement mitigation measures to prevent further contamination.

Table 5-3: Water Quality limits

Parameter	Units	Klip River Catchment Limits		SANS 241:2015 Limits	
		Tolerable	Unacceptable	Risk	Limit
pH - Value @ 25 ºC	pH units		< 6.0; > 9.0	Operational	≥ 5 to ≤ 9.7
Electrical Conductivity @ 25°C	mS/m	100 - 150	> 150	Aesthetic	≤ 170
Total Dissolved Solids @ 180°C	mg/ℓ	---	---	Aesthetic	≤ 1 200
Total Acidity as CaCO3	mg/ℓ	---	---	---	---
Chloride as Cl	mg/ℓ	75 - 100	> 100	Aesthetic	≤ 300
Sulphate as SO4	mg/ℓ	350 - 500	> 500	Acute health	≤ 500
Fluoride as F	mg/ℓ	0.7 - 1.00	> 1.00	Chronic health	≤ 1.5
Nitrate as N	mg/ℓ	4.0 - 7.0	> 7.0	Acute health	≤ 11
Nitrite as N	mg/ℓ	---	---	Acute health	≤ 0.9
Bromide as Br	mg/ℓ	---	---	---	---
Ortho Phosphate as P	mg/ℓ	---	---	---	---
Total Cyanide as CN	mg/ℓ	---	---	---	---

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Parameter	Units	Klip River Catchment Limits		SANS 241:2015 Limits	
		Tolerable	Unacceptable	Risk	Limit
Free and Saline Ammonia as N	mg/ℓ	---	---	---	---
Sodium as Na	mg/ℓ	80 - 100	> 100	Aesthetic	≤ 200
Potassium as K	mg/ℓ	---	---	---	---
Calcium as Ca	mg/ℓ	---	---	---	---
Magnesium as Mg	mg/ℓ	30-70	> 70	---	---
Aluminium as Al (Dissolved)	mg/ℓ	0.3 - 0.5	> 0.5	Operational	≤ 0.3
Antimony as Sb (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.02
Arsenic as As (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.01
Barium as Ba (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.7
Beryllium as Be (Dissolved)	mg/ℓ	---	---	---	---
Bismuth as Bi (Dissolved)	mg/ℓ	---	---	---	---
Boron as B (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 2.4
Cadmium as Cd (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.003
Hexavalent Chromium as Cr	mg/ℓ	---	---	---	---
Total Chromium as Cr (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.05
Cobalt as Co (Dissolved)	mg/ℓ	---	---	---	---
Copper as Cu (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 2
Iron as Fe (Dissolved)	mg/ℓ	1.0 - 1.5	> 1.5	Chronic health	≤ 2
Ferrous Iron as Fe2+ (Dissolved)	mg/ℓ	---	---	---	---
Ferric Iron as Fe3+ (Dissolved)	mg/ℓ	---	---	---	---
Lead as Pb (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.01
Lithium as Li (Dissolved)	mg/ℓ	---	---	---	---
Manganese as Mn (Dissolved)	mg/ℓ	2.0 - 4.0	> 4.0	Chronic health	≤ 0.4
Mercury as Hg (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.006
Molybdenum as Mo (Dissolved)	mg/ℓ	---	---	---	---
Nickel as Ni (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.07

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Parameter	Units	Klip River Catchment Limits		SANS 241:2015 Limits	
		Tolerable	Unacceptable	Risk	Limit
Phosphorus as P (Dissolved)	mg/ℓ	---	---	---	---
Selenium as Se (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.04
Silicon as Si (Dissolved)	mg/ℓ	---	---	---	---
Silver as Ag (Dissolved)	mg/ℓ	---	---	---	---
Strontium as Sr (Dissolved)	mg/ℓ	---	---	---	---
Thallium as Tl (Dissolved)	mg/ℓ	---	---	---	---
Thorium as Th (Dissolved)	mg/ℓ	---	---	---	---
Tin as Sn (Dissolved)	mg/ℓ	---	---	---	---
Titanium as Ti (Dissolved)	mg/ℓ	---	---	---	---
Tungsten as W (Dissolved)	mg/ℓ	---	---	---	---
Uranium as U (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.03
Vanadium as V (Dissolved)	mg/ℓ	---	---	---	---
Zinc as Zn (Dissolved)	mg/ℓ	---	---	Aesthetic	≤ 5
Zirconium as Zr (Dissolved)	mg/ℓ	---	---	---	---
Suspended Solids	mg/ℓ	30 - 55	> 55	---	---
Turbidity	NTU	---	---	Aesthetic	≤ 5

Reporting should continue to be done on a monthly / quarterly basis (or as recommended by the DWS). It is recommended that monitoring reports include trend analyses. It is further recommended that the water quality from upstream monitoring points is compared to downstream monitoring points.

5.6.1.2 Stormwater Infrastructure

Water infrastructure (paddocks, channels and berms) should be monitored on a monthly basis during the dry season, and on a weekly basis during the wet season. They should further be monitored immediately after any large storm events. Should blockages, silted up structures or breaches occur, immediate action should be undertaken to remove debris and repair breaches. Monitoring should be undertaken by the onsite Environmental Officer (EO) or maintenance manager. Inspections should be recorded and should include the following:

- Date of inspection;
- Rainfall amount received prior to inspection;

- Photographs of blockages, silted up structures or breaches witnessed;
- What action was undertaken to fix issues, and the amount of time taken to address them; and
- Photographs post action taken.

Inspection reports should be kept ready and supplied to the DWS when requested, or as part of the WUL conditions.

5.6.2 Groundwater Monitoring

To monitor and prevent the spread of groundwater contamination, groundwater management procedures and practices must be implemented that are in line with accepted practices and in accordance with the requirements of the Environmental Management Plan (EMP). It is recommended to implement the groundwater monitoring program presented in this report. The key objectives of the groundwater monitoring program are to:

- Detect short and long-term trends;
- Recognise changes in groundwater quality and levels;
- Measure impacts and implement mitigation measures; and
- Develop improved monitoring systems.

Groundwater monitoring must be undertaken to establish the extent of contamination in the shallow weathered and deeper fractured aquifers, during and after the reclamation activities.

5.6.2.1 Monitoring Locations

Monitoring must be undertaken in the four newly drilled boreholes as well as borehole VAL1. These boreholes are optimally located from a groundwater perspective. No additional monitoring boreholes are required, based on the outcome of this assessment.

If these boreholes are destroyed during reclamation, they must be replaced as soon as possible.

Table 5-4: Monitoring Borehole Location

Borehole ID	VS-BH 1s	VS-BH 1d	VS-BH 2s	VS-BH 2d
Latitude	26°13'39.64"S	26°13'39.59"S	26°13'17.35"S	26°13'17.31"S
Longitude	28°00'23.73"E	28°00'23.73"E	27°59'01.50"E	27°59'01.48"E

5.6.2.2 Monitoring Requirements

The monitoring requirements are presented in Table 5-5.

Table 5-5: Groundwater monitoring requirements

Monitoring parameter	Element for analysis	Monitoring frequency	Monitoring trigger-response criteria
Depth to groundwater level in existing boreholes	Groundwater level	Quarterly	Variations by more than 3 m for 2 consecutive months should be investigated
Water quality analysis in all existing boreholes and process water	All elements included in the analyses completed as part of this assessment	Quarterly	Variations in concentrations of more than 15% for major cations and anions and more than 7% for metal concentrations for more than 2 consecutive months should be investigated. Any result that exceeds specified water quality objectives must be investigated when it occurs
Groundwater level and quality in borehole Val1 (hydrocensus BH)	Groundwater level as well as all elements included in analyses presented in this report	Quarterly	As above
Rainfall	Rain depth (mm)	Daily on site	None

The monitoring trigger-response criteria listed in Table 5-5 must be reviewed on an annual basis and updated, based on the outcome of the monitoring program results. All monitoring information must be entered into a spreadsheet for record keeping and analysis. Copies of the certificates of analyses must be kept on file for inspection. If significant exceedances are recorded during the monitoring program, the following actions should be taken:

- Log the exceedances in the incident reporting system within 24-hours of it occurring.
- Undertake an investigation to identify causes of the exceedances.
- Implement the necessary remedial actions according to the outcome of the investigation and consultation with the affected parties.
- Report significant exceedances to the Environmental and General Managers as well as to the regulatory authority and track the incident until completion.

The results of the monitoring program must be reported quarterly and on an annual basis for the purpose of internal Ergo water management. These reports must also be submitted to the authorities for review.

5.6.2.3 Groundwater Monitoring Reports

Monitoring reports must contain the following information:

- Monitoring borehole location map;
- Geology map;
- All coordinates of the groundwater sampling sites;
- Certificates of analysis must be included for quality assurance. Monitoring results will be compared to South African National Standards (SANS241) and the Klip River catchment guideline limits (Table 5-3);
- Time-series graphs for key indicator elements (e.g. pH, EC, TDS, Fe, Mn, Cd, Ni, Al, Pb and SO_4);
- Trilinear or other analytical groundwater plots;
- A discussion regarding observed trends and potential groundwater contamination; and
- Recommendations regarding possible amendments or additions to the groundwater monitoring program, based on trends and other information observed.

5.6.2.4 Quality Assessment and Quality Control

Quality assurance means:

- Developing a system of activities to ensure that measurements meet defined standards of quality with a stated level of confidence;
- Defining monitoring objectives, quality control procedures to be followed and quality assessment;
- To define data quality objectives, including accuracy, precision, completeness, representativeness and comparability; and
- Designing a network, selecting sampling sites, selecting instruments and designing the sampling system, as discussed above.

All monitoring equipment must be maintained as required, and calibration must be undertaken on a regular basis.

To ensure that the Groundwater Monitoring Strategy complies with the above, it is important that analytical laboratories used should be accredited for each type of analysis required, to ensure that accurate analytical methods are used.

While only one or two of the common major ions found in waters may be specified as key indicators, it is necessary to analyse for the full suite of common ions for quality control purposes and to detect discrete events and long-term trends in anion composition.

Special attention must be paid to sampling methods and to preservation and handling of samples prior to analysis. pH and conductivity must be measured in the field.

Close attention must be given to siting, logging and construction of monitoring boreholes and assessment of their condition must be made quarterly.

The following sampling protocol is proposed:

- Sterilised plastic bottles, with a plastic cap and no liner within the cap are required for the sampling. Sample bottles should be marked clearly with the borehole name, date of sampling, water level depth and the sampler's name;
- Water levels should be measured prior to taking the sample, using a dip meter (m bgl);
- Each borehole to be sampled should be purged (to ensure sampling of the aquifer and not stagnant water in the casing) using a submersible pump or a clean disposable polyethylene bailer. At least three borehole volumes of water should be removed through purging; or through continuous water quality monitoring, until the electrical conductivity value stabilises;
- The following field measurements should be recorded on a field form for each sampling point: pH, EC and temperature;
- Samples should be kept cool in a cooler box in the field and kept cool prior to being submitted to the laboratory; and

- The pH and EC meter used for field measurements should be calibrated daily using standard solutions obtained from the instrument supplier.

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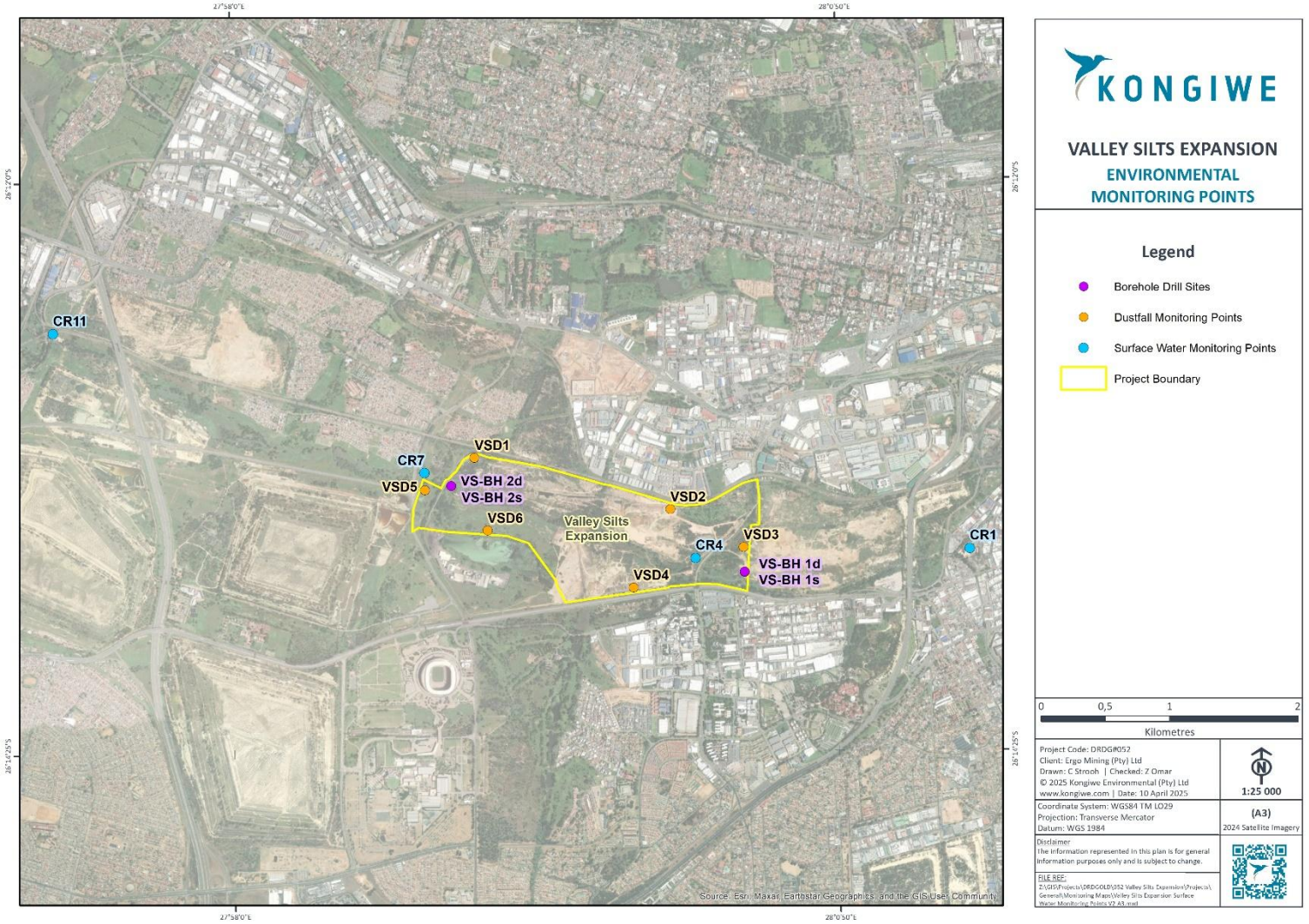


Figure 5-4: Environmental monitoring locations

5.6.3 Biomonitoring

The monitoring requirements for the project that must be included in the Water Use Licence Authorisation must make provision for the following:

An aquatic specialist must monitor the site on a monthly basis for the duration the construction phase. The duties of the specialist during this phase will be:

- Monitoring of compliance with the sections of the EMPr that deals with the construction of the reclamation and related activities;
- Compilation of a monthly report indicating the level of compliance with the requirements of the EMPr. This audit report must, as a minimum meet the requirements of Appendix 7 of the Environmental Impact Regulations (2014) as amended; and
- Submission of the monthly audit report directly to the relevant authority.

An independent aquatic specialist must monitor the site on a bi-annual basis (twice a year) for the duration the operational phase. The duties of the specialist during this phase will be:

- Monitoring of compliance with the sections of the EMPr that deals with the operation of the reclamation activities;
- Compilation of an annual audit report to the relevant authorities in fulfilment of the requirements of Appendix 7 of the Environmental Impact Regulations, 2014, as amended; and
- Submission of the audit report directly to the relevant authority.

5.6.4 Waste Monitoring

Waste will be monitored in accordance with Ergo's Waste Policy. Waste streams identified will be separated to monitor the quantities of different waste streams that are generated and disposed of.

5.7. Risk Assessment / Best Practice Assessment

5.7.1 Construction Phase

5.7.1.1 Groundwater

During the construction phase, the sediments and silt in the area, earmarked for excavation, will be disturbed. The introduction of oxygen during this phase of the project is expected to result in a deterioration in groundwater quality. Due to the short duration of the construction phase, this impact is not expected to have an additional negative impact in terms of salt and heavy metal concentration increases, nor be laterally extensive.

No additional impact is expected on the groundwater quantity and quality during the construction phase. Construction will be conducted in a relatively short period compared to the operational and post-closure phases. Impacts on the groundwater environment are therefore rated as Low (Table 5-6).

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Table 5-6: Construction Phase water quality impacts

NATURE OF IMPACT 1: Impact on the local groundwater quality		
	Impact Rating without Mitigation	**Impact Rating with Mitigation**
Impact Status: (positive or negative)	Negative	Negative
Extent (Local, Regional, International)	Local	Local
Duration (Short term, Medium term, Long term)	Short term	Short term
Magnitude (Major, Moderate, Minor)	Minor -	Minor +
Probability (Definite, Possible, Unlikely)	Possible	Possible
Calculated Significance Rating (Low, Medium, High)	**Low**	**Low**
Reversibility: (Reversible or Irreversible)	Reversable	
Irreplaceable loss of resources: (Yes or No)	No	
Can impacts be enhanced: (Yes or No)	Yes	
Residual impacts • The slimes dams and sand dumps along the Russell Stream are all potential sources of pollution and silt. In the current state of the stream (with silt) and after removal of the silt, these pollution sources next to the stream must be managed more effectively to ensure no contaminated silt, surface or groundwater enters the rehabilitated Russell Stream. Current water qualities indicate high salt and metal concentrations, with a low pH water found along the TSF footprint areas.		
Mitigation measures • Implement a groundwater monitoring program before excavation starts. Use the dedicated groundwater monitoring boreholes along the Russell Stream to measure the groundwater status, impact of the activities on the groundwater environment and changes in groundwater qualities and levels post closure. • Develop sound surface runoff management plans to ensure that all dirty runoff from the stockpile areas, but also from the adjacent slimes dams and sand dumps are contained and diverted to the cut-off trenches and sumps. No pooling of water on surface allowed. • Ensure that cut-off trenches and sumps are designed to contain all dirty water generated during the process, to prevent overflows and spillages.		

5.7.1.2 Surface Water

During the construction phase, vegetation will be cleared, and temporary infrastructure will be erected. The construction phase will be less than a year. The activities and impacts that are likely to occur during the construction phase are summarised in Table 5-7 .

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Table 5-7: Summary of activities and impacts for the construction phase

Activity	Impact Description
Removal of vegetation and alteration to the topography.	Erosion of silt and consequent deterioration of water quality in the Russell Stream.

The ratings and proposed mitigation measures for the construction phase are provided in Table 5-8.

Table 5-8: Significance rating for the construction phase

NATURE OF IMPACT: The removal of vegetation will expose soils to water erosion that may lead to a deterioration in water quality of the Russell Stream		
	Impact Rating without Mitigation	**Impact Rating with Mitigation**
Extent (Local, Regional, International)	Regional	Local
Duration (Short term, Medium term, Long term)	Short term (construction phase period)	Short term (construction phase period)
Magnitude (Major, Moderate, Minor)	Moderate	Minor
Probability (Definite, Possible, Unlikely)	Possible	Possible
Calculated Significance Rating (Low, Medium, High)	**Medium**	**Low**
Impact Status: (positive or negative)	Negative	Negative
Reversibility: (Reversible or Irreversible)	Irreversible	
Irreplaceable loss of resources: (Yes or No)	No	
Can impacts be enhanced: (Yes or No)	Yes	
Residual impacts • None foreseen		
Mitigation measures • Clearance of vegetation must be limited as far as possible; • The SWMP must be implemented as a first step during the construction phase; and • Water quality sampling must continue upstream and downstream of construction areas. Should there be a deterioration in water quality from upstream to downstream, then immediate action should be undertaken to identify and address the issue.		

5.7.1.3 Biodiversity

The following potential impacts were considered on biodiversity (fauna and flora) during the construction phase:

- An impact to local Vegetation and Habitats;

- An impact to Local Fauna;
- The spread of Alien Species;
- The implementation of Environmental Awareness Training;
- The impact of Erosion;
- The generation of dust, and waste.

Table 5-9: Assessment of significance of potential construction impacts on vegetation and habitat.

Impact Name	**Vegetation and Habitats**	
Environmental Risk		
Attribute	**Pre-mitigation**	**Post-mitigation**
Nature	Negative	Negative
Magnitude	Moderate -	Minor -
Duration	Short Term	Short Term
Scale	Site or local	Site or local
Probability	Possible	Possible
Environmental Risk Significance (Pre-mitigation)		Medium -
Management Measures:		
• Laydown and construction preparation activities (such as cement mixing, temporary toilets, etc.) must be limited to already modified areas and should take up the smallest footprint possible. • Areas classified as medium sensitivity (water resource habitat) must have mitigations applied as stipulated in the accompanying freshwater/wetland assessment. • Develop post-reclamation environments, in conjunction with regional development plans; and the recreation of habitats, where possible; or structure altered landscapes to be compatible with regional habitats. • It is recommended that areas to be developed/disturbed be specifically demarcated so that during the construction/activity phase, only the demarcated areas be impacted upon. • Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, should not be fragmented or disturbed further if possible. • All vehicles and personnel must make use of existing roads and walking paths as far as possible, especially construction/operational vehicles. • The clearing of vegetation must be minimised where possible. All activities must be restricted to within the authorised areas. • Materials may not be stored for extended periods of time and must be removed from the PAOI once the construction phase has been concluded. No permanent construction phase structures should be permitted. Construction buildings should preferably be prefabricated or constructed of re-usable/recyclable materials. No storage of vehicles or equipment will be allowed outside of the designated laydown areas. • Areas that are denuded during construction need to be re-vegetated with indigenous vegetation according to a habitat rehabilitation plan, to prevent erosion during flood and wind events and to promote the regeneration of functional habitat. This will also reduce the likelihood of encroachment by alien invasive plant species. • A hydrocarbon spill management plan must be put in place to ensure that should there be any chemical spill out or over that it does not run into the surrounding areas. The Contractor shall be in possession of an emergency spill kit that must always be complete and available on site. • It must be made an offence for any staff member to remove any indigenous plant species from the PAOI		

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Impact Name	Vegetation and Habitats
or bring any alien species in. This is to prevent the spread of exotic or alien species or the illegal collection of plants. • All construction waste must be removed from site at the closure of the construction phase. • Storm Water run-off & Discharge Water Quality monitoring	
Environmental Risk Significance (Post-mitigation)	Low -
Cumulative Impacts	Yes, current local activities

Table 5-10: Assessment of significance of potential construction impacts on Fauna.

Impact Name	Fauna	
Environmental Risk		
Attribute	**Pre-mitigation**	**Post-mitigation**
Nature	Negative	Negative
Magnitude	Moderate -	Minor -
Duration	Short Term	Short Term
Scale	Site or local	Site or local
Probability	Possible	Possible
Environmental Risk Significance (Pre-mitigation)		Medium -
Management Measures:		
• A qualified environmental control officer must be on site when activities begin. Should animals not move out of the area on their own, relevant specialists must be contacted to advise on how the species can be relocated. • Clearing and disturbance activities must be conducted in a progressive linear manner always outwards and away from the centre of the PAOI and over several days, so as to provide an easy escape route for all small mammals and herpetofauna. • The areas to be disturbed must be specifically and responsibly demarcated to prevent the movement of staff or any individual into the surrounding environments, signs must be put up to enforce this. • The duration of the activities should be minimised to as short a term as possible, to reduce the period of disturbance on fauna. • Noise must be kept to an absolute minimum during the evenings and at night to minimise all possible disturbances to reptile species and nocturnal mammals. • No trapping, killing, or poisoning of any wildlife is to be allowed and signs must be put up to enforce this. Monitoring must take place in this regard. • Outside lighting should be designed and limited to minimise impacts on fauna. All outside lighting should be directed away from any sensitive areas. Fluorescent and mercury vapor lighting should be avoided, and sodium vapor (green/red) lights should be used wherever possible. • All construction and maintenance motor vehicle operators should undergo an environmental induction that includes instruction on the need to comply with speed limits, to respect all forms of wildlife. Speed limits must be enforced to ensure that road killings and erosion is limited. • Any holes/deep excavations must be dug in a progressive manner and shouldn't be left open overnight. Should any holes remain open overnight they must be properly covered temporarily to ensure that no small fauna species fall in. Holes must be subsequently inspected for fauna prior to backfilling.		

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Impact Name	Fauna
• If fencing is required: wildlife-permeable fencing with holes large enough for mongoose and other smaller mammals should be installed, the holes must not be placed in the fence where it is next to a major road as this will increase road killings in the area.	
Environmental Risk Significance (Post-mitigation)	Low -
Cumulative Impacts	Yes, current local activities

Table 5-11: Assessment of significance of potential construction impacts of alien species.

Impact Name	Alien Species	
Environmental Risk		
Attribute	**Pre-mitigation**	**Post-mitigation**
Nature	Negative	Negative
Magnitude	Moderate -	Minor -
Duration	Short Term	Short Term
Scale	Site or local	Site or local
Probability	Possible	Possible
Environmental Risk Significance (Pre-mitigation)		Medium -
Management Measures:		
• An Alien Invasive Plant (AIP) Management Plan must be compiled and implemented. This should regularly be updated to reflect the annual changed in AIP composition. • The footprint area of the construction should be kept to a minimum. The footprint area must be clearly demarcated to avoid unnecessary disturbances to adjacent areas. Footprints of the roads must be kept to prescribed widths.		
Environmental Risk Significance (Post-mitigation)		Low -
Cumulative Impacts		Yes, current local activities

Table 5-12: Assessment of significance of potential construction impacts of waste management.

Impact Name	Waste Management	
Environmental Risk		
Attribute	**Pre-mitigation**	**Post-mitigation**
Nature	Negative	Negative
Magnitude	Moderate -	Minor -
Duration	Short Term	Short Term
Scale	Site or local	Site or local
Probability	Possible	Possible
Environmental Risk Significance (Pre-mitigation)		Medium -
Management Measures:		
• Waste management must be a priority and all waste must be collected and stored effectively and responsibly according to a site-specific waste management plan. Dangerous waste such as metal wires and		

Impact Name	Waste Management
glass must only be stored in fully sealed and secure containers, before being moved off site as soon as possible. • Litter, spills, fuels, chemical and human waste in and around the PAOI must be minimised and controlled according to the waste management plan. • Cement mixing may not be performed on the ground. It is recommended that only closed side drum or pan type concrete mixers be utilised. Any spills must be immediately contained and isolated from the natural environment, before being removed from site. • Toilets at the recommended Health and Safety standards must be provided. These should be emptied regularly and once no longer required, they must be pumped dry to prevent leakage into the surrounding environment and removed from site. • The Contractor should supply sealable and properly marked domestic waste collection bins and all solid waste collected shall be disposed of at a licensed disposal facility within every 10 days at least. • Where a registered disposal facility is not available close to the PAOI, the Contractor shall provide a method statement with regards to waste management. Under no circumstances may domestic waste be burned on site or buried on open pits. • Refuse bins will be responsibly emptied and secured. Temporary storage of domestic waste shall be in covered and secured waste skips. Maximum domestic waste storage period will be 10 days.	
Environmental Risk Significance (Post-mitigation)	Low -
Cumulative Impacts	Yes, current local activities

Table 5-13: Assessment of significance of potential construction impacts of erosion.

Impact Name	Erosion	
Environmental Risk		
Attribute	**Pre-mitigation**	**Post-mitigation**
Nature	Negative	Negative
Magnitude	Moderate -	Minor -
Duration	Short Term	Short Term
Scale	Site or local	Site or local
Probability	Possible	Possible
Environmental Risk Significance (Pre-mitigation)		Medium -
Management Measures:		
• Speed limits must be put in place to reduce erosion. Soil surfaces must be wetted as necessary to reduce the dust generated by the project activities. Speed bumps and signs must be erected to enforce slow speeds. • Only existing access routes and walking paths may be made use of. • Areas that are denuded during construction need to be re-vegetated with indigenous vegetation to prevent erosion during flood events etc. • A stormwater management plan must be compiled and implemented if necessary.		
Environmental Risk Significance (Post-mitigation)		Low -
Cumulative Impacts		Yes, current local activities

5.7.1.4 Wetlands

The assessed wetlands exhibit impacts at local scale. These impacts result from present and historical land use relating to developments in or in near proximity to wetlands and reclamation activities which have transformed the wetland habitats and has altered their natural hydrological regime and vegetation composition.

Table 5-14: Summative results of the Risk Assessment conducted for the proposed project

Phase	Activity	Impact	Significance (max = 100)	Risk Rating	Confidence level
Construction and operation	Excavation	Loss of wetlands and associated organic material and vegetation through site excavation	33,6	M	High
		Increased contamination of downstream watercourse through the upheaval and liberation of toxins accumulated / trapped in the sediments	33,6	M	High
		Flow impediment leading to flooding, backlogging or wetland drowning upstream of the expansion activities	16,8	L	High
		Flow concentration leading to increased erosion and scouring downstream of the expansion activities	16,8	L	High
		Sedimentation and increased turbidity in downstream watercourses	38,4	M	High
	Drying and hauling	Altered hydrological regimes from increased bare surfaces and altered topography with subsequent increase in overland flow and flood peaks	16,8	L	High
		Potential loss / disturbance of wetland soil and vegetation	21,6	L	High
		Impaired water quality of the Russell Stream with leachate from the drying area	31,2	M	High
	Operation of machinery and equipment and vehicle movement.	Altered hydrological regimes from hardened surfaces arising from compacted surfaces attributed to the use of machinery and equipment	33,6	M	High

		Increase in erosion and sedimentation of receiving systems attributed to altered hydrological regimes	38,4	M	High
		Impaired water quality from contamination of water resources by stochastics spills and leaks from machinery and equipment (e.g., fuel and machine oils)	26,4	L	High
		Loss or degradation of ecosystem services attributed to the above-mentioned impacts	21,6	L	High
	Culverts	Altered hydrological regimes from channelling or diversion of flow during crossing preparation and installation and, from compacted surfaces attributed to the use of heavy machinery	26,4	L	High
		Increase in erosion and sedimentation of receiving systems attributed to altered hydrological regimes	26,4	L	High
		Establishment and proliferation of alien vegetation from disturbances related to installation of infrastructure	31,2	M	High
		Impaired water quality attributed to the above-mentioned impacts and from contamination by polluted runoff	31,2	M	High
		Loss or degradation of ecosystem services	26,4	L	High
	Landscaping	Final landscaping and reshaping	-42	+	High
	Vehicle traffic.	Potential contamination of wetlands from polluted runoff	26,4	L	High
		Wetland pollution from indiscriminate dumping of litter	19,8	L	High
	Stormwater	Operation of stormwater management (runoff generated from hardened surfaces)	26,4	L	High

5.7.1.4.1 Mitigation Measures

In light of the expected impacts from proposed activities the following mitigation measures have been proposed to lower the intensity of the impacts on the ecological integrity of the wetlands.

The focus of mitigation measures should be to reduce the significance of potential environmental impacts associated with the proposed development and thereby to:

- Prevent the unnecessary destruction and fragmentation of the vegetation community of the wetland areas; and
- Limit the construction area to the defined project areas and only impact those areas where it is unavoidable to do so otherwise.

5.7.1.3.1.1 General Mitigation Measures

following general mitigation measures are provided in addition to the aforementioned mitigation:

- Construction activities must take place during the low flow period (as much as possible). In addition to this, basic stormwater structures such as berms must be designed and implemented prior to and throughout the duration of the construction activities;
- A qualified Hydrologist with experience in arid areas must develop a suitable and adaptive Stormwater management plan to ensure no erosion takes place and that clean water reports back to the local watercourses;
- The water resources outside of the specific project site area must be avoided;
- Prevent uncontrolled access of vehicles through the watercourse that can cause a significant adverse impact on the hydrology and alluvial soil structure of these areas;
- Laydown yards, camps and storage areas must be beyond the watercourse and associated buffer areas.
- Have action plans on site, and training for contactors and employees in the event of spills, leaks and other impacts to the drainage systems;
- The contractors used for the project should have spill kits available to ensure that any fuel or oil spills are clean-up and discarded correctly;
- All chemicals and toxicants to be used for the construction must be stored outside the watercourses and in a bunded area;
- Appropriately contain any generator diesel storage tanks, machinery spills (e.g. accidental spills of hydrocarbons oils, diesel etc.) or construction materials on site (e.g. concrete) in such a way as to prevent them leaking and entering the environment;
- All machinery and equipment should be inspected regularly for faults and possible leaks, these should be serviced off-site;
- Mixing of concrete must under no circumstances take place within the drainage systems. Scrape the area where mixing and storage of sand and concrete occurred to clean once finished;

- All contractors and employees should undergo induction which is to include a component of environmental awareness. The induction is to include aspects such as the need to avoid littering, the reporting and cleaning of spills and leaks and general good "housekeeping";
- Adequate sanitary facilities and ablutions on the servitude must be provided for all personnel throughout the project area. These should not be placed near any watercourse or in buffer zones. Use of these facilities must be enforced (these facilities must be kept clean so that they are a desired alternative to the surrounding vegetation);
- The haul road and associated road margins, and silt traps must be inspected on a monthly basis for signs of erosion. When erosion is observed, the area should be rehabilitated within 7 days. In addition, inspections following a >50 mm/ 24 hr rainfall event must occur within 7 days of the event;
- No dumping of construction material on-site may take place;
- All waste generated on-site during construction must be adequately managed. Separation and recycling of different waste materials should be supported; and
- Make sure all excess consumables and building materials / rubble are removed from site and deposited at an appropriate waste facility.

5.7.2 Operational Phase

5.7.2.1 Groundwater

5.7.2.1.1 Groundwater Quality

Historically the sources of pollution associated with the Valley Silts Project area include:

- Contaminated storm water runoff from the slimes dams and sand dumps along the Russell Stream;
- Seepage water from the slimes dams and return water dams (RWD), possibly containing high sulphates and metals; and
- Recharge of contaminated water by means of seepage from the dumps and any unlined storm water channels.

Groundwater quality will be negatively affected with potential increase in salt loads, especially sulphate and iron concentrations during the excavation activities. The silt will potentially contain pyrite minerals and when exposed to oxygen and water during excavation it will result in the formation of acidic conditions. The risk of groundwater contamination during the excavation activities will be higher compared to the existing impacts, as chemical reactions and leaching from the silt will increase when exposed to oxygen and rainwater. Surface water management and containment guidelines must be followed carefully during the desilting process (Table 5-15).

The desilting activities will be driven by mechanical excavation. No water is used in the process, but water will be present along the stream channel.

The current understanding of the aquifers present and the potential sources to groundwater contamination suggests that the impact on groundwater quality during the operational phase will mainly

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be limited to the disturbed areas. Within the disturbed areas, both the simulated sulphate and iron concentrations are expected to exceed the Klip River catchment unacceptable water quality guidelines. This impact may extend several hundred metres from the excavations, depending on aquifer conditions.

The wetlands to the west of the Valley Silts Project may experience groundwater quality in terms of sulphate and iron concentrations that exceed tolerable interim target water qualities. In the long-term groundwater qualities are expected to improve to within acceptable management targets in this wetland. There is currently insufficient information available to estimate the salt load on this wetland because of contamination groundwater baseflow components.

Monitoring of groundwater quality and water levels must be implemented along and downgradient of the Russell Stream, with continuous review and updating of the monitoring network based on the monitoring results.

A cause for concern in reclaimed residue deposits is incomplete clean-up operations. Any remaining material, in particular sulphide minerals, poses an environmental hazard. It is important that a sound stormwater management plan is implemented during the operational phase to ensure that dirty footprints and runoff are contained.

In addition to the above, it is important that the necessary cut-off trenches and berms are put in place between the Valley Silts Project area and the historical TSF to avoid future wash of silts and slimes into the excavated and rehabilitated areas, thus compounding the project again.

Table 5-15: Operational phase water quality impacts

NATURE OF IMPACT 2: Impact on the local groundwater quality		
	Impact Rating without Mitigation	**Impact Rating with Mitigation**
Impact Status: (positive or negative)	Negative	Negative
Extent *(Local, Regional, International)*	Local	Local
Duration *(Short term, Medium term, Long term)*	Long term	Long term
Magnitude *(Major, Moderate, Minor)*	Major -	Moderate -
Probability *(Definite, Possible, Unlikely)*	Possible	Possible
Calculated Significance Rating *(Low, Medium, High)*	High	**Medium**
Reversibility: (Reversible or Irreversible)	Reversable	
Irreplaceable loss of resources: (Yes or No)	No	
Can impacts be enhanced: (Yes or No)	Yes	
Residual impacts		

❖ Combined impact with other mining and industrial activities.
Mitigation measures ❖ Maintain sound surface runoff management to ensure that all dirty runoff is contained and diverted to the cut-off trenches and sumps. No pooling of water on surface allowed. ❖ Monitor groundwater quality in all boreholes. The groundwater monitoring network efficiency must be assessed and new monitoring boreholes drilled, if required. ❖ Ensure that cut-off trenches with sumps can contain all dirty water generated during the desilting process to prevent overflows and spillages. ❖ Ensure that sufficient cutoff trenches and berms are implemented to avoid future wash of silt and slimes from the historical TSF situated adjacent to the Valley Silts project.

5.7.2.1.2 Groundwater Quantity

The Russell Stream desilting project will not have any significant impacts on the groundwater quantity (Table 5-16). The desilting activities will be driven by mechanical excavation. No water is used in the process. There is a possibility that water will seep into the underlaying formations, but the additional recharge should be negligible and should have no impact on the groundwater table elevation.

Table 5-16: Operational Phase water quantity impacts

NATURE OF IMPACT 3: Reduction in aquifer yield		
	Impact Rating without Mitigation	**Impact Rating with Mitigation**
Impact Status: (positive or negative)	Positive	Positive
Extent *(Local, Regional, International)*	Local	Local
Duration *(Short term, Medium term, Long term)*	Long term	Long term
Magnitude *(Major, Moderate, Minor)*	Minor +	Minor +
Probability *(Definite, Possible, Unlikely)*	Possible	Possible
Calculated Significance Rating *(Low, Medium, High)*	**Medium**	**Medium**
Reversibility: (Reversible or Irreversible)	Reversable	
Irreplaceable loss of resources: (Yes or No)	No	
Can impacts be enhanced: (Yes or No)	Yes	
Residual impacts ❖ Combined impact with other mining and industrial activities.		

Mitigation measures

- Monitor groundwater levels in all boreholes

5.7.2.2 Surface Water

During the operational phase, the silts will be mechanical excavated and will be transported to the stockpiling areas. From the stockpiling areas, the silts will be transported off site. The operational phase will be approximately three years.

The excavation of silts may potentially result in an increase in SS within the reclamation area. Heavy metals are likely to have accumulated in the silts, with the lower lying silt layers containing higher concentrations of metals (Ndasi, 2007). The previous Groundwater Report for Sector 1 states that in the deeper silt pockets, the pH is likely to be much lower and element concentrations higher, but due to current stable conditions that include saturation, low permeability and low oxygen levels, metal and salt leaching does not happen readily. However, the excavation of silts may potentially trigger oxidation reactions that could result in acidic conditions and leaching of salts and metals (Groundwater Abstract, 2019). Moisture seeping from the stockpiled drying silts is expected to have similar water quality to that described above. It should be noted that based on the current water quality, the reclamation operation at Sector 1 is not having a significant impact on the Russell Stream, which is likely due to the implementation measures such as berms, paddocks and silt traps to contain and settle out SS.

Excavation of silt to levels below the Russell Stream riverbed, could result in water seeping from the Russell Stream into the reclamation voids, resulting in a loss of water quantity in the river.

Uncontrolled dirty water runoff from the reclamation and stockpiling areas, as well as poor maintenance of stormwater infrastructure, has the potential to impact on the downstream water quality. It is therefore recommended that the proposed SWMP is implemented, and that monitoring and maintenance of stormwater measures is undertaken as proposed.

Lastly, some of the reclamation and stockpiling areas are located within the floodlines of the Russell Stream and are therefore at risk of flooding. Flooding of the operation can be prevented through the implementation of the SWMP.

The activities and impacts that could potentially occur during the operational phase are summarised in Table 5-17.

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Table 5-17: Summary of activities and impacts for the operational phase

Activity	Impact Description
Excavation of the silt with impacts on water quality.	**Impact 1**: The excavation of the silt has the potential to increase oxygen levels within the silt, with subsequent oxidization reactions that could result in potential acidic conditions and leaching of salts and metals, which may impact on downstream water quality. The current water quality does not show any significant impacts as a result of this from the current reclamation operation at Sector 1, however, there is a potential for this to occur should mitigation measures not be implemented.
Excavation of the silt with impacts on water quantity.	**Impact 2:** Excavation of silt to levels below the riverbed of the Russell Stream, could result in water seeping from the Russell Stream into the reclamation voids, resulting in a loss of water quantity in the river.
Stockpiling of the silts.	**Impact 3**: Runoff and moisture from the stockpiled drying silt may potentially have poor water quality similar to that described under impact 1.
Uncontrolled dirty water runoff from the reclamation and stockpiling areas.	**Impact 4:** Runoff into the downslope Russell Stream impacting on water quality and sedimentation.
Poor maintenance of stormwater infrastructure.	**Impact 5:** Silted paddocks and eroded berms, can lead to spills into the downslope Russell Streams impacting on water quality and sedimentation.
Flooding of the reclamation and stockpiling areas.	**Impact 6**: Mechanical reclamation will take place within the Russell Stream floodplain. The stockpiling of silt is in close proximity to the floodplain. High rainfall such as a 1:50 year storm event can potentially result in flooding and consequent downstream water quality issues.

The ratings and proposed mitigation measures for the operational phase are indicated in to Table 5-18.

Table 5-18: Significance rating of operational impact 1

NATURE OF IMPACT 1: Excavation of the silt resulting in potential acidic conditions and leaching of salts and metals, impacting on downstream water quality		
	Impact Rating without Mitigation	**Impact Rating with Mitigation**
Extent (Local, Regional, International)	Regional	Local

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NATURE OF IMPACT 1: Excavation of the silt resulting in potential acidic conditions and leaching of salts and metals, impacting on downstream water quality		
Duration (Short term, Medium term, Long term)	Medium term	Medium term
Magnitude (Major, Moderate, Minor)	Major	Minor
Probability (Definite, Possible, Unlikely)	Definite	Possible
Calculated Significance Rating (Low, Medium, High)	**Medium**	**Low**
Impact Status: (positive or negative)	Negative	Negative
Reversibility: (Reversible or Irreversible)	Irreversible	
Irreplaceable loss of resources: (Yes or No)	No	
Can impacts be enhanced: (Yes or No)	Yes	
Residual impacts • None foreseen.		
Mitigation measures • Berms, paddocks and silt traps as per the proposed SWMP should be constructed around the reclamation and stockpiling areas to contain and evaporate dirty water.		

Table 5-19: Significance rating of operational impact 2

NATURE OF IMPACT 2: Excavation of silt to levels below the riverbed, could result in water seeping from the Russell Stream into the reclamation voids, resulting in a loss of water quantity in the river		
	Impact Rating without Mitigation	**Impact Rating with Mitigation**
Extent (Local, Regional, International)	Regional	Local
Duration (Short term, Medium term, Long term)	Medium term	Medium term
Magnitude (Major, Moderate, Minor)	Moderate	Minor
Probability (Definite, Possible, Unlikely)	Possible	Possible
Calculated Significance Rating (Low, Medium, High)	**Medium**	**Low**
Impact Status: (positive or negative)	Negative	Negative
Reversibility: (Reversible or Irreversible)	Irreversible	
Irreplaceable loss of resources: (Yes or No)	No	

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NATURE OF IMPACT 2: Excavation of silt to levels below the riverbed, could result in water seeping from the Russell Stream into the reclamation voids, resulting in a loss of water quantity in the river	
Can impacts be enhanced: (Yes or No)	Yes
Residual impacts • None foreseen	
Mitigation measures • There is no feasible mitigation to prevent water seeping from the river into the voids, however, berms placed between the reclamation areas and the Russell Stream would assist to reduce inflow into the reclamation areas.	

Table 5-20: Significance rating of operational impact 3

NATURE OF IMPACT 3: Runoff and moisture from the stockpiled drying silt may potentially have poor water quality which may impact the water quality of the Russell Stream		
	Impact Rating without Mitigation	**Impact Rating with Mitigation**
Extent (Local, Regional, International)	Regional	Local
Duration (Short term, Medium term, Long term)	Medium term	Medium term
Magnitude (Major, Moderate, Minor)	Major	Minor
Probability (Definite, Possible, Unlikely)	Possible	Possible
Calculated Significance Rating (Low, Medium, High)	**Medium**	**Low**
Impact Status: (positive or negative)	Negative	Negative
Reversibility: (Reversible or Irreversible)	Irreversible	
Irreplaceable loss of resources: (Yes or No)	No	
Can impacts be enhanced: (Yes or No)	Yes	
Residual impacts • None foreseen		
Mitigation measures • Paddocks must be implemented downslope of the stockpiling area to capture, contain and evaporate runoff and seepage from the stockpiles; and • Once the operational phase is complete, any remnants of the stockpiles must be removed.		

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Table 5-21: Significance rating of operational impact 4

NATURE OF IMPACT 4: Uncontrolled dirty water runoff from the reclamation and stockpiling areas running off into the downslope Russell Stream impacting on water quality and sedimentation		
	Impact Rating without Mitigation	**Impact Rating with Mitigation**
Extent (Local, Regional, International)	Regional	Local
Duration (Short term, Medium term, Long term)	Medium term	Medium term
Magnitude (Major, Moderate, Minor)	Major	Minor
Probability (Definite, Possible, Unlikely)	Definite	Possible
Calculated Significance Rating (Low, Medium, High)	**Medium**	**Low**
Impact Status: (positive or negative)	Negative	Negative
Reversibility: (Reversible or Irreversible)	Irreversible	
Irreplaceable loss of resources: (Yes or No)	No	
Can impacts be enhanced: (Yes or No)	Yes	
Residual impacts • None foreseen		
Mitigation measures • Implementation of the proposed SWMP. It must be ensured that stormwater measures are designed, constructed and operated to ensure that stormwater does not spill more than once in 50 years, to be compliant with GN R704 regulations; and • Water quality sampling must continue upstream and downstream of the reclamation and stockpiling areas. Should there be a deterioration in water quality from upstream to downstream, then immediate action should be undertaken to identify and address the issue		

Table 5-22: Significance rating of operational impact 5

NATURE OF IMPACT 5: Poor maintenance of stormwater infrastructure resulting in silted paddocks and eroded berms, leading to spills into the downslope Russell Stream impacting on water quality and sedimentation		
	Impact Rating without Mitigation	**Impact Rating with Mitigation**
Extent (Local, Regional, International)	Regional	Local

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NATURE OF IMPACT 5: Poor maintenance of stormwater infrastructure resulting in silted paddocks and eroded berms, leading to spills into the downslope Russell Stream impacting on water quality and sedimentation		
Duration (Short term, Medium term, Long term)	Medium term	Medium term
Magnitude (Major, Moderate, Minor)	Major	Minor
Probability (Definite, Possible, Unlikely)	Possible	Unlikely
Calculated Significance Rating (Low, Medium, High)	**Medium**	**Low**
Impact Status: (positive or negative)	Negative	Negative
Reversibility: (Reversible or Irreversible)	Irreversible	
Irreplaceable loss of resources: (Yes or No)	No	
Can impacts be enhanced: (Yes or No)	Yes	
Residual impacts • None foreseen		
Mitigation measures • Implementation of the stormwater monitoring plan		

Table 5-23: Significance rating of operational impact 6

NATURE OF IMPACT 6: Flooding of the reclamation and stockpiling areas which are located within the floodlines		
	Impact Rating without Mitigation	**Impact Rating with Mitigation**
Extent (Local, Regional, International)	Regional	Local
Duration (Short term, Medium term, Long term)	Medium term	Medium term
Magnitude (Major, Moderate, Minor)	Major	Minor
Probability (Definite, Possible, Unlikely)	Possible	Unlikely
Calculated Significance Rating (Low, Medium, High)	**Medium**	**Low**
Impact Status: (positive or negative)	Negative	Negative
Reversibility: (Reversible or Irreversible)	Irreversible	
Irreplaceable loss of resources: (Yes or No)	No	

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NATURE OF IMPACT 6: Flooding of the reclamation and stockpiling areas which are located within the floodlines	
Can impacts be enhanced: (Yes or No)	Yes
Residual impacts • None foreseen	
Mitigation measures • Implementation of the proposed SWMP. It must be ensured that stormwater measures are designed, constructed and operated, to ensure that they can convey/deflect the 50-year runoff, to be compliant with GN R704 regulations.	

5.7.2.3 Biodiversity

See Section 5.7.1.3 in the construction phase section above for applicable impacts identified and the associated mitigation measures.

5.7.2.4 Wetlands

See Section 5.7.1.4 in the construction phase section above for applicable impacts identified and the associated mitigation measures.

5.7.3 Decommissioning Phase

5.7.3.1 Groundwater

5.7.3.1.1 Groundwater Quality

Groundwater quality along the Russell Stream is expected to improve as the in-stream source of contamination will be removed (Table 5-24). Sulphate concentrations in the immediate vicinity of the stream may reduce to below 1000 mg/L because of silt removal. Iron concentrations are also expected to reduce significantly within the project area. It is anticipated that iron concentrations would reduce to below 100 mg/L over most of the project area. The zone of impact over which sulphate and iron concentrations would exceed unacceptable Klip River catchment water quality targets will reduce in the long-term. The contamination is however not expected to dissipate, but it is likely that sulphate and iron concentrations would reduce to within tolerable interim and even acceptable management water quality targets in the long-term. Historical groundwater contamination will most likely continue to move through the aquifers in a westerly direction towards the tributary of the Klip River. The removal of the silt and sediments in the Russell Stream is however expected to reduce the zone of impact in the long-term.

The impact because of the desilting is anticipated to be positive after the waste material and sand have been removed.

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Table 5-24: Decommissioning Phase water quality impacts

NATURE OF IMPACT 4: Water quality impacts when silt has been removed		
	Impact Rating without Mitigation	**Impact Rating with Mitigation**
Impact Status: (positive or negative)	Positive	Positive
Extent *(Local, Regional, International)*	Local	Local
Duration *(Short term, Medium term, Long term)*	Long term	Long term
Magnitude *(Major, Moderate, Minor)*	Minor +	Moderate +
Probability *(Definite, Possible, Unlikely)*	Possible	Possible
Calculated Significance Rating *(Low, Medium, High)*	**Medium**	**Medium**
Reversibility: (Reversible or Irreversible)	Reversable	
Irreplaceable loss of resources: (Yes or No)	No	
Can impacts be enhanced: (Yes or No)	Yes	
Residual impacts ❖ Combined impact with other mining and industrial activities.		
Mitigation measures ❖ Monitor groundwater quality in all boreholes ❖ Maintain sound surface runoff management to ensure that all dirty runoff is contained and diverted away from the Russell Stream.		

5.7.3.1.2 Groundwater Quantity

There will be no impacts on the groundwater quantity during decommissioning (Table 5-25Table 5-25). T The desilting activities will have stopped and any form of seepage of contaminated water to the subsurface will reduce and ultimately stop, apart from precipitation.

Table 5-25: Decommissioning Phase water quantity impacts

NATURE OF IMPACT 5: Reduction in aquifer yield		
	Impact Rating without Mitigation	**Impact Rating with Mitigation**
Impact Status: (positive or negative)	Positive	Positive
Extent *(Local, Regional, International)*	Local	Local
Duration *(Short term, Medium term, Long term)*	Long term	Long term

Magnitude *(Major, Moderate, Minor)*	Minor +	Moderate +
Probability *(Definite, Possible, Unlikely)*	Definite	Definite
Calculated Significance Rating *(Low, Medium, High)*	**Medium**	**Medium**
Reversibility: (Reversible or Irreversible)	Reversable	
Irreplaceable loss of resources: (Yes or No)	No	
Can impacts be enhanced: (Yes or No)	Yes	
Residual impacts ❖ Combined impact with other mining and industrial activities.		
Mitigation measures ❖ Monitor groundwater levels in all boreholes.		

5.7.3.2 Surface Water

Once reclamation is complete, all infrastructure will be removed from the site. The mined-out areas will be rehabilitated by shaping the areas where silt was removed and stockpiling took place, to a free draining surface. Thereafter, appropriate plant species will be planted to stabilise the soil. The Russell Stream will be allowed to re-establish its original course. Successful rehabilitation is expected to provide long-term benefits in terms of water quality improvement as well as lower flood levels in the area.

The activities and impacts that are likely to occur during the closure and rehabilitation phase are summarised in Table 5-26.

Table 5-26: Summary of activities and impacts for the closure and rehabilitation phase

Activity	Impact Description
Exposure of soil during the closure and rehabilitation phase activities, once all silt has been removed.	**Impact 1**: Erosion and consequent deterioration of water quality in the Russell Stream.

The ratings and proposed mitigation measures for the closure and rehabilitation phase are indicated in Table 5-27.

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Table 5-27: Significance rating of closure impact 1

NATURE OF IMPACT: The exposure of soil once all silt has been removed, has the potential to be washed into the downslope Russell Stream, impacting on water quality and sedimentation		
	Impact Rating without Mitigation	**Impact Rating with Mitigation**
Extent (Local, Regional, International)	Regional	Local
Duration (Short term, Medium term, Long term)	Short term	Short term
Magnitude (Major, Moderate, Minor)	Moderate	Minor
Probability (Definite, Possible, Unlikely)	Possible	Possible
Calculated Significance Rating (Low, Medium, High)	**Medium**	**Low**
Impact Status: (positive or negative)	Negative	Negative
Reversibility: (Reversible or Irreversible)	Irreversible	
Irreplaceable loss of resources: (Yes or No)	No	
Can impacts be enhanced: (Yes or No)	Yes	
Residual impacts • None foreseen.		
Mitigation measures • Stormwater management measures (e.g. berms) should remain in place while rehabilitation is taking place, to prevent runoff from bare areas from flowing into the Russell Stream; • Revegetation of exposed areas should take place as soon as possible after shaping the area to a free draining surface; and • Water quality monitoring must continue upstream and downstream until the site has been fully rehabilitated.		

5.7.3.3 Wetlands

The following impacts have been identified in the decommissioning phase.

Phase	Activity	Impact	Significance (max = 100)	Risk Rating	Confidence level
Decommissioning	Rehabilitation	Potential loss or degradation of wetlands through	14,4	L	High

Phase	Activity	Impact	Significance (max = 100)	Risk Rating	Confidence level
		inappropriate closure			
	Landscaping	Final landscaping and concurrent rehabilitation	-30	+	High

5.7.4 Post-Closure Phase

5.7.4.1 Groundwater

5.7.4.1.1 Groundwater Quality

Overall, there should be an improvement in the groundwater qualities along the Russell Stream post closure as the source of in-stream contamination has been removed (Table 5-28).

Table 5-28: Post Closure Phase water quality impacts

NATURE OF IMPACT 6: Groundwater quality impacts after silt is removed		
	Impact Rating without Mitigation	**Impact Rating with Mitigation**
Impact Status: (positive or negative)	Positive	Positive
Extent *(Local, Regional, International)*	Local	Local
Duration *(Short term, Medium term, Long term)*	Long term	Long term
Magnitude *(Major, Moderate, Minor)*	Minor +	Moderate +
Probability *(Definite, Possible, Unlikely)*	Possible	Possible
Calculated Significance Rating *(Low, Medium, High)*	**Medium**	**Medium**
Reversibility: (Reversible or Irreversible)	Reversable	
Irreplaceable loss of resources: (Yes or No)	No	
Can impacts be enhanced: (Yes or No)	Yes	
Residual impacts ❖ Combined impact with other mining and industrial activities.		
Mitigation measures ❖ Monitor groundwater quality in all boreholes. ❖ Maintain sound surface runoff management.		

5.7.4.1.2 Groundwater Quantity

No impact is expected on the water quantity post-desilting.

5.7.4.2 Surface Water

Should rehabilitation be successfully implemented, then it is unlikely that any negative impacts will occur during the post closure phase. The reclamation of silts is likely to result in a long-term positive impact on the Russell Stream, provided that rehabilitation is successfully implemented.

5.7.5 Cumulative Impacts

5.7.5.1 Groundwater

Cumulative impacts result from the incremental impact of the proposed activity on a common resource when added to the impacts of other past, present or reasonably foreseeable future activities (e.g. discharges of high salt or metal loads to a river that combine to cause a reduction in the use of the resource that is greater than the additive impacts of each pollutant). Cumulative impacts can occur from the collective impacts of individual minor actions over a period and can include both direct and indirect impacts.

The Valley Silts Project is near other historical tailings deposition, mining activities, industrial activities and residential developments. Cumulatively all these activities contribute to the surface and groundwater quality impacts identified at the Valley Silts Project area and could also impact the groundwater resources, especially in terms of quality.

The outcome of the Valley Silts desilting groundwater assessment indicates that the desilting activities will have an overall positive impact on the receiving environment.

Establishing a monitoring system along the Russell Stream and downstream areas are required to assess the implications that stream desilting will have on the aquifers and to identify if poor quality groundwater will reach a sensitive receptor. The monitoring data recorded as desilting operations progress must be used to update the monitoring program.

Table 5-29.Cumulative impact rating

NATURE OF THE CUMULATIVE IMPACT:		
	OVERALL IMPACT OF THE PROJECT CONSIDERED IN ISOLATION	**CUMULATIVE IMPACT OF THE PROJECT AND OTHER PROJECTS IN THE AREA**
Impact Status: (positive or negative)	Negative	Negative
Extent *(Local, Regional, International)*	Local	Local
Duration *(Short term, Medium term, Long term)*	Long term	Long term
Magnitude *(Major, Moderate, Minor)*	Moderate	Major
Probability *(Definite, Possible, Unlikely)*	Definite	Definite
Calculated Significance Rating (Low, Medium, High)	Medium	Medium
Reversibility: (Reversible or Irreversible)	Reversable	Reversable
Irreplaceable loss of resources: (Yes or No)	No	No
Can impacts be enhanced: (Yes or No)	Yes	Yes
Mitigation measures ❖ Ensure that contaminated surface and groundwater from the adjacent mining and industrial activities are effectively managed and that polluted water is not allowed to enter the rehabilitated Russell Stream.		

5.7.5.2 Surface Water

Cumulative impacts are impacts that result from the incremental impact of the proposed activities on a common resource when added to the impacts of other past, present or reasonably foreseeable future activities. Cumulative impacts can occur from the collective impacts of individual minor actions over a period of time and can include both direct and indirect impacts.

The Project is located in a catchment that is highly impacted by sewage, mining, urban and industrial activities. The implementation of a sound SWMP is crucial to contain dirty runoff from the operational area. The monitoring and maintenance of the implemented SWMP is of utmost importance, to ensure that spillages into the downslope watercourses do not occur. Furthermore, the implementation of a rehabilitation plan that ensures that the area is free draining and appropriately vegetated, could enhance the catchment water quality. Should the above not be done, then in the long term, the proposed project has the potential to cumulatively add to the already deteriorated water quality within the Russell Stream catchment.

The cumulative impact of the proposed project on the surface water quality of the catchment is rated in Table 5-30

Table 5-30: Cumulative impact rating for surface water quality

NATURE OF IMPACT: Should dirty water runoff not be contained and an appropriate rehabilitation plan for the Russell Stream valley not be undertaken, then the proposed Project has the potential to add cumulatively to the already deteriorated surface water quality of the catchment		
	Impact Rating without Mitigation	**Impact Rating with Mitigation**
Extent (Local, Regional, International)	Regional	Local
Duration (Short term, Medium term, Long term)	Long term (in excess of the Project life)	Long term (in excess of the Project life)
Magnitude (Major, Moderate, Minor)	Major	Minor
Probability (Definite, Possible, Unlikely)	Possible	Unlikely
Calculated Significance Rating (Low, Medium, High)	High	**Low**
Impact Status: (positive or negative)	Negative	Negative
Reversibility: (Reversible or Irreversible)	Irreversible	
Irreplaceable loss of resources: (Yes or No)	No	
Can impacts be enhanced: (Yes or No)	Yes	
Residual impacts • None foreseen.		
Mitigation measures • Effective stormwater management as proposed and in accordance with GN R704 Regulations; • Successful rehabilitation of the Valley Silts reclamation areas to a free draining and vegetated area; and • Water quality monitoring upstream and downstream of the proposed project.		

5.8. Unplanned Events, Risks and Management Measures

Unplanned events and risks are unexpected incidents that may occur and are not planned for, resulting in an impact e.g. an extreme flood (1:200 year flood). These are Project risks which are not rated as impacts. These are indicated in Table 5-31 below.

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Table 5-31: Potential risks and management strategies

Potential Project Risk (Unplanned Occurrences)	Aspect Potentially Impacted	Mitigation / Management / Monitoring
Hydrocarbon spills from vehicles and heavy machinery or hazardous materials or waste storage facilities.	Hydrocarbon contamination of surrounding surface water resources through surface water runoff.	❖ Hydrocarbons and hazardous materials must be stored in bunded areas that are sized according to legislated requirements; ❖ Refuelling must take place on lined and contained areas; ❖ Ensure that silt, oil traps and sumps are in good working condition and are serviced regularly; and ❖ Vehicles and heavy machinery should be serviced and checked on a regularly basis to prevent leakages and spills.
Sedimentation and erosion of storm water management infrastructure.	Overflow of dirty water contaminating clean areas.	❖ Regular inspections of stormwater management infrastructure, especially after large storm events.

5.9. Public Participation

The Public Participation Process (PPP) has been developed to ensure compliance with the Integrated Environmental Authorisation and the Integrated Water Use Licence Application process. The public participation process offers stakeholders a fair opportunity to be informed about the Proposed Project, to raise issues of concern and to make suggestions for enhanced project benefits. The project team has considered all relevant issues and suggestions during the IWULA process.

Issues and responses documented during the public consultation process can be seen in the Comments and Responses Report (CRR) attached as **Appendix C**.

5.10. Matters Requiring Attention/Problem Statement

The Key issues to be addressed are:

- ❖ Stormwater management and the control of stormwater on and around site.
- ❖ The protection of the surrounding wetlands and community members from surface water runoff.

5.11. Assessment of Level and Confidence of Information

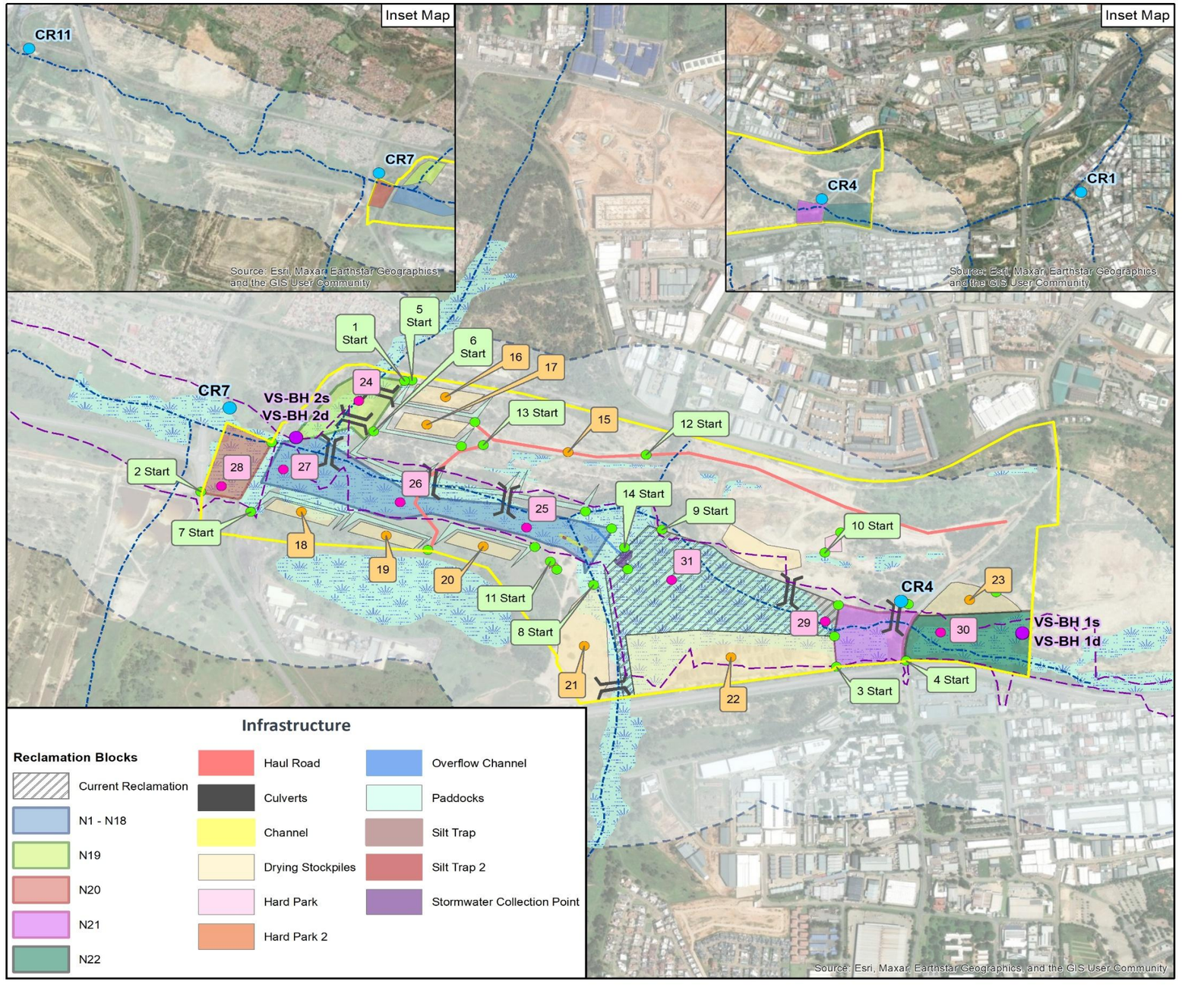
Detailed specialist studies have been conducted as part of the impact assessment for the proposed project development and the level of confidence of the information provided is medium to high level. More detailed information on the surface and groundwater quality impacts can only be determined once the project is operational, with real time data monitoring and information being interpreted.

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5.1. Master Layout Plan

The master layout plan inclusive of the proposed water uses, groundwater monitoring points, surface water monitoring points, regulated areas and associated buffers is shown in Figure 5-5.

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VALLEY SILTS EXPANSION

MASTER LAYOUT

Legend

- Borehole Drill Sites

Water Use

- Section 21 (a)
- Section 21 (c) and (i)
- Section 21 (g)
- Surface Water Monitoring Points
- 100-Year Floodline
- Stream
- 500m Wetland Buffer
- Project Boundary
- Wetlands

0 100 200 400 600 800
Meters

Project Code: DRDG#052
Client: Ergo Mining (Pty) Ltd
Drawn: C Strooh | Checked: Z Omar
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www.kongiwe.com | Date: 17 April 2025

1:12 000

Coordinate System: WGS84 TM LO29
Projection: Transverse Mercator
Datum: WGS 1984

(A3)
2024 Satellite Imagery

Disclaimer
The information represented in this plan is for general information purposes only and is subject to change.

FILE REF:
Z:\GIS\Projects\DRDGOLD\052 Valley Silts Expansion\Projects \General\Monitoring Maps\Valley Silts Expansion Master Layout A3.mxd

Figure 5-5: Master Layout Plan

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6 Water and Waste Management

6.1. Water and Waste Management Philosophy (Process Water, Storm water, Groundwater and Waste)

The water and waste management philosophy for the Proposed Project is based upon both Ergo and the Department of Water Affairs and Forestry (DWAF) (now the DWS) principles and guidelines for water and waste management.

BPGs have been provided by the DWAF for the management of water within the mining sector based on international guidelines for the sustainable use of water. The principles contained in the Constitution of South Africa, 1996 govern the BPG. These principles aim at achieving the right to equitable water access, sustainable water use as well as effective and efficient water use for ideal social and economic development. Furthermore, the National Water Policy and National Water Resource Strategy guide the principles and guidelines contained in the BPG. The BPG is a series that currently consists of three separate sections made up of the following groupings: water management hierarchy, general water management strategies and specific water management activities and aspects. The guidelines are based on the precautionary principle aiming at first preventing pollution and/or water use, then minimising water use and/or impacts and finally if the first two cannot be achieved the use, discharge and disposal of waste and/or wastewater. The Integrated Water Resource Management strategy was introduced in the NWA to ensure that all aspects of the water resource is maintained in a sustainable manner. This includes the use of both resource and source directed methods. These strategies aid as a guideline for the planning of the EMPr and WUL, the development and implementation of the IWWMP as well as the post reclamation closure strategy. Any water use and/or pollution must take into consideration the RQOs, site-specific, regional and national impacts

Ergo is committed to the following in regard to the Valley Silts Rehabilitation project:

- To plan, design, construct, operate, decommission and close the proposed projects in a responsible manner, and in accordance with its policies, strategies and all applicable legislative requirements;
- To minimise the impacts on the receiving environment by limiting the extent of the project footprint and by properly implementing engineered barriers, where possible, to prevent seepage of contaminants.
- To the implementation of long-term water management measures and to conduct the required monitoring during all phases of the project; and
- To implement technically proven and acceptable rehabilitation measures during the operational, decommissioning and closure phases.

6.2. Strategies

To give effect to the water and waste management philosophies discussed in the previous chapters, the following strategies will be implemented:

6.2.1 Surface Water

- Construct and maintain adequate storm water control measures to keep clean and dirty water separate; and
- Monitor water quality at the identified monitoring positions

6.2.2 Groundwater

- Minimise the impact on groundwater resources through the design and construction of engineered barriers for all potential pollution sources;
- Implement ongoing monitoring of groundwater quality and levels to inform the detailed geochemical impact predictions and to validate groundwater models; and
- Implement long term water management strategies by managing groundwater levels and prevent dirty water seepage.

6.2.3 Stormwater

- Separation of clean and dirty water in accordance with the requirements of GN 704;
- Collection, containment and conveyance of both clean and dirty water in adequately sized water management infrastructure as stipulated in GN 704; and
- On-going monitoring and measurement of water quantity and quality to support the wide water balance and water management.

6.2.4 Waste

- Implement waste separation;
- Maximise recycling and reuse of waste streams;
- Dispose of waste on authorised waste disposal facilities in accordance with legal requirements;
- Implement on-going waste monitoring to inform waste management; and
- Identification and rehabilitate contaminated land.

6.2.5 Process Water

- No process water will be required for the Proposed Project;
- Stormwater runoff may be recycled and used for dust suppression.

6.2.6 Potable Water

- Source water from municipal source or;
- With a contingency for JoJo tanks.

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6.3. Performance Objectives

The overall objective of water and waste management is to reduce or mitigate negative environmental consequences resulting from the project and to limit negative impacts as far as possible. The environmental objectives are to ensure that all necessary steps will be taken to ensure the following with regard to the identified reclamation impacts:

- That appropriate pollution control and other environmental protection measures are taken by the applicant, in accordance with all applicable laws and regulations;
- That the applicant will not degrade the degree of environmental setting beyond existing environmental conditions; and
- That socio-economic and bio-physical conditions will be addressed to ensure that negative impacts associated with the project are kept to a minimum.

The following specific performance objectives have been identified for the project:

- Contain dirty storm water;
- Monitor and record ambient water quality in the receiving surface water and various points on site to confirm/ assess the effectiveness of the implemented water pollution control measures;
- Prevent erosion;
- Assess the impact/s that project is having on local groundwater and surface water resources;
- Monitor groundwater levels; and
- Monitor the wetland areas.

6.4. Measures to Achieve and Sustain Performance Objectives

Management activities and mitigation measures will be implemented during construction, operation and decommissioning/closure phases at both project sites in to achieve the required performance objectives.

The following measures have been identified to achieve the set performance objectives (Table 6-1):

Table 6-1: Performance objectives relevant to the Valley Silts Rehabilitation project

Performance Objectives	Management Measure
Surface Water	
Contain dirty storm water	Construct and maintain adequate storm water control measures to keep clean and dirty water separate
	Maintain sumps and paddocks and re-use stored water on site where possible
Minimise the contamination of surface water resources	Monitor water quality at the surface water monitoring points identified and compare them with the baseline water qualities to assess the effectiveness of the implemented water pollution control measures

Performance Objectives	Management Measure
	Interpret the results and institute remedial action as required
Groundwater	
Minimise the impact on local groundwater resources	Implement dedicated groundwater quality monitoring as required
	Implement the required monitoring to confirm the success of the implemented groundwater protection/mitigation measures
Sensitive Landscapes	
Minimise impact on the wetlands and sensitive areas in and around the reclamation boundary	Implement a wetland monitoring programme to assess the ongoing impacts on the wetlands in and around the reclamation area to determine changes and loss of vulnerable wetland types

6.5. Option Analyses and Motivation for Implementation of Preferred Options

6.5.1 The Property on which or Location where it is Proposed to Undertake the Activity

When mining was at its peak in the mid-late 1900's it was known practice to design tailings dumps within the immediate floodline, even within watercourses. At the same time dams were built on the Klipspruit, approximately 5.5 km east of New Canada and Fleurhof Dams, these were called the Russell Stream dam (also known as the No. 12 Shaft dam) and the Golf Meer Lake. Both the Russell Stream Dam and the Golf Meer Lake were utilised as wastewater dams / mine dams to service the several mines in the area. Mining operations were not adequately regulated and once mining had ceased around the project area, these tailing were left unmanaged.

Over time tailings materials have accumulated in the Russell Stream Dam and the Golf Meer Lake due to erosion from the Rand Leases, Crown Mines, Bantjies and other old tailings dumps in the area. This has formed a thick layer of sediment, averaging 2m thick, but up to 12m in some areas. As a result of the silts build-up in the valley, the Russell Stream has a reduced stream velocity and has become displaced northward toward the areas of Riverlea and Crown Industrial.

The Proposed Project is covered under Mining Right GP 184 MR. The right to remove silts from the Russell Stream, in the area/s proposed, falls within this Mining Right. Other than properties owned by the Applicant, no additional properties outside of the Mining Right Boundary have been considered. The Proposed Project is the expansion of the removal of silts operations from the Russell Stream. Therefore, there can be **no alternative sites**

6.5.2 The Type of Activity to be Undertaken

The only optional activity for Ergo is to mechanically excavate and reclaim gold bearing silts from the Russell Stream.

Table 6-2: The advantages and disadvantages of removing silt from the Russell Stream

Option	Advantage	Disadvantage
Excavation and reprocessing of the gold bearing silts from the Russell Stream (Preferred)	❖ Low Risk. ❖ Low capital requirement. ❖ Not labour intensive. ❖ Minimal safety issues. ❖ Economic benefits from the reclamation of gold. ❖ Removal of pollution source after rehabilitation and cessation of project. ❖ Improvement of the natural stream functioning. ❖ Area made available to landowner for future development ❖ Rehabilitation plans developed with multiple stakeholders to improve stream functionality.	❖ Potential profits rely on substantial volumes of material required to be reclaimed and the fluctuating gold price. ❖ Potential negative environmental effects during construction and operational phase of the project. ❖ Not labour intensive, no opportunity for additional hiring of labour. ❖ Incomplete rehabilitation if not done properly. ❖ Interference during excavation and rehabilitation.
No mechanical reclamation of the Silts activities	❖ No potential negative impacts from operational activities	❖ Continued degradation of the Russell Stream. ❖ Continued downstream flooding and sedimentation. ❖ Increased risk of illegal mining activities and crime. ❖ Continued water pollution from silts. ❖ Land sterilisation for future use.

6.5.3 The Design and Layout of the Activity

The current layout plan alternatives for the Valley Silts Expansion project are considered as the preferred layout plan. The layout plan is dictated by the existing location of Valley Silts project area and existing infrastructure and is determined by considering both spatial and practical expansion operation aspects.

The proposed layout, nature of the expansion activity and associated infrastructure will be implemented with the aim to reduce substantial impacts on the area.

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6.5.4 The Technology to be Used in the Activity

The Proposed Project activities to be employed is consistent with previous practices, specifically through mechanical excavation. Backhoes and/or Excavators, 30-ton ADT's and Hauling trucks will be utilised for reclamation of the gold bearing silts from the Russell Stream. An independent contractor, with the relevant knowledge and expertise, will be responsible for the removal of silts and rehabilitation of the stream. This will be overseen and monitored by Ergo.

It is envisioned that 25, 30-ton dump trucks will haul the dried silts to the City Deep Plant for pre-processing.

Mechanical reclamation

Gold bearing silts will be mechanically excavated from the Russell Stream. Details about the mechanical reclamation of Silts are given in section 2.4.

Ergo will implement the best available technology in the best possible combination, in a way which is cost effective for this specific project. Best practices (as utilised in the industry) have been selected and, where applicable, SANS standards and legislative requirements will be followed in design, construction and management of infrastructure and activities on site.

Table 6-3: The advantages and disadvantages of mechanical removal

Option	Advantage	Disadvantage
Mechanical Removal of gold-bearing silts	❖ Low rates for re-mining. ❖ Suited to short-life projects. ❖ Does not carry high capital costs. ❖ Employment opportunities. ❖ Removal of silts. ❖ Stream rehabilitation. ❖ Restoration of stream functioning. ❖ Improved water quality, specifically salt and metal loading. ❖ Removal of secondary waste from the Russell Stream. ❖ Best practical option for the removal of silts from the water course.	❖ Dust emissions when the silts are dried and when the loading onto the trucks for hauling occur. ❖ Increased traffic from hauling. ❖ Delayed operations due to economic factors. ❖ Removal of vegetation and disturbance of the current habitat. ❖ Nuisance factors for the surrounding community during the project activities. ❖ Stealing of project equipment and disruption of activities.

6.5.5 The Operational Aspects of the Activity

The only operational option for the project is the removal of silts and stream rehabilitation as well as gold recovery.

The Valley Silts resource has three primary sectors. The current approved reclamation area is Sector 1 and extends from the dam wall to the end of the stockpile area near Crownwood Road. The site is already established with fully fenced hard park facilities, solar powered security lights, well maintained haul roads, and site offices. Access is fully controlled by security for all vehicles.

Sector 2 will extend from the dam wall to Nasrec Road (N1 to N20), with the remaining blocks (Sector 3: N21 and N22) being located either side of Crownwood Road. Section 2 and 3 falls within the proposed Valley Silts Expansion Project.

As it stands, the Russell Stream is highly polluted and heavily silted and given the current status quo, Ergo will aim to rehabilitate the Valley Silts to an appropriate and functioning ecological state.

As far as possible, Ergo intends to make use of its existing infrastructure for this project with minimal impact.

Table 6-4: The advantages and disadvantages of the operational alternative considered

Option	Advantage	Disadvantage
Excavation and reprocessing of the gold bearing silts from the Russell Stream	❖ Low Risk. ❖ Low capital requirement. ❖ Not labour intensive. ❖ Minimal safety issues. ❖ Economic benefits from the reclamation of gold. ❖ Removal of pollution source after rehabilitation and cessation of project. ❖ Improvement of the natural stream functioning. ❖ Area made available to landowner for future development ❖ Rehabilitation plans developed with multiple stakeholders to improve stream functionality. ❖ No installation of pipelines needed at Valley Silts Expansion project. ❖ The plant and deposition facility are existing.	❖ Potential profits rely on substantial volumes of material required to be reclaimed and the fluctuating gold price. ❖ Potential negative environmental effects during construction and operational phase of the project. ❖ Not labour intensive, no opportunity for additional hiring of labour. ❖ Incomplete rehabilitation if not done properly. ❖ Interference during excavation and rehabilitation. ❖ Distance dried material has to be hauled. ❖ Dust from the hauling of the dried-out material. ❖ The cumulative impact of dust at the City Deep Plant.
No mechanical reclamation of the Silts activities	❖ No potential negative impacts from operational activities	❖ Continued degradation of the Russell Stream. ❖ Continued downstream flooding and sedimentation.

Option	Advantage	Disadvantage
		❖ Increased risk of illegal mining activities and crime. ❖ Continued water pollution from silts. ❖ Land sterilisation for future use.

Hauling Route Options

Considering the existing and future planned surrounding road network, as well as the fact that the surrounding area is already mostly developed, with large portions reserved for reclamation activities, traffic growth at the proposed access position to the site will be average (2.0% - 3.0%). There are no future roads planned near the access position, according to the Johannesburg Roads Agency (JRA) Road Master Planning and Gautrans Master Planning.

One access to the site is proposed directly off Crownwood Street. This access to the site is proposed approximately 440 m to the south of the intersection with Jupiter Road. The access must be 10 m wide, with one lane 'IN' and one lane 'OUT'. Traffic from Crownwood Road (M17) will have the right of way and a 'STOP' condition will be implemented for the proposed access.

As far as possible, existing access roads will be utilised, and where this is not possible, these will be constructed as a two-by-two roadway, operating in both directions. Intersections will be properly designed to provide safe entry and exit into the reclamation area. Approvals from the provincial road's authority will be obtained where necessary.

6.5.6 The "No-Go" Option

The Option of the project not proceeding would mean that the environmental and social status would remain the same as current. This implies that both negative and positive impacts would not take place. As such, the short-term negative impacts on the environment would not transpire; equally so, the long-term positive impacts such as environmental pollution source removal, economic development, and the rehabilitation of the Russell Stream for both natures and human benefit – would occur. The only alternative option to this project (the No-Go option) is to leave the polluting silts within the stream; there is no other potential use.

The only alternative option to this project (the No-Go option) is to leave the polluting silts within the stream; there is no other potential use.

The "No-Go" Option also assumes the continuation of the current land use, implying the absence of any rehabilitation activities and associated infrastructures. The means that the attraction of the gold reserves located within the stream could potentially enhance Illegal mining, and if left as is, population settlement on or around the stream could occur.

Option	Advantage	Disadvantage
No-Go Option	❖ No improved water quality impact ❖ No escalated ecosystem deterioration	❖ Pollution persists. ❖ Flooding events in the area persists. ❖ Land not made available for uses. ❖ No improved land use planning. ❖ Loss of jobs. ❖ Illegal mining.

The 'No Project' alternative is not preferred due to the anticipated benefits of the proposed reclamation project. The expected indirect benefits resulting from the reclamation of the Valley Silts include:

- Land availability for future use.
- Removal of a source of pollution in the project area.
- The rehabilitation of the Russell Stream.
- Enhanced ecosystem functioning, including attraction of fauna, flora and improved water quality.
- Ameliorating current flooding issues experienced in the area of Riverlea and the surroundings
- Continued supply of gold to the local and national markets, and therefore contribution to local, provincial and national economy.

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6.6. IWWMP Action Plan (Priority Actions and Other Short, Medium and Long Term Actions)

Table 6-5: Proposed Project's action plan

Performance Objectives	Management Measure	Responsible Department	Timeframe
Surface Water			
Contain dirty storm water	Construct and maintain adequate storm water control measures to keep clean and dirty water separate	Engineering / Environmental	On-going after authorisation
	Maintain paddocks and sump and re-use stored water on site where possible		
Minimise the contamination of surface water resources	Monitor water quality at the surface water monitoring points identified and compare them with the baseline water qualities to assess the effectiveness of the implemented water pollution control measures	Environmental / Geology	On-going
	Interpret the results and institute remedial action as required	Geology/Hydrology	On-going
Groundwater			
Minimise the impact on local groundwater resources	Implement dedicated groundwater quality monitoring as required	Hydrology/Environmental/Management	On-going
	Implement the required monitoring to confirm the success of the implemented groundwater protection/mitigation measures		
Sensitive Landscapes			
Minimise impact on the wetlands and sensitive areas in and around the reclamation boundary	Implement a wetland monitoring programme to assess the ongoing impacts on the wetlands in and around the reclamation area to determine changes and loss of vulnerable wetland types	Management/Environmental	On-going

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6.7. Control and Monitoring

6.7.1 Monitoring of change in Baseline information

Reports of the updated Baseline information (for the project) will be submitted to the appropriate government departments as required and other formal institutions as stipulated by management objectives, conformance targets and applicable legislation and other legal requirements. All of these results will be shared with the DWS.

6.7.2 Audit and Report on Performance of Measures

The IWWMP action plan will be reviewed and updated annually or alternatively as required in terms of the WUL.

6.7.3 Audit and Report on Relevance of Action Plan

An audit on the IWWMP action plan should be conducted at least once annually by an independent external auditor, while internal audits should be conducted bi-annually.

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7 Conclusion

7.1. Regulatory Status of Activity

This is an expansion of the existing Valley Silt reclamation project, and the activities applied for are new water uses requiring authorisation. Activities will only commence once approval of all the relevant authorities has been granted. The water uses are set out in Section 3.1.

7.2. Statement of Water Uses Requiring Authorisation, Dispensing with Licensing Requirement and Possible Exemption from Regulation

The water uses requiring authorisation are listed in Table 7-1. This is an expansion of the Valley Silt reclamation project and some of the proposed activities require possible exemptions according to GN R704. The activities listed on Table 7-1 will require possible exemptions from GN R704.

Table 7-1: Activities requiring possible exemptions from regulations

Activity Descriptions	Applicable GN R704 Regulation	Motivation for exemption
Reclamation of silts from N1 – N18, N19, N20, N21,and N22 mining blocks and rehabilitation within an HGM 1 UVB wetland and within the 1:100-year floodline as well as construction, operation and rehabilitation of the associated infrastructure (culvert 1, 2, 3, 4 & 5; silt trap 1 & 2 and a channel) within an HGM 1 UVB wetland and within the 1:100-year floodline.	4. No person in control of a mine or activity may- (a) locate or place any residue deposit, dam, reservoir, together with any associated structure or any other facility within a horizontal distance of 100 metres from any watercourse or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked; (b) except in relation to a matter contemplated in regulation 10, carry on any underground, opencast, mining, prospecting or any other operation or activity under or within the 1:50 year floodline or within a horizontal distance of 100metres from any watercourse or estuary, whichever is the greatest; 7. Every person in control of a mine or	The reclamation of the silts within the 1:100 year flood-line or within a horizontal distance of 100m from a watercourse cannot be avoided as this is where the silts are located. The existence of the silts predates the promulgation of the NWA in 1998 and the GN R704 Regulations in June of 1999. Clean stormwater will be diverted into the Russel Stream via diversion drain/berms. Dirty stormwater will be contained in existing paddocks. In the event paddock reach maximum capacity, the excess stormwater will need to be released into the Russel Stream.

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Activity Descriptions	Applicable GN R704 Regulation	Motivation for exemption
	activity must take reasonable measures to- (a) prevent water containing waste or any substance which causes or is likely to cause pollution of a water resource from entering any water resource, either by natural flow or by seepage, and must retain or collect such substance or water containing waste for use, re-use, evaporation or for purification and disposal in terms of the Act; (b) design, modify, locate, construct and maintain all water systems, including residue deposits, in any area so as to prevent the pollution of any water resource through the operation or use thereof and to restrict the possibility of damage to the riparian or in-stream habitat through erosion or sedimentation, or the disturbance of vegetation, or the alteration of flow characteristics;	
Stockpiling of gold silts within a HGM 1 UVB wetland and associated paddocks within a 1: 100 year floodline or within a horizontal distance of 100 m from a watercourse.	4. No person in control of a mine or activity may- (a) locate or place any residue deposit, dam, reservoir, together with any associated structure or any other facility within a horizontal distance of 100 metres from any watercourse or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked;	Silts will be temporarily stockpile within the project boundary which is within the 1:100 year floodline (pre-date the GN R704 Regulations in June 1999) and the silt stockpile areas are levelled and compacted to minimise pollution of the water resources.
Construction, operation, and rehabilitation of Haul road crossings within a 1:100 year floodline.	4. No person in control of a mine or activity may- (a) locate or place any residue deposit,	The location of the roads is influenced by the location of the reclamations site, which

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Activity Descriptions	Applicable GN R704 Regulation	Motivation for exemption
	dam, reservoir, together with any associated structure or any other facility within the 1:100 year flood-line or within a horizontal distance of 100 metres from any watercourse or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked;	is within 100m of a stream.
Dust suppression of Haul road 1 and 2	7. Every person in control of a mine or activity must take reasonable measures to- (a) prevent water containing waste or any substance which causes or is likely to cause pollution of a water resource from entering any water resource, either by natural flow or by seepage, and must retain or collect such substance or water containing waste for use, re-use, evaporation or for purification and disposal in terms of the Act;	Dust Suppression of the Haul Roads is undertaken with stormwater collected in the stormwater system to minimise and control airborne dust.

7.3. Key Commitments

Ergo is committed to the correct implementation of the IWWMP action plan contained in this report and the water use licence conditions that will be stipulated in the WUL once issued.

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9 Appendices

Appendix A: Surface Water Impact Assessment Report

Appendix B: Groundwater Impact Assessment Report

Appendix C: Public Participation Report

Appendix D: Biodiversity Impact Assessment Report

Appendix E: Wetland Impact Assessment Report

APPENDIX A:
Surface Water Impact Assessment Report

Surface Water Hydrological Study for the Proposed Valley Silts Expansion Project

Project Number:

KON008

Prepared for:

Kongiwe Environmental (Pty) Ltd

150 Bryanston Drive, Bryanston, Sandton, 2191, South Africa

Email: info@kongiwe.co.za

Tel: +27 (10) 140 6508

Fax: 083 476 6438

Compiled by:

Hydrospatial (Pty) Ltd

28 Village Street, Tzaneen, 0850

Email: andy@hydrospatial.co.za

Tel: +27 84 441 9539

February 2025

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Project Number	KON036
Report Number	02
Report Status	Draft
Submission Date	February 2025
Author	Andy Pirie (Senior Hydrologist, M.Sc., *Pr.Sci.Nat.114988*)
Author Signature	

DISCLAIMER

The opinions, results and findings expressed in this report, are based on the author's best scientific knowledge, as well as on the information supplied to Hydrospatial as part of the project. The accuracy of the results and conclusions in this report, are reliant on the accuracy and completeness of the supplied information. Hydrospatial does not accept responsibility for any errors or omissions in the supplied information, and does not accept any consequential liability arising from commercial decisions or actions resulting from them.

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DECLARATION OF INDEPENDENCE

I, Andy Pirie declare that:

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have the expertise in conducting the specialist study relevant to this application, including knowledge of the various Acts, regulations and any guidelines that have relevance to the proposed project;
- I will comply with the Acts, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing any decision to be taken with respect to the application by the competent authority; and the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of Section 24F of the Act.



Andy Pirie
Senior Hydrologist
Pr.Sci.Nat (reg no. 114988)

ACRONYMS AND ABBREVIATIONS

ADT	Articulated Dump Truck
AMD	Acid Mine Drainage
BPG	Best Practice Guideline
CBD	Central Business District
COD	Chemical Oxygen Demand
CoJ	City of Johannesburg
CV	Curriculum Vitae
CMA	Catchment Management Agencies
DEM	Digital Elevation Model
DTM	Digital Terrain Model
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EC	Electrical Conductivity
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMP	Environmental Management Programme
GIS	Geographical Information Systems
GN R704	Government Notice No. 704
ha	Hectares
km	Kilometres
MAP	Mean Annual Precipitation
MAR	Mean Annual Runoff
mamsl	metres above mean sea level
mcm	Million cubic metres
MPRDA	Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)
MR	Mining Right
m^2	Square metres
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NWA	National Water Act, 1998 (Act No. 36 of 1998)
Pr.Sci.Nat.	Professional Natural Scientist
SANRAL	South African National Roads Agency Limited
SANS	South African National Standard
SWMP	Stormwater Management Plan
SANS	South African National Standards
SACNASP	South African Council for Natural Scientific Professions
SCS	Soil Conservation Service
SDF	Standard Design Flood
S-PAN	Symon's Pan
SS	Suspended Solids

Tc	Time of concentration
TDS	Total Dissolved Solids
TSF	Tailings Storage Facility
TSS	Total Suspended Solids
WR2012	Water Resources of South Africa, 2012 Study
WUL	Water Use Licence
WULA	Water Use Licence Application
WMAs	Water Management Areas
WRC	Water Research Commission

EXECUTIVE SUMMARY

Introduction and Background

Hydrospatial (Pty) Ltd was appointed by Kongiwe Environmental (Pty) Ltd to conduct a surface water hydrological study for the proposed Valley Silts Expansion Project (hereafter referred to as the "Project"). This report provides the surface water specialist study required for the Environmental Impact Assessment (EIA) and Water Use Licence Application (WULA) processes.

The Project is located 5.5 kilometres (km) south-west of the Johannesburg Central Business District (CBD) area, and 8 km south-east of Florida in the Gauteng Province, between Nasrec Road in the west and Crownwood Road in the east.

Ergo Mining (Pty) Ltd (hereafter "Ergo"), a subsidiary of DRDGOLD Limited, obtained an Environmental Authorisation (EA) and an Integrated Water Use Licence (IWUL) for the mechanical reclamation of gold bearing silts from a section of the Russell Stream north of NASREC near Booysens Reserve, in Johannesburg. This is referred to as the Valley Silts Project. The mining authorisation for the Valley Silts Project, falls within Ergo's Mining Right (MR): GP 184 MR, and has been an ongoing operation for a period of time, and as such, to maintain an efficient mining operation, as well as a sustainable feed source to the process plant, it is necessary to prepare for the recovery of the remaining silts in the Russell Stream.

The Valley Silts resource has three primary sectors. The current approved mining area is Sector 1 and extends from the old dam wall to the end of the stockpile area near Crownwood Road in the east. Construction and site establishment at Sector 1 commenced in October 2022, with the mining of silt beginning in May 2023. The Expansion Project will consist of Sector 2 and Sector 3. Sector 2 consists of mining blocks N1 to N20, which extends from the old dam wall to Nasrec Road in the west. Sector 3 consists of mining blocks N21 and N22, located on either side of Crownwood Road in the east.

The gold bearing silts will be mechanically excavated from the Project area. Excavators will be used to excavate the silt, which will be loaded onto 30-ton Articulated Dump Trucks (ADTs). The ADTs will transport the silt to designated stockpile areas. Silts will have up to a 40% moisture content when hauled and are not expected to be fully dried out, but will be dried on the stockpile areas. The dried silts will be loaded onto tipper trucks and transported to the City Deep plant for pre-processing. The trucks transporting the material will follow Crownwood Road until it reaches Main Reef Road and then join the M2 East. The trucks will then follow the M2 until they reach Heidelberg Road which is followed to the City Deep Plant where they will be offloaded.

The following infrastructure is proposed:

- Mining blocks (N1 to N22);
- Drying stockpiles (8 locations);
- Stormwater control berms/paddocks;
- River crossings (8); and

- Haul and site roads.

Exploration trenching will determine the depositional flank extents, and all material will be removed from the natural flow path as well as the flanks. Since mining exceeds the delivery rate to the process plant, stockpile areas are required for temporary storage. The stockpiles will be moved in a sequential manner due to the moisture content, the drying process, as well as oxidation. Paddocks and stormwater controls are required to protect the river from any extraneous ingress. The current facilities in Sector 1 will be utilised for the remaining expansion areas. Hard park, cut off trenches and sumps are pre-installed and are appropriate for further use. Existing silt traps will move as the mining blocks progress. The existing sump will discharge to the stream as is the case with the current operation.

Once the silts have been removed from the targeted areas, decommissioning will commence with the removal of all associated vehicles and infrastructure from the site, as well as the removal of berms, paddocks, diversion trenches, infrastructure and anything else installed during construction and operational phases. Rehabilitation will take place as and when excavation progresses to other target areas. Care will be taken to ensure that the material and excavated soil required for backfilling are free of contamination from hydrocarbons. Ergo aims to rehabilitate the Valley Silts area by shaping the areas where silt was removed and making the area free draining. Thereafter, appropriate species will be planted to stabilise the soil.

The anticipated life span of the Project is approximately 5 years. The silt removal is planned to take place over a three-year period, with rehabilitation taking up to 2 years.

Scope of Work

The scope of work included the following:

- Description of the baseline (current) surface water hydrology in terms of water quality and quantity. The purpose of the baseline is to ensure that a thorough understanding of the pre-mining surface water conditions is provided;
- Development of conceptual Stormwater Management Plans (SWMP) in accordance with the DWS BPG G1: Storm Water Management and GN R704 regulations. The primary purpose of the SWMP is to ensure that clean (non-impacted mine water) and dirty water (mine impacted water) are clearly separated in accordance with the above-mentioned guideline and regulations;
- An assessment of the potential surface water impacts and possible mitigation measures; and
- Development of monitoring plans that can be used to monitor potential impacts resulting from the proposed Project.

Baseline Hydrology

The area has a Mean Annual Precipitation (MAP) of 799 mm. Rainfall is highest over the summer months of November to March, and lowest over the winter months of May to September. The Mean Annual Evaporation (MAE) of the area is 1 272 mm. Evaporation is highest over the months of September to March, and lowest over the cooler months of April to August.

The Project is located in the Vaal WMA, within quaternary catchment C22A in the Klip River Catchment. A number of small non-perennial tributaries drain the surrounding suburbs, industrial areas, mine dumps, and the western portion of the Johannesburg CBD into the Russell Stream. The Russell Stream flows in a north-westerly direction and is a tributary of the Klip River, which flows into the Vaal River above the Vaal Barrage, near the town of Vereeniging. The accumulation of sediment over years has resulted in the Russell Stream being deflected to the north. Furthermore, the large amount of sediment that has accumulated in the Russell Stream valley has resulted in regular flooding, particularly at the suburb of Riverlea.

The topography varies from 1 800 metres above mean sea level (mamsl) in north-eastern corner of the Russell Stream catchment, to 1 640 mamsl towards the west at the outlet of the catchment. The catchment is dominated by flat slopes (slopes less than 10 %), with an average catchment slope of 7.5 %. Moderate slopes (10 to 30 %) occur along the sides of the Russell Stream valley, whilst steep slopes in excess of 30 %, occur along the sides of the old mining dumps within the catchment.

The Russell Stream catchment is dominated by residential, industrial and commercial areas. Several historic mine dumps occur within the catchment. Reclamation mining activities (mining of old dumps) are evident along the northern boundary of the Project area.

The WRSM/Pitman model was set up to estimate the monthly runoff for the Russell Stream catchment. The catchment has an estimated Mean Annual Runoff (MAR) of 9.15 million cubic metres (mcm). Runoff is highest over the high rainfall months of November to March, and lowest over the months of May to September.

Surface water quality data for the area was obtained from the following sources:

- Ergo's quarterly water quality monitoring programme;
- Monitoring undertaken by the City of Johannesburg (CoJ) and DWS along the Russell Stream, which was downloaded from the Klip River Forum website; and
- The Council Geoscience's report: Contamination of wetlands by Witwatersrand gold mines – processes and the economic potential of gold in wetlands (Council for Geosciences, 2005). Water quality and sediment sampling from the report were assessed.

Based on monitoring undertaken by Ergo as well as the DWS, the water quality of the Russell Stream has a neutral pH of approximately 7.2, dissolved salts within the ideal range of the Klip River catchment guideline limits, high nutrient and *E.coli* levels, elevated Suspended Solids, as well as at times elevated metals in terms of Iron, Manganese, Aluminium, Nickel and Arsenic. Uranium was found to be within limits.

Based on the current water quality available, it appears that the current mining operation at Sector 1 is not having a significant impact on the water quality of the Russell Stream. This is likely due to current measures that are implemented onsite, such as berms that contain runoff from dirty areas, as well as silt traps that settle out silt.

Floodline Determination

According to GN R704 Regulations, no infrastructure should be placed within the 1:50 and 1:100 year floodlines, or within a 100 m horizontal distance of a watercourse (whichever is the greatest), unless exemption is obtained from the DWS. The 1:50 and 1:100 year floodlines were determined for the Russell Stream. The following proposed infrastructure is impacted by either the floodlines or 100 m stream buffer:

- Mining blocks N1 – N22;
- Drying stockpiles to the north, south and west of the current mining area as well as to the north of mining block N22;
- All river crossings;
- Sump;
- Overflow channel;
- Channel and two silt traps; and
- Paddocks to the north and south of mining blocks N1-N18.

The following is recommended:

- Berms should be placed along the downslope side of the mining blocks and drying stockpiles to prevent flooding. The berms should be constructed to withstand a 1:100 year flood at a height above the floodline; and
- It is recommended that exemption from GN R704 is applied for, for the infrastructure items listed above, which are located within the floodlines and 100 m watercourse buffer.

Conceptual Stormwater Management Plan

A conceptual SWMP was designed for the mining area as well as for the stockpiling area. The purpose of the SWMP is to ensure that clean and dirty water runoff are adequately separated, in accordance with GN R704 regulations. The SWMP was designed to ensure that clean water is diverted away from dirty areas, and that dirty water runoff from the operational areas is captured, contained and managed.

It is proposed that berms are constructed around the mining blocks, to capture and contain dirty runoff from these areas. Runoff and seepage from the stockpile areas will be captured and contained in downslope paddocks. Upslope clean water runoff will be diverted via berms around the mining and stockpile areas and into the Russell Stream.

Berms are further proposed to be constructed along the banks of the Russell Stream, to prevent flooding of the mining and stockpile areas.

Surface Water Impact Assessment

The impact assessment indicated that the identified impacts would have a medium significance pre-mitigation, and that they can be mitigated to a low significance post-mitigation. More details on the impact assessment can be found under section 6.

Monitoring Plans

Monitoring plans for surface water quality and stormwater infrastructure are provided under section 7.

Conclusions and Recommendations

In conclusion, the most important aspect to prevent negative impacts from a surface water perspective, is to ensure that a sound stormwater management plan is implemented prior to the commencement of mining activities, in accordance with the conditions stipulated in GN R704. Maintenance of stormwater measures is of utmost importance and should be conducted as outlined in section 7. Furthermore, water quality monitoring must continue upstream and downstream of the proposed mining and stockpiling areas. The removal of the silt is expected to have a positive impact in the long-term on the water quality and flood levels of the Russell Stream, provided that rehabilitation is successfully implemented.

The following provides a summary of the key recommendations:

- The SWMP detailed under section 5 is implemented, and that all conditions specified in GN R704 are strictly adhered to;
- It is recommended that exemption from GN R704 is applied for, for the mining and stockpiling areas, which are located within the floodlines and 100 m stream buffer;
- The recommendations and mitigation measures provided under section 6 are implemented; and
- The monitoring plans provided under section 7 are implemented.

1 INTRODUCTION AND BACKGROUND

1.1 Terms of Reference

Hydrospatial (Pty) Ltd was appointed by Kongiwe Environmental (Pty) Ltd to conduct a surface water hydrological study for the proposed Valley Silts Expansion Project (hereafter referred to as the "Project"). This report provides the surface water specialist study required for the Environmental Impact Assessment (EIA) and Water Use Licence Application (WULA) processes.

1.2 Project Location

The Project is located 5.5 kilometres (km) south-west of the Johannesburg Central Business District (CBD) area, and 8 km south-east of Florida in the Gauteng Province. The Project area is located within the Russell Stream valley, between Nasrec Road in the west and Crownwood Road in the east. Figure 1-1 indicates the location of the Project.

1.3 Project Description

Ergo Mining (Pty) Ltd (hereafter "Ergo"), a subsidiary of DRDGOLD Limited, obtained an Environmental Authorisation (EA) and an Integrated Water Use Licence (IWUL) for the mechanical reclamation of gold bearing silts from a section of the Russell Stream north of NASREC near Booysens Reserve, in Johannesburg. This is referred to as the Valley Silts Project. The mining authorisation for the Valley Silts Project, falls within Mining Right (MR): GP 184 MR, and has been an ongoing operation for a period of time, and as such, to maintain an efficient mining operation, as well as a sustainable feed source to the process plant, it is necessary to prepare for the recovery of the remaining silts in the Russell Stream.

The Valley Silts resource has three primary sectors (please refer to Figure 1-2). The current approved mining area is Sector 1 and extends from the old dam wall to the end of the stockpile area near Crownwood Road in the east. Construction and site establishment at Sector 1 commenced in October 2022, with the mining of silt beginning in May 2023. The Expansion Project will consist of Sector 2 and Sector 3. Sector 2 consists of mining blocks N1 to N20, which extends from the old dam wall to Nasrec Road in the west. Sector 3 consists of mining blocks N21 and N22, located on either side of Crownwood Road in the east.

1.3.1 Mining Process

The gold bearing silts will be mechanically excavated from the Project area. Excavators will be used to excavate the silt, which will be loaded onto 30-ton Articulated Dump Trucks (ADTs). The ADTs will transport the silt to designated stockpile areas. Silts will have up to a 40% moisture content when hauled and are not expected to be fully dried out but will be dried on the stockpile areas. The dried silts will be loaded onto tipper trucks and transported to the City Deep plant for pre-processing. The trucks transporting the material will follow Crownwood Road until it reaches Main Reef Road and then join the M2 East. The trucks will then follow the M2 until they reach Heidelberg Road which is followed to the City Deep Plant where they will be offloaded.

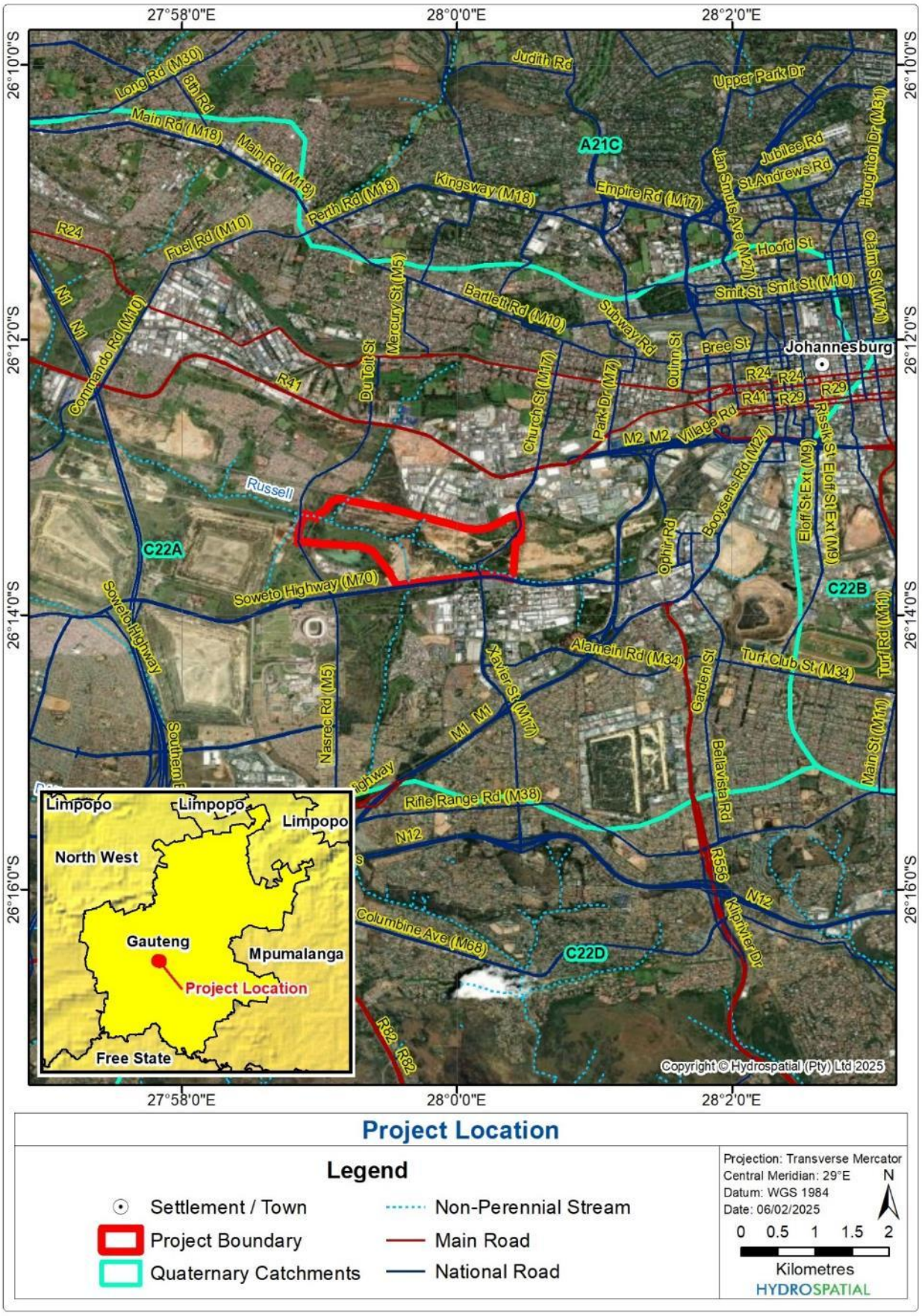


Figure 1-1: Project location

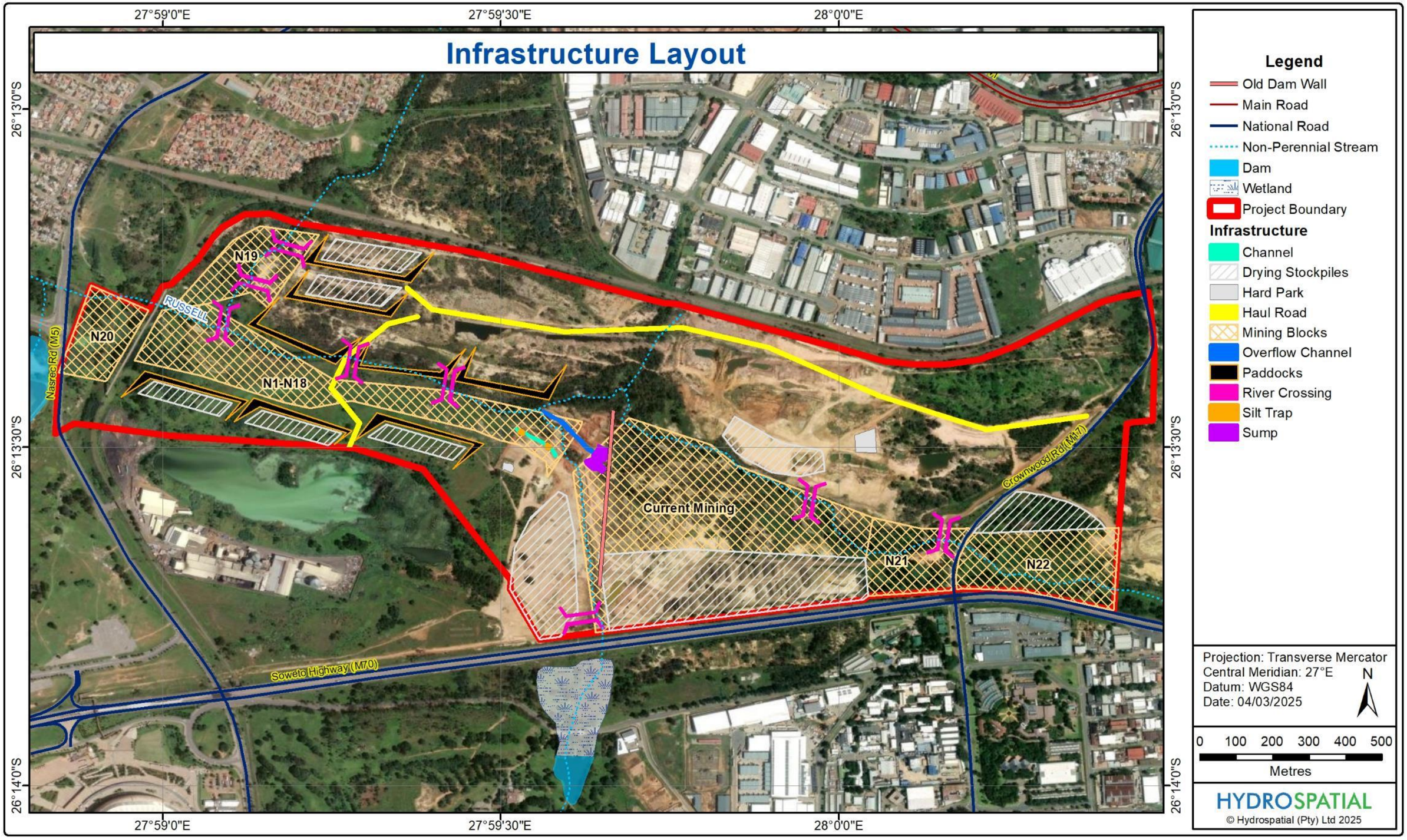


Figure 1-2: Infrastructure layout

1.3.2 Proposed Infrastructure

The following infrastructure is proposed:

- Mining blocks (N1 to N22);
- Drying stockpiles (8 locations);
- Stormwater control berms/paddocks;
- River crossings (8); and
- Haul and site roads.

Exploration trenching will determine the depositional flank extents, and all material will be removed from the natural flow path as well as the flanks. Since mining exceeds the delivery rate to the process plant, stockpile areas are required for temporary storage. The stockpiles will be moved in a sequential manner due to the moisture content, the drying process, as well as oxidation. Paddocks and stormwater controls are required to protect the river from any extraneous ingress, and these will be installed as indicated on Figure 1-2. The current facilities in Sector 1 will be utilised for the remaining expansion areas. Hard park, cut off trenches and sumps are pre-installed and are appropriate for further use. Existing silt traps will move as the mining blocks progress. The existing sump will discharge to the stream as is the case with the current operation.

1.3.3 Site Access

The Valley Silts Project is located within the Russell Stream valley, near Booysens Reserve. The project area stretches from New Canada Road, following the valley south east, past the Nasrec Road bridge and past Crownwood Road until the stream meets the M1.

Access to the site is directly off Crownwood Road. This access to the site is approximately 440 m to the south of the intersection with Jupiter Road. The access is 10 m wide, with one lane ‘IN’ and one lane ‘OUT’. Traffic from Crownwood Road (M17) has the right of way and a ‘STOP’ condition is implemented.

As far as possible, existing access roads will be utilised, and where this is not possible, these will be constructed as a two-by-two roadway, operating in both directions. Intersections will be properly designed to provide safe entry and exit into the mining area. Approvals from the provincial road’s authority will be obtained where necessary.

1.3.4 Life of Mine

The anticipated life span of the Project is approximately 5 years. The silt removal is planned to take place over a three-year period, with rehabilitation taking up to 2 years.

1.3.5 Water Management

The Project will not require water for the mechanical excavation of gold bearing silts. Potable drinking water will be sourced from the municipality and will be available to employees on site.

The clean stormwater runoff from the area to the south of the drying sites will be diverted using a stormwater diversion drain (or berm) around the area to the west. Stormwater from the north will flow via properly constructed inlets into the Russell Stream. Temporary berms will be constructed along the banks of the channel. These banks will be raised in sections to retain

flood flow and prevent flooding of any of the reclamation area during excessive rainfall. The raised riverbanks and berms will be able to contain a 1:50 year storm event.

Dirty stormwater will be contained in existing paddocks on the drying sites. Should the paddocks reach capacity, the excess stormwater will need to be released into the Russell Stream, as is done at the current mining operation.

Stormwater from the mined-out areas flows to a sump. Water from the sump is used for dust suppression. Should the sump reach capacity it will overflow via a channel into the Russell Stream, as is currently done at the existing operation.

1.3.6 Waste Management

No domestic or industrial disposal sites are required. There will be bins on-site for any domestic waste generated.

1.3.7 Rehabilitation

Once the silts have been removed from the targeted areas, decommissioning will commence with the removal of all associated vehicles and infrastructure from the site, as well as the removal of berms, paddocks, diversion trenches, infrastructure, and anything else installed during construction and operational phases.

Regarding the safety of both the public and the employees, Ergo has completed a workers' safety assessment as well as a public safety assessment. The public safety assessment for all the proposed operations of Ergo are currently being updated. This is being done in relation to the requirements of the National Nuclear Regulator.

Rehabilitation will take place as and when excavation progresses to other target areas. Care will be taken to ensure that the material and excavated soil required for backfilling are free of contamination from hydrocarbons. Ergo aims to rehabilitate the Valley Silts area by shaping the areas where silt was removed and making the area free draining. Thereafter, appropriate species will be planted to stabilise the soil.

Post-decommissioning activities will entail the assessment of rehabilitation and will address any further rehabilitation requirements. Monitoring must occur for at least five years after decommissioning and rehabilitation, or until satisfactory results are achieved.

Maintenance will specifically need to focus on the rehabilitated areas. Furthermore, groundwater and surface water monitoring will have to take place in the area surrounding the Project. It has been recommended that the groundwater is monitored for at least a period of five years on a quarterly basis after closure. The monitoring process will be used to assess whether the rehabilitation process has been successful or not, and to provide an indication that no further deterioration on groundwater quality is foreseen. Water infrastructure (channels, berms and paddocks) should be monitored on a monthly basis during the dry season, and on a weekly basis during the wet season. They should further be monitored immediately after any large storm events. Should blockages, silted up structures or breaches occur, immediate action should be undertaken to remove debris and repair breaches. Monitoring should be undertaken by the onsite Environmental Officer (EO) or maintenance manager.

Maintenance will specifically focus on the rehabilitated in accordance with the approved Environmental Management Programme. Continuous erosion monitoring of rehabilitated areas and slopes should be undertaken and zones with excessive erosion should be identified. The cause of the erosion should be identified and rectified. Zones with erosion will need to be repaired with topsoil.

1.4 Legal Requirements and Guidelines

The following key legislative requirements and guidelines are relevant to this study:

- National Water Act, 1998 (Act No. 36 of 1998) (NWA);
- Regulations on the Use of Water for Mining and Related Activities aimed at the Protection of Water Resources (published under Government Notice 704 (GN R704) in Government Gazette 20119, 4 June 1999);
- National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) and associated Environmental Impact Assessment (EIA) 2014 Regulations;
- Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA); and
- Department of Water and Sanitation (DWS) Best Practice Guideline (BPG) documents.

1.5 Site Investigation

A site investigation was undertaken on 19 November 2025. The purpose of the site investigation was to assess the hydrological characteristics of the Project area.

1.6 Details of the Specialist

The study was carried out by Andy Pirie who is a senior hydrologist at Hydrospatial (Pty) Ltd. Andy graduated with a Master of Science (M.Sc.) in Water Resource Management (cum laude). He has successfully completed numerous surface water hydrological studies for environmental impact assessments and water use licence applications. He is registered as a Professional Natural Scientist (Pr.Sci.Nat) (registration number: 114988) in Water Resources Science with the South African Council for Natural Scientific Professions (SACNASP). Work experience includes rainfall – runoff modelling, floodline determinations, stormwater management plans, water and salt balance modelling, setup of water monitoring networks and programmes, analysis of surface water quality and quantity, and surface water specialist studies for environmental and social impact assessments. He has worked on projects in South Africa, Cameroon, Senegal, Mali, Democratic Republic of the Congo (DRC), Botswana, Zambia and Namibia. A curriculum vitae is provided in Appendix A.

2 SCOPE OF WORK

The scope of work included the following:

- Description of the baseline (current) surface water hydrology in terms of water quality and quantity. The purpose of the baseline is to ensure that a thorough understanding of the pre-mining surface water conditions is provided;

- Development of conceptual Stormwater Management Plans (SWMP) in accordance with the DWS BPG G1: Storm Water Management and GN R704 regulations. The primary purpose of the SWMP is to ensure that clean (non-impacted mine water) and dirty water (mine impacted water) are clearly separated in accordance with the above-mentioned guideline and regulations;
- An assessment of the potential surface water impacts and possible mitigation measures; and
- Development of monitoring plans that can be used to monitor potential impacts resulting from the proposed Project.

3 BASELINE HYDROLOGY

3.1 Climate

3.1.1 Rainfall

Monthly patched rainfall data for weather station 0476040 W, located 7 km north-east of the Project, was adopted to represent the rainfall of the Project area. Monthly rainfall data was available for the period of October 1915 to September 2010, and was downloaded from the WR2012 website. The mean monthly rainfall is indicated in Figure 3-1. The area has a Mean Annual Precipitation of 799 mm. Rainfall is highest over the summer months of November to March and lowest over the months of May to September.

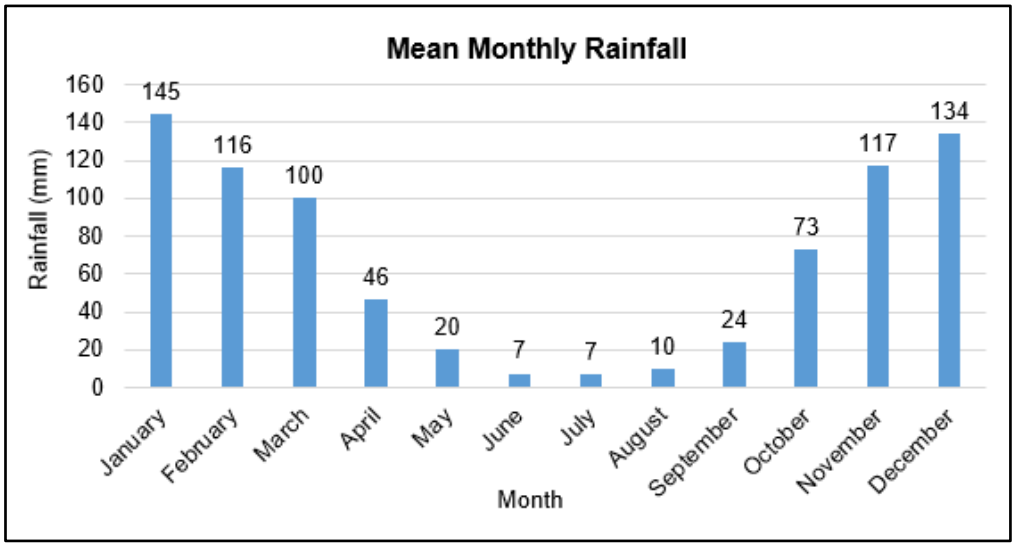


Figure 3-1: Monthly rainfall data for the Project area

The storm rainfall depths for the centre position of the Project area were extracted from the Design Rainfall Estimation in South Africa software programme (Smithers and Schulze, 2002). The programme uses the six closest rainfall stations to a user specified coordinate, to calculate the storm rainfall depths. The extracted storm rainfall depths for the Project are indicated in Table 3-1.

Table 3-1: Storm rainfall depths for the Project area

Storm Duration	Return Period / Storm Rainfall Depth (mm)						
min / hr / day	1:2 yr	1:5 yr	1:10 yr	1:20 yr	1:50 yr	1:100 yr	1:200 yr
5 min	9	12	15	17	21	25	28
10 min	13	18	21	25	31	36	41
15 min	16	22	26	31	38	44	50
30 min	20	28	34	40	49	56	65
45 min	23	32	39	46	56	65	75
1 hr	26	36	43	51	63	72	83
1.5 hr	30	41	50	59	72	84	96
2 hr	33	46	55	65	80	93	106
4 hr	40	55	66	78	96	111	127
6 hr	44	61	74	87	107	124	142
8 hr	48	66	80	94	115	133	153
10 hr	51	70	84	100	122	141	162
12 hr	53	73	88	105	128	148	170
16 hr	57	79	95	113	138	160	183
20 hr	61	84	101	120	147	169	194
24 hr	64	88	106	125	154	178	204
1 day	55	76	92	109	133	154	177
2 day	68	94	113	134	164	190	218
3 day	77	106	128	151	185	214	246
4 day	83	115	139	165	202	233	268
5 day	89	123	149	176	216	249	286
6 day	94	130	157	186	228	263	302
7 day	99	136	164	195	239	276	316

3.1.2 Evaporation

Evaporation data was obtained from the DWS weather station C2E007, located 18 km south-west of the Project area. C2E007 measures evaporation using a Symon's Pan (S-Pan). S-Pan evaporation measurements are not a true reflection of evaporation from natural open water bodies, as the water temperatures in the S-Pan are higher, resulting in higher evaporation rates. To convert S-Pan measurements to open water evaporation, monthly open water

evaporation conversion factors were used, which were obtained from the WR2012 study. The adopted monthly evaporation for the Project is indicated in Table 3-2. Evaporation is highest over the months of September to March, and lowest over the cooler months of April to August.

Table 3-2: Symons Pan and open water evaporation for the Project

Month	S-Pan Evaporation (mm)	Evaporation Factor	Open Water Evaporation (mm)
January	169	0.84	142
February	138	0.88	122
March	129	0.88	113
April	102	0.88	89
May	85	0.87	74
June	68	0.85	57
July	75	0.83	63
August	106	0.81	86
September	145	0.81	117
October	163	0.81	132
November	166	0.82	136
December	170	0.83	141
Total	**1 515**	N/A	**1 272**

3.2 Hydrological Setting

3.2.1 Regional Catchments and Drainage

The DWS and the Surface Water Resources of South Africa studies (WR90, WR2005 and WR2012) have divided South Africa into primary, secondary, tertiary and quaternary catchments. Primary catchments are the largest defined catchments for South Africa, of which there are 22, and are assigned a letter ranging from A – X (excluding O). Secondary catchments are subdivisions of the primary catchments, and are the second largest catchments in South Africa, and are assigned the primary catchment letter within which they are located, and a number e.g. A5 (secondary catchment 5 located within primary catchment A). Similarly, tertiary catchments are subdivisions of secondary catchments, and are represented for example by A53 (tertiary catchment 3 located within secondary catchment A5). Lastly, quaternary catchments are the smallest defined catchments and are assigned the tertiary catchment number, along with a quaternary catchment letter e.g. A53D (quaternary catchment D located within tertiary catchment A53).

Further to the above, the DWS has divided South Africa into 9 Water Management Areas (WMAs), which are managed by separate Catchment Management Agencies (CMA). The 9

WMAs include the Limpopo, Olifants, Inkomati-Usuthu, Pongola-Mtamvuna, Vaal, Orange, Mzimvubu-Tsitsikamma, Breede-Gouritz and Berg-Olifants.

The Project is located in the Vaal WMA, within quaternary catchment C22A in the Klip River Catchment. A number of small tributaries drain the surrounding suburbs, industrial areas and the western portion of the Johannesburg CBD into the Russell Stream. The Russell Stream flows through the Project area in a north-westerly direction and is a tributary of the Klip River, which flows into the Vaal River above the Vaal Barrage, near the town of Vereeniging. The accumulation of sediment over years has resulted in the Russell Stream being deflected to the north of its original course. Furthermore, the large amount of sediment that has accumulated in the Russell Stream valley has resulted in regular flooding, particularly at the suburb of Riverlea.

3.2.2 Topography

Figure 3-3 indicates the topography of the Russell Stream catchment. The elevation varies from 1 800 metres above mean sea level (mamsl) in north-eastern corner of the catchment, to 1 640 mamsl towards the west at the outlet of the catchment. The catchment is dominated by flat slopes (slopes less than 10 %), with an average catchment slope of 7.5 %. Moderate slopes (10 to 30 %) occur along the sides of the Russell Stream valley, whilst steep slopes in excess of 30 %, occur along the sides of the old mining dumps within the catchment area.

3.2.3 Land Cover/Use

The Russell Stream catchment is dominated by residential, industrial and commercial areas. Several historic mine dumps occur within the catchment. Reclamation mining activities (mining of old dumps) are evident along the northern boundary of the Project area.

3.3 Surface Water Runoff

Gauging stations with streamflow data were not available for the Russell Stream, and therefore, the WRSM/Pitman model was setup to estimate the monthly runoff for the catchment. The simulated monthly runoff was compared to measured flows at surrounding gauging stations with good comparison. The simulated mean monthly runoff is indicated in Figure 3-2. The catchment has an estimated Mean Annual Runoff (MAR) of 9.15 million cubic metres (mcm). Runoff is highest over the high rainfall months of November to March, and lowest over the months of May to September.

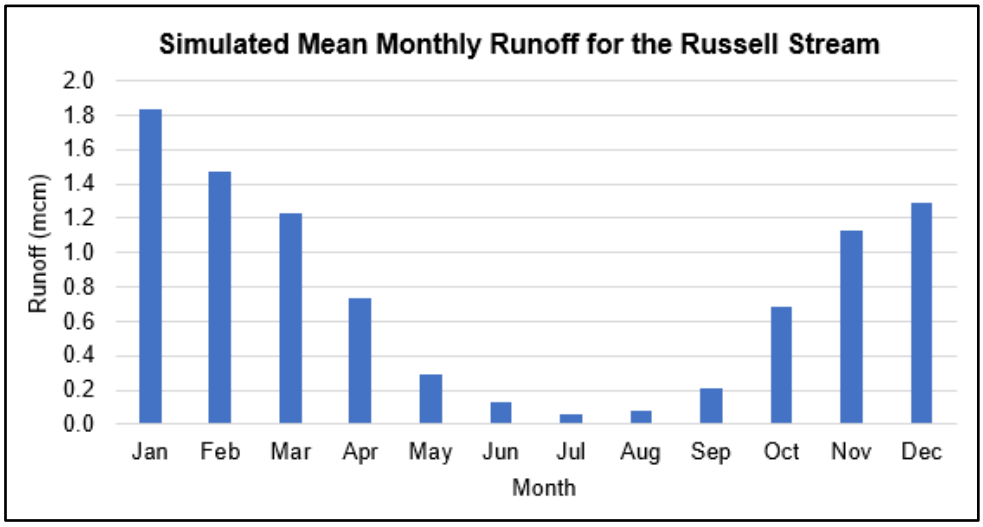


Figure 3-2: Simulated mean monthly runoff for the Russell Stream catchment

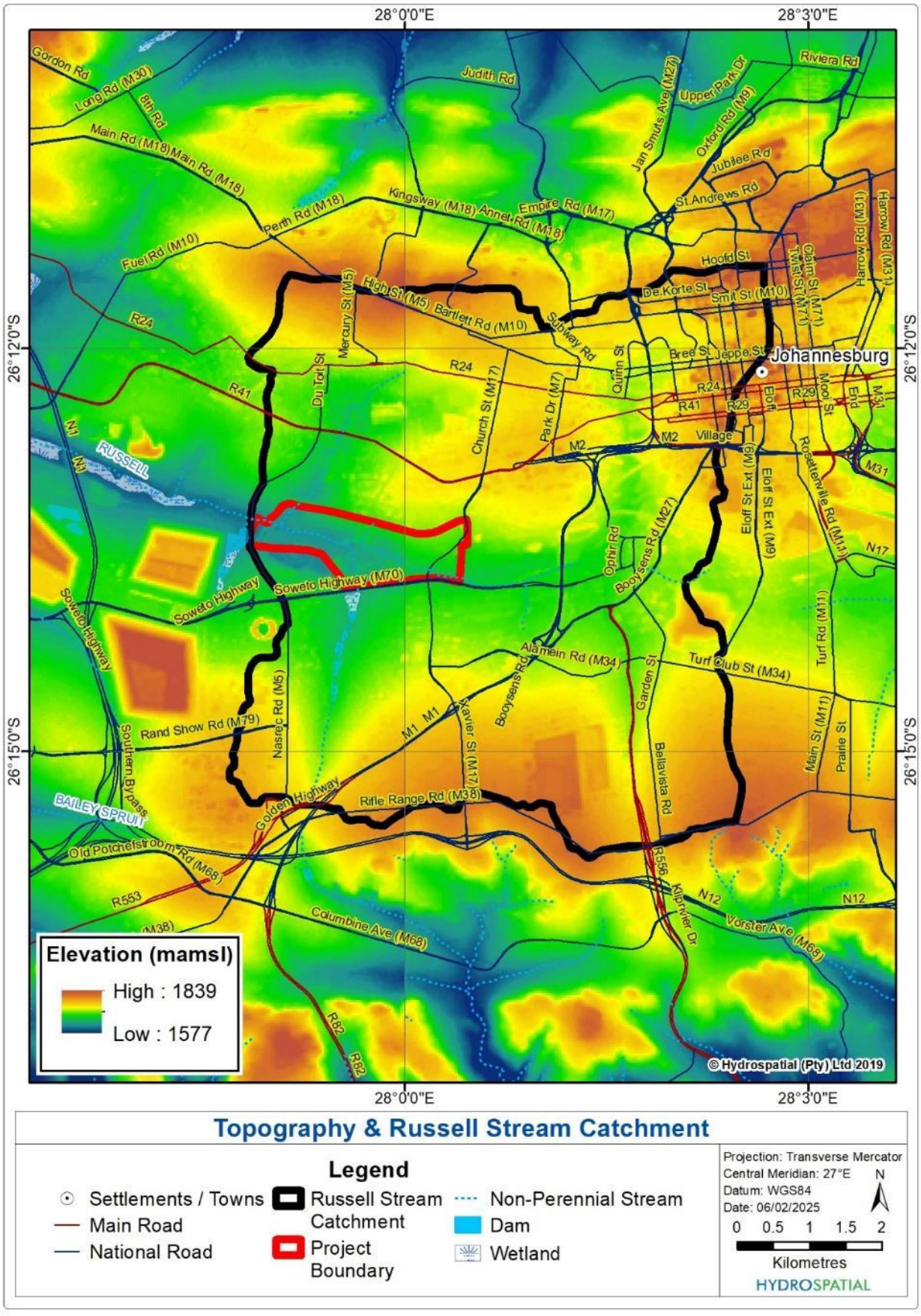


Figure 3-3: Topography

3.4 Surface Water Quality

3.4.1 Data Sources

Water quality data for the area was obtained from the following sources:

- Water quality monitoring undertaken by Ergo;
- Monitoring undertaken by the DWS along the Russell Stream, which was downloaded from the Klip River Forum website (https://reservoir.org.za/klip-river-forum/#toggle-id-4-closed); and
- The Council Geoscience's report: Contamination of wetlands by Witwatersrand gold mines – processes and the economic potential of gold in wetlands (Council for Geosciences, 2005). Water quality and sediment sampling from the report were assessed.

3.4.2 Monitoring Locations

Details of the monitoring locations are summarised in Table 3-3 and their locations are shown on Figure 3-4.

Table 3-3: Summary of the surface water quality monitoring locations

Monitoring Location	Monitored by	Monitoring Period Assessed	Location from Project	Location Description	Latitude*	Longitude*
CR1	Ergo	Jun 2021 – Jan 2025	Upstream of Project	Russell Stream - Lake Road	-26.226111°	28.024167°
CR4	Ergo	Jun 2021 – Jan 2025	Upstream of Project	Small bridge at CGR (Crownwood Road)	-26.226667°	28.002778°
CR7	Ergo	Jun 2021 – Jan 2025	Downstream of Project	Russell Stream - bridge at Randshow Road (Riverlea)	-26.220556°	27.981667°
CR11	Ergo	Jun 2021 – Jan 2025	Downstream of Project	New Canada Road bridge	-26.210556°	27.952778°
DWS1	DWS	Apr 2014 – Sep 2024	Downstream of Project	Russell Stream at New Canada Road	-26.211111°	27.951944°
JV04/077	Council for Geoscience (2005)	Sep 2004	Downstream of Project	Russell Stream at New Canada Road	-26.21042°	27.9525°
JV04/091	Council for Geoscience (2005)	Oct 2004	Upstream of Project	Russell Stream at Crownwood Road	-26.227222°	28.002333°
JV04/095	Council for Geoscience (2005)	Oct 2004	–	Mooifontein TSF PCDs	-26.223139°	27.979028°

Monitoring Location	Monitored by	Monitoring Period Assessed	Location from Project	Location Description	Latitude*	Longitude*
JV04/096	Council for Geoscience (2005)	Oct 2004	–	Mooifontein TSF PCDs	-26.223139°	27.979028°

* Coordinates in decimal degrees, geographic coordinate system, WGS84 datum

3.4.3 Guideline Limits

The water quality was compared to the Klip River catchment guideline limits, as the Russell Stream is located within the Klip River catchment. Where there were no parameter limits specified for the Klip River catchment, the South African National Standard (SANS) 241:2015 Drinking Water Quality limits were used. The guideline limits are described below.

3.4.3.1 Klip River Catchment Guideline Limits

The Klip River catchment guideline limits are specified as follows:

- **Ideal** – this is the range that results should ideally fall within;
- **Acceptable** – results that fall within this range are acceptable but not ideal;
- **Tolerable** – results that fall within this range are tolerable; and
- **Unacceptable** – results that fall within this range are unacceptable.

Results exceeding the Klip River catchment tolerable and unacceptable limits, are coloured in yellow and red respectively in Table 3-4 to Table 3-9.

3.4.3.2 SANS 241:2015 Drinking Water Quality Limits

SANS 241:2015 is generally used for water quality comparison purposes, albeit providing stringent limits that are required for drinking water purposes. The limits provided in the SANS 241:2015 are separated into the following risks:

- Acute health: Parameter that poses immediate unacceptable health risk if consumed with water at concentration values exceeding the specified limit;
- Aesthetic: Parameter that taints water with respect to taste, odour and colour, and that does not pose an unacceptable health risk if present at concentration values exceeding the specified limit;
- Chronic health: Parameter that poses an unacceptable health risk if ingested over an extended period if present at concentration values exceeding the specified limit; and
- Operational: Parameter that is essential for assessing the efficient operation of treatment systems and risks to infrastructure.

Results exceeding the SANS 241:2015 limits are highlighted in orange in Table 3-4 to Table 3-8.

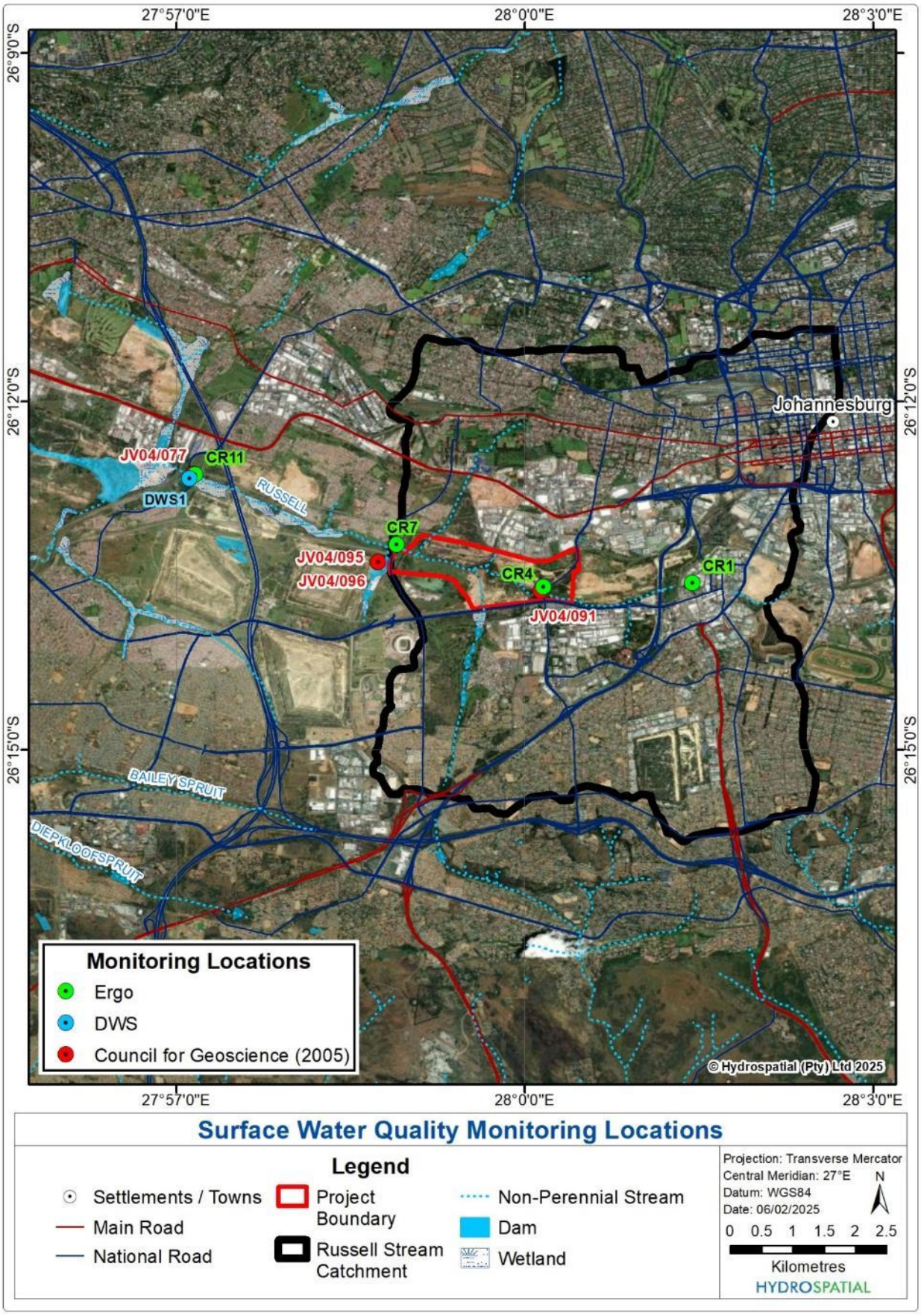


Figure 3-4: Surface water quality monitoring locations

3.4.4 Water Quality Status

3.4.4.1 Ergo and DWS Water Quality Monitoring

The Ergo water quality monitoring results are presented in Table 3-4 to Table 3-8, with trends in selected parameters shown in Figure 3-5, whilst the DWS water quality monitoring results are presented in Table 3-9, with trends shown in Figure 3-6. The following provides a summary of the water quality:

- pH was within limits at all monitoring locations except in December 2022 at CR1, CR4 and CR11, and at DWS1 in May 2014 and February 2019. This, however, was before the mining of silt began at Sector 1 in May 2023;
- Electrical Conductivity (EC) and Total Dissolved Solids (TDS), which provides an indication of the dissolved salts in water, were within acceptable limits at all monitoring locations;
- Nutrients (Ammonia, Nitrate and Phosphate), *E.coli* and Chemical Oxygen Demand (COD), were regularly elevated at DWS1, indicating sewage contamination of the Russell Stream;
- Elevated levels of heavy metal concentrations for Iron, Manganese, Aluminium, Nickel and Arsenic were recorded at most of the monitoring locations. This has been occurring since before the current mining operation at Sector 1 commenced in May 2023;
- Uranium was within limits at all of the Ergo monitoring locations; and
- Suspended Solids (SS) was regularly elevated above unacceptable limits at all monitoring locations. A comparison between the upstream (CR1 and CR4) and downstream (CR7) monitoring locations showed no significant increase in SS as a result of the current mining operation.

3.4.4.2 Council for Geoscience (2005) Report

As part of the Council for Geoscience (2005) study, water samples were taken along the Russell Stream at JV04/077 and JV04/091 in September and October 2004 respectively. Results were similar to the more recent results discussed above, with Iron, Manganese and Nickel elevated above limits. Uranium was found to be within limits, however, Sulphate exceeded unacceptable limits at both sampling locations. Samples were also taken from the Pollution Control Dams (PCDs) along the north-eastern side of the Mooifontein TSF at JV04/095 and JV04/096. Results indicated low pH levels, high levels of dissolved salts and metals, as well as Uranium levels that exceeded the SANS 241:2015 drinking water quality limits.

No sediment samples were taken from the Russell Stream as part of the Council for Geoscience (2005) study, however, results from sediment samples taken from other wetlands in the Witwatersrand, were used to obtain an understanding of the potential mobility of contaminants in the silt at the proposed project. Batch leach tests were performed to assess the leachable potential of Copper, Nickel, Cobalt, Arsenic and Uranium, from the sediment samples using clean water (neutral). The leachability was found to be low, with Nickel slightly more mobile than the other elements, indicating that the contaminants are well bound to

sediment. This was understood to be as a result of the samples originating from sub-aqueous environments (wetlands), being in contact with water for most of the year. Any easily mobilised metals will therefore be mobilised, while the more strongly bound fraction will require a more aggressive leachate than clean water to remobilise them. As long as the current conditions are maintained in these wetlands, i.e. continuous discharge of water to the wetlands and the maintenance of reducing conditions, it is unlikely that the metals will be mobilised (Council for Geoscience, 2005). Furthermore, metal speciation and mobility of elements in sediments were assessed in their report as part of other studies conducted in the Wonderfonteinspruit. It was found that under acidic (e.g. AMD or acid rain) and oxidising (e.g. drying out of sediment due to drought, extraction due to mining or fire) conditions, the remobilisation of metals from wetlands is possible.

3.4.4.3 Conclusion

It can be concluded that the water quality of the Russell Stream has a neutral pH of approximately 7.2, dissolved salts within the ideal range of the Klip River catchment guideline limits, high nutrient and *E.coli* levels, elevated Suspended Solids, as well as at times elevated metals in terms of Iron, Manganese, Aluminium, Nickel and Arsenic. Uranium was found to be within limits.

Based on the current water quality available, it appears that the current mining operation at Sector 1 is not having a significant impact on the water quality of the Russell Stream. This is likely due to current measures that are implemented onsite, such as berms that contain runoff from dirty areas, as well as silt traps that settle out silt.

Table 3-4: Ergo water quality results – June 2021 to June 2022

Parameter	Units	Klip River Catchment Limits		SANS 241:2015 Limits		June 2021				September 2021				December 2021				March 2022				June 2022			
		Tolerable	Unacceptable	Risk	Limit	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11
pH - Value @ 25 ºC	pH units		< 6.0; > 9.0	Operational	≥ 5 to ≤ 9.7	7.50	6.70	6.50	7.10	7.30	6.20	7.30	6.20	7.40	6.70	7.30	7.10	7.10	7.00	7.20	7.00	6.00	6.50	6.90	6.80
Electrical Conductivity @ 25°C	mS/m	100 - 150	> 150	Aesthetic	≤ 170	25.10	56.20	95.20	81.30	38.50	50.70	61.30	114.00	46.90	97.40	64.10	66.70	41.70	77.60	79.90	87.20	88.20	102.00	83.50	76.20
Total Dissolved Solids @ 180°C	mg/ℓ	---	---	Aesthetic	≤ 1 200	150.00	318.00	610.00	364.00	220.00	320.00	360.00	358.00	246.00	636.00	408.00	444.00	248.00	446.00	468.00	562.00	514.00	640.00	478.00	448.00
Total Acidity as CaCO3	mg/ℓ	---	---	---	---	<5	<5	<5	<5	16.00	36.00	20.00	70.00	<5	<5	<5	<5	<5	<5	<5	<5	28.00	28.00	28.00	24.00
Chloride as Cl	mg/ℓ	75 - 100	> 100	Aesthetic	≤ 300	15.00	37.00	44.00	49.00	31.00	36.00	37.00	45.00	35.00	48.00	36.00	35.00	26.00	55.00	45.00	40.00	75.00	63.00	49.00	40.00
Sulphate as SO4	mg/ℓ	350 - 500	> 500	Acute health	≤ 500	30.00	98.00	326.00	186.00	32.00	45.00	86.00	7.00	27.00	188.00	84.00	58.00	47.00	100.00	138.00	213.00	165.00	301.00	176.00	198.00
Fluoride as F	mg/ℓ	0.7 - 1.00	> 1.00	Chronic health	≤ 1.5	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.50	0.30	0.20	0.20	0.20	0.30	0.30	0.40	0.40	0.20	0.30	0.30	0.20
Nitrate as N	mg/ℓ	4.0 - 7.0	> 7.0	Acute health	≤ 11	1.10	0.20	0.30	0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.80	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nitrite as N	mg/ℓ	---	---	Acute health	≤ 0.9	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.30	<0.05	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	0.07
Bromide as Br	mg/ℓ	---	---	---	---	<0.1	<0.1	<0.1	0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ortho Phosphate as P	mg/ℓ	---	---	---	---	<0.1	<0.1	<0.1	<0.1	0.60	<0.1	0.10	12.00	1.20	<0.1	<0.1	0.10	0.80	0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Cyanide as CN	mg/ℓ	---	---	---	---	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
Free and Saline Ammonia as N	mg/ℓ	---	---	---	---	0.10	7.00	13.00	15.00	4.70	5.50	11.00	119.00	8.10	13.00	5.80	9.40	5.20	11.00	12.00	9.10	16.00	14.00	16.00	12.00
Sodium as Na	mg/ℓ	80 - 100	> 100	Aesthetic	≤ 200	12.00	30.00	44.00	44.00	21.00	38.00	33.00	39.00	28.00	46.00	27.00	33.00	20.00	42.00	39.00	37.00	52.00	54.00	49.00	36.00
Potassium as K	mg/ℓ	---	---	---	---	4.10	10.30	12.30	12.60	5.10	8.90	8.80	14.30	8.50	12.50	8.00	8.60	4.60	14.50	10.70	10.00	19.60	18.20	11.40	9.60
Calcium as Ca	mg/ℓ	---	---	---	---	23.00	33.00	72.00	47.00	26.00	31.00	35.00	37.00	26.00	80.00	43.00	42.00	33.00	47.00	49.00	61.00	50.00	72.00	45.00	50.00
Magnesium as Mg	mg/ℓ	30-70	> 70	---	---	7.00	13.00	25.00	20.00	11.00	13.00	17.00	16.00	11.00	21.00	18.00	18.00	12.00	18.00	20.00	24.00	22.00	26.00	20.00	24.00
Aluminium as Al (Dissolved)	mg/ℓ	0.3 - 0.5	> 0.5	Operational	≤ 0.3	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	0.10	<0.100	<0.100	<0.100
Antimony as Sb (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.02	0.00	<0.001	<0.001	0.00	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic as As (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.01	<0.001	0.001	<0.001	<0.001	0.001	0.003	0.002	0.009	<0.001	<0.001	<0.001	0.001	<0.001	0.001	<0.001	<0.001	0.017	0.015	0.015	0.013
Barium as Ba (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.7	0.10	0.11	0.11	0.10	0.14	0.14	0.14	0.06	0.06	0.05	0.04	0.05	0.05	0.04	0.05	0.04	0.06	0.05	0.04	0.04
Beryllium as Be (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Bismuth as Bi (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Boron as B (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 2.4	<0.025	0.06	0.06	0.05	0.11	<0.025	0.04	0.04	<0.025	0.06	0.05	0.03	<0.025	0.06	0.06	0.06	<0.025	<0.025	<0.025	0.03
Cadmium as Cd (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Hexavalent Chromium as Cr	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Total Chromium as Cr (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.05	0.01	0.01	<0.010	<0.010	<0.010	0.02	0.01	<0.010	<0.010	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cobalt as Co (Dissolved)	mg/ℓ	---	---	---	---	<0.025	0.04	0.30	0.16	<0.025	<0.025	<0.025	<0.025	<0.025	0.15	<0.025	0.10	<0.025	<0.025	<0.025	0.25	0.09	0.18	0.19	0.22
Copper as Cu (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 2	0.01	<0.010	<0.010	<0.010	0.03	0.03	0.03	0.01	0.01	0.01	<0.010	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Iron as Fe (Dissolved)	mg/ℓ	1.0 - 1.5	> 1.5	Chronic health	≤ 2	0.03	4.46	20.00	8.13	0.26	2.61	1.75	0.62	0.21	<0.025	<0.025	0.20	0.21	0.62	2.84	0.99	4.36	8.52	3.51	0.10
Ferrous Iron as Fe2+ (Dissolved)	mg/ℓ	---	---	---	---	0.03	0.46	0.62	0.53	<0.025	0.24	0.20	0.43	0.12	<0.025	<0.025	0.11	0.04	<0.025	0.32	<0.025	4.42	8.69	3.79	0.09
Ferric Iron as Fe3+ (Dissolved)	mg/ℓ	---	---	---	---	<0.025	4.00	19.00	7.60	0.27	2.37	1.55	0.20	0.09	<0.025	<0.025	0.09	0.17	0.62	2.52	0.99	<0.025	<0.025	<0.025	<0.025
Lead as Pb (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.01	<0.001	<0.001	<0.001	<0.001	0.00	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lithium as Li (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.03	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Manganese as Mn (Dissolved)	mg/ℓ	2.0 - 4.0	> 4.0	Chronic health	≤ 0.4	<0.025	1.07	5.08	3.23	0.04	0.95	2.43	1.73	0.07	3.34	0.77	2.63	0.11	1.38	3.40	4.32	1.81	4.13	3.44	3.97
Mercury as Hg (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.006	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Molybdenum as Mo (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Nickel as Ni (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.07	<0.025	0.04	0.31	0.15	<0.025	<0.025	<0.025	<0.025	<0.025	0.17	0.13	0.16	<0.025	<0.025	0.03	0.33	0.09	0.23	0.22	0.28
Phosphorus as P (Dissolved)	mg/ℓ	---	---	---	---	<0.025	0.39	0.05	0.15	0.88	0.42	0.65	17.00	1.78	0.20	0.15	0.15	0.80	0.35	0.10	0.03	3.20	3.15	3.60	3.11
Selenium as Se (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.04	<0.001	<0.001	<0.001	<0.001	<0.001	0.00	<0.001	<0.001	0.00	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00	0.00	<0.001	<0.001
Silicon as Si (Dissolved)	mg/ℓ	---	---	---	---	5.80	6.20	6.30	6.60	9.20	8.70	8.00	16.00	6.50	5.70	5.60	6.10	7.10	6.60	6.20	5.60	6.60	6.50	7.70	6.50
Silver as Ag (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Strontium as Sr (Dissolved)	mg/ℓ	---	---	---	---	0.10	0.12	0.20	0.15	0.14	0.14	0.15	0.18	0.11	0.18	0.16	0.15	0.16	0.18	0.19	0.21	0.20	0.21	0.17	0.17
Thallium as Tl (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Thorium as Th (Dissolved)	mg/ℓ	---	---	---	---	<0.001	<0.001	<0.001	0.00	<0.001	<0.001	<0.001	<0.001	0.00	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00	0.00	<0.001	<0.001	<0.001
Tin as Sn (Dissolved)	mg/ℓ	---	---	---	---	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Titanium as Ti (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Tungsten as W (Dissolved)	mg/ℓ	---	---	---	---	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium as U (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.03	0.001	0.001	0.005	0.007	<0.001	0.001	0.006	<0.001	<0.001	0.002	0.005	0.006	<0.001	0.003	0.010	0.010	0.002	0.006	0.006	0.007
Vanadium as V (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Zinc as Zn (Dissolved)	mg/ℓ	---	---	Aesthetic	≤ 5	<0.025	0.03	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.04	0.03	<0.025	<0.025	<0.025	<0.025	<0.025	0.03	0.15	0.04	0.08
Zirconium as Zr (Dissolved)	mg/ℓ	---	---	---	---	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Suspended Solids	mg/ℓ	30 - 55	> 55	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Turbidity	NTU	---	---	Aesthetic	≤ 5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Table 3-5: Ergo water quality results – September 2022 to July 2023

Parameter	Units	Klip River Catchment Limits		SANS 241:2015 Limits		September 2022				December 2022				March 2023				June 2023				July 2023			
		Tolerable	Unacceptable	Risk	Limit	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11
pH - Value @ 25 ºC	pH units		< 6.0; > 9.0	Operational	≥ 5 to ≤ 9.7	6.80	6.70	7.50	7.40	8.60	10.40	9.80	9.60	7.60	7.00	6.80	6.60	7.20	6.50	7.20	7.10	---	7.40	7.20	---
Electrical Conductivity @ 25°C	mS/m	100 - 150	> 150	Aesthetic	≤ 170	78.20	61.10	79.80	71.80	86.90	43.70	53.00	55.90	55.60	63.60	65.30	65.70	92.50	62.60	81.80	79.80	---	56.40	69.10	---
Total Dissolved Solids @ 180°C	mg/ℓ	---	---	Aesthetic	≤ 1 200	480.00	390.00	396.00	428.00	562.00	268.00	354.00	352.00	266.00	376.00	398.00	390.00	538.00	362.00	444.00	468.00	---	306.00	410.00	---
Total Acidity as CaCO3	mg/ℓ	---	---	---	---	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	---	<5	<5	---
Chloride as Cl	mg/ℓ	75 - 100	> 100	Aesthetic	≤ 300	61.00	48.00	53.00	52.00	107.00	39.00	52.00	45.00	36.00	35.00	31.00	28.00	78.00	45.00	53.00	48.00	---	36.00	46.00	---
Sulphate as SO4	mg/ℓ	350 - 500	> 500	Acute health	≤ 500	144.00	76.00	96.00	125.00	160.00	89.00	124.00	131.00	44.00	111.00	138.00	189.00	100.00	70.00	110.00	141.00	---	63.00	100.00	---
Fluoride as F	mg/ℓ	0.7 - 1.00	> 1.00	Chronic health	≤ 1.5	0.30	0.30	0.30	0.20	0.20	0.20	0.20	0.30	0.20	0.20	0.20	0.20	0.30	0.30	0.30	0.30	---	0.30	0.30	---
Nitrate as N	mg/ℓ	4.0 - 7.0	> 7.0	Acute health	≤ 11	0.10	0.20	0.10	0.10	2.40	0.10	<0.1	2.30	<0.1	<0.1	<0.1	0.20	0.10	<0.1	<0.1	<0.1	---	<0.1	<0.1	---
Nitrite as N	mg/ℓ	---	---	Acute health	≤ 0.9	<0.05	<0.05	<0.05	<0.05	3.60	<0.05	<0.05	1.80	<0.05	<0.05	<0.05	0.10	<0.05	<0.05	<0.05	<0.05	---	<0.05	<0.05	---
Bromide as Br	mg/ℓ	---	---	---	---	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	---	<0.1	<0.1	---
Ortho Phosphate as P	mg/ℓ	---	---	---	---	<0.1	<0.1	1.20	0.10	<0.1	0.10	<0.1	0.20	0.50	<0.1	<0.1	<0.1	1.60	0.30	0.50	0.10	---	0.40	0.20	---
Total Cyanide as CN	mg/ℓ	---	---	---	---	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	---	<0.07	<0.07	---
Free and Saline Ammonia as N	mg/ℓ	---	---	---	---	12.00	6.80	22.00	11.00	0.80	2.50	5.20	5.40	15.00	8.60	8.30	7.40	29.00	13.00	26.00	17.00	---	15.00	18.00	---
Sodium as Na	mg/ℓ	80 - 100	> 100	Aesthetic	≤ 200	42.00	33.00	39.00	42.00	78.00	32.00	49.00	40.00	26.00	29.00	31.00	22.00	68.00	36.00	52.00	47.00	---	32.00	47.00	---
Potassium as K	mg/ℓ	---	---	---	---	15.40	11.00	13.20	12.00	27.00	10.00	11.40	10.40	7.40	9.20	7.10	6.00	21.00	13.00	14.80	12.70	---	10.00	11.40	---
Calcium as Ca	mg/ℓ	---	---	---	---	47.00	42.00	41.00	41.00	43.00	31.00	34.00	37.00	34.00	47.00	44.00	53.00	33.00	42.00	47.00	47.00	---	33.00	33.00	---
Magnesium as Mg	mg/ℓ	30-70	> 70	---	---	18.00	14.00	18.00	17.00	21.00	4.00	5.00	10.00	13.00	16.00	18.00	21.00	16.00	17.00	23.00	22.00	---	13.00	15.00	---
Aluminium as Al (Dissolved)	mg/ℓ	0.3 - 0.5	> 0.5	Operational	≤ 0.3	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	0.13	<0.100	<0.100	<0.100	---	<0.100	<0.100	---
Antimony as Sb (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.02	<0.001	0.00	<0.001	<0.001	0.00	0.00	<0.001	<0.001	0.00	<0.001	0.00	0.00	<0.001	0.00	0.00	0.00	---	<0.001	<0.001	---
Arsenic as As (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.01	0.001	0.006	0.003	0.003	0.004	0.002	0.003	0.001	0.001	0.003	0.001	0.002	0.001	0.003	0.001	0.002	---	0.002	0.002	---
Barium as Ba (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.7	0.06	0.06	0.04	0.04	0.04	0.04	0.04	0.03	0.04	0.05	0.05	0.04	0.04	0.05	0.03	0.03	---	<0.025	<0.025	---
Beryllium as Be (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---
Bismuth as Bi (Dissolved)	mg/ℓ	---	---	---	---	<0.025	0.03	0.03	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.13	0.14	0.14	0.13	---	<0.025	<0.025	---
Boron as B (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 2.4	0.06	0.05	0.06	0.06	0.25	0.04	0.05	0.06	0.04	0.06	0.12	0.07	0.07	0.05	0.07	0.06	---	0.04	0.05	---
Cadmium as Cd (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---
Hexavalent Chromium as Cr	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---
Total Chromium as Cr (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.05	<0.010	<0.010	<0.010	<0.010	0.02	<0.010	<0.010	<0.010	0.02	<0.010	<0.010	<0.010	<0.010	0.01	<0.010	<0.010	---	<0.010	<0.010	---
Cobalt as Co (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	0.03	<0.025	0.03	0.03	<0.025	0.04	0.11	0.21	0.04	<0.025	0.06	0.11	---	<0.025	0.09	---
Copper as Cu (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 2	0.04	0.04	0.04	0.03	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.02	0.01	0.01	0.02	---	<0.010	<0.010	---
Iron as Fe (Dissolved)	mg/ℓ	1.0 - 1.5	> 1.5	Chronic health	≤ 2	1.19	3.95	0.74	1.50	<0.025	<0.025	<0.025	<0.025	0.27	2.50	0.76	0.46	1.23	1.88	1.23	6.54	---	0.88	1.15	---
Ferrous Iron as Fe2+ (Dissolved)	mg/ℓ	---	---	---	---	<0.025	0.69	0.04	<0.025	<0.025	<0.025	<0.025	0.03	<0.025	0.20	0.16	<0.025	1.12	0.44	<0.025	0.56	---	0.45	0.61	---
Ferric Iron as Fe3+ (Dissolved)	mg/ℓ	---	---	---	---	1.19	3.25	0.70	1.49	<0.025	<0.025	<0.025	<0.025	0.27	2.30	0.60	0.46	0.10	1.44	1.21	5.98	---	0.43	0.54	---
Lead as Pb (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00	0.00	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---
Lithium as Li (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---
Manganese as Mn (Dissolved)	mg/ℓ	2.0 - 4.0	> 4.0	Chronic health	≤ 0.4	2.24	1.55	3.14	2.73	0.46	<0.025	<0.025	<0.025	0.09	1.52	2.72	3.51	1.31	1.03	2.24	2.95	---	0.83	2.08	---
Mercury as Hg (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.006	0.002	0.001	0.002	0.001	0.002	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	0.001	---	<0.001	<0.001	---
Molybdenum as Mo (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---
Nickel as Ni (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.07	<0.025	<0.025	0.03	0.05	0.04	<0.025	0.04	<0.025	<0.025	0.09	0.16	0.35	0.05	0.05	0.11	0.18	---	<0.025	0.09	---
Phosphorus as P (Dissolved)	mg/ℓ	---	---	---	---	<0.025	0.03	1.46	0.15	0.20	<0.001	0.06	<0.001	1.74	0.18	0.04	0.02	2.56	0.14	0.23	0.17	---	0.74	0.51	---
Selenium as Se (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.04	<0.001	<0.001	<0.001	<0.001	0.00	<0.001	<0.001	0.01	<0.001	<0.001	<0.001	<0.001	0.01	0.00	0.01	0.00	---	<0.001	<0.001	---
Silicon as Si (Dissolved)	mg/ℓ	---	---	---	---	6.00	6.40	6.80	7.00	4.00	0.50	1.10	1.80	9.20	7.20	5.50	4.70	8.10	9.60	10.10	9.10	---	7.50	8.00	---
Silver as Ag (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---
Strontium as Sr (Dissolved)	mg/ℓ	---	---	---	---	0.16	0.14	0.16	0.15	0.20	0.14	0.14	0.15	0.17	0.13	0.15	0.16	0.14	0.16	0.17	0.17	---	0.13	0.13	---
Thallium as Tl (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---
Thorium as Th (Dissolved)	mg/ℓ	---	---	---	---	<0.001	<0.001	<0.001	<0.001	0.01	0.00	0.00	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---
Tin as Sn (Dissolved)	mg/ℓ	---	---	---	---	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---
Titanium as Ti (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---
Tungsten as W (Dissolved)	mg/ℓ	---	---	---	---	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---
Uranium as U (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.03	0.001	0.001	0.004	0.004	0.003	<0.001	0.001	0.001	<0.001	0.006	0.004	0.002	0.001	0.001	0.004	0.008	---	0.002	0.003	---
Vanadium as V (Dissolved)	mg/ℓ	---	---	---	---	0.03	0.03	0.03	0.03	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---
Zinc as Zn (Dissolved)	mg/ℓ	---	---	Aesthetic	≤ 5	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.13	0.05	0.04	0.04	0.05	---	<0.025	<0.025	---
Zirconium as Zr (Dissolved)	mg/ℓ	---	---	---	---	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00	<0.001	<0.001	<0.001	---	<0.001	<0.001	---
Suspended Solids	mg/ℓ	30 - 55	> 55	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Turbidity	NTU	---	---	Aesthetic	≤ 5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Table 3-6: Ergo water quality results – August 2023 to December 2023

Parameter	Units	Klip River Catchment Limits		SANS 241:2015 Limits		August 2023				September 2023				October 2023				November 2023				December 2023			
		Tolerable	Unacceptable	Risk	Limit	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11
pH - Value @ 25 ºC	pH units		< 6.0; > 9.0	Operational	≥ 5 to ≤ 9.7	---	6.30	7.20	---	7.30	7.40	7.30	7.30	---	7.20	7.30	---	---	7.80	7.60	---	6.80	7.10	7.10	7.60
Electrical Conductivity @ 25°C	mS/m	100 - 150	> 150	Aesthetic	≤ 170	---	52.60	66.60	---	62.50	53.90	67.40	67.80	---	48.50	70.00	---	---	64.40	65.30	---	64.00	56.30	57.10	78.30
Total Dissolved Solids @ 180°C	mg/ℓ	---	---	Aesthetic	≤ 1 200	---	278.00	328.00	---	282.00	270.00	340.00	348.00	---	272.00	364.00	---	---	400.00	444.00	---	476.00	280.00	332.00	406.00
Total Acidity as CaCO3	mg/ℓ	---	---	---	---	---	16.00	<5	---	<5	<5	<5	<5	---	<5	<5	---	---	<5	<5	---	12.00	8.00	12.00	<5
Chloride as Cl	mg/ℓ	75 - 100	> 100	Aesthetic	≤ 300	---	36.00	44.00	---	39.00	32.00	41.00	43.00	---	31.00	53.00	---	---	44.00	42.00	---	74.00	38.00	38.00	61.00
Sulphate as SO4	mg/ℓ	350 - 500	> 500	Acute health	≤ 500	---	51.00	84.00	---	56.00	67.00	112.00	115.00	---	79.00	119.00	---	---	50.00	116.00	---	<2	49.00	109.00	<2
Fluoride as F	mg/ℓ	0.7 - 1.00	> 1.00	Chronic health	≤ 1.5	---	0.20	0.20	---	0.20	0.20	0.20	0.20	---	<0.2	0.20	---	---	0.20	0.20	---	0.20	<0.2	<0.2	0.20
Nitrate as N	mg/ℓ	4.0 - 7.0	> 7.0	Acute health	≤ 11	---	<0.1	<0.1	---	<0.1	<0.1	<0.1	0.10	---	0.10	0.10	---	---	0.10	0.20	---	<0.1	<0.1	<0.1	<0.1
Nitrite as N	mg/ℓ	---	---	Acute health	≤ 0.9	---	0.06	0.07	---	<0.05	<0.05	<0.05	0.05	---	<0.05	<0.05	---	---	<0.05	<0.05	---	<0.05	<0.05	<0.05	<0.05
Bromide as Br	mg/ℓ	---	---	---	---	---	<0.1	<0.1	---	<0.1	<0.1	<0.1	<0.1	---	<0.1	<0.1	---	---	<0.1	<0.1	---	<0.1	<0.1	<0.1	<0.1
Ortho Phosphate as P	mg/ℓ	---	---	---	---	---	0.10	0.30	---	1.90	0.90	0.50	0.40	---	0.20	0.20	---	---	0.20	<0.1	---	0.70	1.10	0.20	1.00
Total Cyanide as CN	mg/ℓ	---	---	---	---	---	<0.07	<0.07	---	<0.07	<0.07	<0.07	<0.07	---	---	---	---	---	<0.07	<0.07	---	<0.07	<0.07	<0.07	<0.07
Free and Saline Ammonia as N	mg/ℓ	---	---	---	---	---	10.00	19.00	---	23.00	13.00	17.00	17.00	---	11.00	24.00	---	---	12.00	10.00	---	7.20	18.00	12.00	22.00
Sodium as Na	mg/ℓ	80 - 100	> 100	Aesthetic	≤ 200	---	30.00	41.00	---	43.00	33.00	47.00	42.00	---	28.00	42.00	---	---	55.00	43.00	---	89.00	40.00	44.00	59.00
Potassium as K	mg/ℓ	---	---	---	---	---	7.50	11.00	---	11.90	8.10	10.70	10.50	---	9.00	13.10	---	---	10.40	10.60	---	14.90	11.20	10.50	15.70
Calcium as Ca	mg/ℓ	---	---	---	---	---	34.00	33.00	---	29.00	31.00	34.00	39.00	---	33.00	36.00	---	---	33.00	37.00	---	35.00	38.00	46.00	56.00
Magnesium as Mg	mg/ℓ	30-70	> 70	---	---	---	12.00	15.00	---	13.00	12.00	16.00	17.00	---	13.00	16.00	---	---	11.00	14.00	---	18.00	14.00	18.00	21.00
Aluminium as Al (Dissolved)	mg/ℓ	0.3 - 0.5	> 0.5	Operational	≤ 0.3	---	<0.100	<0.100	---	<0.100	<0.100	<0.100	<0.100	---	<0.100	<0.100	---	---	<0.100	<0.100	---	<0.100	<0.100	<0.100	0.11
Antimony as Sb (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.02	---	<0.001	<0.001	---	0.00	<0.001	0.00	0.00	---	0.00	0.00	---	---	<0.001	<0.001	---	<0.001	<0.001	<0.001	0.00
Arsenic as As (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.01	---	0.005	0.002	---	<0.001	0.003	0.003	0.004	---	0.006	0.006	---	---	0.008	0.002	---	0.001	0.002	0.002	0.006
Barium as Ba (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.7	---	0.05	0.04	---	0.04	0.04	0.04	0.03	---	0.04	0.03	---	---	0.04	0.04	---	0.07	0.04	0.04	0.04
Beryllium as Be (Dissolved)	mg/ℓ	---	---	---	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025
Bismuth as Bi (Dissolved)	mg/ℓ	---	---	---	---	---	<0.025	<0.025	---	0.20	0.17	0.17	0.14	---	0.07	0.07	---	---	0.22	0.18	---	0.14	0.04	0.07	0.07
Boron as B (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 2.4	---	0.03	0.04	---	<0.025	<0.025	0.03	0.03	---	0.03	0.05	---	---	<0.025	<0.025	---	0.04	0.05	0.04	0.06
Cadmium as Cd (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.003	---	<0.001	<0.001	---	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---	---	<0.001	<0.001	---	<0.001	<0.001	<0.001	<0.001
Hexavalent Chromium as Cr	mg/ℓ	---	---	---	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025
Total Chromium as Cr (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.05	---	0.01	<0.010	---	<0.010	<0.010	<0.010	<0.010	---	<0.010	<0.010	---	---	0.02	0.01	---	0.01	<0.010	<0.010	<0.010
Cobalt as Co (Dissolved)	mg/ℓ	---	---	---	---	---	<0.025	0.05	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	0.05	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025
Copper as Cu (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 2	---	<0.010	<0.010	---	<0.010	<0.010	<0.010	<0.010	---	<0.010	<0.010	---	---	<0.010	<0.010	---	0.02	0.02	0.02	0.02
Iron as Fe (Dissolved)	mg/ℓ	1.0 - 1.5	> 1.5	Chronic health	≤ 2	---	<0.025	<0.025	---	0.38	0.76	0.44	0.42	---	0.86	1.85	---	---	0.38	0.37	---	0.14	0.11	0.68	0.04
Ferrous Iron as Fe2+ (Dissolved)	mg/ℓ	---	---	---	---	---	<0.025	<0.025	---	0.05	0.04	0.03	0.03	---	0.12	0.34	---	---	0.18	0.14	---	0.06	0.03	<0.025	<0.025
Ferric Iron as Fe3+ (Dissolved)	mg/ℓ	---	---	---	---	---	<0.025	<0.025	---	0.34	0.72	0.40	0.39	---	0.74	1.52	---	---	0.20	0.23	---	0.08	0.08	0.65	0.03
Lead as Pb (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.01	---	0.00	<0.001	---	<0.001	<0.001	<0.001	<0.001	---	<0.001	0.00	---	---	<0.001	<0.001	---	<0.001	<0.001	<0.001	<0.001
Lithium as Li (Dissolved)	mg/ℓ	---	---	---	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025
Manganese as Mn (Dissolved)	mg/ℓ	2.0 - 4.0	> 4.0	Chronic health	≤ 0.4	---	0.70	1.96	---	0.12	0.52	1.31	1.48	---	0.88	1.76	---	---	0.89	2.10	---	1.81	0.67	2.21	2.61
Mercury as Hg (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.006	---	<0.001	0.001	---	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---	---	<0.001	<0.001	---	<0.001	<0.001	<0.001	<0.001
Molybdenum as Mo (Dissolved)	mg/ℓ	---	---	---	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025
Nickel as Ni (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.07	---	<0.025	0.05	---	<0.025	<0.025	0.03	0.03	---	<0.025	0.06	---	---	<0.025	0.03	---	<0.025	<0.025	0.04	<0.025
Phosphorus as P (Dissolved)	mg/ℓ	---	---	---	---	---	0.36	0.89	---	3.82	1.85	1.43	0.55	---	0.61	1.58	---	---	0.73	0.18	---	0.98	1.34	0.35	1.17
Selenium as Se (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.04	---	<0.001	<0.001	---	<0.001	<0.001	0.00	<0.001	---	<0.001	<0.001	---	---	<0.001	<0.001	---	<0.001	<0.001	0.00	<0.001
Silicon as Si (Dissolved)	mg/ℓ	---	---	---	---	---	8.40	8.40	---	10.50	8.50	9.60	8.80	---	8.90	8.70	---	---	8.10	8.50	---	9.30	7.60	8.30	9.00
Silver as Ag (Dissolved)	mg/ℓ	---	---	---	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025
Strontium as Sr (Dissolved)	mg/ℓ	---	---	---	---	---	0.14	0.14	---	0.13	0.12	0.13	0.13	---	0.15	0.15	---	---	0.12	0.14	---	0.16	0.16	0.18	0.18
Thallium as Tl (Dissolved)	mg/ℓ	---	---	---	---	---	<0.001	<0.001	---	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---	---	<0.001	<0.001	---	<0.001	<0.001	<0.001	<0.001
Thorium as Th (Dissolved)	mg/ℓ	---	---	---	---	---	<0.001	0.00	---	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---	---	<0.001	<0.001	---	<0.001	<0.001	<0.001	<0.001
Tin as Sn (Dissolved)	mg/ℓ	---	---	---	---	---	<0.001	<0.001	---	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---	---	<0.001	<0.001	---	<0.001	<0.001	<0.001	<0.001
Titanium as Ti (Dissolved)	mg/ℓ	---	---	---	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---	---	<0.025	<0.025	---	0.01	0.01	0.02	0.02
Tungsten as W (Dissolved)	mg/ℓ	---	---	---	---	---	<0.001	<0.001	---	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---	---	<0.001	<0.001	---	<0.001	<0.001	<0.001	<0.001
Uranium as U (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.03	---	0.001	0.002	---	<0.001	0.001	0.003	0.004	---	0.002	0.004	---	---	0.001	0.002	---	<0.001	0.001	0.001	0.003
Vanadium as V (Dissolved)	mg/ℓ	---	---	---	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025
Zinc as Zn (Dissolved)	mg/ℓ	---	---	Aesthetic	≤ 5	---	<0.025	<0.025	---	0.04	0.03	0.03	0.03	---	0.04	0.03	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025
Zirconium as Zr (Dissolved)	mg/ℓ	---	---	---	---	---	<0.001	<0.001	---	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---	---	<0.001	<0.001	---	<0.001	<0.001	<0.001	<0.001
Suspended Solids	mg/ℓ	30 - 55	> 55	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	456	---	---	---	37	---	---
Turbidity	NTU	---	---	Aesthetic	≤ 5	---	---	---	---	---	---	---	---	---	---	---	---	---	139	---	---	---	14	---	---

Table 3-7: Ergo water quality results – January 2024 to August 2024

Parameter	Units	Klip River Catchment Limits		SANS 241:2015 Limits		January 2024				February 2024				March 2024				June 2024				August 2024			
		Tolerable	Unacceptable	Risk	Limit	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11
pH - Value @ 25 ºC	pH units		< 6.0; > 9.0	Operational	≥ 5 to ≤ 9.7	---	6.80	7.00	---	---	7.30	7.20	---	7.10	6.90	7.10	7.10	6.80	7.00	7.20	7.10	---	7.10	7.00	---
Electrical Conductivity @ 25°C	mS/m	100 - 150	> 150	Aesthetic	≤ 170	---	57.30	66.90	---	---	52.00	62.20	---	116.00	64.30	68.10	79.20	59.20	59.80	77.30	76.70	---	48.20	79.10	---
Total Dissolved Solids @ 180°C	mg/ℓ	---	---	Aesthetic	≤ 1 200	---	420.00	474.00	---	---	264.00	322.00	---	578.00	344.00	410.00	410.00	302.00	318.00	394.00	424.00	---	274.00	388.00	---
Total Acidity as CaCO3	mg/ℓ	---	---	---	---	---	28.00	20.00	---	---	<5	<5	---	<5	<5	<5	<5	12.00	<5	<5	<5	---	24.00	173.00	---
Chloride as Cl	mg/ℓ	75 - 100	> 100	Aesthetic	≤ 300	---	35.00	37.00	---	---	29.00	34.00	---	121.00	42.00	45.00	53.00	47.00	35.00	46.00	44.00	---	30.00	47.00	---
Sulphate as SO4	mg/ℓ	350 - 500	> 500	Acute health	≤ 500	---	113.00	158.00	---	---	58.00	92.00	---	40.00	42.00	61.00	79.00	50.00	57.00	79.00	102.00	---	45.00	48.00	---
Fluoride as F	mg/ℓ	0.7 - 1.00	> 1.00	Chronic health	≤ 1.5	---	0.30	0.30	---	---	0.30	0.30	---	0.40	0.30	0.30	0.30	0.40	0.20	0.20	0.30	---	<0.2	<0.2	---
Nitrate as N	mg/ℓ	4.0 - 7.0	> 7.0	Acute health	≤ 11	---	<0.1	<0.1	---	---	<0.1	0.20	---	0.70	0.30	0.30	0.30	<0.1	2.10	2.00	2.00	---	<0.1	<0.1	---
Nitrite as N	mg/ℓ	---	---	Acute health	≤ 0.9	---	<0.05	<0.05	---	---	0.10	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	0.05	<0.05	---
Bromide as Br	mg/ℓ	---	---	---	---	---	<0.1	<0.1	---	---	<0.1	<0.1	---	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	---	<0.1	<0.1	---
Ortho Phosphate as P	mg/ℓ	---	---	---	---	---	<0.1	<0.1	---	---	0.40	0.40	---	0.80	0.40	0.40	0.60	<0.1	0.40	0.50	0.50	---	0.40	1.20	---
Total Cyanide as CN	mg/ℓ	---	---	---	---	---	<0.07	<0.07	---	---	<0.07	<0.07	---	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	---	<0.07	<0.07	---
Free and Saline Ammonia as N	mg/ℓ	---	---	---	---	---	4.80	9.90	---	---	14.00	15.00	---	35.00	15.00	14.00	20.00	6.50	11.00	19.00	14.00	---	8.70	25.00	---
Sodium as Na	mg/ℓ	80 - 100	> 100	Aesthetic	≤ 200	---	34.00	38.00	---	---	26.00	38.00	---	95.00	38.00	48.00	58.00	35.00	36.00	47.00	51.00	---	27.00	54.00	---
Potassium as K	mg/ℓ	---	---	---	---	---	9.10	9.30	---	---	7.50	9.20	---	50.00	12.30	15.70	21.00	12.30	9.40	11.60	11.50	---	9.20	15.60	---
Calcium as Ca	mg/ℓ	---	---	---	---	---	46.00	50.00	---	---	31.00	34.00	---	35.00	28.00	35.00	41.00	37.00	35.00	37.00	40.00	---	34.00	41.00	---
Magnesium as Mg	mg/ℓ	30-70	> 70	---	---	---	15.00	18.00	---	---	16.00	19.00	---	14.00	10.00	13.00	16.00	15.00	14.00	18.00	19.00	---	12.00	16.00	---
Aluminium as Al (Dissolved)	mg/ℓ	0.3 - 0.5	> 0.5	Operational	≤ 0.3	---	<0.100	<0.100	---	---	<0.100	<0.100	---	0.13	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	---	<0.100	<0.100	---
Antimony as Sb (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.02	---	<0.001	<0.001	---	---	0.00	0.00	---	<0.001	<0.001	<0.001	<0.001	0.00	0.00	0.00	<0.001	---	0.00	0.00	---
Arsenic as As (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.01	---	0.001	0.001	---	---	0.002	0.003	---	0.004	0.005	0.002	0.005	0.002	0.003	0.003	0.003	---	0.006	0.005	---
Barium as Ba (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.7	---	0.06	0.04	---	---	<0.025	<0.025	---	0.04	0.04	0.04	0.03	0.06	0.04	0.03	<0.025	---	0.03	0.04	---
Beryllium as Be (Dissolved)	mg/ℓ	---	---	---	---	---	<0.025	<0.025	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---
Bismuth as Bi (Dissolved)	mg/ℓ	---	---	---	---	---	<0.025	<0.025	---	---	0.03	0.03	---	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	---	<0.025	0.04	---
Boron as B (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 2.4	---	0.06	0.06	---	---	0.03	0.04	---	0.10	<0.025	<0.025	0.03	0.05	<0.025	0.03	0.04	---	<0.025	<0.025	---
Cadmium as Cd (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.003	---	<0.001	<0.001	---	---	<0.001	<0.001	---	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---
Hexavalent Chromium as Cr	mg/ℓ	---	---	---	---	---	<0.025	<0.025	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---
Total Chromium as Cr (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.05	---	<0.010	<0.010	---	---	<0.010	0.02	---	<0.010	<0.010	<0.010	<0.010	0.01	0.01	0.02	0.02	---	<0.010	0.03	---
Cobalt as Co (Dissolved)	mg/ℓ	---	---	---	---	---	0.04	0.07	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.03	---	<0.025	<0.025	---
Copper as Cu (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 2	---	<0.010	<0.010	---	---	<0.010	<0.010	---	0.01	<0.010	<0.010	<0.010	<0.010	0.02	0.02	0.02	---	<0.010	<0.010	---
Iron as Fe (Dissolved)	mg/ℓ	1.0 - 1.5	> 1.5	Chronic health	≤ 2	---	0.37	<0.025	---	---	0.03	0.24	---	0.38	0.26	0.28	0.35	0.56	0.33	0.23	0.32	---	0.56	0.49	---
Ferrous Iron as Fe2+ (Dissolved)	mg/ℓ	---	---	---	---	---	<0.025	<0.025	---	---	<0.025	<0.025	---	<0.025	0.06	0.07	0.07		0.09	0.13	0.07	---	0.09	0.18	---
Ferric Iron as Fe3+ (Dissolved)	mg/ℓ	---	---	---	---	---	0.37	<0.025	---	---	0.03	0.24	---	0.38	0.20	0.21	0.28		0.24	0.10	0.24	---	0.47	0.31	---
Lead as Pb (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.01	---	<0.001	<0.001	---	---	<0.001	<0.001	---	0.00	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---
Lithium as Li (Dissolved)	mg/ℓ	---	---	---	---	---	<0.025	<0.025	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---
Manganese as Mn (Dissolved)	mg/ℓ	2.0 - 4.0	> 4.0	Chronic health	≤ 0.4	---	1.70	3.91	---	---	<0.025	1.51	---	0.70	0.67	1.49	1.80	0.77	0.48	2.36	2.50	---	0.12	1.76	---
Mercury as Hg (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.006	---	<0.001	<0.001	---	---	<0.001	<0.001	---	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---
Molybdenum as Mo (Dissolved)	mg/ℓ	---	---	---	---	---	<0.025	<0.025	---	---	<0.025	<0.025	---	<0.025	<0.025	0.04	<0.025	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---
Nickel as Ni (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.07	---	0.05	0.11	---	---	<0.025	0.03	---	0.03	<0.025	0.03	0.03	<0.025	<0.025	0.04	0.03	---	<0.025	0.03	---
Phosphorus as P (Dissolved)	mg/ℓ	---	---	---	---	---	0.01	0.02	---	---	0.05	0.07	---	1.07	1.07	0.77	1.15	0.42	0.22	0.39	0.14	---	8.41	2.51	---
Selenium as Se (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.04	---	<0.001	<0.001	---	---	<0.001	<0.001	---	0.00	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---
Silicon as Si (Dissolved)	mg/ℓ	---	---	---	---	---	5.30	5.30	---	---	5.50	6.00	---	6.10	5.80	6.00	6.20	4.80	5.90	5.60	5.80	---	5.00	5.40	---
Silver as Ag (Dissolved)	mg/ℓ	---	---	---	---	---	<0.025	<0.025	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---
Strontium as Sr (Dissolved)	mg/ℓ	---	---	---	---	---	0.16	0.16	---	---	0.14	0.14	---	0.17	0.13	0.16	0.17	0.18	0.15	0.15	0.15	---	0.15	0.17	---
Thallium as Tl (Dissolved)	mg/ℓ	---	---	---	---	---	<0.001	<0.001	---	---	<0.001	<0.001	---	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---
Thorium as Th (Dissolved)	mg/ℓ	---	---	---	---	---	<0.001	<0.001	---	---	<0.001	<0.001	---	<0.001	<0.001	<0.001	<0.001	0.00	<0.001	<0.001	<0.001	---	0.00	0.00	---
Tin as Sn (Dissolved)	mg/ℓ	---	---	---	---	---	<0.001	<0.001	---	---	<0.001	<0.001	---	0.00	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---
Titanium as Ti (Dissolved)	mg/ℓ	---	---	---	---	---	<0.025	<0.025	---	---	<0.025	<0.025	---	0.03	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---
Tungsten as W (Dissolved)	mg/ℓ	---	---	---	---	---	<0.001	<0.001	---	---	<0.001	<0.001	---	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---
Uranium as U (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.03	---	0.003	0.005	---	---	0.004	0.005	---	0.002	<0.001	0.001	0.002	0.001	<0.001	0.001	0.001	---	0.001	0.001	---
Vanadium as V (Dissolved)	mg/ℓ	---	---	---	---	---	<0.025	<0.025	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---
Zinc as Zn (Dissolved)	mg/ℓ	---	---	Aesthetic	≤ 5	---	<0.025	<0.025	---	---	<0.025	<0.025	---	0.03	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---
Zirconium as Zr (Dissolved)	mg/ℓ	---	---	---	---	---	<0.001	<0.001	---	---	<0.001	<0.001	---	0.00	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---
Suspended Solids	mg/ℓ	30 - 55	> 55	---	---	---	33	---	---	---	31	---	---	---	71	---	---	---	---	---	---	---	95	125	---
Turbidity	NTU	---	---	Aesthetic	≤ 5	---	43	---	---	---	20	---	---	---	24	---	---	---	---	---	---	---	58	28	---

Table 3-8: Ergo water quality results – September 2024 to January 2025

Parameter	Units	Klip River Catchment Limits		SANS 241:2015 Limits		September 2024				October 2024				November 2024				December 2024				January 2025			
		Tolerable	Unacceptable	Risk	Limit	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11	CR1	CR4	CR7	CR11
pH - Value @ 25 ºC	pH units		< 6.0; > 9.0	Operational	≥ 5 to ≤ 9.7	7.30	7.30	7.20	7.20	---	7.20	7.20	---	---	7.10	7.10	---	7.20	7.10	7.20	7.10	---	6.00	6.80	---
Electrical Conductivity @ 25°C	mS/m	100 - 150	> 150	Aesthetic	≤ 170	70.20	65.50	70.50	74.40	---	50.40	78.80	---	---	64.10	84.50	---	68.70	50.60	78.90	72.80	---	119.00	104.00	---
Total Dissolved Solids @ 180°C	mg/ℓ	---	---	Aesthetic	≤ 1 200	328.00	439.00	472.00	499.00	---	272.00	354.00	---	---	294.00	358.00	---	284.00	284.00	412.00	378.00	---	802.00	646.00	---
Total Acidity as CaCO3	mg/ℓ	---	---	---	---	8.00	8.00	396.00	8.00	---	20.00	207.00	---	---	12.00	166.00	---	20.00	24.00	259.00	56.00	---	24.00	47.00	---
Chloride as Cl	mg/ℓ	75 - 100	> 100	Aesthetic	≤ 300	50.00	33.00	46.00	44.00	---	31.00	55.00	---	---	40.00	53.00	---	40.00	35.00	52.00	47.00	---	42.00	40.00	---
Sulphate as SO4	mg/ℓ	350 - 500	> 500	Acute health	≤ 500	47.00	43.00	69.00	73.00	---	44.00	47.00	---	---	44.00	50.00	---	27.00	40.00	53.00	41.00	---	473.00	333.00	---
Fluoride as F	mg/ℓ	0.7 - 1.00	> 1.00	Chronic health	≤ 1.5	0.20	0.40	0.30	0.20	---	0.20	0.20	---	---	0.20	0.30	---	<0.2	<0.2	<0.2	<0.2	---	<0.2	<0.2	---
Nitrate as N	mg/ℓ	4.0 - 7.0	> 7.0	Acute health	≤ 11	1.40	1.00	1.50	1.10	---	0.80	0.80	---	---	<0.1	<0.1	---	<0.1	<0.1	<0.1	<0.1	---	0.10	<0.1	---
Nitrite as N	mg/ℓ	---	---	Acute health	≤ 0.9	<0.05	0.10	0.20	0.20	---	<0.05	<0.05	---	---	<0.05	<0.05	---	<0.05	<0.05	<0.05	<0.05	---	<0.05	<0.05	---
Bromide as Br	mg/ℓ	---	---	---	---	<0.1	<0.1	<0.1	<0.1	---	<0.1	<0.1	---	---	<0.1	<0.1	---	<0.1	<0.1	<0.1	<0.1	---	<0.1	<0.1	---
Ortho Phosphate as P	mg/ℓ	---	---	---	---	2.20	2.00	1.30	2.70	---	0.60	2.10	---	---	0.70	1.80	---	2.20	0.20	1.00	3.20	---	<0.1	<0.1	---
Total Cyanide as CN	mg/ℓ	---	---	---	---	<0.35	<0.35	<0.35	<0.35	---	<0.07	<0.07	---	---	<0.07	<0.07	---	0.12	<0.07	<0.07	<0.07	---	0.27	0.10	---
Free and Saline Ammonia as N	mg/ℓ	---	---	---	---	22.00	26.00	19.00	24.00	---	9.30	27.00	---	---	13.00	26.00	---	30.00	9.40	27.00	18.00	---	16.00	17.00	---
Sodium as Na	mg/ℓ	80 - 100	> 100	Aesthetic	≤ 200	48.00	37.00	52.00	45.00	---	31.00	54.00	---	---	37.00	50.00	---	35.00	28.00	48.00	54.00	---	51.00	46.00	---
Potassium as K	mg/ℓ	---	---	---	---	12.20	11.10	11.70	11.50	---	10.10	17.10	---	---	10.50	13.30	---	10.30	9.00	13.60	12.70	---	11.00	10.10	---
Calcium as Ca	mg/ℓ	---	---	---	---	34.00	31.00	33.00	33.00	---	34.00	35.00	---	---	35.00	31.00	---	33.00	34.00	36.00	35.00	---	126.00	97.00	---
Magnesium as Mg	mg/ℓ	30-70	> 70	---	---	13.00	12.00	14.00	15.00	---	13.00	14.00	---	---	12.00	13.00	---	12.00	12.00	14.00	14.00	---	31.00	28.00	---
Aluminium as Al (Dissolved)	mg/ℓ	0.3 - 0.5	> 0.5	Operational	≤ 0.3	<0.100	<0.100	<0.100	<0.100	---	0.49	0.74	---	---	<0.100	<0.100	---	0.19	<0.100	<0.100	<0.100	---	<0.100	<0.100	---
Antimony as Sb (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.02	0.00	0.00	0.00	<0.001	---	<0.001	<0.001	---	---	0.00	<0.001	---	0.00	<0.001	<0.001	<0.001	---	<0.001	<0.001	---
Arsenic as As (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.01	0.021	0.010	0.016	0.005	---	0.007	0.007	---	---	0.017	0.007	---	0.012	0.003	0.009	0.018	---	0.002	0.001	---
Barium as Ba (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.7	0.04	0.03	0.03	<0.025	---	0.06	0.06	---	---	0.03	0.03	---	0.04	0.04	0.03	<0.025	---	<0.025	<0.025	---
Beryllium as Be (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---
Bismuth as Bi (Dissolved)	mg/ℓ	---	---	---	---	0.03	0.04	<0.025	<0.025	---	<0.025	<0.025	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---
Boron as B (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 2.4	0.24	0.15	0.09	0.09	---	<0.025	<0.025	---	---	<0.025	0.04	---	0.43	0.17	<0.025	0.05	---	0.10	0.09	---
Cadmium as Cd (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.003	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---	---	<0.001	<0.001	---	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---
Hexavalent Chromium as Cr	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---
Total Chromium as Cr (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.05	0.02	0.01	0.02	0.01	---	<0.010	<0.010	---	---	<0.010	0.02	---	0.02	0.01	0.02	0.02	---	<0.010	<0.010	---
Cobalt as Co (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025	---	0.31	0.25	---
Copper as Cu (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 2	<0.010	<0.010	<0.010	<0.010	---	<0.010	0.02	---	---	<0.010	<0.010	---	<0.010	<0.010	<0.010	<0.010	---	0.01	<0.010	---
Iron as Fe (Dissolved)	mg/ℓ	1.0 - 1.5	> 1.5	Chronic health	≤ 2	0.53	0.56	0.57	0.52	---	2.13	3.12	---	---	0.23	0.21	---	1.34	0.69	0.57	0.35	---	0.94	0.03	---
Ferrous Iron as Fe2+ (Dissolved)	mg/ℓ	---	---	---	---	0.27	0.05	0.10	<0.025	---	<0.025	0.12	---	---	0.05	0.10	---	<0.025	0.03	0.03	<0.025	---	<0.025	<0.025	---
Ferric Iron as Fe3+ (Dissolved)	mg/ℓ	---	---	---	---	0.27	0.51	0.47	0.52	---	2.12	3.00	---	---	0.18	0.11	---	1.33	0.65	0.54	0.33	---	0.94	0.03	---
Lead as Pb (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.01	0.02	0.01	0.00	<0.001	---	0.07	0.03	---	---	<0.001	<0.001	---	0.04	0.00	0.00	0.00	---	<0.001	<0.001	---
Lithium as Li (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---
Manganese as Mn (Dissolved)	mg/ℓ	2.0 - 4.0	> 4.0	Chronic health	≤ 0.4	0.28	0.35	0.97	1.27	---	0.44	1.07	---	---	0.41	0.92	---	0.33	0.50	1.64	1.34	---	6.33	5.56	---
Mercury as Hg (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.006	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---	---	<0.001	<0.001	---	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---
Molybdenum as Mo (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---
Nickel as Ni (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.07	<0.025	<0.025	0.03	<0.025	---	<0.025	0.05	---	---	0.09	0.10	---	<0.025	<0.025	0.03	<0.025	---	0.41	0.33	---
Phosphorus as P (Dissolved)	mg/ℓ	---	---	---	---	1.54	1.55	0.96	2.90	---	0.39	1.51	---	---	1.19	2.87	---	3.36	0.65	1.80	4.23	---	0.04	0.03	---
Selenium as Se (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.04	<0.001	<0.001	<0.001	<0.001	---	0.00	0.00	---	---	<0.001	<0.001	---	<0.001	0.00	0.00	<0.001	---	<0.001	<0.001	---
Silicon as Si (Dissolved)	mg/ℓ	---	---	---	---	5.60	4.20	4.80	4.20	---	5.30	5.80	---	---	5.00	4.70	---	5.50	4.00	4.20	4.30	---	3.10	3.60	---
Silver as Ag (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---
Strontium as Sr (Dissolved)	mg/ℓ	---	---	---	---	0.16	0.14	0.14	0.13	---	0.15	0.13	---	---	0.15	0.13	---	0.15	0.14	0.14	0.12	---	0.26	0.22	---
Thallium as Tl (Dissolved)	mg/ℓ	---	---	---	---	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---	---	<0.001	<0.001	---	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---
Thorium as Th (Dissolved)	mg/ℓ	---	---	---	---	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---	---	<0.001	<0.001	---	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---
Tin as Sn (Dissolved)	mg/ℓ	---	---	---	---	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---	---	<0.001	<0.001	---	0.00	<0.001	<0.001	<0.001	---	<0.001	<0.001	---
Titanium as Ti (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	0.04	---	---	<0.025	<0.025	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---
Tungsten as W (Dissolved)	mg/ℓ	---	---	---	---	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---	---	<0.001	<0.001	---	0.00	<0.001	0.00	<0.001	---	<0.001	<0.001	---
Uranium as U (Dissolved)	mg/ℓ	---	---	Chronic health	≤ 0.03	0.002	0.002	0.003	0.001	---	0.002	0.002	---	---	0.002	0.001	---	0.001	0.001	0.002	0.002	---	0.002	0.003	---
Vanadium as V (Dissolved)	mg/ℓ	---	---	---	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---	---	<0.025	0.03	---	<0.025	<0.025	<0.025	<0.025	---	<0.025	<0.025	---
Zinc as Zn (Dissolved)	mg/ℓ	---	---	Aesthetic	≤ 5	<0.025	<0.025	<0.025	<0.025	---	0.07	0.10	---	---	<0.025	<0.025	---	0.05	<0.025	<0.025	<0.025	---	0.25	<0.025	---
Zirconium as Zr (Dissolved)	mg/ℓ	---	---	---	---	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---	---	<0.001	<0.001	---	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---
Suspended Solids	mg/ℓ	30 - 55	> 55	---	---	172	113	136	136	---	385	92	---	---	717	56	---	1373	74	46	548	---	41	28	---
Turbidity	NTU	---	---	Aesthetic	≤ 5	104	48	8	53	---	70	20	---	---	55	16	---	160	12	16	54	---	127	24	---

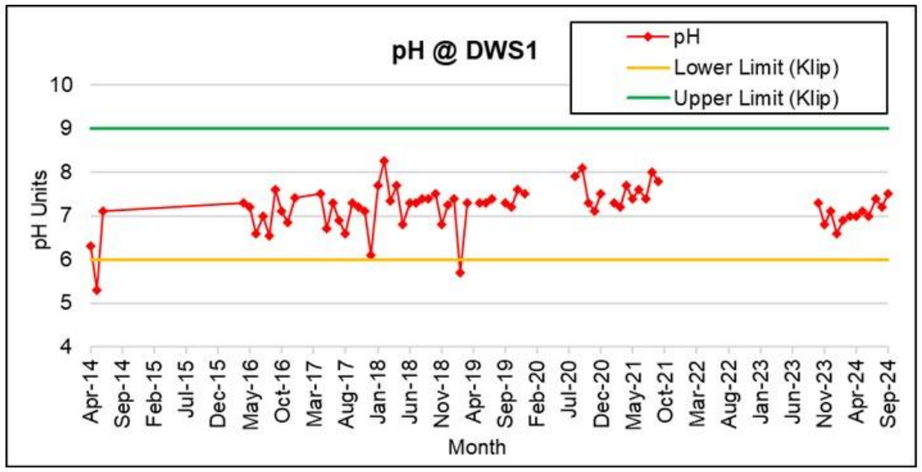


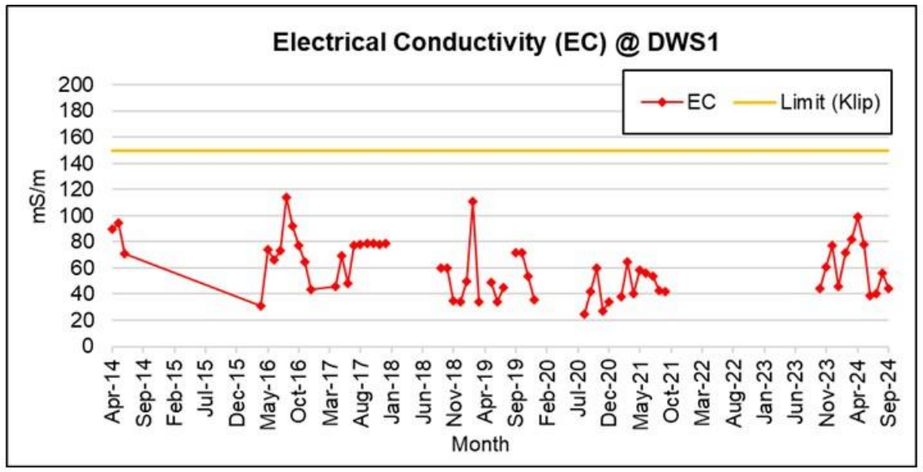
Figure 3-5: Trends in the Ergo water quality results for selected parameters

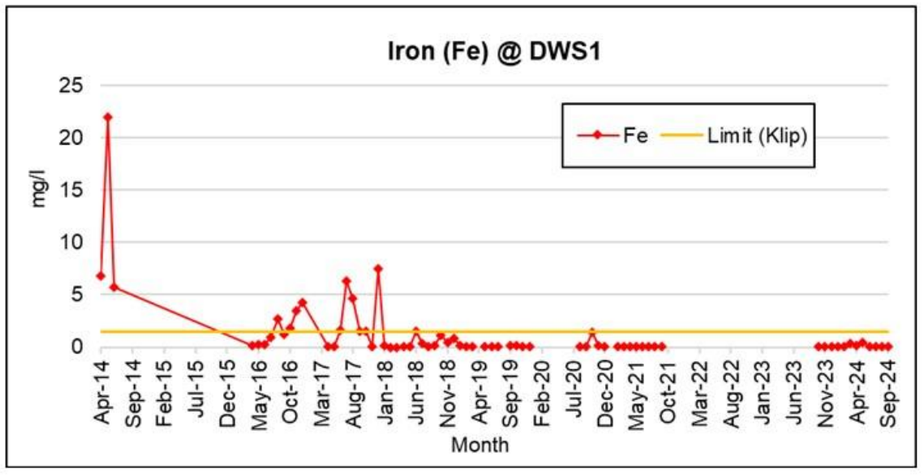
Table 3-9: DWS water quality results for monitoring location DWS1

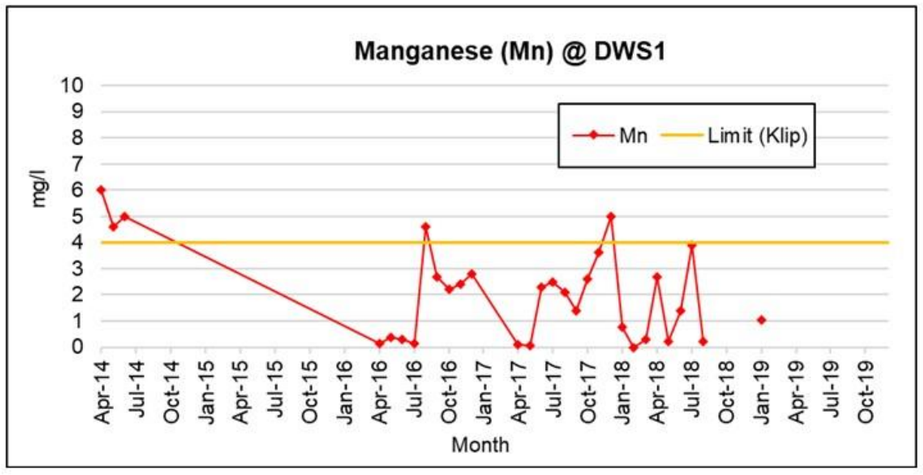
Parameter	Aluminium	Ammonia	Chemical Oxygen Demand	Chloride	Electrical Conductivity	*E. coli*	Iron	Magnesium	Manganese	Nitrate	pH	Phosphate	Sodium	Sulphate	Suspended Solids
Units	mg/ℓ	mg/ℓ	mg/ℓ	mg/ℓ	mS/m	counts/100ml	mg/ℓ	mg/ℓ	mg/ℓ	mg/ℓ	pH units	mg/ℓ	mg/ℓ	mg/ℓ	mg/ℓ
Klip River Catchment Tolerable Limits	0.3 - 0.5	1.5 - 4.0	30 - 40	75 - 100	100 - 150	200 - 400	1.0 - 1.5	30 - 70	2 - 4	4 - 7	-	0.5 - 1.0	80 - 100	350 - 500	30 - 55
Klip River Catchment Unacceptable Limits	> 0.5	> 4.0	> 40	> 100	> 150	> 400	> 1.5	> 70	> 4	> 7	< 6.0; > 9.0	> 1.0	> 100	> 500	> 55
Apr-14	2.9	2.3	53	28	90	14	6.8	---	6	---	6.3	0.2	31	353	48
May-14	0.03	8.7	36	36	94.7	6000	22	---	4.6	---	5.3	0.8	30	391	88
Jun-14	0.03	7.6	22	40	71.2	33600	5.7	---	5	---	7.11	0.74	40	215	71
Apr-16	0.01	0.1	20	25	31	1,200	0.1	---	0.13	0.2	7.3	0.2	19	169	3
May-16	0.035	19	29	42	74	40,000	0.24	---	0.39	0.21	7.2	0.2	40	230	48
Jun-16	0.015	18	23	38	66	11,400	0.21	---	0.29	0.2	6.6	0.2	35	245	52
Jul-16	0.01	15	86	38	73	290,500	0.89	---	0.15	0.25	7	0.2	43	308	58
Aug-16	0	21	188	57	114	700	2.7	---	4.6	0.2	6.55	0.2	67	702	65
Sep-16	0.01	15	99	33	92.3	82,000.00	1.2	---	2.7	0.2	7.59	0.2	37	234	40
Oct-16	0.05		125	33	77	1,450,000	1.8	---	2.2	0.28	7.1	1.6	43	186	43
Nov-16	0.01	8.7	67	25	64.3	352500	3.5	---	2.4	0.53	6.86	0.9	28	237	46
Dec-16	0.69	4.4	24	13	43.4	2,240.00	4.3	---	2.8	0.65	7.42	0.2	15	147	29
Apr-17	0.02	4.2	16	41	46	28,000	0.08	---	0.09	3.3	7.5	0.63	38	69	3
May-17	0.01	18	96	45	69.3	390000	0.06	---	0.04	0.2	6.7	0.2	53	326	10
Jun-17	0.04	14	93	33	48.1	26,100.00	1.6	---	2.3	0.2	7.3	0.2	33	121	46
Jul-17	0.02	23	195	54	77	690,000	6.3	---	2.5	0.2	6.9	0.35	68	223	51
Aug-17	0.01	28	105	51	78	510,000	4.7	---	2.1	0.2	6.6	4.2	59	138	40
Sep-17	0.03	28	---	53	79	2,330,000	1.5	---	1.4	0.2	7.3	4.1	51	99	56
Oct-17	0.02	2.3	97	44	79	440,000	1.5	---	2.6	0.2	7.2	0.2	46	10	58
Nov-17	0.04	1.2	37	35	78	39,600	0.04	---	3.61	0.2	7.1	0.2	38	188	104
Dec-17	1.85	1.1	10	53	79	1,400	7.47	---	4.98	0.41	6.1	0.2	36	337	8
Jan-18	0	13	70	37	---	207,000	0.1	---	0.76	2	7.7	1	35	35	46
Feb-18	0	0.1	16	20	---	10,500	0	---	0	0.2	8.25	0.2	20	75	17
Mar-18	0	0.1	11	22	---	700	0	---	0.29	0.88	7.35	0.2	20	90	44
Apr-18	0.04	1.4	72	38	---	1,700	0.02	---	2.7	3.4	7.7	0.2	45	74	50
May-18	0.01	2.3	10	39	---	1,530	0.02	---	0.21	3.5	6.8	0.31	46	71	3
Jun-18	0.03	28	55	53	---	7,000	1.5	---	1.4	0.2	7.3	0.2	51	99	56
Jul-18	0.02	19	10	79	---	3,300	0.37	---	3.9	6.6	7.3	2.3	67	70	35
Aug-18	0.01	21	31	72	---	1,040	0.02	---	0.21	1.2	7.4	2.3	70	60	52
Sep-18	0.06	30	10	76	60	10,000	0.17	10	---	0.2	7.4	1.4	71	54	96
Oct-18	0.006	30	10	76	60	10,000	1.17	10	---	0.2	7.5	1.4	71	54	96
Nov-18	0.026	18	85	36	35.2	216,000	0.43	14	---	0.2	6.8	0.61	39	37	68
Dec-18	0.04	31	10	47	34.2	108,000,000	0.83	10	---	0.29	7.25	0.94	46	39	104
Jan-19	0.008	6.2	32	42	50	670,000	0.1	---	1.02	0.28	7.4	0.2	37	62	30
Feb-19	0.085	17	22	47	111	248,000	0.01	27	---	0.2	5.7	0.2	49	446	52
Mar-19	0.009	9.2	29	34	34	315,000	0.05	21	---	0.2	7.3	0.2	29	164	29
May-19	0.05	16	22	36	49	55,000	0.06	11	---	0.13	7.3	0.65	41	44	20
Jun-19	0.009	9.2	29	34	34	315,000	0.05	21	---	0.2	7.3	0.2	29	164	29
Jul-19	0.05	5.3	20	34	45	1,080	0.08	12	---	1.61	7.4	0.02	35	60	20
Sep-19	0.05	32.3	369	49	72	6,000,000	0.19	14	---	0.01	7.3	2.45	58	48	111
Oct-19	0.050	32.30	369	49	72	6,000,000	0.19	14	---	0.13	7.2	7.53	58	48	111
Nov-19	0.050	11.00	60	43	54	25,000	0.05	12	---	12.10	7.6	3.30	52	52	48
Dec-19	0.050	5.07	36	23	36	270,000	0.05	10	---	0.38	7.5	0.74	31	39	20
Aug-20	0.05	0	20	24	25	3,400	0.05	12	---	1.5	7.9	0.01	25	62	20
Sep-20	0.05	0	20	33	42	16,000	0.05	13	---	0.02	8.1	0.01	31	60	20
Oct-20	0.05	18.8	107	40	60	170,000	1.46	12	---	0.13	7.3	0.1	51	39	31
Nov-20	0.05	1.6	37	16	27	13,000	0.13	7	---	0.4	7.1	0.2	15	46	53
Dec-20	0.05	0	6	21	34	13,800	0.05	5	---	0.63	7.5	0.08	23	56	20
Feb-21	0.06	0.2	11	22	38	320,000	0.05	12	---	0.09	7.3	0.06	23	71	20
Mar-21	0.05	15.3	39	41	65	250,000	0.05	22	---	0.13	7.2	0.01	35	142	30
Apr-21	0.05	0.9	24	25	40	400,000	0.05	12	---	1.26	7.7	0.07	25	62	39
May-21	0.05	10	59	43	58	15,000	0.05	14	---	1.42	7.4	0.72	44	57	20

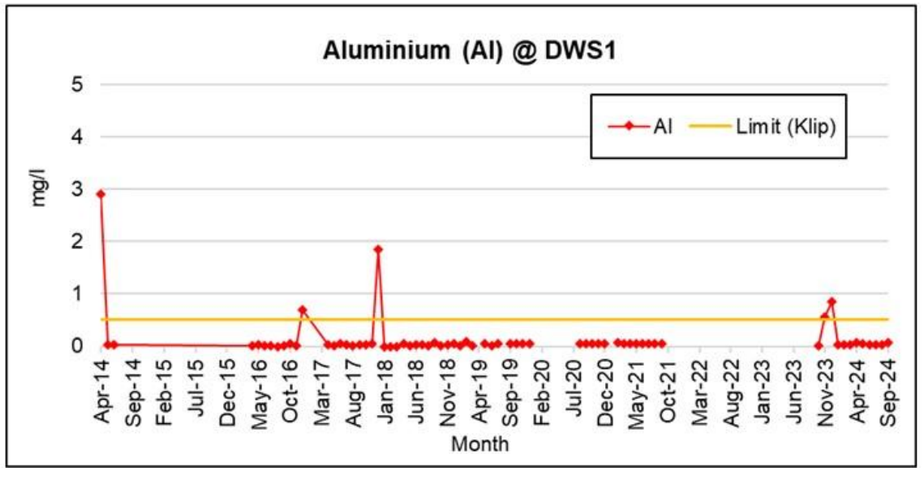
Parameter	Aluminium	Ammonia	Chemical Oxygen Demand	Chloride	Electrical Conductivity	*E. coli*	Iron	Magnesium	Manganese	Nitrate	pH	Phosphate	Sodium	Sulphate	Suspended Solids
Jun-21	0.05	9.3	53	39	56	12,700	0.05	14	---	1.63	7.6	0.73	45	57	20
Jul-21	0.05		54	36	54	96 000	0.07	15	---	1.28	7.4	0.05	47	56	20
Aug-21	0.05	0.3	13	31	43	14 000	0.05	12	---	1.48	8	0.07	30	55	20
Sep-21	0.05	0.1	14	30	42	38 000	0.05	12	---	0.2	7.8	0.06	31	41	20
Oct-23	0.01	6	47	33	44	108000	0.01	11	---	3.54	7.3	0.1	39	18	18
Nov-23	0.55	14	133	46	61	650000	0.02	12	---	0.25	6.8	1.07	47	53	92
Dec-23	0.85	8.1	32	27	77	111990	0.02	16	---	0.13	7.1	0.1	22	306	66
Jan-24	0.03	1.5	25	21	46	12033	0.02	11	---	2.8	6.6	0.19	20	117	< 18
Feb-24	0.03	9.8	59	36	72	2359000	0.05	17	---	1.07	6.9	<0.1	35	72	54
Mar-24	0.03	18	111	56	82	12997000	0.39	19	---	1.03	7	0.1	54	108	< 18
Apr-24	0.07	19	133	78	99	2014000	0.18	---	---	<0.25	7	0.27	59	158	66
May-24	0.05	17	129	54	78	6488000	0.44	---	---	0.44	7.1	<0.1	57	120	78
Jun-24	0.02	2.9	83	29	39	393000	0.03	---	---	2.84	7	0.16	12	45	< 18
Jul-24	0.02	<1.5	51	36	40	19890	0.04	---	---	5.67	7.4	<0.1	37	59	86
Aug-24	0.03	6.8	47	41	56	222400	0.09	---	---	0.64	7.2	0.46	49	83	58
Sep-24	0.06	3.8	<25	38	44	65100	0.02	---	---	6.15	7.5	0.33	59	22	< 18











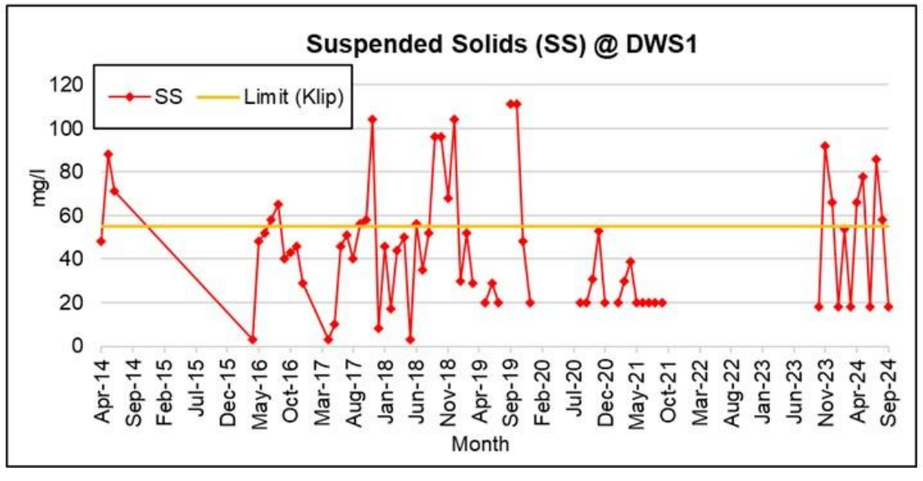


Figure 3-6: Trends in the DWS water quality results for selected parameters

4 FLOODLINE DETERMINATION

4.1 Purpose and Legal Requirements

According to Regulation 4 of GN R704, no person in control of a mine or activity may –

(a) Locate or place any residue deposit, dam, reservoir, together with any associated structure or any other facility within the 1:100 year floodline or within a horizontal distance of 100 metres from any watercourse or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked; and
(b) Carry on any underground or opencast mining or prospecting or any other operation or activity under or within the 1:50 year floodline or within a horizontal distance of 100 m from any watercourse or estuary, whichever is the greatest.

The purpose of this section was to determine the 1:50 and 1:100 year floodlines for the Russell Stream as well as for a tributary flowing through mining block N19.

4.2 Methodology and Data Sources

The methodology and data sources used to determine the floodlines are discussed below.

4.2.1 Contributing Catchments

The contributing catchments for which the peak flows were calculated are shown on Figure 4-1.

4.2.2 Survey Data

Survey data in the form of 1 m contour intervals (dated: 28 November 2024) that covered the Project area between Crownwood road in the east to mining blocks N18 and N19 in the west, was provided by Ergo. The survey data did not cover mining blocks N20 and N22. To extend the survey data to these areas, 0.25 m contours were sourced from the City of Johannesburg Metropolitan Municipality. The two contour datasets were combined to generate a 1 m spatial resolution Digital Terrain Model (DTM). The DTM was used in the hydraulic modelling of the floodlines.

4.2.3 Land Cover/Use

Land cover/use form an important component of the hydrological assessment that was undertaken to calculate the peak flows. The South African National Land-Cover 2018 dataset (GeoTerraImage, 2019), was used to assess the land cover and use of the contributing catchments.

4.2.4 Hydraulic Structures

The bridges over the Russell stream at Crownwood and Nasrec Roads were included in the hydraulic model, and are shown on Figure 4-2 and Figure 4-3, respectively. The railway bridge to the east of Nasrec Road was not included in the model, as it is a very high bridge (24 m above the Russell Stream), with widely spaced piers (32 m apart), that would not have any significant impact on the floodlines.

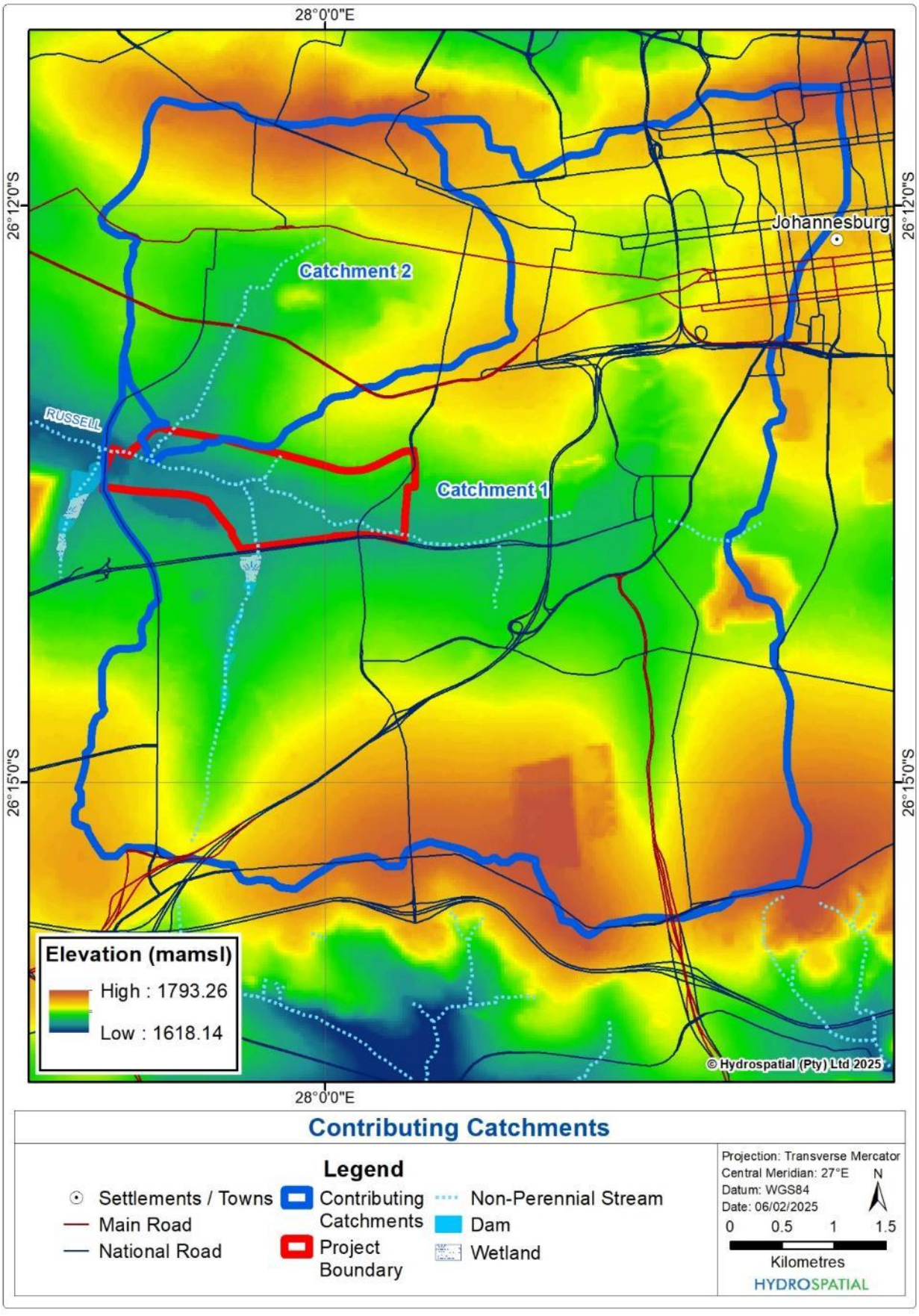


Figure 4-1: Contributing catchments



Figure 4-2: Bridge over the Russell Stream at Crownwood Road



Figure 4-3: Bridge over the Russell Stream at Nasrec Road

4.2.5 Manning's Roughness Coefficients

The Manning's roughness coefficients are values that represent the channel and adjacent floodplains resistance to flow. The Mannings roughness was assessed during the site investigation. A Mannings roughness coefficient of 0.1 was used to represent the channel and floodplains, as these areas were dominated by fairly dense vegetation in the form of reeds, bushes, tall grass and trees (Figure 4-4).



Figure 4-4: Russell Stream and adjacent area consisting of reeds, grass and trees

4.2.6 Peak Flow Calculations

The 1:50 and 1:100 year peak flows were calculated using the Soil Conservation Service (SCS) method. The SCS method is based on the triangular unit hydrograph concept. This unit hydrograph represents the temporal distribution of stormflow for an incremental unit depth of stormflow, ΔQ, occurring in a unit duration of time, ΔD.

Peak discharge for an increment of time ΔD is defined by the equation:

$$\Delta q_p = \frac{0.2083\mathrm{A}\Delta Q}{\frac{\Delta D}{2} + L}$$

Where:

Δq_p = Peak discharge of incremental unit hydrograph (m^3/s)

A = Catchment area (km^2)

ΔQ = Incremental stormflow depth (mm)

ΔD = Unit duration of time (h), used with the distribution of daily rainfall to account for rainfall intensity variations

L = Catchment lag (h), an index of the catchment's response time to the peak discharge

To determine the hydrograph response to a given rainfall total, incremental hydrographs are superimposed according to the distribution of stormflow over time, as determined from the time distribution of rainfall intensity and the stormflow response characteristics of the catchment. More details on the SCS method are provided in Schmidt and Schulze (1987).

4.2.7 Software Choice

The following software's were used:

- The DTM and catchment boundary were generated using Global Mapper software;
- QGIS was used to analyse the catchment slope, land cover and soils;

- The Visual SCS-SA software programme (Schulze et al., 2004) was used to calculate the peak flows; and
- The hydraulic modelling of the floodlines was undertaken using HEC-RAS (Brunner, 2016). HEC-RAS is a hydraulic software programme used to perform one and two dimensional hydraulic calculations for a range of applications, from a single watercourse to a full network of natural or constructed channels.

4.2.8 Hydraulic Model Setup

A one dimensional model was setup in HEC-RAS as follows:

- The DTM generated from the survey data was imported into HEC-RAS Mapper;
- Geometric data such as cross-sections, stream centre line and flow paths, were digitised in HEC-RAS Mapper;
- Hydraulic structures were setup in HEC-RAS;
- Parameters such as the peak flows, Mannings roughness coefficients and upstream and downstream boundary conditions for normal depth were entered into HEC-RAS; and
- A steady, mixed flow (combination of subcritical, supercritical, hydraulic jumps and drawdowns) model was run within HEC-RAS to calculate the 1:50 and 1:100 year flood water elevations.

4.3 Assumptions and Limitations

The following are assumptions and limitations:

- The floodlines are indicative for the purposes of the WULA and environmental authorisation processes. They should not be used for design purposes.

4.4 Results

4.4.1 Peak Flows

The catchment parameters and calculated peak flows are summarised in Table 4-1.

Table 4-1: Catchment parameters and calculated peak flows

Parameter	Catchment 1	Catchment 2
Catchment Area (km²)	42.42	8.58
MAP (mm)	748	756
Curve Number	86	85
Average Catchment Slope (%)	4.5	4.7
Lag Time (hr)	2.54	1.40
1:50 Year Peak Flow (m^3/s)	256	85
1:100 Year Peak Flow (m^3/s)	308	101

4.4.2 Floodline

The floodlines and 100 m stream buffer are shown on Figure 4-5. Appendix A provides the floodline results at cross-sections. The following proposed infrastructure is impacted by either the floodlines or 100 m stream buffer:

- Mining blocks N1 – N22;
- Drying stockpiles to the north, south and west of the current mining area as well as to the north of mining block N22;
- All river crossings;
- Sump;
- Overflow channel;
- Channel and two silt traps; and
- Paddocks to the north and south of mining blocks N1-N18.

The following is recommended:

- Berms should be placed along the downslope side of the mining blocks and drying stockpiles to prevent flooding. The berms should be constructed to withstand a 1:100 year flood at a height above the floodline; and
- It is recommended that exemption from GN R704 is applied for, for the infrastructure listed above, which are located within the floodlines and 100 m watercourse buffer.

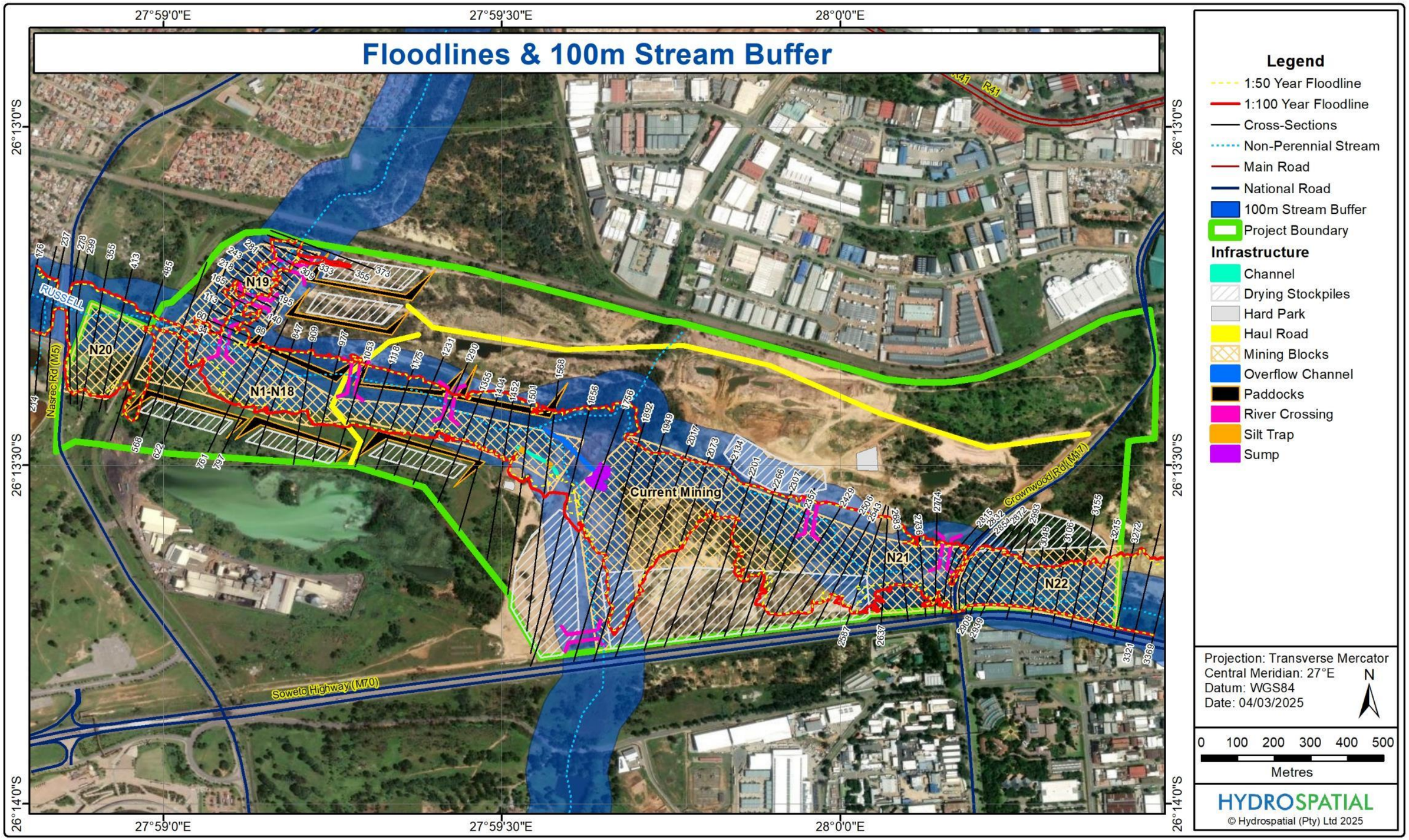


Figure 4-5: Floodlines and 100 m stream buffer

5 CONCEPTUAL STORMWATER MANAGEMENT PLAN

The purpose of the conceptual SWMP is to ensure that clean (areas unimpacted by the proposed mining activities) and dirty areas (impacted areas) are adequately separated, by diverting runoff from clean areas away from dirty areas towards the Russell Stream and ensuring that dirty runoff from the operational areas is captured, contained and managed appropriately.

5.1 Terminology

The following definitions are relevant to the SWMP. These are provided here for clarity, as they are commonly referred to in this section of the report:

- **Activity:** Any mining related process on the mine including the operation of washing plants, mineral processing facilities, mineral refineries and extraction plants; the operation and the use of mineral loading and off-loading zones, transport facilities and mineral storage yards, whether situated at the mine or not; in which any substance is stockpiled, stored, accumulated, dumped, disposed of or transported;
- **Clean area:** This refers to any area at or near a mine or activity, which produces clean runoff;
- **Clean water system:** This includes any dam, other form of impoundment, canal, works, pipeline and any other structure or facility constructed for the retention or conveyance of clean unpolluted water;
- **Dam:** This includes any return water dam, settling dam, tailings dam, evaporation dam, catchment or barrier dam and any other form of impoundment used for the storage of unpolluted water or water containing waste (i.e. contain polluted water);
- **Dirty area:** This refers to any area at a mine or activity which causes, has caused or is likely to cause pollution of a water resource (i.e. generates polluted runoff);
- **Dirty water system:** This includes any dam, other form of impoundment, canal, works, pipeline, residue deposit and any other structure or facility constructed for the retention or conveyance of water containing waste; and
- **Watercourse:** This is defined in the NWA as -
    - A river or spring;
    - A natural channel in which water flows regularly or intermittently;
    - A wetland, lake or dam into which, or from which, water flows; and
    - Any collection of water which the Minister may, by notice in the *Gazette,* declare to be a watercourse, and a reference to a watercourse includes, where relevant, its bed and banks.

5.2 Design Philosophy

The following design philosophy was adopted to guide the development of the SWMP, and is based on GN R704 and the DWS Best Practice Guideline (BPG) G1: Storm Water Management:

- Divert any unpolluted runoff to a clean water system, away from dirty areas;
- Runoff from dirty areas must be captured, contained and managed appropriately;
- Clean and dirty water systems must be designed and constructed to prevent cross contamination;
- Clean and dirty water systems must convey/contain runoff from the 50 year storm event; and
- Appropriate maintenance and management of stormwater related infrastructure should be ensured at all times.

5.3 Potential Contaminants

The excavation of silt is likely to result in increased Suspended Solids (SS) and turbidity. Heavy metals are likely to have accumulated in the silt, with the lower lying silt layers containing higher concentrations of metals (Ndasi, 2007). The previous Groundwater Report prepared for the Sector 1 application (Groundwater Abstract, 2019), stated that in the deeper silt pockets, the pH is likely to be much lower and element concentrations higher, but due to current stable conditions that include saturation, low permeability and low oxygen levels, metal and salt leaching does not happen readily. However, the excavation of silt from the reclamation area, may trigger oxidation reactions that could result in acidic conditions and leaching of salts and metals (Groundwater Abstract, 2019). Similar conditions are expected at the stockpiling area, with the drying of the silt.

5.4 Clean and Dirty Areas

5.4.1 Dirty Areas

Dirty areas include the following:

- Mining blocks – mining of the silt has the potential to contaminate the Russell Stream with heavy metals, salts, acidic water and elevated SS. Water within the mining blocks will need to be contained and managed;
- Drying stockpiles – moisture seeping from the stockpiled silt is expected to have similar water quality to that described above and will need to be contained and managed; and
- Hard park areas – the two hard park areas will be used to park heavy machinery that have the potential to leak hydrocarbons. Drip mats or trays should be placed beneath parked machinery.

5.4.2 Clean areas

All areas surrounding the above-mentioned dirty areas should be treated as clean areas, and should be diverted away from flowing into dirty areas.

5.5 Assumptions and Limitations

The following are assumptions and limitations for the SWMP:

- The SWMP is based on the project description provided. Should the project description or infrastructure layout change, then the SWMP will need to be revised; and
- The SWMP is conceptual. A detailed SWMP should be designed based on the concept design prior to the commencement of construction activities.

5.6 Proposed Stormwater Measures

The proposed conceptual SWMP is indicated on Figure 5-1 and is discussed below.

5.6.1 Mining Blocks

5.6.1.1 Dirty Water Management

It is proposed that berms are constructed around the mining blocks to contain dirty water runoff. Dirty water within the mining blocks can be allowed to evaporate and can be used for dust suppression on the haul roads. Should there be a large accumulation of stormwater within the bermed off mining areas, then the excess stormwater will need to be released gradually to silt traps, that will settle out silt before entering the Russell Stream. This is currently done at the existing mining operation. The proposed heights of the berms are provided under section 5.6.4.

5.6.1.2 Clean Water management

Upslope runoff will be diverted around the mining blocks by berms towards the Russell Stream.

5.6.2 Drying Stockpiles

5.6.2.1 Dirty Water Management

Runoff and seepage from the stockpiles will be captured and contained in paddocks and bermed off areas. Dirty water within the paddocks will be allowed to evaporate. The proposed heights of the berms and paddocks are provided under section 5.6.4.

5.6.2.2 Clean Water management

Upslope runoff will be diverted around the stockpile areas by berms towards the Russell Stream.

5.6.3 Flood Protection

The berms at the bottom of the mining blocks as well as the paddocks running along the Russell Stream, will prevent flooding of the mining and stockpile areas. The proposed heights of the berms and paddocks are provided under section 5.6.4.

5.6.4 Berm Sizings

The berms and paddocks were sized to contain or divert the 1:50 year flood event as required by GN R704 and are provided in Table 5-1

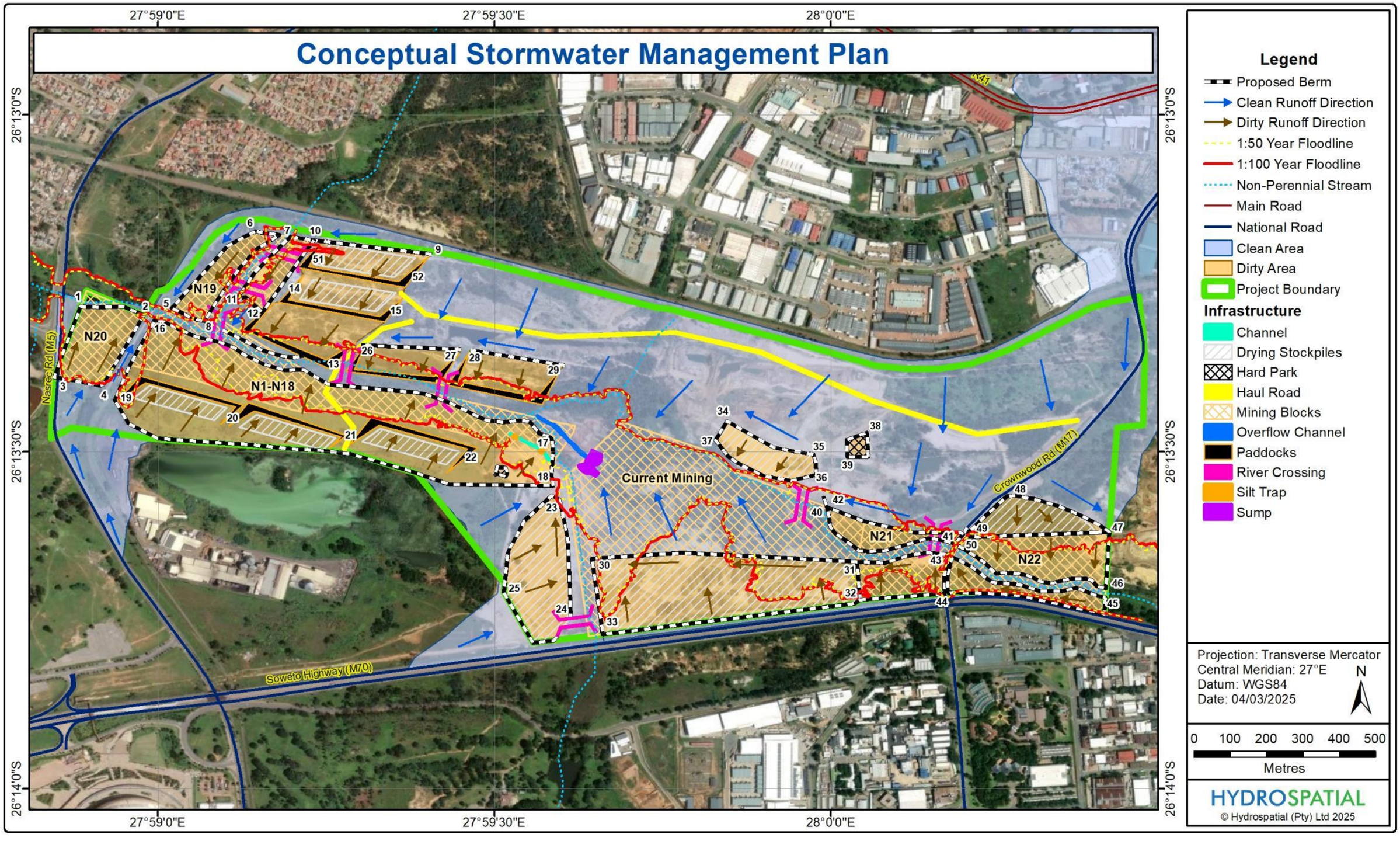


Figure 5-1: Proposed conceptual stormwater management plan

Table 5-1: Proposed berm and paddock heights

Berm/Paddock Section*	Berm Height (m)	Berm/Paddock Section*	Berm Height (m)
1 - 2	4	23 - 24	1.5
1 - 3	3	24 - 25	1.5
2 - 4	1.5	23 - 25	1.5
3 - 4	1.5	26 - 27	3
5 - 6	1.5	28 - 29	2
6 - 7	1.5	30 - 31	4
7 - 8	2.5	31 - 32	1.5
5 - 8	2.5	32 - 33	1.5
9 - 10	1.5	30 - 33	2
7 - 10	1.5	34 - 35	1.5
7 - 11	3.5	35 - 36	1.5
11 - 12	2	36 - 37	1.5
10 - 12	1.5	34 - 37	1.5
12 - 13	4	38 - 39	1.5
14 - 15	2	40 - 41	5
51 - 52	2	41 - 42	2
16 - 17	4	43 - 44	2
17 - 18	3	44 - 45	1.5
18 - 19	1.5	43 - 45	5.5
16 - 19	1.5	46 - 47	5
19 - 20	2	47 - 48	2
20 - 21	2	48 - 49	2
21 - 22	2	46 - 50	5.5

*See Figure 5-1

6 SURFACE WATER IMPACT ASSESSMENT

6.1 Project Activities Assessed

The following key activities are likely to occur during the different phases of the project, and are assessed in the impact assessment:

6.1.1 Construction Phase

- Site clearance and the construction of minor infrastructure.

6.1.2 Operational Phase

- Mechanical excavation of silt and the stockpiling of silt.

6.1.3 Closure and Rehabilitation Phase

- Rehabilitation activities.

6.2 Methodology

The impact significance rating process serves to highlight the critical impacts requiring consideration in the management and approval process.

The impact significance rating system is presented in Table 6-1, Table 6-2 and Table 6-3, and involves three parts:

- **Part A**: Define impact consequence using the three primary impact characteristics of magnitude, spatial scale/population and duration;
- **Part B**: Use the matrix to determine a rating for impact consequence based on the definitions identified in Part A; and
- **Part C**: Use the matrix to determine the impact significance rating, which is a function of the impact consequence rating (from **Part B**) and the probability of occurrence.

These are discussed in further detail below.

6.2.1 Part A: Defining Consequence in Terms of Magnitude, Duration and Spatial Scale

Table 6-1 is used to determine the impact consequence characteristics for magnitude, spatial scale/population and duration.

Table 6-1: Consequence rating definitions

IMPACT CHARACTERISTICS	DEFINITION	CRITERIA
Magnitude	Major -	Substantial deterioration or harm to receptors; receiving environment has an inherent value to stakeholders; receptors of impact are of conservation importance; or identified threshold often exceeded
	Moderate -	Moderate/measurable deterioration or harm to receptors; receiving environment moderately sensitive; or identified threshold occasionally exceeded
	Minor -	Minor deterioration (nuisance or minor deterioration) or harm to receptors; change to receiving environment not measurable; or identified threshold never exceeded
	Minor +	Minor improvement; change not measurable; or threshold never exceeded
	Moderate +	Moderate improvement; within or better than the threshold; or no observed reaction
	Major +	Substantial improvement; within or better than the threshold; or favourable publicity
Spatial scale or population	Site or local	Site specific or confined to the immediate project area
	Regional	May be defined in various ways, e.g. cadastral, catchment, topographic
	National/ International	Nationally or beyond

IMPACT CHARACTERISTICS	DEFINITION	CRITERIA
Duration	Short term	Up to 18 months.
	Medium term	18 months to 5 years
	Long term	Longer than 5 years

6.2.2 Part B: Determining the Consequence Rating

Once the impact consequence characteristics have been determined from Table 6-1, they are applied to Table 6-2 to obtain the consequence rating.

Table 6-2: Consequence rating

			SPATIAL SCALE/ POPULATION		
			Site or Local	**Regional**	**National/ international**
MAGNITUDE					
Minor	**DURATION**	**Long term**	Medium	Medium	High
		Medium term	Low	Low	Medium
		Short term	Low	Low	Medium
Moderate	**DURATION**	**Long term**	Medium	High	High
		Medium term	Medium	Medium	High
		Short term	Low	Medium	Medium
Major	**DURATION**	**Long term**	High	High	High
		Medium term	Medium	Medium	High
		Short term	Medium	Medium	High

6.2.3 Part C: Determining Significance Rating

The probability of the impact occurring is assessed as either being definite, possible or unlikely, and is selected in Table 6-3. The consequence rating determined from Table 6-2, is then used to obtain the significance of the impact in Table 6-3.

Table 6-3: Significance rating

		CONSEQUENCE		
		Low	**Medium**	**High**
PROBABILITY (of exposure to impacts)	**Definite**	Medium	Medium	High
	Possible	Low	Medium	High
	Unlikely	Low	Low	Medium

The significance rating of the impact is determined prior to mitigation (without mitigation), as well as after mitigation measures have been implemented.

6.3 Impact Assessment and Mitigation

6.3.1 Construction Phase

During the construction phase, vegetation will be cleared and temporary infrastructure will be erected. The construction phase will be less than a year. The activities and impacts that are likely to occur during the construction phase are summarised in Table 6-4.

Table 6-4: Summary of activities and impacts for the construction phase

Activity	Impact Description
Removal of vegetation and alteration to the topography.	Erosion of silt and consequent deterioration of water quality in the Russell Stream.

The ratings and proposed mitigation measures for the construction phase are provided in Table 6-5.

Table 6-5: Significance rating for the construction phase

NATURE OF IMPACT: The removal of vegetation will expose soils to water erosion that may lead to a deterioration in water quality of the Russell Stream		
	Impact Rating without Mitigation	**Impact Rating with Mitigation**
Extent *(Local, Regional, International)*	Regional	Local
Duration *(Short term, Medium term, Long term)*	Short term (construction phase period)	Short term (construction phase period)
Magnitude *(Major, Moderate, Minor)*	Moderate	Minor
Probability *(Definite, Possible, Unlikely)*	Possible	Possible
Calculated Significance Rating (Low, Medium, High)	**Medium**	**Low**
Impact Status: (positive or negative)	Negative	Negative
Reversibility: (Reversible or Irreversible)	Irreversible	
Irreplaceable loss of resources: (Yes or No)	No	
Can impacts be enhanced: (Yes or No)	Yes	
Residual impacts • None foreseen		
Mitigation measures • Clearance of vegetation must be limited as far as possible; • The SWMP must be implemented as a first step during the construction phase; and		

NATURE OF IMPACT: The removal of vegetation will expose soils to water erosion that may lead to a deterioration in water quality of the Russell Stream
• Water quality sampling must continue upstream and downstream of construction areas. Should there be a deterioration in water quality from upstream to downstream, then immediate action should be undertaken to identify and address the issue.

6.3.2 Operational Phase

During the operational phase, the silt will be mechanical excavated and will be transported to the stockpiling areas. From the stockpiling areas, the silt will be transported off site. The operational phase will be approximately three years.

The excavation of silt may potentially result in an increase in SS within the mining area. Heavy metals are likely to have accumulated in the silt, with the lower lying silt layers containing higher concentrations of metals (Ndasi, 2007). The previous Groundwater Report for Sector 1 states that in the deeper silt pockets, the pH is likely to be much lower and element concentrations higher, but due to current stable conditions that include saturation, low permeability and low oxygen levels, metal and salt leaching does not happen readily. However, the excavation of silt may potentially trigger oxidation reactions that could result in acidic conditions and leaching of salts and metals (Groundwater Abstract, 2019). Moisture seeping from the stockpiled drying silt is expected to have similar water quality to that described above. It should be noted that based on the current water quality, the mining operation at Sector 1 is not having a significant impact on the Russell Stream, which is likely due to the implementation measures such as berms, paddocks and silt traps to contain and settle out SS.

Excavation of silt to levels below the Russell Stream riverbed, could result in water seeping from the Russell Stream into the mining voids, resulting in a loss of water quantity in the river.

Uncontrolled dirty water runoff from the mining and stockpiling areas, as well as poor maintenance of stormwater infrastructure, has the potential to impact on the downstream water quality. It is therefore recommended that the proposed SWMP is implemented, and that monitoring and maintenance of stormwater measures is undertaken as proposed under section 7.2.

Lastly, some of the mining and stockpiling areas are located within the floodlines of the Russell Stream, and are therefore at risk of flooding. Flooding of the operation can be prevented through the implementation of the SWMP.

The activities and impacts that could potentially occur during the operational phase are summarised in Table 6-6.

Table 6-6: Summary of activities and impacts for the operational phase

Activity	Impact Description
Excavation of the silt with impacts on water quality.	**Impact 1:** The excavation of the silt has the potential to increase oxygen levels within the silt, with subsequent oxidization reactions that could result in potential acidic conditions and leaching of salts and metals, which may impact on downstream water quality. The current water quality does not show any significant impacts as a result of this from the current mining operation at Sector 1, however, there is a potential for this to occur should mitigation measures not be implemented.
Excavation of the silt with impacts on water quantity.	**Impact 2:** Excavation of silt to levels below the riverbed of the Russell Stream, could result in water seeping from the Russell Stream into the mining voids, resulting in a loss of water quantity in the river.
Stockpiling of the silt.	**Impact 3:** Runoff and moisture from the stockpiled drying silt may potentially have poor water quality similar to that described under impact 1.
Uncontrolled dirty water runoff from the mining and stockpiling areas.	**Impact 4:** Runoff into the downslope Russell Stream impacting on water quality and sedimentation.
Poor maintenance of stormwater infrastructure.	**Impact 5:** Silted paddocks and eroded berms, can lead to spills into the downslope Russell Streams impacting on water quality and sedimentation.
Flooding of the mining and stockpiling areas.	**Impact 6:** Mechanical mining will take place within the Russell Stream floodplain. The stockpiling of silt is in close proximity to the floodplain. High rainfall such as a 1:50 year storm event can potentially result in flooding and consequent downstream water quality issues.

The ratings and proposed mitigation measures for the operational phase are indicated in Table 6-7 to Table 6-12.

Table 6-7: Significance rating of operational impact 1

NATURE OF IMPACT 1: Excavation of the silt resulting in potential acidic conditions and leaching of salts and metals, impacting on downstream water quality		
	Impact Rating without Mitigation	**Impact Rating with Mitigation**
Extent *(Local, Regional, International)*	Regional	Local
Duration *(Short term, Medium term, Long term)*	Medium term	Medium term
Magnitude *(Major, Moderate, Minor)*	Major	Minor
Probability *(Definite, Possible, Unlikely)*	Possible	Possible
Calculated Significance Rating (Low, Medium, High)	**Medium**	**Low**
Impact Status: (positive or negative)	Negative	Negative
Reversibility: (Reversible or Irreversible)	Irreversible	
Irreplaceable loss of resources: (Yes or No)	No	
Can impacts be enhanced: (Yes or No)	Yes	
Residual impacts • None foreseen.		
Mitigation measures • Berms, paddocks and silt traps as per the proposed SWMP should be constructed around the mining and stockpiling areas to contain and evaporate dirty water.		

Table 6-8: Significance rating of operational impact 2

NATURE OF IMPACT 2: Excavation of silt to levels below the riverbed, could result in water seeping from the Russell Stream into the mining voids, resulting in a loss of water quantity in the river		
	Impact Rating without Mitigation	**Impact Rating with Mitigation**
Extent *(Local, Regional, International)*	Regional	Local
Duration *(Short term, Medium term, Long term)*	Medium term	Medium term
Magnitude *(Major, Moderate, Minor)*	Moderate	Minor
Probability *(Definite, Possible, Unlikely)*	Possible	Possible

NATURE OF IMPACT 2: Excavation of silt to levels below the riverbed, could result in water seeping from the Russell Stream into the mining voids, resulting in a loss of water quantity in the river		
Calculated Significance Rating (Low, Medium, High)	**Medium**	**Low**
Impact Status: (positive or negative)	Negative	Negative
Reversibility: (Reversible or Irreversible)	Irreversible	
Irreplaceable loss of resources: (Yes or No)	No	
Can impacts be enhanced: (Yes or No)	Yes	
Residual impacts • None foreseen.		
Mitigation measures • There is no feasible mitigation to prevent water seeping from the river into the voids, however, berms placed between the mining areas and the Russell Stream would assist to reduce inflow into the mining areas.		

Table 6-9: Significance rating of operational impact 3

NATURE OF IMPACT 3: Runoff and moisture from the stockpiled drying silt may potentially have poor water quality which may impact the water quality of the Russell Stream		
	Impact Rating without Mitigation	**Impact Rating with Mitigation**
Extent *(Local, Regional, International)*	Regional	Local
Duration *(Short term, Medium term, Long term)*	Medium term	Medium term
Magnitude *(Major, Moderate, Minor)*	Major	Minor
Probability *(Definite, Possible, Unlikely)*	Possible	Possible
Calculated Significance Rating (Low, Medium, High)	**Medium**	**Low**
Impact Status: (positive or negative)	Negative	Negative
Reversibility: (Reversible or Irreversible)	Irreversible	
Irreplaceable loss of resources: (Yes or No)	No	
Can impacts be enhanced: (Yes or No)	Yes	

NATURE OF IMPACT 3: Runoff and moisture from the stockpiled drying silt may potentially have poor water quality which may impact the water quality of the Russell Stream
Residual impacts • None foreseen.
Mitigation measures • Paddocks must be implemented downslope of the stockpiling area to capture, contain and evaporate runoff and seepage from the stockpiles; and • Once the operational phase is complete, any remnants of the stockpiles must be removed.

Table 6-10: Significance rating of operational impact 4

NATURE OF IMPACT 4: Uncontrolled dirty water runoff from the mining and stockpiling areas running off into the downslope Russell Stream impacting on water quality and sedimentation		
	Impact Rating without Mitigation	**Impact Rating with Mitigation**
Extent *(Local, Regional, International)*	Regional	Local
Duration *(Short term, Medium term, Long term)*	Medium term	Medium term
Magnitude *(Major, Moderate, Minor)*	Major	Minor
Probability *(Definite, Possible, Unlikely)*	Definite	Possible
Calculated Significance Rating (Low, Medium, High)	**Medium**	**Low**
Impact Status: (positive or negative)	Negative	Negative
Reversibility: (Reversible or Irreversible)	Irreversible	
Irreplaceable loss of resources: (Yes or No)	No	
Can impacts be enhanced: (Yes or No)	Yes	
Residual impacts • None foreseen.		
Mitigation measures • Implementation of the proposed SWMP. It must be ensured that stormwater measures are designed, constructed and operated to ensure that stormwater does not spill more than once in 50 years, to be compliant with GN R704 regulations; and • Water quality sampling must continue upstream and downstream of the mining and stockpiling areas. Should there be a deterioration in water quality from upstream to downstream, then immediate action should be undertaken to identify and address the issue.		

Table 6-11: Significance rating of operational impact 5

NATURE OF IMPACT 5: Poor maintenance of stormwater infrastructure resulting in silted paddocks and eroded berms, leading to spills into the downslope Russell Stream impacting on water quality and sedimentation		
	Impact Rating without Mitigation	**Impact Rating with Mitigation**
Extent *(Local, Regional, International)*	Regional	Local
Duration *(Short term, Medium term, Long term)*	Medium term	Medium term
Magnitude *(Major, Moderate, Minor)*	Major	Minor
Probability *(Definite, Possible, Unlikely)*	Possible	Unlikely
Calculated Significance Rating (Low, Medium, High)	**Medium**	**Low**
Impact Status: (positive or negative)	Negative	Negative
Reversibility: (Reversible or Irreversible)	Irreversible	
Irreplaceable loss of resources: (Yes or No)	No	
Can impacts be enhanced: (Yes or No)	Yes	
Residual impacts • None foreseen.		
Mitigation measures • Implementation of the stormwater monitoring plan detailed in section 7 of this report.		

Table 6-12: Significance rating of operational impact 6

NATURE OF IMPACT 6: Flooding of the mining and stockpiling areas which are located within the floodlines		
	Impact Rating without Mitigation	**Impact Rating with Mitigation**
Extent *(Local, Regional, International)*	Regional	Local
Duration *(Short term, Medium term, Long term)*	Medium term	Medium term
Magnitude *(Major, Moderate, Minor)*	Major	Minor

NATURE OF IMPACT 6: Flooding of the mining and stockpiling areas which are located within the floodlines		
Probability *(Definite, Possible, Unlikely)*	Possible	Unlikely
Calculated Significance Rating (Low, Medium, High)	**Medium**	**Low**
Impact Status: (positive or negative)	Negative	Negative
Reversibility: (Reversible or Irreversible)	Irreversible	
Irreplaceable loss of resources: (Yes or No)	No	
Can impacts be enhanced: (Yes or No)	Yes	
Residual impacts • None foreseen.		
Mitigation measures • Implementation of the proposed SWMP. It must be ensured that stormwater measures are designed, constructed and operated, to ensure that they can convey/deflect the 50 year runoff, to be compliant with GN R704 regulations.		

6.3.3 Closure and Rehabilitation Phase

Once mining is complete, all infrastructure will be removed from the site. The mined-out areas will be rehabilitated by shaping the areas where silt was removed and stockpiling took place, to a free draining surface. Thereafter, appropriate plant species will be planted to stabilise the soil. The Russel Stream will be allowed to re-establish its original course. Successful rehabilitation is expected to provide long-term benefits in terms of water quality improvement as well as lower flood levels in the area.

The activities and impacts that are likely to occur during the closure and rehabilitation phase are summarised in Table 6-13.

Table 6-13: Summary of activities and impacts for the closure phase

Activity	Impact Description
Exposure of soil during the closure and rehabilitation phase activities, once all silt has been removed.	**Impact 1:** Erosion and consequent deterioration of water quality in the Russell Stream.

The ratings and proposed mitigation measures for the closure and rehabilitation phase are indicated in Table 6-14.

Table 6-14: Significance rating of closure impact 1

NATURE OF IMPACT 1: The exposure of soil once all silt has been removed, has the potential to be washed into the downslope Russell Stream, impacting on water quality and sedimentation		
	Impact Rating without Mitigation	**Impact Rating with Mitigation**
Extent *(Local, Regional, International)*	Regional	Local
Duration *(Short term, Medium term, Long term)*	Short term	Short term
Magnitude *(Major, Moderate, Minor)*	Moderate	Minor
Probability *(Definite, Possible, Unlikely)*	Possible	Possible
Calculated Significance Rating (Low, Medium, High)	**Medium**	**Low**
Impact Status: (positive or negative)	Negative	Negative
Reversibility: (Reversible or Irreversible)	Irreversible	
Irreplaceable loss of resources: (Yes or No)	No	
Can impacts be enhanced: (Yes or No)	Yes	
Residual impacts • None foreseen.		
Mitigation measures • Stormwater management measures (e.g. berms) should remain in place while rehabilitation is taking place, to prevent runoff from bare areas from flowing into the Russell Stream; • Revegetation of exposed areas should take place as soon as possible after shaping the area to a free draining surface; and • Water quality monitoring must continue upstream and downstream until the site has been fully rehabilitated.		

6.3.4 Post Closure Phase

Should rehabilitation be successfully implemented, then it is unlikely that any negative impacts will occur during the post closure phase. The removal of silt is likely to result in a long-term positive impact on the Russell Stream, provided that rehabilitation is successfully implemented.

6.4 Cumulative Impacts

Cumulative impacts are impacts that result from the incremental impact of the proposed activities on a common resource when added to the impacts of other past, present or reasonably foreseeable future activities. Cumulative impacts can occur from the collective

impacts of individual minor actions over a period of time and can include both direct and indirect impacts.

The Project is located in a catchment that is highly impacted by sewage, mining, urban and industrial activities. The implementation of a sound SWMP is crucial to contain dirty runoff from the operational area. The monitoring and maintenance of the implemented SWMP is of utmost importance, to ensure that spillages into the downslope watercourses do not occur. Furthermore, the implementation of a rehabilitation plan that ensures that the area is free draining and appropriately vegetated, could enhance the catchment water quality. Should the above not be done, then in the long term, the proposed project has the potential to cumulatively add to the already deteriorated water quality within the Russell Stream catchment.

The cumulative impact of the proposed project on the surface water quality of the catchment is rated in Table 6-15.

Table 6-15: Cumulative impact rating for surface water quality

NATURE OF IMPACT: Should dirty water runoff not be contained and an appropriate rehabilitation plan for the Russell Stream valley not be undertaken, then the proposed Project has the potential to add cumulatively to the already deteriorated surface water quality of the catchment		
	Impact Rating without Mitigation	**Impact Rating with Mitigation**
Extent *(Local, Regional, International)*	Regional	Local
Duration *(Short term, Medium term, Long term)*	Long term (in excess of the Project life)	Long term (in excess of the Project life)
Magnitude *(Major, Moderate, Minor)*	Major	Minor
Probability *(Definite, Possible, Unlikely)*	Possible	Unlikely
Calculated Significance Rating (Low, Medium, High)	**High**	**Low**
Impact Status: (positive or negative)	Negative	Negative
Reversibility: (Reversible or Irreversible)	Irreversible	
Irreplaceable loss of resources: (Yes or No)	No	
Can impacts be enhanced: (Yes or No)	Yes	
Residual impacts • None foreseen.		
Mitigation measures • Effective stormwater management as proposed under section 5, and in accordance with GN R704 Regulations; • Successful rehabilitation of the Valley Silts mining areas to a free draining and vegetated area; and		

NATURE OF IMPACT: Should dirty water runoff not be contained and an appropriate rehabilitation plan for the Russell Stream valley not be undertaken, then the proposed Project has the potential to add cumulatively to the already deteriorated surface water quality of the catchment
• Water quality monitoring upstream and downstream of the proposed project.

6.5 Impact Summary Table

The impacts and mitigation measures are summarised in Table 6-16.

Table 6-16: Summary of the impacts and mitigation measures

Impact No.	Activity	Impact Description	BEFORE MITIGATION					Mitigation measures / Recommendations	AFTER MITIGATION				
			Magnitude	Duration	Spatial Scale	Probability	SIGNIFICANCE		Magnitude	Duration	Spatial Scale	Probability	SIGNIFICANCE
Construction Phase													
1	Removal of vegetation and alteration to the topography.	Erosion of silt and consequent deterioration of water quality in the Russell Stream.	*Moderate -*	*Short Term < 18 months*	*Regional*	*Possible*	Medium	• Clearance of vegetation must be limited as far as possible; • The SWMP must be implemented as a first step during the construction phase; and • Water quality sampling must be implemented upstream and downstream of construction sites. Should there be a deterioration in water quality from upstream to downstream, then immediate action should be undertaken to identify and address the issue.	*Minor -*	*Short Term < 18 months*	*Site or Local*	*Possible*	Low
Operational Phase													
1	Excavation of the silt with impacts on water quality.	The excavation of the silt has the potential to increase oxygen levels within the silt, with subsequent oxidization reactions that could result in potential acidic conditions and leaching of salts and metals, which may impact on downstream water quality. The current water quality does not show any significant impacts as a result of this from the current mining operation at Sector 1, however, there is a potential for this to occur should mitigation measures not be implemented.	*Major -*	*Medium Term > 18 months < 5 years*	*Regional*	*Possible*	Medium	• Berms, paddocks and silt traps as per the proposed SWMP should be constructed around the mining and stockpiling areas to contain and evaporate dirty water.	*Minor -*	*Medium Term > 18 months < 5 years*	*Site or Local*	*Possible*	Low

Impact No.	Activity	Impact Description	BEFORE MITIGATION					Mitigation measures / Recommendations	AFTER MITIGATION				
			Magnitude	Duration	Spatial Scale	Probability	SIGNIFICANCE		Magnitude	Duration	Spatial Scale	Probability	SIGNIFICANCE
2	Excavation of the silt with impacts on water quantity.	Excavation of silt to levels below the Russell Stream riverbed, could result in water seeping from the Russell Stream into the mining voids, resulting in a loss of water quantity in the river. This is not expected to be a significant impact, as the mining areas are small, and mining will only take place for a period of 3 years, after which, the area will be rehabilitated. Furthermore, much of the flow in the Russell Stream is from artificial sources (e.g. wastewater) and not from natural runoff.	*Moderate -*	*Medium Term > 18 months < 5 years*	*Regional*	*Possible*	Medium	• There is no feasible mitigation to prevent water seeping from the river into the voids, however, berms placed between the mining areas and the Russell Stream would assist to reduce inflow into the mining areas.	*Minor -*	*Medium Term > 18 months < 5 years*	*Site or Local*	*Possible*	Low
3	Stockpiling of the silt	Runoff and moisture from the stockpiled drying silt may potentially have poor water quality which may impact the water quality of the Russell Stream. The current water quality does not show any significant impacts as a result of this from the current mining operation at Sector 1, however, there is a potential for this to occur should mitigation measures not be implemented.	*Major -*	*Medium Term > 18 months < 5 years*	*Regional*	*Possible*	Medium	• Suitably sized paddocks must be implemented downslope of the stockpiling area to capture, contain and evaporate runoff and seepage from the stockpiles; and • Once the operational phase is complete, any remnants of the stockpiles must be removed.	*Minor -*	*Medium Term > 18 months < 5 years*	*Site or Local*	*Possible*	Low

Impact No.	Activity	Impact Description	BEFORE MITIGATION					Mitigation measures / Recommendations	AFTER MITIGATION				
			Magnitude	Duration	Spatial Scale	Probability	SIGNIFICANCE		Magnitude	Duration	Spatial Scale	Probability	SIGNIFICANCE
4	Uncontrolled dirty water runoff from the mining and stockpiling areas.	Runoff into the downslope Russell Stream impacting on water quality and sedimentation.	*Major -*	*Medium Term > 18 months < 5 years*	*Regional*	*Definite*	Medium	• Implementation of the proposed SWMP. It must be ensured that stormwater measures are designed, constructed and operated, to ensure that it does not spill more than once in 50 years, to be compliant with GN R704 regulations; and • Water quality sampling must be implemented upstream and downstream of the mining and stockpiling areas. Should there be a deterioration in water quality from upstream to downstream, then immediate action should be undertaken to identify and address the issue.	*Minor -*	*Medium Term > 18 months < 5 years*	*Site or Local*	*Possible*	Low
5	Poor maintenance of stormwater infrastructure.	Poor maintenance of stormwater infrastructure resulting in silted paddocks and channels as well as eroded berms, leading to spills into the downslope Russell Stream impacting on water quality and sedimentation.	*Major -*	*Medium Term > 18 months < 5 years*	*Regional*	*Possible*	Medium	• Implementation of the stormwater monitoring plan detailed in section 7 of this report.	*Minor -*	*Medium Term > 18 months < 5 years*	*Site or Local*	*Unlikely*	Low
6	Flooding of the mining and stockpiling area.	Some of the mining and stockpiling areas are located within the 1:50 and 1:100 year floodline.	*Major -*	*Medium Term > 18 months < 5 years*	*Regional*	*Possible*	Medium	• Implementation of the proposed SWMP. It must be ensured that stormwater measures are designed, constructed and operated, to ensure that they can convey/deflect the 50 year runoff, to be compliant with GN R704 regulations.	*Minor -*	*Medium Term > 18 months < 5 years*	*Site or Local*	*Unlikely*	Low
Closure & Rehabilitation Phase													

Impact No.	Activity	Impact Description	BEFORE MITIGATION					Mitigation measures / Recommendations	AFTER MITIGATION				
			Magnitude	Duration	Spatial Scale	Probability	SIGNIFICANCE		Magnitude	Duration	Spatial Scale	Probability	SIGNIFICANCE
1	Exposure of soil during the closure and rehabilitation phase activities, once all silt has been removed.	Erosion and consequent deterioration of water quality in the Russell Stream.	*Moderate -*	*Short Term < 18 months*	*Regional*	*Possible*	Medium	• Stormwater measures (e.g. berms) should remain in place while rehabilitation is taking place, to prevent runoff from bare areas from flowing into the Russell Stream; • Revegetation of exposed areas should take place as soon as possible after shaping the area to a free draining surface; and • Water quality monitoring must continue upstream and downstream until the site has been fully rehabilitated.	*Minor -*	*Short Term < 18 months*	*Site or Local*	*Possible*	Low
Cumulative Impacts													
1	Unsuccessful containment of dirty water runoff from the operation as well as unsuccessful rehabilitation	The proposed project has the potential to cumulatively impact on the already deteriorated surface water quality of the catchment	*Major -*	*Long Term > 5 years*	*Regional*	*Possible*	High	• Effective stormwater management as proposed under section 5, and in accordance with GN R704 Regulations; • Successful rehabilitation of the Valley Silts mining area to a free draining and vegetated area; and • Water quality monitoring upstream and downstream of the proposed project.	*Minor +*	*Long Term > 5 years*	*Site or Local*	*Unlikely*	Low

7 MONITORING PLANS

7.1 Surface Water Quality

A surface water quality monitoring programme is essential as a management tool to detect negative water quality impacts as they arise and to ensure that the necessary mitigation measures are implemented. It is recommended that Ergo continues to monitor the upstream, middle and downstream sections of the Russell Stream.

Water quality sampling should be done in accordance with the DWS Best Practice Guideline G3: Water Monitoring Systems. Samples must be kept cool (+-4°C), out of direct sunlight, and transported immediately to an accredited laboratory for water quality analysis within 24 hours of sampling. The impacts on water quality should be determined by comparing the monitoring results against the Klip River Catchment guideline limits and SANS 241:2015, and importantly against previous results, to determine any deviations in trends over time. If the trend analysis indicates any deviations to the baseline monitoring, in terms of deteriorating water quality, then an immediate investigation must be undertaken to determine whether the mine may be responsible. If responsible, urgent action must be undertaken to implement mitigation measures to prevent further contamination.

Reporting should continue to be done on a monthly / quarterly basis (or as recommended by the DWS). It is recommended that monitoring reports include trend analyses. It is further recommended that the water quality from upstream monitoring points is compared to downstream monitoring points.

7.2 Stormwater Infrastructure

Water infrastructure (channels, berms and paddocks) should be monitored on a monthly basis during the dry season, and on a weekly basis during the wet season. They should further be monitored immediately after any large storm events. Should blockages, silted up structures or breaches occur, immediate action should be undertaken to remove debris and repair breaches. Monitoring should be undertaken by the onsite Environmental Control Officer (ECO) or maintenance manager. Inspections must be recorded and should include the following:

- Date of inspection;
- Rainfall amount received;
- Photographs of blockages, silted up structures or breaches witnessed;
- What action was undertaken to fix issues, and the amount of time taken to address them; and
- Photographs post action taken.

Inspection reports should be kept ready and supplied to the DWS when requested, or as part of the WUL conditions.

8 CONCLUSIONS AND RECOMMENDATIONS

In conclusion, the most important aspect to prevent negative impacts from a surface water perspective, is to ensure that a sound stormwater management plan is implemented prior to the commencement of mining activities, in accordance with the conditions stipulated in GN R704. Maintenance of stormwater measures is of utmost importance and should be conducted as outlined in section 7. Furthermore, water quality monitoring must continue upstream and downstream of the proposed mining and stockpiling areas. The removal of the silt is expected to have a positive impact in the long-term on the water quality and flood levels of the Russell Stream, provided that rehabilitation is successfully implemented.

The following provides a summary of the key recommendations:

- The SWMP detailed under section 5 is implemented, and that all conditions specified in GN R704 are strictly adhered to;
- It is recommended that exemption from GN R704 is applied for, for the mining and stockpiling areas, which are located within the floodlines and 100 m stream buffer;
- The recommendations and mitigation measures provided under section 6 are implemented; and
- The monitoring plans provided under section 7 are implemented.

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APPENDIX A: FLOODLINE RESULTS

Stream	Cross-Section	Profile	Peak Flow (m^3/s)	Flood Elevation (mamsl)	Flow Velocity (m/s)	Flood Width (m)	Froude Number
Russell Reach 1	3369	1:50 Year	256	1676.73	0.59	198.4	0.13
Russell Reach 1	3369	1:100 Year	308	1676.99	0.63	201.11	0.13
Russell Reach 1	3321	1:50 Year	256	1676.65	0.66	198.55	0.15
Russell Reach 1	3321	1:100 Year	308	1676.91	0.7	206.05	0.15
Russell Reach 1	3272	1:50 Year	256	1676.56	0.65	196.56	0.15
Russell Reach 1	3272	1:100 Year	308	1676.82	0.69	202.52	0.15
Russell Reach 1	3215	1:50 Year	256	1676.43	0.78	175.8	0.18
Russell Reach 1	3215	1:100 Year	308	1676.7	0.82	180.37	0.18
Russell Reach 1	3155	1:50 Year	256	1676.32	0.72	142.69	0.14
Russell Reach 1	3155	1:100 Year	308	1676.58	0.78	147.06	0.15
Russell Reach 1	3106	1:50 Year	256	1676.24	0.74	128.09	0.14
Russell Reach 1	3106	1:100 Year	308	1676.49	0.81	133.68	0.15
Russell Reach 1	3048	1:50 Year	256	1676.16	0.75	116.38	0.14
Russell Reach 1	3048	1:100 Year	308	1676.4	0.84	117.87	0.15
Russell Reach 1	2993	1:50 Year	256	1676.08	0.76	121.13	0.14
Russell Reach 1	2993	1:100 Year	308	1676.31	0.84	125.74	0.16
Russell Reach 1	2939	1:50 Year	256	1676.02	0.63	146.44	0.12
Russell Reach 1	2939	1:100 Year	308	1676.24	0.71	147.42	0.13
Russell Reach 1	2908	1:50 Year	256	1676	0.55	169.52	0.11
Russell Reach 1	2908	1:100 Year	308	1676.21	0.61	171.57	0.11
Russell Reach 1	2872	1:50 Year	256	1675.93	0.83	175.12	0.2
Russell Reach 1	2872	1:100 Year	308	1676.13	0.89	179.87	0.21
Russell Reach 1	2854	1:50 Year	256	1675.83	1.02	170.42	0.27
Russell Reach 1	2854	1:100 Year	308	1676.03	1.07	181.88	0.27
Russell Reach 1	2844		Bridge				
Russell Reach 1	2832	1:50 Year	256	1675.24	1.65	119.57	0.46
Russell Reach 1	2832	1:100 Year	308	1675.42	1.74	122.84	0.46
Russell Reach 1	2815	1:50 Year	256	1675.03	1.26	160.1	0.36
Russell Reach 1	2815	1:100 Year	308	1675.22	1.31	166.59	0.35
Russell Reach 1	2774	1:50 Year	256	1674.47	1.44	133.83	0.4
Russell Reach 1	2774	1:100 Year	308	1674.73	1.45	138.34	0.37

Stream	Cross-Section	Profile	Peak Flow (m^3/s)	Flood Elevation (mamsl)	Flow Velocity (m/s)	Flood Width (m)	Froude Number
Russell Reach 1	2736	1:50 Year	256	1673.86	1.62	111.31	0.43
Russell Reach 1	2736	1:100 Year	308	1674.1	1.61	169.43	0.48
Russell Reach 1	2683	1:50 Year	256	1673.12	1.27	171.71	0.38
Russell Reach 1	2683	1:100 Year	308	1673.3	1.32	173.01	0.36
Russell Reach 1	2637	1:50 Year	256	1672.91	0.77	189.82	0.19
Russell Reach 1	2637	1:100 Year	308	1673.09	0.84	202.14	0.2
Russell Reach 1	2587	1:50 Year	256	1672.82	0.56	260.22	0.14
Russell Reach 1	2587	1:100 Year	308	1672.99	0.62	266.05	0.14
Russell Reach 1	2543	1:50 Year	256	1672.72	0.71	234.11	0.18
Russell Reach 1	2543	1:100 Year	308	1672.87	0.77	241.51	0.19
Russell Reach 1	2506	1:50 Year	256	1672.67	0.48	304.06	0.12
Russell Reach 1	2506	1:100 Year	308	1672.82	0.53	311	0.12
Russell Reach 1	2429	1:50 Year	256	1672.52	0.66	333.63	0.2
Russell Reach 1	2429	1:100 Year	308	1672.65	0.71	337.38	0.2
Russell Reach 1	2357	1:50 Year	256	1672.08	0.93	314.02	0.32
Russell Reach 1	2357	1:100 Year	308	1672.24	0.96	316.1	0.3
Russell Reach 1	2307	1:50 Year	256	1671.78	0.82	210.6	0.22
Russell Reach 1	2307	1:100 Year	308	1671.93	0.9	219.5	0.23
Russell Reach 1	2266	1:50 Year	256	1671.57	0.88	249.55	0.26
Russell Reach 1	2266	1:100 Year	308	1671.71	0.94	251.83	0.27
Russell Reach 1	2201	1:50 Year	256	1670.14	2.61	145.14	1.02
Russell Reach 1	2201	1:100 Year	308	1670.24	2.75	149.94	1.02
Russell Reach 1	2134	1:50 Year	256	1663.88	0.87	75.33	0.14
Russell Reach 1	2134	1:100 Year	308	1664.2	0.97	76.76	0.15
Russell Reach 1	2073	1:50 Year	256	1663.87	0.36	177.64	0.06
Russell Reach 1	2073	1:100 Year	308	1664.2	0.4	190.88	0.06
Russell Reach 1	2017	1:50 Year	256	1663.86	0.32	308.93	0.06
Russell Reach 1	2017	1:100 Year	308	1664.18	0.34	341.82	0.07
Russell Reach 1	1949	1:50 Year	256	1663.86	0.13	394.11	0.02
Russell Reach 1	1949	1:100 Year	308	1664.18	0.15	396.44	0.02
Russell Reach 1	1892	1:50 Year	256	1663.86	0.15	285.89	0.02
Russell Reach 1	1892	1:100 Year	308	1664.18	0.17	290.95	0.02

Stream	Cross-Section	Profile	Peak Flow (m^3/s)	Flood Elevation (mamsl)	Flow Velocity (m/s)	Flood Width (m)	Froude Number
Russell Reach 1	1756	1:50 Year	256	1663.85	0.27	276.23	0.05
Russell Reach 1	1756	1:100 Year	308	1664.17	0.29	297.14	0.05
Russell Reach 1	1656	1:50 Year	256	1663.8	0.65	146.19	0.13
Russell Reach 1	1656	1:100 Year	308	1664.11	0.69	217.25	0.15
Russell Reach 1	1568	1:50 Year	256	1663.76	0.54	192.29	0.11
Russell Reach 1	1568	1:100 Year	308	1664.05	0.58	238.55	0.12
Russell Reach 1	1501	1:50 Year	256	1663.67	0.64	209.16	0.15
Russell Reach 1	1501	1:100 Year	308	1663.95	0.66	219.39	0.15
Russell Reach 1	1452	1:50 Year	256	1663.54	0.83	162.99	0.19
Russell Reach 1	1452	1:100 Year	308	1663.83	0.86	173.61	0.19
Russell Reach 1	1404	1:50 Year	256	1663.34	1	150.79	0.24
Russell Reach 1	1404	1:100 Year	308	1663.64	1.01	160.57	0.24
Russell Reach 1	1355	1:50 Year	256	1663.13	0.97	128.31	0.22
Russell Reach 1	1355	1:100 Year	308	1663.44	1.01	135.83	0.21
Russell Reach 1	1290	1:50 Year	256	1662.85	1.13	94.23	0.23
Russell Reach 1	1290	1:100 Year	308	1663.13	1.2	119.9	0.26
Russell Reach 1	1231	1:50 Year	256	1662.66	0.88	145.62	0.2
Russell Reach 1	1231	1:100 Year	308	1662.92	0.93	150.68	0.2
Russell Reach 1	1175	1:50 Year	256	1662.49	0.87	148.93	0.2
Russell Reach 1	1175	1:100 Year	308	1662.74	0.93	161.27	0.21
Russell Reach 1	1118	1:50 Year	256	1662.3	0.86	158.66	0.2
Russell Reach 1	1118	1:100 Year	308	1662.55	0.91	163.74	0.2
Russell Reach 1	1053	1:50 Year	256	1662.17	0.67	170.81	0.14
Russell Reach 1	1053	1:100 Year	308	1662.41	0.73	175.68	0.15
Russell Reach 1	977	1:50 Year	256	1661.94	0.96	177.79	0.25
Russell Reach 1	977	1:100 Year	308	1662.18	0.99	188.26	0.25
Russell Reach 1	909	1:50 Year	256	1661.44	1.15	163.06	0.32
Russell Reach 1	909	1:100 Year	308	1661.77	1.12	166.25	0.28
Russell Reach 1	847	1:50 Year	256	1660.88	1.37	96.42	0.31
Russell Reach 1	847	1:100 Year	308	1661.19	1.33	177.75	0.37
Russell Reach 1	797	1:50 Year	256	1660.6	0.95	170.68	0.24

Stream	Cross-Section	Profile	Peak Flow (m^3/s)	Flood Elevation (mamsl)	Flow Velocity (m/s)	Flood Width (m)	Froude Number
Russell Reach 1	797	1:100 Year	308	1660.87	0.97	176.51	0.23
Russell Reach 1	761	1:50 Year	256	1660.27	1.32	154.13	0.38
Russell Reach 1	761	1:100 Year	308	1660.6	1.24	176.29	0.33
Russell Reach 2	622	1:50 Year	256	1659.43	1.03	108.99	0.22
Russell Reach 2	622	1:100 Year	308	1659.84	1.03	128.55	0.22
Russell Reach 2	568	1:50 Year	256	1658.76	2.6	26.46	0.43
Russell Reach 2	568	1:100 Year	308	1659.08	2.87	27.15	0.46
Russell Reach 2	485	1:50 Year	256	1656.21	2.47	176.17	1.03
Russell Reach 2	485	1:100 Year	308	1656.28	2.65	180.19	1.05
Russell Reach 2	413	1:50 Year	256	1655.78	0.53	259.3	0.12
Russell Reach 2	413	1:100 Year	308	1656.12	0.54	266.82	0.12
Russell Reach 2	355	1:50 Year	256	1655.74	0.39	271.24	0.08
Russell Reach 2	355	1:100 Year	308	1656.08	0.41	276.89	0.08
Russell Reach 2	299	1:50 Year	256	1655.71	0.37	294.46	0.08
Russell Reach 2	299	1:100 Year	308	1656.06	0.38	300.27	0.08
Russell Reach 2	278	1:50 Year	256	1655.68	0.65	265.01	0.17
Russell Reach 2	278	1:100 Year	308	1656.03	0.62	294.07	0.15
Russell Reach 2	261		Bridge				
Russell Reach 2	237	1:50 Year	256	1654.05	1.65	130.38	0.48
Russell Reach 2	237	1:100 Year	308	1654.24	1.7	145.14	0.48
Russell Reach 2	214	1:50 Year	256	1653.85	1.11	148.78	0.28
Russell Reach 2	214	1:100 Year	308	1654.04	1.19	152.97	0.29
Russell Reach 2	176	1:50 Year	256	1653.61	1.01	169.94	0.26
Russell Reach 2	176	1:100 Year	308	1653.8	1.08	172.46	0.27
Tributary	373	1:50 Year	85	1662.7	2.93	16.23	0.7
Tributary	373	1:100 Year	101	1662.66	3.57	16.13	0.86
Tributary	355	1:50 Year	85	1662.05	1.75	69.34	0.67
Tributary	355	1:100 Year	101	1662.34	1.43	81.25	0.49
Tributary	333	1:50 Year	85	1661.86	0.92	66.72	0.25
Tributary	333	1:100 Year	101	1662.11	0.88	111.82	0.28
Tributary	309	1:50 Year	85	1661.67	1.17	48.99	0.31

Stream	Cross-Section	Profile	Peak Flow (m^3/s)	Flood Elevation (mamsl)	Flow Velocity (m/s)	Flood Width (m)	Froude Number
Tributary	309	1:100 Year	101	1661.89	1.21	50.88	0.3
Tributary	281	1:50 Year	85	1661.46	1.26	30.55	0.27
Tributary	281	1:100 Year	101	1661.66	1.37	31.24	0.28
Tributary	243	1:50 Year	85	1661.16	1.35	39.03	0.34
Tributary	243	1:100 Year	101	1661.36	1.42	39.69	0.34
Tributary	218	1:50 Year	85	1660.68	1.85	36.87	0.53
Tributary	218	1:100 Year	101	1660.93	1.82	41.22	0.5
Tributary	195	1:50 Year	85	1660.44	1.1	60.03	0.31
Tributary	195	1:100 Year	101	1660.76	1.04	61.6	0.26
Tributary	165	1:50 Year	85	1660.22	1.12	41.67	0.27
Tributary	165	1:100 Year	101	1660.6	1.1	44.59	0.24
Tributary	140	1:50 Year	85	1660.14	0.79	62.6	0.19
Tributary	140	1:100 Year	101	1660.54	0.76	65.79	0.17
Tributary	113	1:50 Year	85	1659.94	1.31	39.98	0.33
Tributary	113	1:100 Year	101	1660.39	1.2	45.09	0.28
Tributary	89	1:50 Year	85	1659.85	0.97	34.88	0.2
Tributary	89	1:100 Year	101	1660.31	0.97	36.97	0.18
Tributary	60	1:50 Year	85	1659.8	0.68	62.25	0.15
Tributary	60	1:100 Year	101	1660.27	0.65	70.29	0.14
Tributary	34	1:50 Year	85	1659.75	0.72	42.92	0.14
Tributary	34	1:100 Year	101	1660.22	0.68	92.95	0.17

APPENDIX B: CURRICULUM VITAE

HYDROSPATIAL

Hydrospatial (Pty) Ltd (2018/059188/07)
17 Sonop Place, Randpark, 2194
Cell: 084 441 9539
Email: andypirie82@gmail.com

Curriculum Vitae – Andy Pirie – Hydrologist

Details

Name and Surname:	Andy Pirie
Occupation:	Senior Hydrologist
Company:	Hydrospatial (Pty) Ltd
Address:	17 Sonop Place, Randpark, Johannesburg, 2194
Nationality:	South African
First Language:	English
Email Address:	andy@hydrospatial.co.za
Tel:	+27 84 441 9539

Andy Pirie is a senior hydrologist at Hydrospatial (Pty) Ltd. Andy graduated with a Master of Science (M.Sc.) in Water Resource Management (cum laude). He is registered as a Professional Natural Scientist (Pr.Sci.Nat.) in Water Resources Science with the South African Council for Natural Scientific Professions (SACNASP). He has worked on projects in South Africa, Cameroon, Senegal, Mali, Democratic Republic of the Congo (DRC), Botswana, Zambia and Namibia, for clients such as Assmang, Anglo American, Randgold Resources (now Barrick Gold), Sibanye-Stillwater, Birimian, Exxaro, Sasol, Eskom, Assore and SAFCOL. He has more than 9 years' experience in hydrological assessments and Geographical Information Systems (GIS). His expertise include the following:

- Floodline determinations;
- Mine water and salt balance modelling;
- Stormwater management plans;
- Surface water quality monitoring and assessment;
- Rainfall - runoff modelling;
- Catchment yield assessments;
- Sizing of dams and channels;
- Crop water requirement calculations;
- Environmental flow requirement calculations;
- Surface water impact assessments; and
- GN704 Regulation audits.

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Cell: 084 441 9539
Email: andypirie82@gmail.com

Education

- 2013: M.Sc. Water Resource Management, cum laude (University of Pretoria).

Membership in Professional Associations

- Registered as a Professional Natural Scientist (Pr.Sci.Nat.) in Water Resources Science with the South African Council for Natural Scientific Professions (SACNASP). Registration number: 114988.

Employment

- March 2018 – Present: Senior Hydrologist at Hydrospatial (Pty) Ltd.
- June 2012 – February 2018: Hydrologist and GIS specialist at Digby Wells Environmental.

Selected Project Experience

Company	Position	Project Location	Client	Project	Responsibilities
Hydrospatial (Pty) Ltd	Senior Hydrologist	Gauteng	Sibanye Gold	Hydrological Study for the Sibanye Driefontein Operations EMP and WULA Update	• Baseline hydrological assessment. • Water quality assessment. • Stormwater management plan update. • Water and salt balance update. • GN704 and GN509 exemption assessment.
Hydrospatial (Pty) Ltd	Senior Hydrologist	Mpumalanga South Africa	SAFCOL	Streamflow Reduction Modelling of the Genus Exchange Ratio of Eucalyptus for Pine at the SAFCOL Berlin Plantations	• Setup of the WRSM/Pitman model. • Calculation of the allowable genus exchange area using the Gush Tables. • Reporting. • Presentation of study and hand over of reports.

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Company	Position	Project Location	Client	Project	Responsibilities
Hydrospatial (Pty) Ltd	Senior Hydrologist	Mpumalanga South Africa	Transvaal Gold Mining Estates	Hydrological Study for the Proposed Theta Mine Project	• Calculation of the water use freed up through the proposed removal of pine, eucalyptus and wattle in the Blyde River catchment for an offset strategy for the mine. • Baseline hydrological study. • Surface water impact assessment. • Water quality sampling and analysis. • Setup of a water monitoring network and programme. • Stormwater structure placement and sizings of structures. • Development of a water balance model. • Terrain modelling and catchment delineation using ArcGIS software. • Land use and soil assessment. • Determination of Peak flows for the 1:50 and 1:100 year storm event. • Hydraulic modelling to determine the 1:50 and 1:100 year floodlines. • Reporting.
Hydrospatial (Pty) Ltd	Senior Hydrologist	Limpopo, South Africa	Lunsklip Farming	Hydrological Study for the Lunsklip Irrigation Dam	• Catchment runoff modelling using the WRSM/Pitman model which included afforested areas. • Calculation of the farm irrigation requirements. • Quantification of the irrigation dam water balance.

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17 Sonop Place, Randpark, 2194
Cell: 084 441 9539
Email: andypirie82@gmail.com

Company	Position	Project Location	Client	Project	Responsibilities
Hydrospatial (Pty) Ltd	Senior Hydrologist	Mpumalanga South Africa	Anglo American	Surface Water Assessment for the Proposed Leslie 1 Coal Mine	• Baseline hydrological study. • Surface water impact assessment. • Water quality sampling and analysis. • Setup of a water monitoring network and programme. • Stormwater structure placement and sizings of structures. • Development of a water balance model. • Terrain modelling and catchment delineation using ArcGIS software. • Land use and soil assessment. • Determination of Peak flows for the 1:50 and 1:100 year storm event. • Hydraulic modelling to determine the 1:50 and 1:100 year floodlines. • Reporting.
Hydrospatial (Pty) Ltd	Senior Hydrologist	Limpopo South Africa	Assmang	GN704 Legal Compliance Audit of the Dwarsrivier Chrome Mine	• Site audit of the mine to GN704 regulations. • Reporting on findings and recommendations for improvement to comply with GN704 regulations.
Hydrospatial (Pty) Ltd	Senior Hydrologist	Limpopo South Africa	Assmang	Floodline Determination for the Resource and Reserve Drilling Project at the Dwarsrivier Chrome Mine	• Catchment delineation. • Hydrological assessment to calculate the 1:50 and 1:100 year peak flows. • Hydraulic modelling of 18 river reaches to determine the 1:50 and 1:100 year flood water elevations.

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Email: andypirie82@gmail.com

Company	Position	Project Location	Client	Project	Responsibilities
Hydrospatial (Pty) Ltd	Senior Hydrologist	Limpopo South Africa	Assore	GN704 Legal Compliance Audit of the Rustenburg Minerals Development Company Chrome Mine	• Site audit of the mine to GN704 regulations. • Reporting on findings and recommendations for improvement to comply with GN704 regulations.
Hydrospatial (Pty) Ltd	Senior Hydrologist	Gauteng South Africa	Fry's Metals	Stormwater Management Plan for the Fry's Metal Factory	• Audit of site stormwater infrastructure. • Calculation of peak flows and stormwater volumes. • Calculation of stormwater channel capacities to assess whether capacities comply with regulatory requirements.
Hydrospatial (Pty) Ltd	Senior Hydrologist	North West South Africa	Assore	Hydrological Study for the Wonderstone Mine	• Baseline hydrological study. • Surface water impact assessment. • Water quality Assessment. • Development of a stormwater. management plan. • River diversion assessment.
Hydrospatial (Pty) Ltd	Senior Hydrologist	KwaZulu-Natal, South Africa	The Biodiversity Company	Water Quality Monitoring and Assessment for the Edendale Bulwer Housing Development	• Setup of a water monitoring network. • Surface water sampling. • Assessment of water quality results.
Hydrospatial (Pty) Ltd	Senior Hydrologist	Gauteng South Africa	Eskom	Hydrological Assessment of a Tributary of the Braamfonteins pruit near Sandton, Johannesburg	• Site assessment. • Peak flow calculations. • Storm event assessment. • Hydraulic structure assessment. • Assessment of gabion retaining wall failure.

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17 Sonop Place, Randpark, 2194
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Email: andypirie82@gmail.com

Company	Position	Project Location	Client	Project	Responsibilities
					• Hydraulic modelling of watercourse.
Hydrospatial (Pty) Ltd	Senior Hydrologist	Limpopo South Africa	Assore	GN704 Legal Compliance Audit of the Zeerust Chrome Mine	• Site audit of the mine to GN704 regulations. • Reporting on findings and recommendations for improvement to comply with GN704 regulations.
Digby Wells Environmental	Hydrologist	Mali	Birimian	Hydrological Study for the Environmental and Social Impact Assessment for the Goulamina Lithium Project	• Baseline hydrological study. • Development of a water and salt balance. • Modelling of catchment flood hydrology. • Calculation of storm rainfall depths. • Stormwater management plan. • Surface water impact assessment.
Digby Wells Environmental	Hydrologist	Senegal	Randgold Resources	Hydrological Study for the Randgold Massawa Gold Project ESIA	• Baseline hydrological study. • Floodline determination. • Development of a water and salt balance. • Modelling of catchment hydrology. • Environmental flow requirement calculations. • Stormwater management plan. • Surface water impact assessment.
Digby Wells Environmental	Hydrologist	Cameroon	Caminex SA	Hydrological Study for the Environmental	• Baseline hydrological study. • Surface water impact

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Cell: 084 441 9539
Email: andypirie82@gmail.com

Company	Position	Project Location	Client	Project	Responsibilities
				and Social Impact Assessment for the Ntem Iron Ore Project	assessment.
Digby Wells Environmental	Hydrologist	Gauteng South Africa	Sibanye-Stillwater	Sibanye Gold Millsite TSF Reclamation Project EIA	• Audit of existing stormwater management controls. • Development of a stormwater management plan to satisfy GN704 Regulation requirements. • Development of a stormwater control monitoring programme. • Water conservation and water demand management plan
Digby Wells Environmental	Hydrologist	Gauteng South Africa	Sibanye-Stillwater	Sibanye Gold Kloof Floodline Determination	• Site visit to assess channel and floodplains and to measure hydraulic structures. • DEM creation from lidar dataset. • Catchment delineation. • Catchment assessment of soils, vegetation, slope and land cover to obtain suitable runoff coefficients. • Calculation of peak flows using Rational and SDF methods. • Hydraulic modelling in HEC-RAS for approximately 25 river reaches to determine the 1:50 and 1:100 year surface water elevations.
Digby Wells Environmental	Hydrologist	Free State South Africa	Bothma and Son Transport	Stormwater management plan for the Bothma Sand	• Audit of existing stormwater management structures.

Hydrospatial (Pty) Ltd (2018/059188/07)
17 Sonop Place, Randpark, 2194
Cell: 084 441 9539
Email: andypirie82@gmail.com

Company	Position	Project Location	Client	Project	Responsibilities
				Mine	• Rainfall assessment. • Sizing of channels. • Development of a stormwater management plan to satisfy GN704 conditions. • Development of a stormwater structure monitoring programme. • Development of a PCD rehabilitation action plan. • Reporting.
Digby Wells Environmental	Hydrologist	Free State South Africa	Sasol Mining	Sasol Defunct Mines Surface Flow Analysis	• Project manager. • Creation of detailed DEMs from Lidar data for 4 of Sasol's defunct subsided collieries. • Modelling of surface water flow directions and accumulations to determine areas that are not free draining.
Digby Wells Environmental	Hydrologist	Gauteng South Africa	DRD Gold	DRD Gold Stormwater Management Plans for the Ergo Elsburg & Van Dyk Tailings Dams	• Project manager. • Site visit audit of stormwater management structures. • Flood peak calculations. • Stormwater structure sizing. • Management measures to ensure that stormwater structures are maintained. • Reporting.
Digby Wells Environmental	Hydrologist	Mpumalanga South Africa	Exxaro	Exxaro Surface Water Study for the Environmental Authorisation for the Proposed Schoonoord	• Baseline hydrological study. • Surface water impact assessment. • Water quality sampling and analysis of results.

Hydrospatial (Pty) Ltd (2018/059188/07)
17 Sonop Place, Randpark, 2194
Cell: 084 441 9539
Email: andypirie82@gmail.com

Company	Position	Project Location	Client	Project	Responsibilities
				Underground Mine, Arnot Coal, Mpumalanga	• Setup of a water monitoring network and programme. • Stormwater structure placement and sizings of structures. • Terrain modelling and catchment delineation using ArcGIS software. • Land use and soil assessment. • Determination of Peak flows for the 1:50 and 1:100 year storm event. • Hydraulic modelling using the HEC-RAS model to determine the 1:50 and 1:100 year floodlines. • Reporting.
Digby Wells Environmental	Hydrologist	Limpopo South Africa	Exxaro	Exxaro Floodline Determination for the Closure Environmental Management Plan for the Tshikondeni Coal Mine	• Catchment assessment of rainfall, topography, soils and land cover. • Determination of the 1:50 and 1:100 year peak flows. • Hydraulic modelling using HEC-RAS to determine the 1:50 and 1:100 year floodlines. • Reporting on catchment characteristics, methods and results obtained.
Digby Wells Environmental	Hydrologist	Botswana, Zambia and Namibia	Botswana Government	Kazungula Bridge Project Surface Water Quality Monitoring	• Setup of a water quality monitoring network and programme. • Monthly water sampling from the Zambezi and Chobe Rivers over a 6 year period to determine whether the construction and operation of

Hydrospatial (Pty) Ltd (2018/059188/07)
17 Sonop Place, Randpark, 2194
Cell: 084 441 9539
Email: andypirie82@gmail.com

Company	Position	Project Location	Client	Project	Responsibilities
					the Kazungula Bridge is impacting on the water quality. • Analysis of water quality results. • Monthly monitoring reports describing the water quality for the month and identifying possible sources of pollution as well as providing mitigation measures.
Digby Wells Environmental	Hydrologist	Free State South Africa	Sibanye-Stillwater	Sibanye Beatrix ESIA	• Baseline hydrological study. • Surface water impact assessment. • Water quality and trend analysis.
Digby Wells Environmental	Hydrologist	Mpumalanga South Africa	Anker Coal	Anker Coal Elandsfontein Colliery Stormwater Management Plan	• Site visit audit of stormwater structures. • Review of existing stormwater management plan. • Recommendations for the improvement of existing stormwater management plan
Digby Wells Environmental	Hydrologist & GN704 Auditor	Northern Cape, South Africa	Assmang	GN704 Legal Compliance Audit for the Khumani Iron Ore Mine	• Project manager. • Preparation of an audit checklist. • Audit of the mine to GN704 regulations. • Reporting on findings and recommendations for improvement to comply with GN704 regulations.
Digby Wells Environmental	Hydrologist	Okavango, Botswana	Botswana Government	Mohembo Bridge Surface Water Baseline and Monitoring Programme	• Setup of a surface water quality monitoring network and programme. • Surface water quality sampling and analysis of results. • Analysis of streamflows from the Mohembo

Hydrospatial (Pty) Ltd (2018/059188/07)
17 Sonop Place, Randpark, 2194
Cell: 084 441 9539
Email: andypirie82@gmail.com

Company	Position	Project Location	Client	Project	Responsibilities
					discharge gauging station. • Climate assessment.
Digby Wells Environmental	Hydrologist	Mpumalanga South Africa	Sasol Mining	Sasol Surface Water Study for the Environmental Authorisation for the Imvula Coal Mining Project	• Baseline hydrological study. • Surface water impact assessment. • Terrain modelling and catchment delineation using ArcGIS software. • Land cover and soil hydrological assessment. • Surface water report writing and compilation.
Digby Wells Environmental	Hydrologist	North-west South Africa	Sun International	Sun City Drinking Water Quality Analysis	• Sampling of drinking water at Sun City. • Interpretation of water quality results. • Reporting.
Digby Wells Environmental	Hydrologist	Limpopo South Africa	De Groote Boom Minerals	Surface Water Study for the Mining Permit Application for the De Groote Boom Project	• Baseline hydrological study. • Surface water impact assessment. • Water quality sampling and assessment of water quality results. • Setup of a water quality monitoring programme. • Reporting.
Digby Wells Environmental	Hydrologist	South Africa	Fountain Capital	Floodline Determination for Proposed Development of an Open Pit Coal Mine and Associated Infrastructure near Bronkhorstspruit, Gauteng	• Catchment assessment of rainfall, topography, soils and land cover. • Determination of the 1:50 and 1:100 year peak flows. • Hydraulic modelling using HEC-RAS to determine the 1:50 and 1:100 year floodlines. • Reporting on catchment

Hydrospatial (Pty) Ltd (2018/059188/07)
17 Sonop Place, Randpark, 2194
Cell: 084 441 9539
Email: andypirie82@gmail.com

Company	Position	Project Location	Client	Project	Responsibilities
					characteristics, methods and results obtained.
Digby Wells Environmental	Hydrologist	Limpopo South Africa	Pamish Investments No. 39	Floodline Determination for the Proposed Open Pit Magnetite Mine and Concentrator Plant, Mokopane, Limpopo Province	• Catchment assessment of rainfall, topography, soils and land cover. • Determination of the 1:50 and 1:100 year peak flows. • Hydraulic modelling using HEC-RAS to determine the 1:50 and 1:100 year floodlines. • Reporting on catchment characteristics, methods and results obtained.
Digby Wells Environmental	Hydrologist	Mpumalanga South Africa	Eskom	Eskom Surface Water Study for the Mashala Resourses 22kV Power Line	• Baseline hydrological study • Surface water impact assessment. • Hydraulic modelling using HEC-RAS to determine the 1:50 and 1:100 year floodlines. • Reporting.

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17 Sonop Place, Randpark, 2194
Cell: 084 441 9539
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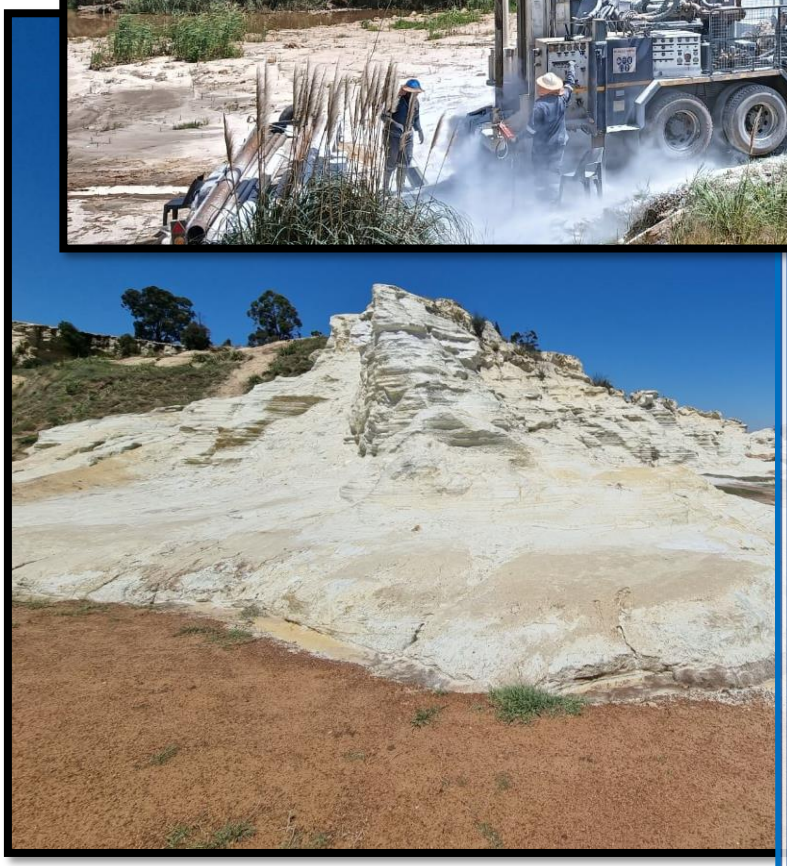
Company	Position	Project Location	Client	Project	Responsibilities
Digby Wells Environmental	Hydrologist	Mpumalanga South Africa	Msobo Coal	Msobo Coal Surface Water Study for the Sara Buffels A and B: IWULA and IWWMP for Opencast and Underground Mining Activities	• Surface water impact assessment. • Terrain modelling and catchment delineation using ArcGIS software. • Land use and soil assessment. • Determination of Peak flows for the 1:50 and 1:100 year storm event. • Hydraulic modelling using the HEC-RAS model to determine the 1:50 and 1:100 year floodlines. • Reporting.
Digby Wells Environmental	Hydrologist	Mali	Randgold Resources	Randgold Surface Water Study for the Morila Gold Mine Agri-Assessment Project	• Review of reports, mine layout plan and water quality data. • Classification of clean and dirty water areas based on the above. • Recommendations on water sources and areas for agri-business post mine closure.

APPENDIX B:
Groundwater Impact Assessment Report

2025

Valley Silts Expansion Project. Groundwater Report





5 April 2025

Groundwater Abstract (Pty) Ltd

Enterprise Number: 2017/489367/07

Rietfontein
Pretoria, 0084
www.wells.*africa*



VALLEY SILTS EXPANSION PROJECT. GROUNDWATER REPORT

Ergo Mining (Pty) Ltd

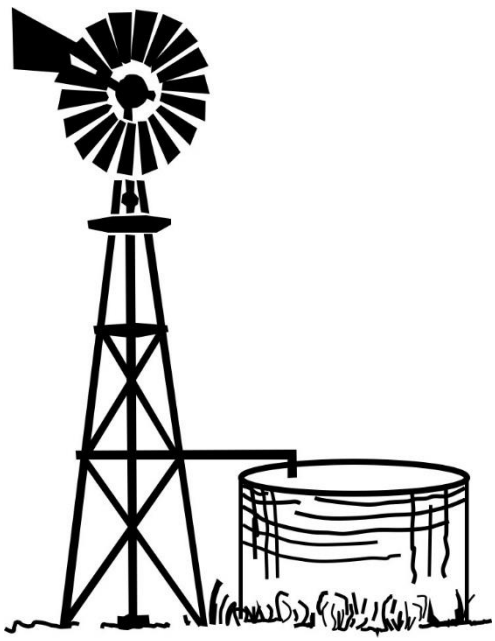
Report compiled by:

Groundwater Abstract Pty Ltd

Lucas Smith and Irene Lea

Principal Hydrogeologists –

M.Sc. and Pr. Sci. Nat.



On behalf of:

Kongiwe Environmental (Pty) Ltd

Declaration of Independence

We, Lucas Smith and Irene Lea, declare that –

General declaration:

- *I act as the independent Hydrogeology practitioner in this application;*
- *I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;*
- *I declare that there are no circumstances that may compromise my objectivity in performing such work;*
- *I have expertise in conducting hydrogeological impact assessments, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;*
- *I will comply with the Act, Regulations and all other applicable legislation;*
- *I have no, and will not engage in, conflicting interests in the undertaking of the activity;*
- *I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;*
- *I will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;*
- *I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not;*
- *All the particulars furnished by me in this form are true and correct;*
- *I will perform all other obligations as expected from a hydrogeological practitioner in terms of the Act and the constitutions of my affiliated professional bodies; and*
- *I realise that a false declaration is an offence in terms of regulation 71 of the Regulations and is punishable in terms of section 24F of the NEMA.*

Disclosure of Vested Interest

- *I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Regulations.*

CONTACT PERSON: Lucas Smith
Tel: +27 82 577 8439
Email: lucas@wellsafrica.com

SIGNATURES:





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LA Smith I Lea

Executive Summary

Ergo Mining (Pty) Ltd (Ergo) obtained Environmental Authorisation and an Integrated Water Use Licence for the mechanical reclamation of gold bearing silts from a section of the Russell Stream north of NASREC near Booysens Reserve in Johannesburg – Valley Silts Project. The mining authorisation for the removal of silts falls within Mining Right GP 184 MR. Ergo intends to expand its Valley Silts reclamation operation – the Valley Silts Expansion Project.

The removal of silts within the already authorised Valley Silts Project area has been ongoing since May 2023. The construction and site establishment began in October 2022 and as such, it is now necessary to prepare for the Valley Eastern Expansion, Southern Expansion, and Valley Expansion Northwest to allow for continuous reclamation operation, as well as a sustainable feed source to the process plant.

The anticipated life span of the Valley Silts Expansion Project is approximately 5 years maximum. The silt removal is planned for 3 years and rehabilitation 2 years.

Water Management:

This project will not require any additional process water for the mechanical excavation of gold bearing silts from the Russell Stream. Potable drinking water will be sourced from the municipality.

The clean stormwater runoff from the area to the south of the drying sites will be diverted using a stormwater diversion drain (or berm) around the area to the west. Stormwater from the north will flow via properly constructed inlets into the Russell Stream. Temporary berms will be constructed along the banks of the channel.

Environmental Setting:

The Valley Silts Project is located on the Central Rand Group, of the Witwatersrand Supergroup. The Witwatersrand Supergroup is a sequence of conglomerate, shale and quartzite. The Lower Witwatersrand is composed mainly of argillaceous clays and shale, with occasional banded ironstone, tillite and intercalated lava flow, while the Upper Witwatersrand consists almost entirely of quartzite and conglomerate.

The Valley Silts Project is in the Klip River catchment, in the C22C quaternary catchment, forming part of the Vaal Water Management Area. The main drainage in the project area is the Russell Stream, that discharges into the Klip River.

Fieldwork Program:

Hydrocensus:

A hydrocensus was conducted across the study area during February 2025. The survey included the Valley Silts Project area, plus accessible properties within a 2 km radius, and concentrated on identifying existing boreholes to enhance the knowledge of the groundwater systems and current groundwater use. Six boreholes and two old mine shafts were identified, all on neighbouring properties.

It was concluded that groundwater is not used in the area and all properties make use of municipal supply. Two private boreholes were identified (VAL4 and VAL5) with only VAL4 in use for garden irrigation and swimming pool top-up. No boreholes were identified along the eastern portion of the project area.

Groundwater level measurements were possible from the six boreholes. The groundwater level below surface varied between 0.10 metres (m) bgl (borehole VAL2) and 30.85 m bgl for borehole VAL5 (in the Industria West area). Borehole VAL5 presents a groundwater level (30.85 m bgl) that is much deeper compared to the other five boreholes. This potentially relates to differences in the geological units. The rest groundwater levels in the other five boreholes are on average 2.08 m below surface.

Borehole Drilling:

Two groundwater characterisation and monitoring boreholes were drilled at each of the two target areas – the one borehole was drilled to a depth of 80 m below surface, with the aim of characterising and monitoring the deeper fractured aquifer. The second borehole was drilled 30 m deep, with the aim of monitoring potential groundwater flow, quality and possible connection between the deeper fractured aquifer and the shallow weathered aquifer in the area.

Not one of the four new percussion boreholes produced a measurable blow yield, but a groundwater level could be measurable in all four boreholes shortly after completion. In general, borehole yields throughout the area are low. The weathered – solid formation contact yielded little water – only seepage water. A fractured zone in the quartzite in borehole VS-BH2d, plus the quartzite-lava and the quartzite-conglomerate contacts also yielded little water. The depth of weathering varies between 8 and 12 m below ground level.

Aquifer Testing:

Following completion of the drilling program, an aquifer test program was initiated to determine the hydrogeological characteristics of the local aquifers.

For this project full drawdown and recovery pump tests were conducted on two of the four new boreholes (VS-BH1s and VS-BH1d) and a slug test was also completed on borehole VS-BH1s. Boreholes VS-BH2s and VS-BH2d were not tested due to the low volume of water inside the boreholes.

The recovery data (for the tested boreholes) indicate that the recovery is slow and that full recovery (100%) was not achieved within the predetermined testing timeframe. The low borehole yields, fast water level drawdown and slow recovery observed during the aquifer testing indicate low transmissivity aquifers, with low recharge. The average T-values calculated from the pumping tests range between 0.005 and 0.048 m^2/d.

Current Groundwater Quality:

The groundwater in the project area represents a Calcium/ Magnesium-Sulphate water, indicating contaminated water. Only borehole VAL4 (Abraham Kriel Bambanani borehole approx. 1.6 km north of the Russell Stream) presents a Calcium/ Magnesium-Bicarbonate water, indicating recent recharge water.

The following were concluded from the 2025 groundwater quality results:

- Health impact:
    - Iron – An elevated iron concentration was measured for all 7 boreholes (hydrocensus and newly drilled) sampled during the 2025 fieldwork program, with Iron concentrations varying between 4.59 mg/L (borehole VAL4) and 441 mg/L (borehole VS-BH1s), versus the maximum allowable concentration of 2 mg/L. The concentration of dissolved Iron in the 4 newly drilled boreholes, adjacent to the Russell Stream vary

between 72.7 mg/L and 441 mg/L, with lower concentrations measured for the two downgradient boreholes (VS-BH2s and d).

- Manganese – Six of the 7 boreholes sampled during the 2025 study measured a Manganese concentration that exceeds the health impact limit. The measured Mangansee concentration for borehole VAL4 (Abraham Kriel Bambanani borehole) exceeds the Aesthetic Limit of 0.1 mg/L, but is below the Health Impact limit of 0.4 mg/L.

  Manganese concentrations vary between 5.45 mg/L (borehole VAL1) and 74.3 mg/L (borehole VS-BH2d), versus the maximum allowable concentration of 0.4 mg/L. The concentrations of dissolved Manganese in the 4 newly drilled boreholes, adjacent to the Russell Stream vary between 34.7 mg/L and 74.3 mg/L, with lower concentrations measured for the 2 upstream boreholes (VS-BH1s and d).

- Cadmium – The 4 newly drilled boreholes measured a Cadmium concentration that could result in chronic health effects (0.008 to 0.117 mg/L). The health impact limit is set at 0.003mg/L. Elevated Cadmium concentrations were not measured for the 3 hydrocensus boreholes.

- Nickel – An elevated dissolved Nickel concentration was measured at the 4 newly drilled boreholes, plus hydrocensus borehole VAL2.

- Sulphate – Sulphate concentrations were elevated in 6 of the 7 boreholes sampled during the 2025 study. It was only borehole VAL4 where the measured Sulphate concentration was within acceptable health and aesthetic limits.

  The elevated Sulphate concentrations vary between 1125 mg/L (borehole VAL1) and 3126 mg/L (borehole VS-BH1d), versus the maximum allowable concentration of 500 mg/L. The concentration of Sulphate in the 4 newly drilled boreholes, adjacent to the Russell Stream vary between 2011 mg/L and 3126 mg/L, with lower concentrations measured for the two downstream boreholes (VS-BH2s and d).

- Lead – An elevated Lead concentration was measured for borehole VS-BH2d (0.012mg/L) and borehole VAL2 (0.012 mg/L), with the health limit defined as 0.01mg/L. The Lead concentration in all other boreholes were below the detection limit.
- Total Organic Carbon – High TOC values (between 11.2 and 19.1 mg/L) were measured for boreholes VAL1, VAL2, VS-BH2s and VS-BH2d.
- E. coli – borehole VAL4 produced a measurable E. coli count – 7 counts per 100 ml; the count must be zero. Borehole VAL4 is in an old residential and industrial area, and it has been assumed that leaking sewer lines are possibly contaminating the groundwater around this borehole.

- Aesthetic effects:

  - Aluminium – The aluminium concentration for boreholes VS-BH1s and VS-BH1d (25.1mg/L and 2.07 mg/L respectively) exceed the SANS241:2015 guideline value of 0.3 mg/L. The sampled groundwater from the BH1 cluster set was very muddy during the sampling process and this could have contributed to the elevated Aluminium concentrations.

- Zinc – The Zinc concentration for borehole VS-BH1s (7.99 mg/L) exceeds the SANS241:2015 guideline value of 5 mg/L. The measured Zinc concentrations for the other 3 newly drilled boreholes were below the aesthetic impact limit.
- Ammonium – The Ammonium concentration for borehole VAL1 exceeds the aesthetic limit for drinking water (14.6mg/L). The aesthetic limit set at 1.5 mg/L. The ammonia concentrations in the other boreholes vary between 0.19 and 0.88 mg/L.
- Sodium – The measured Sodium concentration for borehole VS-BH1d (210 mg/L) exceeds the aesthetic limits for drinking water (200mg/L).
- Turbidity – Turbidity was high in all boreholes with units varying between 42.5 NTUs and 730 NTUs.
- Calcium – The measured Calcium concentration was elevated for all sampled boreholes, with concentrations varying between 37.5 mg/L and 493 mg/L.
- Magnesium – High Magnesium concentrations were measured in 5 of the 7 boreholes and were in acceptable limits for boreholes VAL1 and VAL4.
- Total Hardness – The Total hardness value was elevated for all boreholes except borehole VAL4, indicating very hard water.
- Total Coliform – The total coliform count was elevated for borehole VAL4 (40 counts per 100 ml) and for borehole VS-BH1d (20 counts per 100 ml). The operational limit is set at 10 counts per 100 millilitres (ml).
- pH – the pH value for the two newly drilled upstream boreholes (VS-BH1s and VS-BH1d) (4.87 and 4.52 respectively) is below the SANS guideline limit of 5.
- The SANS 241 guideline limits for Electrical Conductivity (EC) and Total Dissolved Salts (TDS) were exceeded for all sampled sites, except for borehole VAL4. EC level varied between 222 and 403 mS/m. TDS varied between 1756 and 4134 mg/L.

The chemicals of concern for the Valley Silts project area are pH, Iron, Manganese, Sulphate, Cadmium, Lead, Nickel and Total Organic Carbon. Parameters exceeding aesthetic limits include Ammonium, Aluminium, Chloride, Calcium, Magnesium, Sodium, Zinc, Total Hardness and Turbidity. Most of these are elevated in the four newly drilled boreholes.

Geochemistry:

The 2005 Council for Geosciences study identified Co, Ni, Cu, As and U as the principal elements of concern. The Council for Geosciences found – "The leachable fractions determined from the compliance batch leach tests are uniformly low, with nickel slightly more mobile than the other elements.

The silts were all deposited in a sub-aqueous environment and are in contact with water for most of the year. Any easily mobilised metals will therefore be mobilised, while the more strongly bound fraction will require a more aggressive leachate than clean water to remobilise them. If the current conditions are maintained in these wetlands, i.e. continuous discharge of water to the wetlands and the maintenance of reducing conditions, it is unlikely that the metals will be mobilised."

The proposed Valley Silts Expansion Project will remove the silts, and then temporarily stockpile and dry the silt in stockpile areas directly north and south of Blocks N1 to N18. Silts will have up to 40% moisture content when hauled and are not expected to be fully dried out. The dried tailings/silts will be loaded onto tipper trucks and transported to the City Deep Plant for pre-processing.

The excavation of the silt from the water course will trigger oxidation reactions that will result in acidic conditions and leaching of salts and metals. Negative surface and groundwater quality impacts are expected in the excavated areas and the stockpile areas.

In the deeper silt pockets the pH will be much lower and element concentrations higher, but due to current stable conditions that include saturation, low permeability and low oxygen levels, metal and salt leaching does not happen readily. This will change when the silt excavation process introduces oxygen and disturbs the stable conditions.

Modelling:

The available information was used to construct a conceptual model of the aquifers present in the project area. The conceptual model forms the basis of the numerical groundwater model. To assess the potential impacts of the proposed silt excavation from section of the Russell Stream, a groundwater model was constructed for the project area.

The following scenarios were evaluated as part of the assessment:

- **Best case scenario**: Low seepage infiltration from the project to the underlying aquifers, equivalent to dry conditions.
- **Likely case scenario**: Moderate seepage infiltration rates to the underlying aquifers, equivalent to average conditions.
- **No Project scenario**: This is considered the worst case and assumes that the silts will remain in the Russell Stream floodplain.

Outcome of Simulations Completed:

The overall outcome of the simulations is summarised as follows:

- The cumulative impact of all historical TSFs located around the project area was included during simulations. These areas are included based on monitoring data from hydrocensus boreholes downgradient of two of these TSFs. Since these are likely dry as they are dormant, long-term impacts on groundwater quality associated with these could reduce. It is further noted that these TSFs are downgradient of the Valley Silts Expansion Project and are therefore not expected to impact directly on long-term water quality associated with the project.
- Also included is silt material present in the Russell Stream further downgradient and west of the Valley Silts Expansion Project. The extent of this material is inferred from information made available as part of the 2019 assessment. As this material will remain in the stream for now, it impacts on groundwater quality in this area will continue in future. This area is downgradient of the Valley Silts Project and will therefore not impact on long-term groundwater quality associated with the project.
- Only two of the boreholes and shafts identified during the 2025 hydrocensus are downgradient of the project, namely CRGB15 and VAL1. Borehole CRGB15 is downgradient of a historical TSF. For this reason, impacts on this borehole cannot be attributed to the Valley Silts Project. Borehole VAL1 is located approximately 2 km west of the Valley Silts Project, further along the flow of the Russell Stream. This borehole is located near the area where silts are likely to remain in the stream in future and is also downgradient of a historical TSF. Based on this it is concluded that groundwater is not currently used in the zone of impact associated with the Valley Silts Project.

- The project footprint is located on outcrops of Turffontein quartzite, Johannesburg quartzite and Booysens shale. Fieldwork completed during 2025 confirms that the aquifers associated with the shale and the Johannesburg quartzite have low permeabilities and recharge rates. As such, the sulphate and iron plumes associated with the project migrate very slowly in the aquifers. The advantage of this outcome is that contamination associated with the project is not likely to move more than a few hundred meters from the reclamation areas in the long-term.
- The disadvantage of the poorly developed aquifer conditions identified is that historical contamination will not be flushed in the long-term but will remain within the footprint area to a large extent. Removal of the silt material as part of the project is therefore likely to reduce the concentrations of contaminants but will not significantly do so. In addition to a reduction in concentration, the extent of the zone of impact on groundwater quality will reduce in the long-term after removal of the silt material from the stream.
- Groundwater plumes are expected to move towards the Russell Stream on a local scale, but regionally in a westerly directly, but slowly.
- The volumes of contaminated groundwater that may reach the wetlands downgradient in the Russell Stream cannot be accurately assessed based on one dataset alone. It is however expected to be low, probably not exceeding 20 m^3/a.
- Most significant impacts on groundwater quality, as delineated by the simulated zones of unacceptable long-term impacts and zones of acceptable operational impacts are mainly restricted to the Valley Silts Project footprint areas. The zones of unacceptable impact are indicated by thick red lines (Figure 21 and Figure 22) at concentrations exceeding 1000 mg/L for sulphate and exceeding 10 mg/L for iron.
- The extent of the iron plume is larger compared to that of sulphate. This is because lower concentration standards are imposed on iron compared to sulphate.

Impact at the End of the Operational Phase:

The impact of silt reclamation from the stream at the end of the operational phase is presented for iron and sulphate (Figure 21 and Figure 22). The simulations indicate the following:

- Due to the short duration of the project, the outcome of the operational impact on groundwater quality is mainly due to the impact of historical tailings deposition in the stream.
- Based on the current dataset, it is expected that sulphate concentrations would exceed 2000mg/L and iron concentrations would exceed 200 mg/L over the project footprint area at the end of the operational phase. The groundwater is currently not fit for use.
- The zone of impact on groundwater quality is not expected to significantly exceed the project boundary at the end of the operational phase. It is possible that the plumes can migrate 100 m west along the flow of the Russell Stream.
- No private boreholes fall within the delineated zone of impact of the Valley Silts Expension Project.

Likely Long-term Scenario:

The likely outcome of the removal of silts from the Russell Stream in terms of groundwater quality is presented in Figure 23 and Figure 24. The following is concluded from the impact predictions completed:

- Sulphate concentrations are expected to reduce to below 1000 mg/L over large portions of the footprint. It is possible that pockets in the aquifer may have concentrations exceeding 1000 mg/L, but not significantly so. These zones where sulphate exceeds 1000 mg/L will remain inside the project footprint area in the long-term.
- In addition, the extent of the zone of impact is expected to reduce to within the project footprint.
- Iron concentrations are also expected to reduce significantly within the project area. It is anticipated that iron concentrations would reduce to below 100 mg/L over most of the project area, but as with sulphate, pockets may remain where concentrations exceed 100 mg/L, but not significantly so. While this will be a significant reduction in iron concentrations, long-term impacts over the project footprint will continue to pose a risk that could result in acute or chronic health impacts. The groundwater within the project area will therefore remain unfit for use. The positive outcome of the project is however a significant reduction in concentrations and a reduction in the extent of the zone of unacceptable impacts.

Scenario Analysis for Long-term Impacts:

The outcome of the assessment for both sulphate and iron is summarised as follows:

- Impacts associated with the best case and likely scenarios are expected to be very similar in terms of impacts on groundwater quality. These two cases relate to how water is managed on site during the operational phase and the extent to which infiltration of dirty water takes place. Since the aquifer permeability within the project area is low, water management options during the comparatively short operational period are not likely to result in significant long-term effects. Despite this, it is recommended that clean and dirty water management measures, as indicted in Kongiwe (2025) are strictly adhered to. All measures must be taken to divert clean runoff and contain dirty water inside the dedicated paddocks. Dirty water must be reused during reclamation to avoid ponding over extended periods of time.
- If the Valley Silts Expansion Project is not implemented, current impacts on groundwater quality are expected to continue in the long-term. This is expected to increase sulphate and iron concentrations within the unacceptable levels over the footprint area as well as downstream in the Russell Stream. The extent of the zone of impact on groundwater quality is therefore expected to increase with time. The outcome of this scenario will result in long-term negative impacts on groundwater quality and should therefore be avoided. Removal of the silt material from the streambed will reduce long-term impacts, as discussed above.

During the rehabilitation phase of the project, it was assumed that all tailings and silt will be removed, that the soil will be shaped to create a free-draining surface, and that all radiation will be removed. It is noted that this rehabilitation scenario will not reverse the cumulative impact of historical tailings deposition. For this reason, a residual impact will remain post-closure of the project in the long-term.

The rehabilitation will be completed down to a red earth footprint. The area will be shaped for correct storm water management. During this phase, all project infrastructure will be removed, and a final radiological survey will be undertaken. Thereafter the property will be handed over to the landowner.

Recommendations:

It is crucial to implement the groundwater monitoring program before the desilting activities start at the expansion project, to define the pre-excavation status. The database will help the client identify groundwater quality and level trends and will serve as reference to identify and quantify potential impacts on the groundwater environment.

The excavated silt and any water must be removed from open and exposed formation surfaces as soon as possible to avoid seepage of contaminated water into the shallow weathered and deeper fractured aquifers. The desilting will be a continuous process, and water will be in the silts. It must be assumed that the groundwater system will take a portion of this load and ways to manage, contain and minimise the mobilisation of loads must be adopted.

The risk of groundwater contamination during the desilting process will be higher compared to the existing impacts, as chemical reactions and leaching from the silt will increase, due to increased surface area exposed to oxygen and rainwater. Surface water management and containment guidelines must be followed carefully during the desilting process.

In addition to the above, it is important that the necessary cut-off trenches and berms are put in place between the Valley Silts project area and the historical TSFs to avoid future wash of silts and slimes into the excavated and rehabilitated areas, thus compounding the project again.

Ergo must ensure that an effective surface water collection and retention system is in place to ensure that all flow and collected water is directed towards the cut-off trenches and sumps and not allowed to freely drain away and back to the Russell Stream. Pooling of water must not be allowed on open surfaces, except if lined.

It is the opinion of the project hydrogeologists that the Valley Silts Expansion Project can proceed, if good surface water / storm water management is in place and maintained. The project must further commit to complete silt removal and not undertake selective silt reclamation. In the short term there could be water quality impacts (increase in salts and metals) if water on the surface is not managed effectively. A sound groundwater monitoring program must be implemented in the four existing boreholes, plus borehole VAL1. Should the results of the monitoring indicate adverse impacts on groundwater quality over and above those already evident from historical impacts, immediate measures must be taken to rectify non-compliances. Overall, the project will deliver a long-term positive impact on groundwater quality if the silts are removed, and footprint areas are rehabilitated.

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Abbreviations

Abbreviation	Description
ADT	Articulated Dump Truck
AMD	Acid Mine Drainage
Bh	Borehole
BPG	Best Practice Guideline
CBD	Central Business District
CoC	Chemicals of Concern
CoJMM	City of Johannesburg Metropolitan Municipality
CV	Curriculum Vitae
DTM	Digital Terrain Model
DWAF	Department of Water Affairs and Forestry (now the DWS)
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EC	Electrical Conductivity
EO	Environmental Officer
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
Ergo	Ergo Mining (Pty) Ltd
FDEM	Frequency Domain Electro-magnetics
GPS	Global Positioning System
IWUL	Integrated Water Use Licence
k	Hydraulic conductivity, measured in m/d
km	kilometre
L/s	Litre per second
L/hr	Litres per hour
m	metre
m/day	metre per day
MAE	Mean Annual Evaporation
m amsl	metres above mean sea level
MAP	Mean Annual Precipitation
m bgl	metres below ground level
meq/L	Milli equivalent per litre
mg/ℓ	milligrams per litre

ml	millilitre
mm	millimetre
mm/a	millimetre per annum
MR	Mining Right
mS/m	milli Siemens per metre
NGA	National Groundwater Archive
NWA	National Water Act, 1998
RWD	Return water dam
SANAS	South African National Accreditation System
SANS	South African National Standards
TDS	Total Dissolved Solids
T	Transmissivity, measured in m^2/d
TSF	tailings storage facility
Wits	Witwatersrand Supergroup
WMA	Water Management Area
WQO	Resource Water Quality Objectives
WRC	Water Research Commission

1 INTRODUCTION

Historically, some of the mines of the Witwatersrand have discharged contaminated water into the streams and rivers of the area. The additional water generated by mining and other human activities has led to the formation of wetlands which perform an important function in the purification of water. Concern has been expressed about the concentration of contaminants, particularly metals in these wetlands and their ability to cope with the pollutant loads flowing into them. Water analyses show that the wetlands do indeed reduce the metal loads in the water, although this hazard remains for several kilometres downstream of the pollution sources (Council for Geosciences, 2005). These silts contain high grade gold and are accordingly amenable to reprocessing.

Ergo Mining (Pty) Ltd (Ergo), a subsidiary of DRDGOLD Limited, holds various Mining Rights (MR) in respect of slimes dams and sand dumps, extending 65 kilometres (km) from western Johannesburg to east of Ekurhuleni, with most activities occurring on the central and eastern sections of the Witwatersrand mining belt.

Ergo obtained Environmental Authorisation (EA) and an Integrated Water Use Licence (IWUL) for the mechanical reclamation of gold bearing silts from a section of the Russell Stream north of NASREC near Booysens Reserve, in Johannesburg (Figure 1 and Figure 2). This is the Valley Silts Project. The mining authorisation for the removal of silts falls within Mining Right GP 184 MR. Ergo intends to expand its Valley Silts reclamation operation (the Valley Silts Expansion Project) (Kongiwe, 2025).

The removal of silts within the already authorised Valley Silts Project area has been ongoing since May 2023. The construction and site establishment began in October 2022 and as such, it is now necessary to prepare for the Valley Eastern Expansion, Southern Expansion, and Valley Expansion Northwest, to allow for continuous reclamation operation, as well as a sustainable feed source to the process plant.

In terms of locality, the Valley Silts Project is located within the Russell Stream valley and stretches from New Canada Road, following the valley southeast, past the Nasrec Road bridge and past Crownwood Road until the stream meets the M1 (Figure 1).

The Valley Silts resource has three primary sectors. The current approved mining area is Sector 1 and extends from the dam wall to the end of the stockpile area near Crownwood Road (Figure 2). The site is already established with fully fenced hard park facilities, solar powered security lights, well maintained haul roads and site offices. Access is controlled by security.

The Expansion Phase of the project will consist of Sector 2 and Sector 3. Refer to Figure 2 for the Valley Silts Expansion Project infrastructure plan.

Sector 2 will extend from the dam wall to Nasrec Road (N1 to N20), with the remaining blocks (Sector 3: N21 and N22) being located either side of Crownwood Road. Because mining exceeds the delivery rate, stockpile areas are required for temporary storage as shown in Figure 2. Stock is moved in a sequential manner due to the moisture content, the drying process, as well as oxidation. The detailed plans are based on a 1:1000 scale survey plan and all blocks are based on a delivery rate required by DRDGOLD. Individual blocks will be removed in sequence.

Exploration trenching will determine the depositional flank extents, and all material will be removed from the natural flow path as well as the flanks. Paddocks and stormwater controls are required to protect the river from extraneous ingress, and these will be installed as indicated on Figure 2. The current facilities in Sector 1 will be utilised for the remaining extensions. Hard park, cut off trenches

and sumps are pre-installed and are appropriate for further use. Existing silt traps will move as the mining blocks progress. The existing sump will discharge to the stream.

The new activities for the Expansion Project include:

- Mining blocks (N 1 to N22);
- Drying stockpiles (8 locations);
- Stormwater control berms/paddocks;
- River crossings (8); and
- Haul and site roads.

The Russell Stream is surrounded by industrial, commercial, residential and undeveloped land. The closest residential area to the proposed target area is Riverlea; the outskirts of the suburb are situated approximately 120 metres (m) from Russell Stream. The Valley Silts Expansion Project is situated within Ward 68 and Ward 124 of the City of Johannesburg Metropolitan Municipality (CoJMM).

This report presents the groundwater impact assessment. An understanding of the hydrogeological environment is essential to understand the impacts of the reclamation of silt from target areas in the water course on the receiving environment. The adjacent slimes dams and sand dumps are potential sources of contamination and together with the silt in the Russell Stream were taken into consideration during the groundwater assessment.

2 About the Valley Silts Expansion Project

2.1 Reclamation Method

The gold bearing silts will be mechanically excavated from the project area. Thirty-ton Articulated Dump Trucks (ADT) will be used to transport and stockpile the silts from the Russell Stream. The gold bearing silts will be temporarily stockpiled and dried in the stockpile areas directly north and south of Blocks N1 to N18. This is considered a “dirty” footprint. Silts will have up to 40% moisture content when hauled and are not expected to be fully dried out. The dried tailings/silts will be loaded onto tipper trucks and transported to the City Deep Plant for pre-processing. The trucks transporting the material will follow Crownwood Road until it reaches Main Reef Road and then joins the M2 East. The trucks will follow the M2 until they reach Heidelberg Road which is followed to the City Deep Plant where they will be offloaded.

2.2 Water Management

This project will not require any additional process water for the mechanical excavation of gold bearing silts from the Russell Stream. Potable drinking water will be sourced from the municipality.

The clean stormwater runoff from the area to the south of the drying sites will be diverted using a stormwater diversion drain (or berm) around the area to the west. Stormwater from the north will flow via properly constructed inlets into the Russell Stream. Temporary berms will be constructed along the banks of the channel. These banks will be raised in sections to retain flood flow and prevent flooding of any of the reclamation area during excessive rainfall. The raised riverbanks and berms will be able to contain a 1:50 year storm event.

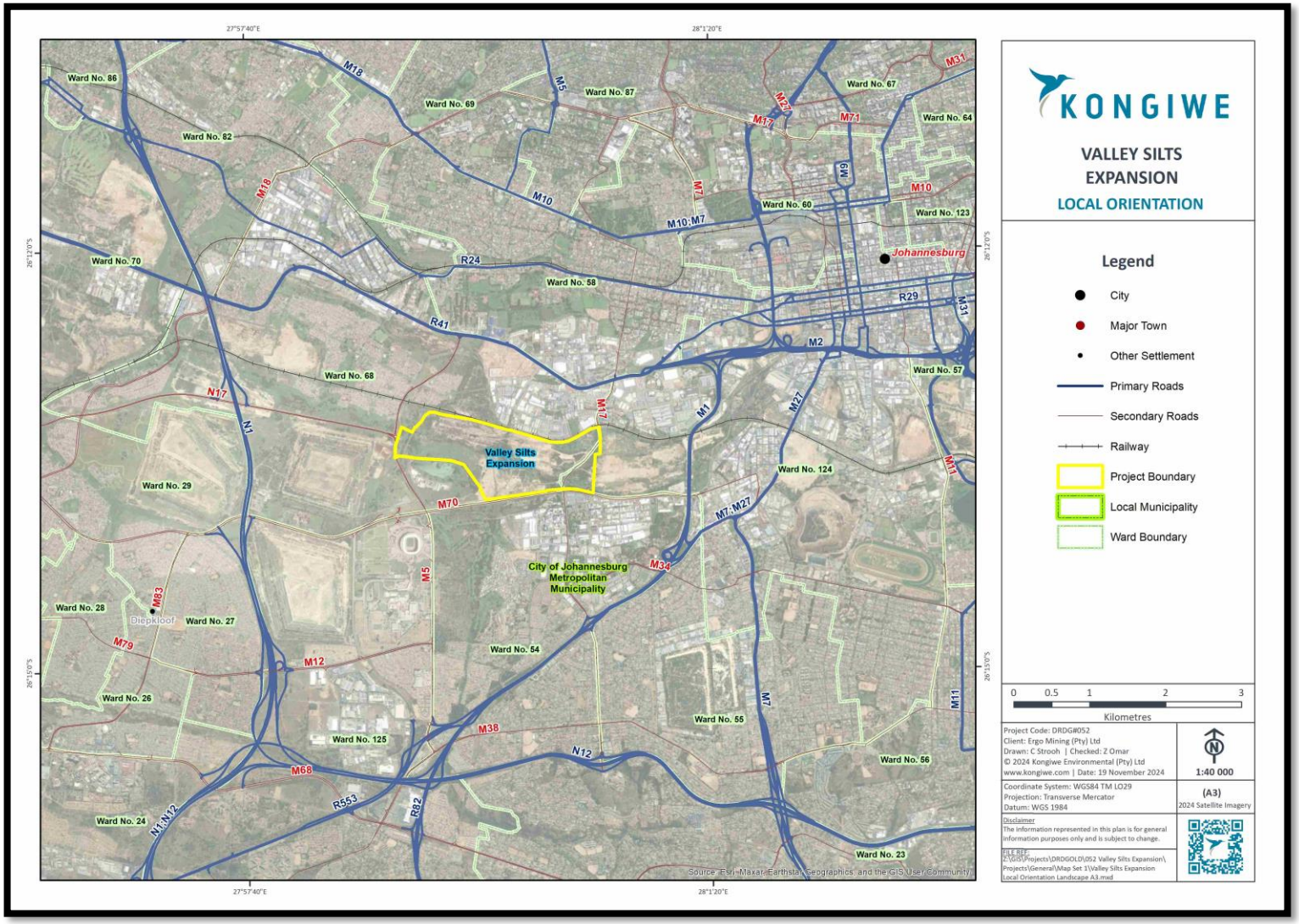


Figure 1. Valley Silts Project locality map

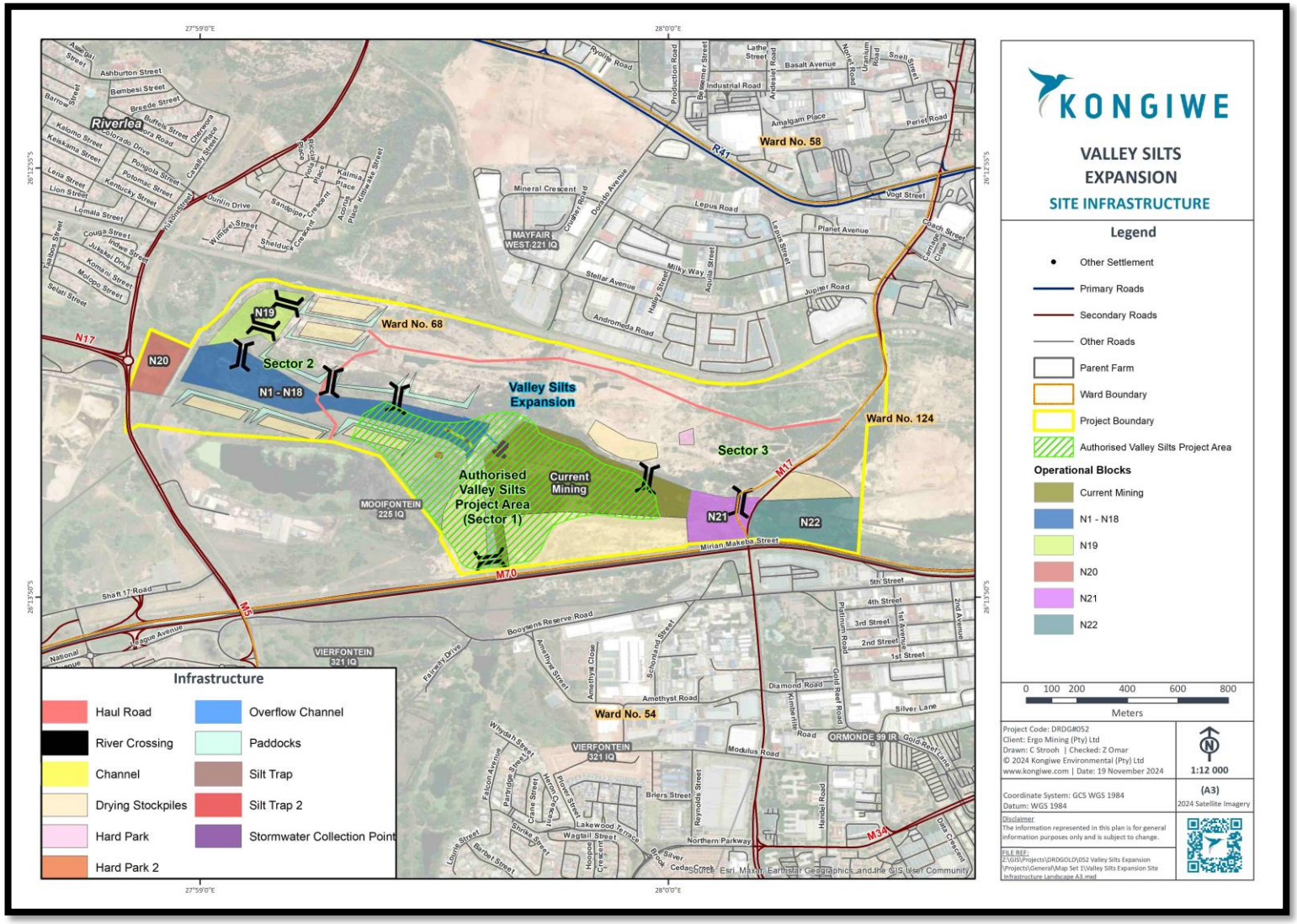


Figure 2. Valley Silts Expansion Project infrastructure plan

Dirty stormwater will be contained in existing paddocks on the drying sites. Should the paddocks reach capacity, the excess stormwater will need to be released into the Russell Stream.

Stormwater from the mined-out areas flows to a sump. Should the sump reach capacity it will overflow via a channel into the Russell Stream.

2.3 Life of the Operation

The anticipated life span of the project is approximately 5 years maximum. The silt removal is planned for 3 years and rehabilitation 2 years.

2.4 Infrastructure Proposed for the Project

The Valley Silts Project is well serviced by existing roads and infrastructure. Existing infrastructure to be utilised at stages during the project includes:

- Site offices;
- Hard Park areas;
- Existing site access roads; and
- Hauling road: access roads and main roads.

The additional infrastructure will include:

- Additional haul roads;
- Additional stockpile drying areas;
- Additional stream crossings; and
- Additional silt traps and stormwater control berms/ paddocks.

2.5 Rehabilitation

Once the silts have been removed from the targeted areas, decommissioning will commence with the removal of all associated vehicles and infrastructure from the site as well as the removal of berms, paddocks, diversion trenches, infrastructure, and anything else installed during construction and operations.

Rehabilitation will take place as excavation progresses to other target areas. Care will be taken to ensure that the material and excavated soil required for backfilling are free of contaminants and hydrocarbons. Ergo aims to rehabilitate the Valley Silts Project area by shaping the areas where silt was removed and make the area free draining. Thereafter, appropriate species will be planted to stabilise the soil.

Post-decommissioning activities will entail the assessment of rehabilitation and will address any further rehabilitation requirements. Monitoring must occur for at least five years after decommissioning and rehabilitation, or until satisfactory results are achieved.

Maintenance will specifically focus on the rehabilitated areas. Furthermore, groundwater and surface water monitoring will have to take place in the project area. It has been recommended that groundwater be monitored quarterly, for at least five years after closure. The monitoring process will be used to assess whether the rehabilitation process has been successful and to indicate if further deterioration on groundwater quality is expected. Water infrastructure (channels, berms and paddocks) must be monitored monthly during the dry season, and weekly during the wet season. They should further be monitored immediately after any large storm events. Should blockages, silted up structures or breaches occur, immediate action should be undertaken to remove debris and repair

breaches. Monitoring should be undertaken by the onsite Environmental Officer (EO) or maintenance manager.

Maintenance will specifically focus on the rehabilitated area in accordance with the approved EMPr. Continuous erosion monitoring of rehabilitated areas and slopes should be undertaken and zones with excessive erosion should be identified. The cause of the erosion should be identified, and rectified. Zones with erosion will need to be repaired with topsoil.

2.6 Consideration of Alternatives

The Valley Silts Project entails desilting of sections of the water course; geographically this project has no alternative. The Option of "the project not proceeding" would mean that the environmental and social status would remain the same as current. This implies that both negative and positive impacts would not take place. As such, the short-term negative impacts on the environment would not transpire; equally so, the long-term positive impacts such as environmental pollution removal, economic development, and the rehabilitation of the Russell Stream for both nature and human benefit – would not occur. The only alternative option to this project (the No-Go option) is to leave the polluting silts within the stream; there is no other potential use.

Geochemical modelling by Hatting RP, et al (2003) indicated that the major cation concentrations will remain at elevated levels for more than 50 years if no action is taken and nothing else is added to the system. A continuous flow of salts (SO_4^{2-}) continues for a period of at least 50 years. There are fluctuations in the production rate of salt, but the load remains at elevated levels over the 50-year period modelled.

The "No-Go" Option also assumes the continuation of the current land use, implying the absence of any rehabilitation activities and associated infrastructures. The means that the attraction of the gold reserves located within the stream could potentially enhance Illegal mining, and if left as is, population settlement on or around the stream could occur. In addition, without the removal of silts, the Russell Stream will continue to follow its current path – meaning that flooding risks to residents will remain.

3 Groundwater Assessment Framework

A thorough understanding of the hydrogeological environment is essential to understand the impact of the silt excavation on the receiving environment and to help design a groundwater management plan that reduces or removes the risk of groundwater quality and quantity impacts.

3.1 Groundwater Study Objectives

The groundwater impact assessment will focus on the following objectives:

- Define the current groundwater use in the Valley Silts Project area;
- Define the aquifers underlying the Valley Silts Project area, as well as current groundwater table depth, groundwater quality and flow characteristics;
- Define what impact the desilting activities might have on the groundwater environment; and
- Recommend an initial groundwater monitoring network that will monitor the groundwater quality and level changes during the desilting activities and post closure.

3.2 Compliance Framework

This report is compiled based on the requirements of GNR 267 of the National Water Act (1998) (NWA). The report format is also based on the requirements of the Department of Water and Sanitation (DWS) Best Practice Guideline (BPG) G4 (2008).

The water quality assessment will be based on South African National Standard (SANS) 241-1:2015, Drinking Water.

3.3 Groundwater Assessment Team

The following hydrogeologists are involved in the Valley Silts Expansion Project groundwater assessment:

- Lucas Smith (MSc Geohydrology) Pr.Sci.Nat:
  - Project hydrogeologist.
  - Field work, data analysis, interpretations, and reporting.
- Irene Lea (MSc Geohydrology) Pr.Sci.Nat:
  - Data analysis, interpretations, numerical model and reporting.

Curricula Vitae (CV) are appended to Appendix A.

3.4 Report Structure

The remainder of the report is structured as follow:

- Section 4 – Environmental Setting.
- Section 5 – Site Investigations.
- Section 6 – Conceptual Hydrogeological Model.
- Section 7 – Groundwater Modelling.
- Section 8 – Hydrogeological Impacts.
- Section 9 – Groundwater Impact Assessment.
- Section 10 – Cumulative Impacts.
- Section 11 – Groundwater Management Measures.
- Section 12 – Groundwater Monitoring.
- Section 13 – Reasoned Opinion.
- Section 14 – Conclusions.
- Section 15 – Recommendations.

Appendices:

- Appendix A: Curricula Vitae.
- Appendix B: Borehole Drill Logs.
- Appendix C: Pumping Test Information.
- Appendix D: Water Laboratory Certificates.
- Appendix E: Impact Assessment Ratings.

4 Environmental Setting

The proposed Valley Silts Expansion Project is in the Russell Stream valley, near Booysens Reserve. The project area stretches from New Canada Road, following the valley southeast, past the Nasrec Road bridge and past Crownwood Road until the stream meets the M1.

The Russell Stream (also referred to as the Klipspruit) is surrounded by industrial, commercial, residential and undeveloped land. The closest residential area to the project is Riverlea, the outskirt of the suburb is situated approximately 120 m from the Valley Silts project area. The FNB Stadium is approximately 1 km to the south, with the Johannesburg Central Business District (CBD) located approximately 4 km northeast.

The topography is typical of a river / stream where local drainage (surface topography) is towards the stream. The Russell Stream flows in a westerly direction, towards Soweto. The regional dip is in a southerly direction. The surface elevation in the project area varies from 1695 metres above mean sea level (m amsl) in the east, to 1653 m amsl in the west.

4.1 CATCHMENT

The Valley Silts Project is in the Klip River catchment, in the C22C quaternary catchment, forming part of the Vaal Water Management Area (WMA:5). The C22C quaternary catchment covers an area of approximately 465 km^2. The main drainage in the project area is the Russell Stream, that discharges into the Klip River. The Klip River is located approximately 15 km southwest of the Valley Silts Project.

4.2 CLIMATE AND RAINFALL

The Mean Annual Precipitation (MAP) for the C22C quaternary catchment is 697 mm/a, according to the information presented by Hydrospatial (Soweto Cluster, Surface Water Impact Assessment Report, October 2019) (Table 1). The Mean Annual Evaporation (MAE) for this C2B rainfall zone is 1625 millimetres (mm) (Zone 11A).

Table 1. Quaternary catchment information (Hydrospatial, 2019)

Quaternary catchment	C22C
Rainfall (mm/a)	697
Evaporation (mm/a)	1,625
Runoff (mm/a)	23.12

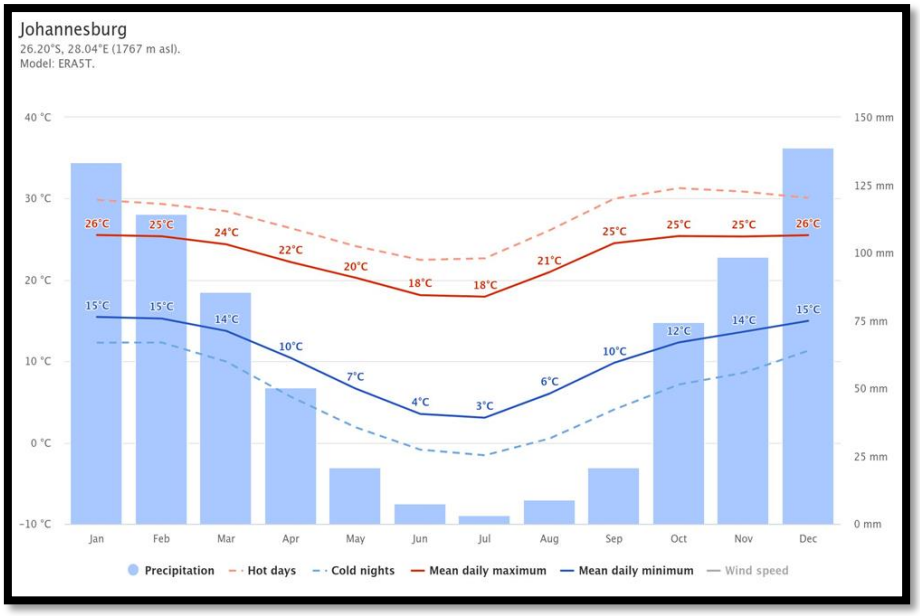


Figure 3. Average temperature in Johannesburg (www.meteoblue.com)

Precipitation occurs in the form of showers and thunderstorms, with the highest rainfall occurring from December to March (Figure 3). The winter months are dry with the combined rainfall between May and August making up only 6% of the MAP of 697 mm.

4.3 GEOLOGY

The Witwatersrand Basin lies on the Kaapvaal Craton and is one of the world's largest gold placer deposits. The basin stretches over an arc of roughly 400 km, traversing across the Free State, North West and Gauteng Provinces. The gold occurs in coarse-grained conglomerates, forming the upper portions of the Witwatersrand Supergroup. It is found in association with uranium, quartz, carbon seams, phyllo-silicates and pyrite. The mineralisation of the Witwatersrand reefs is extensive and approximately 70 ore minerals, including diamonds, have been documented from the Witwatersrand conglomerates (Minerals Council of SA, 2019).

Gold-bearing reefs within the Witwatersrand sediments have been mined from the Far West Rand to the East Rand, and certain of these operations yielded the mine dumps that contributed to the silt in the Russell Stream. Several of these dumps are currently being reclaimed by Ergo.

The Valley Silts Project is located on the Central Rand Group, of the Witwatersrand Supergroup (Figure 4). The Witwatersrand Supergroup is a sequence of conglomerate, shale and quartzite, ranging in age from 2.7 Ga for the Hospital Hill Subgroup to 2.4 Ga for the Turffontein Subgroup. The Lower Witwatersrand is composed mainly of argillaceous clays and shale, with occasional banded ironstone, tillite and intercalated lava flow, while the Upper Witwatersrand consists almost entirely of quartzite and conglomerate.

Sedimentation of the Central Rand Group occurred predominantly under alluvial braid-plain conditions with minor alluvial fan conditions or influence from marine environments. Structurally the Central Rand Group is relatively undisturbed in comparison to the other groups of the Witwatersrand Supergroup. However, mineralisation is generally associated with disconformities within the sequence.

The Russell Stream is underlain predominantly by the Booysens Subgroup (shale) of the Witwatersrand Supergroup. To the south is the younger Turffontein Subgroup (quartzite, conglomerate and shale) and to the north, conglomerate and quartzite of the older Johannesburg Subgroup (Figure 4 and Figure 12).

A characteristic of the Witwatersrand mining area is a series of cross-cutting faults and diabase dykes. The dykes are not 100% impermeable. Fault appearance varies from small localised fractured zones to large breccia filled zones. Faults are commonly filled with intrusive material. The composition ranges from diabase (or quartz diabase) to norite (Biccard Jeppe, 1946).

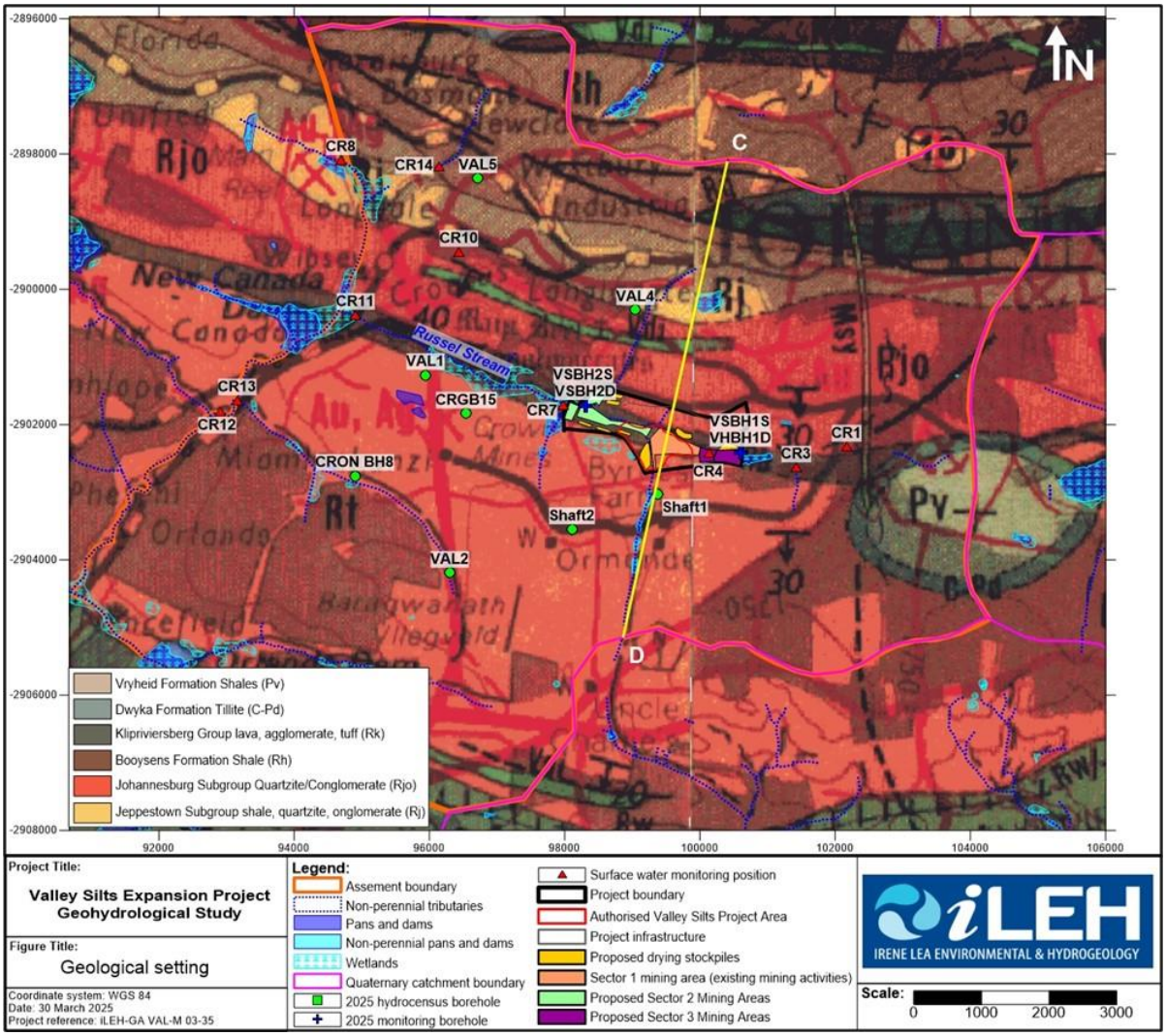


Figure 4. Valley Silts geology

5 Site Investigations

5.1 Hydrocensus

A hydrocensus was conducted across the study area during February 2025. The survey included the Valley Silts Project area, plus accessible properties within a 2 km radius, and concentrated on identifying existing boreholes to enhance the knowledge of the groundwater systems and current groundwater use. Six boreholes and two old mine shafts were identified, all on neighbouring properties (Table 2).

During the hydrocensus the following information was collected for each site:

- Borehole position (X, Y, Z-coordinates);
- Information relating to equipment installed;
- Borehole construction details;
- Borehole yield – if known by the land owner;
- Groundwater level, if possible; and
- Current use.

Only one of the six boreholes is in use (borehole VAL4), with the majority historically used for groundwater monitoring purposes (4 of the 6 boreholes). Two of the six boreholes are privately owned boreholes and include VAL4 and VAL5 (Figure 5).

Shaft 1 was accessible with a shallow water level visible just inside the shaft entrance. Shaft 2 is sealed and fenced off with no access possible (Figure 5). A summary of the hydrocensus information is available in Table 2. All coordinates were taken with a hand-held Garmin GPS (Global Positioning System) (WGS84).

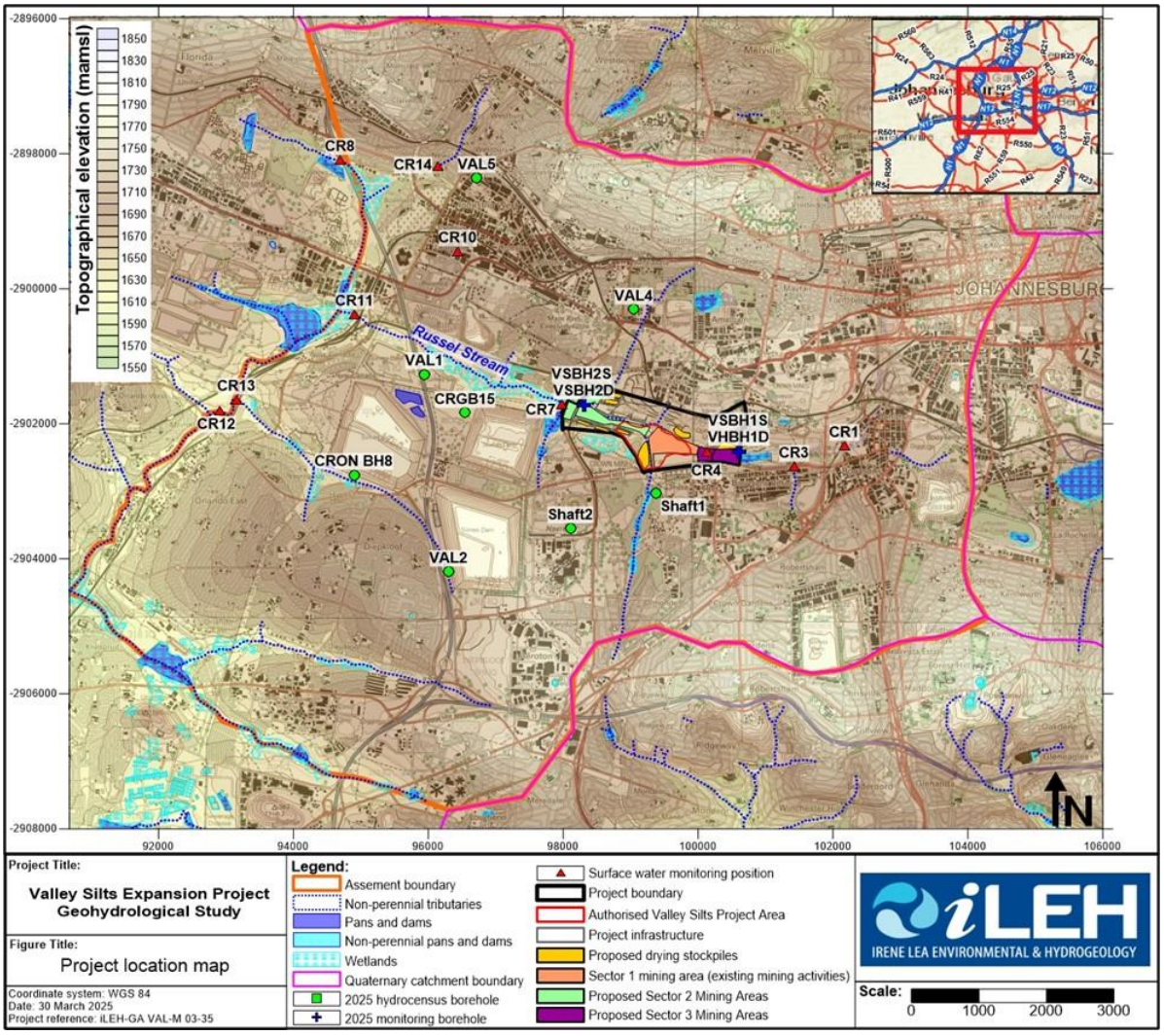


Figure 5. Borehole locality map

Water levels were measured by using a dip meter to measure the distance from the mouth of the borehole (borehole collar elevation) to the groundwater table depth in the borehole. The height of the borehole collar was subtracted from the measured water level to define a water level below surface (measured in m bgl).

Groundwater level measurements were possible from the six boreholes (Table 2). The groundwater level below surface varied between 0.10 m bgl (borehole VAL2) and 30.85 m bgl for borehole VAL5 (in the Industria West area) (Table 2). Borehole VAL5 presents a groundwater level (30.85 m bgl) that are much deeper compared to the other five boreholes. This potentially relates to differences in the

geological units. The rest groundwater levels in the other five boreholes are on average 2.08 m below surface.

If the groundwater levels are viewed as elevation above sea level, then the highest water elevation (1692.5 m amsl) is found at borehole VAL2. The lowest water table elevation is 1660.55 m amsl, at borehole VAL5. Second lowest levels are around 1662 mamsl, at boreholes VAL1 and CRON BH8 (downstream from the Valley Silts Project area). Locally surface drainage and possibly groundwater flow will be towards the Russell Stream, but the regional groundwater flow direction will be from east to west. If the information presented in Table 2 is contoured, it is shown that the groundwater flow direction is westerly, as shown in Figure 15.

The groundwater table governs water flow and in similar geological terrains a relationship exists between the groundwater table and the topography. This correlation is known as the Bayesian relationship. The borehole collar elevation is plotted against the measured groundwater elevation to test if this relationship is applicable. The correlation between topography and groundwater elevation is approximately 96.7%, as shown in Figure 6. This includes Shaft 1. This means that the depth to groundwater correlates well with the surface elevations (topography), indicating that on a local scale groundwater flow follows topography.

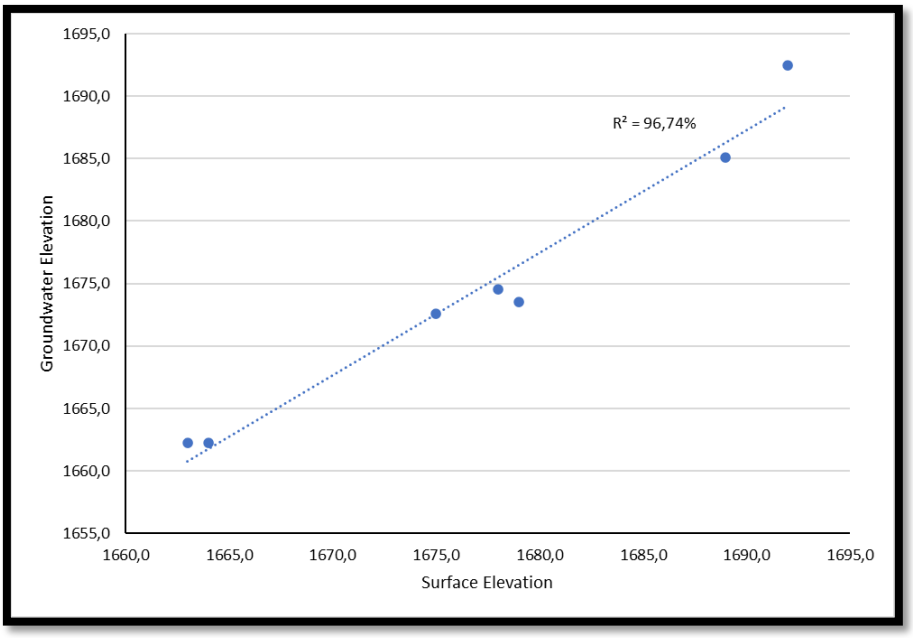


Figure 6. Correlation between surface and groundwater elevations in hydrocensus BHs

Groundwater samples were collected from three of the hydrocensus boreholes (see Section 5.5).

The extent of the study area, budget and time constraints, and land access limited the hydrocensus in terms of surveying every property in the area. The study aimed to cover the whole area to ensure a data set representative of the study area.

Detailed information in terms of borehole construction and yields, plus borehole depths and water strike depths, are not known for the identified hydrocensus sites. Time series groundwater level or quality data are also not available for the hydrocensus boreholes to determine seasonal groundwater changes for the area.

Table 2. 2025 Hydrocensus data

Site ID	Lat (WGS84)	Long	Elev (mamsl)	Locality	Water depth (mbgl)	Collar height (m)	Water elevation (mamsl)
Val 1	26°13'02.23"S	27°57'36.22"E	1664	N1 Riverlea offramp	2,32	0,55	1662,23
Val 2	26°14'37.38"S	27°57'49.80"E	1692	GMTS (3L8) TSF	0,10	0,60	1692,50
Val 4	26°12'32.08"S	27°59'28.09"E	1689	Abraham Kriel Bambanani	3,90	0,00	1685,10
Val 5	26°11'29.30"S	27°58'04.45"E	1691	Vitafoam Industrial West	30,85	0,40	1660,55
CRON BH8	26°13'50.98"S	27°56'58.88"E	1663	Homestead (3L5) TSF	1,20	0,44	1662,24
CRG B15	26°13'20.77"S	27°57'57.99"E	1675	Mooifontein (3L7) TSF	2,86	0,42	1672,56
Shaft 1	26°13'59.23"S	27°59'39.80"E	1679	iProp office	5,50	0,00	1673,50
Shaft 2	26°14'16.10"S	27°58'54.41"E	1712	FNB Stadium	no access	--	--

Site ID	BH depth (m)	Yield (L/hr)	Casing diameter (mm)	Sampled	Pump type	Use	Note
Val 1	30	80,00	100	yes	none	monitoring	On the offramp to Riverlea from the N1 highway
Val 2	--	--	110	yes	none	monitoring	Artesian. Casing damaged. No lid
Val 4	40	good	165	yes	submersible	swimming pool	Inside brick building. Very old BH
Val 5	--	--	165	no	none	not in use	Inside deep manhole at office
CRON BH8	80	--	110	no	none	monitoring	Casing damaged. No lid
CRG B15	50	--	110	no	none	monitoring	sealed. Can't sample
Shaft 1	--	--	--	no	submersible	gardens	Old decline shaft next to big lake
Shaft 2	--	--	--	no	none	not in use	Old vertical shaft. Sealed. No access

5.2 Geophysical Survey

A ground geophysical investigation was conducted to identify linear geological structures in the project area which could act as preferential groundwater flow paths. The geophysical survey has been used in conjunction with the available remote sensing images and geological maps to identify suitable drilling positions for upstream and downstream groundwater characterisation and monitoring boreholes.

The geophysical survey was conducted in February 2025 and included Magnetics and Electromagnetic (EM34-3) surveying only. The survey included two survey lines, and the line and station coordinates were marked in the field using a handheld Garmin GPS.

5.2.1 The Magnetic Method

Many geological formations by virtue of their content of magnetic minerals will behave like buried magnets and have associated with them a magnetic field. This very local magnetic field will be superimposed on the normal magnetic field of the earth. Measurements of the magnetic field taken in the locality of such geological formations will show departures from the undisturbed earth's magnetic field in the vicinity of these formations. These changes, or anomalies as they are called, could be larger or smaller and could be either an increase or a decrease of the earth's field and will depend on the depth of burial, degree and direction of magnetisation, and the attitude of formation in relation to the direction of the earth's field at that locality.

The Magnetic survey was run in support of the EM survey, at 5 m reading intervals.

5.2.2 The Electromagnetic Method

Frequency Domain Electromagnetics (FDEM) techniques use a primary time-varying magnetic field produced in a transmitter coil to induce the flow of electrical current in subsurface conductors via electromagnetic induction. By measuring the secondary magnetic fields or response of these currents, electrical and magnetic properties of the subsurface or causative body can be deduced.

FDEM is effective at mapping major lateral changes in shallow subsurface electrical conductivity due to variations in water conductivity (salinity), water saturation, porosity, presence of clays, conductive minerals (graphite and massive sulphides) and man-made metallic objects. FDEM relies on a contrast in physical properties of materials.

The EM34 data was recorded every 10 metres, with a coil separation of 20 m used on each survey line.

The geophysical data is presented in Figure 7 and Figure 8.

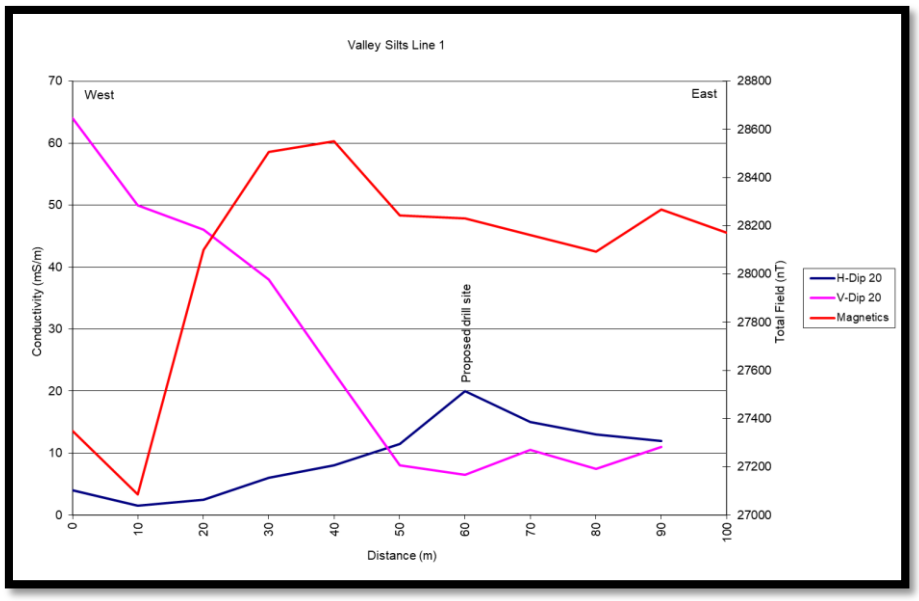


Figure 7. Geophysical survey – Line 1

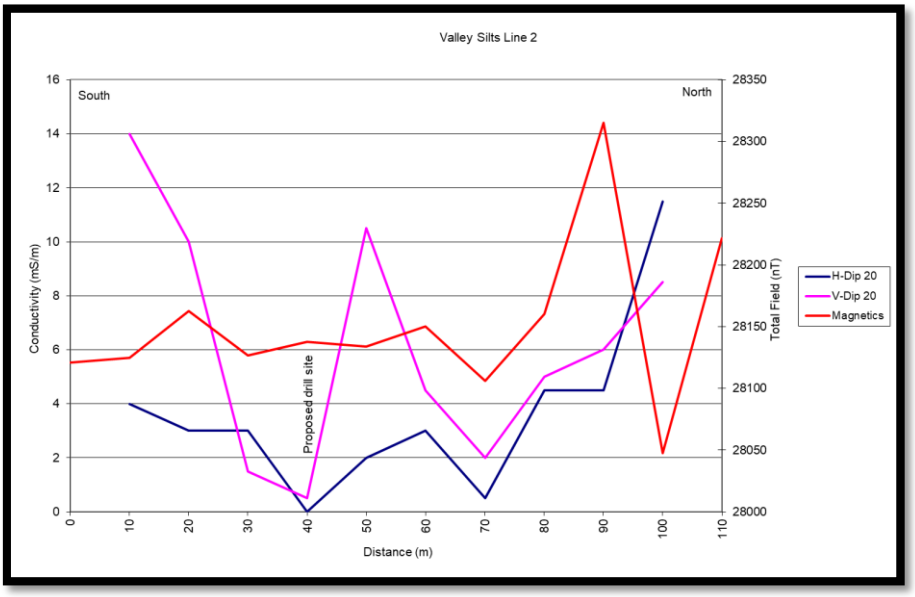


Figure 8. Geophysical survey – Line 2

5.3 Drilling Program

Based on the geophysical survey, an upstream- and a downstream drilling position was identified along the boundary of the Valley Silts Project (Figure 9 and Figure 10). The percussion drilling programme was carried out during March 2025, by Georoc Drilling.

Two groundwater characterisation and monitoring boreholes were drilled at the two target areas – the one borehole was drilled to a depth of 80 m below surface, with the aim of characterising and monitoring the deeper fractured aquifer. The second borehole was drilled 30 m deep, with the aim of monitoring potential groundwater flow, quality and possible connection between the deeper fractured aquifer and the shallow weathered aquifer in the area.

Data collected include the recording of geological formations at 1 metre intervals, water strike depths, the cumulative final blow yield and final rest water level. A summary of the results is presented in Table 3.

The borehole construction details are as follows:

- Deep boreholes (80 m) – 177 mm diameter solid steel casing from surface to 30 m below surface. Beyond this depth the diameter of the borehole is 165 mm.
- Shallow boreholes (30 m) – drill diameter is 203 mm with 177 mm steel casing installed over the full depth of the borehole. The bottom 12 m was perforated.

The geological profiles intercepted by the percussion drilling program are presented in Appendix B.

Not one of the four new percussion boreholes produced a measurable blow yield, but a groundwater level could be measurable in all four boreholes shortly after completion (Table 3). In general, borehole yields throughout the area are low. After several days the groundwater level in boreholes VS-BH2s and VS-BH2d were still near the bottom of the borehole.

Table 3. Drilling summary March 2025

		Borehole ID	VS-BH 1s	VS-BH 1d	VS-BH 2s	VS-BH 2d
Borehole Location	WGS84	Latitude	26°13'39.64"S	26°13'39.59"S	26°13'17.35"S	26°13'17.31"S
		Longitude	28°00'23.73"E	28°00'23.73"E	27°59'01.50"E	27°59'01.48"E
		Elevation	1677 mamsl	1677 mamsl	1663 mamsl	1663 mamsl
Borehole Data	Borehole Depth (m)		30	80	30	80
	Blow Yield (L/hr)		dry	dry	dry	dry
	Water Strike depth (m)		--	--	--	--
	Main Strike Geology		--	--	--	--
	Borehole Geology		Quartzite	Quartzite and lava	Quartzite and conglomerate	Black clay, quartzite with pyrite
	Solid Steel Casing (170mm ID)		0 – 18m	0 - 30m	0 – 18m	0 - 30m
	Perforated Steel Casing (170mm ID)		18 – 30m	none	18 – 30m	none
	Static Water Level (mbgl)		3.43 m	57.48 m	8.15 m	41.07 m
	Depth of Weathering (m)		10	10	12	8

From Table 3 it can be concluded that the area where the characterisation / monitoring boreholes were drilled area primarily underlain by quartzite of the Witwatersrand Supergroup. The weathered – solid formation contact yielded little water – only seepage water. A fractured zone in the quartzite in borehole VS-BH2d, plus the quartzite-lava and the quartzite-conglomerate contacts also yielded little water. The depth of weathering varies between 8 and 12 m below ground level.



Figure 9. Upstream borehole drilling locality



Figure 10. Downstream borehole drilling locality

5.4 AQUIFER TESTING

Following completion of the drilling program, an aquifer test program was initiated to determine the hydrogeological characteristics of the local aquifers.

Geovation (Pty) Ltd was appointed to undertake the aquifer testing of the newly drilled boreholes. Two cluster sets were available for testing, each set consisting of one shallow (30 m) and one deep (80 m) borehole.

The aquifer test program includes defining:

- Borehole drawdown and recovery characteristics.
- Aquifer hydraulic parameters:
  - Transmissivity (T) defined as the product of the average hydraulic conductivity (K) and the saturated aquifer thickness. It is a measure of the rate of flow under a unit hydraulic gradient through a cross-section of unit width over the whole saturated thickness of the aquifer. The unit of measurement is m^2/day.
- Characterisation of aquifer flow boundaries such as low permeable, no-flow or recharge boundaries. No-flow or low permeable boundaries refer to a lower transmissive structure (e.g., fracture with a lower conductance or low permeable dyke) or aquifer boundary (limit of aquifer – no-flow boundary) that results in an increase in groundwater drawdown during borehole abstraction. Recharge boundaries relate often to leakage from surface water bodies.

Prior to the aquifer test, static groundwater levels are measured in all boreholes to enable drawdown calculations during test pumping. During the test, the abstraction rate is continuously monitored by means of electronic flow meters and calibrated by manually measuring the time it takes to fill a container of known volume, with a stopwatch and drum.

The testing data with interpreted results were received from Geovation, upon completion of the test program. The aquifer test data and drawdown graphs are presented in Appendix C.

For this project full drawdown and recovery pump tests were conducted on two of the four new boreholes (VS-BH1s and VS-BH1d) and a slug test was also completed on borehole VS-BH1s. Boreholes VS-BH2s and VS-BH2d were not tested due to the low volume of water inside the boreholes. The methods are discussed in more detail below.

A **slug test** is a controlled field experiment performed to estimate the hydraulic properties of aquifers and aquitards in which the water level in a control environment is caused to change suddenly (rise or fall) and the subsequent water-level response (displacement or change from static) is measured over time in the borehole. Slug tests are also referred to as rising-head or falling-head tests to describe the direction of water-level recovery in the borehole following test initiation (HydroSOLVE, Inc).

The goal of a slug test, as in any aquifer test, is to estimate hydraulic properties of an aquifer system such as hydraulic conductivity. Aquifer properties are estimated from a slug test by fitting mathematical models to displacement data using curve matching. Curve matching may involve fitting type curves or straight lines to the measured data (HydroSOLVE, Inc).

At the Valley Silts Expansion Project, one of the four boreholes was tested by introducing a large solid objet (slug) in the borehole and measuring the height of the water column inside the borehole after slug introduction and then measuring the rate of change in the water column height for at least three to four hours.

Table 4. Summary of the aquifer parameters based on the slug test – borehole VS-BH1s

BH ID	Slug In/Out	Aquifer properties (Slug Test) (hydraulic conductivity in m/day)	
		Bouwer-Rice	
		K-value	*Yo-value*
VS-BH1s	In	0.0144	0.09811

The **maximum drawdown and recovery test** is a method developed as a rapid means of assessing the recovery characteristics of boreholes. The results may also indicate whether it is feasible to perform other tests on the borehole. The test involves measuring the water level response in a borehole to the rapid abstraction of water until pump inlet is reached. The recovery test follows directly after pump shut down. The residual drawdown over time (water level recovery) is measured until approximately 90% recovery is reached. Aquifer parameters can be derived from the time drawdown and recovery data by application of a variety of analytical methods.

Although these short-term tests cannot be considered as the ideal way of evaluating the long-term sustainability of a groundwater resource, it does provide a quick and simple way of evaluating the short-term performance characteristics of a borehole. It must be emphasised that calculations done from test pumping data are only representative of the aquifer characteristics in the immediate surrounding of the borehole. Factors such as aquifer transmissivity as well as the length of a test, will determine the area of influence reached during testing (the longer the test, the greater the area of influence and more accurate the predictions).

The following software was used for test pumping data analysis:

- The Flow Characteristic Method or FC Method (Van Tonder et al, 2001). The FC method uses the first and second order derivatives interpreted from time drawdown data (during test pumping), available drawdown, boundary conditions and recharge to derive sustainable borehole yields. The method is suited for characterising fractured rock aquifers.

A summary of the test programme is given in Table 5. The pumping test data is used during the construction and calibration of the groundwater numerical model.

The recovery of the groundwater table after abstraction is a good indicator of the aquifer's transmissivity, recharge and the borehole's potential yield. The recovery data (for the tested boreholes) indicate that the recovery is slow, and that full recovery (100%) was not achieved within the predetermined testing timeframe (Table 5).

The low borehole yields, fast water level drawdown and slow recovery observed during the aquifer testing indicate low transmissivity aquifers, with low recharge. The average T-values calculated from the pumping tests range between 0.005 and 0.048 m^2/d.

Aquifer testing done on the same geological formations during 2023 and 2024, at other Ergo facilities in the Johannesburg and Germiston areas yielded similar results. In the City Deep area (Johannesburg) aquifer testing (September 2023) indicated that the average T-values range between 2 and 11 m^2/d. The higher T-value has been assumed to represent a shallow weathered and fractured zones near the

contact between the quartzite and the lava. The slug tests yielded hydraulic conductivity values of approximately 0.00008m/d to 0.12 m/d (Table 6 – Bouwer-Rice analysis).

Table 5. Summary of the 2025 borehole testing

Borehole ID	Borehole Depth (m)	Static Water Level (m bgl)	Test pump depth (m bgl)	Available drawdown (m)	Startup yield (L/hr)	Test duration (min)	Recovery	K value (m/d)	T value (m2/day)	Water Sample
VS-BH1s	30	3.43	28	24.5	1000	10	100% in 208 min	0.1455	0.005	yes
VS-BH1d	80	57.48	78	20.5	1000	10	100% in 270 min	--	0.048	yes
VS-BH2s	No testing possible due to limited volume of water inside the borehole									yes
VS-BH2d	No testing possible due to limited volume of water inside the borehole									yes

Table 6. City Deep slug testing results

BH ID	Aquifer properties (Slug Test)	
	Bouwer-Rice	KGS Model
	K-value (m/day)	
CDMB-1S	0.052	0.057
CDMB-2S	0.006	0.003
CDMB-3S	0.019	0.019
CDMB-4D	0.11	1.54
CDMB-5D	0.003	0.002
CDMB-5S	0.05	0.05
CDMB-6S	0.12	0.19
CDMB-7S	8.00E-05	-

In the 4L39 TSF area (Germiston) aquifer testing (September 2024) indicated that the recovery data (for the tested boreholes) is slow, and that full recovery (100%) was not achieved within the predetermined testing timeframe (Table 7). The low borehole yields, fast water level drawdown and slow recovery observed during the aquifer testing indicate low transmissivity aquifers, with low recharge. The average T-values calculated from the steps test and constant discharge test data range between 0.3 and 1.6 m^2/d. The highest T-value was observed at borehole GWA1d and it has been assumed to represent a weathered and fractured zone in the quartzite.

Groundwater samples were collected from the 4 new boreholes at the Valley Silts Expansion Project, during the 2025 aquifer test program. The results are presented in Section 5.5.

Table 7. Summary of the 4L39 (Germiston) aquifer testing results

Borehole ID	BH1s	BH1d	BH2s	BH2d	BH3s	BH3d
Borehole Depth (m)	30	80	30	80	30	80
Static Water Level (m bgl)	2.64	5.53	1.07	1.04	1.38	1.48
Recovery Time	50% in 1 hr	70% in 1 hr	30% in 1 hr	30% in 1 hr	60% in 1 hr	45% in 1 hr
T value (m^2/day)	0.4	1.6	0.4	0.3	0.4	0.3

5.5 GROUNDWATER QUALITY

No historical, long-term groundwater quality information could be sourced for the project area. Three groundwater samples were collected from the Valley Silts Extension project area during the hydrocensus, and four water samples were also collected from the newly drilled boreholes.

The water samples were submitted to Aquatico Laboratories for analysis. Aquatico is a SANAS accredited laboratory (South African National Accreditation System). The water samples were analysed for basic inorganic parameters (Table 9 and Table 10) and the results were compared against the SANS 241:2015 Drinking Water Standards.

The samples were taken using a single valve, decontaminated bailer. Sterilized 500 millilitre (ml) sample bottles were used and filled to the top. Samples were stored in a cooler box during the site survey.

The 2025 water quality data is presented by means of a Piper diagram (Figure 11).

Piper Diagram:

A Piper diagram uses the relationship of chemical parameters to classify water samples according to their dominant cations and anions, as well as allowing for the grouping of water according to hydrogeological facies. The Piper diagram uses concentrations calculated in meq/L to represent a percentage of the total cations or anions. The cations and anions of each sample are plotted on the respective triangular plot and the points are then projected onto the central diamond graph (Figure 11). Depending on where the sample point falls on the diamond graph, basic assumptions can be attributed to the sample, and for this reason the diamond graph is divided into quarters. Displaying numerous water qualities of the same sample on one plot gives an understanding of the changes occurring over time (if any), whilst displaying multiple samples together provides a basis for comparison.

The left quarter in a Piper Diagram represents freshly recharged water, dominated by calcium-magnesium-bicarbonate signature. The right quarter is associated with stagnant or slow-moving groundwater and is dominated by sodium and chloride. The bottom quarter is typical of dynamic groundwater flow and is dominated by sodium and bicarbonates; and the top quarter typically indicates contamination and is dominated by sulphate.

The water quality results for the Valley Silts project area are presented in Table 8 to Table 10. Table 8 presents the water quality data for the Valley Silts area during the 2019 groundwater study. Table 9 and Table 10 present the groundwater qualities during the 2025 hydrocensus and the 2025 aquifer testing programs respectively. The laboratory certificates are attached in Appendix D.

Based on Figure 11, the groundwater in the project area represents a Calcium/ Magnesium-Sulphate water, indicating contaminated water. Only borehole VAL4 (Abraham Kriel Bambanani borehole approx. 1.6 km north of the Russell Stream) presents a Calcium/ Magnesium-Bicarbonate water, indicating recent recharge water.

Based on the 2025 groundwater quality results (Table 9 and Table 10), the following conclusions were drawn:

- Health impact:
    - Iron – An elevated iron concentration was measured for all 7 boreholes (hydrocensus and newly drilled) sampled during the 2025 fieldwork program, with Iron concentrations varying between 4.59 mg/L (borehole VAL4) and 441 mg/L (borehole VS-BH1s), versus the maximum allowable concentration of 2 mg/L. The concentration of dissolved Iron in the 4 newly drilled boreholes, adjacent to the Russell Stream varies between 72.7 mg/L and 441 mg/L, with lower concentrations measured for the two downgradient boreholes (VS-BH2s and d).

      The concentration of dissolved Iron in water is dependent on the occurrence of other heavy metals, such as manganese, and the pH of the water.

    - Manganese – Manganese is a relatively abundant element, constituting approximately 0.1% of the earth's crust. Six of the 7 boreholes sampled during the 2025 study measured a Manganese concentration that exceeds the health impact limit. The measured Mangansee concentration for borehole VAL4 (Abraham Kriel Bambanani borehole) exceeds the Aesthetic Limit of 0.1 mg/L, but is below the Health Impact limit of 0.4 mg/L.

      Manganese concentrations vary between 5.45 mg/L (borehole VAL1) and 74.3 mg/L (borehole VS-BH2d), versus the maximum allowable concentration of 0.4 mg/L. The concentration of dissolved Manganese in the 4 newly drilled boreholes, adjacent to the Russell Stream varies between 34.7 mg/L and 74.3 mg/L, with lower concentrations measured for the 2 upstream boreholes (VS-BH1s and d).

      Manganese tends to precipitate out of solution to form a black hydrated oxide which is responsible for staining problems.

    - Cadmium – The 4 newly drilled boreholes measured a Cadmium concentration that could result in chronic health effects (0.008 to 0.117 mg/L). The health impact limit is set at 0.003mg/L. Elevated Cadmium concentrations were not measured for the 3 hydrocensus boreholes.

      Cadmium has a low solubility under conditions of neutral or alkaline pH and is highly soluble under acidic conditions, where toxic concentrations can easily arise from the dissolution of cadmium from cadmium-plated materials. Cadmium sulphide, carbonate and hydroxide salts are insoluble in water, whereas cadmium chloride, nitrate and sulphate salts are highly soluble in water. Cadmium is not usually found in water at concentrations greater than 0.001 mg/L, unless the water has been subject to pollution from cadmium containing industrial effluents. Cadmium is used in electroplating, in alloys, in certain solders and in nickel-cadmium batteries. Salts of cadmium are used in photography, pottery, the electronics industry and as pigments in many different applications (DWAF, 1996).

- Nickel – An elevated dissolved Nickel concentration was measured at the 4 newly drilled boreholes, plus hydrocensus borehole VAL2. Nickel may be present in groundwater because of dissolution from nickel ore-bearing rocks.
  There are many anthropogenic sources of these chemicals. Industrial uses include alloys, paints, pigments, electroplating, batteries, automotive parts, coatings and electrical wiring.
- Sulphate – Sulphate forms salts with various cations such as potassium, sodium, calcium, magnesium, barium, lead and ammonium (DWAF, 1996). Sulphate is a common constituent of water and arises from the dissolution of mineral sulphates in soil and rock. Since most sulphates are soluble in water it tends to accumulate to progressively increasing concentrations. Contamination by sulphate is to be expected in waters contaminated by Witwatersrand mining activities, due to the oxidation of sulphides in the ores and wastes.

  Sulphate concentrations were elevated in 6 of the 7 boreholes sampled during the 2025 study. It was only borehole VAL4 where the measured Sulphate concentration was within acceptable health and aesthetic limits.

  The elevated Sulphate concentrations vary between 1125 mg/L (borehole VAL1) and 3126 mg/L (borehole VS-BH1d), versus the maximum allowable concentration of 500 mg/L. The concentration of Sulphate in the 4 newly drilled boreholes, adjacent to the Russell Stream vary between 2011 mg/L and 3126 mg/L, with lower concentrations measured for the two downstream boreholes (VS-BH2s and d).
- Lead – An elevated Lead concentration was measured for borehole VS-BH2d (0.012mg/L) and borehole VAL2 (0.012 mg/L), with the health limit defined as 0.01mg/L. The Lead concentration in all other boreholes were below the detection limit.

  The occurrence of Lead in its elemental state is rare. Lead tends to accumulate in sediments and soils in the environment. Lead has many industrial applications which can give rise to sources of Lead contamination in water. Lead is used in batteries, in domestic water distribution pipes, in paints and as an organic lead compound, alkyl lead, in gasoline.
- Total Organic Carbon – High TOC values (between 11.2 and 19.1 mg/L) were measured for boreholes VAL1, VAL2, VS-BH2s and VS-BH2d. In groundwater, the main natural sources of organic matter include buried peat, kerogen and coal; soil and sediment organic matter; and organic matter present in water infiltrating into the subsurface from rivers or dams/ pans.
- E. coli – borehole VAL4 produced a measurable E. coli count – 7 counts per 100 ml; the count must be zero. E. coli is a type of faecal coliform bacteria commonly found in the intestines of animals and humans. Of the five general groups of bacteria that comprise the total coliforms, only E. coli is generally not found growing and reproducing in the environment. Consequently, E. coli is the species of coliform bacteria that is the best indicator of faecal pollution and the possible presence of pathogens.

Borehole VAL4 is in an old residential and industrial area, and it has been assumed that leaking sewer lines are possibly contaminating the groundwater around this borehole.

- Aesthetic effects:
    - Aluminium – The aluminium concentration for boreholes VS-BH1s and VS-BH1d (25.1mg/L and 2.07 mg/L respectively) exceed the SANS241:2015 guideline value of 0.3 mg/L. Aesthetic effects (discolouration) occur in the presence of iron or manganese. Aluminium is the most common metal in the earth's crust. Aluminium does not occur in the elemental form, but its minerals, particularly the silicates of aluminium (clay minerals), are widespread. The sampled groundwater from the BH1 cluster set was very muddy during the sampling process and this could have contributed to the elevated Aluminium concentrations.
    - Zinc – The Zinc concentration for borehole VS-BH1s (7.99 mg/L) exceeds the SANS241:2015 guideline value of 5 mg/L. The measured Zinc concentrations for the other 3 newly drilled boreholes were below the aesthetic impact limit.

      Zinc is an essential nutritional trace element for plants and animals. Humans have a high tolerance level to elevated Zinc concentrations, while fish are highly susceptible to poisoning.

      The most common mineral form of Zinc is the sulphide (sphalerite). Zinc is also found as a carbonate, oxide or silicate and may occur in association with many other metal ores such as Copper and Arsenic. The Chloride, Sulphate and Nitrate salts of Zinc are highly soluble in water, but at neutral and alkaline pH they hydrolyse to form relatively insoluble hydroxides which tend to be associated with sediments. On acidification of the water, the insoluble hydroxides are released back into solution. If the water is acidic, Zinc leaching caused by dissolution of the protective zinc hydroxide layer of galvanised piping can give rise to relatively high concentrations of Zinc in solution.

      Zinc and zinc salts are used in many industrial processes. Zinc itself is extensively used in galvanising processes and in alloys (DWAF, 1996).
    - Ammonium – The chemistry of ammonia is very complex, especially where transition metals are present in water, and while ammonia itself is of relatively low toxicity, this is not necessarily the case for some of its organometallic complexes. Taste and odour complaints are likely to occur if the ammonia concentration exceeds 1.5 mg/L. High concentrations of ammonia can also give rise to Nitrite. The Ammonium concentration for borehole VAL1 exceeds the aesthetic limit for drinking water (14.6mg/L). The aesthetic limit set at 1.5 mg/L. The ammonia concentrations in the other boreholes vary between 0.19 and 0.88 mg/L.
    - Sodium – Sodium is abundant in the environment and usually occurs as sodium chloride, but sometimes as sodium sulphate, bicarbonate or even nitrate (DWAF, 1996). Sodium is highly soluble in water and does not precipitate when water evaporates, unless saturation occurs. The measured Sodium concentration for borehole VS-BH1d (210 mg/L) exceeds the aesthetic limits for drinking water (200mg/L). With the re-use or recycling of water, the Sodium concentration will tend to increase with each cycle or addition of Sodium to the water. For this reason, Sodium concentrations are elevated in runoffs or leachates.

- Turbidity – Turbidity is indicative of the concentration of suspended matter in water and is also related to clarity, a measure of the transparency of water and settleable material. Turbidity in water is caused by the presence of suspended matter which usually consists of a mixture of inorganic matter, such as clay and soil particles, and organic matter. The latter can be both living matter such as micro-organisms and non-living matter such as dead algal cells. Turbidity was high in all boreholes with units varying between 42.5 NTUs and 730 NTUs.
- Calcium – The measured Calcium concentration was elevated for all sampled boreholes, with concentrations varying between 37.5 mg/L and 493 mg/L. Calcium is an alkaline earth metal and exists as the doubly positively charged ion, Ca(II) (DWAF, 1996). Calcium occurs naturally in varying concentrations in most waters and, together with magnesium, is one of the main components of water hardness. Soft waters contain low, while hard waters contain high concentrations of Calcium; see Total Hardness. Calcium is an essential element for all living organisms and is an important constituent of the bony skeleton of mammals, which consists of phosphates of calcium. Mineral deposits of calcium are common, usually as calcium carbonate, phosphate or sulphate (DWAF, 1996).
- Magnesium – Magnesium is an alkaline earth metal which reacts with oxygen and water to form magnesium oxide and magnesium hydroxide, respectively. Magnesium is a common constituent of water, and the solubility is governed by the carbonate/bicarbonate equilibrium and the pH. Magnesium, together with calcium, is responsible for the hardness of water. High Magnesium concentrations were measured in 5 of the 7 boreholes and were thus in acceptable limits for boreholes VAL1 and VAL4.
- Total Hardness – The Total hardness value was elevated for all boreholes except borehole VAL4, indicating very hard water. Water hardness is influenced by the presence of calcium and magnesium salts. Other metals such as strontium, iron, aluminium, zinc and manganese may occasionally contribute to the hardness of water, but the calcium and magnesium hardness usually predominates. Temporary hardness is due to the presence of bicarbonates of calcium and magnesium and can be removed by boiling, whereas permanent hardness is attributed to other salts such as sulphate and chloride salts, which cannot be removed by boiling. Excessive hardness of water can give rise to scaling in plumbing and household heating appliances.
- Total Coliform – Total coliform bacteria are common in the environment (soil or vegetation) and are generally harmless. The total coliform count was elevated for borehole VAL4 (40 counts per 100 ml) and for borehole VS-BH1d (20 counts per 100 ml). The operational limit is set at 10 counts per 100 millilitres (ml).

  Total coliform bacteria are frequently used to assess the general hygienic quality of water and to evaluate the efficiency of drinking water treatment and the integrity of the distribution system. They should not be detectable in treated water supplies. If found, they suggest inadequate treatment, post-treatment contamination and/or aftergrowth or an excessive concentration of nutrients. In some instances, they may indicate the presence of pathogens. Some bacteria classified as coliforms are not of faecal origin. Total coliforms include bacteria that are found in the soil, in water that has been influenced by surface water, and in human or animal waste.

- pH – the pH value for the two newly drilled upstream boreholes (VS-BH1s and VS-BH1d) (4.87 and 4.52 respectively) is below the SANS guideline limit of 5.

  The mobility of trace elements is dependent on several parameters, including pH. All the trace elements examined are most mobile when the pH <4.5, and least mobile when the pH > 6. The pH for the two downstream groundwater samples was 5.6 and 6.2.

- The SANS 241 guideline limits for Electrical Conductivity (EC) and Total Dissolved Salts (TDS) were exceeded for all sampled sites, except for borehole VAL4. EC level varied between 222 and 403 mS/m. TDS varied between 1756 and 4134 mg/L.

The chemicals of concern for the Valley Silts project area are pH, Iron, Manganese, Sulphate, Cadmium, Lead, Nickel and Total Organic Carbon (Table 9 and Table 10). Parameters exceeding aesthetic limits include Ammonium, Aluminium, Chloride, Calcium, Magnesium, Sodium, Zinc and Total Hardness and Turbidity. Most of these are elevated in the four newly drilled boreholes. Based on the SANS241 drinking water guidelines and on the sampled water results, the sampled water is not fit for human consumption (unless treated).

A groundwater study by Rösner et al, 1998 (WRC Report K5/797/0/1) concluded that groundwater near tailings dams is affected by salt loads. The groundwater quality improved with increasing distance down gradient from the pollution source, mainly because of dilution and solid speciation. Once contaminants have migrated through the unsaturated zone, into the groundwater zone, the rate of lateral movement increases by orders of magnitude. The implication of this is that although there is a dilution effect because of contact with groundwater, the potential impact on the environment is extended in a spatial and temporal sense.

The gold containing silt in Russell Stream and the adjacent TSF and sand dump facilities can potentially add sulphate, iron, chloride, calcium, magnesium, manganese and aluminium to the local groundwater system, if the management of contaminated water on site is not effective, but also through seepage from the adjacent dumps. This has been confirmed by the 2019 and the 2025 water sampling results (Table 8 to Table 10). Metals like cobalt, copper, nickel and zinc can also be elevated. In general, sulphate concentrations around the tailings complexes south and west of Johannesburg vary between 417 and 4700 mg/L.

The pyrite present in the silt and sand material is oxidised in the presence of oxygen and water to form ferrous sulphate and sulphuric acid. Both reactions result in an acidic pH, and high sulphate and metal concentrations, leading to Acid Mine Drainage (AMD); often measured in leachate from these dumps. Pirite was also noted in the drill samples from borehole VS-BH2d.

The rate at which pyrite oxidation takes place within the surrounding dumps varies and decreases with depth. The addition of lime during the gold recovery process raises the pH to neutral conditions when tailings are deposited on the facilities. Negative quality impacts are expected when the silts are excavated and exposed to oxygen and water.

The Valley Silts Project area is surrounded by residential and industrial areas. Many pollution sources (industrial discharge, mining activities and poor waste and sanitation management) do exist that can contribute to groundwater contamination. It will be difficult to define the contaminants and concentration at all point sources in the area.

Table 8. Hydrocensus groundwater quality – October 2019

Parameter	Unit	SANS241 Standard Limits		DHSWS Drinking Standards	B15	Storm 1	Val 1
Ammonium	mg N/ℓ	Aesthetic ≤1.5			0,451	0,202	3,61
Chloride	mg Cl/ℓ	Aesthetic ≤300			145	118	43,1
Aluminium	mg Al/ℓ	≤0.3			-0,002	19	-0,002
Cadmium	mg Cd/ℓ		Chronic health ≤0.003		-0,002	-0,002	-0,002
Calcium	mg Ca/ℓ			No health. Scaling intensifies from 32mg/L	330	577	76,4
Copper	mg Cu/ℓ		Chronic health ≤2		-0,002	-0,002	-0,002
Iron	mg Fe/ℓ	Aesthetic ≤0.3	Chronic health ≤2		-0,004	342	-0,004
Lead	mg Pb/ℓ		Chronic health ≤0.01		-0,004	-0,004	-0,004
Magnesium	mg Mg/ℓ			Diarrhoea and scaling issues from 70mg/L	249	93,6	37,7
Manganese	mg Mn/ℓ	Aesthetic ≤0.1	Chronic health ≤0.4		4,74	28,1	0,705
Nickel	mg Ni/ℓ		Chronic health ≤0.07		-0,002	-0,002	-0,002
Zinc	mg Zn/ℓ	Aesthetic ≤5			0,07	0,6	-0,002
Electrical Conductivity at 25°C	mS/m	Aesthetic ≤170			316	460	95,6
Fluoride	mg/ℓ		Chronic health ≤1.5		-0,263	0,615	-0,263
Nitrate	mg/ℓ		Acute health ≤11		0,303	-0,194	0,509
pH at 25°C		≥5 - ≤9.7			6,16	4,13	7,41
Potassium	mg K/ℓ			No aesthetic or health effects below 50mg/L	3,21	59,7	6,72
Sodium	mg Na/ℓ	Aesthetic ≤200			202	219	65,1
Sulphate	mg SO_4/ℓ	Aesthetic ≤250	Acute health ≤500		1843	3208	417
Total Alkalinity	mg $CaCO_3$/ℓ				55,4	13,1	39,2
Total Dissolved Solids	mg/ℓ	Aesthetic ≤1200			2807	4285	677
Total Hardness	mg $CaCO_3$/ℓ	60–120 mg/l, moderately hard	120–180 mg/l, hard	more than 180 mg/l, very hard	1848	1826	346
Orthophosphate (PO_4) as P	mg/ℓ				-0,005	-0,005	-0,005
Cobalt	mg/ℓ				0,208	0,945	0,041
Turbidity	NTU	Aesthetic ≤5			93	38,2	3,41
TOC			Chronic health ≤10		2,75	13,3	1,99

Table 9. Hydrocensus groundwater quality – February 2025

Parameter	Unit	SANS241 Standard Limits		DHSWS Drinking Standards	Val 1	Val 2	Val 4
Ammonium	mg N/ℓ	Aesthetic ≤1.5			14,6	0,887	0,229
Chloride	mg Cl/ℓ	Aesthetic ≤300			81,9	145	25,6
Aluminium	mg Al/ℓ	≤0.3			-0,002	-0,002	-0,002
Cadmium	mg Cd/ℓ		Chronic health ≤0.003		0,003	0,003	-0,002
Calcium	mg Ca/ℓ			No health. Scaling intensifies from 32mg/L	232	376	37,5
Copper	mg Cu/ℓ		Chronic health ≤2		0,015	0,016	-0,002
Iron	mg Fe/ℓ	Aesthetic ≤0.3	Chronic health ≤2		11,7	18,3	4,59
Lead	mg Pb/ℓ		Chronic health ≤0.01		-0,004	0,012	-0,004
Acid Soluble Chromium	mg Cr/ℓ		Chronic health ≤0.05		-0,003	-0,003	-0,003
Magnesium	mg Mg/ℓ			Diarrhoea and scaling issues from 70mg/L	66,9	82,1	16,8
Manganese	mg Mn/ℓ	Aesthetic ≤0.1	Chronic health ≤0.4		5,45	53	0,294
Nickel	mg Ni/ℓ		Chronic health ≤0.07		-0,002	0,123	-0,002
Zinc	mg Zn/ℓ	Aesthetic ≤5			-0,002	-0,002	-0,002
Electrical Conductivity at 25°C	mS/m	Aesthetic ≤170			222	271	31,9
Fluoride	mg/ℓ		Chronic health ≤1.5		-0,263	-0,263	-0,263
Nitrate	mg/ℓ		Acute health ≤11		0,269	-0,194	4,19
TON	mg/ℓ				0,269	-0,194	4,19
pH at 25°C		≥5 - ≤9.7			7,49	7,55	8,17
Potassium	mg K/ℓ			No aesthetic or health effects below 50mg/L	28,2	12,9	1,28
Sodium	mg Na/ℓ	Aesthetic ≤200			164	92,3	5,78
Sulphate	mg SO_4/ℓ	Aesthetic ≤250	Acute health ≤500		1125	1388	23,5
Total Alkalinity	mg $CaCO_3$/ℓ				62,8	48	97,7
Total Dissolved Solids	mg/ℓ	Aesthetic ≤1200			1756	2127	189
Total Hardness	mg $CaCO_3$/ℓ	60–120 mg/l, moderately hard	120–180 mg/l, hard	more than 180 mg/l, very hard	855	1278	163
E.coli	CFU/100ml		Not detected		-1	-1	7
Total Coliforms	CFU/100ml	≤ 10			5	-1	40
Turbidity	NTU	Aesthetic ≤5			302	317	42,5

TOC	mg/ℓ		Chronic health ≤10		18,9	11,2	2,18
Langelier Saturation Index	LSI	A negative Langelier index indicates a scale-dissolving tendency, with the possibility of corrosion			-0,39	-0,24	-0,21

Table 10. Aquifer testing groundwater quality – March 2025

Parameter	Unit	SANS241 Standard Limits		DHSWS Drinking Standards	VSBH-1d	VSBH-1s	VSBH-2s	VSBH-2d
Ammonium	mg N/ℓ	Aesthetic ≤1.5			0,263	0,758	0,328	0,196
Chloride	mg Cl/ℓ	Aesthetic ≤300			31.0	59.0	77,2	78,1
Aluminium	mg Al/ℓ	≤0.3			2,07	25,10	0,023	0,071
Cadmium	mg Cd/ℓ		Chronic health ≤0.003		0,063	0,117	0,012	0,008
Calcium	mg Ca/ℓ			No health. Scaling intensifies from 32mg/L	493	341	334	414
Copper	mg Cu/ℓ		Chronic health ≤2		0,043	0,077	0,019	0,022
Iron	mg Fe/ℓ	Aesthetic ≤0.3	Chronic health ≤2		296	441	83,5	72,7
Lead	mg Pb/ℓ		Chronic health ≤0.01		-0,004	-0,004	-0,004	0,012
Acid Soluble Chromium	mg Cr/ℓ		Chronic health ≤0.05		-0,003	-0,003	-0,003	0,017
Magnesium	mg Mg/ℓ			Diarrhoea and scaling issues from 70mg/L	246	96,6	168	149
Manganese	mg Mn/ℓ	Aesthetic ≤0.1	Chronic health ≤0.4		38,2	34,7	68,3	74,3
Nickel	mg Ni/ℓ		Chronic health ≤0.07		5,21	10,2	1,4	5,83
Zinc	mg Zn/ℓ	Aesthetic ≤5			2,19	7,99	0,036	0,391
Electrical Conductivity at 25°C	mS/m	Aesthetic ≤170			403	317	299	341
Fluoride	mg/ℓ		Chronic health ≤1.5		-0,263	-0,263	-0,263	-0,263
Nitrate	mg/ℓ		Acute health ≤11		1,49	1,01	-0,194	-0,194
TON	mg/ℓ				1,49	1,01	-0,194	-0,194
pH at 25°C		≥5 - ≤9.7			4,52	4,87	6,22	5,69
Potassium	mg K/ℓ			No aesthetic or health effects below 50mg/L	9,09	6,94	18,50	26,90
Sodium	mg Na/ℓ	Aesthetic ≤200			210	77,7	121	145
Sulphate	mg SO_4/ℓ	Aesthetic ≤250	Acute health ≤500		3126	2395	2011	2246
Total Alkalinity	mg $CaCO_3$/ℓ				21,3	14,5	43,5	41,4
Total Dissolved Solids	mg/ℓ	Aesthetic ≤1200			4134	2991	2757	3085
Total Hardness	mg $CaCO_3$/ℓ	60–120 mg/l, moderately hard	120–180 mg/l, hard	more than 180 mg/l, very hard	2243	1249	1525	1650
E.coli	CFU/100ml		Not detected		-1	-1	-1	-1
Total Coliforms	CFU/100ml	≤ 10			20	5	-1	-1
Turbidity	NTU	Aesthetic ≤5			626	730	566	133
TOC	mg/ℓ		Chronic health ≤10		4,18	5,42	19,1	12,3

Langelier Saturation Index	LSI	A negative Langelier index indicates a scale-dissolving tendency, with the possibility of corrosion	-3,51	-3,48	-1,69	-2,16

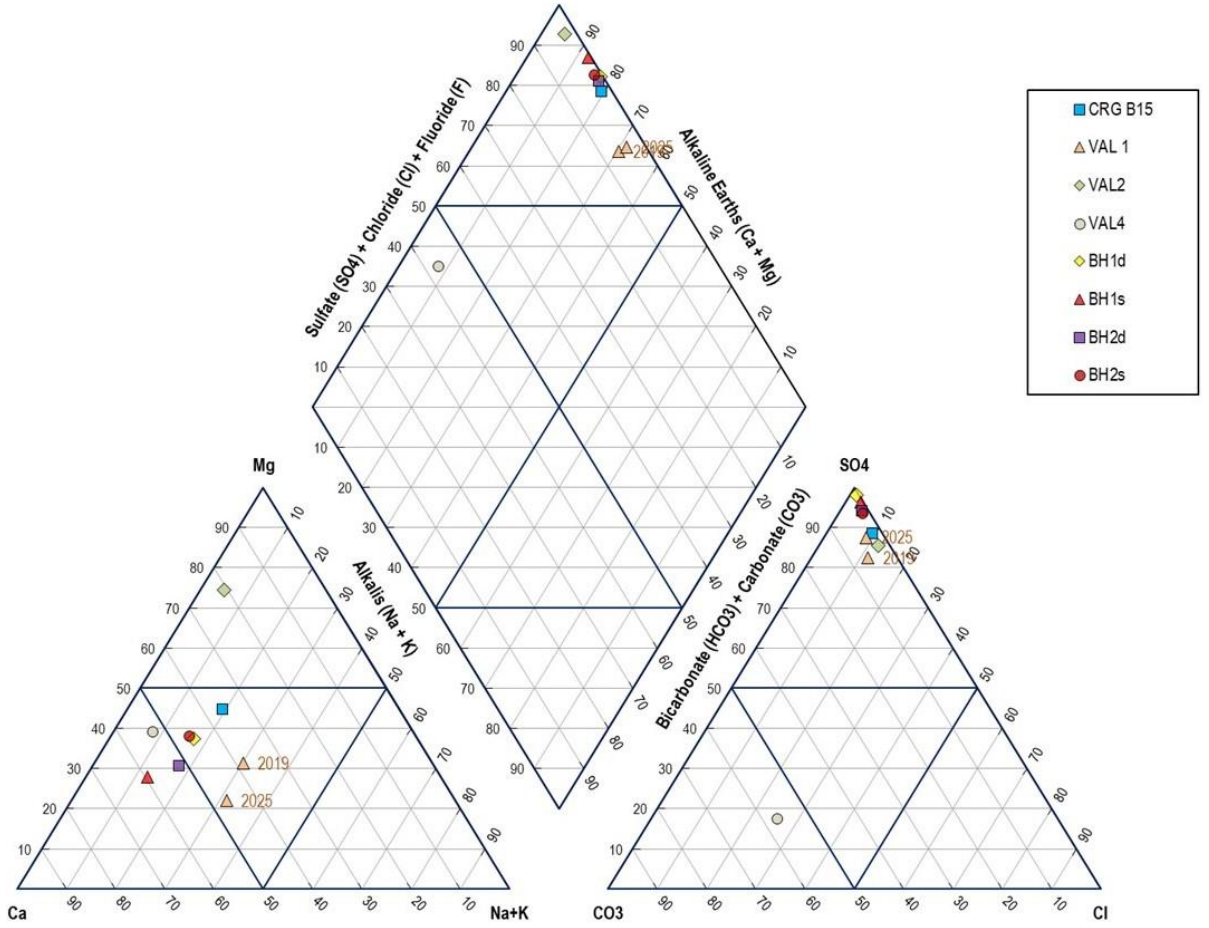


Figure 11. Piper diagram

5.6 Date and Season of the Field Surveys

The hydrocensus was completed during February 2025 during the rainy season in Gauteng. The 2025 fieldwork program was completed during February and March 2025, which represents wet season conditions.

6 Conceptual Hydrogeological Model

This section presents a general understanding of the site conditions in terms of geology, groundwater occurrence, groundwater level and water quality. According to Barnard (2000) various aquifer types are found in the area i.e. weathered and fractured aquifers. The Witwatersrand formations present aquifers that have a combination of loose unconsolidated/ weathered material overlaying hard rock formations, in which fractures, fissures or joints potentially hold water. Groundwater is often encountered in both the saturated weathered material below the regional groundwater rest level and in the transition zone between weathered and fresh formations.

The available information was used to construct a conceptual model of the aquifers present in the project area. The conceptual model forms the basis of the numerical groundwater model constructed and calibrated to complete the impact assessment for this project.

A schematic cross section through the project area is presented in Figure 12. The location of the cross section is indicated on Figure 4. Figure 12 demonstrates the locations and extent of the various geological formations that are present. It is shown that the Valley Silts Project footprint is underlain by formations of the Witwatersrand Supergroup, including Booysens shale and Turrfontein quartzite and conglomerate. The rest groundwater table is shallow in the weathered Wits formations, as indicated by information gathered during the 2025 hydrocensus. The shallow groundwater conditions suggest that groundwater discharges to the Russell Stream, which is substantiated by the groundwater flow contours generated.

6.1 Unsaturated Zone

Published geological maps and the recent drilling program confirmed that the project area is underlain by quartzite. The soils surrounding the project area are shallow sandy soils. Vertic, Melanic, Duplex, Plinthic, Oxidic, Gleyic, Cumulic and lithic soils all have a possibility of being present in the study area (Kongiwe 2025).

It is further noted that the newly drilled monitoring boreholes were largely dry. This doesn't necessarily mean the shallow weathered aquifer is dewatered, only that aquifer permeabilities are very low and that the groundwater table slowly recovers after drilling is completed. Regionally, the groundwater table is about 6.3 m below surface.

6.2 Saturated Zone

Various aquifer types are found in the area, including:

- Weathered aquifers: The project is underlain by shale Booysens Subgroups as well as quartzite of the Turffontein and Johannesburg Subgroups. Shallow aquifers typically form in the upper weathered zone of the geological succession due to the vertical retardation of infiltrated rainwater along the limit of weathering. The depth of weathering within the new monitoring boreholes varies between 8 and 12 m below surface. The depth of weathering is dependent on several factors, including the composition of the rock, the presence of shallow fractures or geological contact zones, climatic impacts like rainfall and the presence of water in soil, and

chemical processes like oxidation and acidification. Groundwater occurrence in this aquifer manifests as seepage. No groundwater strikes were recorded during the 2025 drilling program in the weathered zone. The recharge to the Witwatersrand outcrop and the weathered aquifers is considered low due to the limited presence of the outcrop in the urban setting. Higher recharge rates may be associated with streams flowing through the project area, like the Russell Stream.

- Fractured aquifers: The deeper Witwatersrand formations (Johannesburg, Booysens and Turffontein Subgroups) form rock aquifers where water is stored in and moves preferentially through fractures. No fault and only one large fracture were identified in the formations intersected in the deeper monitoring boreholes. In fact, most of the deep boreholes were dry or yielded only groundwater seepage. No groundwater strikes were recorded in the deeper boreholes during the 2025 drilling programme. The results of aquifer and slug tests completed on the boreholes indicate low permeabilities. This is supported by the very slow groundwater level recovery after drilling of some of the boreholes, which is discussed in more detail below.

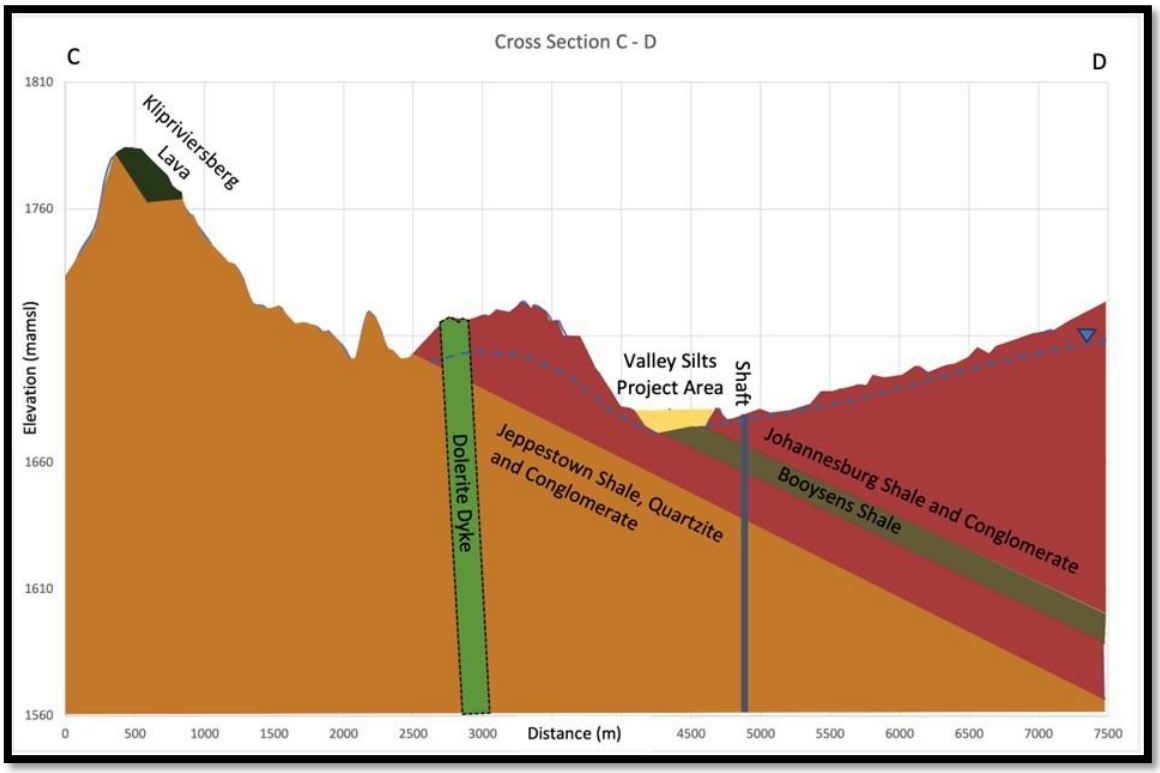


Figure 12. Schematic cross section through the project area

6.3 WITWATERSRAND FORMATION CHARACTERISTICS

The Witwatersrand formations (Central Rand Group) is composed of arenaceous and rudaceous rocks. When these formations decay, they generally produce sandy soils. The Central Rand Group lithologies produce borehole yields of 1 to 2.0 litres per second (L/s) (Barnard, 2000). Higher borehole yields are associated with faults and highly fractured systems – high permeability zones. The Valley Silts Project area is located on Witwatersrand formations, mainly the Turffontein quartzite/ conglomerate, and the Johannesburg quartzite/ conglomerate and Booysens shale. It is thought that the permeabilities of the shale would be low compared to that of the over- and underlaying quartzite and conglomerate. The formations strike east-west and dip between 30° and 60° in a southerly direction (Figure 4 and Figure 12). Many of the faults and diabase intrusions in the area have an east-west orientation.

The hydraulic parameters obtained during the recent aquifer testing at Valley Silts, plus previous aquifer tests in the City Deep and Germiston areas indicate characteristics of low permeability, where groundwater movement at depth is controlled by limited discontinuous fractures in the quartzite/conglomerate bedrock. Water bearing zones can be associated with:

- the tailings material and rock contact zone;
- the shale and quartz contact; and
- fractures / faults within the quartzite.

The shallow depth to bedrock is favourable for the development of perched water tables. These zones are areas of potential preferential horizontal flow. The presence of pearched water tables could not be confirmed for the Valley Silts Project area. On average, the depth to water table in the Witwatersrand Formations is between surface and 6 metres below surface.

6.4 Historical Monitoring Borehole Details

There were two boreholes included in Ergo's water quality monitoring programme for the Valley Silts Project area. These were boreholes CRBH1 and CRBH2. A review of the monitoring reports indicates that the boreholes have not been sampled / tested since November 2017, as they were destroyed (earliest datasource) (Ergo Quarterly Water Quality Monitoring Reports, 2017 to 2019).

A review of the National Groundwater Archive (NGA) dataset also yielded no boreholes in the project area.

6.5 Groundwater Availability Assessment

No information could be recorded during the hydrocensus on the volumes of groundwater regionally used. It is noted that groundwater is used for swimming pool top-up, gardening and monitoring. The only private / production boreholes that were identified during the 2025 hydrocensus are VAL4 and VAL5 (Figure 5). Only VAL4 is in use. VAL4 is approximately 1.6 km north of Russell Stream and borehole VAL5 is approximately 2.5 km north of Russell Stream.

The DWS' published 1:500 000 scale hydrogeological map borehole yield classification is summarised below. The map considers all available data, including blow yields. The general distribution of borehole yield on the published maps indicates the following:

- Witwatersrand quartzite, lava and shale form fractured aquifers with borehole yields varying between 0,5 and 2 L/s.

Information obtained from the aquifer tests completed on the new monitoring boreholes drilled upstream and downstream from the Valley Silts Project area indicate that borehole yields are low. The aquifer test information indicates that the weathered and fractured aquifers present underneath the Russell Stream do not have significant yields and are all considered minor aquifers with low permeabilities.

6.6 Groundwater Potential Contaminants

During the 2019 geohydrological study completed for the project (Groundwater Abstract, 2019), Sulphate and Iron were identified as the key indicators for the impacts on groundwater. This outcome was confirmed with data from the 2025 water sampling, as indicated in Table 11. Sulphate (SO_4) and Iron (Fe) concentrations are compared to pH conditions and TDS concentrations in the table. Elevated Sulphate and Iron concentrations are associated with the dissolution of sulphide minerals in the

tailings and silt material. Exposure of the sulphide minerals to oxygen and water often results in acid mine drainage of which sulphate is a by-product.

The information confirms that groundwater within the project area is acidic with elevated Sulphate and Iron concentrations. As discussed earlier, this is due to the impact of historical tailings deposition in the area. Sulphate concentrations in both the shallow and deep aquifers exceed 2000 mg/L and Iron concentrations are above 300 mg/L, on average. Human health risks associated with Sulphate concentrations measured on site include diarrhoea in all individuals and a very strong and bitter taste, as indicated in Table 12. At the Iron concentrations reported, the groundwater is likely to result in chronic and acute effects with acute toxicity at concentrations of 300 mg/L and above. Severe aesthetic impacts area also expected in terms of taste and impacts on plumbing.

Table 11. 2025 concentrations for indicator elements

Borehole	pH	TDS	SO_4	Fe
Val1	7,49	1756	1125	11,7
Val2	7,55	2127	1388	18,3
Val4	8,17	189	24	4,6
VSBH1D	4,52	4134	3126	296
VSBH1S	4,87	2991	2395	441
CR7	7,20	408	94	3,8

Table 12. Effects of sulphate and iron on human health

Sulphate range (mg/L)	Effects
Sulphate	
0 – 250	No adverse health effects
250 - 500	Tendency to develop diarrhoea in sensitive and some non-adapted individuals. Slight taste noticeable
500 - 600	Diarrhoea in most non-adapted individuals. Definite salty or bitter taste
600 - 1000	Diarrhoea in most individuals. User-adaptations do not occur. Pronounced salty or bitter taste
>1000	Diarrhoea in all individuals. User-adaption does not occur. It has a very strong salty and bitter taste
Iron	
0 – 0.3	No adverse health effects
0.3 - 1	Adverse aesthetic effects (taste). No health effects
1 - 10	Pronounced aesthetic effects (taste and plumbing). Slight health effects in young children and sensitive individuals
10 - 100	Severe aesthetic effects (taste and plumbing). Chronic health effects in young children and sensitive individuals, increasing with higher concentrations
100 - 3000	Chronic and acute health effects and acute toxicity may begin to appear at concentrations of around 300 mg/L. Severe aesthetic effects (taste and plumbing)

Disturbance of the silt material during the reclamation is likely to temporarily affect water quality associated with the project, as indicated for monitoring data for surface water sampling point CR7. This impact is however not expected to result in acidification or significantly elevated salts and metals.

Groundwater quality diagnostic maps were prepared for Sulphate and Iron concentrations and are presented in Figure 13 and Figure 14.

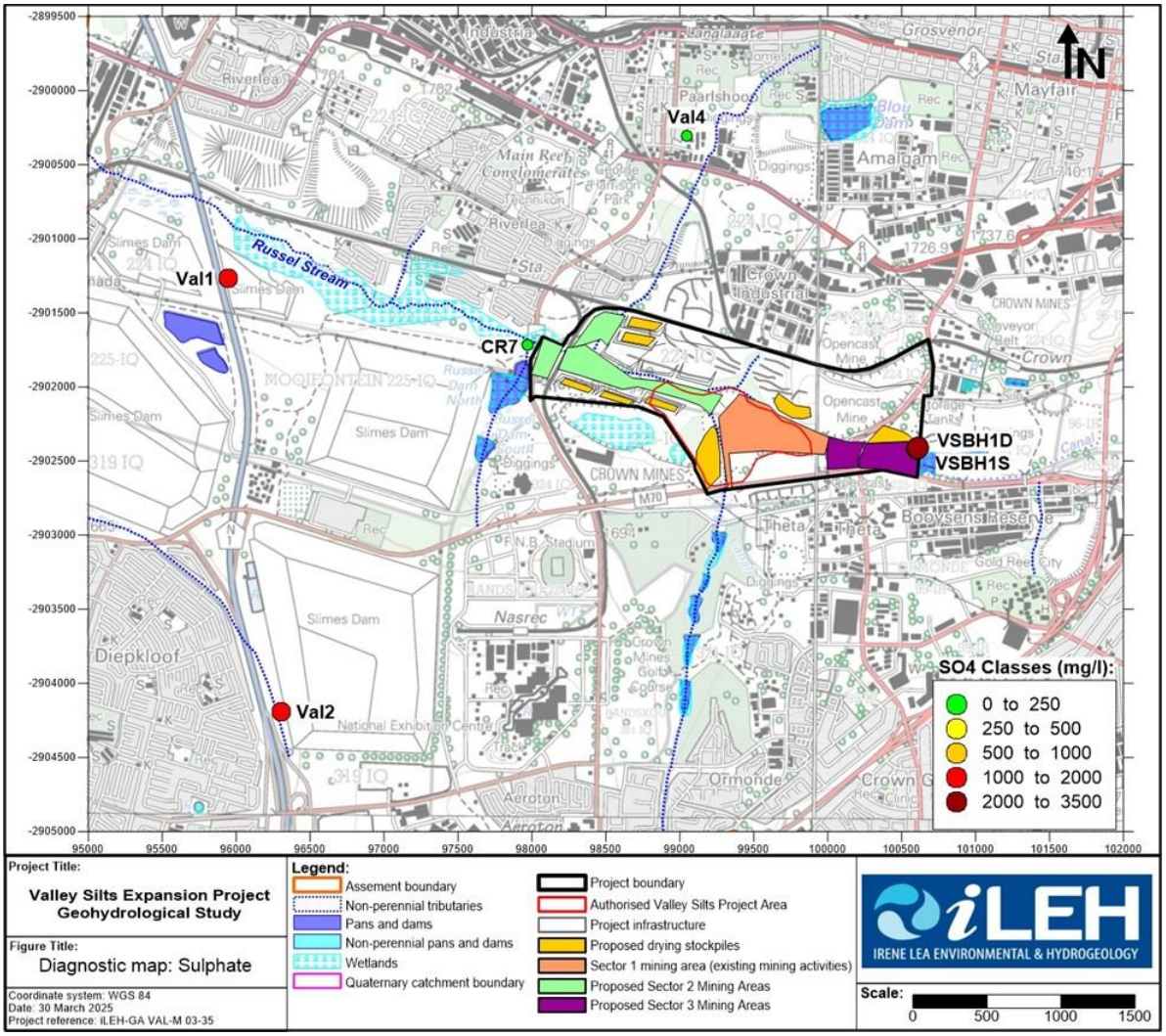


Figure 13. Groundwater quality diagnostic map for sulphate

It is shown that regionally groundwater quality is impacted by existing tailings storage facilities (TSF) located in the vicinity of the Valley Silts Project. For example, in boreholes VAL1 and VAL2, located down gradient of two TSFs not associated with the project, sulphate concentrations vary between 1000 and 2000 mg/L and iron concentrations between 10 and 30 mg/L, which is elevated above ambient conditions. These TSFs will continue to impact on groundwater quality after the Valley Silts Project is completed. This cumulative impact will be assessed during groundwater modelling, as discussed below.

On site, sulphate concentrations exceed 2000 mg/L and iron concentrations 300 mg/L, as discussed above. The removal of the silt material in the stream will improve groundwater quality in this area in the long-term, which is a positive outcome.

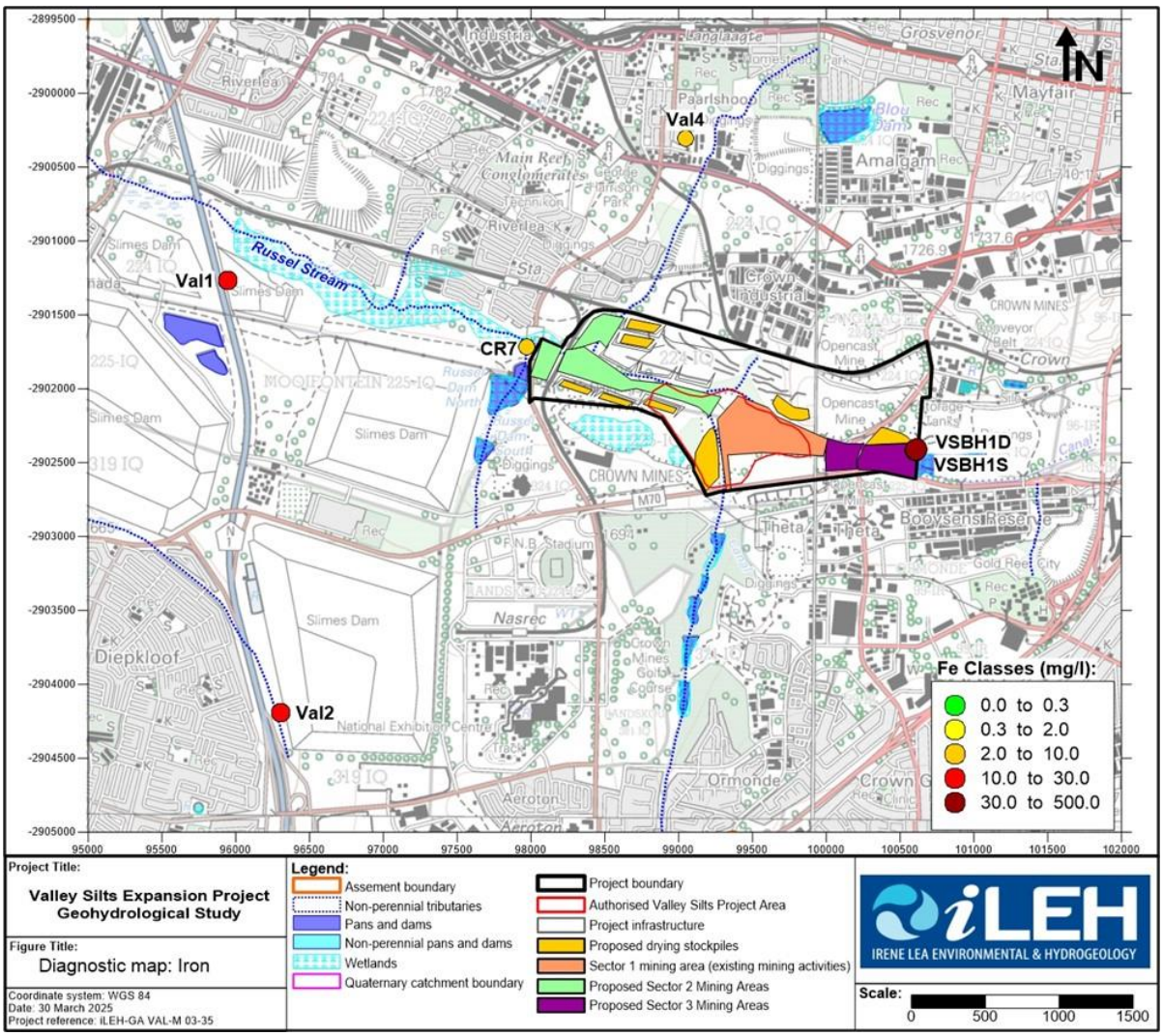


Figure 14. Groundwater quality diagnostic map for iron

The gold containing silt and the adjacent TSF and sand dump facilities can potentially add sulphate, iron, chloride, calcium, magnesium, manganese and aluminium to the local groundwater system, if the management of contaminated water on site is not effective, but also through seepage from the adjacent dumps. Metals like cobalt, copper, nickel and zinc can also be elevated. In general, sulphate concentrations around the tailings complexes south and west of Johannesburg vary between 417 and 4700 mg/L.

The pyrite present in the tailings and sand material is oxidised in the presence of oxygen and water to form ferrous sulphate and sulphuric acid. Both reactions result in an acidic pH, and high sulphate and metal concentrations, leading to Acid Mine Drainage. The rate at which pyrite oxidation takes place within the dump varies and decreases with depth. The addition of lime during the gold recovery process raises the pH to neutral conditions when tailings are deposited on these facilities. Negative quality impacts are expected when the silts are excavated and exposed to oxygen and water.

The Valley Silts Project area is surrounded by residential and industrial areas. Many pollution sources (industrial discharge, mining activities and poor waste and sanitation management) do exist that can contribute to groundwater contamination. It will be difficult to define the contaminants and concentration at all point sources in the area.

6.7 Groundwater Levels

Based on the information available (2025 hydrocensus), the depth to groundwater in the Valley Silts Project area varies between 0.1 m bgl around the TSFs and 5.5 m bgl at Shaft 1 approx 600 m to 700 m south of the Valley Silts Project area, with an average groundwater level depth of 2.65 m bgl.

Since groundwater level measurements in the new monitoring boreholes do not reflect static groundwater conditions, groundwater flow patterns were approximated from the topography and the aquifer conceptualisation discussed above. It is shown that rest groundwater levels vary regionally between 0.1 and 30.9 m below surface, with an average depth of 6.3 m. The deeper groundwater level of 30.9 m measured in boreholes VAL5 north of the project area is probably reflective of conditions in the Booysens shale aquifer.

The depth of groundwater in the new monitoring boreholes vary between 3.4 m and 77.7 m below surface. Within the project area, groundwater flow is in a westerly direction. Locally, groundwater flow is expected to be towards the Russell Stream, mimicking the topography. On a local scale groundwater movement might be in the opposite direction but adopt the regional trend / flow direction as the groundwater moves further away from the topographical feature.

For the Valley Silts Project area, the groundwater flow direction will be in a westerly to south-westerly direction, towards the Klip River (Figure 15).

6.8 Acid Generation Capacity

An assessment of the risk of acidification of process water associated with the project was completed using the Ergo surface water monitoring data immediately downgradient of the project, for sample site CR7. The location of this sample is indicated on Figure 5. This position will indicate impacts on water resources associated with the current silt reclamation activities.

The results of the monitoring programme are presented in Figure 16. The information indicates that the pH in surface water downgradient of the project is neutral with only occasional near-neutral results. The average pH over the period January 2018 to February 2025 is 7.2. The TDS concentrations at this position fluctuates seasonally between 250 and 650 mg/L, with an average concentration of 400 mg/L.

This information suggests that the surface water down gradient of the current activities has not acidified. This outcome will be assumed for the activities planned as part of the Valley Silts Expansion Project.

A comparison between pH and TDS in groundwater is provided in Figure 17. Also indicated are the February 2025 data for surface water sample CR7. It is shown that groundwater in hydrocensus boreholes have neutral to alkaline pH conditions. Groundwater down gradient of TSFs situated near the project area (boreholes VAL1 and VAL2) however have elevated TDS concentrations.

The groundwater samples from the new monitoring boreholes drilled as part of this project indicate acidic conditions with significantly elevated TDS concentrations. These conditions are reflective of the historical impact of tailings and silt deposition in the Russell Stream. This information suggests that removal of the silt material, which has historically contaminated groundwater in this position, will result in a positive long-term impact on groundwater quality.

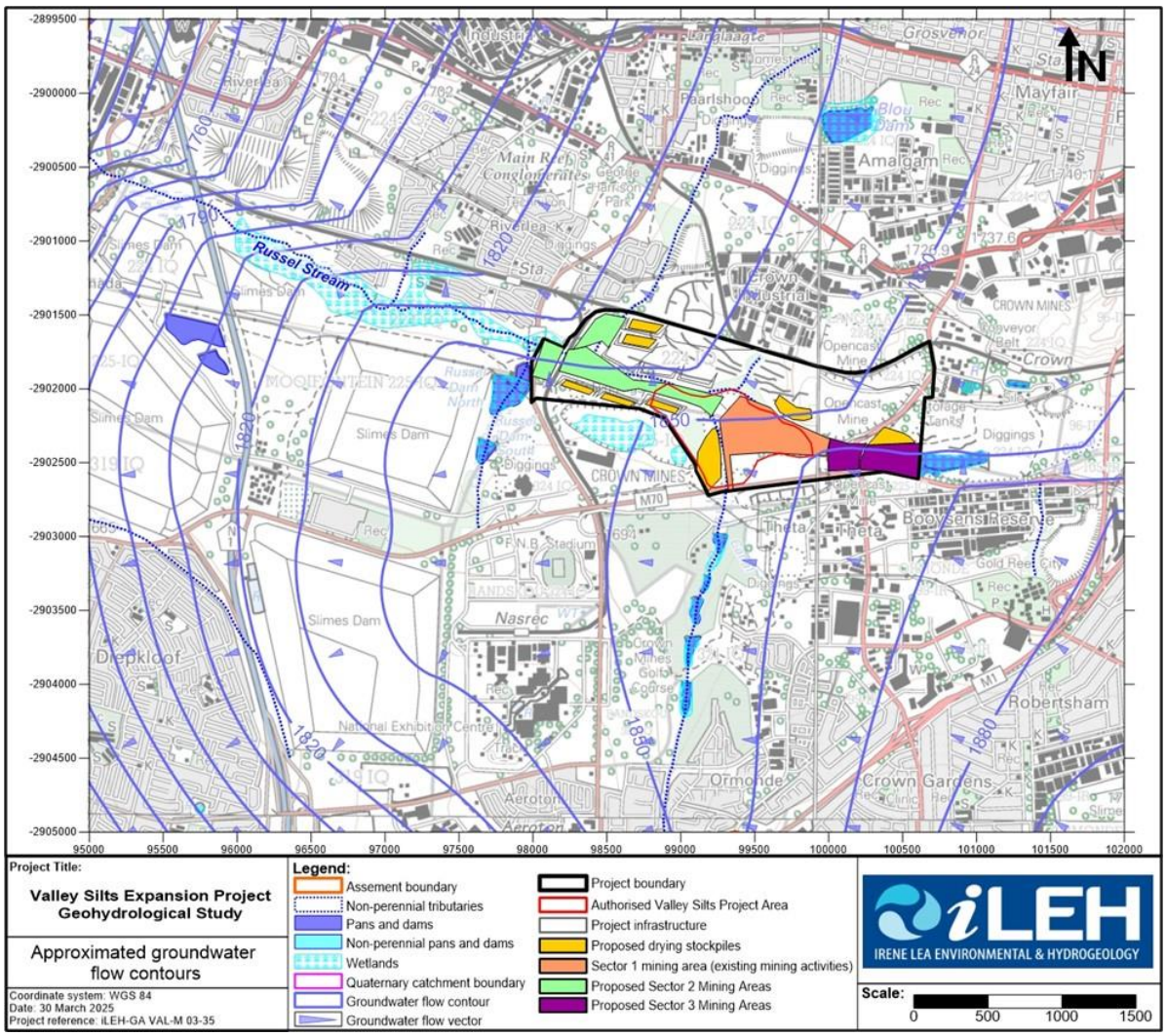


Figure 15. Estimated groundwater flow patterns

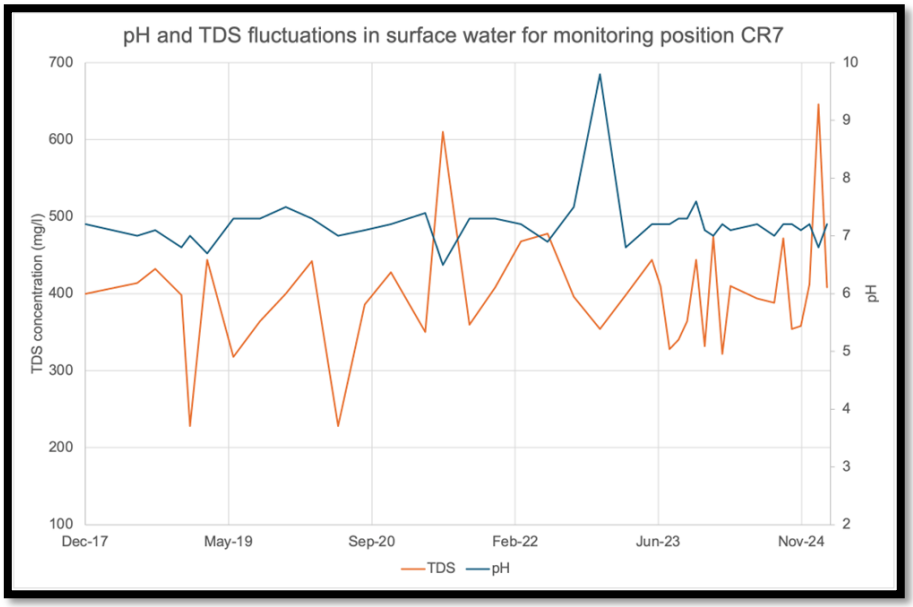


Figure 16. pH and TDS fluctuations in surface water downstream of the project

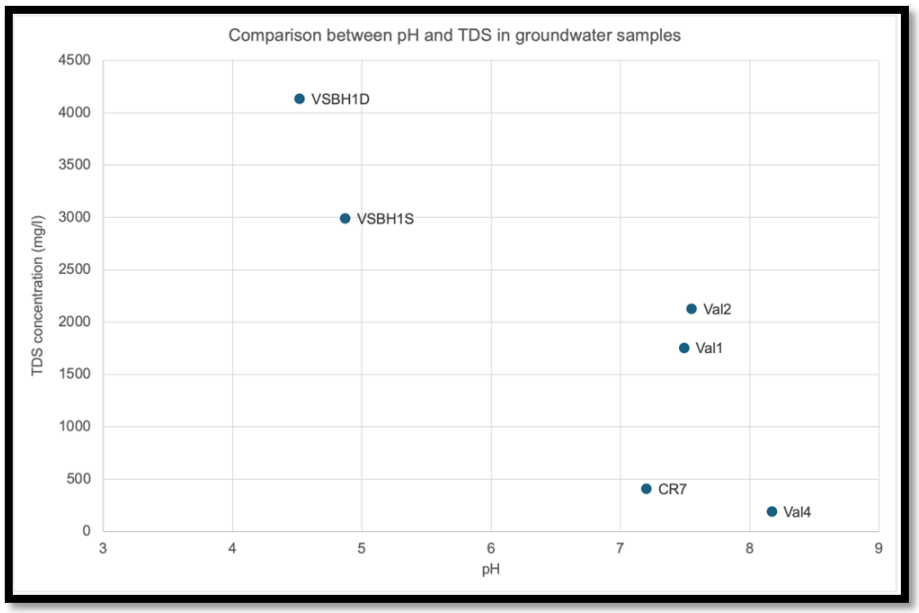


Figure 17. Comparison between pH and TDS in groundwater

6.9 Aquifer Characterisation and Vulnerability

Based on aquifer classification methodology and regions published in the Aquifer Classification Map Series of South Africa (DWS, 2012), the aquifers present in the project area are minor aquifers with low yields and variable quality. No known groundwater use for domestic supply takes place downstream of the project, based on the 2025 hydrocensus. Ambient groundwater quality associated with the Wits sediments are generally acceptable for potable use except where mining, industrial or sewage discharge activities have affected groundwater quality. The aquifers fall in a moderate vulnerable category, which means they are vulnerable to some pollutants in the long-term when these are continuously discharged or leached. Overall, the aquifers presented are ranked with a medium susceptibility to the impacts of pollutants.

Based on the information above, as well as the methodology described by Parsons (1995), the aquifer protection classification is rated as medium. This is because groundwater has been impacted by industrial, mining and sewage discharge activities.

7 Groundwater Modelling

To assess the potential impacts of the proposed silt excavation from section of the Russell Stream, a groundwater model was constructed for the project area. The information presented and discussed below should be considered as a first approximation of the impact of desilting, as the study is based on a limited dataset.

7.1 Key Assumptions, Literature-Based Data Inputs

The numerical modelling used to complete the impact prediction for the project is based on the following assumptions:

- The geometry of the aquifers present was inferred from published geological maps as well as inferred from natural groundwater barriers.

- Aquifer parameters or borehole construction details were not available for the hydrocensus boreholes. Aquifer characterisation was completed with data from the four monitoring boreholes drilled on site.
- The source term was inferred from the existing groundwater quality on site. As discussed earlier, this represents the impact of historical tailings deposition on groundwater quality.
- The volume of leachate available for infiltration during the operational phase is based on work completed for the project in 2019 as well as on experience with similar projects.
- There is currently no information available to characterise the timeline of the historical tailings deposition and management in the project areas. For this reason, assumptions had to be made on when these TSF were established and how long they were operational. This information is considered tentative and should be revised if more specific information becomes available.
- Only advective transport of contaminants was simulated. Assumptions made regarding advection, are discussed below. While it is acknowledged that attenuation will take place in the soils, there is currently insufficient information available to quantify the extent to which this takes place. As such, simulations are based on the precautionary principle and take the worst-case scenario into consideration.

7.1.1 Modelling Objectives

The objectives of the numerical modelling presented in this report are based on the requirements of the EIA process and the Water Use Licence Application requirements. The following objectives are therefore reported:

- Estimate the impact of the proposed Valley Silts Expansion Project during the construction and operational phases of the project on groundwater quality. No significant impacts on groundwater levels are expected.
- Predict the long-term impact of the project on groundwater quality post closure and rehabilitation.
- Evaluate the effect that silt removal and footprint rehabilitation would have on groundwater quality.
- Develop a groundwater monitoring program, based on the outcome of the impact prediction study.
- Develop a groundwater management program geared at reducing the impacts on groundwater quality identified.

7.1.2 Model Construction

The numerical modelling was undertaken according to accepted industry principles and standards, including the South African Department of Water and Sanitation's Best Practice Guideline for Impact Prediction (DWS BPG G4, 2008).

The numerical model for the project was constructed using MODFLOW and MT3DS. MODFLOW is a modular three-dimensional groundwater flow model and MT3DS a modular three-dimensional solute transport model published by the United States Geological Survey. MODFLOW and MT3DS use finite difference discretization and flow codes to solve the governing equations. MODFLOW and MT3DS are widely used simulation codes, which are well documented. MODFLOW is used to simulate

groundwater flow rate and direction. MT3DS is superimposed on the MODFLOW simulation results and is used to predict the rate and direction of contaminant movement in the aquifers.

To accommodate the large area over which simulations will be undertaken, the model area was refined into block cells of 50 m by 50 m (Figure 18).

The positions where rivers and streams exit the model area were simulated as a constant head and general head boundaries. The northern, eastern and southern model boundaries were included as no-flow boundaries.

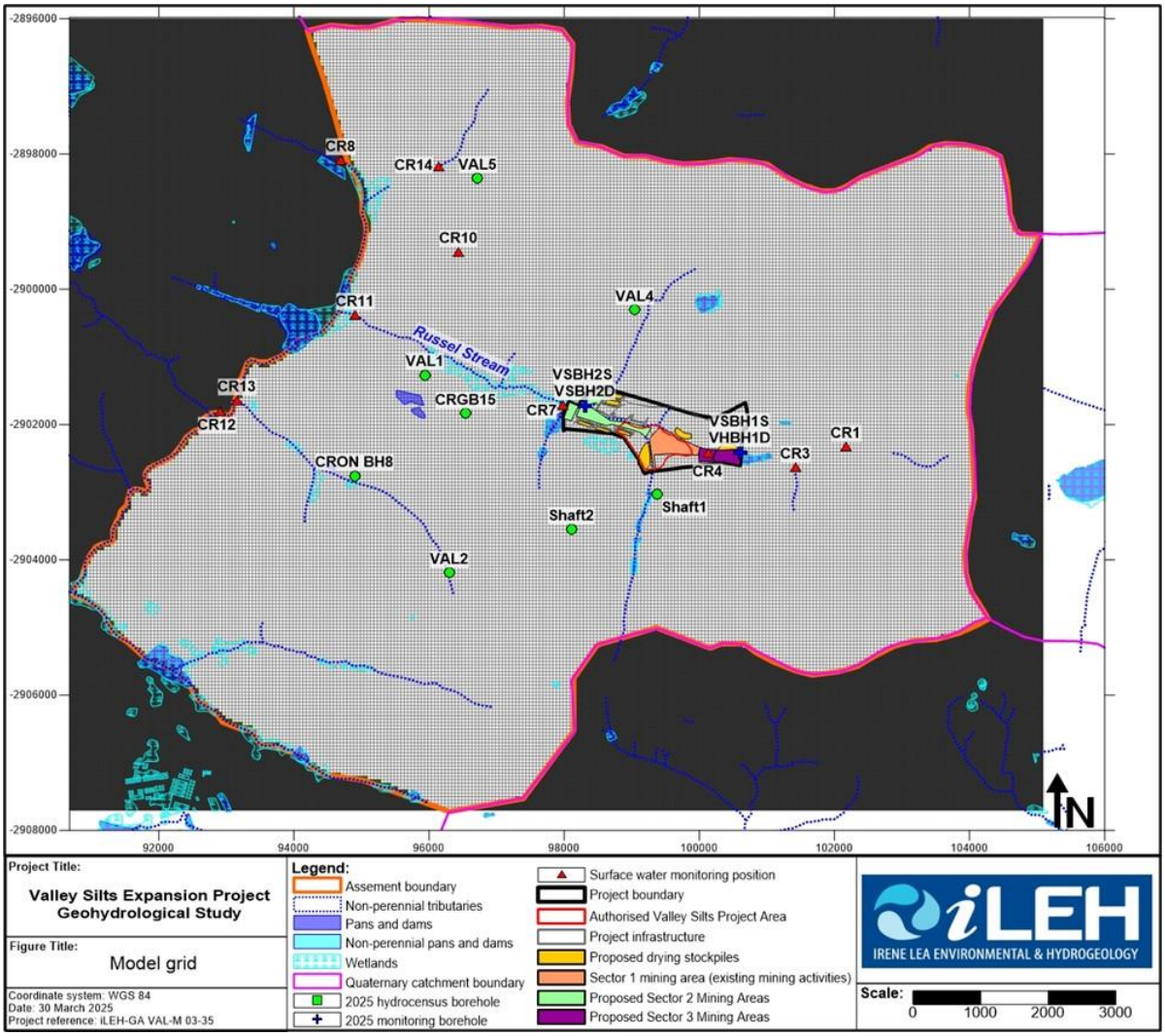


Figure 18. Model grid

Perennial rivers, streams and wetlands inside the model boundary were simulated with discrete cells.

Two layers were included in the model. The upper layer presents the upper weathered aquifer. This layer is included to facilitate a more accurate simulation of the wetlands, rivers and streams included in the model. The second layer represents the Witwatersrand formations, which are considered aquitards to a large extent. The upper layer was simulated as an unconfined aquifer. The second layer was allowed to vary between confined and unconfined conditions, depending on water level fluctuations.

All units used during simulations were presented in metres (length) and days (time).

7.1.3 Groundwater Elevation and Gradient

The 2025 measured groundwater water levels in hydrocensus boreholes were used to calibrate the model for this assessment. The groundwater elevations and gradient for this dataset were discussed in Section 6.7.

It is noted that some of the groundwater level measurements in the dataset do not reflect rest groundwater levels, especially the levels for the four new boreholes. These groundwater levels are rather a reflection of the slow recovery of groundwater levels post drilling due to low aquifer permeabilities.

7.2 Model Input Files and Integration

The conceptual model discussed in Chapter 6 was used to construct the numerical model for the project area. The conceptual aquifer parameters were gradually adjusted during calibration, as discussed below, to obtain the best fit for the dataset.

The geometry of the numerical model is based on the conceptualisation of the aquifers and on the regional geological. The geological formations are included as discrete zones in the model.

The topographical surface was interpolated from the Digital Terrain Model (DTM) (i.e. the surface topography) and incorporated into the model to ensure that the elevations of the drains used to simulate the streams reflect the topography.

The top of the upper layer of the model was simulated with the surface contours for the project, which was obtained from the DTM for the catchment.

The initial water levels in the model layers of the model were kriged from available information.

During contaminant transport modelling it was assumed that horizontal and vertical transverse dispersivity is 0.01. The effective molecular diffusion coefficient is 8,64E-5 m^2/d and that the longitudinal dispersivity is 90 m. The latter was calculated using the empirical equation developed by Neuman (1990) for an average travel distance of 1000 m.

No chemical reaction was taken into consideration during simulations.

The timelines considered during modelling are presented in Table 13. Detailed information is not available to accurately reflect historical tailings deposition and reclamation. Some of the dates are therefore assumptions.

Table 13. Assumed timeline used during simulations

Stress Period	Dates	Length (years)	Description of activities
1	1900 - 2021	121	Historical deposition of tailings and sediments in the stream
2	2022 - 2025	3	Sector 1 of reclamation currently underway
3	2026 - 2029	3	Sectors 2 and 3 of the Valley Silts Expansion Project
4	2030 - 2031	2	Rehabilitation period
5	2032 - 2132	100	Simulation period to evaluate long-term impacts

7.3 Source Term

7.3.1 Seepage Quality

The seepage quality associated with the project was inferred from groundwater quality measured on site during 2025. As discussed earlier, the groundwater quality reflects the impact of historical tailings deposition in the Russell Stream. Removal of the tailings and silt material is expected to improve groundwater quality in the long-term. The extent to which this will occur will be assessed as part of this project. Seepage qualities for the indicator elements are presented in Table 14.

Table 14. Source term: Leachate quality

	Sulphate concentration (mg/L)	Iron concentration (mg/L)
On-site range (VSBH1D and D data)	2400 - 3200	300 - 440
Surrounding historical TSF range (VAL1 and VAL2 data)	1200 - 1400	12 - 18

It is noted that in the 2019 assessment, the assumed source term included a sulphate concentration of 3500 mg/L and iron concentration of 350 mg/L for historical impacts, which is comparable to the 2025 measured data.

7.3.2 Operational Seepage Volume

The volume of leachate available for infiltration was calculated from experience with similar projects as well as the work completed in 2019 (Groundwater Abstract, 2019). The information is presented as a percentage of the mean annual precipitation.

Table 15. Source term: Leachate volume

Scenario	Estimated seepage volume (% of MAP)
Best case (dry conditions)	0,1%
Likely case (average conditions)	1%
Worst case (wet conditions)	2%

7.4 Potential Pathways and Receptors

Based on the available dataset, the following aquifer pathways are identified for the project:

- Vertical flow through the unsaturated soil horizon from the silt reclamation areas to the underlying weathered and fractured rock aquifers.
- Vertical and horizontal flow through the weathered aquifer over the silt reclamation areas.
- It is noted that the formations of the Witwatersrand Supergroup are considered to be poor aquifers or aquitards. Groundwater is expected to flow slowly though these formations.

The following receptors were identified:

- Boreholes identified during the hydrocensus. None of these boreholes are however located downstream of the project area.
- The Russell Stream. Groundwater is expected to contribute to stream baseflow, specifically during the wet season when groundwater levels are expected to rise above the base of the streams because of the recharge of rainwater.

- The wetlands associated with the Russell Stream. Shallow groundwater is expected to contribute to the maintenance of these wetlands, especially during the dry season, when river water levels may be lowered.

The potential pathways and receptors are summarised in Table 16.

Table 16. Pathways and receptors

Pathways	Receptors
Runoff	Boreholes identified during the hydrocensus
Seepage	Russell Stream
Fractures, faults, joints and bedding planes in the upper fractured rock aquifer	Wetlands associated with the Russell Stream

7.5 Calibration Results

Calibration of a numerical model refers to the demonstration that the model is capable of reproducing field-measured data, which are the calibration values. Calibration is achieved when a set of parameters, boundary conditions, source terms and stresses are found that produce simulated heads and concentrations that match field measured data within the calibration criteria set for the project. This is an important step in the modelling project, which ensures that model results are reliable.

Calibration was completed with groundwater level measurements in boreholes visited during the 2025 hydrocensus as well as rest groundwater levels from site measurements. The calibration criteria set for the project are presented in Table 17.

Table 17. Calibration criteria

Requirement	Acceptability criteria	Compliance
Model convergence	Maximum change in head of 0,001 m	Complied with (see discussion below)
Water balance	Difference between inflow and outflow <1%	Complied with (see discussion below)
Root Mean Square Error	<5 m for targets	Complied with (see discussion below)
Calibration error	80% of targets with <5 m error between simulated and measured head	Complied with (see discussion below)

The results of the calibration process are presented in Table 18 and Figure 19. It is shown that the calibration error (the difference between measured and simulated head) is less than 5 m for all but two data points.

The root mean square error, which provides an indication of the goodness of fit during calibration, is 3.97 m, which is within the acceptable criterial limit of 5 m. The sum of the residuals is 8.44 m, which means that the model doesn't over or under-estimate groundwater levels preferentially.

The water balance error calculated with the numerical model is -0.43%, which also complies with the acceptable calibration criteria set.

Factors that influence the calibration process and results include the following:

- Errors in the coordinates and elevations recorded for the boreholes. The coordinates used were recorded with a hand-held GPS.

- The absence of borehole logs with which to characterise the aquifer conditions that groundwater levels in hydrocensus boreholes represent.
- A lack of understanding the mechanisms that affect water levels in the shaft included.
- As mentioned earlier in this report, the modelling code assumes a continuous porous medium, which means that the aquifers are simulated using average parameters. This does not allow for local variations in permeability that affects groundwater levels in the aquifers. Discrete zones were however included to represent the mapped faults.

Model calibration can be improved once additional monitoring information becomes available from the proposed monitoring program. Model-recalibration and verification can be undertaken with this data. Groundwater monitoring requirements are discussed later in this report.

Table 18. Calibration results

BH ID	Simulated	Measured	Residual
VAL1	1660,746	1661,7	-0,954
CRGB15	1669,443	1672,1	-2,657
VAL2	1697,945	1691,9	6,045
CRONBH8	1665,491	1661,8	3,691
VAL4	1691,613	1685,1	6,513
SHAFT1	1670,653	1673,5	-2,847
VSHBH1	1673,247	1674,6	-1,353

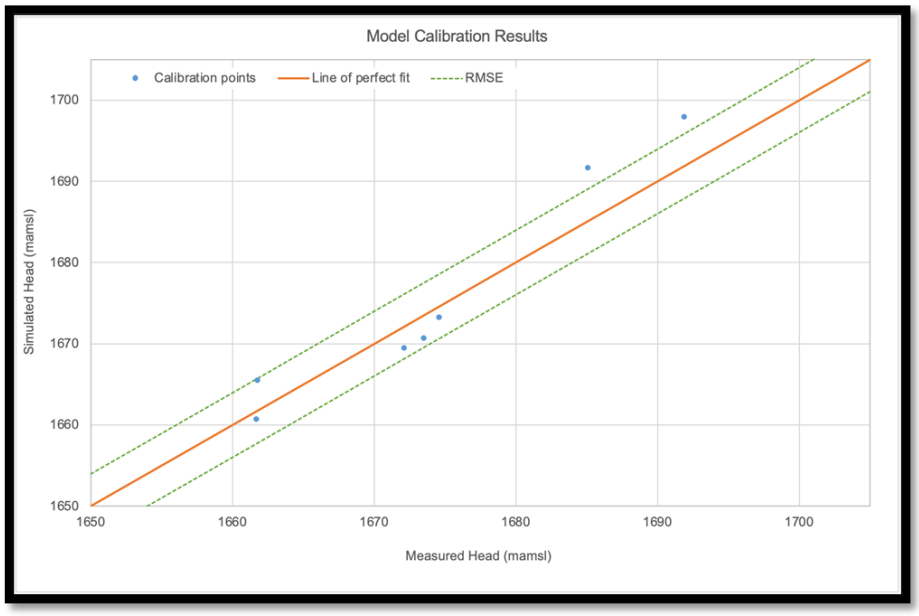


Figure 19. Calibration results

7.6 Model Sensitivity

A sensitivity analysis was completed on the model. The purpose of the sensitivity analysis is to quantify the uncertainty in the calibrated model caused by uncertainty in the estimates of aquifer parameters, stresses and boundary conditions. The level of heterogeneity of the aquifer material can never be accurately measured with field data. The uncertainty of the impact of heterogeneity on simulations is therefore assessed as part of the sensitivity analysis.

The results of a sensitivity analysis can be used to identify data gaps and to plan for additional fieldwork, including monitoring requirements, once the modelling has been completed.

The comparative sensitivity for the parameters included during calibration is presented in Figure 20. The comparative sensitivity provides an indication of how sensitive the model is to changes in each parameter, compared to the other parameters tested. A low value indicates a low sensitivity and a high value a high sensitivity. The results indicate the following:

- The model is sensitive to changes in the rate of recharge to the aquifers and the permeability of the weathered aquifer (Witswatersrand formations).

As discussed in the calibration section above, model sensitivity can be addressed through additional calibration with groundwater monitoring data that will become available from the operations once the monitoring programme is implemented.

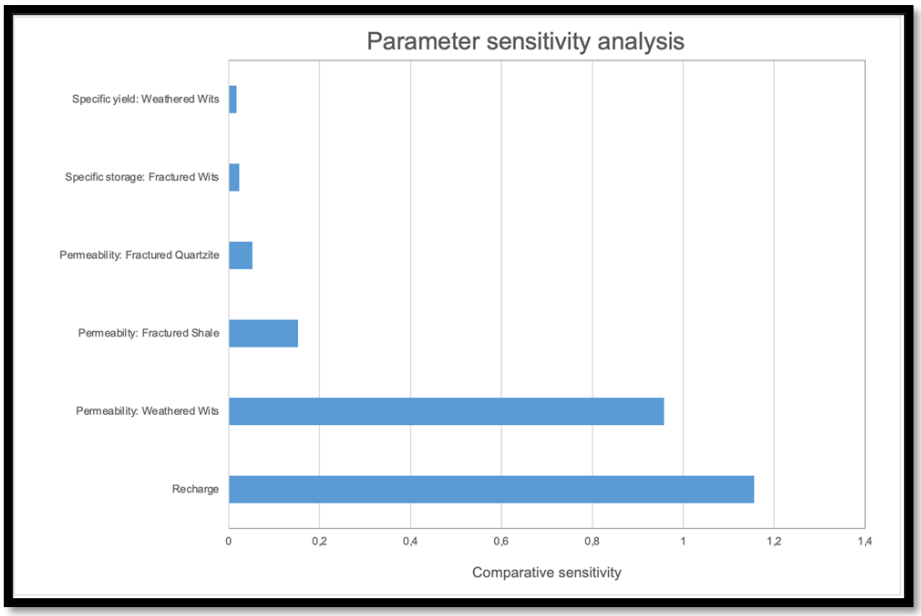


Figure 20. Sensitivity analysis

7.7 Assessment of Uncertainties

The accuracy of the modelling project depends on the quality of the input data and the available information. Even with an unchanging environment, impacts are difficult to predict with absolute certainty. Predictions were undertaken with the calibrated flow model, which is a simplified version of reality. The model represents a tool that can be used to assess the impact of the proposed silt reclamation activities on the aquifers and to identify data gaps. The calibration error is discussed above and is acceptable within the limitations of the study. The model should be updated and verified with site-specific monitoring information, when it becomes available. Calibration against hydrographs (groundwater level fluctuation with time) and on-site rainfall data will be of specific value in improving the current understanding of aquifer parameters. Uncertainties are approached conservatively, based on the precautionary principle, to ensure that the predictions and impact assessment in this report addresses the maximum potential impact of the proposed development. The uncertainties in the model include:

- Uncertainties regarding aquifer conditions within the project area: The field data that could be used during model calibration is limited to the four boreholes on site. Regional aquifer conditions were assumed based on previous studies completed in the area. This introduces uncertainty into the modelling results. To address this uncertainty, three scenarios were tested to evaluate the impact of a varying source term on predicted outcome.
- Uncertainties regarding borehole depth, construction and geology intersected: This information is not available for the hydrocensus boreholes. For this reason, it was assumed that all hydrocensus boreholes target the fractured rock aquifer.
- Uncertainties regarding the borehole elevations: The elevations used during simulations were inferred from hand-held GPS measurements and inaccuracies may occur. It is however thought that the error in elevation will not exceed the calibration error of 5 m.
- Mathematical modelling uncertainties: It is not possible with the available information to quantify the heterogeneity present in the aquifers simulated. For this reason, there are inherent uncertainties in the model. The level of confidence in the model can be improved with the incorporation of additional monitoring data.

The uncertainties listed above can be reduced or eliminated through the implementation of the groundwater monitoring program at the Valley Silts Project and surrounding areas. This information can be used to improve aquifer parameter estimation and model calibration.

8 HYDROGEOLOGICAL IMPACTS

8.1 PREAMBLE

There are positive and negative impacts reported for tailings reclamation. Lieferink (2012) provides the following positive impacts related to water resources, for this process:

- Removal will partially remove one of the sources of water pollution and ingress.
- Removal will expose the natural soil layer, allowing vegetation growth after rehabilitation.
- Significant long-term benefits, provided that the footprint is adequately rehabilitated and remediated.

Conversely, Lieferink (2012) reports that negative impacts will also manifest. From a water management perspective, the following is applicable:

- Not completing the reclamation of the project, thus leaving a portion of the source of contamination behind.
- Selective extraction of value from portions of a site and not rehabilitating the full extent of the footprint.
- Elevated levels of residual radioactivity in the soils, restricting reuse.
- Introduction of large volumes of water and oxygen into anaerobic tailings which exacerbates pollution. The process of reclamation therefore imposes a greater duty of care.

The Valley Silts Project is positioned on outcrops of quartzite and shale of the Witwatersrand Supergroup. Aquifers associated with these formations are generally considered aquitards which exhibit low permeabilities and are therefore a low-yielding aquifers.

The source term presented earlier in this report and the assumed project timeline presented in Table 13 and Table 15, were applied during simulations.

The extent of silt deposited in the Russell Stream was inferred from the work completed during the 2019 study. Some silt deposits will remain further west along the flow of the stream. These were included during simulations. Impacts are however not related to Valley Silts Project.

Similarly, the historical TSFs located around the project area were included during simulations, based on monitoring data from two hydrocensus boreholes immediately downgradient of these facilities (VAL1 and VAL2). It is assumed that these facilities are fairly dry as they have been dormant for an extensive period. Water balance calculations are not available for these TSFs.

The outcome of the simulations is presented as sulphate and iron concentration contour maps that delineate the anticipated plumes for three scenarios to be tested. These include:

- **Best case scenario**: Low seepage infiltration from the project to the underlying aquifers, equivalent to dry conditions.
- **Likely case scenario**: Moderate seepage infiltration rates to the underlying aquifers, equivalent to average conditions.
- **No Project scenario**: This is considered the worst case and assumes that the silts will remain in the Russell Stream floodplain.

The assessment was undertaken to evaluate impacts at the end of the operational phase as well as long-term impacts of a period 100 years after rehabilitation is completed.

The plumes presented below represent aquifer conditions in the upper 80 m of the geological succession. Most significant impacts on groundwater quality are however expected in the upper weathered aquifer. The extent of the plumes is based on the SAN241:2015 Drinking Water Qualities as detailed in Table 19.

Table 19. Applicable In-stream Water Quality Guidelines for the project

Sulphate range (mg/L)	Effects
Sulphate	
500	Used to delineate the zone of impact on groundwater quality
1000	Used to delineate the zone of unacceptable impact on groundwater quality
Iron	
1	Used to delineate the zone of impact on groundwater quality
10	Used to delineate the lower limit of the unacceptable impact on groundwater quality
100	Used to delineate the zone of unacceptable impact on groundwater quality

8.2 Rehabilitation Measures Considered

During the rehabilitation phase of the project, it was assumed that all tailings and silt will be removed, that the soil will be shaped to create a free-draining surface, and that all radiation will be removed. It is noted that this rehabilitation scenario will not reverse the cumulative impact of historical tailings deposition. For this reason, a residual impact will remain post-closure of the project in the long-term.

The rehabilitation will be completed down to a red earth footprint. As mentioned above, the area will be shaped for correct storm water management. During this phase, all project infrastructure will be removed, and a final radiological survey will be undertaken. Thereafter the property will be handed over to the landowner.

8.3 General Outcome for All Scenarios

The overall outcome of the simulations is summarised as follows:

- The cumulative impact of all historical TSFs located around the project area was included during simulations. These areas are included based on monitoring data from hydrocensus boreholes downgradient of two of these TSFs. Since these are likely dry as they are dormant, long-term impacts on groundwater quality associated with these could reduce. It is further noted that these TSFs are downgradient of the Valley Silts Expansion Project and are therefore not expected to directly impact on long-term water quality associated with the project.
- Also included is silt material present in the Russell Stream further downgradient and west of the Valley Silts Expansion Project. The extent of this material is inferred from information made available as part of the 2019 assessment. As this material will remain in the stream for now, it impacts on groundwater quality in this area will continue in future. This area is downgradient of the Valley Silts Project and will therefore not impact on long-term groundwater quality associated with the project.
- Only two of the boreholes and shafts identified during the 2025 hydrocensus are downgradient of the project, namely CRGB15 and VAL1. Borehole CRGB15 is downgradient of a historical TSF. For this reason, impacts on this borehole cannot be attributed to the Valley Silts Project. Borehole VAL1 is located approximately 2 km west of the Valley Silts Project, further along the flow of the Russell Stream. This borehole is located near the area where silts are likely to remain in the stream in future and is also downgradient of a historical TSF. Based on this it is concluded that groundwater is not currently used in the zone of impact associated with the Valley Silts Project.
- The project footprint is located on outcrops of Turffontein quartzite, Johannesburg quartzite and Booysens shale. Fieldwork completed during 2025 confirms that the aquifers associated with the shale and the Johannesburg quartzite have low permeabilities and recharge rates. As such, the sulphate and iron plumes associated with the project migrate very slowly in the aquifers. The advantage of this outcome is that contamination associated with the project is not likely to move more than a few hundred meters from the reclamation areas in the long-term.
- The disadvantage of the poorly developed aquifer conditions identified is that historical contamination will not be flushed in the long-term but will remain within the footprint area to a large extent. Removal of the silt material as part of the project is therefore likely to reduce the concentrations of contaminants but will not significantly do so. In addition to a reduction in concentration, the extent of the zone of impact on groundwater quality will reduce in the long-term after removal of the silt material from the stream.
- Groundwater plumes are expected to move towards the Russell Stream on a local scale, but regionally in a westerly directly, but slowly.
- The volumes of contaminated groundwater that may reach the wetlands downgradient in the Russell Stream cannot be accurately assessed based on one dataset alone. It is however expected to be low, probably not exceeding 20 m^3/a.
- Most significant impacts on groundwater quality, as delineated by the simulated zones of unacceptable long-term impacts and zones of acceptable operational impacts are mainly restricted to the Valley Silts Project footprint areas. The zones of unacceptable impact are indicated by thick red lines at concentrations exceeding 1000 mg/L for sulphate and exceeding 10 mg/L for iron.

- The extent of the iron plume is larger compared to that of sulphate. This is because lower concentration standards are imposed on iron compared to sulphate.

8.4 Impact Prediction

8.4.1 Impact at the End of the Operational Phase

The impact of silt reclamation from the stream at the end of the operational phase is presented for iron and sulphate (Figure 21 and Figure 22). The simulations indicate the following:

- Due to the short duration of the project, the outcome of the operational impact on groundwater quality is mainly due to the impact of historical tailings deposition in the stream.
- Based on the current dataset, it is expected that sulphate concentrations would exceed 2000mg/L and iron concentrations would exceed 200 mg/L over the project footprint area at the end of the operational phase. The groundwater is currently not fit for use.
- The zone of impact on groundwater quality is not expected to significantly exceed the project boundary at the end of the operational phase. It is possible that the plumes can migrate a hundred meters west along the flow of the Russell Stream.
- No private boreholes fall within the delineated zone of impact of the Valley Silts Expension Project.

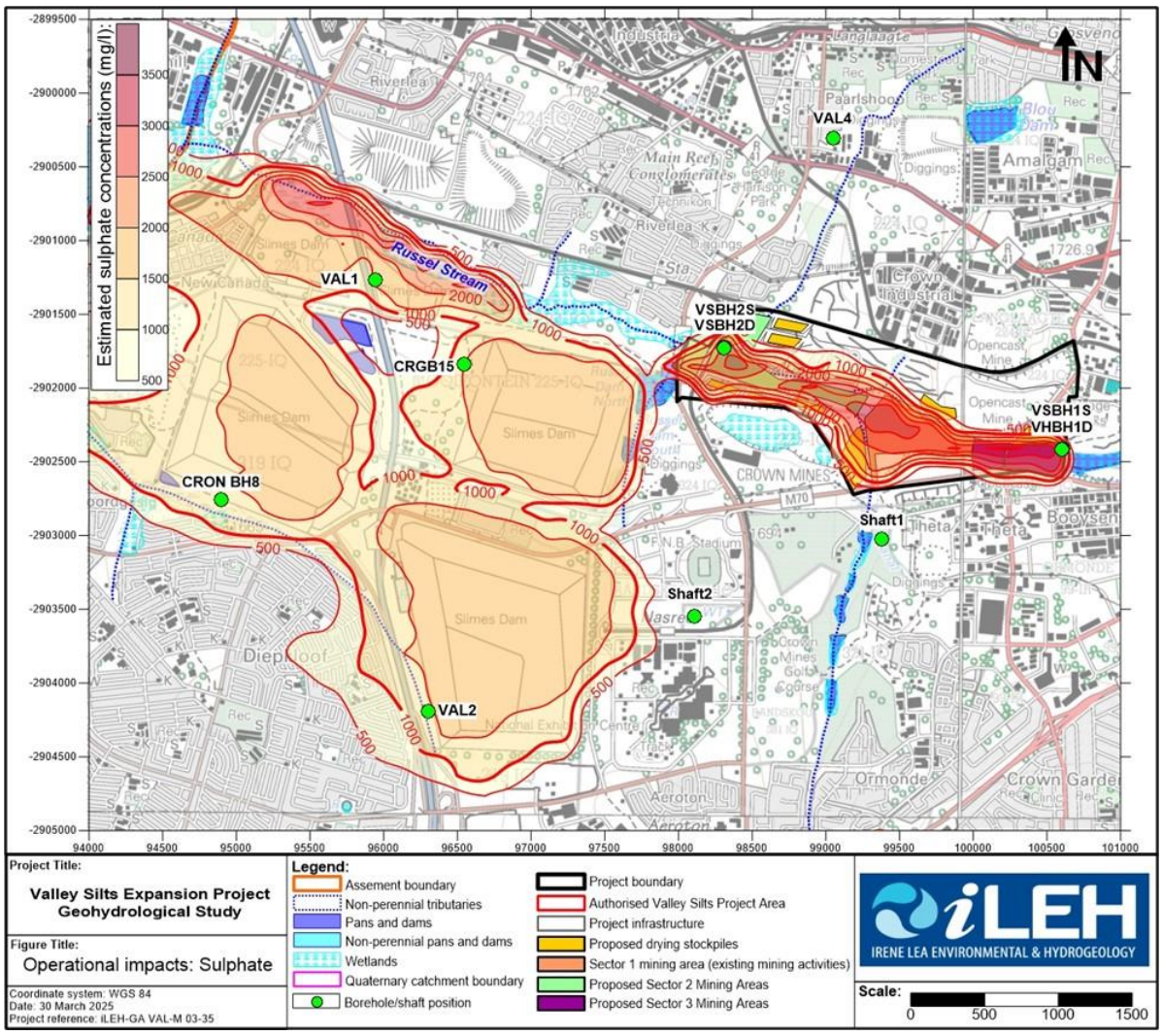


Figure 21. Likely zone of impact on groundwater quality for SO_4: operational phase

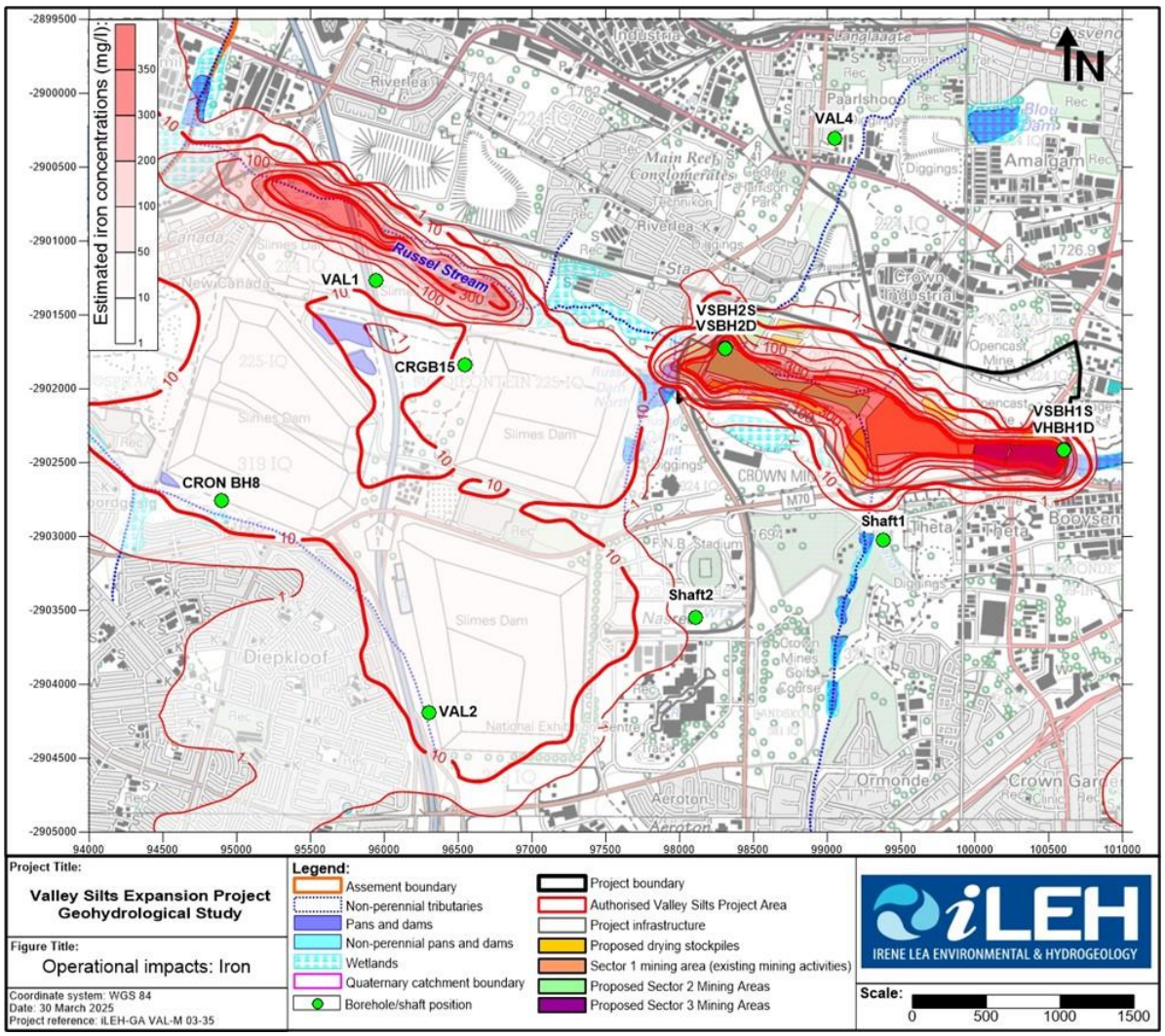


Figure 22. Likely zone of impact on groundwater quality for Fe: operational phase

8.4.2 LIKELY LONG-TERM SCENARIO

The likely outcome of the removal of silts from the Russell Stream in terms of groundwater quality is presented in Figure 23 and Figure 24. The following is concluded from the impact predictions completed:

- Sulphate concentrations are expected to reduce to below 1000 mg/L over large portions of the footprint. It is possible that pockets in the aquifer may have concentrations exceeding 1000 mg/L, but not significantly so. These zones where sulphate exceeds 1000 mg/L will remain inside the project footprint area in the long-term.
- In addition, the extent of the zone of impact is expected to reduce to within the project footprint.
- Iron concentrations are also expected to reduce significantly within the project area. It is anticipated that iron concentrations would reduce to below 100 mg/L over most of the project area, but as with sulphate, pockets may remain where concentrations exceed 100 mg/L, but not significantly so. While this will be a significant reduction in iron concentrations, long-term impacts over the project footprint will continue to pose a risk that could result in acute or

chronic health impacts. The groundwater within the project area will therefore remain unfit for use. The positive outcome of the project is however a significant reduction in concentrations and a reduction in the extent of the zone of unacceptable impacts.

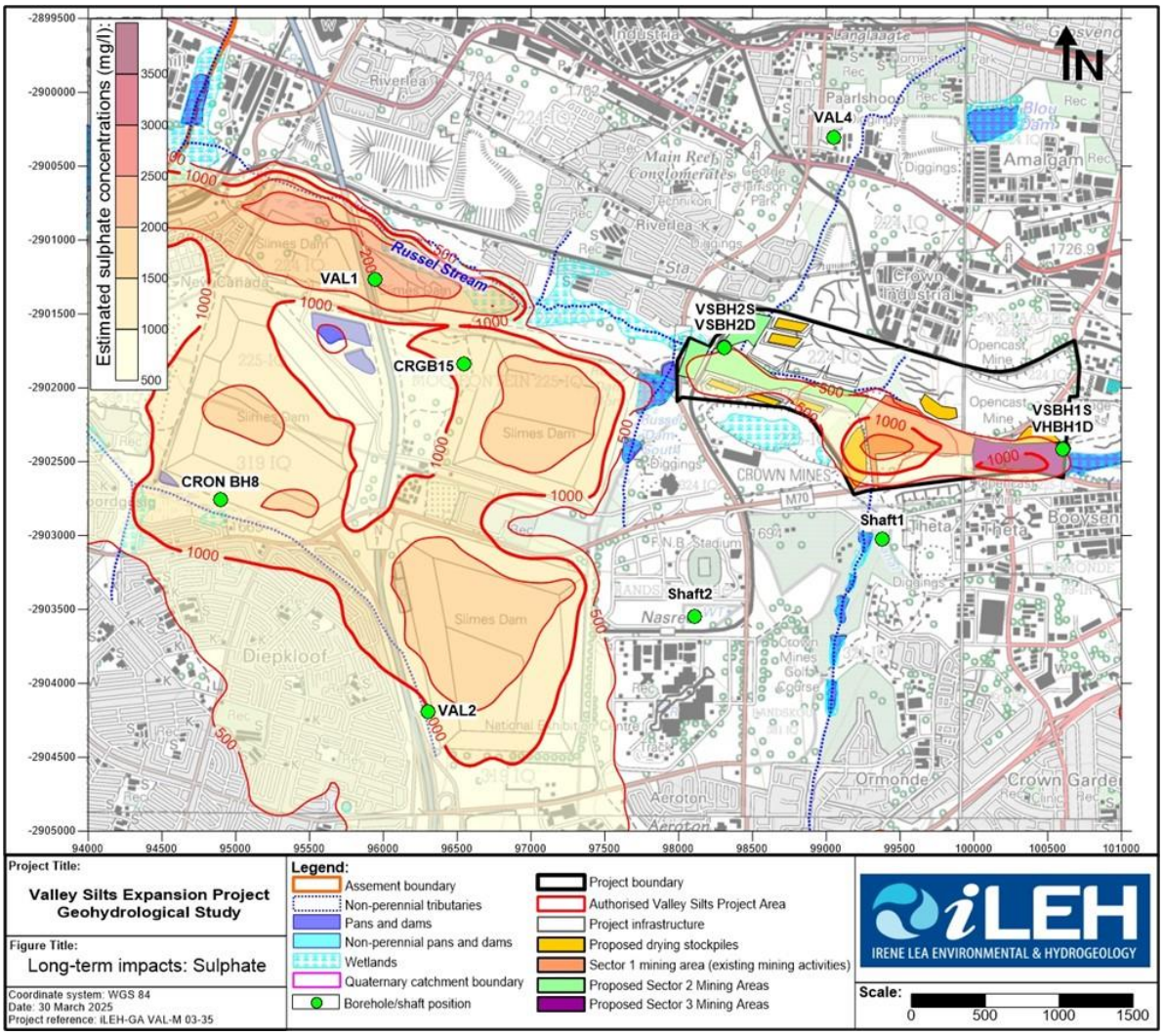


Figure 23. Likely long-term zone of impact on groundwater quality: SO_4

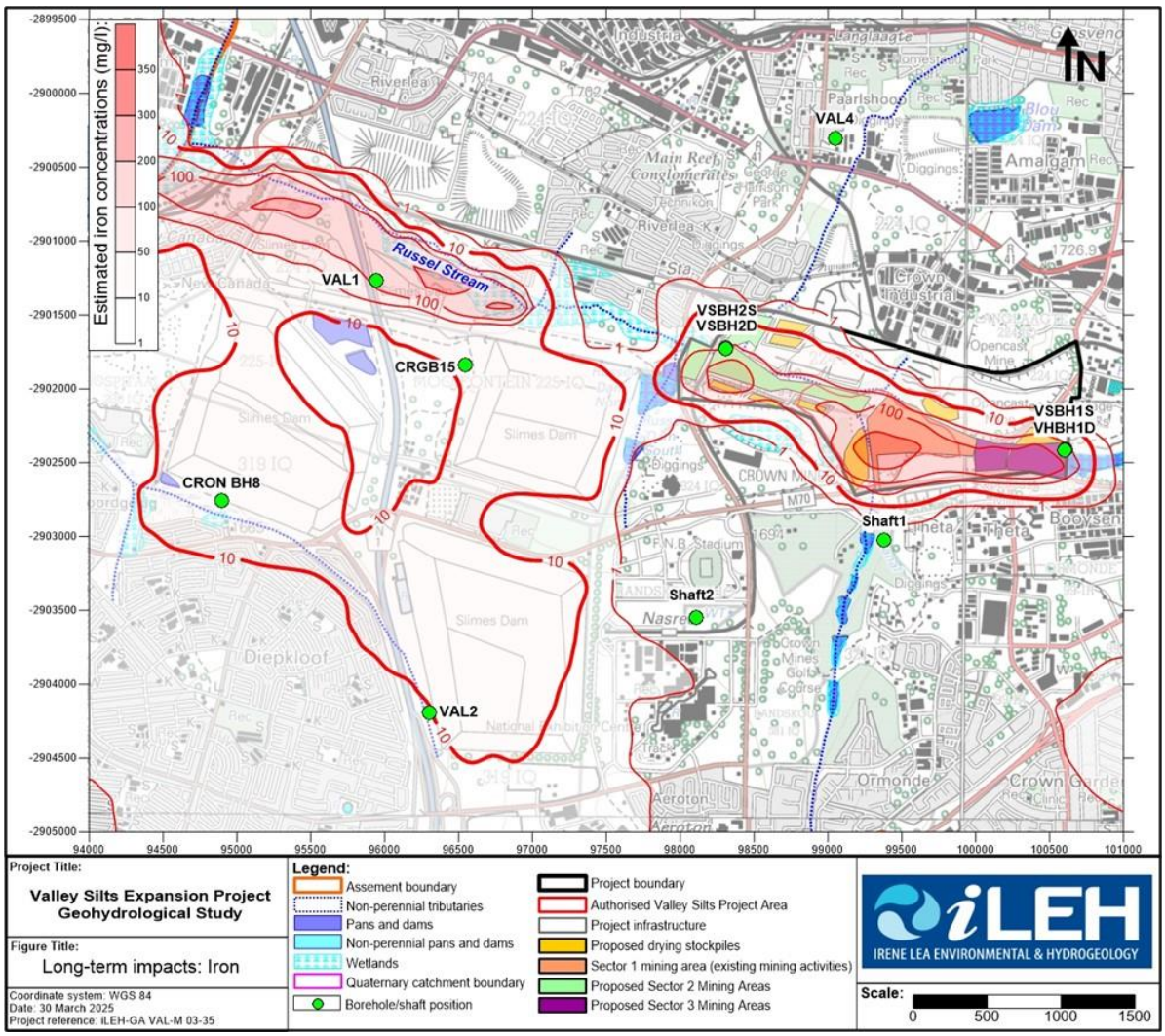


Figure 24. Likely long-term zone of impact on groundwater quality: Fe

8.5 Cumulative Impacts

The anticipated cumulative impact of regional tailings deposition is considered for all scenarios presented above. To achieve this, the assumptions discussed above were used to simulate the historical TSFs in the project sub-catchment and silt material that will remain in the Russell Stream. During long-term simulations, it was assumed that these facilities will remain in-situ.

It is noted that these areas are all downgradient of the project area and will therefore not impact on groundwater quality associated with the project.

8.6 Scenario Analysis for Long-term Impacts

To evaluate project alternatives, a scenario analysis was completed for long-term impacts on groundwater quality. The outcome of these is presented in Figure 25 and Figure 26.

The following scenarios were evaluated as part of the assessment, as mentioned earlier:

- **Best case scenario**: Low seepage infiltration from the project to the underlying aquifers, equivalent to dry conditions.

- **Likely case scenario**: Moderate seepage infiltration rates to the underlying aquifers, equivalent to average conditions.
- **No Project scenario**: This is considered the worst case and assumes that the silts will remain in the Russell Stream floodplain.

The outcome of the assessment for both sulphate and iron is summarised as follows:

- Impacts associated with the best case and likely scenarios are expected to be very similar in terms of impacts on groundwater quality. These two cases relate to how water is managed on site during the operational phase and the extent to which infiltration of dirty water takes place. Since the aquifer permeability within the project area is low, water management options during the comparatively short operational period are not likely to result in significant long-term effects. Despite this, it is recommended that clean and dirty water management measures, as indicted in Kongiwe (2025) are strictly adhered to. All measures must be taken to divert clean runoff and contain dirty water inside the dedicated paddocks. Dirty water must be reused during reclamation to avoid ponding over extended periods of time.
- If the Valley Silts Expansion Project is not implemented, current impacts on groundwater quality are expected to continue in the long-term. This is expected to increase sulphate and iron concentrations within the unacceptable levels over the footprint area as well as downstream in the Russell Stream. The extent of the zone of impact on groundwater quality is therefore expected to increase with time. The outcome of this scenario will result in long-term negative impacts on groundwater quality and should therefore be avoided. Removal of the silt material from the streambed will reduce long-term impacts, as discussed above.

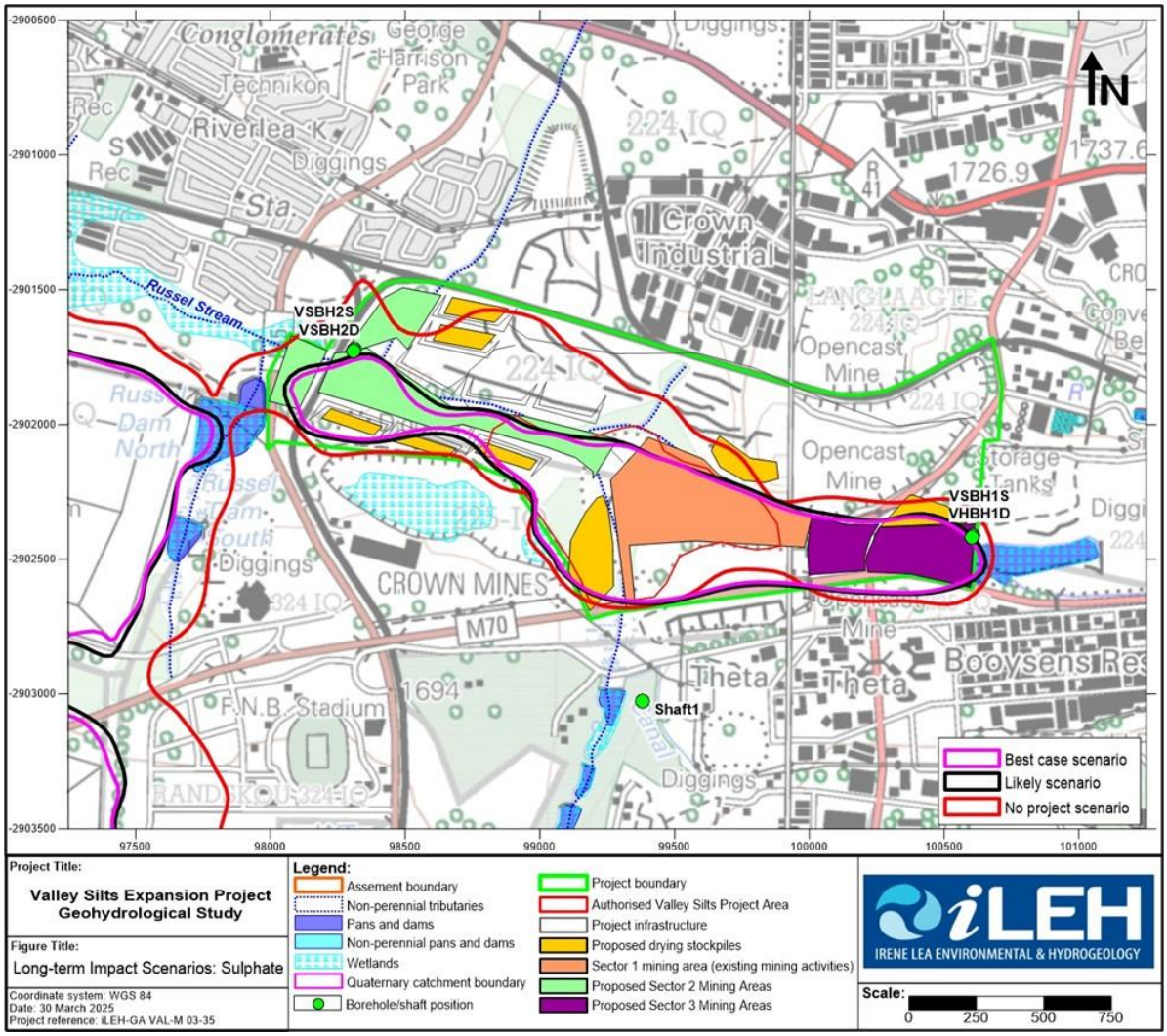


Figure 25. Scenario analysis for long-term impacts: SO_4

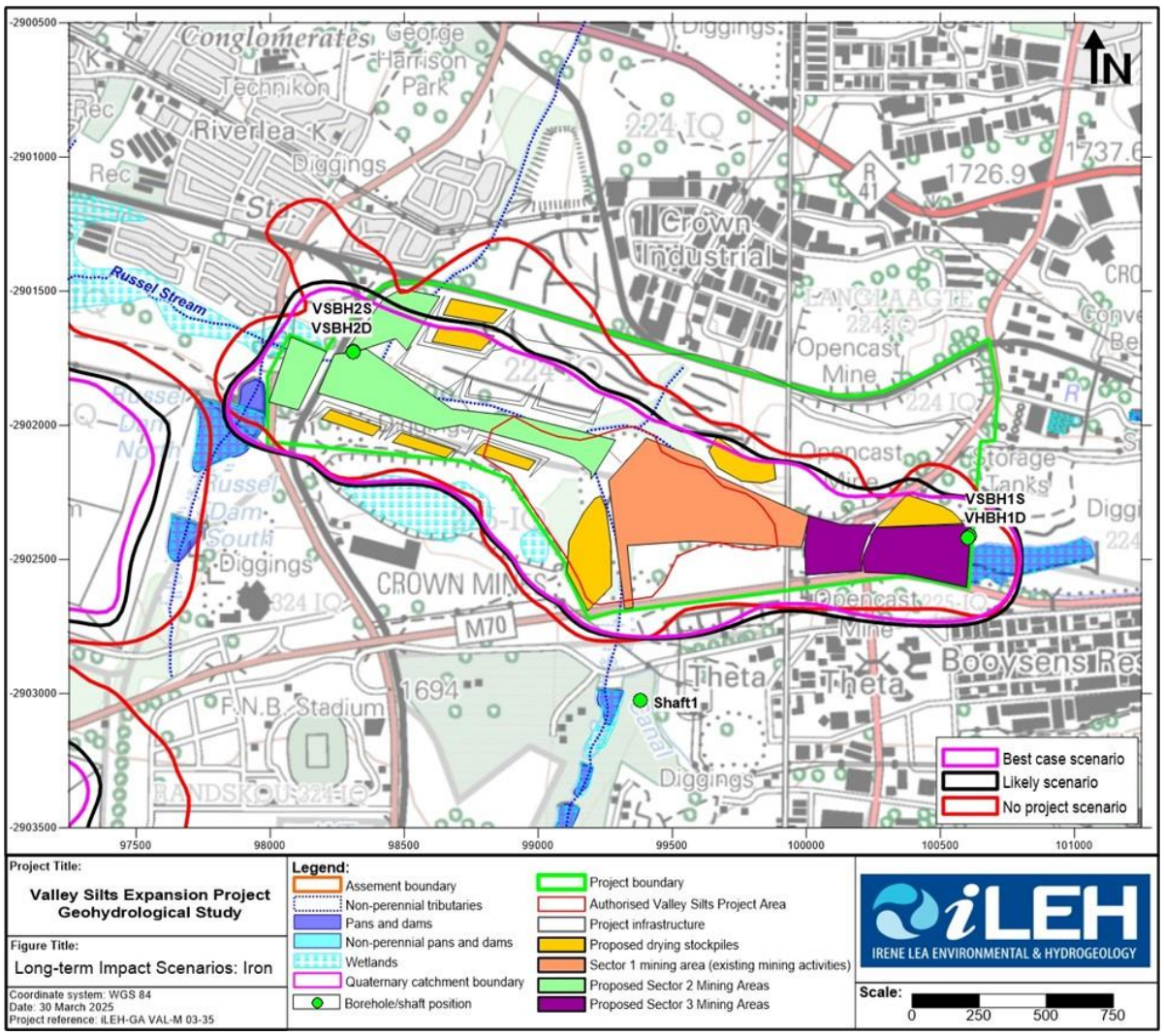


Figure 26. Scenario analysis for long-term impacts: Fe

8.7 Risk of Decant

No risk of decant was flagged for this project.

8.8 Post Closure Management

8.8.1 Remediation of Physical Activity

The preferred remediation strategy for the Valley Silts Expansion Project is to remove all silt material down to red soil. Once the footprint has been cleared, it must be rehabilitated and made free draining. Please refer to Section 8.2 for additional rehabilitation measures.

8.8.2 Remediation of Storage Facilities

Not applicable.

8.8.3 Remediation of Environmental Impacts

As discussed above.

8.8.4 Remediation of Water Resources Impacts

Not applicable.

8.8.5 Backfilling of Pits

Not applicable.

9 Groundwater Impact Assessment

The impact significance rating process serves two purposes: firstly, it helps to highlight the critical impacts requiring consideration in the management and approval process; secondly, it shows the primary impact characteristics, as defined above, used to evaluate impact significance.

The impact significance rating system is presented in Table 20, Table 21 and Table 22 and involves three parts:

1. **Part A**: Define impact consequence using the three primary impact characteristics of magnitude, spatial scale/ population and duration.
2. **Part B**: Use the matrix to determine a rating for impact consequence based on the definitions identified in Part A.
3. **Part C**: Use the matrix to determine the impact significance rating, which is a function of the impact consequence rating (from Part B) and the probability of occurrence.

9.1 Part A: Defining Consequence in Terms of Magnitude, Duration and Spatial Scale

The definitions in Table 20 are used to define the consequence in Part B.

Table 20. Consequence rating methodology

IMPACT CHARACTERISTICS	DEFINITION	CRITERIA
Magnitude	Major -	Substantial deterioration or harm to receptors; receiving environment has an inherent value to stakeholders; receptors of impact are of conservation importance; or identified threshold often exceeded
	Moderate -	Moderate/measurable deterioration or harm to receptors; receiving environment moderately sensitive; or identified threshold occasionally exceeded
	Minor -	Minor deterioration (nuisance or minor deterioration) or harm to receptors; change to receiving environment not measurable; or identified threshold never exceeded
	Minor +	Minor improvement; change not measurable; or threshold never exceeded
	Moderate +	Moderate improvement; within or better than the threshold; or no observed reaction

IMPACT CHARACTERISTICS	DEFINITION	CRITERIA
	Major +	Substantial improvement; within or better than the threshold; or favourable publicity
Spatial scale or population	Site or local	Site specific or confined to the immediate project area
	Regional	May be defined in various ways, e.g. cadastral, catchment, topographic
	National/ International	Nationally or beyond
Duration	Short term	Up to 18 months
	Medium term	18 months to 5 years
	Long term	Longer than 5 years

9.2 Part B: Determining Consequence Rating

Rate consequence based on definition of magnitude, spatial extent and duration (Table 21).

Table 21. Consequence rating methodology

			SPATIAL SCALE/ POPULATION		
			Site or Local	**Regional**	**National/ international**
MAGNITUDE					
Minor	**DURATION**	**Long term**	Medium	Medium	High
		Medium term	Low	Low	Medium
		Short term	Low	Low	Medium
Moderate	**DURATION**	**Long term**	Medium	High	High
		Medium term	Medium	Medium	High
		Short term	Low	Medium	Medium
Major	**DURATION**	**Long term**	High	High	High
		Medium term	Medium	Medium	High
		Short term	Medium	Medium	High

9.3 Part C: Determining Significance Rating

Rate significance based on consequence and probability (Table 22).

Table 22. Significance rating methodology

Probability (of exposure to impacts)	Consequence Negative			Consequence Positive		
	Low	Medium	High	Low	Medium	High
Definite	Medium	Medium	High	Medium	Medium	High
Possible	Low	Medium	High	Low	Medium	High
Unlikely	Low	Low	Medium	Low	Low	Medium

The impact assessment is based on the Kongiwe assessment methodology as presented above. A detailed impact assessment table with mitigation measures is presented in Appendix E and groundwater management and mitigation options are presented in Chapter 11.

The lack of long-term groundwater monitoring data close to the Russell Stream and detailed geochemistry information for the area makes it difficult to quantify the impacts associated with the desilting activities as there are currently no users or monitoring sites to measure against. The sampled surface and groundwater indicate quality impacts, but due to dilution and precipitation the quality impacts seem to reduce further away from the slimes dams and sand dumps.

Based on the impact ratings the highest negative risks are associated with the operational phase, where salt and metal seepage from the stockpile and excavated areas could lead to groundwater quality impacts. This could increase the salt load and sulphate concentrations within the groundwater environment.

There is currently not enough groundwater data available for the Valley Silts Project area, especially along the Russell Stream to quantify the current impacts of the silt in the riverbed on the underlying groundwater environment. Excavation of the silts will trigger oxidation reactions, and the pH will drop, linked to leaching of salts and metals. In the long term, the excavation of the silt will have a positive impact on the groundwater environment, but only if surface and groundwater discharge from the slimes dams and sand dumps along the Russell Stream is effectively managed and kept out of the Russell Stream.

9.4 Construction Phase

During the construction phase, the sediments and silt in the area, earmarked for excavation, will be disturbed. The introduction of oxygen during this phase of the project is expected to result in a deterioration in groundwater quality. Due to the short duration of the construction phase, this impact is not expected to have an additional negative impact in terms of salt and heavy metal concentration increases, nor be laterally extensive.

No additional impact is expected on the groundwater quantity and quality during the construction phase. Construction will be conducted in a relatively short period compared to the operational and post-closure phases. Impacts on the groundwater environment are therefore rated as Low (Table 23).

Table 23. Construction Phase water quality impacts

NATURE OF IMPACT 1: **Impact on the local groundwater quality**		
	Impact Rating without Mitigation	**Impact Rating with Mitigation**
Impact Status: (positive or negative)	Negative	Negative
Extent *(Local, Regional, International)*	Local	Local
Duration *(Short term, Medium term, Long term)*	Short term	Short term
Magnitude *(Major, Moderate, Minor)*	Minor -	Minor +
Probability *(Definite, Possible, Unlikely)*	Possible	Possible
Calculated Significance Rating *(Low, Medium, High)*	**Low**	**Low**
Reversibility: (Reversible or Irreversible)	Reversable	
Irreplaceable loss of resources: (Yes or No)	No	
Can impacts be enhanced: (Yes or No)	Yes	
Residual impacts ❖ The slimes dams and sand dumps along the Russell Stream are all potential sources of pollution and silt. In the current state of the stream (with silt) and after removal of the silt, these pollution sources next to the stream must be managed more effectively to ensure no contaminated silt, surface or groundwater enters the rehabilitated Russell Stream. Current water qualities indicate high salt and metal concentrations, with a low pH water found along the TSF footprint areas.		
Mitigation measures ❖ Implement a groundwater monitoring program before excavation starts. Use the dedicated groundwater monitoring boreholes along the Russell Stream to measure the groundwater status, impact of the activities on the groundwater environment and changes in groundwater qualities and levels post closure. Refer to Section 12.1. ❖ Develop sound surface runoff management plans to ensure that all dirty runoff from the stockpile areas, but also from the adjacent slimes dams and sand dumps are contained and diverted to the cut-off trenches and sumps. No pooling of water on surface allowed. ❖ Ensure that cut-off trenches and sumps are designed to contain all dirty water generated during the process, to prevent overflows and spillages.		

9.5 Operational Phase – Excavation / Desilting

The following impacts can be expected during the excavation process:

9.5.1 Groundwater Quality

Historically the sources of pollution associated with the Valley Silts Project area include:

- Contaminated storm water runoff from the slimes dams and sand dumps along the Russell Stream;
- Seepage water from the slimes dams and return water dams (RWD), possibly containing high sulphates and metals; and
- Recharge of contaminated water by means of seepage from the dumps and any unlined storm water channels.

Groundwater quality will be negatively affected with potential increase in salt loads, especially sulphate and iron concentrations during the excavation activities. The silt will potentially contain pyrite minerals and when exposed to oxygen and water during excavation it will result in the formation of acidic conditions. The risk of groundwater contamination during the excavation activities will be higher compared to the existing impacts, as chemical reactions and leaching from the silt will increase when exposed to oxygen and rainwater. Surface water management and containment guidelines must be followed carefully during the desilting process (Table 24).

The desilting activities will be driven by mechanical excavation. No water is used in the process, but water will be present along the stream channel.

The current understanding of the aquifers present and the potential sources to groundwater contamination suggests that the impact on groundwater quality during the operational phase will mainly be limited to the disturbed areas. Within the disturbed areas, both the simulated sulphate and iron concentrations are expected to exceed the Klip River catchment unacceptable water quality guidelines. This impact may extend several hundred metres from the excavations, depending on aquifer conditions.

The wetlands to the west of the Valley Silts Project may experience groundwater quality in terms of sulphate and iron concentrations that exceed tolerable interim target water qualities. In the long-term groundwater qualities are expected to improve to within acceptable management targets in this wetland. There is currently insufficient information available to estimate the salt load on this wetland because of contamination groundwater baseflow components.

Monitoring of groundwater quality and water levels must be implemented along and downgradient of the Russell Stream, with continuous review and updating of the monitoring network based on the monitoring results.

A cause for concern in reclaimed residue deposits is incomplete clean-up operations. Any remaining material, in particular sulphide minerals, poses an environmental hazard. It is important that a sound stormwater management plan is implemented during the operational phase to ensure that dirty footprints and runoff are contained.

In addition to the above, it is important that the necessary cut-off trenches and berms are put in place between the Valley Silts Project area and the historical TSF to avoid future wash of silts and slimes into the excavated and rehabilitated areas, thus compounding the project again.

Table 24. Operational Phase water quality impacts

NATURE OF IMPACT 2: **Impact on the local groundwater quality**		
	Impact Rating without Mitigation	**Impact Rating with Mitigation**
Impact Status: (positive or negative)	Negative	Negative
Extent *(Local, Regional, International)*	Local	Local
Duration *(Short term, Medium term, Long term)*	Long term	Long term
Magnitude *(Major, Moderate, Minor)*	Major -	Moderate -
Probability *(Definite, Possible, Unlikely)*	Possible	Possible
Calculated Significance Rating *(Low, Medium, High)*	**High**	**Medium**
Reversibility: (Reversible or Irreversible)	Reversable	
Irreplaceable loss of resources: (Yes or No)	No	
Can impacts be enhanced: (Yes or No)	Yes	
Residual impacts ❖ Combined impact with other mining and industrial activities. Refer to Chapter 10.		
Mitigation measures ❖ Maintain sound surface runoff management to ensure that all dirty runoff is contained and diverted to the cut-off trenches and sumps. No pooling of water on surface allowed. ❖ Monitor groundwater quality in all boreholes listed in Section 12.1. The groundwater monitoring network efficiency must be assessed and new monitoring boreholes drilled, if required. ❖ Ensure that cut-off trenches with sumps can contain all dirty water generated during the desilting process to prevent overflows and spillages. ❖ Ensure that sufficient cutoff trenches and berms are implemented to avoid future wash of silt and slimes from the historical TSF situated adjacent to the Valley Silts project.		

9.5.2 GROUNDWATER QUANTITY

The Russell Stream desilting project will not have any significant impacts on the groundwater quantity (Table 25). The desilting activities will be driven by mechanical excavation. No water is used in the process. There is a possibility that water will seep into the underlaying formations, but the additional recharge should be negligible and should have no impact on the groundwater table elevation.

Table 25. Operational Phase water quantity impacts

NATURE OF IMPACT 3: **Reduction in aquifer yield**		
	Impact Rating without Mitigation	**Impact Rating with Mitigation**
Impact Status: (positive or negative)	Positive	Positive
Extent *(Local, Regional, International)*	Local	Local
Duration *(Short term, Medium term, Long term)*	Long term	Long term
Magnitude *(Major, Moderate, Minor)*	Minor +	Minor +
Probability *(Definite, Possible, Unlikely)*	Possible	Possible
Calculated Significance Rating *(Low, Medium, High)*	**Medium**	**Medium**
Reversibility: (Reversible or Irreversible)	Reversable	
Irreplaceable loss of resources: (Yes or No)	No	
Can impacts be enhanced: (Yes or No)	Yes	
Residual impacts ❖ Combined impact with other mining and industrial activities. Refer to Chapter 10.		
Mitigation measures ❖ Monitor groundwater levels in all boreholes listed in Section 12.1.		

9.6 DECOMMISSIONING

9.6.1 GROUNDWATER QUALITY

Groundwater quality along the Russell Stream is expected to improve as the in-stream source of contamination will be removed (Table 26). Sulphate concentrations in the immediate vicinity of the stream may reduce to below 1000 mg/L because of silt removal. Iron concentrations are also expected to reduce significantly within the project area. It is anticipated that iron concentrations would reduce to below 100 mg/L over most of the project area. The zone of impact over which sulphate and iron concentrations would exceed unacceptable Klip River catchment water quality targets will reduce in the long-term. The contamination is however not expected to dissipate, but it is likely that sulphate and iron concentrations would reduce to within tolerable interim and even acceptable management water quality targets in the long-term. Historical groundwater contamination will most likely continue to move through the aquifers in a westerly direction towards the tributary of the Klip River. The removal of the silt and sediments in the Russell Stream is however expected to reduce the zone of impact in the long-term.

The impact because of the desilting is anticipated to be positive after the waste material and sand have been removed.

Table 26. Decommissioning Phase water quality impacts

NATURE OF IMPACT 4: **Water quality impacts when silt has been removed**		
	Impact Rating without Mitigation	**Impact Rating with Mitigation**
Impact Status: (positive or negative)	Positive	Positive
Extent *(Local, Regional, International)*	Local	Local
Duration *(Short term, Medium term, Long term)*	Long term	Long term
Magnitude *(Major, Moderate, Minor)*	Minor +	Moderate +
Probability *(Definite, Possible, Unlikely)*	Possible	Possible
Calculated Significance Rating *(Low, Medium, High)*	**Medium**	**Medium**
Reversibility: (Reversible or Irreversible)	Reversable	
Irreplaceable loss of resources: (Yes or No)	No	
Can impacts be enhanced: (Yes or No)	Yes	
Residual impacts ❖ Combined impact with other mining and industrial activities. Refer to Chapter 10.		
Mitigation measures ❖ Monitor groundwater quality in all boreholes listed in Section 12.1. ❖ Maintain sound surface runoff management to ensure that all dirty runoff is contained and diverted away from the Russell Stream.		

9.6.2 GROUNDWATER QUANTITY

There will be no impacts on the groundwater quantity during decommissioning (Table 27). The desilting activities will have stopped and any form of seepage of contaminated water to the subsurface will reduce and ultimately stop, apart from precipitation.

Table 27. Decommissioning Phase water quality impacts

NATURE OF IMPACT 5: **Reduction in aquifer yield**		
	Impact Rating without Mitigation	**Impact Rating with Mitigation**
Impact Status: (positive or negative)	Positive	Positive
Extent *(Local, Regional, International)*	Local	Local
Duration *(Short term, Medium term, Long term)*	Long term	Long term
Magnitude *(Major, Moderate, Minor)*	Minor +	Moderate +
Probability *(Definite, Possible, Unlikely)*	Definite	Definite
Calculated Significance Rating *(Low, Medium, High)*	**Medium**	**Medium**
Reversibility: (Reversible or Irreversible)	Reversable	
Irreplaceable loss of resources: (Yes or No)	No	
Can impacts be enhanced: (Yes or No)	Yes	
Residual impacts ❖ Combined impact with other mining and industrial activities. Refer to Chapter 10.		
Mitigation measures ❖ Monitor groundwater levels in all boreholes listed in Section 12.1.		

9.7 Post Closure

The following impacts can be expected after closure:

9.7.1 Groundwater Quality

Overall, there should be an improvement in the groundwater qualities along the Russell Stream post closure as the source of in-stream contamination has been removed (Table 28).

Table 28. Post Closure Phase water quality impacts

NATURE OF IMPACT 6: **Groundwater quality impacts after silt is removed**		
	Impact Rating without Mitigation	**Impact Rating with Mitigation**
Impact Status: (positive or negative)	Positive	Positive
Extent *(Local, Regional, International)*	Local	Local
Duration *(Short term, Medium term, Long term)*	Long term	Long term
Magnitude *(Major, Moderate, Minor)*	Minor +	Moderate +
Probability *(Definite, Possible, Unlikely)*	Possible	Possible
Calculated Significance Rating *(Low, Medium, High)*	**Medium**	**Medium**
Reversibility: (Reversible or Irreversible)	Reversable	
Irreplaceable loss of resources: (Yes or No)	No	
Can impacts be enhanced: (Yes or No)	Yes	
Residual impacts ❖ Combined impact with other mining and industrial activities. Refer to Chapter 10.		
Mitigation measures ❖ Monitor groundwater quality in all boreholes listed in Section 12.1. ❖ Maintain sound surface runoff management.		

9.7.2 GROUNDWATER QUANTITY

No impact is expected on the water quantity post-desilting.

10 CUMULATIVE IMPACTS

Cumulative impacts result from the incremental impact of the proposed activity on a common resource when added to the impacts of other past, present or reasonably foreseeable future activities (e.g. discharges of high salt or metal loads to a river that combine to cause a reduction in the use of the resource that is greater than the additive impacts of each pollutant). Cumulative impacts can occur from the collective impacts of individual minor actions over a period and can include both direct and indirect impacts.

The Valley Silts Project is near other historical tailings depostion, mining activities, industrial activities and residential developments. Cumulatively all these activities contribute to the surface and groundwater quality impacts identified at the Valley Silts Project area and could also impact the groundwater resources, especially in terms of quality.

The outcome of the Valley Silts desilting groundwater assessment indicates that the desilting activities will have an overall positive impact on the receiving environment.

Establishing a monitoring system (Chapter 12) along the Russell Stream and downstream areas are required to assess the implications that stream desilting will have on the aquifers and to identify if poor quality groundwater will reach a sensitive receptor. The monitoring data recorded as desilting operations progress must be used to update the monitoring program.

Table 29. Cumulative impact rating

NATURE OF THE CUMULATIVE IMPACT:		
	OVERALL IMPACT OF THE PROJECT CONSIDERED IN ISOLATION	**CUMULATIVE IMPACT OF THE PROJECT AND OTHER PROJECTS IN THE AREA**
Impact Status: (positive or negative)	Negative	Negative
Extent *(Local, Regional, International)*	Local	Local
Duration *(Short term, Medium term, Long term)*	Long term	Long term
Magnitude *(Major, Moderate, Minor)*	Moderate	Major
Probability *(Definite, Possible, Unlikely)*	Definite	Definite
Calculated Significance Rating (Low, Medium, High)	Medium	Medium
Reversibility: (Reversible or Irreversible)	Reversable	Reversable
Irreplaceable loss of resources: (Yes or No)	No	No
Can impacts be enhanced: (Yes or No)	Yes	Yes
Mitigation measures ❖ Ensure that contaminated surface and groundwater from the adjacent mining and industrial activities are effectively managed and that polluted water is not allowed to enter the rehabilitated Russell Stream.		

11 GROUNDWATER MANAGEMENT MEASURES

Based on the outcome of the information presented in this report, several groundwater management measures are proposed for the project. These are detailed below.

11.1 GROUNDWATER OBJECTIVES AND TARGETS

The following objectives and targets are proposed for groundwater management at the operations:

- Implement a management plan aimed at reducing and/or eliminating adverse impacts on the receptors identified, including watercourses. The management plan must be earmarked at achieving conditions comparable to the best-case scenario presented in this report.
- Track and record the progress of implementation of all groundwater management measures.

- Implement sufficient monitoring procedures to measure the effectiveness of groundwater management measures.
- Analyse the information obtained from all monitoring programs against compliance targets to establish trends and to determine the need to trigger additional actions to reduce adverse impacts.
- Should the trends indicate adverse impacts on groundwater levels and/or quality, implement suitable measures within the shortest possible time to remediate and/or eliminate such adverse impacts identified.

11.2 Over-arching Groundwater Management Measures

Several broad over-arching groundwater management measures should be implemented by Ergo for the project to minimise impacts on groundwater, as detailed in Table 30.

Table 30. Over-arching groundwater management measures

Construction Phase
A dedicated groundwater monitoring network must be established including the four monitoring boreholes drilled as part of the project. The monitoring programme is discussed in Chapter 12.
Make financial provision for sufficient groundwater level and quality monitoring to implement the groundwater monitoring program, before the reclamation starts in the Extension area.
Implement stormwater runoff management measures to ensure that all dirty runoff is contained and reused in the project water balance. Avoid ponding of water over exposed areas.
Ensure that dirty water containment measures are designed to contain all dirty water generated during the project to prevent overflows and spillages.
Implement sound house-keeping measures to prevent and clean spills, address leaks and undertake regular inspections. Ensure that the record-keeping procedure is in place and that instructions given are carried out.
Measure rainfall on site.
Operational Phase
Complete regular inspections of dirty water containment structures, specifically noting incidences of overflow and leakage. If the latter is identified, measures must be taken to rectify immediately.
Maintain sound house-keeping measures to prevent spills and leaks.
Continue the groundwater monitoring programme.
Measure rainfall on site.
Record all groundwater-related complaints and deal with each complaint within the agreed timeframe.
Decommissioning and Closure Phase
Complete all rehabilitation to a satisfactory level, focussing specifically on the water drainage and collection system.
Ensure that all tailings and silt material is removed from the footprint.
Continue with the groundwater monitoring period for a minimum of two years after completion of the rehabilitation. The continued need for groundwater monitoring will depend on the outcome of the final closure assessment.

11.3 Specific Groundwater Management Measures

11.3.1 Measures to Reduce Impacts on Groundwater Availability

The project is not expected to have any impacts on groundwater availability in the region. The following specific measures are however recommended to minimise and/or eliminate the impacts on groundwater levels and availability:

- None of the private boreholes are located within the zones of unacceptable impacts delineated as part of this assessment. It is however recommended that borehole VAL1 is

included in the monitoring programme on an annual basis. Even though borehole CRGB15 is located closer to the project, it is downstream of a historical TSF and will not reflect impacts associated with the Valley Silts Project.

- Ensure that an effective surface water collection and retention system is in place to ensure that all flow and collected water is directed towards the cut-off trenches with sumps and not allowed to freely drain away from the various silt holding areas.

11.3.2 Measures to Reduce Impacts on Groundwater Quality

The following specific measures are recommended to reduce the risk of deterioration of groundwater quality and the volume of leachate available for infiltration to the aquifers:

- To minimise negative long-term impacts associated with the project, it is important that silt reclamation must be completed to soil level at the site. All silt must be removed.
- No ponding must be allowed on exposed areas. Process water that is allowed to pond uncontrolled will increase the risk of infiltration to the underlying aquifers.
- After rehabilitation, the footprint area must be made free draining to minimise infiltration of water to the aquifers.
- Ensure that clean and dirty water is separated at the reclamation and drying areas, and that dirty water is contained. Contain dirty water in adequately sized and lined sumps. Prevent dirty water runoff from leaving the area.
- All dirty water being pumped from the reclamation areas should reused in the water balance of pumped off site to prevent unnecessary discharge into the natural environment.
- Ergo must implement a water quality monitoring program during reclamation, focussed specifically on monitoring groundwater and process water quality. If the results of the monitoring indicate deterioration of quality to within the criteria specified for the likely case scenario in this assessment, Ergo must take measures to address and rectify non-compliances.
- A dedicated groundwater monitoring network must be established that includes borehole VAL1 as identified during the hydrocensus, on an annual basis.
- The impact and risk assessment presented in this report must be updated if any component of the project changes to what was used in this study or if additional information becomes available that deviates from that used.

12 Groundwater Monitoring

To monitor and prevent the spread of groundwater contamination, groundwater management procedures and practices must be implemented that are in line with accepted practices and in accordance with the requirements of the Environmental Management Plan (EMP). It is recommended to implement the groundwater monitoring program presented in this report. The key objectives of the groundwater monitoring program are to:

- Detect short and long-term trends;
- Recognise changes in groundwater quality and levels;
- Measure impacts and define mitigation measures; and
- Develop improved monitoring systems.

Groundwater monitoring will be undertaken to establish the extent of contamination in the shallow weathered and deeper fractured aquifers, during and after desilting.

12.1 MONITORING LOCATIONS

Monitoring must be undertaken in the four newly drilled boreholes as well as borehole VAL1. These boreholes are optimally located from a groundwater perspective. No additional monitoring boreholes are required, based on the outcome of this assessment.

If these boreholes are destroyed during reclamation, they must be replaced as soon as possible.

12.2 MONITORING REQUIREMENTS

The monitoring requirements are presented in Table 31.

Table 31. Groundwater monitoring requirements

Monitoring parameter	Element for analysis	Monitoring frequency	Monitoring trigger-response criteria
Depth to groundwater level in existing boreholes	Groundwater level	Quarterly	Variations by more than 3 m for 2 consecutive months should be investigated
Water quality analysis in all existing boreholes and process water	All elements included in the analyses completed as part of this assessment	Quarterly	Variations in concentrations of more than 15% for major cations and anions and more than 7% for metal concentrations for more than 2 consecutive months should be investigated. Any result that exceeds specified water quality objectives must be investigated when it occurs
Groundwater level and quality in borehole Val1 (hydrocensus BH)	Groundwater level as well as all elements included in analyses presented in this report	Quarterly	As above
Rainfall	Rain depth (mm)	Daily on site	None

The monitoring trigger-response criteria listed in Table 31 must be reviewed on an annual basis and updated, based on the outcome of the monitoring program results. All monitoring information must be entered into a spreadsheet for record keeping and analysis. Copies of the certificates of analyses must be kept on file for inspection. If significant exceedances are recorded during the monitoring program, the following actions should be taken:

- Log the exceedances in the incident reporting system within 24-hours of it occurring.
- Undertake an investigation to identify causes of the exceedances.
- Implement the necessary remedial actions according to the outcome of the investigation and consultation with the affected parties.
- Report significant exceedances to the Environmental and General Managers as well as to the regulatory authority and track the incident until completion.

The results of the monitoring program must be reported quarterly and on an annual basis for the purpose of internal Ergo water management. These reports must also be submitted to the authorities for review.

12.3 GROUNDWATER MONITORING REPORTS

Monitoring reports must contain the following information:

- Monitoring borehole location map;
- Geology map;
- All coordinates of the groundwater sampling sites;
- Certificates of analysis must be included for quality assurance. Monitoring results will be compared to South African National Standards (SANS241) and the Klip River catchment guideline limits;
- Time-series graphs for key indicator elements (e.g. pH, EC, TDS, Fe, Mn, Cd, Ni, Al, Pb and SO_4);
- Trilinear or other analytical groundwater plots;
- A discussion regarding observed trends and potential groundwater contamination; and
- Recommendations regarding possible amendments or additions to the groundwater monitoring program, based on trends and other information observed.

12.4 QUALITY ASSESSMENT AND QUALITY CONTROL

Quality assurance means:

- Developing a system of activities to ensure that measurements meet defined standards of quality with a stated level of confidence;
- Defining monitoring objectives, quality control procedures to be followed and quality assessment;
- To define data quality objectives, including accuracy, precision, completeness, representativeness and comparability; and
- Designing a network, selecting sampling sites, selecting instruments and designing the sampling system, as discussed above.

All monitoring equipment must be maintained as required, and calibration must be undertaken on a regular basis.

To ensure that the Groundwater Monitoring Strategy complies with the above, it is important that analytical laboratories used should be accredited for each type of analysis required, to ensure that accurate analytical methods are used.

While only one or two of the common major ions found in waters may be specified as key indicators, it is necessary to analyse for the full suite of common ions for quality control purposes and to detect discrete events and long-term trends in anion composition.

Special attention must be paid to sampling methods and to preservation and handling of samples prior to analysis. pH and conductivity must be measured in the field.

Close attention must be given to siting, logging and construction of monitoring boreholes and assessment of their condition must be made quarterly.

The following sampling protocol is proposed:

- Sterilised plastic bottles, with a plastic cap and no liner within the cap are required for the sampling. Sample bottles should be marked clearly with the borehole name, date of sampling, water level depth and the sampler's name;
- Water levels should be measured prior to taking the sample, using a dip meter (m bgl);
- Each borehole to be sampled should be purged (to ensure sampling of the aquifer and not stagnant water in the casing) using a submersible pump or a clean disposable polyethylene bailer. At least three borehole volumes of water should be removed through purging; or through continuous water quality monitoring, until the electrical conductivity value stabilizes;
- The following field measurements should be recorded on a field form for each sampling point: pH, EC and temperature;
- Samples should be kept cool in a cooler box in the field and kept cool prior to being submitted to the laboratory; and
- The pH and EC meter used for field measurements should be calibrated daily using standard solutions obtained from the instrument supplier.

13 Reasoned Opinion

It is the opinion of the project hydrogeologists that the Valley Silts Expansion Project can proceed, if good surface water / storm water management is in place and maintained. The project must further commit to complete silt removal and not undertake selective silt reclamation. In the short term there could be water quality impacts (increase in salts and metals) if water on the surface is not managed effectively. A sound groundwater monitoring program must be implemented in the four existing boreholes, plus borehole VAL1. Should the results of the monitoring indicate adverse impacts on groundwater quality over and above those already evident from historical impacts, immediate measures must be taken to rectify non-compliances. Overall, the project will deliver a long-term positive impact on groundwater quality if the silts are removed, and footprint areas are rehabilitated.

14 Conclusions

The Valley Silts Expansion Project entails desilting of the Russell Stream in specific areas; geographically this project has no alternative. The main aim of the project is to remove the contaminated silts from specific areas of the Russell Stream.

Ergo obtained Environmental Authorisation and an Integrated Water Use Licence for the mechanical reclamation of gold bearing silts from a section of the Russell Stream north of NASREC near Booysens Reserve in Johannesburg – Valley Silts Project. The mining authorisation for the removal of silts falls within Mining Right GP 184 MR. Ergo Mining (Pty) Ltd (Ergo) intends to expand its Valley Silts reclamation operation – the Valley Silts Expansion Project.

The removal of silts within the already authorised Valley Silts Project area has been ongoing since May 2023. The construction and site establishment began in October 2022 and as such, it is now necessary to prepare for the Valley Eastern Expansion, Southern Expansion, and Valley Expansion Northwest to provide for continuous reclamation operation, as well as a sustainable feed source to the process plant.

The anticipated life span of the Valley Silts Expansion Project is approximately 5 years maximum. The silt removal is planned for 3 years and rehabilitation 2 years.

Water Management:

This project will not require any additional process water for the mechanical excavation of gold bearing silts from the Russell Stream. Potable drinking water will be sourced from the municipality.

The clean stormwater runoff from the area to the south of the drying sites will be diverted using a stormwater diversion drain (or berm) around the area to the west. Stormwater from the north will flow via properly constructed inlets into the Russell Stream. Temporary berms will be constructed along the banks of the channel.

Environmental Setting:

The Valley Silts Project is located on the Central Rand Group, of the Witwatersrand Supergroup. The Witwatersrand Supergroup is a sequence of conglomerate, shale and quartzite. The Lower Witwatersrand is composed mainly of argillaceous clays and shale, with occasional banded ironstone, tillite and intercalated lava flow, while the Upper Witwatersrand consists almost entirely of quartzite and conglomerate.

The Valley Silts Project is in the Klip River catchment, in the C22C quaternary catchment, forming part of the Vaal Water Management Area. The main drainage in the project area is the Russell Stream, that discharges into the Klip River.

Fieldwork Program:

Hydrocensus:

A hydrocensus was conducted across the study area during February 2025. The survey included the Valley Silts Project area, plus accessible properties within a 2 km radius, and concentrated on identifying existing boreholes to enhance the knowledge of the groundwater systems and current groundwater use. Six boreholes and two old mine shafts were identified, all on neighbouring properties.

It was concluded that groundwater is not used in the area and all properties make use of municipal supply. Two private boreholes were identified (VAL4 and VAL5) with only VAL4 in use for garden irrigation and swimming pool top-up. No boreholes were identified along the eastern portion of the project area.

Groundwater level measurements were possible from the six boreholes. The groundwater level below surface varied between 0.10 m bgl (borehole VAL2) and 30.85 m bgl for borehole VAL5 (in the Industria West area). Borehole VAL5 presents a groundwater level (30.85 m bgl) that are much deeper compared to the other five boreholes. This potentially relates to differences in the geological units. The rest groundwater levels in the other five boreholes are on average 2.08 m below surface.

Borehole Drilling:

Two groundwater characterisation and monitoring boreholes were drilled at each of the two target areas – the one borehole was drilled to a depth of 80 m below surface, with the aim of characterising and monitoring the deeper fractured aquifer. The second borehole was drilled 30 m deep, with the aim of monitoring potential groundwater flow, quality and possible connection between the deeper fractured aquifer and the shallow weathered aquifer in the area.

Not one of the four new percussion boreholes produced a measurable blow yield, but a groundwater level could be measurable in all four boreholes shortly after completion. In general, borehole yields throughout the area are low. The weathered – solid formation contact yielded little water – only seepage water. A fractured zone in the quartzite in borehole VS-BH2d, plus the quartzite-lava and the quartzite-conglomerate contacts also yielded little water. The depth of weathering varies between 8 and 12 meters below ground level.

Aquifer Testing:

Following completion of the drilling program, an aquifer test program was initiated to determine the hydrogeological characteristics of the local aquifers.

For this project full drawdown and recovery pump tests were conducted on two of the four new boreholes (VS-BH1s and VS-BH1d) and a slug test was also completed on borehole VS-BH1s. Boreholes VS-BH2s and VS-BH2d were not tested due to the low volume of water inside the boreholes.

The recovery data (for the tested boreholes) indicate that the recovery is slow, and that full recovery (100%) was not achieved within the predetermined testing timeframe. The low borehole yields, fast water level drawdown and slow recovery observed during the aquifer testing indicate low transmissivity aquifers, with low recharge. The average T-values calculated from the pumping tests range between 0.005 and 0.048 m^2/d.

Current Groundwater Quality:

The groundwater in the project area represents a Calcium/ Magnesium-Sulphate water, indicating contaminated water. Only borehole VAL4 (Abraham Kriel Bambanani borehole approx. 1.6 km north of the Russell Stream) presents a Calcium/ Magnesium-Bicarbonate water, indicating recent recharge water.

The following were concluded from the 2025 groundwater quality results:

- Health impact:
    - Iron – An elevated iron concentration was measured for all 7 boreholes (hydrocensus and newly drilled) sampled during the 2025 fieldwork program, with Iron concentrations varying between 4.59 mg/L (borehole VAL4) and 441 mg/L (borehole VS-BH1s), versus the maximum allowable concentration of 2 mg/L. The concentration of dissolved Iron in the 4 newly drilled boreholes, adjacent to the Russell Stream vary between 72.7 mg/L and 441 mg/L, with lower concentrations measured for the two downgradient boreholes (VS-BH2s and d).
    - Manganese – Six of the 7 boreholes sampled during the 2025 study measured a Manganese concentration that exceeds the health impact limit. The measured Mangansee concentration for borehole VAL4 (Abraham Kriel Bambanani borehole) exceeds the Aesthetic Limit of 0.1 mg/L, but is below the Health Impact limit of 0.4 mg/L.

      Manganese concentrations vary between 5.45 mg/L (borehole VAL1) and 74.3 mg/L (borehole VS-BH2d), versus the maximum allowable concentration of 0.4 mg/L. The concentration of dissolved Manganese in the 4 newly drilled boreholes, adjacent to the Russel Stream vary between 34.7 mg/L and 74.3 mg/L, with lower concentrations measured for the 2 upstream boreholes (VS-BH1s and d).

- Cadmium – The 4 newly drilled boreholes measured a Cadmium concentration that could result in chronic health effects (0.008 to 0.117 mg/L). The health impact limit is set at 0.003mg/L. Elevated Cadmium concentrations were not measured for the 3 hydrocensus boreholes.
- Nickel – An elevated dissolved Nickel concentration was measured at the 4 newly drilled boreholes, plus hydrocensus borehole VAL2.
- Sulphate – Sulphate concentrations were elevated in 6 of the 7 boreholes sampled during the 2025 study. It was only borehole VAL4 where the measured Sulphate concentration was within acceptable health and aesthetic limits.

  The elevated Sulphate concentrations vary between 1125 mg/L (borehole VAL1) and 3126 mg/L (borehole VS-BH1d), versus the maximum allowable concentration of 500 mg/L. The concentration of Sulphate in the 4 newly drilled boreholes, adjacent to the Russel Stream vary between 2011 mg/L and 3126 mg/L, with lower concentrations measured for the two downstream boreholes (VS-BH2s and d).
- Lead – An elevated Lead concentration was measured for borehole VS-BH2d (0.012mg/L) and borehole VAL2 (0.012 mg/L), with the health limit defined as 0.01mg/L. The Lead concentration in all other boreholes were below the detection limit.
- Total Organic Carbon – High TOC values (between 11.2 and 19.1 mg/L) were measured for boreholes VAL1, VAL2, VS-BH2s and VS-BH2d.
- E. coli – borehole VAL4 produced a measurable E. coli count – 7 counts per 100 ml; the count must be zero. Borehole VAL4 is in an old residential and industrial area, and it has been assumed that leaking sewer lines are possibly contaminating the groundwater around this borehole.

- Aesthetic effects:
  - Aluminium – The aluminium concentration for boreholes VS-BH1s and VS-BH1d (25.1mg/L and 2.07 mg/L respectively) exceed the SANS241:2015 guideline value of 0.3 mg/L. The sampled groundwater from the BH1 cluster set was very muddy during the sampling process and this could have contributed to the elevated Aluminium concentrations.
  - Zinc – The Zinc concentration for borehole VS-BH1s (7.99 mg/L) exceeds the SANS241:2015 guideline value of 5 mg/L. The measured Zinc concentrations for the other 3 newly drilled boreholes were below the aesthetic impact limit.
  - Ammonium – The Ammonium concentration for borehole VAL1 exceeds the aesthetic limit for drinking water (14.6mg/L). The aesthetic limit set at 1.5 mg/L. The ammonia concentrations in the other boreholes vary between 0.19 and 0.88 mg/L.
  - Sodium – The measured Sodium concentration for borehole VS-BH1d (210 mg/L) exceeds the aesthetic limits for drinking water (200mg/L).
  - Turbidity – Turbidity was high in all boreholes with units varying between 42.5 NTUs and 730 NTUs.
  - Calcium – The measured Calcium concentration was elevated for all sampled boreholes, with concentrations varying between 37.5 mg/L and 493 mg/L.
  - Magnesium – High Magnesium concentrations were measured in 5 of the 7 boreholes and were thus in acceptable limits for boreholes VAL1 and VAL4.

- Total Hardness – The Total hardness value was elevated for all boreholes except borehole VAL4, indicating very hard water.
- Total Coliform – The total coliform count was elevated for borehole VAL4 (40 counts per 100 ml) and for borehole VS-BH1d (20 counts per 100 ml). The operational limit is set at 10 counts per 100 millilitres (ml).
- pH – the pH value for the two newly drilled upstream boreholes (VS-BH1s and VS-BH1d) (4.87 and 4.52 respectively) is below the SANS guideline limit of 5.
- The SANS 241 guideline limits for Electrical Conductivity (EC) and Total Dissolved Salts (TDS) were exceeded for all sampled sites, except for borehole VAL4. EC level varied between 222 and 403 mS/m. TDS varied between 1756 and 4134 mg/L.

The chemicals of concern for the Valley Silts project area are pH, Iron, Manganese, Sulphate, Cadmium, Lead, Nickel and Total Organic Carbon. Parameters exceeding aesthetic limits include Ammonium, Aluminium, Chloride, Calcium, Magnesium, Sodium, Zinc and Total Hardness and Turbidity. Most of these are elevated in the four newly drilled boreholes.

Geochemistry:

The 2005 Council for Geosciences study identified Co, Ni, Cu, As and U as the principal elements of concern. The Council for Geosciences found – "The leachable fractions determined from the compliance batch leach tests are uniformly low, with nickel slightly more mobile than the other elements.

The samples were all deposited in a sub-aqueous environment and are in contact with water for most of the year. Any easily mobilised metals will therefore be mobilised, while the more strongly bound fraction will require a more aggressive leachate than clean water to remobilise them. If the current conditions are maintained in these wetlands, i.e. continuous discharge of water to the wetlands and the maintenance of reducing conditions, it is unlikely that the metals will be mobilised."

The proposed Valley Silts Expansion Project will remove the silts, and then temporarily stockpile and dry the silt in stockpile areas directly north and south of Blocks N1 to N18. Silts will have up to 40% moisture content when hauled and are not expected to be fully dried out. The dried tailings/silts will be loaded onto tipper trucks and transported to the City Deep Plant for pre-processing.

The excavation of the silt from the water course will trigger oxidation reactions that will result in acidic conditions and leaching of salts and metals. Negative surface and groundwater quality impacts are expected in the excavated areas and the stockpile areas.

In the deeper silt pockets the pH will be much lower and element concentrations higher, but due to current stable conditions that include saturation, low permeability and low oxygen levels, metal and salt leaching does not happen readily. This will change when the silt excavation process introduces oxygen and disturbs the stable conditions.

Modelling:

The available information was used to construct a conceptual model of the aquifers present in the project area. The conceptual model forms the basis of the numerical groundwater model. To assess the potential impacts of the proposed silt excavation from section of the Russell Stream, a groundwater model was constructed for the project area.

The following scenarios were evaluated as part of the assessment:

- **Best case scenario**: Low seepage infiltration from the project to the underlying aquifers, equivalent to dry conditions.
- **Likely case scenario**: Moderate seepage infiltration rates to the underlying aquifers, equivalent to average conditions.
- **No Project scenario**: This is considered the worst case and assumes that the silts will remain in the Russel Stream floodplain.

Outcome of Simulations Completed:

The overall outcome of the simulations is summarised as follows:

- The cumulative impact of all historical TSFs located around the project area was included during simulations. These areas are included based on monitoring data from hydrocensus boreholes downgradient of two of these TSFs. Since these are likely dry as they are dormant, long-term impacts on groundwater quality associated with these could reduce. It is further noted that these TSFs are downgradient of the Valley Silts Expansion Project and are therefore not expected to directly impact on long-term water quality associated with the project.
- Also included is silt material present in the Russel Stream further downgradient and west of the Valley Silts Expansion Project. The extent of this material is inferred from information made available as part of the 2019 assessment. As this material will remain in the stream for now, it impacts on groundwater quality in this area will continue in future. This area is downgradient of the Valley Silts Project and will therefore not impact on long-term groundwater quality associated with the project.
- Only two of the boreholes and shafts identified during the 2025 hydrocensus are downgradient of the project, namely CRGB15 and VAL1. Borehole CRGB15 is downgradient of a historical TSF. For this reason, impacts on this borehole cannot be attributed to the Valley Silts Project. Borehole VAL1 is located approximately 2 km west of the Valley Silts Project, further along the flow of the Russel Stream. This borehole is located near the area where silts are likely to remain in the stream in future and is also downgradient of a historical TSF. Based on this it is concluded that groundwater is not currently used in the zone of impact associated with the Valley Silts Project.
- The project footprint is located on outcrops of Turffontein quartzite, Johannesburg quartzite and Booysens shale. Fieldwork completed during 2025 confirms that the aquifers associated with the shale and the Johannesburg quartzite have low permeabilities and recharge rates. As such, the sulphate and iron plumes associated with the project migrate very slowly in the aquifers. The advantage of this outcome is that contamination associated with the project is not likely to move more than a few hundred meters from the reclamation areas in the long-term.
- The disadvantage of the poorly developed aquifer conditions identified is that historical contamination will not be flushed in the long-term but will remain within the footprint area to a large extent. Removal of the silt material as part of the project is therefore likely to reduce the concentrations of contaminants but will not significantly do so. In addition to a reduction in concentration, the extent of the zone of impact on groundwater quality will reduce in the long-term after removal of the silt material from the stream.

- Groundwater plumes are expected to move towards the Russel Stream on a local scale, but regionally in a westerly directly, but slowly.
- The volumes of contaminated groundwater that may reach the wetlands downgradient in the Russel Stream cannot be accurately assessed based on one dataset alone. It is however expected to be low, probably not exceeding 20 m^3/a.
- Most significant impacts on groundwater quality, as delineated by the simulated zones of unacceptable long-term impacts and zones of acceptable operational impacts are mainly restricted to the Valley Silts Project footprint areas. The zones of unacceptable impact are indicated by thick red lines at concentrations exceeding 1000 mg/L for sulphate and exceeding 10 mg/L for iron.
- The extent of the iron plume is larger compared to that of sulphate. This is because lower concentration standards are imposed on iron compared to sulphate.

Impact at the End of the Operational Phase:

The impact of silt reclamation from the stream at the end of the operational phase is presented for iron and sulphate (Figure 21 and Figure 22). The simulations indicate the following:

- Due to the short duration of the project, the outcome of the operational impact on groundwater quality is mainly due to the impact of historical tailings deposition in the stream.
- Based on the current dataset, it is expected that sulphate concentrations would exceed 2000mg/L and iron concentrations would exceed 200 mg/L over the project footprint area at the end of the operational phase. The groundwater is currently not fit for use.
- The zone of impact on groundwater quality is not expected to significantly exceed the project boundary at the end of the operational phase. It is possible that the plumes can migrate a hundred meters west along the flow of the Russel Stream.
- No private boreholes fall within the delineated zone of impact of the Valley Silts Expension Project.

Likely Long-term Scenario:

The likely outcome of the removal of silts from the Russel Stream in terms of groundwater quality is presented in Figure 23 and Figure 24. The following is concluded from the impact predictions completed:

- Sulphate concentrations are expected to reduce to below 1000 mg/L over large portions of the footprint. It is possible that pockets in the aquifer may have concentrations exceeding 1000 mg/L, but not significantly so. These zones where sulphate exceeds 1000 mg/L will remain inside the project footprint area in the long-term.
- In addition, the extent of the zone of impact is expected to reduce to within the project footprint.
- Iron concentrations are also expected to reduce significantly within the project area. It is anticipated that iron concentrations would reduce to below 100 mg/L over most of the project area, but as with sulphate, pockets may remain where concentrations exceed 100 mg/L, but not significantly so. While this will be a significant reduction in iron concentrations, long-term impacts over the project footprint will continue to pose a risk that could result in acute or chronic health impacts. The groundwater within the project area will therefore remain unfit for use. The positive outcome of the project is however a significant reduction in concentrations and a reduction in the extent of the zone of unacceptable impacts.

Scenario Analysis for Long-term Impacts:

The outcome of the assessment for both sulphate and iron is summarised as follows:

- Impacts associated with the best case and likely scenarios are expected to be very similar in terms of impacts on groundwater quality. These two cases relate to how water is managed on site during the operational phase and the extent to which infiltration of dirty water takes place. Since the aquifer permeability within the project area is low, water management options during the comparatively short operational period are not likely to result in significant long-term effects. Despite this, it is recommended that clean and dirty water management measures, as indicted in Kongiwe (2025) are strictly adhered to. All measures must be taken to divert clean runoff and contain dirty water inside the dedicated paddocks. Dirty water must be reused during reclamation to avoid ponding over extended periods of time.
- If the Valley Silts Expansion Project is not implemented, current impacts on groundwater quality are expected to continue in the long-term. This is expected to increase sulphate and iron concentrations within the unacceptable levels over the footprint area as well as downstream in the Russel Stream. The extent of the zone of impact on groundwater quality is therefore expected to increase with time. The outcome of this scenario will result in long-term negative impacts on groundwater quality and should therefore be avoided. Removal of the silt material from the streambed will reduce long-term impacts, as discussed above.

During the rehabilitation phase of the project, it was assumed that all tailings and silt will be removed, that the soil will be shaped to create a free-draining surface, and that all radiation will be removed. It is noted that this rehabilitation scenario will not reverse the cumulative impact of historical tailings deposition. For this reason, a residual impact will remain post-closure of the project in the long-term.

The rehabilitation will be completed down to a red earth footprint. The area will be shaped for correct storm water management. During this phase, all project infrastructure will be removed, and a final radiological survey will be undertaken. Thereafter the property will be handed over to the landowner.

15 RECOMMENDATIONS

It is crucial to implement the groundwater monitoring program before the desilting activities start at the expansion project, to define the pre-excavation status. The database will help the client identify groundwater quality and level trends and will serve as reference to identify and quantify potential impacts on the groundwater environment.

The excavated silt and any water must be removed from open and exposed formation surfaces as soon as possible to avoid seepage of contaminated water into the shallow weathered and deeper fractured aquifers. The desilting will be a continuous process, and water will be in the silts. It must be assumed that the groundwater system will take a portion of this load and ways to manage, contain and minimise the mobilisation of loads must be adopted.

The risk of groundwater contamination during the desilting process will be higher compared to the existing impacts, as chemical reactions and leaching from the silt will increase, due to increased surface area exposed to oxygen and rainwater. Surface water management and containment guidelines must be followed carefully during the desilting process.

In addition to the above, it is important that the necessary cut-off trenches and berms are put in place between the Valley Silts project area and the historical TSFs to avoid future wash of silts and slimes into the excavated and rehabilitated areas, thus compounding the project again.

Ergo must ensure that an effective surface water collection and retention system is in place to ensure that all flow and collected water is directed towards the cut-off trenches and sumps and not allowed to freely drain away and back to the Russell Stream. Pooling of water must not be allowed on open surfaces, except if lined.

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Appendix A

CVs



Curriculum Vitae
Lucas Andries Smith (Pr. Sci.Nat)

Independent Hydrogeological Consultant

Principal Hydrogeologist

Based in:
Rietfontein
Tshwane

Mobile phone – 082 577 8439

lucas@wellsafrica.com

QUALIFICATIONS

MSc Geohydrology, IGS (UFS) Bloemfontein, South Africa, 2003.

Baccalaureus Technology Geology, Technicon Pretoria, South Africa, 1997.

National Diploma Geotechnology, Technicon Pretoria, South Africa, 1992.

EMPLOYMENT HISTORY

Department of Water and Sanitation – 17 years.

ERM Consulting – 3.5 years.

Digby Wells Environmental – 5.5 years.

ASST Group – 12 months.

Current – Director, Groundwater Abstract Pty Ltd

FIELDS OF SPECIAL COMPETENCE

- Water use assessments (hydrocensus)
- Geophysical investigations
- Borehole drilling and rehabilitation studies
- Aquifer testing
- Community water supply and resource management
- Mine dewatering, water supply and management programmes
- Groundwater quality assessments
- Groundwater, catchment and impact assessments
- Design and management of water monitoring programmes
- Integrated Water and Waste Management Plans
- Water Use License Applications and compliance assessments
- Geochemistry assessments and waste classification
- Staff management
- Project management

SUMMARY OF COMPETENCIES

Lucas has 33 years of experience in the field of hydrogeology. Before moving to environmental consulting, he was a principal hydrogeologist at the Department of Water Affairs and Forestry (now Dept. Water and Sanitation) (South Africa) where he devoted 17 years to groundwater research and exploration programmes; rural water supply-, larger municipal water supply-, and government water supply schemes projects; artificial groundwater recharge projects; as well as borehole and aquifer development and remediation projects.

He executed and managed different hydrogeological projects, focussing on aspects such as community water supply programmes, geophysical investigations, characterisation of aquifers, pollution studies, in-stream flow requirements, hydraulic fracturing, dolomite and karst investigations and monitoring, chemical borehole rehabilitation (biofouling) and hydro-chemical analyses.

Over the past 16 years Lucas' environmental consulting experiences include the Southern African and Central- and West African mining sectors, as well as Energy sectors (Eskom and alternatives) where he manages groundwater and surface water resource evaluations and interaction, as well as conceptualising and quantification of groundwater flow/contaminant transport, ultimately for input to Environmental and Social Impact Assessments (ESIA), Environmental Management Programme reports (EMPr), Feasibility Studies and mine water management. Integrated water management is key to any business, mine, industry, or communities to ensure a sustainable resource for the environment and local communities to benefit from.

At Digby Wells Environmental Lucas was part of the EXCO committee; where he managed a team of 14 surface and groundwater specialists and several projects.

He served on the H&S Committee at ERM and Digby Wells where he also served as Chairperson for the H&S Committee for 1 year.

Lucas is a dedicated employee, husband and farther; and passionate about managing and protecting our natural resources and the environment.

RECENT RELEVANT PROJECT EXPERIENCE

During the 33 years in the Water Geosciences industry Lucas was involved in many projects where he served as team member on many field works and research programmes; he managed staff and various projects throughout Africa and even as far as Pakistan, and played a prominent role in being the overall Sponsor on projects, as well as acting as key client manager for clients like Sasol and Universal Coal.

A list of clients and projects over the last couple of years can be provided on request, but due to the extent of the experience it has been omitted from this CV.

SHORT CV Irene Lea

Personal Information

Name:	Irene Melville Lea
Nationality:	South African
Physical Address:	3 Herbert Baker Street, Sharon Park, South Africa
Postal Address:	PO Box 363, Dunnottar, 1590, South Africa
Telephone no:	011 363 2926
Fax no:	086 672 9900
Email:	irene@ileh.co.za

Employment

Current Position:

Consulting Hydrogeologist

Sole Proprietor, Irene Lea Environmental and Hydrogeology cc (ILEH)

September 2009 – Present

Previous Employment:

Pamodzi Gold and its predecessors – Group Environmental Manager (Dec 2002 – July 2009)

Groundwater Consulting Services – Water Unit Manager (Jan 1996 – Nov 2002)

CSIR – Staff Hydrogeologist (January 1992 – December 1995)

Professional Registration

Professional Natural Scientist (SACNASP, Reg. No. 400278/06)

Education

B.Sc. Geology and Mathematics, University of Stellenbosch, 1988 - 1990

B.Sc. (Hons) Geology, University of Stellenbosch, 1992

M.Sc. Geohydrology, Institute for Groundwater Studies, University of the Free State, 1996 - 1997

Experience

The project will be completed by Irene Lea. She has 27 years experience in the geohydrological field. She has a M.Sc. in Geohydrology and is a registered Professional Natural Scientist (400278/06). Her focus includes numerical groundwater flow and contaminant transport modelling, water treatment, integrated water and waste management strategies, rehabilitation and closure projects, environmental management systems, risk assessments and auditing. A project that she managed was nominated and short listed for a Nedbank Green Mining Award in 2006.

Recent Projects

Groundwater flow and contaminant transport modelling:

- AECI Modderfontein Industrial Complex, Groundwater Impact Assessment (SRK, 2012)
- Exxaro Arnot Colliery – Groundwater Impact Assessment (Golder and Associates, 2012)
- Transalloys Industrial site – Groundwater Impact Assessment (Jones & Wagener, 2012)
- Tschudi Copper Mine – Dewatering and groundwater supply (Jones & Wagener, 2012)
- Harmony Kalgold – Optimisation of abstraction boreholes and TSF EIA (Jones & Wagener, 2013)
- Fry Metals – Contaminant Transport Model to evaluate rehabilitation options (Rison, 2013)
- Assmang Chrome - Machadodorp Works Contaminant Transport Model (ESS, 2014)
- Sebilo Resources – Perth Manganese Numerical Groundwater Model (Sebilo Resources, 2014)
- Rand Gold Mali Loulo Mine – Updated Groundwater Impact Assessment (Digby Wells Environmental, 2015)
- Vantage Goldfields – Groundwater Study for IWWMP: Lily and Barbrook Mines (Vantage Gold, 2015)
- South Deep – Numerical simulations for the closure of a Tailings Storage Facility (Rison, 2015)
- Dwarsrivier Mine – Groundwater flow and contaminant transport model (EnviroGistics, 2015)
- Braeside Colliery – Groundwater specialist study for the Scoping and EIA phases (EIMS, 2015)
- Oakleaf Colliery – Numerical groundwater model for mining right application (Digby Wells Environmental, 2015)
- Withok Tailings Storage Facility – Numerical simulations for re-commissioning of TSF (Ergo Mining, 2015)
- Dwarsrivier Mine WULA – Numerical groundwater model to assess impacts (Assmang Chrome, 2015)
- Fry Metals – Contaminant Transport Model update (Rison, 2015)
- De Wittekranz Project - Numerical groundwater model to assess impacts (EIMS, 2015)
- Tetra4 Virginia Gas Project – Groundwater specialist input and numerical modelling (EIMS, 2016)
- DRD Gold – Numerical groundwater model for Withok Tailings Storage facility (Beric Robinson Tailings, 2016)
- Tetra4 Virginia Gas Project – Follow-up numerical modelling (EIMS, 2017)
- City of Cape Town Kalbaskraal Waste Disposal Project – Numerical modelling (Cliffe Decker Hofmeyr, 2017)
- Lephalale Coal Mines – Geohydrological modelling (ASST, 2017)
- Dwarsrivier Mine – Follow-up numerical groundwater flow and contaminant transport model (Envirogistics, 2017)
- Prieska Copper Mine – Geohydrological impact assessment, including numerical modelling (ABS Africa, 2017)
- Umsimbithi eMakhazeni Project - Geohydrological impact assessment, including numerical modelling (Kongiwe, 2018)
- City of Cape Town Kalbaskraal Waste Disposal Project – Numerical modelling (Cliffe Decker Hofmeyr, 2018)
- Vardocube Mining – Geohydrological impact assessment, including numerical modelling (ABS Africa, 2018)
- Assmang Manganese Cato Ridge – Numerical groundwater flow and contaminant transport model (Assmang Manganese, 2018)
- eMakazeni Mining Project - Numerical groundwater flow and contaminant transport model (Kongiwe, 2018)
- Leslie 1 Project – Numerical groundwater flow and contaminant transport model (Kongiwe, 2018)
- City of Cape Town Kalbaskraal Waste Disposal Project – Numerical modelling (Cliffe Decker Hofmeyr, 2018)
- Dwarsrivier Mine –Numerical groundwater flow and contaminant transport model (Envirogistics, 2018)
- Assmang Chrome Machadodorp Works - Numerical groundwater flow and contaminant transport mod (Assmang, 2018)
- Assore – Numerical groundwater flow and contaminant transport model – RMDC operations (Assore, 2019)
- Assore – Numerical groundwater flow and contaminant transport model – ZCM operations (Assore, 2019)
- Kranspan Colliery – Numerical groundwater flow and contaminant transport model (ABS Africa, 2019)
- DRD Gold – Numerical groundwater flow and contaminant transport modeling: Soweto Cluster and Marievale Projects (Kongiwe, 2019)
- South32 – Wolvekrans Mega Project – Geohydrological specialist study (NTC Group, 2019)

Integrated Water and Waste Management:

- Nkomati Mine Salt and Water Balance (ERM, 2007)
- Total Coal Dorstfontein Mine Salt and Water Balance (Groundwater Consulting Services, 2010)
- Blue Ridge Platinum Salt and Water Balance (Groundwater Consulting Services, 2010)
- Sebilo Resources – Perth Manganese water use license application (Sebilo, 2014)
- Vantage Goldfields – Water Balance: Lily and Barboork Mines (Vantage Gold, 2015)
- Dwarsrivier Mine – Integrated Water Monitoring Programme (Assmang Chrome, 2015)
- RK Boerdery – Water balance for piggery (Batho Environmental, 2015)
- Sakura JV Indonesia – Groundwater study (Assmang Ltd, 2015)
- PMG Mining – Water balance of manganese mine (Globesight, 2016)
- Sebilo – Perth Manganese Mine – Water Use License Application (Sebilo, 2016)
- Transnet – Confidential technical report review (DMT Kai Batla, 2016)
- Tswane Metropolitan Municipality – Tswane Agri-Hub Baseline Hydrogeological Study (DMT Kai Batla, 2016)
- Afrisam South Africa – Ulco Cement Factory Hydrogeological Investigation (MojaTerre, 2016)
- City of Cape Town – Kalbaskraal Waste Disposal Facility Geohydrological Modelling (Cliffe Decker Hofmeyer, 2017)
- Sebilo Resources – Perth Mine Waste Classification (Sebilo Resources, 2017)
- Zeerust Chrome Mine – Tailings Waste Classification Study (AMTIT, 2017)
- Lephalale Coal and Power Project – Numerical groundwater flow and contaminant transport model (ASST, 2017)
- eMakhazeni Coal Project – Numerical groundwater flow and contaminant transport model (ASST, 2017)
- Beeshoek Iron Ore Mine – Water and Salt Balance (Envirogistics, 2017)
- Beeshoek Iron Ore Mine – Water Conservation and Demand Management Plan (Envirogistics, 2017)
- Machadorp Smelter – Water and Salt Balance (Assmang Ltd, 2017)
- Dwarsrivier Chrome Mine – Water Conservation and Demand Management Plan (Envirogistics, 2017)
- Dwarsivier Chrome Mine – Waste Classificaiton Study (DCM, 2017)
- New Kleinfontein Mine – Water and Salt Balance (NTC Group, 2017)
- Zeerust Chrome Mines – Basic Assessment Report -Groundwater (Envirogistics, 2018)
- Rustenburg Minerals Development Corporation – Basic Assessment Report – Groundwater (Envirogistics, 2018)
- Dwarsrivier Chrome Mine – Water Balance Study (Envirogistics, 2018)
- Beeshoek Mine -Water Balance Study (Envirogistics, 2018)
- Gold One New Kleinfontein Mine – Water Balance Study (NTC, 2018)
- Beeshoek Mine – Water and Salt Balance and Water Conservation and Demand Management Plan (Envirogistics, 2019)
- Dwarsrivier Mine – Water Conservation and Demand Management Plant (Envirogistics, 2019)
- ARM Alloys – Machadodorp Works Water and Salt Balance (ARM Alloys, 2019)

Environmental Management:

- Management of the construction of a river diversion (Pamodzi Gold, 2006)
- Minxcon Competent Person's Report (Bema Gold, 2006)
- Management of the construction and commissioning of a 10 ML/d mine water treatment plant (Pamodzi Gold, 2008/2009)
- Standard Bank Due Diligence (Pamodzi Gold, 2009)
- Environmental Baseline Assessment: Bien Venue Gold Prospect (Rock & Stock, 2010)
- Environmental Baseline Assessment: Perth Manganese Prospect (Sebilo Resources, 2010)
- Prospecting Right EMP: Aquarius Chieftans and Valhallah Prospect (SRK Consulting, 2011)
- NI43-101 Technical Report - Hydrogeology: Homeland Energy (SRK Consulting, 2011)
- Zeerust Chrome Mine EMP Amendment (Assore, 2011)
- Northam Platinum Due Diligence – Hydrogeology (SRK, 2011)
- Mogale Gold Technical Assessment – Water-related issues (MSA Geoservices, 2011)
- Rustenburg Mineral Corporation EMP Amendment (Assore, 2011)
- Mogale Gold – Lancaster Dam Baseline Assessment (Mintails SA Ltd, 2011)
- Mogale Gold – Review of Rehabilitation Quantum (Mintails SA Ltd, 2011)
- Sebilo Resources – Perth Mining Right Application EMP (2012)
- Isibaya – Performance Assessment Audit (Rock & Stock, 2012)
- Lebalelo Water Users Association – Olifants River Project (Anglo Platinum, 2012)
- Capricorn Iron Melkbosch Project – Performance Assessment Audit (Rock & Stock, 2012)
- Umlabu Colliery – Due Diligence (SRK, 2012)
- Isibaya Mining Resources – Performance Assessment Audit (Rock & Stock, 2013)
- Assore – PA Audits for RMDC, ZCM and Wonderstone Operations (Assore, 2013)
- Keegan Resources - Esaase Gold Project, Ghana – Gap Analysis and ESIA (Epoch Resources, 2013)
- Sebilo Resources – Quantum for Rehabilitation (Sebilo, 2014)
- Galabyte (Pty) Ltd – Middelvlei Mine Environmental Management Function (Galabyte, 2014)
- Pembani Group – Evaluation of the Carolina Operations water related liabilities (Pembani, 2014)
- Obarex – Van Roois Vley Environmental Management Programme (Rock & Stock, 2014)
- Glencore & Royal Bafokeng Holdings – Boschfontein Slag Dump Groundwater Risk Assessment (EIMS, 2014)
- Sebilo Resources – Performance Assessment Audit and Quantum for Rehabilitation – Perth Mine (Sebilo Resources, 2015)
- RK Boerdery – Baseline geohydrological study for piggery (Batho Environmental, 2015)
- Sungu Sungu Gas – Geohydrological study (EIMS, 2015)
- Gold mining industry – Groundwater component of a confidential Due Diligence (EBS, 2015)
- Sungu Sungu Gas – Groundwater specialist input – Scoping and EIA (EIMS, 2016)
- Kao Diamond Mine Lesotho – Groundwater specialist input – Scoping and EIA (EIMS, 2016)
- The Mineral Corporation – Mukulu Project Competent Persons Report Technical Review (TMC, 2016)
- HC Van Wyk Diamponds – Groundwater input to diamond prospecting (MojaTerre, 2016)
- Black Mountain Mine – Groundwater Basic Assessment Report (The MSA Group, 2016)
- Tetra4 – Virginia Gas Project Baseline Hydrogeological Study (Tetra4, 2016)
- DRD Gold – Tailings reprocessing offset evaluation (DRD Gold, 2016)
- Dwarsrivier Chrome Mine – Assessment of Quantum for Rehabilitation (Assore, 2016)
- Hlagisa – Wildfontein Section 102 application (ESS, 2017)
- African Mining Trust – Zeerust, Wonderstone and RMDC Quantum for Rehabilitation (2013 – 2017)
- Dwarsrivier Chrome Mine – Assessment of Quantum for Rehabilitation (Assore, 2018)
- AMT – Updated of Quantum for Rehabilitation for three operations (AMT, 2018)

Appendix B

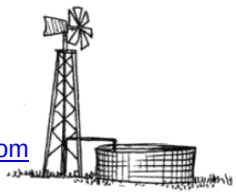
Borehole Drill Logs

Groundwater Abstract (Pty) Ltd

Lucas Smith

0825778439

Lucas@wellsafrica.com

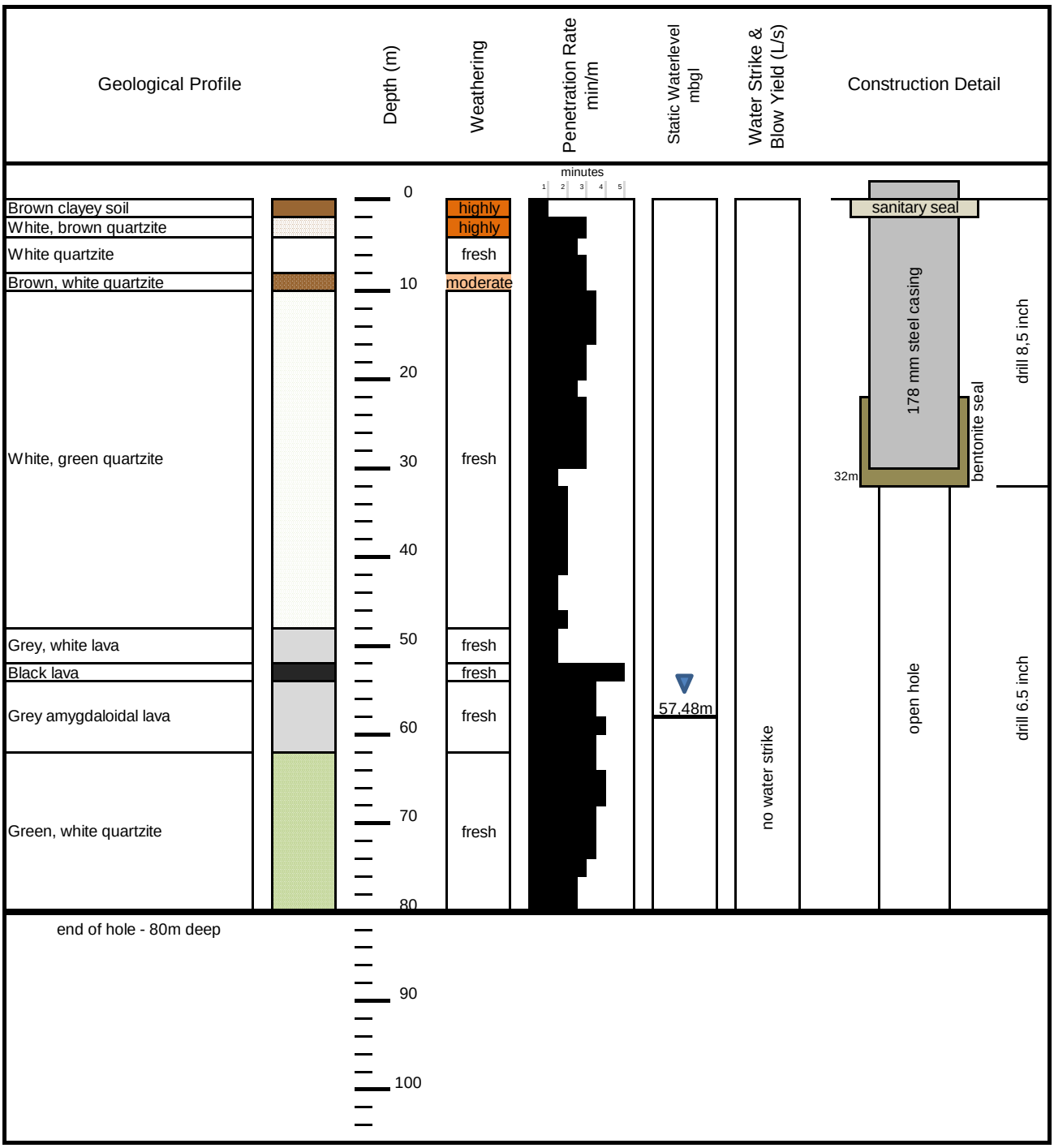


Percussion Drilling Borehole Log	Borehole No. VS_BH 1d

Client: Ergo Mining (Pty) Ltd

PROJECT:	Valley Silts Expansion
LOCATION:	Crown - Booysens area
DRILLER:	Georoc Drilling
DRILL DATE:	26/02/2025
LOGGED BY	Lucas Smith

COORDINATES	
Latitude	26°13'39.59"S
Longitude	28°00'23.73"E
Elevation	1678 mamsl
COORD SYSTEM	
	WGS84



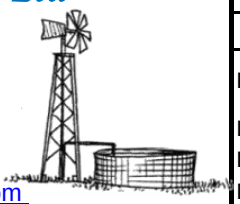
Casing Height:	58 cm	pH:	
		EC (ms/m):	
Concrete Height:	21 cm	TDS (mg/L):	sample not taken
		TDS (ppm):	
Development Time:	Blown clean	Salinity (ppm):	
		Temp °C:	

Groundwater Abstract (Pty) Ltd

Lucas Smith

0825778439

Lucas@wellsafrica.com



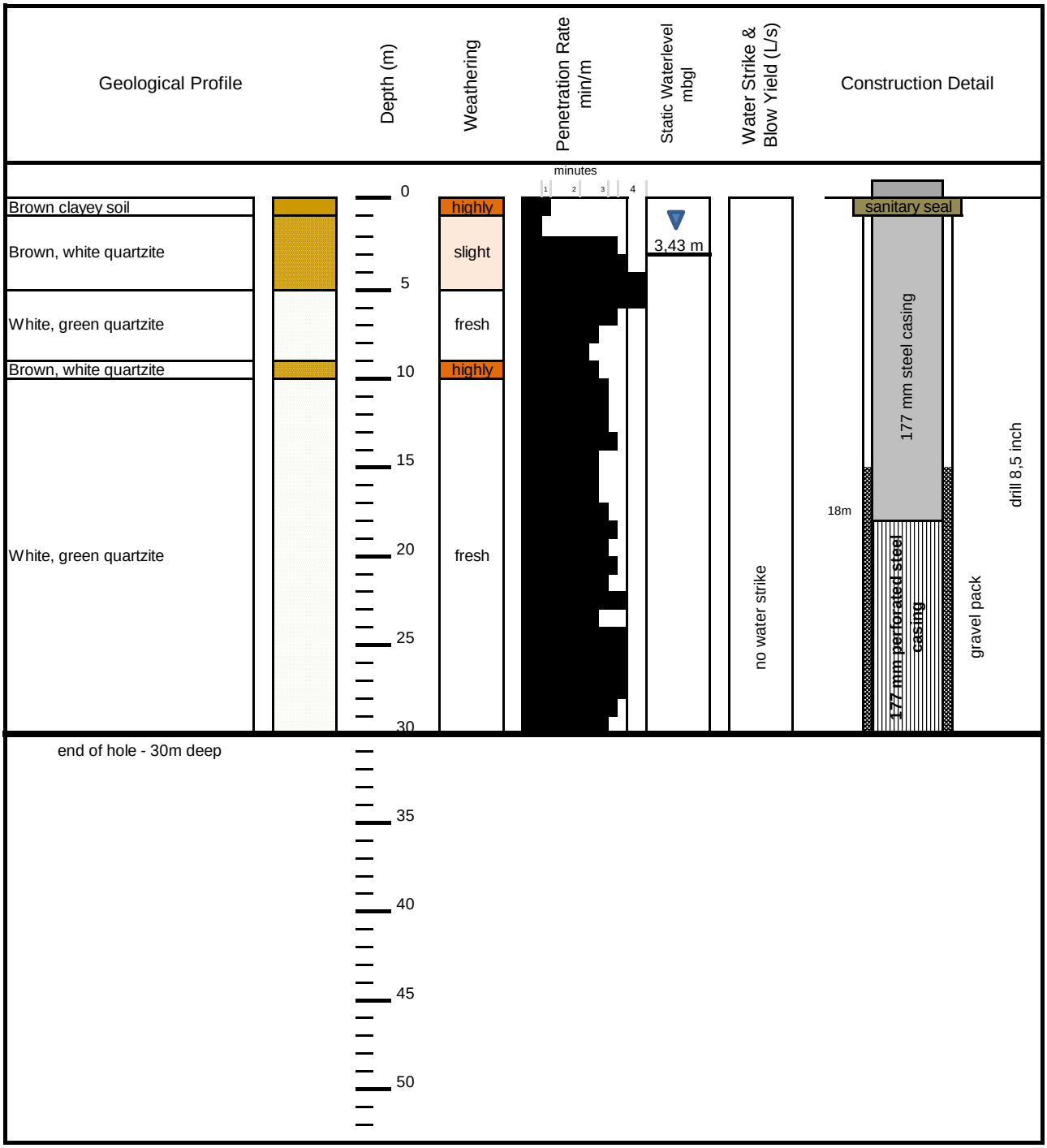
Percussion Drilling Borehole Log

Borehole No. VS_BH 1s

Client: Ergo Mining (Pty) Ltd

PROJECT:	Valley Silts Expansion
LOCATION:	Crown - Booysens area
DRILLER:	Georoc Drilling
DRILL DATE:	27/02/2025
LOGGED BY	Lucas Smith

COORDINATES	
Latitude	26°13'39.64"S
Longitude	28°00'23.73"E
Elevation	1678 mamsl
COORD SYSTEM	
	WGS84



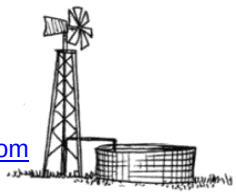
Casing Height:	55 cm	pH:	
		EC (ms/m):	
Concrete Height:	25,5 cm	TDS (mg/L):	sample not taken
		TDS (ppm):	
Development Time:	blown clean	Salinity (ppm):	
		Temp °C:	

Groundwater Abstract (Pty) Ltd

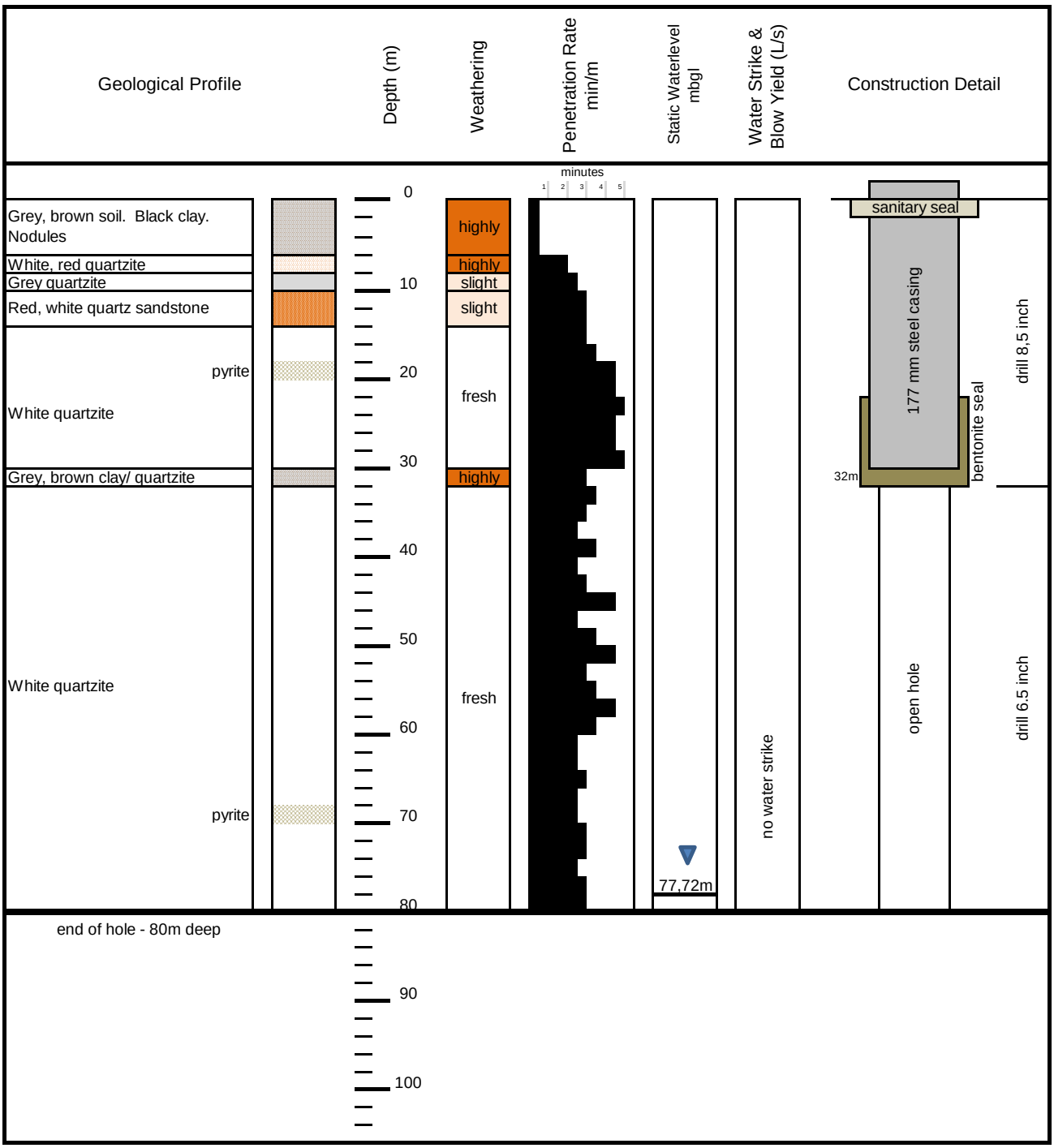
Lucas Smith

0825778439

Lucas@wellsafrica.com



Percussion Drilling Borehole Log	Borehole No. VS_BH 2d
Client:	**Ergo Mining (Pty) Ltd**
PROJECT: Valley Silts Expansion	COORDINATES
LOCATION: Crown - Booysens area	Latitude 26°13'17.31"S
DRILLER: Georoc Drilling	Longitude 27°59'01.48"E
DRILL DATE: 04/03/2025	Elevation 1663 mamsl
LOGGED BY Lucas Smith	COORD SYSTEM WGS84



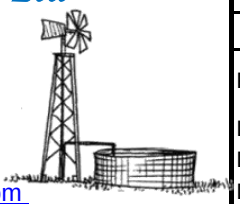
Casing Height:	26 cm	pH:	
		EC (ms/m):	
Concrete Height:	26 cm	TDS (mg/L):	sample not taken
		TDS (ppm):	
Development Time:	Blown clean	Salinity (ppm):	
		Temp °C:	

Groundwater Abstract (Pty) Ltd

Lucas Smith

0825778439

Lucas@wellsafrica.com



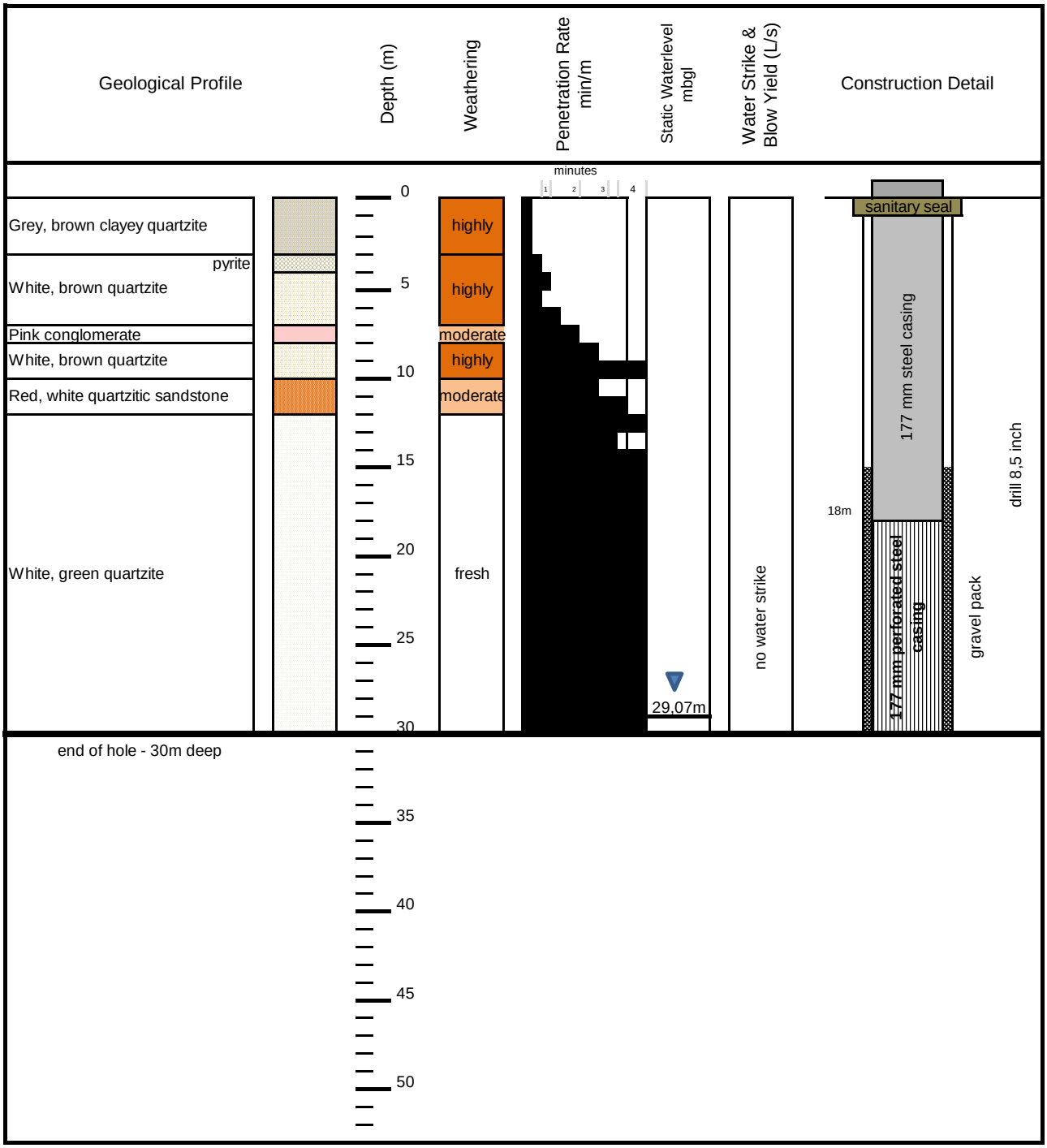
Percussion Drilling Borehole Log

Borehole No. VS_BH 2s

Client: Ergo Mining (Pty) Ltd

PROJECT:	Valley Silts Expansion
LOCATION:	Crown - Booysens area
DRILLER:	Georock Drilling
DRILL DATE:	05/03/2025
LOGGED BY	Lucas Smith

COORDINATES	
Latitude	26°13'17.35"S
Longitude	27°59'01.50"E
Elevation	1663 mamsl
COORD SYSTEM	
	WGS84

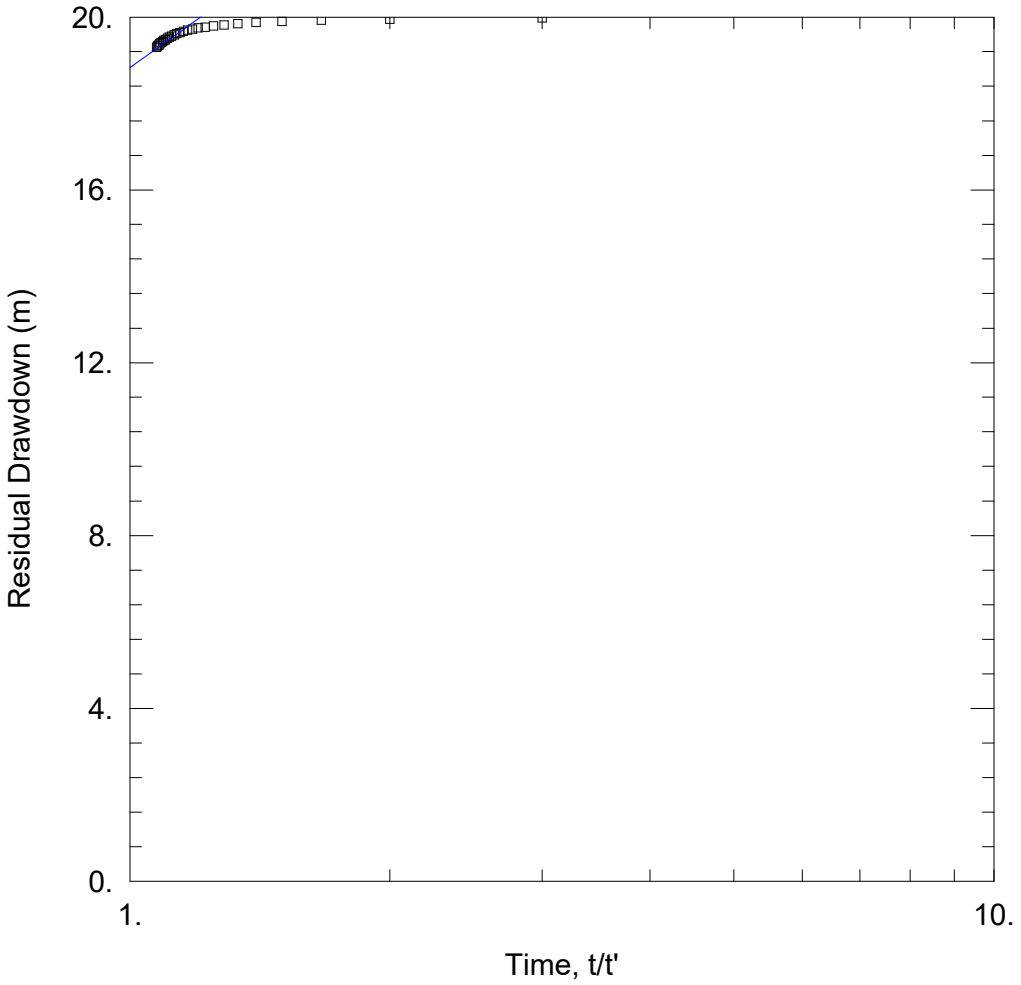


Casing Height:	26 cm	pH:	
		EC (ms/m):	
Concrete Height:	26 cm	TDS (mg/L):	sample not taken
		TDS (ppm):	
Development Time:	blown clean	Salinity (ppm):	
		Temp °C:	

Appendix C

Aquifer Test Data

(Geovation)



WELL TEST ANALYSIS

Data Set: D:\24-17 Valley Silt\VSBH1D_Pump out.aqt
Date: 03/10/25 Time: 15:17:08

PROJECT INFORMATION

Company: Groundwater Abstract
Client: DRD
Location: JHB
Test Well: VSBH1S
Test Date: 03/03/2025

AQUIFER DATA

Saturated Thickness: 20. m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
VSBH1D	0	0

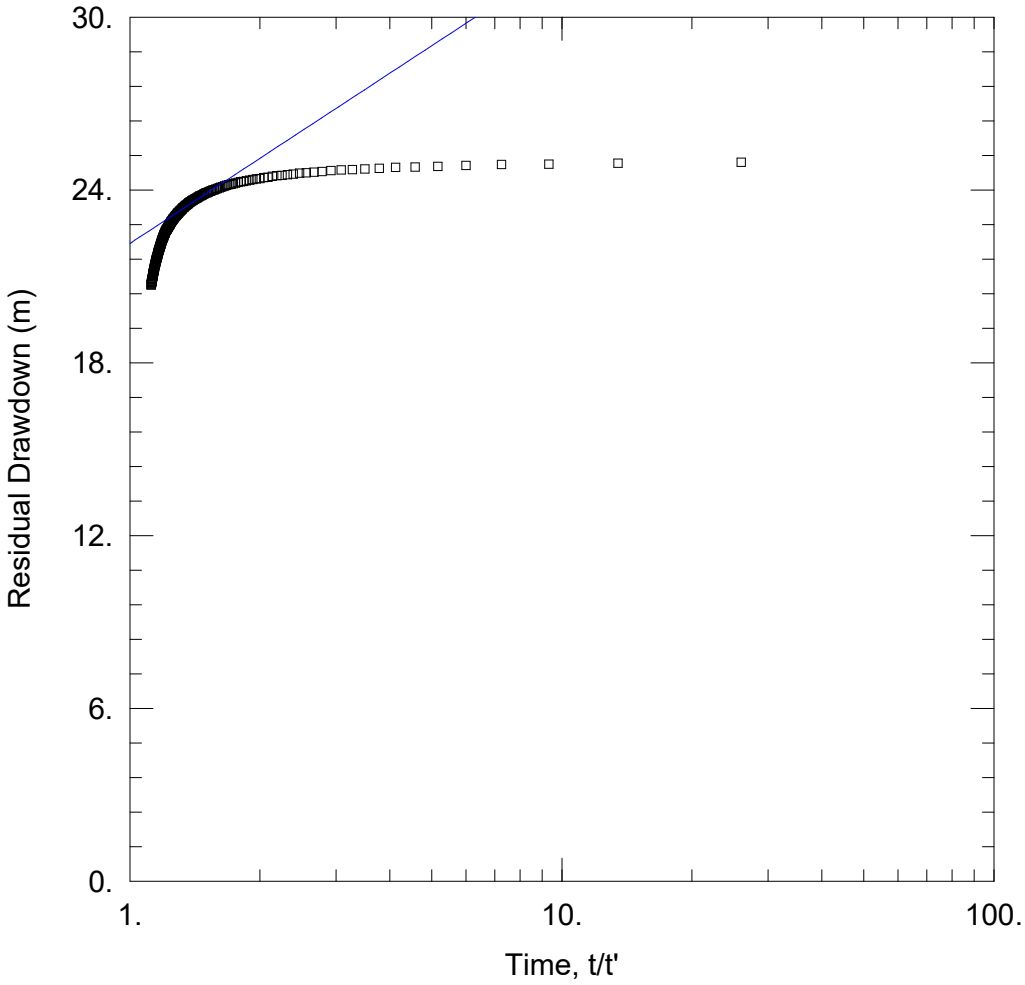
Observation Wells

Well Name	X (m)	Y (m)
▫ VSBH1D	0	0

SOLUTION

Aquifer Model: Confined Solution Method: Theis (Recovery)

T = 1.104 m^2/day S/S' = 0.04865



WELL TEST ANALYSIS

Data Set: D:\24-17 Valley Silt\VSBH1S_Pump out.aqt
Date: 03/10/25 Time: 14:54:12

PROJECT INFORMATION

Company: Groundwater Abstract
Client: DRD
Location: JHB
Test Well: VSBH1S
Test Date: 03/03/2025

AQUIFER DATA

Saturated Thickness: 26. m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Pumping Wells

Well Name	X (m)	Y (m)
VSBH1S	0	0

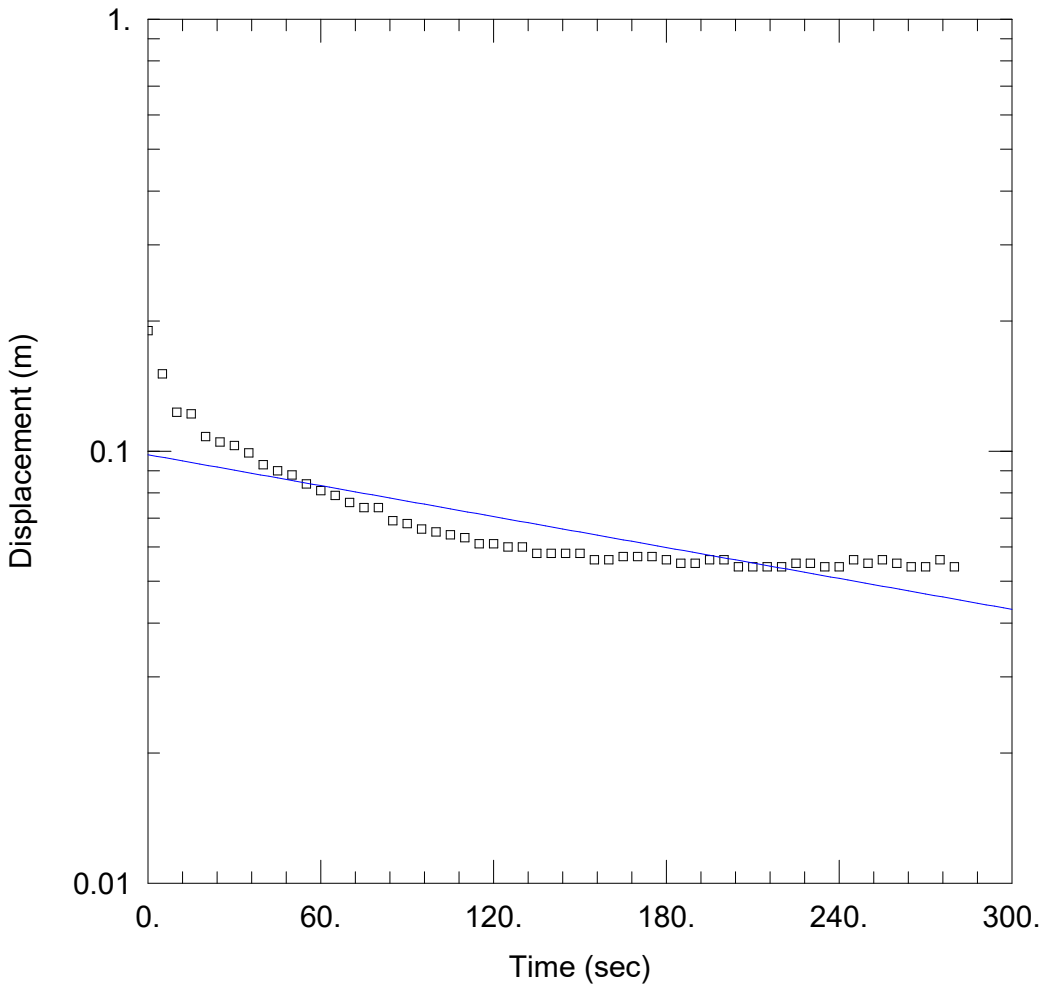
Observation Wells

Well Name	X (m)	Y (m)
▫ VSBH1S	0	0

SOLUTION

Aquifer Model: Confined Solution Method: Theis (Recovery)

T = 1.611 m^2/day S/S' = 0.005588



WELL TEST ANALYSIS

Data Set: D:\24-17 Valley Silt\VSBH1S_Slug.aqt
Date: 03/10/25 Time: 13:23:43

PROJECT INFORMATION

Company: Groundwater Abstract
Client: DRD
Location: JHB
Test Well: VSBH1S
Test Date: 28/02/2025

AQUIFER DATA

Saturated Thickness: 26. m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (VSBH1S)

Initial Displacement: 0.19 m
Total Well Penetration Depth: 27. m
Casing Radius: 0.08 m
Static Water Column Height: 26. m
Screen Length: 24. m
Well Radius: 0.08 m

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.1455 m/day
y0 = 0.09811 m

Appendix D

Water Laboratory Certificates

Test Report

Client: Groundwater Abstract Pty Ltd GWA
Address: 828 20th Avenue , Rietfontein, Pretoria, 0084
Report no: 213427
Project: Valley Silts

Date of report: 12 March 2025
Date accepted: 28 February 2025
Date completed: 12 March 2025
Date received: 28 February 2025

					212841	212842	212843
Lab no:							
Date sampled:					27-Feb-25	27-Feb-25	27-Feb-25
Aquatico sampled:					No	No	No
Sample type:					Water	Water	Water
Locality description:					Val1	Val2	Val4
		Analyses	**Unit**	**Method**			
A	AQL	pH @ 25°C	pH	ALM 20	7.49	7.55	8.17
A	AQL	Electrical conductivity (EC) @ 25°C	mS/m	ALM 20	222	271	31.9
A	AQL	Total dissolved solids (TDS)	mg/l	ALM 26	1756	2127	189
A	AQL	Total Alkalinity	mg $CaCO_3$/l	ALM 01	62.8	48.0	97.7
A	AQL	Chloride (Cl)	mg/l	ALM 02	81.9	145	25.6
A	AQL	Sulphate (SO_4)	mg/l	ALM 03	1125	1388	23.5
A	AQL	Nitrate (NO_3) as N	mg/l	ALM 06	0.269	<0.194	4.19
A	AQL	Total oxidised nitrogen as N	mg/l	ALM 06	0.269	<0.194	4.19
A	AQL	Ammonium (NH_4) as N	mg/l	ALM 05	14.6	0.887	0.229
A	AQL	Fluoride (F)	mg/l	ALM 08	<0.263	<0.263	<0.263
A	AQL	Acid Soluble Calcium (Ca)	mg/l	ALMA 30	232	376	37.5
A	AQL	Acid Soluble Magnesium (Mg)	mg/l	ALMA 30	66.9	82.1	16.8
A	AQL	Acid Soluble Sodium (Na)	mg/l	ALMA 30	164	92.3	5.78
A	AQL	Acid Soluble Potassium (K)	mg/l	ALMA 30	28.2	12.9	1.28
A	AQL	Acid Soluble Aluminium (Al)	mg/l	ALMA 31	<0.002	<0.002	<0.002
A	AQL	Acid Soluble Iron (Fe)	mg/l	ALMA 31	11.7	18.3	4.59
A	AQL	Acid Soluble Manganese (Mn)	mg/l	ALMA 31	5.45	53.0	0.294
A	AQL	Acid Soluble Chromium (Cr)	mg/l	ALMA 31	<0.003	<0.003	<0.003
A	AQL	Acid Soluble Copper (Cu)	mg/l	ALMA 31	0.015	0.016	<0.002
A	AQL	Acid Soluble Nickel (Ni)	mg/l	ALMA 31	<0.002	0.123	<0.002
A	AQL	Acid Soluble Zinc (Zn)	mg/l	ALMA 31	<0.002	<0.002	<0.002
A	AQL	Acid Soluble Cadmium (Cd)	mg/l	ALMA 31	0.003	0.003	<0.002
A	AQL	Acid Soluble Lead (Pb)	mg/l	ALMA 31	<0.004	0.012	<0.004
A	AQL	E.coli	CFU/100ml	ALM 40	<1	<1	7
A	AQL	Total coliform	CFU/100ml	ALM 40	5	<1	40

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Test Report

Client: Groundwater Abstract Pty Ltd GWA
Address: 828 20th Avenue , Rietfontein, Pretoria, 0084
Report no: 213427
Project: Valley Silts

Date of report: 12 March 2025
Date accepted: 28 February 2025
Date completed: 12 March 2025
Date received: 28 February 2025

					212841	212842	212843
Lab no:							
Date sampled:					27-Feb-25	27-Feb-25	27-Feb-25
Aquatico sampled:					No	No	No
Sample type:					Water	Water	Water
Locality description:					Val1	Val2	Val4
		Analyses	**Unit**	**Method**			
A	AQL	Turbidity	NTU	ALM 21	302	317	42.5
A	AQL	Total hardness	mg $CaCO_3$/l	ALM 26	855	1278	163
A	AQL	Total organic carbon (TOC)	mg/l	ALM 63	18.9	11.2	2.18
A	AQL	Langelier Saturation Index	LSI	ALM 26	-0.39	-0.24	-0.21

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aquatico Laboratories (Pty). Ltd.

ilac-MRA sanas Testing Laboratory T0685

Test Report

Client: Groundwater Abstract Pty Ltd GWA
Address: 828 20th Avenue , Rietfontein, Pretoria, 0084
Report no: 213830
Project: ERGO samples

Date of report: 12 March 2025
Date accepted: 04 March 2025
Date completed: 12 March 2025
Date received: 04 March 2025

Lab no:					214464	214465
Date sampled:					03-Mar-25	03-Mar-25
Aquatico sampled:					No	No
Sample type:					Water	Water
Locality description:					VSBH-1D	VSBH-1S
		Analyses	**Unit**	**Method**		
A	AQL	pH @ 25°C	pH	ALM 20	4.52	4.87
A	AQL	Electrical conductivity (EC) @ 25°C	mS/m	ALM 20	403	317
A	AQL	Total dissolved solids (TDS)	mg/l	ALM 26	4134	2991
A	AQL	Total Alkalinity	mg $CaCO_3$/l	ALM 01	21.3	14.5
A	AQL	Chloride (Cl)	mg/l	ALM 02	31.0	59.0
A	AQL	Sulphate (SO_4)	mg/l	ALM 03	3126	2395
A	AQL	Nitrate (NO_3) as N	mg/l	ALM 06	1.49	1.01
A	AQL	Total oxidised nitrogen as N	mg/l	ALM 06	1.49	1.01
A	AQL	Ammonium (NH_4) as N	mg/l	ALM 05	0.263	0.758
A	AQL	Fluoride (F)	mg/l	ALM 08	<0.263	<0.263
A	AQL	Acid Soluble Calcium (Ca)	mg/l	ALMA 30	493	341
A	AQL	Acid Soluble Magnesium (Mg)	mg/l	ALMA 30	246	96.6
A	AQL	Acid Soluble Sodium (Na)	mg/l	ALMA 30	210	77.7
A	AQL	Acid Soluble Potassium (K)	mg/l	ALMA 30	9.09	6.94
A	AQL	Acid Soluble Aluminium (Al)	mg/l	ALMA 31	2.07	25.1
A	AQL	Acid Soluble Iron (Fe)	mg/l	ALMA 31	296	441
A	AQL	Acid Soluble Manganese (Mn)	mg/l	ALMA 31	38.2	34.7
A	AQL	Acid Soluble Chromium (Cr)	mg/l	ALMA 31	<0.003	<0.003
A	AQL	Acid Soluble Copper (Cu)	mg/l	ALMA 31	0.043	0.077
A	AQL	Acid Soluble Nickel (Ni)	mg/l	ALMA 31	5.21	10.2
A	AQL	Acid Soluble Zinc (Zn)	mg/l	ALMA 31	2.19	7.99
A	AQL	Acid Soluble Cadmium (Cd)	mg/l	ALMA 31	0.063	0.117
A	AQL	Acid Soluble Lead (Pb)	mg/l	ALMA 31	<0.004	<0.004
A	AQL	E.coli	CFU/100ml	ALM 40	<1	<1
A	AQL	Total coliform	CFU/100ml	ALM 40	20	5

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Report no: 213830
Project: ERGO samples

Date of report: 12 March 2025
Date accepted: 04 March 2025
Date completed: 12 March 2025
Date received: 04 March 2025

Lab no:					214464	214465
Date sampled:					03-Mar-25	03-Mar-25
Aquatico sampled:					No	No
Sample type:					Water	Water
Locality description:					VSBH-1D	VSBH-1S
		Analyses	**Unit**	**Method**		
A	AQL	Turbidity	NTU	ALM 21	626	730
A	AQL	Total hardness	mg $CaCO_3$/l	ALM 26	2243	1249
A	AQL	Total organic carbon (TOC)	mg/l	ALM 63	4.18	5.42
A	AQL	Langelier Saturation Index	LSI	ALM 26	-3.51	-3.48

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aquatico Laboratories (Pty). Ltd.

ilac-MRA sanas Testing Laboratory T0685

Test Report

Client: Groundwater Abstract Pty Ltd GWA
Address: 828 20th Avenue , Rietfontein, Pretoria, 0084
Report no: 217438
Project: Valley Silts

Date of report: 04 April 2025
Date accepted: 02 April 2025
Date completed: 04 April 2025
Date received: 02 April 2025

Lab no:					230882	230883
Date sampled:					02-Apr-25	02-Apr-25
Aquatico sampled:					No	No
Sample type:					Water	Water
Locality description:					VS BH2S	VS BH2D
		Analyses	**Unit**	**Method**		
A	AQL	pH @ 25°C	pH	ALM 20	6.22	5.69
A	AQL	Electrical conductivity (EC) @ 25°C	mS/m	ALM 20	299	341
A	AQL	Total dissolved solids (TDS)	mg/l	ALM 26	2757	3085
A	AQL	Total Alkalinity	mg $CaCO_3$/l	ALM 01	43.5	41.4
A	AQL	Chloride (Cl)	mg/l	ALM 02	77.2	78.1
A	AQL	Sulphate (SO_4)	mg/l	ALM 03	2011	2246
A	AQL	Nitrate (NO_3) as N	mg/l	ALM 06	<0.194	<0.194
A	AQL	Total oxidised nitrogen as N	mg/l	ALM 06	<0.194	<0.194
A	AQL	Ammonium (NH_4) as N	mg/l	ALM 05	0.328	0.196
A	AQL	Fluoride (F)	mg/l	ALM 08	<0.263	<0.263
A	AQL	Acid Soluble Calcium (Ca)	mg/l	ALMA 30	334	414
A	AQL	Acid Soluble Magnesium (Mg)	mg/l	ALMA 30	168	149
A	AQL	Acid Soluble Sodium (Na)	mg/l	ALMA 30	121	145
A	AQL	Acid Soluble Potassium (K)	mg/l	ALMA 30	18.5	26.9
A	AQL	Acid Soluble Aluminium (Al)	mg/l	ALMA 31	0.023	0.071
A	AQL	Acid Soluble Iron (Fe)	mg/l	ALMA 31	83.5	72.7
A	AQL	Acid Soluble Manganese (Mn)	mg/l	ALMA 31	68.3	74.3
A	AQL	Acid Soluble Chromium (Cr)	mg/l	ALMA 31	<0.003	0.017
A	AQL	Acid Soluble Copper (Cu)	mg/l	ALMA 31	0.019	0.022
A	AQL	Acid Soluble Nickel (Ni)	mg/l	ALMA 31	1.40	5.83
A	AQL	Acid Soluble Zinc (Zn)	mg/l	ALMA 31	0.036	0.391
A	AQL	Acid Soluble Cadmium (Cd)	mg/l	ALMA 31	0.012	0.008
A	AQL	Acid Soluble Lead (Pb)	mg/l	ALMA 31	<0.004	0.012
A	AQL	E.coli	CFU/100ml	ALM 40	<1	<1
A	AQL	Total coliform	CFU/100ml	ALM 40	<1	<1

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Test Report

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Address: 828 20th Avenue , Rietfontein, Pretoria, 0084
Report no: 217438
Project: Valley Silts

Date of report: 04 April 2025
Date accepted: 02 April 2025
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Lab no:					230882	230883
Date sampled:					02-Apr-25	02-Apr-25
Aquatico sampled:					No	No
Sample type:					Water	Water
Locality description:					VS BH2S	VS BH2D
		Analyses	**Unit**	**Method**		
A	AQL	Turbidity	NTU	ALM 21	566	133
A	AQL	Total hardness	mg $CaCO_3$/l	ALM 26	1525	1650
A	AQL	Total organic carbon (TOC)	mg/l	ALM 63	19.1	12.3
A	AQL	Langelier Saturation Index	LSI	ALM 26	-1.69	-2.16

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Appendix E

Impact Assessment Table

No.	Affected Environment	Activity	Impact Description	BEFORE MITIGATION						Cumulative Impact	Mitigation measures / Recommendations	AFTER MITIGATION					
				Magnitude	Duration	Spatial Scale	Consequence	Probability	SIGNIFICANCE			Magnitude	Duration	Spatial Scale	Consequence	Probability	SIGNIFICANCE
	Construction																
1	Groundwater	Site clearing and infrastructure development	**Quantity** - Quantity impacts are not expected during Construction.	*Minor -*	*Short Term < 18 months*	*Site or Local*	Low	*Possible*	Low	Yes	Implement a surface water management plan to minimise the volume of dirty water produced thereby reducing the probability of contamination of groundwater from infiltration of dirty surface water. Allow clean water to bypass the dirty areas and flow into the natural environment. Time-series groundwater monitoring is required to predict the groundwater level and related impacts. Dedicated groundwater monitoring boreholes must be used.	*Minor +*	*Short Term < 18 months*	*Site or Local*	Low	*Possible*	Low
2	Groundwater	Site clearing and infrastructure development	**Quality** - Any activity in the stream and opening of ground and may allow water and air to enter the silt, likely after rainfall. Deterioration in groundwater quality due to the increased suspended solids seeping in from exposed surfaces, plus pyrite starting to react. Additional quality impacts are suspected to be low during Construction.	*Minor -*	*Short Term < 18 months*	*Site or Local*	Low	*Possible*	Low	Yes	The slimes dams and sand dumps along the Russell Stream are all potential sources of pollution. In the current state of the stream (with silt) and after removal of the silt these pollution sources next to the stream must be managed more effectively to ensure no contaminated silt, surface or groundwater enters the rehabilitated Russell Stream. Current water qualities indicate high salt and metal concentrations, with a low pH water found in the drains along the TSF footprint areas. Implement a groundwater monitoring program before excavation starts. Dedicated groundwater monitoring boreholes along the Russell Stream and borehole VAL1 must be used to effectively measure the groundwater status, impacts of the activities on the groundwater environment. Develop sound surface runoff management plans to ensure that all dirty runoff from the stockpile areas, but also from the adjacent slimes dams and sand dumps are contained and diverted to the intercept trench and sumps. No pooling of water on surface allowed. Implement cutoff trenches and berms to avoid washing in of additional silt and slimes from the nearby tailings dams. Also refer to Section 11 in the groundwater impact assessment report.	*Minor +*	*Short Term < 18 months*	*Site or Local*	Low	*Possible*	Low
	Operation																
3	Groundwater	Russell Stream reclamation	**Quantity** - The proposed stream rehabilitation will not have any significant impacts on the groundwater quantity. There is a possibility that water will seep into the underlaying formations, but the additional recharge should be neglectable.	*Minor +*	*Long Term > 5 years*	*Site or Local*	Medium	*Possible*	Medium	Yes	The dedicated groundwater monitoring network must be used and level and quality sampling must be done according to the Licence conditions. More important - the monitoring data is requiredcto assess possible impacts on the local surface water and groundwater environments. Also refer to Section 11 in the groundwater impact assessment report.	*Minor -*	*Long Term > 5 years*	*Site or Local*	Medium	*Possible*	Medium
4	Groundwater	Russell Stream reclamation	**Quality** - Possible acidic water and an increase in salt and metal concentrations associated with leaching from excavation and stockpiles. Water quality in the area will slowly start deteriorating if surface water management is ineffective, which can be magnified with the oxidation of pyrite: high concentrations of sulphate and iron suspected. This should be contained on site and the water moved of the open surfaces as soon as possible to avoid contamination.	*Major -*	*Long Term > 5 years*	*Site or Local*	High	*Possible*	High	Yes	Maintain an effective storm water management program and infrastructure to contain all waste water. All sumps should be lined to prevent infiltration of contaminated seepage water. Monitor groundwater quality in all boreholes installed. The groundwater monitoring network efficiency must be assessed and new monitoring boreholes drilled, if required. Ensure that intercept trench and sumps can contain all dirty water generated during the excavation process to prevent overflows and spillages. Ensure that sufficient cutoff trenches and berms are implemented to avoid future wash of silt and slimes from the historical TSF situated adjacent to the Valley Silts Project. Also refer to Section 11 in the groundwater impact assessment report.	*Minor -*	*Long Term > 5 years*	*Site or Local*	Medium	*Possible*	Medium
	Decomissioning																
5	Groundwater	Break down and remove all infrastructure	**Quantity** - No negative impacts expected.	*Moderate +*	*Long Term > 5 years*	*Site or Local*	Medium	*Definite*	Medium	Yes	Monitor the water table.	*Moderate +*	*Long Term > 5 years*	*Site or Local*	Medium	*Definite*	Medium
6	Groundwater	Break down and remove all infrastructure	**Quality:** The spread of contamination in the weathered aquifer will most probably reduce as the source of in-stream contamination has been removed	*Minor +*	*Long Term > 5 years*	*Site or Local*	Medium	*Possible*	Medium	Yes	Maintain cut off trenches and sumps. Most element concentrations in the ground will reduce in the long-term. Time-series groundwater monitoring must continue.	*Moderate +*	*Long Term > 5 years*	*Site or Local*	Medium	*Possible*	Medium
	Post- Closure																
7	Groundwater	No activities	**Quantity** -No impacts forseen	*Minor +*	*Long Term > 5 years*	*Site or Local*	Medium	*Definite*	Medium	Yes	Monitor the water table.	*Moderate +*	*Long Term > 5 years*	*Site or Local*	Medium	*Definite*	Medium
8	Groundwater	No activities	**Quality:** The spread of contamination in the weathered and fractured aquifers will most probably reduce as the source of in-stream contamination has been removed	*Moderate -*	*Long Term > 5 years*	*Site or Local*	Medium	*Possible*	Medium	Yes	Maintain cut off trenches and sumps. Most element concentrations in the ground will reduce in the long-term. Time-series groundwater monitoring must continue.	*Moderate +*	*Long Term > 5 years*	*Site or Local*	Medium	*Possible*	Medium

APPENDIX C:
Public Participation Information

Environmental Authorisations and Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province

DMRE reference number: GP 184 MR

DWS reference number: WU38176

Public Participation Process Report: (Appendix C)

April 2025

Report Information

Project:	Environmental Authorisations and Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province
Report Title:	Public Participation Report
DMRE Reference No:	GP 184 MR
DWS Reference No:	WU38176
Client:	Ergo Mining (Pty) Ltd
Project No:	DRDG#052
Compilation Date:	April 2025
Status of Report:	**PP Report for Draft EIA / EMPr & Draft IWWMP**

Verification	Capacity	Name	Signature	Date
By Author	Stakeholder Engagement Consultant	Vanessa Viljoen		28 March 2025
Reviewed by:	Chief Environmental Process Officer	Gerlinde Wilreker		31 March 2025
Reviewed by:	Legal Review	Michael Hennessy		28 March 2025
Authorised by:	CEO	Bradly Thornton		14 April 2025

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Abbreviations

BID	Background Information Document
CA	Competent Authority
CRR	Comments and Response Report
DALRRD	Department of Agriculture, Land Reform and Rural Development
DFFE	Department of Forestry, Fisheries and the Environment
DMRE	Department of Mineral Resources and Energy
DSR	Draft Scoping Report
DWS	Department of Water and Sanitation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
I&AP	Interested and Affected Party
GDARD	Gauteng Department of Agriculture and Rural Development
DoH	National Department of Health
SAHRA	South African Heritage Resources Agency
DPWI	Department of Public Works and Infrastructure
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NNR	National Nuclear Regulator
PAIA	Promotion of Access to Information Act, 2000 (Act No. 2 of 2000)
POPIA	Protection of Personal Protection Act, 2013 (Act No. 4 of 2013)
PPP	Public Participation Process
NGO's	Non-Governmental Organisations
SMS	Short Message Services

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1 INTRODUCTION

The following document outlines the Public Participation activities undertaken as part of the Scoping and Environmental Impact Assessment (S&EIA) and Integrated Water Use Licence Application (IWULA) for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province.

Public involvement is a fundamental principle of the Environmental Impact Assessment. The inclusion of the views of the Interested and Affected Parties (I&APs) helps to ensure the decision-making process is equitable and fair and leads to more informed choice and better environmental outcomes.

2 PUBLIC PARTICIPATION PROCESS

The Public Participation Process (PPP) offers stakeholders an opportunity to be informed about the Proposed Project, to raise issues and to make suggestions for enhanced project benefits. The PPP will be undertaken to ensure compliance with the relevant legal framework applicable to the proposed project.

2.1 Applicable Legislation

The PPP as required by the environmental laws and regulations specified therein will be followed as best practice. The PPP will be undertaken in line with the statutory requirements for public participation. The following legislation was considered when developing and implementing the PPP:

- National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA);
- The Environmental Impact Assessment Regulations, 2014 (as amended) (EIA 2014 Regulations);
- Public Participation guideline in terms of NEMA;
- The National Water Act, 1998 (Act No. 36 of 1998) (NWA);
- National Environmental Management: Waste Act 59 of 2008 (NEMWA): List of Waste Management Activities;
- The Constitution of the Republic of South Africa, 1996;
- Protection of Personal Information Act, 2013 (Act No. 4 of 2013) (POPIA);
- Promotion of Access to Information Act, 2000 (Act No. 2 of 2000) (PAIA);
- International good-practice guidelines for public participation and the Core Values of the International Association for Public Participation; and
- Any additional considerations noted in the International Finance Corporation (IFC) Performance Standards.

POPIA: Safeguarding registered person's personal information

In terms of section 19 of the Protection of Personal Information Act (POPIA), a responsible party must, subject to Sections 9 and 11 of the Act, ensure the integrity and confidentiality of personal information in its possession or under its control by taking appropriate, reasonable technical and organisational measures to prevent loss of, damage to or unauthorised destruction of personal information, unlawful access to or processing of personal information. POPIA requires that personal information should be adequately protected to avoid unauthorised access. Therefore, Kongiwe continuously reviews security controls and procedures to ensure that personal information is secured. It should be noted that in terms of Section 11, personal information may be processed to the extent that this is necessary for pursuing the legitimate interests of the responsible party to whom the information is supplied.

2.2 Objectives of the Public Participation Process

The PPP objectives for this project are to:

- Ensure that stakeholders are informed about the proposed Valley Silts Expansion Project.
- Provide stakeholders with the opportunity to participate in the environmental regulatory processes and provide comment.
- Involve stakeholders in identifying ways in which comments can be addressed.
- Work directly with stakeholders throughout the environmental regulatory processes to ensure that stakeholder comments are consistently understood and considered.
- Verify that stakeholder comments have been recorded and addressed.

The stakeholder engagement process will be undertaken in four phases as presented in Table 2-1 below:

Table 2-1: Stakeholder Engagement activities

Project Phase	Activities to be Undertaken
Pre-scoping Phase **Process complete**	❖ Site Visit with relevant authorities; ❖ Identification of stakeholders (WinDeed searches, compilation and verification of stakeholder database); ❖ Consultation with Authorities (including ward councillors) – (One-on-One consultation meetings / Online via Microsoft Teams / Telephonic Discussions); ❖ Compilation of announcement documents (BID, Reg Sheet, Advert, site notice and DSR notification letter) and providing project information to stakeholders; ❖ Obtaining initial comments and suggestions from stakeholders; and ❖ Land Claims enquiry.
Scoping Phase **Process complete**	❖ Consultations with Directly Affected Landowners (One-on-One consultation meetings / online via Microsoft Teams Meetings); ❖ Consultations with Key Stakeholders within the Riverlea area; ❖ Distribution and placement of project announcement materials (site notices, newspaper advertisements); ❖ Updating of the stakeholder database;

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Project Phase	Activities to be Undertaken
	❖ Availability of the Scoping Report for public review and comment; ❖ Providing stakeholders with further details of the proposed project and associated specialist studies; ❖ Consultations with stakeholders (Open Day); ❖ Obtaining further comments and suggestions from stakeholders; ❖ Informing specialists and the applicant about comments received from stakeholders, and ❖ Submit Final Scoping Report to relevant competent authorities.
EIA Phase	❖ Provide feedback about the specialist studies conducted and mitigation measures proposed by means of consultation with stakeholders; ❖ Provide opportunity for stakeholders to comment on specialist findings, impacts assessments and recommendations; ❖ Make the relevant environmental reports available for public review and comment; ❖ Consultation with the Riverlea Mining Forum; ❖ Consultation with stakeholders (Public Meeting); ❖ Verify that comments raised by stakeholder have been accurately recorded; ❖ Inform specialists and the proponent of stakeholders' comments; and ❖ Submit Final Environmental Reports to relevant competent authorities.
Decision Making Phase	❖ Once the competent authority has come to a decision regarding the authorisation of the project, all registered stakeholders will be notified of the decision made and the appeal process will be explained.

2.3 Summary of Issues raised by Stakeholders

Comments raised by stakeholders during the scoping phase are included in the Comments and Responses Report (CRR) **(Appendix C9)** of the Final Scoping Report.

2.4 Public Participation Process Approach

2.4.1 Landowner consent

As part of the IWULA procedure, an applicant is required to attain consent from the property owners whose property will be affected by the proposed water uses. Landowner consent discussions have been held with the relevant landowners. The main purpose of these discussions is to request the landowners to provide consent for Kongiwe to submit the IWULA. Ergo is negotiating the necessary agreements and rights of way with the affected landowners.

2.4.2 Submission of the Environmental Authorisation Application Form / IWULA Registration

An application for an Environmental Authorisation for the proposed Valley Silts Expansion Project was submitted to the Department of Mineral Resources and Energy (DMRE), the Competent Authority (CA), on **Monday, 28 October 2024**.

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An IWULA will be submitted via the electronic - Water Use Licence Application and Authorisation System (e-WULAAS) once complete. The project has been registered (WU38176) on e-WULAAS and the e-WULAAS process has commenced and is ongoing. The Proposed Project is currently on Phase 1 of the e-WULAAS.

2.4.3 Pre-Application Meeting: Department of Water and Sanitation

A pre-application meeting was arranged and attended with Department of Water and Sanitation (DWS) officials on **Friday, 25 October 2024**.

The purpose of the meeting was to:

- Present and discuss the proposed Valley Silts Expansion Project;
- Provide an overview of the IWULA processes;
- Provide the DWS officials with an opportunity to raise comments/seek clarity and provide input into the Project; and
- Record comments raised and then include them in the CRR which will be integrated into the EIA, and the IWULA.

Information was presented by means of a PowerPoint presentation. Minutes of the meeting have been compiled and distributed to the officials who attended the meeting as listed in Table 2-2 below. **(Appendix C8)**.

The following stakeholders attended the online meeting:

Table 2-2: DWS online meeting attendees

Organisation	Name of attendee	Designation
Department of Water and Sanitation (DWS)	Mr Khathutshelo Michael Mudau	Specialist Production
DWS	Ms Felicia Diale	Environmental Officer
Ergo Mining (Pty) Ltd (Ergo)	Mr Masala Tshamano	Applicant
Ergo	Mr Abraham Maluleke	Applicant
Ergo	Mr Mothusi Mafatshe	Applicant
Ergo	Ms Zoleka Sombela	Applicant
Kongiwe Environmental (Pty) Ltd (Kongiwe)	Mr Bradly Thornton	Project Director
Kongiwe	Ms Phumla Mngwengwe	IWULA Consultant
Kongiwe	Ms Gerlinde Wilreker	Project Manager and Environmental Consultant
Kongiwe	Ms Vanessa Viljoen	Stakeholder Engagement Consultant
Kongiwe	Ms Thuli Phakathi	Stakeholder Engagement Consultant
Apologies:		
DWS	Ms Joyce Ramadimetja	Case Officer

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2.4.4 Stakeholder Identification and Analysis

Project stakeholders (or Interested and Affected Parties (I&APs)) are defined as individuals/ groups/ entities who:

- Are impacted or likely to be impacted directly or indirectly (positively/negatively) by the proposed project; and
- May have an interest in the proposed Valley Silts Expansion project. These include individuals/groups/entities whose interest may be affected by the proposed project and who have the potential to influence the project outcomes.

To ensure a proper representation of all stakeholders, the following identification methods were used as part of the stakeholder identification and analysis process:

- WinDeed searches for the directly affected and adjacent farms;
- Desktop and online research;
- Developing a list of relevant community leaders and authorities;
- Consult with relevant district and local authorities:
  - City of Johannesburg Metropolitan Municipality
- Identifying the relevant ward councillors for the affected wards - Wards affected 124, 68, 54 and 125:
  - Cllr Msimelelo Lobi, Ward Councillor: Ward 68
  - Cllr Mongameli Mnyameni, Ward Councillor: Ward 124
  - Cllr Matsobane, Victor Sekhu, Ward Councillor: Ward 125
  - Cllr Stuart Marais, Ward Councillor: Ward 54
- Consult landowners and land occupiers (directly affected and adjacent);
- Consult with the Department of Agriculture, Land Reform and Rural Development (DALRRD), Office of the Regional Land Claims Commissioner: Gauteng Province;
- Consult with government departments on a National, Provincial and Local level;
- Consult with stakeholders who respond to the publication of newspaper advertisements;
- Consult with stakeholders who respond to the distribution of project documentation;
- Update the stakeholder database using attendance registers from a broad range of stakeholder meetings that will be held throughout the process; and
- Undertake a site visit in the effort to identify any additional stakeholders.

A stakeholder database has been compiled and will be updated throughout the environmental regulatory process **(Appendix C1**).

2.4.4.1 Valley Silts Expansion Project

Identified stakeholders who are affected by or interested are grouped into the following broad categories:

- **Government:** National, Provincial, and Local Authorities (including ward councillors and ward committee members);

- **Parastatals:** Various semi-Government entities, Organs of State;
- **Landowners and Occupiers:** Directly and indirectly affected;
  - **Directly Affected:** these are landowners / occupiers that reside within an application boundary area or who reside on a property(s) that will contain Proposed Project infrastructure;
  - **Adjacent (Indirectly Affected):** these landowners / occupiers are directly adjacent to an application boundary or property(s) that contains infrastructure; and
  - **Other Affected:** these landowners / occupiers who have registered formally as a stakeholder.
- **Communities:** Surrounding communities (Community Leaders);
- **Agriculture and Water:** Associations, entities responsible for water management and/or regulation;
- **Environmental Forums**;
- **Non-Governmental Organisations (NGOs):** Environmental organisations, community-based organisations; and
- **Business and industry:** Small, Medium and Micro Enterprises (SMMEs), mines, industrial and large business organisations.

2.4.5 Land Claims Enquiry

A formal Letter of enquiry was compiled and sent to the Land Claims Commission, Mr Solomon Maruma from the Department of Agriculture, Land Reform and Rural Development (DALRRD), Office of the Regional Land Claims Commissioner: Gauteng Province on **Wednesday, 23 October 2024**. The letter contained a list of all the directly affected properties for the project **(Appendix C2**).

Feedback was received from DALRRD by means of letters dated **Friday, 25 October 2024 (Appendix C2)** indicating that there are no pending land claims on the Directly Affected Properties.

2.4.6 Communication and Engagement

2.4.6.1 Public Participation Materials

Considering the legislative requirements and good practice, the following documents were developed and distributed to stakeholders. The various PPP information materials were used as part of the S&EIA and IWULA process**.**

Background Information Document (BID): The BID **(Appendix C3)** provided important information regarding the following:

- A project description of the proposed Valley Silts Expansion project.
- The Scoping and EIA and the PPP to be undertaken in support of the relevant environmental authorisations and the contact details of the Environmental Assessment Practitioner (EAP) and the stakeholder engagement consultants.
- Details about how stakeholders can register as an Interested and Affected Party (I&AP) and be kept informed about the project developments.
- The public review and comment period for environmental reports; and

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- Invitation to attend an Open Day.

The BIDs were emailed on **Thursday, 24 October 2024**, to the stakeholder database **(Appendix C6)**. The BID was available on the following website:

- Kongiwe's website: https://kongiwe.com/projects/

Registration and Comment Form: An I&AP registration form was sent out to stakeholders to register formally and/or to submit comments **(Appendix C3).**

Newspaper advertisements: A newspaper advert (**Appendix C4**) was placed in The Star**, on Monday, 28 October 2024**. The advert included the following details:

- Brief project description.
- Legal framework, the competent authorities.
- How stakeholders can access the DSR for public review and comment.
- Details of the Open Day.
- Registration as stakeholders.
- The contact details of the EAP and the stakeholder engagement consultants.

Site notices: The site notices provided an overview of the project and highlighted the applicable legislation, environmental authorisation applicable to the project. They also outlined the stakeholder engagement process to be followed and where relevant information could be obtained from. A locality map of the project site was included in the site notices. Details of the Open Day and how stakeholders could register as stakeholders were included in the site notices. Pictures and co-ordinates of where the site notices were placed were recorded in the site notice report and a site notice map was developed **(Appendix C5).**

Notification Letter with a Registration and Comment Form: An email was sent to stakeholders to inform them about the proposed Valley Silts Expansion Project. The email shared details of the Open Day and invited the greater public to formally register as I&APs. A Registration and Comment Form was also provided for stakeholders to use for formal registration and to submit their comments (**Appendix C3**).

A reminder notification was emailed on **Tuesday, 12 November 2024** to remind stakeholders of the availability of the DSR for public review and comment. The reminder emails also served the purpose of reminding stakeholders to attend the Open Day on **Saturday, 16 November 2024 at Riverlea Empowerment Centre, 92 Sandpiper Crescent, Ext 5, Riverlea, 2093 from 09H00 – 12H00. (Appendix C6).** A copy of the non-technical summary of the DSR was included.

Telephonic discussions: Stakeholders were also consulted by means of telephonic discussions. These discussions facilitated the process of inviting stakeholders to stakeholder meetings and provided stakeholders with a platform to raise issues and suggestions regarding Valley Silts Expansion project. Comments raised through telephonic discussions were recorded and addressed by the project team (EAP and the relevant specialists).

2.4.6.2 Scoping Phase Consultation

Consultation during the scoping phase was aimed at providing stakeholders with an overview of the proposed project and to obtain comments which informed specialist studies and project planning. Stakeholders were invited to participate through online and in-person engagements depending on preference. The purpose of these meetings was to discuss the proposed project, contents of the DSR, to provide stakeholders with an opportunity to raise comments and to interact with the project team members.

Consultation meetings were aimed at engaging with key stakeholders regarding the proposed project to obtain initial comments which will inform specialist studies and project planning. The project team presented an overview of the proposed Project for the Valley Silts Expansion Project. The locality, infrastructure and land tenure maps were part of the meetings.

Authorities Meetings were held with various Organs of State on a one-on-one basis. The project team presented and overview of the proposed project. The locality, infrastructure and land tenure maps were part of the meetings.

Landowner Consultation Meetings were held with directly and indirectly affected landowners on a one-on-one basis. The project team presented an overview of the proposed project. The locality, infrastructure and land tenure maps will be distributed as part of the meetings.

Focus Group Meetings with Stakeholders in the Riverlea Community: It was envisaged that an additional focus-group meeting would be held with the Riverlea Mining Forum (RMF), but the meeting was declined by the Chairman Mr Mark Kayter.

Online meetings were held with stakeholders who prefer online engagements, and an open day was held with the broader public who preferred a face-to-face meeting.

Broader Public Consulting meetings: An Open Day was held with the broader public during the public review period. The purpose of this meeting was to discuss the proposed project, contents of the DSR, and to provide stakeholders with an opportunity to raise their comments and to interact with the project team members.

Refer to Table 2-3 for the stakeholders' meeting schedule.

Table 2-3: Stakeholder Meetings

Proposed dates	Available time slots	Method of Engagement
Online Meeting		
Wednesday, 13 November 2024 ***(no stakeholders registered for this meeting)***	10H00 – 11H00	Microsoft teams/ scheduled Telephonic discussions
Face-to-Face Meeting: Open Day / Information Session		
Saturday, 16 November 2024	09H00 – 11H00	Riverlea Empowerment Centre

Proposed dates	Available time slots	Method of Engagement
	10H00 – 11H00	92 Sandpiper Crescent, Ext 5, Riverlea, 2093
	11H00 – 12H00	

Focused efforts were made to engage with directly impacted stakeholders (residents in the proposed project area) including vulnerable groups at local level. These individuals were consulted directly and via their representatives and other influential people within communities. Meetings were held in a culturally appropriate manner, allowing stakeholders to voice their concerns openly. All affected communities and groups were made aware of the project feedback.

Stakeholders were also be given the option to raise issues in the language of their choice, and where translation was required, it was provided. It was anticipated that the languages would be English, Afrikaans, Zulu and Sotho and the language speakers were available.

Stakeholder meetings were accessible, and adequate notice was given to stakeholders to encourage stakeholder involvement and participation. Mobilisation of stakeholders was done for Authorities, NGOs, landowners / land occupiers and Riverlea community members / Riverlea Community Forums to promote attendance, by means of telephonic consultation and distribution of emails and SMSes/WhatsApp.

Refer to **Appendix C8** for a list of all the above meetings and consultations that were undertaken. Minutes of these meetings and the presentations were compiled and were distributed to all stakeholders who attended (**Appendix C8).**

All comments raised by stakeholders during these meetings were captured into the Comment and Response Report (CRR). Responses to comments were provided in line with the overall project scope and available information **(Appendix C9).**

Open Day / Information Session: An Open Day was held on **Saturday, 16 November 2024 at Riverlea Empowerment Centre, 92 Sandpiper Crescent, Ext 5, Riverlea, 2093 from 09H00 – 12H00.** The purpose of the Open Day was to discuss the proposed project, contents of the DSR, to provide stakeholders with an opportunity to raise their comments and to interact with the project team members. Posters with information regarding the proposed project description, locality, infrastructure and the Land Tenure maps were displayed. Copies of the non-technical summaries as well as the Background Information Documents were distributed to stakeholders who attended. The non-technical summaries and BIDs were available in English (**Appendix C3)**.

Kongiwe had 3 teams with 3 sets of poster stations, where stakeholders had the opportunity to discuss the proposed project and raise comments.

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Figure 2-1: Photos from the Open Day held on Saturday, 16 November 2024

As the morning progressed the Riverlea Mining Forum and other NGOs asked if they could have an information session with everyone seated and with the Kongiwe team presenting. The Kongiwe team agreed to this request. As indicated in the photo below the Ward Councillor of Ward 68 also gave his inputs to the project.



Figure 2-2: Photos from the information session held on Saturday, 16 November 2024

2.4.6.3 Availability of Reports for Public Review and Comment

Copies of the Draft Scoping Report (DSR) were made available for public review and comment for a period of 30 days from **Tuesday, 29 October 2024 until Wednesday, 27 November 2024**.

The DSR was made available as follows:

- Copies of the DSR was made available for public review and comment on the following website: Kongiwe's website: https://kongiwe.com/projects/
- A hard copy of the DSR was made available at the following public place within the Valley Silts Expansion Project area as indicted in the table below.

Location	Physical Adress	Contact Person
Riverlea Public Library	Cnr Avon & Colorado Dr, Riverlea, Johannesburg	Mr John Keith, Librarian (011) 474 2968 or (071) 390 6549

A non-technical summary of the report was compiled and distributed electronically to stakeholders and a hard copy provided to stakeholders with no access to the internet. Hard copies of the non-technical summary were distributed through the relevant community representatives and at the open day that was held. If required, an electronic copy of the reports can be made available upon a request directed to the stakeholder engagement team.

- Copies of the non-technical summary of the DSR were distributed electronically to all stakeholders on the database.

The DSR and appendices were delivered to the DMRE on **Monday, 28 October 2024**. Key Commenting Authorities received an email with a website link to where they could download the DSR **(Appendix C6).**

Table 2-4 below provides a summary of the stakeholder engagement activities that formed part of the Draft Scoping Phase.

Table 2-4: Summary of activities undertaken as part of the Scoping Phase

Activity	Details	Reference in Draft Scoping Report
Stakeholder identification and analysis	Stakeholders were identified by means of WinDeed searches, stakeholder networking and research for the compilation of a stakeholder database. The database was updated with new I&APs who formally register and attend stakeholder meetings or submit comments.	**Appendix C1** Stakeholder database
Identification of land claims	A formal Letter of enquiry was compiled and sent to the Land Claims Commission, Mr Solomon Maruma from the Department of Agriculture, Land Reform and Rural Development (DALRRD), Office of the Regional Land Claims Commissioner: Gauteng Province on Wednesday, 23 October 2024. The letter contained a list of all the directly affected properties for the project. Should DALRRD confirm that there are land claims on the affected project areas, our project team will consult with the relevant parties **(Appendix C2).** Feedback was received from DALRRD by means of letters dated **Friday, 25 October 2024 (Appendix C2)** indicating that there are no pending land claims on the Directly Affected Properties.	**Appendix C2** Land claims enquiry letter and correspondence from the GDALRRD.
Distribution of Background Information Document	The BID was compiled and distributed to stakeholders. The BID was available on the following website: Kongiwe's website: https://kongiwe.com/projects/	**Appendix C3** BIDs

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Activity	Details	Reference in Draft Scoping Report
Placement of newspaper advertisements	Newspaper advert was placed in **The Star, on Monday, 28 October 2024.**	**Appendix C4** Newspaper advertisements
Placement of site notices	Site notices were placed at publicly accessible places within proximity of the project area. **Copies of the Site Notices were placed at the following public place:** ❖ Riverlea Public Library A site notice report and a placement map were developed, indicting the exact locations of where the site notices were placed, with photos and GPS co-ordinates.	**Appendix C5** Site notice report and placement map
Announcement of the project and the availability of the Draft Scoping Report **DSR Non-technical Summary**	The announcement letter was distributed to stakeholders on **Thursday, 24 October 2024** to: ❖ Announce availability of the Draft Scoping Report; ❖ Invite stakeholders to the open day; ❖ Indicate where the Scoping Report was available for public review and comment. The Draft Scoping Report was available on the following website: Kongiwe's website: https://kongiwe.com/projects/ **A copy of the DSR and non-technical summaries was placed in the following public place:** ❖ Riverlea Public Library	**Appendix C6** Announcement Correspondence **Appendix C3** BID
Stakeholder meetings	Consultation meetings were aimed at engaging with key stakeholders regarding the proposed project to obtain initial comments which will inform specialist studies and project planning. The project team presented an overview of the proposed Valley Silts Expansion project. Locality, infrastructure and land tenure maps were part of the meetings. Stakeholders were invited to participate through online and face-to-face engagements. Consultation meetings with authorities, directly and indirectly affected landowners was held via online forums such as Microsoft Teams, or telephonically or face-to-face depending on preference.	**Appendix C8** List of meetings & Meeting Minutes **Appendix C9** CRR

Activity	Details	Reference in Draft Scoping Report
Broader Public Consulting meetings: Scoping Phase	Stakeholders were invited to participate through online and face-to-face engagements. Consultation meetings were held via online forums such as Microsoft Teams, and an Open day was held with the broader public. The purpose of these meetings was to discuss the proposed project, contents of the DSR, and to provide stakeholders with an opportunity to raise their comments and to interact with the project team members. The following meetings were held: **Live Meeting: Open Day** ❖ An Open Day was held at **Riverlea Empowerment Centre, 92 Sandpiper Crescent, Ext 5, Riverlea, 2093** on **Saturday, 16 November 2024 from 09H00 – 12H00.** **Virtual Meeting: Online <u>(No stakeholders registered for this online meeting, so it was cancelled)</u>** ❖ **Wednesday, 13 November 2024 from 10H00-11H00** on Microsoft teams/scheduled Telephonic discussions. Minutes of these meetings were compiled and distributed to everyone who attended these meetings. Comments raised from the meeting will be included into the CRR.	**Appendix C8** List of meetings & Meeting Minutes **Appendix C9** CRR

2.4.6.4 Consultation Undertaken as part of the Final Scoping Phase

The aim of consultation during the Final Scoping Phase will be to focus on the formal EIA process, specialist impact studies, Terms of Reference and addressing comments from stakeholders. Once the Final Scoping Report is submitted to the DMRE, stakeholders will have the opportunity to verify that their comments were captured during the draft Scoping phase, and to review responses provided by the project team. The table below is a summary of the anticipated activities during the Final Scoping phase.

Table 2-5: PPP activities to be undertaken during the Final Scoping Phase

Activity	Details
Update of stakeholder information	The stakeholder database was updated with new I&APs who formally registered, participated in stakeholder meetings or submitted comments.
Placement of Final Scoping Reports	The Final Scoping Report was available following websites: Kongiwe's website: https://kongiwe.com/projects/

Activity	Details
Announcement of the Final Scoping Report	Notification letter notifying stakeholders about the availability of the Final Scoping Report for comment was emailed to the full stakeholder database on **Tuesday, 10 December 2024**. An SMS was sent on **Tuesday, 10 December 2024** to stakeholders who have no access to the internet, arrangements will be made to ensure that all stakeholders have full access to the reports - arrangements and requests will be accessed on a case-by case basis.

2.4.6.5 Consultation with Stakeholders during the Impact Assessment Phase

Consultation with stakeholders during the Environmental Impact Assessment phase entails providing stakeholders with comments on specialist study findings, recommendations and mitigation measures proposed. These studies and recommendations will be included as part of the Environmental Impact Assessment Report and the Environmental Management Programme Report (EIA/EMPr). Stakeholder meetings will be held to present the findings of the specialist studies and to get comments from stakeholders.

2.4.6.5.1 Public Participation Materials: EIA Phase

Notification Letter: A letter **(Appendix C6)** which provides details about the availability of the DEIR/EMPr and the IWWMP for public review and comment and an invitation to online and face-to-face engagements was sent by email to the full stakeholder database on **Wednesday, 16 April 2025**.

Newspaper advertisements: A newspaper advert (**Appendix C4**) was placed in ***The Star on Wednesday, 23 April 2025***. The advertisement provided details about the public review period for the Draft EIR/EMPr and the Draft IWWMP and how the public can access the draft reports for their review and comment. The advert provided information about the online and in-person engagements.

Telephonic discussions: Stakeholders will be consulted by means of telephonic discussions. These discussions facilitate the process of inviting stakeholders to online and in-person engagements and provide stakeholders with a platform to raise issues of concern and suggestions regarding the draft reports. Comments and/or concerns raised through telephonic discussions will be recorded and addressed by the project team (EAP and the relevant specialists).

Maps: Various maps which are part of the Draft EIR/EMPr and the Draft IWWMP will be on display during online and in-person engagements.

Posters: Posters will be developed and used at the engagements. The following aspects will be covered in the poster presentation below:

- Project Overview;
- EIA process and legislative timeframes;
- Specialist findings, impacts and proposed mitigation measures; and
- PPP undertaken to date and next steps.

2.4.6.6 Availability of the Draft Environmental Impact Assessment Report / Environmental Management Programme and the Draft IWWMP for public review and comment

The Draft EIA/EMPr report has been compiled and will be made available for a 30-day public review and comment period from **Thursday, 24 April 2025 until Monday, 26 May 2025**.

The Draft Integrated Water and Waste Management Plan (IWWMP) report will be made available for a 60-day public review and comment period from **Thursday, 24 April 2025 until Thursday, 26 June 2025**.

The Draft EIA/EMPr and the Draft IWWMP will be made available as follows:

- Copies of the non-executive summary of the DEIR/EMPR will be distributed to all stakeholders on the database.
- Copies of the DEIA/EMPR and Draft IWWMP will be made available for public review and comment on the following website: Kongiwe's website: https://kongiwe.com/projects/
- A hard copy of the reports will be made available at the following public places:

Location	Physical Adress	Contact Person
Riverlea Public Library	Cnr Avon & Colorado Dr, Riverlea, Johannesburg	Mr John Keith, Librarian (011) 474 2968 or (071) 390 6549

The Draft EIA/EMPr and appendices will be delivered to the DMRE which is the Competent Authority on Wednesday, 23 April 2025.

Key Commenting Authorities will receive an email with a website link to where they can download the Draft EIA/EMPr **(Appendix C6).**

Subsequently to above the Draft IWWMP will be made available for public review at the listed public places. The final IWWMP will be uploaded and provided to the DWS.

2.4.6.6.1 EIA Phase Consultation

Stakeholder engagement meetings:

Stakeholders are invited to participate through online and in-person engagements. Consultation meetings will be held using platforms like Microsoft Teams, telephonic discussions, and a Public Meeting.

The purpose of these Stakeholder Meetings is to discuss the Draft EIA/EMPr and the Draft IWWMP, present findings from the specialist studies, provide stakeholders with a platform to raise comments/concerns on the Draft EIA/EMPr and the Draft IWWMP reports and interact with the project team. Posters with information regarding the proposed project description, findings from the specialist studies, impacts and proposed mitigation measures will be displayed, these posters will include various maps of the affected areas. Copies of the non-technical summary will be distributed to stakeholders who attended. The non-technical summaries will be available in English. Minutes of

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the Public Meeting and the presentation as well as the posters will be compiled and distributed to all stakeholders who attended.

All comments raised by stakeholders during these meetings will be captured into the CRR. Responses to comments are provided in line with the overall project scope and available information.

Table 2-6: Proposed Stakeholder Meetings

Proposed dates	Available time slot	Method of Engagement
Online Meeting		
Wednesday, 7 May 2025	10H00 – 11H00	Online / Microsoft teams
In-person meeting (Public Meeting)		
Saturday, 10 May 2025	10H30 – 12H30	Riverlea Empowerment Centre, 92 Sandpiper Crescent, Ext 5, Riverlea, 2093

Focused efforts will be made to engage with directly impacted stakeholders, including vulnerable groups at local level. These individuals will be consulted directly and via their representatives, and other influential people within communities. Meetings will be held in a culturally appropriate manner, allowing stakeholders to voice their opinions and/or concerns openly. Stakeholders will also be given the option to raise issues in the language of their choice, and where translation is required, it will be provided.

Extensive mobilisation of stakeholders will be done for National, Provincial, and Local Authorities, Environmental Groups, Landowners / Land occupiers and Community members to promote attendance. Mobilisation of stakeholders was done by means of telephonic consultation, distribution of emails and Short Message Services (SMS/WhatsApp).

Table 2-7 below provides a summary of the stakeholder engagement activities that formed part of the Draft Environmental Impact Assessment Phase.

Table 2-7: Summary of PPP activities proposed during the Draft Environmental Impact Assessment Phase

Impact Assessment Phase		
Activity	**Details**	**Reference in DEIR/EMPr**
Announcement of the availability of the Draft EIA/EMPr/IWWMP Reports	A Notification letter which provides details about the availability of the Draft EIR/EMPr and the Draft IWWMP for public review and comment and an invitation to online and in-person engagements will be sent by email to the full stakeholder database.	**Appendix C6** Announcement Letter
Placement of media advertisement for the EIA Phase	Newspaper adverts were placed in **the Star on Wednesday, 23 April 2025.** The advertisement will provide details about the public review period for the Draft EIR/EMPr and the Draft IWWMP and how the public can access the draft reports for their review and comment. The advert also provided information about online and in-person engagements.	**Appendix C4** Advertisements

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Impact Assessment Phase		
Activity	**Details**	**Reference in DEIR/EMPr**
Placement of Draft EIA/EMPr/IWWMP Reports for public review and comment	The Draft EIA/EMPr reports have been compiled and will be made available for a 30-day public review and comment period and the Draft IWWMP report will be made available for a 60-day public review and comment period from. Copies of the abovementioned reports will be available on the following websites: ❖ Kongiwe's website: https://kongiwe.com/projects/ The announcement letter will be distributed to stakeholders to: ❖ Announce availability of the Draft EIR/EMPr and the Draft IWWMP; ❖ Invite stakeholders to the Public Meeting; and ❖ Indicate where the Draft EIR/EMPr and the Draft IWWMP is available for public review and comment A copy of the Draft EIR/EMPr and the Draft IWWMP and non-technical summaries will be placed in the following public place: **Public Library:** Riverlea Public Library, Cnr Avon & Colorado Dr, Riverlea, Johannesburg A copy of the Draft EIR/EMPr and the Draft IWWMP will also be made available at the Stakeholder Meetings. Copies of the Draft EIR/EMPr and the Draft IWWMP will be sent to the DMRE and DWS and various Commenting Authorities for review and comment.	**Appendix C6** Announcement Correspondence
Broader Public Consulting meetings: EIA Phase	Stakeholders are invited to participate through online and in-person engagements. Consultation meetings will be held via online forums such as Microsoft Teams, and a Public Meeting will be held with the broader public. On-line engagement activities will be available during the public review period. The purpose of these Stakeholder Meetings is to discuss the Draft EIA/EMPr and the Draft IWWMP, present findings from the specialist studies, provide stakeholders with a platform to raise comments/concerns on the	**Appendix C8** List of meetings & Meeting Minutes **Appendix C9** CRR

Impact Assessment Phase		
Activity	**Details**	**Reference in DEIR/EMPr**
	Draft EIA/EMPr and the Draft IWWMP reports and also interact with the project team. The following meetings will be held: **In-person Meeting:** ❖ A Public Meeting will be held on **Saturday, 10 May 2025 from 10H30 – 12H30** at Riverlea Empowerment Centre, 92 Sandpiper Crescent, Ext 5, Riverlea, 2093. **Online Meeting:** ❖ **Wednesday, 7 May 2025 from 10H00-11H00** on Microsoft Teams. Minutes of these meetings will be compiled and distributed to everyone who attended these meetings. All comments raised by stakeholders during these meetings will be captured into the (CRR). Responses to comments are provided in line with the overall project scope and available information.	

2.4.6.7 Availability of the Final Environmental Impact Assessment Report / Final Environmental Management Programme (Final EIR/EMPr) and the Draft IWWMP.

Stakeholders will be notified of the availability of the Final EIR / EMPr and the Final IWWMP reports for review by the CA's.

2.4.6.8 Consultation during the Decision-Making Phase

Once the competent authority has come to a decision regarding the authorisation of the project, all registered stakeholders will be notified of the decision made and the appeal process to be followed. The decision from the Competent Authority (CA) will be communicated to stakeholders by means of a notification letter (electronic), SMS, local newspaper advertisement and on Kongiwe's website.

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Appendix C1: Stakeholder Database

Environmental Authorisations and Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province

Stakeholder Database (DEIR)

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Agricultural Union	AFGRI SA	Mr	Ernest	Botha	Afgri-Attorney	Gauteng
Agricultural Union	AFGRI SA	Mr	Johan	Smuts	Legal Representative (Afgri)	Gauteng
Agricultural Union	AFGRI SA	Ms	Nadia	Hetzel	Legal Representative (Afgri)	Gauteng
Agricultural Union	AFGRI SA (Gauteng)	Mrs	Lynette	Du Plessis	TAU SA Central Region	Gauteng
Agricultural Union	TAU SA (National)	Mr	Janse	Rabie	Head of Natural Resources	Gauteng
Agricultural Union	TAU SA	Ms	Wilma	Prinsloo	Regional Secretary	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Agricultural Union	TLU SA	Mr	Mauritz	Lombard	Manager: Policy Liaison	Gauteng
Agricultural Union	Transvaal Agricultural Union of South Africa (TAUSA)	Mr	Henry	Geldenhuys	President	Gauteng
Agricultural Union, Interested & Affected Party	Boshoff Smuts Inc on Behalf of AFGRI	Ms	Caitlin	Coetzee	Candidate Attorney	Gauteng
Business & Commerce	Envirolution Consulting	Ms	Sameera	Ismail	Environmental Consultant - Riverlea	Gauteng
Business & Commerce	Eskom	Mr	Bongi	Buthelezi	Land and Rights Officer	Gauteng
Business & Commerce	Eskom	Mr	Jason	Kasper	Land and Rights Manager	Gauteng
Business & Commerce	Eskom	Mr	Luvuyo	Diniso	W/L Allocations	Gauteng
Business & Commerce	Eskom	Mr	Moitheri	Khuphane	Ekurhuleni Environmental	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Business & Commerce	Eskom	Mr	Sbu	Nkalanga	Ekurhuleni Representative	Gauteng
Business & Commerce	Eskom	Mr	Wikus	Snyman	Officer Land and Rights Land Development	Gauteng
Business & Commerce	Eskom	Ms	Charmaine	Mare	Eskom Enviro. Manager	Gauteng
Business & Commerce	Eskom	Ms	Nkateko	Msimango	Ekurhuleni Environmental	Gauteng
Business & Commerce	Eskom	Ms	Priscilla	Mogomotsi	Senior Advisor Land & RightsLand Development	Gauteng
Business & Commerce	Eskom (National): National Transmission Company South Africa SOC Ltd (NTCSA)	Mr	John	Geeringh	Senior Consultant Environmental Management Grid Planning: Land and Rights	Gauteng
Business & Commerce	Johannesburg Chamber of Commerce & Industry	Ms	Bernadette	Zerler	Chief Executive	Gauteng
Business & Commerce	MCJ Engineers	Mr		Divakar	Director	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Business & Commerce	Minerals Council South Africa	Ms	Mpho	Thobye	Health	Gauteng
Business & Commerce	Passenger Rail Agency of South Africa (PRASA)	Ms	Nosizwe Nokwe	Macamo	Chairperson: Gauteng Rep	Gauteng
Business & Commerce	Passenger Rail Agency of South Africa (PRASA)	Mr	Siphiwe	Mathobela	General Manager	Gauteng
Business & Commerce	Passenger Rail Agency of South Africa (PRASA)	Mr	Anthony	Tshatsinde		Gauteng
Business & Commerce	Prop Watch (SANRAL - Property Manager)	Mr	Fuad	Davids	Legal Advisor	Gauteng
Business & Commerce	Prop Watch (SANRAL - Property Manager)	Ms	Odwa	Dilizo		Gauteng
Business & Commerce	Prop Watch (SANRAL - Property Manager)	Ms	Chantal	Overall	Acting Contract Manager	Gauteng
Business & Commerce	Prop Watch (SANRAL - Property Mangers)	Mr	Johan	Els	Regional Manager	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Business & Commerce	Prop Watch (SANRAL- Property Manager)	Ms	Jacques	de Villiers	Legal Advisor	Gauteng
Business & Commerce	South African National Roads Agency Limited (SANRAL)	Mr	Ayanda	Vilakazi	Business Development	Gauteng
Business & Commerce	South African National Roads Agency Limited (SANRAL)	Mr	Izak	Van der Linde	PM: Traffic & Transport	Gauteng
Business & Commerce	South African National Roads Agency Limited (SANRAL)	Mr	Ockert	Stevens		Gauteng
Business & Commerce	South African National Roads Agency Limited (SANRAL)	Ms	Naledi	Itumeleng	Land Acquisition Specialist	Gauteng
Business & Commerce	South African National Roads Agency Limited (SANRAL)	Ms	Ria	Barkhuizen	Environmentalist (NR)	Gauteng
Business & Commerce	South African National Roads Agency Limited (SANRAL)	Ms	SANRAL	SANRAL	Central Environmental Department email	Gauteng
Business & Commerce	South African National Roads Agency Limited (SANRAL)	Ms	Victoria	Bota	Environmentalist (Gauteng Region)	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Business & Commerce	South African National Roads Agency Limited (SANRAL)	Ms	Thembelihle	Ndlandla	Environmental Manager	Gauteng
Business & Commerce	Transnet Freight Rail Ltd	Mr	Vhonani	Mulondo	Engineering Technician	Gauteng
Business & Commerce	Transnet Freight Rail Ltd	Mr	Xolisa	Kilani	Technical Engineer	Gauteng
Business & Commerce	Transnet Freight Rail Ltd	Ms	Rebone	Moukangwe	Environmental Officer	Gauteng
Business & Commerce	Transnet Freight Rail Ltd	Ms	Zanele	Manyathi	Environmental Manager	Gauteng
Business & Commerce	Transnet Freight Rail Ltd	Ms	Nsumbulana	Mtsenga	Engineering Technicians	Gauteng
Business & Commerce	Transnet Freight Rail Ltd	Ms	Carol	Gore	Property Technician, JHB	Gauteng
Business & Commerce	Transnet Freight Rail Ltd (JHB)	Ms	Banzi	Mlungu		Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Business & Commerce	Transnet Freight Rail Ltd: Gauteng	Ms	Suzan	Aidelomo	Gauteng Environmental Specialist	Gauteng
Business & Commerce	Transnet Freight Rail Ltd: Gauteng	Ms	Annalize	Harmse	Chief Admin Official	Gauteng
Business & Commerce	Transnet Freight Rail Ltd: Limpopo	Mr	Avhatendi	Tambani	Specialist Environmental Compliance (Northern Region)	Gauteng
Business & Commerce, Directly Affected Landowner	AfriSam South Africa	Mr	Quentin	Dollman	AfriSam Property Consultant	Gauteng
Business & Commerce, Directly Affected Landowner	Passenger Rail Agency of South Africa (PRASA)	Mr	Paul	Motsoaledi	Real Estate Manager	Gauteng
Business & Commerce, Directly Affected Landowner	Passenger Rail Agency of South Africa (PRASA)	Mr	Sphesihle	Bophela	Real Estate	Gauteng
Business & Commerce, Directly Affected Landowner, Indirectly Affected Landowner	South African National Roads Agency Limited (SANRAL)	Mr	David	Thubane	Land Acquisition Specialist	Gauteng
Business & Commerce, Directly Affected Landowner, Indirectly Affected Landowner	Transnet Freight Rail Ltd (JHB)	Mr	Thembinkosi	Memela	Property Technician	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Business & Commerce, Environmental NGO's	Andrew Barker Development Consultant/ KlipSA	Mr	Andrew	Barker	Development Consultant	Gauteng
Catchment Forum, National Government	Department of Water and Sanitation (DWS)	Mr	Mogale	Matseba	Manager: Water Resource Planning and Management	Gauteng
Community Based Organisation	"Region B – Ward 68 Business Development Forum"	Ms	Michelle	Alexander	Secretary	Gauteng
Community Based Organisation	B68 NP0 Community Forum and Mining Forum	Mrs	Faiza	Otto	Director	Gauteng
Community Based Organisation	B68 NP0 Community Forum and Riverlea Mining Forum	Mr	Vernon	Milton	Chairman	Gauteng
Community Based Organisation	Business Development Forum	Mr	Clement	Jacobs	Chairman	Gauteng
Community Based Organisation	Business Development Forum	Mr	Fuad	Erentzen	Ward 68	Gauteng
Community Based Organisation	Business Development Forum	Mr	Michael	Ragebult	Member	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Community Based Organisation	Centre for Environmental Health	Ms	Dawn	Anderson		Gauteng
Community Based Organisation	Community Based Organisation	Ms	Denise	Scheepers		Gauteng
Community Based Organisation	Lentswe La Sechaba	Mr	Nkosekhaya	Nomgojo	Chief Forester	Gauteng
Community Based Organisation	Lentswe La Sechaba	Mr	Floyed	Makiti	Director	Gauteng
Community Based Organisation	Lentswe La Sechaba	Mr	Jabu	Mlangeni	Liaison Officer	Gauteng
Community Based Organisation	Lentswe La Sechaba	Mr	Mzwandile	Mabentseta	Director	Gauteng
Community Based Organisation	Lentswe La Sechaba	Ms	Amanda	Tshangane	Secretary	Gauteng
Community Based Organisation	Lentswe Lentle Waste Management	Mr	Jafta	Moatlhodi	CEO	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Community Based Organisation	Local Drug Action Committee (LDAC)	Mr	Cecil	Radley	Community Leader	Gauteng
Community Based Organisation	Local Drug Action Committee (LDAC)	Mr	Ronnie	Stewart		Gauteng
Community Based Organisation	Region B Youth Forum	Mr	Eugene	Gotyana	Worker	Gauteng
Community Based Organisation	Rivereal Community Member	Mr	Guvshwain	Kayser		Gauteng
Community Based Organisation	Rivereal Community Member	Ms	Valerie	Morris		Gauteng
Community Based Organisation	Riverlea Community Member	Mr		Standix		Gauteng
Community Based Organisation	Riverlea Empowerment Centre Johannesburg	Mr	Shaun	Unknown		Gauteng
Community Based Organisation	Riverlea Mining Forum	Mr	Arlen Matthew	Humphries		Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Community Based Organisation	Riverlea Mining Forum	Mr	Cederick	Ortell		Gauteng
Community Based Organisation	Riverlea Mining Forum	Mr	Charles	Van der Merwe	Member	Gauteng
Community Based Organisation	Riverlea Mining Forum	Mr	Denny	Du Preez	Community Leader	Gauteng
Community Based Organisation	Riverlea Mining Forum	Mr	Denyboy	Du Preez		Gauteng
Community Based Organisation	Riverlea Mining Forum	Mr	Mark	Kayter	Chairman	Gauteng
Community Based Organisation	Riverlea Mining Forum	Mr	Mpho	Mogodi		Gauteng
Community Based Organisation	Riverlea Mining Forum	Mr	Reece	Rosenberg	Member	Gauteng
Community Based Organisation	Riverlea Mining Forum	Mr	Robin	Wheatley		Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Community Based Organisation	Riverlea Mining Forum	Mr	Sherman	Nav		Gauteng
Community Based Organisation	Riverlea Mining Forum	Mr	Shurayh	Hassim		Gauteng
Community Based Organisation	Riverlea Mining Forum	Mr	Ulinda	Lotz		Gauteng
Community Based Organisation	Riverlea Mining Forum	Ms	Bernice	Joubert	Community Leader	Gauteng
Community Based Organisation	Riverlea Mining Forum	Ms	Carol	Kara	Deputy Chairman	Gauteng
Community Based Organisation	Riverlea Mining Forum	Ms	Jennifer	Mohamed-Katerere	Member	Gauteng
Community Based Organisation	Riverlea Mining Forum	Ms	Kendall	Mohamed-Katerere	Community Member	Gauteng
Community Based Organisation	Riverlea Mining Forum	Ms	Terry-Lu	Barlow	Secretary	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Community Based Organisation	Riverlea Mining Forum.	Mr	Christopher	Radine		Gauteng
Community Based Organisation	Riverlea Mining Forum.	Mr	Ramiz	Brown		Gauteng
Community Based Organisation	Riverlea Mining Forum.	Mr	Romeo	Sibeko		Gauteng
Community Based Organisation	Rivers of Hope	Ms	Melanie	Cairns	Worker	Gauteng
Community Based Organisation	SANCO: Greater Johannesburg Region	Mr	Brian	Sithole	Secretary	Gauteng
Community Based Organisation	SANCO: Greater Johannesburg Region	Mr	Bassie Timothy	Maile	Member	Gauteng
Community Based Organisation	SANCO Johannesburg	Mr	Given	Mahlaola	Member	Gauteng
Community Based Organisation	The Let's Grow Organisation	Mr	Christopher	Glover		Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Community Based Organisation	The Let's Grow Organisation in South Africa	Mr	Michael Robert	Benham		Gauteng
Community Member	Church EBC	Ms	Simelisipho	Mncube	Activist	Gauteng
Community Member	Community Member	Mr	Godfrey	Nicole	Resident Ward 68	Gauteng
Community Member	Community Member	Mr	Godfrey	Niko		Gauteng
Community Member	Community Member	Mr	Hermans	Nico	Riverlea: Ward 68	Gauteng
Community Member	Community Member	Mr	J	Meef		Gauteng
Community Member	Community Member	Mr	Jarrad	Smith	Riverlea: Ward 68	Gauteng
Community Member	Community Member	Mr	Keith	Spandile	Riverlea: Ward 68	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Community Member	Community Member	Mr	Koketso	Mokhetoa	CPF Secretary	Gauteng
Community Member	Community Member	Mr	Mosi	Letsoalo	Riverlea: Ward 68	Gauteng
Community Member	Community Member	Mr	Pitsi	Rapelego	Community Leader: Ward 68	Gauteng
Community Member	Community Member	Mr	Sifiso	Mwabe	Riverlea: Ward 68	Gauteng
Community Member	Community Member	Mr	Theo	Doyle	Community Leader	Gauteng
Community Member	Community Member	Mr	Voughan	Reynele	Riverlea: Ward 68	Gauteng
Community Member	Community Member	Ms	Blanche	Elins	Riverlea: Ward 68	Gauteng
Community Member	Community Member	Ms	Ellen	Williams	Ward 68	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Community Member	Community Member	Ms	Mandisa	Kgasoane	Kibler Park: Ward 125	Gauteng
Community Member	Community Member	Ms	Melony	Jacobs	Riverlea: Ward 68	Gauteng
Community Member	Community Member	Ms	Patricia	Mogano		Gauteng
Community Member	Community Member	Ms	Rene	De Villers		Gauteng
Community Member	Community Member	Ms	Suzette	Harris		Gauteng
Community Member	Community Member	Ms	Shamema	Sheriff	Riverlea: Ward 68	Gauteng
Community Member	LMB Traders	Mr	Mpho	Mawatsa	Director: Community Member	Gauteng
Community Member	LMB Traders	Mr	Sibisi	Mahloso	Director: Community Member	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Community Member	Okuhle Madonga	Mr	Aphiwe	Mazingisa	Community Member: Ward 68	Gauteng
Community Member	REACH NPO 173-985	Mr	Ismail	Van Wyk	Director: Activist -Ward68	Gauteng
Community Member	Uzamile Trading	Mr	Buyani	Nxumalo	Community Member	Gauteng
Directly Affected Landowner	Africa SunOil Refineries (Coastal Trade Inv Pty Ltd)	Mr	Farhaad	Adam	Principal Process Engineer	Gauteng
Directly Affected Landowner	Africa SunOil Refineries (Coastal Trade Inv Pty Ltd)	Mr	Mohammed	Bacus		Gauteng
Directly Affected Landowner	Africa SunOil Refineries (Coastal Trade Inv Pty Ltd)	Mr	Mohammed	Joosab	Head of Operations and Logistics	Gauteng
Directly Affected Landowner	Gauteng Oil & Cake Mills (Pty) Ltd (Costal Trade Inv Pty Ltd)	Mr	Ahmed	Kessa	COO and General Manager	Gauteng
Directly Affected Landowner	AfriSam (Trans Atlas)	Mr	Oscar	Olen	Environmental Specialist	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Directly Affected Landowner	AfriSam (Trans Atlas)	Mr	Zielas	Du Preez	Regional Manager	Gauteng
Directly Affected Landowner	AfriSam (Trans-Atlas Ltd)	Mr	Leon	Serfontein	Director	Gauteng
Directly Affected Landowner	AfriSam (Trans-Atlas)	Ms	Allarice	Prinsloo	Company Secretary Professional	Gauteng
Directly Affected Landowner	AfriSam (Trans-Atlas)	Ms	Bernadette	Morris		Gauteng
Directly Affected Landowner, Indirectly Affected Landowner	Industrial Zone (Pty) Ltd (iProp)	Ms	Jeanie	Pelser	Operations Manager	Gauteng
Directly Affected Landowner, Indirectly Affected Landowner, Local Municipality	City of Johannesburg Metropolitan Municipality	Ms	Maretha	Van Wyk	Deputy Director: Property Information Systems	Gauteng
Directly Affected Landowner, Indirectly Affected Landowner, National Government	Department of Public Works and Infrastructure (DPWI)	Mr	Jacob	Mahloko	Construction Project Manag ement	Gauteng
Directly Affected Landowner, Indirectly Affected Landowner, National Government	Department of Public Works and Infrastructure (DPWI)	Ms	Friedah	Khoza	Property Manager	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Directly Affected Landowner, Local Municipality	City of Johannesburg Metropolitan Municipality	Ms	Nozipho	Maduse	DD: Impact Management/Person responsible for CoJ's properties	Gauteng
Environmental NGO's	African Wattle Crane Programme (ICF/EWT)	Ms	Kerryn	Morrison	Senior Manager: Africa	Gauteng
Environmental NGO's	Benchmarks Foundation (BMF)	Mr	David	van Wyk	Lead Researcher	Gauteng
Environmental NGO's	Benchmarks Foundation (BMF)	Mr	Moses	Cloete	Director	Gauteng
Environmental NGO's	Benchmarks Foundation (BMF)	Mr	Simo	Gumede	Logistics and Administration Lead	Gauteng
Environmental NGO's	Benchmarks Foundation (BMF)	Ms	Busi	Thabane	General Manager	Gauteng
Environmental NGO's	Bench-marks Foundation (BMF)	Mr	Hassen	Lorgat	Advocacy and Media Manager	Gauteng
Environmental NGO's	Birdlife South Africa (BLSA)	Dr	Hannneline	Smit-Robinson	Head of Conservation	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Environmental NGO's	Birdlife South Africa (BLSA)	Dr	Kirsten	Day	Policy & Advocacy Manager	Gauteng
Environmental NGO's	Centre for Environmental Rights (CER)	Mr	Brandon	Abdinor	Programme Head: Pollution & Climate Change	Gauteng
Environmental NGO's	Council of Geosciences	Mr	Henk	Coetzee	Environmental Manager	Gauteng
Environmental NGO's	Earthlife Africa Johannesburg	Ms	Makoma	Lekalakala	Director	Gauteng
Environmental NGO's	Endangered Wildlife Trust (EWT)	Dr	Ian	Little	Head of Conservation and Science	Gauteng
Environmental NGO's	Endangered Wildlife Trust (EWT)	Dr	Oliver	Cowan	Conservation Science Officer	Gauteng
Environmental NGO's	Envirolution Consulting	Mr	Gesan	Govender	Owner	Gauteng
Environmental NGO's	EnviroParks	Pastor	Greg	Boas	Centre Manager	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Environmental NGO's	Federation for Sustainable Environment (FSE)	Ms	Mariette	Liefferink	Chief Executive Officer	Gauteng
Environmental NGO's	Gauteng Wetland Forum	Mr	Bismark	Mashau	Chairperson	Gauteng
Environmental NGO's	Gauteng Wetland Forum	Ms	Keitumetse	Mekgoe	DEA Provincial Coordinator	Gauteng
Environmental NGO's	Groundwork	Mr	Bobby	Peek	Director	Gauteng
Environmental NGO's	Heritage Plans Committee West	Ms	Sue	Zenha	Chairperson	Gauteng
Environmental NGO's	Johannesburg Heritage Foundation	Mr		Avox	Architects	Gauteng
Environmental NGO's	Johannesburg Heritage Foundation	Mr	Abrahams	Gemey		Gauteng
Environmental NGO's	Johannesburg Heritage Foundation	Mr	David	Fleminger		Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Environmental NGO's	Johannesburg Heritage Foundation	Mr	Mark	Schaerer	Member of the Joint Plans Committee West	Gauteng
Environmental NGO's	Johannesburg Heritage Foundation	Mr	Mark	Schaerer		Gauteng
Environmental NGO's	Johannesburg Heritage Foundation	Mr	Nicolas	Whittcut		Gauteng
Environmental NGO's	Johannesburg Heritage Foundation	Mr	Paul	Kotze		Gauteng
Environmental NGO's	Johannesburg Heritage Foundation	Mr	Wynand	Dreyer	Secretory of the Joint Plans Committee	Gauteng
Environmental NGO's	Johannesburg Heritage Foundation	Ms	Barbara	Bird		Gauteng
Environmental NGO's	Johannesburg Heritage Foundation	Ms	Flo	Bird		Gauteng
Environmental NGO's	Johannesburg Heritage Foundation	Ms	Karin	Harcus-Harrison'		Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Environmental NGO's	Johannesburg Heritage Foundation	Prof	Louis	Grundlingh		Gauteng
Environmental NGO's	Klipwas	Mr	Dennis	Jane	Operations	Gauteng
Environmental NGO's	Legal Resources Centre (LRC)	Mr	Lucien	Limacher		Gauteng
Environmental NGO's	Legal Resources Centre (LRC)	Ms	Lauren	Nel		Gauteng
Environmental NGO's	Minerals Council South Africa	Mr	Babalwa	Matiwane	Environment Department	Gauteng
Environmental NGO's	Mining Affected Communities United in Action (MACUA)	Mr	Gilbert	Moela	Media Liaison	Gauteng
Environmental NGO's	South African Human Rights Commission	Mr	Wisani	Baloyi	Communications Co-ordinator	Gauteng
Environmental NGO's	South African Human Rights Commission	Ms	Chantal	Kisoon	CEO PA	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Environmental NGO's	WESSA (Wildlife & Environmental Society of South Africa) Springs & Nigel branch	Mr	Peter	Law		Gauteng
Environmental NGO's	WESSA Wildlife & Environmental Society of South Africa (WESSA)	Mr	Morgan	Griffiths	Senior Manager: Advocacy, Membership and Governance	Gauteng
Environmental NGO's	WESSA Wildlife & Environmental Society of South Africa (WESSA)	Ms	Seipati	Mphasane	Senior Education Officer: Environmental Coordinator	Gauteng
Environmental NGO's	Wildlife and Environmental Society of South Africa (WESSA)	Mr	John	Wesson	Manager: Conservation Specialist	Gauteng
Environmental NGO's	Wildlife and Environmental Society of South Africa (WESSA)	Ms	Tevya	Lotriet	Senior Sustainability Programme Manager	Gauteng
Indirectly Affected Landowner	African Crown Holdings Pty Ltd	Mr	Muhammed	Moosa		Gauteng
Interested & Affected Party	Anglo American	Mr	Hendrik	Koto	F.C.W	Gauteng
Interested & Affected Party	Democratic Alliance (DA)	Mr	Andrew	de Blocq	MP	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Interested & Affected Party	EMA Packaging	Ms	N	Khan	Receptionist	Gauteng
Interested & Affected Party	Fourth Element Consulting	Mr	Stuart	Dunsmore		Gauteng
Interested & Affected Party	Riverlea Empowerment Centre	Mr	Pastor Shaun	Jegels	CEO	Gauteng
Interested & Affected Party	SANCO Johannesburg	Ms	Ntombizodwa	Bhembe	Member	Gauteng
Interested & Affected Party	SANCO Johannesburg Region	Mr	Teboho	Mokoena	Member	Gauteng
Interested & Affected Party	SANCO Johannesburg Region 36	Mr	Phinda	Masina	Member	Gauteng
Interested & Affected Party	Seaton Environmental	Mr	Brian	Gardner	Environmental Officer	Gauteng
Interested & Affected Party	Skyy Crew Environmental Consultancies and Projects	Mr	Teddy	Snyders	Director: Activist -Ward 29	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Interested & Affected Party	Umsizi Sustainable Social Solutions (Pty) Ltd	Mr	Herold	Matshoga		Gauteng
Interested & Affected Party	Umsizi Sustainable Social Solutions (Pty) Ltd	Mr	Cletus	Dambu	Facilitator	Gauteng
Interested & Affected Party	Umsizi Sustainable Social Solutions (Pty) Ltd	Mr	John-Mark	Kilian		Gauteng
Interested & Affected Party	Umsizi Sustainable Social Solutions (Pty) Ltd	Mr	Lerato	Molefe	Operations Director	Gauteng
Interested & Affected Party	Umsizi Sustainable Social Solutions (Pty) Ltd	Mr	Veli	Mokalapa		Gauteng
Interested & Affected Party	Umsizi Sustainable Social Solutions (Pty) Ltd	Ms	Daina	Damba	Facilitator	Gauteng
Interested & Affected Party	Umsizi Sustainable Social Solutions (Pty) Ltd	Ms	Jeanine	Kirkman		Gauteng
Interested & Affected Party	Umsizi Sustainable Social Solutions (Pty) Ltd	Ms	Rochelle	Louw		Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Labour Union	National Union of Metal Workers of South Africa (NUMSA)	Mr	Gift	Nkabinde	RLO - Legal Representative	Gauteng
Labour Union	National Union of Mineworkers of South Africa (NUMSA)	Mr	Woody	Aroun		Gauteng
Labour Union	National Union of Mineworkers of South Africa (NUMSA)	Mr	Xolani	Mnyandi	Regional Legal Office - Legal Representative	Gauteng
Labour Union	National Union of Mineworkers of South Africa (NUMSA)	Ms	Zwiitwaho	Raidane	RLA - Legal Representative	Gauteng
Labour Union	National Union of Mine Workers (NUM)	Mr	Tafa	Moya	National Co-Ordinator	Gauteng
Libraries	Greater Johannesburg City Library (Temporarily closed)	Ms	Prudence	Chauke	Librarian	Gauteng
Libraries	Riverlea Public Library	Mr	John	Keith	Librarian	Gauteng
Libraries, Local Municipality	Coronationville Public Library	Mr	Avela	Ntuli	Librarian	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Local Business	MCJ Engineers	Mr	Anesh	Mangray	Consultant	Gauteng
Local Business	MCJ Engineers	Ms	Solami	Tshongana	Technician	Gauteng
Local Government	City of Johannesburg Metropolitan Municipality	Mr	Simphiwe	Memela	Waste Management	Gauteng
Local Government	Johannesburg Roads Agency (JRA)	Mr	Andre	Nel	Operations Manager: Road and Stormwater Planning	Gauteng
Local Government	Johannesburg Roads Agency (JRA)	Mr	Phuti	Letsaba		Gauteng
Local Government	Johannesburg Roads Agency (JRA)	Mr	Tlou	Dinyake	Road and Stormwater	Gauteng
Local Government	Johannesburg Roads Agency (JRA)	Mr	Umesh	Maken		Gauteng
Local Government	Johannesburg Roads Agency (JRA)	Ms	Lwazi	Kelembe	Senior Engineer	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Local Government	Johannesburg Roads Agency (JRA)	Ms	Natasha	Naidu	Regional Stormwater Planning	Gauteng
Local Municipality	City of Johannesburg Metropolitan Municipality	Dr	Ndivhoniswani	Lukhwareni	Municipal Manager	Gauteng
Local Municipality	City of Johannesburg Metropolitan Municipality	Mr	Eric	Raboshakga	Director: City Transformation	Gauteng
Local Municipality	City of Johannesburg Metropolitan Municipality	Mr	Tshepo	Makola	City Manager	Gauteng
Local Municipality	City of Johannesburg Metropolitan Municipality	Mr	Freddie	Letsoko	Water Quality & Catchment Management	Gauteng
Local Municipality	City of Johannesburg Metropolitan Municipality	Mr	Gift	Mabasa		Gauteng
Local Municipality	City of Johannesburg Metropolitan Municipality	Mr	Jose	Monteiro	Operations Manager: Development Control (Private)	Gauteng
Local Municipality	City of Johannesburg Metropolitan Municipality	Mr	Julius	Sello	Land Use Management	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Local Municipality	City of Johannesburg Metropolitan Municipality	Mr	Justice	Netshandama	EISD-Air Quality Management	Gauteng
Local Municipality	City of Johannesburg Metropolitan Municipality	Mr	Lufuno	Maise	EISD: Air Quality	Gauteng
Local Municipality	City of Johannesburg Metropolitan Municipality	Mr	Mbhekiseni	Makhoba	Waste Management	Gauteng
Local Municipality	City of Johannesburg Metropolitan Municipality	Mr	Oupa	Mbhalati	Intern: Environment and Infrastructure Services Department (EISD)	Gauteng
Local Municipality	City of Johannesburg Metropolitan Municipality	Mr	Sean	Dinat	Department of Economic Development	Gauteng
Local Municipality	City of Johannesburg Metropolitan Municipality	Mr	Wiseman	Ndlala	Senior Specialist: Water Quality & Catchment Management	Gauteng
Local Municipality	City of Johannesburg Metropolitan Municipality	Ms	Boledi	Petje	Development Planning	Gauteng
Local Municipality	City of Johannesburg Metropolitan Municipality	Ms	Katlego	Kale	Senior Specialist: Impact Management	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Local Municipality	City of Johannesburg Metropolitan Municipality	Ms	Kedibone	Nese		Gauteng
Local Municipality	City of Johannesburg Metropolitan Municipality	Ms	Marietjie	Reinecke	Land Use Management	Gauteng
Local Municipality	City of Johannesburg Metropolitan Municipality	Ms	Mashudu	Ratshitanga	EISD: Assistant Director	Gauteng
Local Municipality	City of Johannesburg Metropolitan Municipality	Ms	Mbalenhle	Chemane	Development Planning - City Transformation and Spatial Planning	Gauteng
Local Municipality	City of Johannesburg Metropolitan Municipality	Ms	Moseketsi	Mochesane	Senior Specialist: Impact Management	Gauteng
Local Municipality	City of Johannesburg Metropolitan Municipality	Ms	Nobuhle	Mthembu	Speaker	Gauteng
Local Municipality	City of Johannesburg Metropolitan Municipality	Ms	Nokuthula	Thusi	Land Use Development Planning	Gauteng
Local Municipality	City of Johannesburg Metropolitan Municipality	Ms	Phetsile	Dube	Executive Secretary	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Local Municipality	City of Johannesburg Metropolitan Municipality	Ms	Sharon	Seckle	JPC: Property Information Processing Manager	Gauteng
Local Municipality	City of Johannesburg Metropolitan Municipality	Ms	Siphokazi	Ncume	EISD: Impact Management	Gauteng
Local Municipality	City of Johannesburg Metropolitan Municipality	Ms	Thami R	Zwane	Waste Management and Regulation	Gauteng
Local Municipality	Riverlea Recreation Centre	Ms	Bandiswa	Msingaphantsi	Manager	Gauteng
Local Municipality, Ward Committee Member	City of Johannesburg Metropolitan	Ms	Nophumzile	Gwebushe	Ward Committee Member: Ward 68	Gauteng
Local Municipality, Ward Committee Member	City of Johannesburg Metropolitan Municipality	Mr	Pule	Kgarejane	Ward Committee Member: Ward 125	Gauteng
Local Municipality, Ward Committee Member	City of Johannesburg Metropolitan Municipality	Mr		Beryl	Ward Committee Member: Ward 125	Gauteng
Local Municipality, Ward Committee Member	City of Johannesburg Metropolitan Municipality	Mr		Nicky	Ward Committee Member: Ward 125	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Local Municipality, Ward Committee Member	City of Johannesburg Metropolitan Municipality	Mr	Ise	Mphiwa	Ward Committee Member: Ward 125	Gauteng
Local Municipality, Ward Committee Member	City of Johannesburg Metropolitan Municipality	Mr	Thabiso	Mathenjwa	Ward Committee Member: Ward 125	Gauteng
Local Municipality, Ward Committee Member	City of Johannesburg Metropolitan Municipality	Mr	Duduzile	Ndaba	Ward Committee Member: Ward 68	Gauteng
Local Municipality, Ward Committee Member	City of Johannesburg Metropolitan Municipality	Mr	Edward	Scheepers	Ward Committee Member: Ward 68	Gauteng
Local Municipality, Ward Committee Member	City of Johannesburg Metropolitan Municipality	Mr	Eric	Khetho	Ward Committee Member: Ward 124	Gauteng
Local Municipality, Ward Committee Member	City of Johannesburg Metropolitan Municipality	Mr	Johannes	Mphuthi	Ward Committee Member: Ward 124	Gauteng
Local Municipality, Ward Committee Member	City of Johannesburg Metropolitan Municipality	Mr	Letlhogonolo	Modise	Ward Committee Member: Ward 125	Gauteng
Local Municipality, Ward Committee Member	City of Johannesburg Metropolitan Municipality	Mr	Mandla	Twala	Ward Committee Member: Ward 124	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Local Municipality, Ward Committee Member	City of Johannesburg Metropolitan Municipality	Mr	Mmeli	Mbatha	Ward Committee Member: Ward 68	Gauteng
Local Municipality, Ward Committee Member	City of Johannesburg Metropolitan Municipality	Mr	Musa	Mhlawuli	Ward Committee Member: Ward 124	Gauteng
Local Municipality, Ward Committee Member	City of Johannesburg Metropolitan Municipality	Mr	Ntando	Finca	Ward Admin: Ward 124	Gauteng
Local Municipality, Ward Committee Member	City of Johannesburg Metropolitan Municipality	Mr	Oliver	Kgaoane	Ward Committee Member: Ward 125	Gauteng
Local Municipality, Ward Committee Member	City of Johannesburg Metropolitan Municipality	Mr	Sibusiso	Jili	Ward Committee Member: Ward 68	Gauteng
Local Municipality, Ward Committee Member	City of Johannesburg Metropolitan Municipality	Mr	Sipho	Shabalala	Ward Committee Member: Ward 124	Gauteng
Local Municipality, Ward Committee Member	City of Johannesburg Metropolitan Municipality	Mr	Tseke	Mojapelo	Ward Committee Member: Ward 125	Gauteng
Local Municipality, Ward Committee Member	City of Johannesburg Metropolitan Municipality	Ms	Nomasonto	Radebe	Ward Committee Member: Ward 125	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Local Municipality, Ward Committee Member	City of Johannesburg Metropolitan Municipality	Ms	Doreen	Amazu	Ward Committee Member: Ward 124	Gauteng
Local Municipality, Ward Committee Member	City of Johannesburg Metropolitan Municipality	Ms	Hildah	Mamomane	Ward Committee Member: Ward 68	Gauteng
Local Municipality, Ward Committee Member	City of Johannesburg Metropolitan Municipality	Ms	Joyce B	Nkwitshi	Ward Committee Member: Ward 124	Gauteng
Local Municipality, Ward Committee Member	City of Johannesburg Metropolitan Municipality	Ms	Mapaseka	Mahlaba	Ward Committee Member: Ward 124	Gauteng
Local Municipality, Ward Committee Member	City of Johannesburg Metropolitan Municipality	Ms	MaPinky	Phalane	Ward Committee Member: Ward 68	Gauteng
Local Municipality, Ward Committee Member	City of Johannesburg Metropolitan Municipality	Ms	Nolwazi	Qwabe	Ward Committee Member: Ward 68	Gauteng
Local Municipality, Ward Committee Member	City of Johannesburg Metropolitan Municipality	Ms	Nomvume	Ncapai	Ward Committee Member: Ward 124	Gauteng
Local Municipality, Ward Committee Member	City of Johannesburg Metropolitan Municipality	Ms	Ruth Matebese	Motsau	Ward Committee Member: Ward 125	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Local Municipality, Ward Committee Member	City of Johannesburg Metropolitan Municipality	Ms	Tanya	Helena	Ward Committee Member: Ward 124	Gauteng
Local Municipality, Ward Committee Member	City of Johannesburg Metropolitan Municipality	Ms	Thandeka	Bulebule	Ward Committee Member: Ward 68	Gauteng
Local Municipality, Ward Councillor	City of Johannesburg Metropolitan Municipality	Cllr	Calos	Da Rocha	Ward Councilor: Ward 66	Gauteng
Local Municipality, Ward Councillor	City of Johannesburg Metropolitan Municipality	Cllr	Mongameli	Mnyameni	Ward Councillor: Ward 124	Gauteng
Local Municipality, Ward Councillor	City of Johannesburg Metropolitan Municipality	Cllr	Motsobane	Sekhu	Ward Councillor: Ward 125	Gauteng
Local Municipality, Ward Councillor	City of Johannesburg Metropolitan Municipality	Cllr	Stuart	Marais	Ward Councilor: Ward 54	Gauteng
Local Municipality, Ward Councillor	City of Johannesburg Metropolitan Municipality	Mr	Msimelelo	Lobi	Ward Councillor: Ward 68	Gauteng
Mining & Industry	Impala Platinum Limited – Springs	Ms	Carina	Burger	Safety & Environmental Manager	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
National Government	Department of Agriculture, Land Reform and Rural Development (DALRRD)	Mr	Harry	Maphutha	Regional Land Claims Commissioner	Gauteng
National Government	Department of Agriculture, Land Reform and Rural Development (DALRRD)	Mr	Solomon	Maruma	Land Claims Gauteng Regional Officer	Gauteng
National Government	Department of Agriculture, Land Reform and Rural Development (DALRRD)	Mrs	Amukelani	Shiburi	Land Claim Officer	Gauteng
National Government	Department of Agriculture, Land Reform and Rural Development (DALRRD)	Ms	Fundiswa	Ndaba	Commission on Restitution of Land Rights- Gauteng Regional Officer	Gauteng
National Government	Department of Agriculture, Land Reform and Rural Development (DALRRD)	Ms	Mashudu	Marubini	Deputy Director	Gauteng
National Government	Department of Agriculture, Land Reform and Rural Development (DALRRD)	Ms	Phyllystas	Mmakola	Resource Auditor	Gauteng
National Government	Department of Agriculture, Land Reform and Rural Development (DALRRD)	Ms	Vuyiswa	Qobo	Environmental Officer	Gauteng
National Government	Department of Forestry, Fisheries and the Environment (DFFE)	Dr	Mpho	Tshitangoni	Chief Director: Land Remediation	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
National Government	Department of Forestry, Fisheries and the Environment (DFFE)	Mr	Andrew	Ngubeni		Gauteng
National Government	Department of Forestry, Fisheries and the Environment (DFFE)	Mr	Lucas	Mahlangu	Control Environmental Officer: Waste Licensing	Gauteng
National Government	Department of Forestry, Fisheries and the Environment (DFFE)	Mr	Mulalo	Sundani	National Office: Directorate: Forestry Regulation and Oversight: Environmental	Gauteng
National Government	Department of Forestry, Fisheries and the Environment (DFFE)	Mr	Obed	Baloyi	Environmental Impact Evaluation	Gauteng
National Government	Department of Forestry, Fisheries and the Environment (DFFE)	Mr	Shumani	Dzivhani	Deputy Director: Forestry Regulation	Gauteng
National Government	Department of Forestry, Fisheries and the Environment (DFFE)	Mr	Themba	Dlamini	Gauteng Regional Office	Gauteng
National Government	Department of Forestry, Fisheries and the Environment (DFFE)	Ms	Boikanyo	Matsha	Senior Forestry Regulation Officer	Gauteng
National Government	Department of Forestry, Fisheries and the Environment (DFFE)	Ms	Lydia	Bosoga	Deputy Director: Sustainable Land Management	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
National Government	Department of Forestry, Fisheries and the Environment (DFFE)	Ms	Mashudu	Mudau	Protected Areas Planning and Management Effectiveness	Gauteng
National Government	Department of Forestry, Fisheries and the Environment (DFFE)	Ms	Mashudu	Mukwevho	Resource Auditor	Gauteng
National Government	Department of Forestry, Fisheries and the Environment (DFFE)	Ms	Mpho Patience	Thenga		Gauteng
National Government	Department of Forestry, Fisheries and the Environment (DFFE)	Ms	Portia	Khumalo	ROC: Environmental	Gauteng
National Government	Department of Forestry, Fisheries and the Environment (DFFE)	Ms	Pumeza	Nodada	Chief Director: Forestry Management	Gauteng
National Government	Department of Forestry, Fisheries and the Environment (DFFE)	Ms	Tabisa	Fiko	Chief Directorate Environmental Programmes : Gauteng	Gauteng
National Government	Department of Mineral Resources and Energy (DMRE)	Adv	Mmadikeledi	Malebe	DDG: Mineral Regulation	Gauteng
National Government	Department of Mineral Resources and Energy (DMRE)	Mr	David	Msiza	Mine Health and Safety Inspectorate	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
National Government	Department of Mineral Resources and Energy (DMRE)	Mr	Jacob	Mbele	Director General PA: Ms Mamabefu Modipa	Gauteng
National Government	Department of Mineral Resources and Energy (DMRE)	Mr	Max	Madubane	DMR Principle Mine Inspector/ Chair: Govt Task Team on Mine Closure and Water M	Gauteng
National Government	Department of Mineral Resources and Energy (DMRE)	Mr	Musa	Mangobe	Gauteng Environment	Gauteng
National Government	Department of Mineral Resources and Energy (DMRE)	Mr	Nicholas	Chavalala	Regional Manager: Environmental Management	Gauteng
National Government	Department of Mineral Resources and Energy (DMRE)	Mr	Nkosinathi	Mahlaba	Environmental Officer	Gauteng
National Government	Department of Mineral Resources and Energy (DMRE)	Mr	Rudzani	Mabogo	Head of Environment: Assistant Director	Gauteng
National Government	Department of Mineral Resources and Energy (DMRE)	Mr	Siyabonga	Vezi	Acting Gauteng Regional Director	Gauteng
National Government	Department of Mineral Resources and Energy (DMRE)	Mr	Tseliso	Maqubela	Minerals and Petroleum Regulation	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
National Government	Department of Mineral Resources and Energy (DMRE)	Ms	Buyisiwe Ntokozo	Ngcwabe	DDG- Mineral Policy & Promotions	Gauteng
National Government	Department of Mineral Resources and Energy (DMRE)	Ms	Carol	Khanyile	Gauteng Regional: Secretary	Gauteng
National Government	Department of Public Works and Infrastructure (DPWI)	Mr	Tebogo	Thema	Town Planning Services	Gauteng
National Government	Department of Public Works and Infrastructure (DPWI)	Mr	Tumelo	Mokone	Town Planning Services	Gauteng
National Government	Department of Public Works and Infrastructure (DPWI)	Ms	Nelly	Seabi	Town Planning Services	Gauteng
National Government	Department of Public Works and Infrastructure (DPWI)	Ms	Rebeccah	Masemola	Town Planning Services	Gauteng
National Government	Department of Public Works and Infrastructure (DPWI)	Mr	Lutendo	Neduvhuledza	Town Planning Services (HO)	Gauteng
National Government	Department of Public Works and Infrastructure (DPWI)	Mr	Malusi	Ganiso	Town Planning Services (HO)	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
National Government	Department of Public Works and Infrastructure (DPWI)	Mr	Thapelo	Duma	PA to Regional Manager	Gauteng
National Government	Department of Public Works and Infrastructure (DPWI)	Ms	Desire	Msimango		Gauteng
National Government	Department of Public Works and Infrastructure (DPWI)	Ms	Jabulile	Mabaso	Acting Regional Manager	Gauteng
National Government	Department of Public Works and Infrastructure (DPWI)	Ms	Lerato	Mbatha		Gauteng
Local Municipality	Department of Water and Sanitation (DWS)	Ms	Felicia	Diale	Environmental Officer	Gauteng
National Government	Department of Water and Sanitation (DWS)	Mr	Adriaan	Claassen	Chief Engineer	Gauteng
National Government	Department of Water and Sanitation (DWS)	Mr	Ayanda	Mtetwa	National	Gauteng
National Government	Department of Water and Sanitation (DWS)	Mr	Desmond	Mutshaine	Geochemistry	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
National Government	Department of Water and Sanitation (DWS)	Mr	Khathutshelo	Mudau	Specialised Production	Gauteng
National Government	Department of Water and Sanitation (DWS)	Mr	Londolani	Mutshekwa	Mine Water Quality Management	Gauteng
National Government	Department of Water and Sanitation (DWS)	Mr	Nemataheni	Thivhafuni	Scientist Manager: Water Use Efficiency in the IMP Sector	Gauteng
National Government	Department of Water and Sanitation (DWS)	Mr	Noe	Malaise	Resource Protection & Waste	Gauteng
National Government	Department of Water and Sanitation (DWS)	Mr	Victor	Nkuna	Environmental Officer	Gauteng
National Government	Department of Water and Sanitation (DWS)	Ms	Betty	Nakene	Gauteng: Nigel / Springs	Gauteng
National Government	Department of Water and Sanitation (DWS)	Ms	Candace	Enoch	Environmental Officer	Gauteng
National Government	Department of Water and Sanitation (DWS)	Ms	Faith Fulufhelo	Khosa	Gauteng Regional Representative	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
National Government	Department of Water and Sanitation (DWS)	Ms	Jeanette Ledile	Nyama	Wonderfontein Catchment Manager	Gauteng
National Government	Department of Water and Sanitation (DWS)	Ms	Joyce	Lekoane	Environmental Officer	Gauteng
National Government	Department of Water and Sanitation (DWS)	Ms	Lumka	Kuse	Gauteng Wetland Forum (Downstream)	Gauteng
National Government	Department of Water and Sanitation (DWS)	Ms	Mulalo	Sidogi	Environmental Officer	Gauteng
National Government	Department of Water and Sanitation (DWS)	Ms	Nosie	Mazwi	Director: Mining and Industry Water Quality Regulation	Gauteng
National Government	Department of Water and Sanitation (DWS)	Ms	Portia C	Chawane	Control Environmental Officer Grade A	Gauteng
National Government	Department of Water and Sanitation (DWS)	Ms	Thabelo	Tshipate	Environmental Officer	Gauteng
National Government	Department of Water and Sanitation (DWS)	Mr	Mabona (Rodney)	Lesiba	Control Environmental Officer, Klip River and Natalspruit Catchment Forum Assis	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
National Government (Provincial Office)	Department of Water and Sanitation (DWS)	Ms	Tshiamo	Mokwena	Water Use, Compliance Monitoring and Enforcement	Gauteng
National Government	National Department of Health (DOH)	Mr	Zamokuhle	Mntambo	Assistant Director: Environmental Health	Gauteng
National Government	National Department of Health (DOH)	Ms	Belinda	Makhafola	Directorate: Environmental Health SDeputy Director: Environmental Healthervices	Gauteng
National Government	National Nuclear Regulator (NNR)	Mr	Patle	Mohajane	Programme Manager: NORM	Gauteng
National Government	South African Heritage Resources Agency (SAHRA)	Ms	Nokusho	Ngobeni	Heritage Officer	Gauteng
Nature Reserve	klipriviersberg-Nature-Reserve	Mr	Bishop	Ngobeli	Environmental Manager	Gauteng
Nature Reserve	klipriviersberg-Nature-Reserve	Mr	Ncebo	Mhlongo	Conservation Manager	Gauteng
Nature Reserve	SANBI	Ms	Vivian	Malema	Director: Biodiversity Education and Public Engagement Directorate	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Provincial Government	ACDP provincial Legislature and the CEO of the social housing institute	Mr	Ronald	Harrison		Gauteng
Provincial Government	Department of Forestry, Fisheries and the Environment (DFFE)	Ms	Sibusisiwe	Hlela	Director	Gauteng
Provincial Government	Department of Health Johannesburg District	Ms	Kgomotso	Leola	Environmental Health Practitioner	Gauteng
Provincial Government	Department of Health Johannesburg District	Ms	Phetla	Cliffort	Environmental Health Officer	Gauteng
Provincial Government	Department of Health Johannesburg District	Ms	Sthembile	Masuku	Environmental Health Practitioner	Gauteng
Provincial Government	Department of Health Johannesburg District	Ms	Thabiso	Motlhamme	African Director: Environment Department	Gauteng
Provincial Government	Department of Health Johannesburg District	Ms	Zandile	Mangathi	Environmental Health Practitioner	Gauteng
Provincial Government	Department of Health Johannesburg District (Environmental Health Services)	Ms	Deline	Somo	Environmental Health Practitioner	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Provincial Government	Department of Health: Gauteng	Ms	Mary	Madaure	Deputy Director Environmental	Gauteng
Provincial Government	Department of Health: Gauteng Province	Mr	Cheleng	Khotle	Ekurhuleni District	Gauteng
Provincial Government	Gauteng Department of Agriculture and Rural Development (GDARD)	Mr	Dan	Motaung	Deputy Director: EIA	Gauteng
Provincial Government	Gauteng Department of Agriculture and Rural Development (GDARD)	Mr	Eric	Mulibana	Air Quality	Gauteng
Provincial Government	Gauteng Department of Agriculture and Rural Development (GDARD)	Mr	Erick	Moletsane	Manager: Environmental Planning & Impact Assessment	Gauteng
Provincial Government	Gauteng Department of Agriculture and Rural Development (GDARD)	Mr	Happy	Khumalo	Gauteng Wetland Forum	Gauteng
Provincial Government	Gauteng Department of Agriculture and Rural Development (GDARD)	Mr	Joshua	Quinton	PSG B	Gauteng
Provincial Government	Gauteng Department of Agriculture and Rural Development (GDARD)	Mr	Loyiso	Mkwana	Chief Director	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Provincial Government	Gauteng Department of Agriculture and Rural Development (GDARD)	Mr	Marc	Leroy	Environmental Information Manager	Gauteng
Provincial Government	Gauteng Department of Agriculture and Rural Development (GDARD)	Mr	Maropeng	Masedi	Environmental Officer Production Grade A: Impact Management	Gauteng
Provincial Government	Gauteng Department of Agriculture and Rural Development (GDARD)	Mr	Nhlanhla	Makhathini	Assistant Director	Gauteng
Provincial Government	Gauteng Department of Agriculture and Rural Development (GDARD)	Mr	Tendani	Rambuda	Control Environmental Officer Grade B	Gauteng
Provincial Government	Gauteng Department of Agriculture and Rural Development (GDARD)	Mr	Tjatja	Mosia	Environmental Officer	Gauteng
Provincial Government	Gauteng Department of Agriculture and Rural Development (GDARD)	Ms	Albertina	Setsiba	PS	Gauteng
Provincial Government	Gauteng Department of Agriculture and Rural Development (GDARD)	Ms	Anga	Yaphi	PS - Biodiversity	Gauteng
Provincial Government	Gauteng Department of Agriculture and Rural Development (GDARD)	Ms	Lydia	Muditambi	Air Quality	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Provincial Government	Gauteng Department of Agriculture and Rural Development (GDARD)	Ms	Mathabo	Phoka	Environmental Officer: Specialised Production	Gauteng
Provincial Government	Gauteng Department of Health	Ms	Christina	Moumakwe	Deputy Director: Environmental Health Services	Gauteng
Provincial Government	Gauteng Department of Health	Ms	Louisa	Magabane	Environmental Health Manager	Gauteng
Provincial Government	Gauteng Observatory	Ms	Nadine	Abrahams		Gauteng
Provincial Government	Gauteng Office of the Premier	Ms	Marie-Louise	Moodie	Deputy Director General: Executive Support and Stakeholder Management	Gauteng
Provincial Government	Gauteng Wetland Forum (GDARD)	Mr	Mashau	Mpfareleni		Gauteng
Provincial Government	Gauteng Wetland Forum (GDARD)	Mr	Tebogo	Nkadimeng		Gauteng
Provincial Government	Gauteng: Department of Economic Development	Mr	Blake	Mosley-Lefatola		Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Provincial Government	GDARD			GDARD	Environmental Department	Gauteng
Provincial Government	Riverlea Major Clinic (Department of Health)	Ms	Johannah	Ntuli	Professional Nurse Acting OPS Manager	Gauteng
Water Bodies -Institution	Johannesburg Water (Pty) Ltd	Mr	Thendo Stanely	Makuya	Environmental Specialist	Gauteng
Water Bodies -Institution	Johannesburg Water (Pty) Ltd	Ms	Mpho	Mosia	Environmental Officer	Gauteng
Water Bodies -Institution	KlipSA: UJ (Department of Process of Energy & Environment Technology Station)	Dr	Kousar	Hoorzook	Station Engineer for Water and Sanitation	Gauteng
Water Bodies -Institution	Randwater	Mr	Jimmy	Maluleke	Environmental Co-ordinator	Gauteng
Water Bodies -Institution	Randwater	Mr	Lesley	Hoy	Manager Environmental Assessments & Compliance	Gauteng
Water Bodies -Institution	Randwater	Mr	Marc	de Fontein	Senior Water Quality Advisor & Blesbokspruit to Forum Member	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Water Bodies -Institution	Randwater	Mr	Noel	Dzhivhuho	Civil Engineering Assistant - HO	Gauteng
Water Bodies -Institution	Randwater	Mr	Obakeng	Tlhabye		Gauteng
Water Bodies -Institution	Randwater	Mr	Thokozani	Masilela	Environmental Assessor	Gauteng
Water Bodies -Institution	Randwater	Ms	Cwengile	Ma-Awu		Gauteng
Water Bodies -Institution	Randwater	Ms	Kgalalelo	Gaobotse		Gauteng
Water Bodies -Institution	Randwater	Ms	Khanya	Vezi		Gauteng
Water Bodies -Institution	Randwater	Ms	Lindiwe	Gamede		Gauteng
Water Bodies -Institution	Randwater	Ms	Mukhondeni	Mudau		Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Water Bodies -Institution	Randwater	Ms	Natalie	Koneight	Secretary - Nursery-CD	Gauteng
Water Bodies -Institution	Randwater	Ms	Nomkhosi	Mohlahlo		Gauteng
Water Bodies -Institution	Randwater	Ms	Nomzamo	Sithole		Gauteng
Water Bodies -Institution	Randwater	Ms	Peleka	Mashele		Gauteng
Water Bodies -Institution	Randwater	Ms	Zesha	Ramrathan	Civil Engineering Technologist	Gauteng
Water Bodies -Institution	Water Research Commission	Dr	Shafick	Adams		Gauteng
Water Bodies -Institution	Water Research Commission	Mr	Bennie	Mokgonyana	Coordinator	Gauteng
Water Bodies -Institution	Water Research Commission	Mr	Jay	Bhagwan	Executive Manager: Water Use and Waste Management	Gauteng

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Water Bodies -Institution	Water Research Commission	Ms	Charmaine	Khanyile	Water Use & Waste Management	Gauteng
Water Bodies -Institution	Water Research Commission	Ms	Penny	Jaca	Water Resource Management	Gauteng
Water Bodies -Institution	Water Research Commission	Ms	Shirley	Machelisi	Water Use & Waste Management	Gauteng

Environmental Authorisations and Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province

Directly and Indirectly Affected Landowners (DEIR)

Directly Affected Farm Portion			
MAP ID	**Parent Farm**	**Farm Portion**	**Landowner**
1	Langlaagte 224 IQ	201	PRASA
		204	
		297	
		298	
		299	
		300	
		172	
		173	
		174	
		200	
		296	
	Mooifontein 225 IQ	12	
		10	
2	Langlaagte 224 IQ	107	Trans-Atlas Ltd
		RE/106	
3	Langlaagte 224 IQ	381	South African National Roads Agency Soc Ltd (SANRAL)
		380	
4	Mooifontein 225 IQ	13	DRDG (Crown Mine)
5	Langlaagte 224 IQ	388	Industrial Zone (Pty) Ltd (iProp)
		9	
	Mooifontein 225 IQ	RE	
	Langlaagte 224 IQ	RE/8	
		RE/3	
		RE/11	
6	Mooifontein 225 IQ	RE/5	Coastal Trade Inv Pty Ltd
7	Langlaagte 224 IQ	212	City of Johannesburg Metropolitan Municipality
Indirectly Affected Farm Portion			
MAP ID	**Parent Farm**	**Farm Portion**	**Landowner**
1	Langlaagte 224 IQ	101	PRASA
		170	
		175	
		190	
		202	
		17	
		18	
		189	

		203	
		289	
	Randskou 324 IQ	11	
2	Langlaagte 224 IQ	286	Transnet
		288	
		287	
3	Langlaagte 224 IQ	364	South African National Roads Agency Soc Ltd (SANRAL)
4	Langlaagte 224 IQ	302	Industrial Area (Crown)
		283	
5	Ormonde 99 IR	4	Industrial Area (Booysens Reserve)
6	Mooifontein 225 IQ	7	Industrial Area (Theta)
	Vierfontein 321 IQ	24	
	Mooifontein 225 IQ	9	
	Randskou 324 IQ	9	
7	Vierfontein 321 IQ	177	Multiple farms portions
8	Turffontein 96 IR	RE/4	Industrial Zone (Pty) Ltd
	Vierfontein 321 IQ	RE/6	
	Langlaagte 224 IQ	RE/11	
		RE/3	
		317	
9	Mooifontein 225 IQ	21	DRDG (Crown Mines)
10	Randskou 324 IQ	RE	Department of Public Works and Infrastructure
11	Langlaagte 224 IQ	RE/211	City of Johannesburg Metropolitan Municipality
	Mooilaagte 227 IQ	RE	
12	Langlaagte 224 IQ	374	African Crown Holdings Pty Ltd

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Appendix C2: Land Claims

Vanessa Viljoen

From: Vanessa Viljoen
Sent: Wednesday, 23 October 2024 13:51
To: 'Solomon.Maruma@dalrrd.gov.za'
Cc: Thuli Phakathi
Subject: Environmental Authorisations and Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province
Attachments: Lclaims_Let_20240927.pdf

Dear Mr Solomon Maruma

Kongiwe Environmental (Pty) Ltd (Kongiwe) has been appointed as the Independent Environmental Assessment Practitioner, tasked with conducting the Scoping and Environmental Impact Assessment (S&EIA) and Integrated Water Use Licence application (IWULA) process which is aimed at critically evaluating the potential environmental and social impacts of the recommissioning of the Valley Silts Expansion Project.

Ergo Mining (Pty) Ltd (Ergo), a subsidiary of DRDGOLD Limited, holds various Mining Rights (MR) in respect of slimes dams and sand dumps extending 65 km from Western Johannesburg to Eastern Ekurhuleni with most activities occurring on the central and eastern sections of the Witwatersrand mining belt.

The Expansion Phase of the Valley Silts project will consist of Sector 2 and Sector 3. Sector 2 will extend from the dam wall to Nasrec Road (N1 to N20), with the remaining blocks (Sector 3: N21 and N22) being located either side of Crownwood Road. In terms of regional locality, the Vally Silts compartment is located on the farms Randskou 324 IQ and Mayfair West 221 IQ. The project is situated in Wards 68 and 124 of the City of Johannesburg Metropolitan Municipality (CoJMM).

We would appreciate it if you could assist us with the attached Land Claims enquire.

Kind Regards,

Vanessa Viljoen | Senior Stakeholder Engagement Consultant | Kongiwe Environmental (Pty) Ltd.
Tel: +27 (10) 140 1725 | Cell: +27 (71) 485 5388 | Fax: +27 (86) 476 6438 | Email: vviljoen@kongiwe.com
150 Bryanston Drive, Bryanston, Sandton, 2191, South Africa.
PostNet Suite no 163, Private Bag X21, Bryanston, 2021, South Africa.

www.kongiwe.com

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Thursday, 24 October 2024

Attention: Mr Solomon Maruma
Department of Agriculture, Land Reform and Rural Development
Office of the Regional Land Claims Commissioner: Gauteng Province
Email: Solomon.Maruma@dalrrd.gov.za

Environmental Authorisations and Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province

LAND CLAIMS ENQUIRY

Kongiwe Environmental (Pty) Ltd (Kongiwe) has been appointed as the Independent Environmental Assessment Practitioner, tasked with conducting the Scoping and Environmental Impact Assessment (S&EIA) and Integrated Water Use Licence application (IWULA) process which is aimed at critically evaluating the potential environmental and social impacts of the recommissioning of the Valley Silts Expansion Project.

Ergo Mining (Pty) Ltd (Ergo), a subsidiary of DRDGOLD Limited, holds various Mining Rights (MR) in respect of slimes dams and sand dumps extending 65 km from Western Johannesburg to Eastern Ekurhuleni with most activities occurring on the central and eastern sections of the Witwatersrand mining belt.

The Expansion Phase of the Valley Silts project will consist of Sector 2 and Sector 3. Sector 2 will extend from the dam wall to Nasrec Road (N1 to N20), with the remaining blocks (Sector 3: N21 and N22) being located either side of Crownwood Road. In terms of regional locality, the Vally Silts compartment is located on the farms Randskou 324 IQ and Mayfair West 221 IQ. The project is situated in **Wards 68 and 124** of the **City of Johannesburg Metropolitan Municipality (CoJMM).**

The project area is made up of 23 farm portions falling within the City of Johannesburg Metropolitan Municipality. The affected farms are listed in **Table 1** below.

Table 1: Directly Affected property details.

Farm Name & Number	Farm ID	Farm Portion	Farm owner
Randskou 324	IQ	10/225	Transnet
Randskou 324	IQ	12/225	Transnet
Mayfair West 221	IQ	172/224	Transnet
Mayfair West 221	IQ	173/224	Transnet

Kongiwe Environmental (Pty) Ltd.
Reg No 2016 / 135562 / 07
Directors: GE Cornish-Bowden,MJ Hennessy, BJ Thornton (CEO), GI Wilreker
Tel: +27 (10) 140 6508 | Email: info@kongiwe.com
150 Bryanston Drive, Bryanston, Sandton, 2191, South Africa.
PostNet Suite no 163, Private Bag X21, Bryanston, 2021, South Africa.
www.kongiwe.com

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Farm Name & Number	Farm ID	Farm Portion	Farm owner
Mayfair West 221	IQ	174/224	Transnet
Mayfair West 221	IQ	200/224	Transnet
Mayfair West 221	IQ	201/224	Transnet
Mayfair West 221	IQ	204/224	Transnet
Mayfair West 221	IQ	296/224	Transnet
Mayfair West 221	IQ	297/224	Transnet
Mayfair West 221	IQ	298/224	Transnet
Mayfair West 221	IQ	299/224	Transnet
Mayfair West 221	IQ	300/224	Transnet
Randskou 324	IQ	13/225	DRDGOLD (Crown Mine)
Mayfair West 221	IQ	107/224	Trans-Atlas Ltd
Mayfair West 221	IQ	106 (RE)/224	Trans-Atlas Ltd
Mayfair West 221	IQ	381/224	South African National Roads Agency Soc Ltd (SANRAL)
Mayfair West 221	IQ	380/224	South African National Roads Agency Soc Ltd (SANRAL)
Mayfair West 221	IQ	212/224	City of Johannesburg Metropolitan Municipality
Mayfair West 221	IQ	RE/5/225	Costal Trade Inv Pty Ltd
Mayfair West 221	IQ	388/224	Industrial Zone (Pty) Ltd (iProp)
Mayfair West 221	IQ	9/224	Industrial Zone (Pty) Ltd (iProp)
Mayfair West 221	IQ	11 (RE)/224	Industrial Zone (Pty) Ltd (iProp)
Mayfair West 221	IQ	3 (RE)/224	Industrial Zone (Pty) Ltd (iProp)
Mayfair West 221	IQ	8 (RE)/224	Industrial Zone (Pty) Ltd (iProp)

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Farm Name & Number	Farm ID	Farm Portion	Farm owner
Mooifontein 225	IQ	RE/225	Industrial Zone (Pty) Ltd (iProp)

Kongiwe wishes to enquire if there are any land claims on any of the farms listed above. Please could you revert to us as a matter of urgency.

Kind regards,



Vanessa Viljoen
Stakeholder Engagement Consultant

COMMISSION ON RESTITUTION OF LAND RIGHTS

OFFICE OF THE REGIONAL LAND CLAIMS COMMISSIONER: GAUTENG
No. 9 Bailey Lane, Arcadia, 0007 | Private Bag X 03, Arcadia, 0007
Tel: (012) 310 6500 | Fax: (012) 323 0312

Enquiries: **Desiree Tsholofelo Kgole**
Telephone: **(012) 310 6578**

Dear Mr / Ms **Vanessa Viljoen**

LAND CLAIMS ENQUIRY – RE OF THE FARM MOOIFONTEIN 225, REG DIV IQ, GAUTENG

We refer to your land claim enquiry dated **23rd October 2024.**

We confirm that as at the date of this letter no land claims appear on our database in respect of the Properties listed. This includes the database for claims lodged by 31 December 1998; and those lodged between 1 July 2014 and 27 July 2016 in terms of the Restitution of Land Rights Amendment Act, 2014.

Whilst the Commission takes reasonable care to ensure the accuracy of the information it provides, there are various factors that are beyond the Commission's control, particularly relating to claims that have lodged but not yet been gazetted such as:

1. Some Claimants referred to properties they claim dispossession of rights in land against using historical property descriptions which may not match the current property description; and
2. Some Claimants provided the geographic descriptions of the land they claim without mentioning the particular actual property description they claim dispossession of rights in land against.

The Commission therefore does not accept any liability whatsoever if through the process of further investigation of claims it is found that there is in fact a land claim in respect of the above property.

If you are aware of any change in the description of the above property after 19 June 1913 kindly supply us with such description so as to enable us to do a further search.

In conclusion, please note that **enquiries should be forwarded to Desiree Tsholofelo Kgole** who could be reached at the following contact details: Tel: (012) 310-6578 or via e-mail at desiree.kgole@dalrrd.gov.za

Yours faithfully

MS. C. BENYANE
CHIEF DIRECTOR
OFFICE OF THE REGIONAL LAND CLAIMS COMMISSION
GAUTENG PROVINCE
DATE: 25/10/2024

COMMISSION ON RESTITUTION OF LAND RIGHTS

OFFICE OF THE REGIONAL LAND CLAIMS COMMISSIONER: GAUTENG
No. 9 Bailey Lane, Arcadia, 0007 | Private Bag X 03, Arcadia, 0007
Tel: (012) 310 6500 | Fax: (012) 323 0312

Enquiries: **Desiree Tsholofelo Kgole**
Telephone: **(012) 310 6578**

Dear Mr / Ms **Vanessa Viljoen**

LAND CLAIMS ENQUIRY – PORTION 10, 12 & 13 OF THE FARM RANDSKOU 324, REG DIV IQ, GAUTENG

We refer to your land claim enquiry dated **23rd October 2024.**

We confirm that as at the date of this letter no land claims appear on our database in respect of the Properties listed. This includes the database for claims lodged by 31 December 1998; and those lodged between 1 July 2014 and 27 July 2016 in terms of the Restitution of Land Rights Amendment Act, 2014.

Whilst the Commission takes reasonable care to ensure the accuracy of the information it provides, there are various factors that are beyond the Commission's control, particularly relating to claims that have lodged but not yet been gazetted such as:

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Yours faithfully

MS. C. BENYANE
CHIEF DIRECTOR
OFFICE OF THE REGIONAL LAND CLAIMS COMMISSION
GAUTENG PROVINCE
DATE: 25/10/2024

COMMISSION ON RESTITUTION OF LAND RIGHTS

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No. 9 Bailey Lane, Arcadia, 0007 | Private Bag X 03, Arcadia, 0007
Tel: (012) 310 6500 | Fax: (012) 323 0312

Enquiries: **Desiree Tsholofelo Kgole**
Telephone: **(012) 310 6578**

Dear Mr / Ms **Vanessa Viljoen**

LAND CLAIMS ENQUIRY – PORTIONS 9, 107, 172, 173, 174, 200, 201, 204, 212, 296, 297, 298, 299, 300, 380, 381, 388, 3 (RE), 5 (RE), 8 (RE), 11 (RE) & 106 (RE) OF THE FARM MAYFAIR WEST 221, REG DIV IQ, GAUTENG

We refer to your land claim enquiry dated **23rd October 2024.**

We confirm that as at the date of this letter no land claims appear on our database in respect of the Properties listed. This includes the database for claims lodged by 31 December 1998; and those lodged between 1 July 2014 and 27 July 2016 in terms of the Restitution of Land Rights Amendment Act, 2014.

Whilst the Commission takes reasonable care to ensure the accuracy of the information it provides, there are various factors that are beyond the Commission's control, particularly relating to claims that have lodged but not yet been gazetted such as:

1. Some Claimants referred to properties they claim dispossession of rights in land against using historical property descriptions which may not match the current property description; and
2. Some Claimants provided the geographic descriptions of the land they claim without mentioning the particular actual property description they claim dispossession of rights in land against.

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In conclusion, please note that **enquiries should be forwarded to Desiree Tsholofelo Kgole** who could be reached at the following contact details: Tel: (012) 310-6578 or via e-mail at desiree.kgole@dalrrd.gov.za

Yours faithfully

MS. C. BENYANE
CHIEF DIRECTOR
OFFICE OF THE REGIONAL LAND CLAIMS COMMISSION
GAUTENG PROVINCE
DATE: 25/10/2024

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Appendix C3: Consultation Materials

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Environmental Authorisations and Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province

Background Information Document

DMRE reference number: GP 184 MR
DWS reference number: WU38176

October 2024

PURPOSE OF THE DOCUMENT

This Background Information Document aims to provide you with important information regarding:

- The proposed Valley Silts Expansion Project;
- The independent Environmental Impact Assessment (EIA) and the Public Participation Process (PPP) to be undertaken as part of the Environmental Authorisation process;
- The Integrated Water Use Licence Application (IWULA) process;
- How you can register as an Interested and Affected Party (I&APs) and be kept informed about the project developments;
- The public review and comment period for the Draft Scoping Report.

PROJECT BACKGROUND

Ergo Mining (Pty) Ltd ("Ergo") intends to expand its Valley Silts reclamation operation (the **Valley Silts Expansion Project**). The expansion involves mechanically excavating gold-bearing silts from the old dam wall to Nasrec Road (Blocks N1 to N20), situated immediately west of the authorised and existing Valley Silts reclamation project area and the remaining Blocks (N21 and N22) being located either side of Crownwood Road, near Booysens Reserve and Riverlea, Johannesburg.

Ergo obtained an Environmental Authorisation (EA) and an Integrated Water Use Licence (IWUL) for the mechanical reclamation of gold bearing silts from a section near the Russell Stream north of NASREC near Booysens Reserve, in Johannesburg. The reclamation authorisation for the removal of silts, falls within Mining Right GP 184 MR. Further to this, Ergo (a subsidiary of DRDGOLD Limited) holds various Mining Rights (MR) in respect of slimes dams and sand dumps extending 65 km from Western Johannesburg to Eastern Ekurhuleni with most activities occurring on the central and eastern sections of the Witwatersrand mining belt.

The removal of silts within the already authorised Valley Silts Project area has been ongoing since 2023 and as such, the requirement to prepare for

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the Valley Eastern Expansion, Southern Expansion, and Valley Expansion Northwest is now necessary for continuous reclamation operation, as well as a sustainable feed source to the process plant.

The Valley Silts resource has three primary sectors. The current approved reclamation area is Sector 1 and extends from the dam wall to the end of the stockpile area near Crownwood Road. The site is already established with fully fenced hard park facilities, solar powered security lights, well maintained haul roads, and site offices. Ingress/egress is fully controlled by security for all vehicles.

The Expansion Phase of the project will consist of Sector 2 and Sector 3. Refer to Figure 2 for the infrastructure plan of the project area.

Sector 2 will extend from the old dam wall to Nasrec Road (Blocks N1 to N20), with the remaining Blocks (Sector 3: N21 and N22) being located either side of Crownwood Road. As reclamation exceeds the delivery rate, stockpile areas are therefore required for temporary storage. Stockpiled silts are moved in a sequential manner due to the moisture content, the drying process, as well as oxidation. The detailed plans are based on a 1:1000 scale survey plan and all blocks are based on a delivery rate required by Ergo. Individual blocks will be removed in sequence.

Prospecting trenching will determine the depositional flank extents, and all material will be removed from the natural flow path as well as the flanks. Paddocks and stormwater controls are required to protect the river from any extraneous ingress, and these will be installed as indicated on Figure 2. The current facilities in Sector 1 will be utilised for the remaining extensions. Hard Park, cut off trenches and stormwater collection area are pre-installed and are appropriate for further use.

The new activities for the Expansion Project include:

- Mining blocks (N 1 to N22);
- Drying stockpiles (8 locations);
- Stormwater control berms/paddocks;
- River crossings (7); and
- Haul and site roads.

Existing silt traps will move as the reclamation blocks progress. The existing stormwater collection area will discharge to the stream.

LOCALITY

The Proposed Project is located within the Russell Stream valley, near Booysens Reserve. The project area stretches from New Canada Road, following the valley southeast, past the Nasrec Road bridge and past Crownwood Road until the stream meets the M1.

The Proposed Project is situated in the City of Johannesburg Metropolitan Municipality (CoJMM). The Russell Stream (also referred to as the Klipspruit) is surrounded by industrial, commercial, residential and undeveloped land. The closest residential area to the project is Riverlea, the outskirt of the suburb is situated approximately 120m from the Valley silts project area.

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Refer to **Table 1** for a list of the directly affected properties and **Figure 1** for the project locality map.

Table 1: Directly Affected property details.

Farm Name & Number	Farm ID	Farm Portion	Farm owner
Randskou 324	IQ	10/225	Transnet
Randskou 324	IQ	12/225	Transnet
Mayfair West 221	IQ	172/224	Transnet
Mayfair West 221	IQ	173/224	Transnet
Mayfair West 221	IQ	174/224	Transnet
Mayfair West 221	IQ	200/224	Transnet
Mayfair West 221	IQ	201/224	Transnet
Mayfair West 221	IQ	204/224	Transnet
Mayfair West 221	IQ	296/224	Transnet
Mayfair West 221	IQ	297/224	Transnet
Mayfair West 221	IQ	298/224	Transnet
Mayfair West 221	IQ	299/224	Transnet
Mayfair West 221	IQ	300/224	Transnet
Randskou 324	IQ	13/225	DRDGOLD (Crown Mine)
Mayfair West 221	IQ	107/224	Trans-Atlas Ltd
Mayfair West 221	IQ	106 (RE)/224	Trans-Atlas Ltd
Mayfair West 221	IQ	381/224	South African National Roads Agency Soc Ltd (SANRAL)
Mayfair West 221	IQ	380/224	South African National Roads Agency Soc Ltd (SANRAL)

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Farm Name & Number	Farm ID	Farm Portion	Farm owner
Mayfair West 221	IQ	212/224	City of Johannesburg Metropolitan Municipality
Mayfair West 221	IQ	RE/5/225	Costal Trade Inv Pty Ltd
Mayfair West 221	IQ	388/224	Industrial Zone (Pty) Ltd (iProp)
Mayfair West 221	IQ	9/224	Industrial Zone (Pty) Ltd (iProp)
Mayfair West 221	IQ	11 (RE)/224	Industrial Zone (Pty) Ltd (iProp)
Mayfair West 221	IQ	3 (RE)/224	Industrial Zone (Pty) Ltd (iProp)
Mayfair West 221	IQ	8 (RE)/224	Industrial Zone (Pty) Ltd (iProp)
Mooifontein 225	IQ	RE/225	Industrial Zone (Pty) Ltd (iProp)

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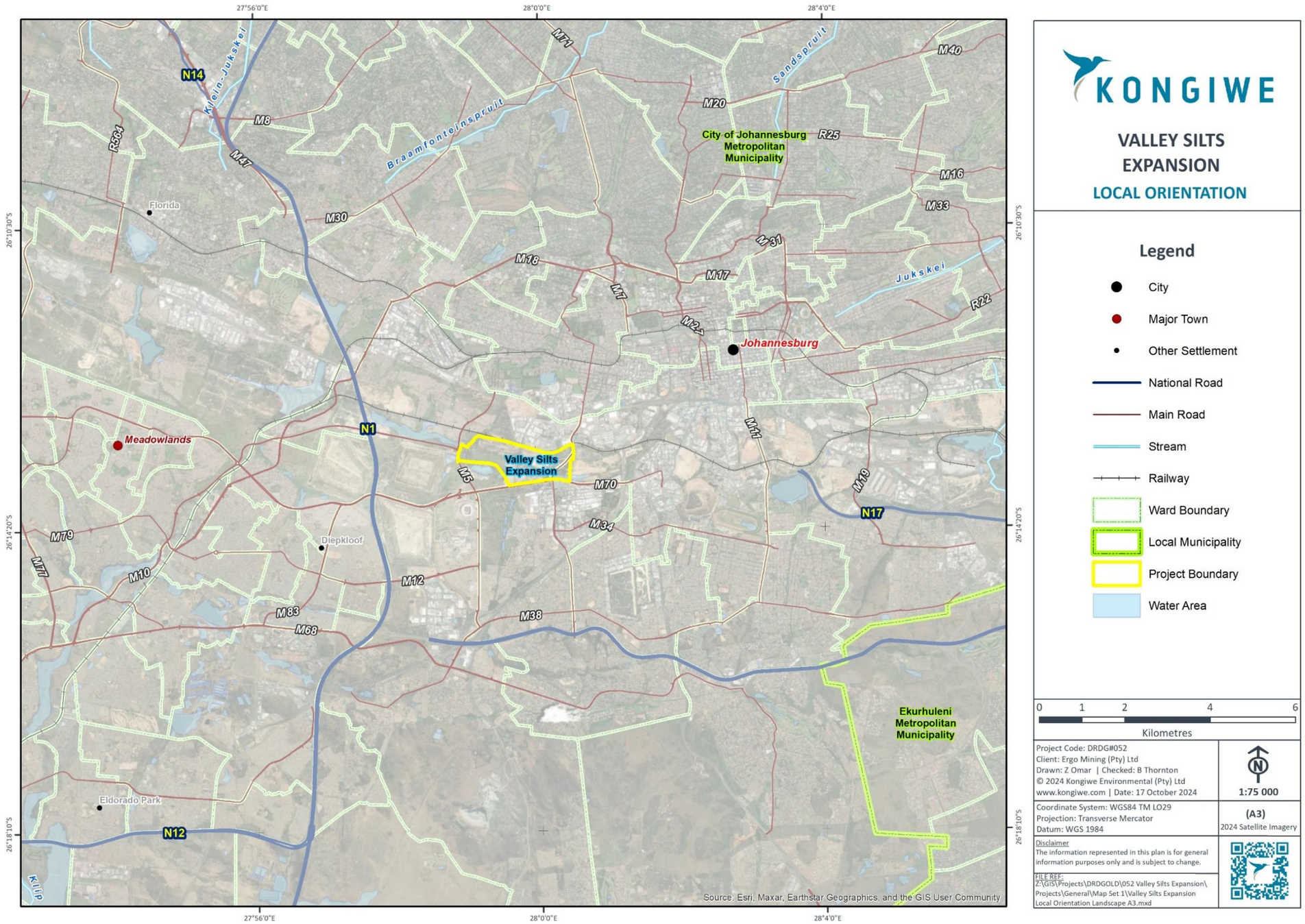


Figure 1: Valley Silts Expansion Locality Map

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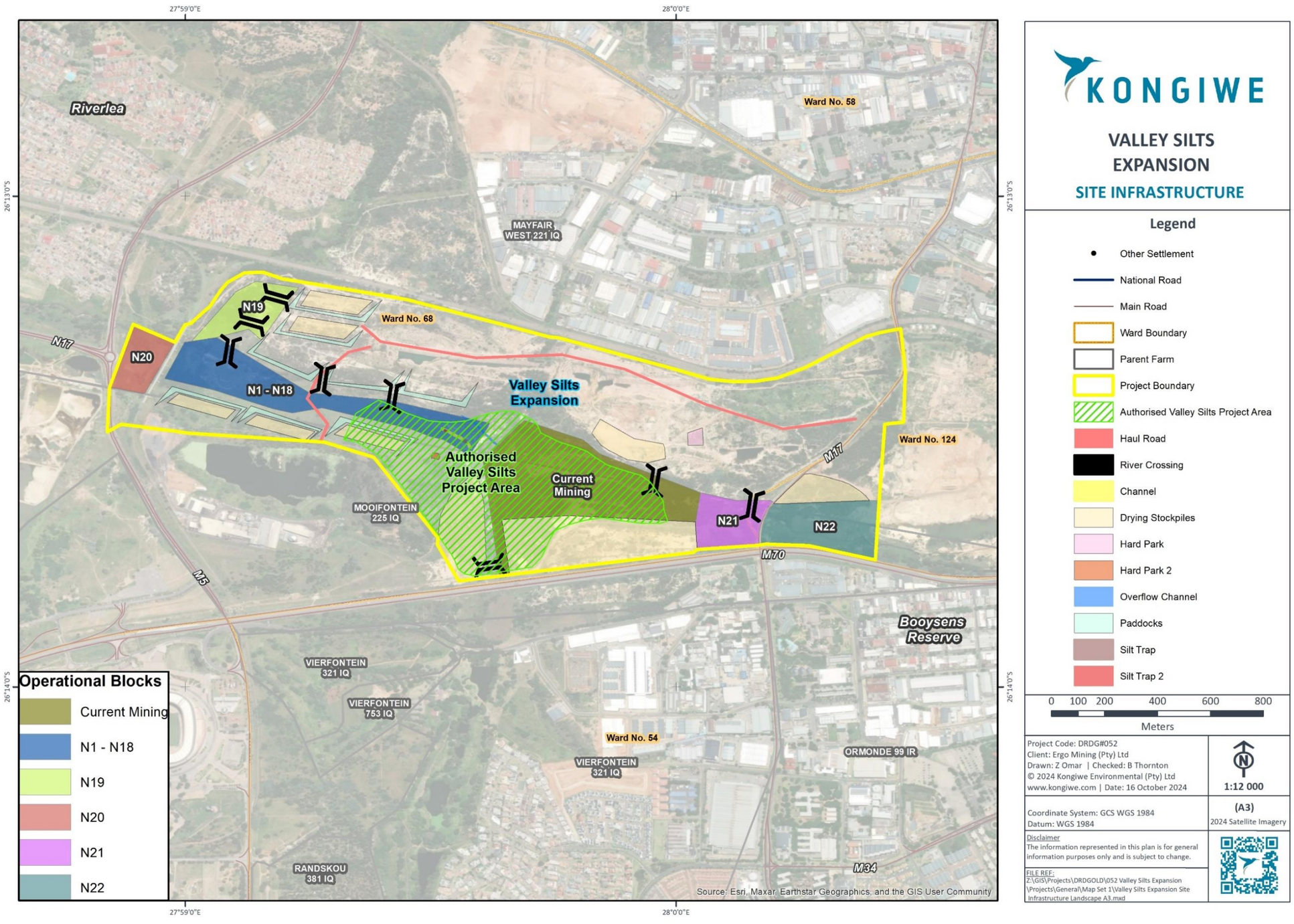


Figure 2: Site Infrastructure

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Reclamation Method

The gold bearing silts will be mechanically excavated from the project area. 30-ton Articulated Dump Trucks (ADTs) will be used to transport and stockpile the silts from the Russell Stream. The silts will be left to dry on stockpile footprints. This is considered a “dirty” footprint. Silts will have 30% to 40% moisture content when hauled and are not expected to be fully dried out. The dried tailings/silts will be loaded onto tipper trucks and transported to the City Deep plant for pre-processing. The trucks transporting the material will follow Crownwood Road until it reaches Main Reef Road and then joins the M2 East. The trucks will then follow the M2 until they reach Heidelberg Road which is followed to the City Deep Plant where the material is offloaded.



Example of silt removal.



Example of new silts being transported for stockpiling

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Example of silt which is stockpiled according to wetness. Coarse materials such as stones and rock are stockpiled and sold / donated to external parties.



Example of a typical hauling truck to be used for the Valley Silts Project.

INFRASTRUCTURE

The Valley Silts Project is well serviced by existing roads and infrastructure. Existing infrastructure to be utilised at stages during the project include:

- Site offices
- Hard Park areas
- Existing site access roads
- Hauling road: access roads and main roads.

The additional infrastructure will include:

- Additional haul roads
- Additional stockpile drying areas
- Additional stream crossings
- Additional silt traps and stormwater control berms/ paddocks

ACCESS

Access to the site is directly off Crownwood Road. This access to the site is approximately 440 m to the south of the intersection with Jupiter Road. The access is 10 m wide, with one lane 'IN' and one lane 'OUT'. Traffic from Crownwood Road (M17) has the right of way and a 'STOP' condition is implemented.

As far as possible, existing access roads will be utilised, and where this is not possible, these will be constructed as a two-by-two roadway, operating in both directions. Intersections will be properly designed to provide safe entry and exit into the reclamation area. Approvals from the Provincial Road's authority will be obtained where necessary.

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WATER MANAGEMENT

This project will not require any additional process water for the mechanical excavation of gold bearing silts from an area in the Russell Stream.

Potable drinking water will be sourced from the municipality and will be available to employees on site.

The clean stormwater runoff from the area to the south of the drying sites will be diverted using a stormwater diversion drain (or berm) around the area to the west. Stormwater from the north will flow via properly constructed inlets into the Russell Stream. Temporary berms will be constructed along the banks of the channel. These banks will be raised in sections to retain flood flow and prevent flooding of any of the reclamation area during excessive rainfall. The raised riverbanks and berms will be able to contain a 1:50 year storm event.

Dirty stormwater will be contained in existing paddocks on the drying sites. Should the paddocks reach capacity, the excess stormwater will need to be released into the Russel Stream.

Stormwater from the mined-out areas flows to a stormwater collection point (sump). Should the stormwater collection area reach capacity it will overflow via a channel into the Russel Stream.

WASTE MANAGEMENT

No domestic or industrial disposal sites are required. There will be bins on-site for any domestic waste generated.

LIFE OF OPERATION

The anticipated life span of the project is approximately 5 years maximum. The silt removal is planned for three years, and rehabilitation will take 2 years.

REHABILITATION

Once the silts have been removed from the targeted areas, decommissioning will commence with the removal of all associated vehicles and infrastructure from the site as well as the removal of berms, paddocks, diversion trenches, infrastructure, and anything else installed during construction and operations.

Regarding the safety of both the public and the employees, Ergo has completed a workers' safety assessment as well as a public safety assessment. The public safety assessment for all the proposed operations of Ergo are currently being updated. This is being done in relation to the requirements of the National Nuclear Regulator (NNR).

Rehabilitation will take place as and when excavation progresses to other target areas. Care will be taken to ensure that the material and excavated soil required for backfilling are free of contamination from hydrocarbons. Ergo aims to rehabilitate the Valley Silts area by shaping the areas where silt was removed and make the area free draining. Thereafter, appropriate species will be planted to stabilise the soil.

Post-decommissioning activities will entail the assessment of rehabilitation and will address any further rehabilitation requirements. Monitoring must occur for at least five years after decommissioning and rehabilitation, or until satisfactory results are achieved.

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Maintenance will specifically need to focus on the rehabilitated areas. Furthermore, groundwater and surface water monitoring will have to take place surrounding in the surrounding project area. It has been recommended that the groundwater is monitored for at least a period of five years on a quarterly basis after closure. The monitoring process will be used to assess whether the rehabilitation process has been successful or not and to indicate that no further deterioration on groundwater quality is foreseen. Water infrastructure (channels, berms and paddocks) should be monitored on a monthly basis during the dry season, and on a weekly basis during the wet season. They should further be monitored immediately after any large storm events. Should blockages, silted up structures or breaches occur, immediate action should be undertaken to remove debris and repair breaches. Monitoring should be undertaken by the onsite Environmental Control Officer (ECO) or maintenance manager.

Maintenance will specifically focus on the rehabilitated in accordance with the approved EMPr. Continuous erosion monitoring of rehabilitated areas and slopes should be undertaken and zones with excessive erosion should be identified. The cause of the erosion should be identified, and rectified. Zones with erosion will need to be repaired with topsoil.

LEGISLATIVE FRAMEWORK

In terms of the environmental legislation, Ergo is required to undertake a Scoping and Environmental Impact Assessment (S&EIA) process which evaluates the environmental impacts associated with the Proposed Project as part of an Environmental Authorisation (EA). The S&EIA and specialist studies are being undertaken for the applications for the required approvals. The following applications are being made to the Department of Mineral Resources and Energy (DMRE) for the Proposed Project:

1. **Application for EA** for listed activities triggered in Listing Notices GN R983, GN R984 and GN R985[1] published pursuant to the EIA Regulations 2014 (as amended), promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA); and
2. **Application for a waste management licence (WML)** authorising waste management activities listed in GN 921 of 29 November 2013 published in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (as amended) (NEM:WA).

In addition, the following application is being made to the relevant Competent Authority:

3. **An Integrated Water Use Licence Application (IWULA)** in terms of the National Water Act, 1998 (Act No. 36 of 1998) (NWA) will be submitted to the Department of Water and Sanitation (DWS) for any potential impact to water resources by the Proposed Project. In this regard, any objection to that application may be lodged in writing within sixty days of the date of this notice to the Minister of the DWS as provided in Section 41(4) of the NWA.

[1] These Listing Notices have been amended by GN R327, GN R325 and GN R324 of 7 April 2017 and GN R 517 of 11 June 2021

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POPIA Disclaimer: Safeguarding registered person's personal information

In terms of section 19 of the Protection of Personal Information Act (POPIA), a responsible party must, subject to Sections 9 and 11 of the Act, ensure the integrity and confidentiality of personal information in its possession or under its control by taking appropriate, reasonable technical and organisational measures to prevent loss of, damage to or unauthorised destruction of personal information, unlawful access to or processing of personal information. POPIA requires that personal information should be adequately protected to avoid unauthorised access. Therefore, Kongiwe continuously reviews security controls and procedures to ensure that personal information is secured. It should be noted that in terms of Section 11, personal information may be processed to the extent that this is necessary for pursuing the legitimate interests of the responsible party to whom the information is supplied.

SCOPING AND ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

Kongiwe Environmental (Pty) Ltd (Kongiwe) has been appointed as the Independent Environmental Assessment Practitioner, tasked with conducting the Scoping and Environmental Impact Assessment (S& EIA)/Integrated Water Use Licence application (IWULA) process which is aimed at critically evaluating the potential environmental and social impacts of the proposed Project. In accordance with the provisions of the EIA 2014 Regulations (as amended), the EIA process for the proposed project will be carried out in the following phases:

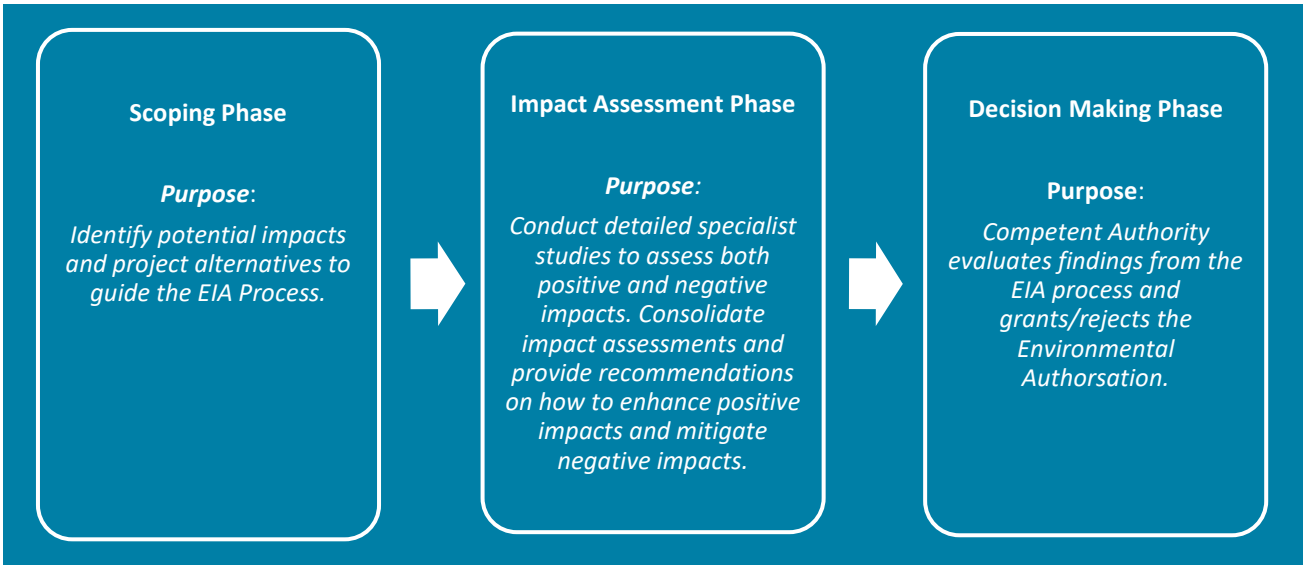


Figure 3: S& EIA process

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Table 2: Listed Activities in terms of NEMA being applied for

Name of activity	Aerial extent of the activity	Applicable listing notice GNR 983, 984 and 985 as amended	Listed activity	Waste management authorisation	Water use license authorisation[2]
Stormwater collection point (sump)					Section 21 (c) and (i)
Mechanical excavation of gold bearing silts from the Russell Stream	54 Hectares	GNR 327 - Activity 19	The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse.	Category B, Activity 11 The establishment or reclamation of a residue stockpile or residue deposit resulting from activities which require a mining right, exploration right or production right in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).	Section 21 (c) and (i)
		GNR 325 - Activity 4	The development and related operation of facilities or infrastructure, for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of more than 500 cubic metres.		
The clearance of vegetation within the project area for the removal of silts	54 Hectares	GNR 325 - Activity 15	The clearance of an area of 20 hectares or more of indigenous vegetation,		Section 21 (c) and (i)

[2] Water use licences in terms of Section 21 of that National Water Act, 1998, will be required for various of the Listed Activities. These have not been specifically listed in this Application, but the necessary application will be submitted to the Department of Water and Sanitation

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Name of activity	Aerial extent of the activity	Applicable listing notice GNR 983, 984 and 985 as amended	Listed activity	Waste management authorisation	Water use license authorisation[2]
Site preparation and earthworks which may include the clearance of indigenous vegetation from the Russell Stream	54 Hectares	GNR 325 - Activity 15	The clearance of an area of 20 hectares or more of indigenous vegetation.		Section 21 (c) and (i)
The development of haul and site roads. The site is listed as Ecological support area and CBA: Important Area.		GN 324 - Activity 4	The development of a road wider than 4 metres with a reserve less than 13,5 metres. c. Gauteng iv. Sites identified as Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans.		Section 21 (c) and (i)
Site preparation and earthworks which may include the clearance of indigenous vegetation from the Russell Stream	54 Hectares	GN 324 - 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. c. Gauteng ii. Within Critical Biodiversity Areas or Ecological Support Areas identified in the		Section 21 (c) and (i)

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Name of activity	Aerial extent of the activity	Applicable listing notice GNR 983, 984 and 985 as amended	Listed activity	Waste management authorisation	Water use license authorisation[2]
			Gauteng Conservation Plan or bioregional plans.		
Stormwater collection point (sump)		GN 324 - Activity 14	The development of- (i) dams or weirs, where the dam or weir, including infrastructure and water surface area exceeds 10 square metres; or (ii) infrastructure or structures with a physical footprint of 10 square metres or more; where such development occurs- (a) within a watercourse; c. Gauteng iv. Sites identified as Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans.		Section 21 (c) and (i)
River crossings		GNR 327 - Activity 19	The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse;		Section 21 (c) and (i)

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Name of activity	Aerial extent of the activity	Applicable listing notice GNR 983, 984 and 985 as amended	Listed activity	Waste management authorisation	Water use license authorisation[2]
Discharging stormwater from the stormwater collection point (sump) into the Russel Stream Discharging stormwater from the stormwater paddocks into the Russel Stream		GN 324 - Activity 6	The development of facilities or infrastructure for any process or activity which requires a permit or licence or an amended permit or licence in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent, excluding— (i) activities which are identified and included in Listing Notice 1 of 2014; (ii) activities which are included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies; (iii) the development of facilities or infrastructure for the treatment of effluent, polluted water, wastewater or sewage where such facilities have a daily throughput capacity of 2 000 cubic metres or less; or (iv) where the development is directly related to aquaculture facilities or		Section 21(f)

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Name of activity	Aerial extent of the activity	Applicable listing notice GNR 983, 984 and 985 as amended	Listed activity	Waste management authorisation	Water use license authorisation[2]
			infrastructure where the wastewater discharge capacity will not exceed 50 cubic metres per day.		
Dust suppression		GN 324 - Activity 6	The development of facilities or infrastructure for any process or activity which requires a permit or licence or an amended permit or licence in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent, excluding— (i) activities which are identified and included in Listing Notice 1 of 2014; (ii) activities which are included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies; (iii) the development of facilities or infrastructure for the treatment of effluent, polluted water, wastewater or sewage where such facilities have a daily		Section 21 (c) and (i) Section 21 (g)

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Name of activity	Aerial extent of the activity	Applicable listing notice GNR 983, 984 and 985 as amended	Listed activity	Waste management authorisation	Water use license authorisation[2]
			throughput capacity of 2 000 cubic metres or less; or (iv) where the development is directly related to aquaculture facilities or infrastructure where the wastewater discharge capacity will not exceed 50 cubic metres per day.		

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INTEGRATED WATER USE LICENCE

An IWULA will be undertaken for water uses associated with Section 21 of the National Water Act, 1998 (Act No.36 of 1998) (NWA). **Table 3** lists the water uses being applied for.

Table 3: Water Uses being applied for

Water Use	Activity
(c) impeding or diverting the flow of water in a watercourse; (i) altering the bed, banks, course or characteristics of a watercourse	❖ Removing of silts from within the Russel Stream and within 500m of the Russel Stream ❖ River crossings (7 crossings) ❖ Stockpiling of silts within 500m of the Russel Stream (8 sites) ❖ Stormwater control paddocks within 500m of the Russel Stream ❖ Stormwater collection point (sump) within 500m of the Russel Stream ❖ Silt traps within 500m of the Russel Stream ❖ Haul roads within 500m of the Russel Stream
(g) disposing of waste in a manner which may detrimentally impact on a water resource;	❖ Dust suppression on haul roads

SPECIALIST STUDIES

Various specialist studies are being undertaken as part of the S&EIA/IWULA process to assess the potential impacts associated with the proposed project. Specialist studies being undertaken include:

- ❖ Biodiversity and Wetlands
- ❖ Surface Water
- ❖ Groundwater
- ❖ Air Quality
- ❖ Noise
- ❖ Socio-Economic Impact Assessment
- ❖ Visual
- ❖ Closure & Rehabilitation
- ❖ Health
- ❖ Radiation

PUBLIC PARTICIPATION PROCESS

The public participation process will form part of the Integrated Environmental Authorisation and the IWULA process. The public participation process offers stakeholders a fair opportunity to be informed about the proposed project, to raise issues and to make suggestions for enhanced project benefits. The project team will consider relevant issues and suggestions during the S&EIA/IWULA process.

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AVAILABILITY OF THE SCOPING REPORT FOR PUBLIC REVIEW AND COMMENT

The Draft Scoping Report (DSR) for the proposed project will be made available for public review and comment for a period of 30 days, from **Tuesday, 29 October 2024 until Wednesday, 27 November 2024**.

The DSR will be made available as follows:

- Copies of the DSR will be made available for public review and comment on Kongiwe's website: https://kongiwe.com/projects/
- A hard copy of the DSR will be made available at the following public places within the Valley Silts Expansion Project Area as indicted in the table below:

Location	Physical Adress	Contact Person
Public Libraries (Scoping Report):		
Riverlea Public Library	Cnr Avon & Colorado Dr, Riverlea, Johannesburg	Mr John Keith, Librarian (011) 474 2968 or (071) 390 6549

- An electronic copy will be made available on request.
- Copies of the non-technical summary of the DSR will be distributed electronically to all stakeholders on the database.

AVAILABILITY OF THE EIA/EMPR AND IWWMP FOR PUBLIC REVIEW AND COMMENT

During the EIA phase of the project, the Draft Environmental Impact Assessment and Draft Environmental Management Programme (DEIA/EMPr) will be made available for public review for **30 days.**

Once the information required for the IWULA has been finalised, a technical report, in support of the IWULA process, will be made available for a public review and commenting period of **60 days**. It is anticipated that the IWULA report will be made available during the impact assessment phase. Information regarding the availability of the IWULA technical report and how stakeholders can provide their comments will be communicated to all stakeholders.

STAKEHOLDER MEETINGS

Stakeholders are invited to participate through virtual and non-virtual engagements. Consultation meetings will be held using platforms like Microsoft Teams, telephonic discussions, and an Open Day. The purpose of these meetings is to discuss the proposed project, contents of the Scoping Report, to provide I&APs with an opportunity to raise their comments and to interact with the project team.

Please refer to **Table 4** for the proposed stakeholders' meeting schedule. Please confirm your attendance at the meeting by ***Tuesday, 5 November 2024 and which time slot you would like to participate in.***

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Table 4: Proposed dates and methods of public engagement

Proposed dates	Available time slots	Method of Engagement
Virtual meetings: Online		
Wednesday, 13 November 2024	10H00 – 11H00	Microsoft teams/ scheduled Telephonic discussions
Non-virtual meeting: Open Day		
Saturday, 16 November 2024	09H00 – 10H00	Riverlea Empowerment Centre 92 Sandpiper Crescent, Ext 5, Riverlea, 2093
	10H00 – 11H00	
	11H00 – 12H00	

INVITATION TO BECOME INVOLVED AS AN I&AP

Kongiwe Environmental has put measures in place to ensure that stakeholders are meaningfully consulted by using a wide range of media, documents and online tools. The proposed methods of engagements for the proposed project are planned as follows:

- Telephonic consultations;
- Short Message Services;
- Email correspondence - Stakeholders with access to email are requested to send their comments/queries via email;
- One-on-One consultation meetings;
- Online Microsoft Teams meetings;
- Focus Group meetings;
- Open day;
- Online engagements – Project information will be timeously uploaded on Kongiwe's website. Stakeholders can send their comments by completing an online comment sheet; and
- Electronic comment sheets.

The purpose of the above-mentioned methods of engagements is to encourage dialogue with stakeholders and provide stakeholders with opportunities to raise their comments. Minutes from all engagements with stakeholders will be compiled and recorded in the Comments and Responses Report. Stakeholders are encouraged to indicate their preferred method of engagement to the stakeholder engagement team, please see contact details below.

FOR CONSULTATION TO BE INCLUSIVE IT IS THE RESPONSIBILITY OF STAKEHOLDERS TO:

- Register or ensure you are registered as an Interested and Affected Party (IAP);
- Inform others whom you think may be interested and/or affected by the proposed project;
- Ensure comments are submitted within the allowed timeframes received by the Stakeholder Engagement office;
- Contributing information and/or knowledge of the environment;
- Provide comments on the proposed project; and
- Attend meetings scheduled throughout the process to participation and access information.

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COMMENTS AND QUERIES:

Any person affected by or who may be interested in the proposed project is asked to register as an I&AP. Should you have any comments/queries, please contact the stakeholder engagement team.

Contact Details:		
Ms Vanessa Viljoen	+27 (10) 140 1725	stakeholders@kongiwe.com
Ms Thuli Phakathi	+27 (10) 140 1726	stakeholders@kongiwe.com
Ms Anela Fixi	+27 (10) 140 1729	stakeholders@kongiwe.com

Our team welcomes your participation and looks forward to your involvement throughout this process

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Environmental Authorisations and Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province

DMRE reference number: GP 184 MR

DWS reference number: WU38176

Stakeholder Registration and Comment Form

Please return a completed registration form to the Stakeholder Engagement Team:
Ms Vanessa Viljoen / Phone: (010) 140 1725 / Ms Thuli Phakathi / Phone: (010) 140 1726 / Ms Anela Fixi (010) 140 1729 or E-mail: stakeholders@kongiwe.com
Postal Address: PostNet Suite no 163, Private Bag X21, Bryanston, 2021

Please provide your complete contact details:

Landowner	Property											
Land occupier	Property			Property owner								
Title		Mr	Mrs	Ms	Dr	Prof	Other					
First Name												
Surname												
Organisation												
Position in organisation												
Contact Details	Cell phone			Fax			Tel					
Email address												
Postal address												
Please indicate your preferred method of communication		Email		SMS		Post		Fax				

I intend attending the stakeholders' meeting (Please indicate your preference)

Meeting dates	Available time slots	Method of Engagement	Yes	No
Virtual meeting				
Wednesday, 13 November 2024	10H00 - 11H00	Microsoft teams/scheduled Telephonic discussions	Yes	No
Live Meeting: Open Day ***(Please indicate which time slot you would like to participate in)***				
Saturday, 16 November 2024	09H00 - 10H00	Riverlea Empowerment Centre 92 Sandpiper Crescent, Ext 5, Riverlea, 2093	Yes	No
	10H00 – 11H00		Yes	No
	11H00 – 12H00		Yes	No

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Do you have any comments/suggestions regarding the proposed project? If so, please complete the section below/ send your comments to the stakeholder engagement team- please see details above.

Comments/Suggestions:

Please provide contact details of any other stakeholders we should consult.							
Title	Mr	Mrs	Ms	Dr	Prof	Other	
First name							
Surname							
Organisation/ Property / Business							
Cell phone							
Email							
Title	Mr	Mrs	Ms	Dr	Prof	Other	
First name							
Surname							
Organisation/ Farm / Business							
Cell phone							
Email							

Please note that the information supplied herein constitutes Personal Information as contemplated in Protection of Personal Information Act, 2013 (POPIA). All of your rights as set out in the Act will continue to be protected and Kongiwe will be accountable to ensure that all conditions for lawful processing are met. Your signature will be regarded as granting consent for the processing of the information strictly in accordance with the provisions of the Act. It must be noted that POPIA does not prevent any private body from exercising or performing its powers, duties and functions in terms of the law and accordingly the EAP and any appellant may perform its duties under the National Appeal Regulations provided the processing is in accordance with POPIA and meets the requirements of the National Appeal Regulations.

Signature:		Date:	

Ergo Mining: Valley Silts Expansion Project

DRAFT SCOPING REPORT - NON TECHNICAL SUMMARY

DMRE Reference Number: GP 184 MR

DWS Reference Number: WU38176

October 2024

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Draft Scoping Report - Non-Technical Summary

Kongiwe Environmental (Pty) Ltd has been appointed by Ergo Mining (Pty) Limited (Ergo), as the Independent Environmental Assessment Practitioner (EAP) tasked with conducting the Scoping and Environmental Impact Assessment (S&EIA) process which is aimed at critically evaluating the potential environmental and social impacts of the proposed **Valley Silts Expansion Project** (hereafter the Proposed Project).

Project Introduction and Background

Ergo intends expanding its Valley Silts reclamation operation, this is known as the Valley Silts Expansion Project. The expansion involves mechanically excavating gold-bearing silts in the area from the old dam wall to Nasrec Road (blocks N1 to N20), situated immediately west of the authorised Valley Silts project area and the remaining blocks (N21 and N22) being located either side of Crownwood Road, near Booysens Reserve and Riverlea, Johannesburg.

Ergo obtained an EA and an IWUL for the mechanical reclamation of gold bearing silts from a section of the Russell Stream north of NASREC near Booysens Reserve, in Johannesburg. Valley Silts is located on the Remaining Extent of Portion 11 of the Farm Langlaagte 224-IQ. The initial reclamation authorisation for the removal of silts, falls within Mining Right GP 184 MR.

The reclamation and removal of silts within the already approved area has been ongoing since May 2023. The construction and site establishment began in October 2022.

The requirement to fully prepare the expansion project is now necessary to maintain a continuous reclamation operation as a sustainable feed source to the process plant.

As it stands, the Russell Stream is highly polluted and heavily silted and given the current status quo, Ergo will aim to rehabilitate the Valley Silts to an appropriate and functioning ecological state.

Locality

The Proposed Project is located within the Russell Stream valley, near Booysens Reserve. The project area stretches from New Canada Road, following the valley southeast, past the Nasrec Road bridge and past Crownwood Road until the stream meets the M1.

The Proposed Project is situated in the City of Johannesburg Metropolitan Municipality (CoJMM). The Russell Stream (also referred to as the Klipspruit) is surrounded by industrial, commercial, residential and undeveloped land. The closest residential area to the project is Riverlea, the outskirt of the suburb is situated approximately 120m from the Valley silts project area.

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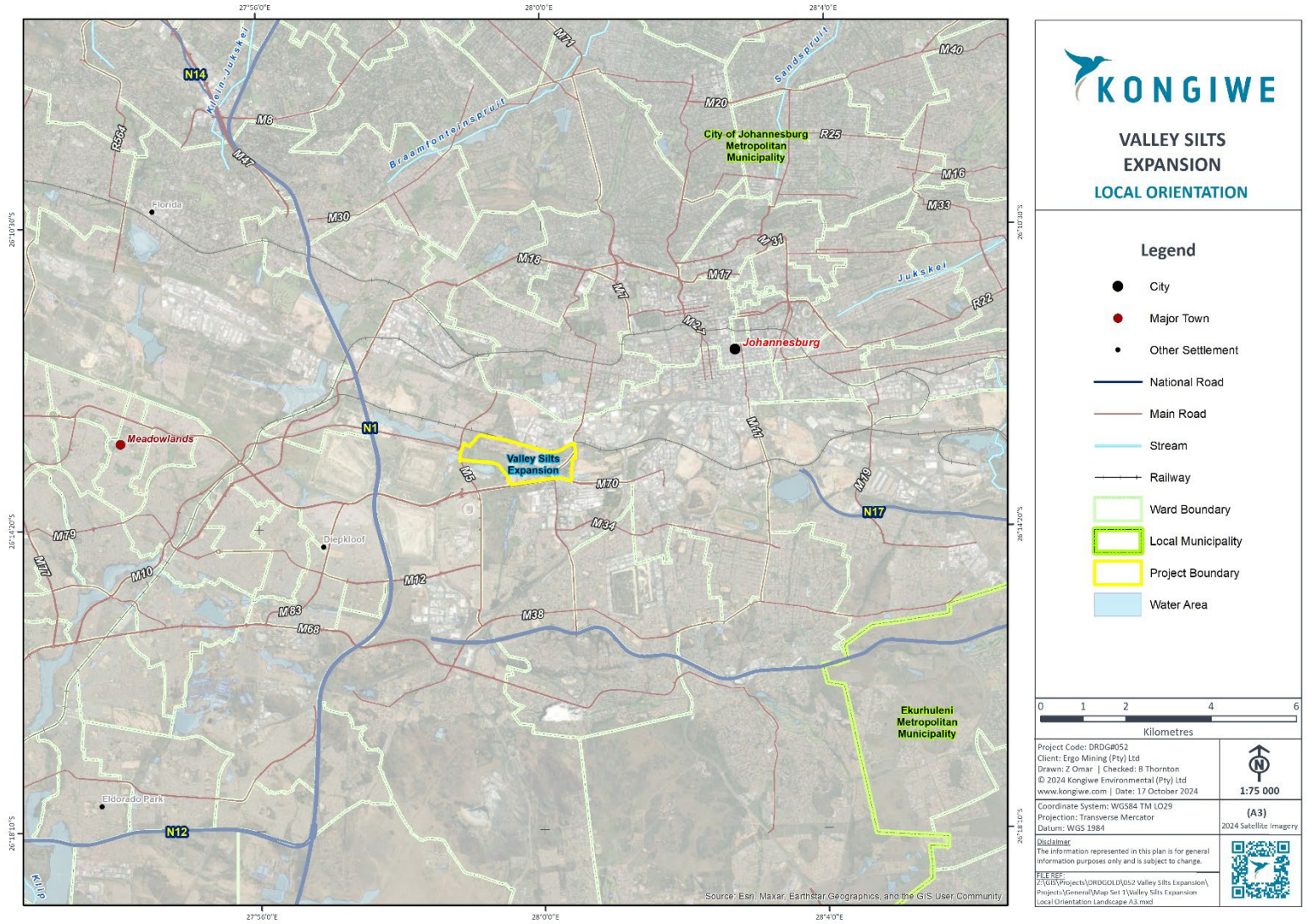


Figure 1: Project location

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Technical Details

The removal of silts within the already authorised Valley Silts Project area has been ongoing since May 2023. The construction and site establishment began in October 2022 and as such, the requirement to prepare for the Valley Eastern Expansion, Southern Expansion, and Valley Expansion Northwest is now necessary to maintain an ongoing operation, as well as a sustainable feed source to the process plant.

The Valley Silts resource has three primary sectors. The current approved reclamation area is Sector 1 and extends from the dam wall to the end of the stockpile area near Crownwood Road. The site is already established with fully fenced hard park facilities, solar powered security lights, well maintained haul roads, and site offices. Ingress/egress is fully controlled by security for all vehicles.

Sector 2 will extend from the dam wall to Nasrec Road (Blocks N1 to N20), with the remaining Blocks (Sector 3: N21 and N22) being located either side of Crownwood Road. Section 2 and 3 falls within the proposed Valley Silts Expansion Project.

The Valley Silts reclamation exceeds the delivery rate; therefore, stockpile areas are required for temporary storage on site. Stockpiled silts are moved in a sequential manner due to the moisture content, the drying process, as well as oxidation.

Gold bearing silts will be mechanically excavated from the project area. 30-ton Articulated Dump Trucks (ADT) will be used to transport and stockpile the silts from the Russell Stream. The silts will be left to dry on stockpile footprints. This is considered a “dirty” footprint. Silts will have 30% to 40% moisture content when hauled and are not expected to be fully dried out. The dried silts will be loaded onto tipper trucks and transported to the City Deep Plant for pre-processing.



Figure 2:Example of silts removal.

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Figure 3: Example of silts being transported for stockpiling



Figure 4: Example of silts which is stockpiled according to wetness. Coarse materials such as stones and rock are stockpiled and sold / donated to external parties.



Figure 5: Example of a typical hauling truck to be used for the Valley Silts Project.

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The trucks transporting the material will follow Crownwood Road until it reaches Main Reef Road and then joins the M2 East. The trucks will then follow the M2 until they reach Heidelberg Road which is followed to the City Deep Plant where it is offloaded.

The City Deep Plant is an authorised site which falls under the City Deep Mining Right: GP 185 MR and it is ideally suited for the project.

The Valley Silts Project site is already established with fully fenced hard park facilities, solar powered security lights, well maintained haul roads, and site offices. Ingress/egress is fully controlled by security for all vehicles.

Existing infrastructure to be utilised at stages during the project include:

- City Deep Plant;
- Stockpile area;
- Main haul roads;
- Existing site access roads;
- Existing pipelines;
- Electricity reticulation for domestic purposes;
- Hauling road: access roads and main roads,
- Administration buildings, including change houses and ablution facilities,
- Mechanical excavation equipment (Backhoes or Excavators);
- 30 ton Articulated Dump Trucks (ADT's);
- 30 ton Dump Trucks;

The following infrastructure is not existing and will be utilised on site:

- Drying stockpiles (8 locations);
- Stormwater control berms/paddocks;
- River crossings (8); and
- Additional site access roads;

As far as possible, existing access roads will be utilised, and where this is not possible, these will be constructed as a two-by-two roadway, operating in both directions. Where access roads are to be constructed, these will be 4m wide gravel road with storm water earth channels and mitre drains to protect the road structure from flood damage. Intersections will be properly designed to provide safe entry and exit into the reclamation area. Further to this, approvals from the provincial road's authority will be obtained where necessary.

In terms of process water, this Valley Silts Expansion project will not require any additional process water for the mechanical excavation of gold bearing silts from the Russell Stream.

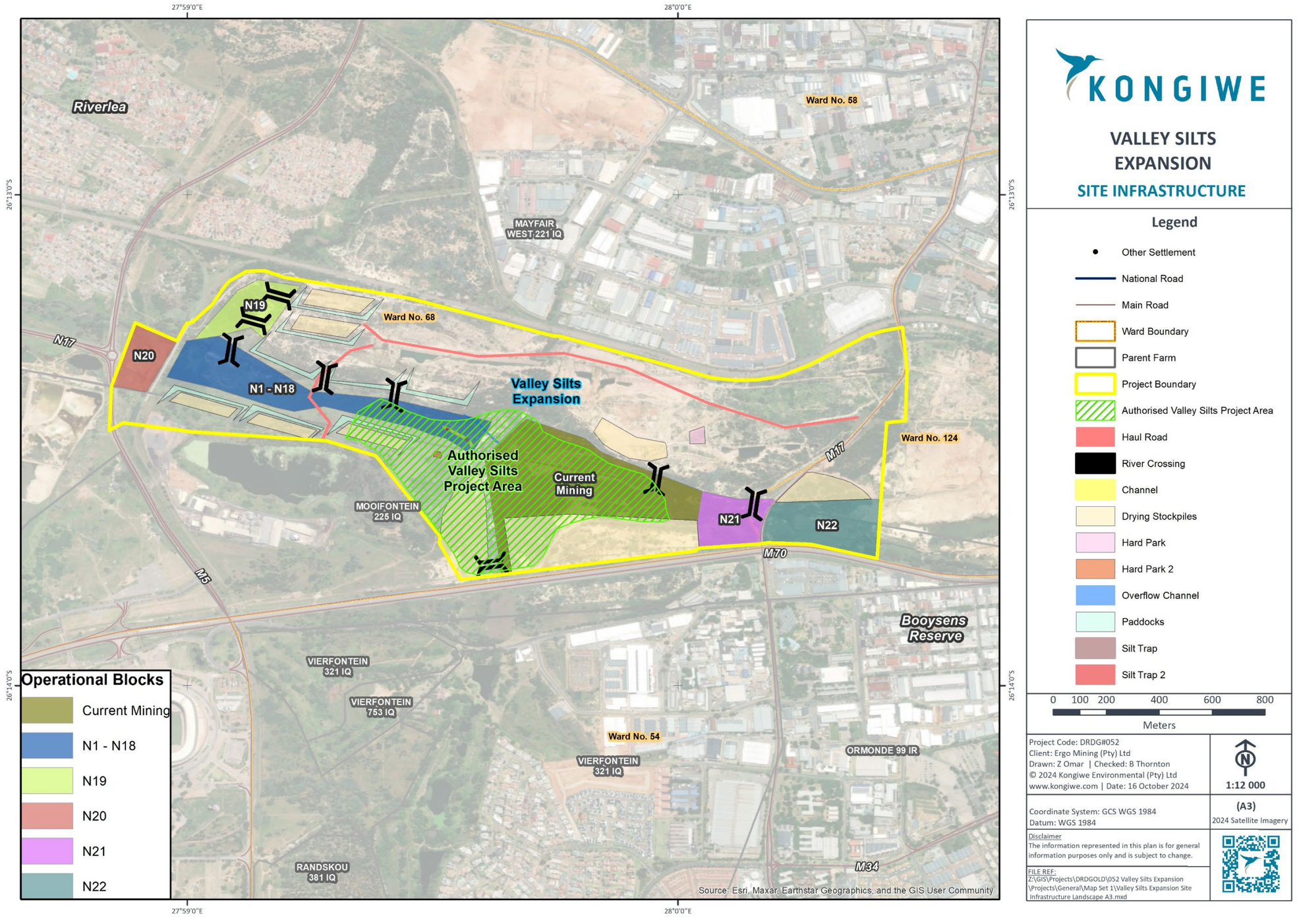


Figure 6: Project infrastructure

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The Period required for Environmental Authorisation

The anticipated period required for EA is 5 years. Silts removal is planned for three years and rehabilitation 2 years.

Project Alternatives

The Proposed Project is the expansion of the removal of silts operations from the Russel Stream. Therefore, there can be no alternative sites.

The current layout plan for the Proposed Project is considered as the preferred layout plan.

The only optional activity for Ergo is to mechanically excavate and reclaim gold bearing silts from the Russell Stream.

Table 1: The advantages and disadvantages of reclaiming gold bearing silts – Preferred

Option	Advantage	Disadvantage
Excavation and reprocessing of the gold bearing silts from the Russell Stream (Preferred)	❖ Low Risk. ❖ Low capital requirement. ❖ Not labour intensive. ❖ Minimal safety issues. ❖ Economic benefits from the reclamation of gold. ❖ Removal of pollution source after rehabilitation and cessation of project. ❖ Improvement of the natural stream functioning.	❖ Potential profits rely on substantial volumes of material required to be reclaimed and the fluctuating gold price. ❖ Potential negative environmental effects during construction and operational phase of the project. ❖ Not labour intensive, no opportunity for additional hiring of labour. ❖ Incomplete rehabilitation if not done properly. ❖ Interference during excavation and rehabilitation.

Environmental Authorisation Process

In terms of the environmental legislation, Ergo is required to undertake a Scoping and Environmental Impact Assessment (S&EIA) process which evaluates the environmental impacts associated with the Proposed Project as part of an Environmental Authorisation (EA). The S&EIA and specialist studies are being undertaken for the applications for the required approvals. The following applications are being made to the Department of Mineral Resources and Energy (DMRE) for the Proposed Project:

1. **Application for EA** for listed activities triggered in Listing Notices GN R983, GN R984 and GN R985[1] published pursuant to the EIA Regulations 2014 (as amended), promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA); and

[1] These Listing Notices have been amended by GN R327, GN R325 and GN R324 of 7 April 2017 and GN R 517 of 11 June 2021

2. **Application for a Waste Management Licence (WML)** authorising waste management activities listed in GN 921 of 29 November 2013 published in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (as amended) (NEM:WA).

In addition, the following application is being made to the relevant Competent Authority:

3. **An Integrated Water Use Licence Application (IWULA)** in terms of the National Water Act, 1998 (Act No. 36 of 1998) (NWA) will be submitted to the Department of Water and Sanitation (DWS) for any potential impact to water resources by the Proposed Project. In this regard, any objection to that application may be lodged in writing within sixty days of the date of this notice to the Minister of the DWS as provided in Section 41(4) of the NWA.

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Table 2: List of Activities to be authorised in accordance with NEMA, NEM:WA and NWA

Name of Activity	Aerial Extent of the Activity (ha)[2] Ha or m²	Applicable Listing Notice GNR 983, 984 and 985 as amended by GNR 327, GNR 325 or GNR 324	Listed Activity	Waste Management Authorisation	Water Use License Authorisation[3]
Stormwater collection point (sump)	<50 000m³				21 (c) and (i)
Mechanical excavation of gold bearing silts from the Russell Stream	54 Hectares	GNR 327 - Activity 19	The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse.	Category B, Activity 11 The establishment or reclamation of a residue stockpile or residue deposit resulting from activities which require a mining right, exploration right or production right in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).	21 (c) and (i)
		GNR 325 - Activity 4	The development and related operation of facilities or infrastructure, for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of more than 500 cubic metres.		
The clearance of vegetation within the project area for the removal of silts.	54 Hectares	GNR 325 - Activity 15	The clearance of an area of 20 hectares or more of indigenous vegetation.		21 (c) and (1)
Site preparation and earthworks which may include the clearance of indigenous vegetation from the Russell Stream	54 Hectares	GNR 325 - Activity 15	The clearance of an area of 20 hectares or more of indigenous vegetation.		21 (c) and (i)
The development of haul and site roads. The site is listed as Ecological support area and CBA: Important Area.		GN 324 - Activity 4	The development of a road wider than 4 metres with a reserve less than 13,5 metres. c. Gauteng iv. Sites identified as Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans.		21 (c) and (i)
Site preparation and earthworks which may include the clearance of indigenous vegetation from the Russell Stream	54 Hectares	GN 324 - 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. c. Gauteng ii. Within Critical Biodiversity Areas or Ecological Support Areas identified in the Gauteng Conservation Plan or bioregional plans.		21 (c) and (i)
Stormwater Collection point (sump)		GN 324 - Activity 14	The development of-		21 (c) and (i)

[2] The total area of the reclamation and associated areas is approximately 54.11 hectares.
[3] Water use licences in terms of Section 21 of that National Water Act, 1998, will be required for various of the Listed Activities.

Name of Activity	Aerial Extent of the Activity (ha)[2] Ha or m²	Applicable Listing Notice GNR 983, 984 and 985 as amended by GNR 327, GNR 325 or GNR 324	Listed Activity	Waste Management Authorisation	Water Use License Authorisation[3]
			(i) dams or weirs, where the dam or weir, including infrastructure and water surface area exceeds 10 square metres; or (ii) infrastructure or structures with a physical footprint of 10 square metres or more; where such development occurs- (a) within a watercourse; c. Gauteng iv. Sites identified as Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans.		
River crossings		GNR 327 - Activity 19	The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse.		21 (c) and (i)
Discharging stormwater from the stormwater collection point (sump) into the Russel Stream Discharging stormwater from the stormwater paddocks into the Russel Stream		GN 324 - Activity 6	The development of facilities or infrastructure for any process or activity which requires a permit or licence or an amended permit or licence in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent, excluding— (i) activities which are identified and included in Listing Notice 1 of 2014; (ii) activities which are included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies; (iii) the development of facilities or infrastructure for the treatment of effluent, polluted water, wastewater or sewage where such facilities have a daily throughput capacity of 2 000 cubic metres or less; or (iv) where the development is directly related to aquaculture facilities or infrastructure where the wastewater discharge capacity will not exceed 50 cubic metres per day.		21(f)

Name of Activity	Aerial Extent of the Activity (ha)[2] Ha or m²	Applicable Listing Notice GNR 983, 984 and 985 as amended by GNR 327, GNR 325 or GNR 324	Listed Activity	Waste Management Authorisation	Water Use License Authorisation[3]
Dust suppression		GN 324 - Activity 6	The development of facilities or infrastructure for any process or activity which requires a permit or licence or an amended permit or licence in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent, excluding— (i) activities which are identified and included in Listing Notice 1 of 2014; (ii) activities which are included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies; (iii) the development of facilities or infrastructure for the treatment of effluent, polluted water, wastewater or sewage where such facilities have a daily throughput capacity of 2 000 cubic metres or less; or (iv) where the development is directly related to aquaculture facilities or infrastructure where the wastewater discharge capacity will not exceed 50 cubic metres per day.		21 (c) and (i) 21(g)

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Environmental Considerations

The Proposed Project will adopt the standards as set out in Ergo's Environmental Policy. The Policy states that Ergo is committed to the responsible management of the environment in which it operates, adopting and implementing environmental practice as outlined in the NEMA. Recognising that the environment is held in trust for the people, the policy commits to:

- Complying with relevant environmental legislation as a minimum, and adopting and applying the best practicable environmental option with respect to current activities as well as prospective projects;
- Evaluating, through a process of monitoring, auditing and reviewing by management, the success of the management and mitigation measures applied; and
- Ensuring that environmental risks and potential emergencies are identified and managed through effective controls and procedures as identified in the applicable Environmental Management Programmes.

Key Findings of the Scoping Report

The report provides a scoping-level identification of potential environmental impacts (physical, biological and social) associated with the Proposed Project, as well as a strategy for how these impacts will be investigated and assessed further in the EIA Phase. The baseline environmental information provided in this DSR is compiled as a high-level desktop investigation, and the project information is sourced from existing background information, relevant to the Proposed Project. The preliminary environmental impacts identified in Table 2 will be further refined, calculated and assessed for all the feasible alternatives identified. Mitigation and management measures will also be suggested by the specialists for all impacts identified. The potential positive and negative impacts which may arise because of the Proposed Project have also been summarised in the Table 2 overleaf.

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Table 3: Potential identified impact because of the Proposed Project

Environmental Component	Component Type	Potential Impact	Specialist study planned for EIA
Physical Environment (non-living)	Hydrology (including wetlands, surface water and ground water) Soils	❖ Improved water quality following rehabilitation. ❖ Potential release of water containing polluted silts into the immediate environment. ❖ The mobilisation of trace metals. ❖ Rehabilitation of the Valley Silts area by shaping the areas where silt is removed and make the area free draining, appropriate species to be planted to stabilise the soil. The proposed rehabilitation, extent and viability will need to be evaluated through specialist studies during the EIA phase. ❖ Disruption of stream banks and other drainage lines during excavation activities. ❖ Positive changes to water regime of drainage features and other affected streams in terms of increased flow due to the removal of silt. ❖ Soil contamination during excavation of silts. ❖ Removal of a source of increased heavy metal concentration and increased sulphate concentration from the watercourse.	Biodiversity Impact Assessment Surface Water Impact Assessment Groundwater Impact Assessment Wetland Impact Assessment
Biological Environment (living)	Ecology and Biodiversity (including fauna and flora)	❖ Disturbance due to excavation works in the watercourse identified as a CBA and ESA according to the Gauteng C-Plan. ❖ Temporary habitat disturbance. ❖ Rehabilitation of the Valley Silts area by shaping the areas where silt is removed and make the area free draining, appropriate species to be planted to stabilise the soil. The proposed rehabilitation, extent and viability will need to be evaluated through specialist studies during the EIA phase. ❖ Temporary displacement of fauna and avifauna. ❖ Migration of species into the project area following rehabilitation of the Russell Stream. ❖ Removal of a major polluting source from the stream environment. ❖ Long-term improvement of ecosystem health and functioning of the project area following rehabilitation.	Biodiversity Impact Assessment Surface Water Impact Assessment Groundwater Impact Assessment Wetland Impact Assessment

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Environmental Component	Component Type	Potential Impact	Specialist study planned for EIA
Social and Economic Environment	Employment	❖ Continued employment and job security for vendors and contractors currently employed by Ergo Mining. ❖ Continued investment in local economy through the reclamation of gold bearing silts. ❖ Potential for limited local employment.	Socio-Economic Impact Assessment
	Land-use	❖ Rehabilitation of the Valley Silts area by shaping the areas where silt is removed and make the area free draining, appropriate species to be planted to stabilise the soil. The proposed rehabilitation, extent and viability will need to be evaluated through specialist studies during the EIA phase.	Biodiversity Impact Assessment
	Health	❖ Possible increase in dust levels where the silts will be dried and loaded onto the trucks for hauling. ❖ Health impacts due to particulate emissions and gaseous emissions during hauling. ❖ Possible dust impact from trucks on dirt roads traveling on the dirt roads. ❖ Improvement of the overall quality of the water of the Russell Stream (this includes the smell of the water, the colour of the water, the removal of silt, free flowing water). ❖ The potential for ameliorating the current flooding issues experienced in the area.	Air Quality Impact Assessment Socio-Economic Impact Assessment Surface Water Assessment Groundwater Assessment

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Overall Conclusions

At this stage, the findings of this DSR indicate that no environmental fatal flaws have been identified for the Proposed Project and its associated infrastructure. While some limitations do exist, it is anticipated that the implementation of appropriate mitigation measures would assist in reducing the significance of such impacts to acceptable levels. Impacts associated with the Proposed Project need to be considered further during the EIA Phase according to the Way Forward and the Plan of Study contained in this report.

It is important to take note of that Proposed Project is both a reclamation and rehabilitation project. Presently, the removal of silts within the already authorised Valley Silts Project area has been ongoing since May 2023. The construction and site establishment began in October 2022 and as such, the requirement to prepare for the Valley Eastern Expansion, Southern Expansion, and Valley Expansion Northwest is now necessary to maintain an efficient reclamation operation, as well as a sustainable feed source to the process plant whilst potentially improving the water flow dynamics within the Russell stream, which could assist in ameliorating current flooding issues experienced in the area of Riverlea and the surroundings. After removal of the silts from the target areas, Ergo aims to rehabilitate the target areas within the Valley area by shaping the areas where silts was removed and make the area free draining. Thereafter, appropriate species will be planted to stabilise the soil.

Further to this, during heavy rainfall events, the siltation of the Russell Stream causes periodic flooding of the area, which in turn results in damages to infrastructure and houses of the community of Riverlea and Booysens Reserve. The continual removal of the silts will assist with the alleviation of these impacts and help restore the natural element and ecological functioning of the Russell Stream.

According to the Way Forward and the Plan of Study, contained in this report, impacts associated with the Proposed Project need to be considered further during the EIA Phase. It is important to take note of the current conditions of the Proposed Project area and the sensitive environment around it.

Way Forward

This DSR has been undertaken with the aim of identifying potential positive and negative impacts on the environment and gathering comments on concerns and queries from stakeholders. It documents the process followed, the findings and recommendations of the Scoping Phase study, and the proposed Plan of Study for the EIA Phase to follow. The overarching objectives of the EIA process will be to:

- Prepare integrated sensitivity maps for the study area based on the findings of specialist assessments as input into the project design process;
- Identify and assess the significance of potential impacts associated with the project activities; and
- Recommend mitigation and enhancement measures to ensure that the development is undertaken in such a way as to promote the positive impacts and to minimise the negative

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impacts.

The procedure for this study going forward is as follows:

- Submit the finalised Scoping Report to the DMRE for permission to undertake the EIA Phase of the project;
- Upon the decision to grant or refuse the final Scoping Report, all stakeholders will be notified. If granted, stakeholders will also be notified of the conditions of the DMRE for proceeding with the EIA Phase of the project;
- In the case of approval of the final scoping, execute the Plan of Study for the Impact Assessment during the EIA Phase of the project;
- Incorporate and address comments and issues raised during the consultation period on the Scoping Report into the EIA, and make changes to the report where relevant;
- Make the EIA Report and Environmental Management Programme report (EMPr) available to the public, stakeholders and authorities;
- Finalise the EIA Report and submit the final EIA Report to the DMRE; and
- DMRE review period and decision-making for 107 calendar days.

Specialist Studies

Various specialist studies are being undertaken as part of the S&EIA/IWULA process to assess the potential impacts associated with the proposed project. Specialist studies being undertaken include:

- Biodiversity and Wetlands
- Surface Water
- Groundwater
- Air Quality
- Noise
- Socio-Economic Impact Assessment
- Visual
- Closure & Rehabilitation
- Heritage
- Traffic

Glossary

Environmental Assessment Practitioner (EAP): An Environmental Assessment Practitioner (EAP) is someone who co-ordinates, manages and integrates the various components of environmental assessment throughout the planning process ;has received an appropriate interdisciplinary training covering both the natural and human environment; has experience in environmental management, environmental assessment and related studies; and demonstrates core competencies that are considered essential to the environmental assessment profession.

Environmental Impact Assessment (EIA): Environmental Impact Assessment (EIA) is a tool used to assess the significant effects of a project or development proposal on the environment. EIAs make sure that project decision makers think about the likely effects on the environment at the earliest possible time and aim to avoid, reduce or offset those effects. This ensures that proposals are understood properly before decisions are made.

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Environmental Management Programme (EMPr): The EMPr is a detailed plan for the implementation of the mitigation measures to minimise negative environmental impacts during the project life-cycle.

Scoping Report: The Scoping Report describes the proposed project and identifies the possible impacts of the proposed development.

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Appendix C4: Newspaper Advertisement

INDEPENDENT MEDIA

CLASSIFIEDS

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DOMESTICS	001 - 024	LEISURE	160	PROPERTY	425 - 438
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fax | 031 308 2555
email | kzn.classifieds@inl.co.za

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fax | 011 836 0904
email | star.classifieds@inl.co.za
pta.classifieds@inl.co.za

071 PETS

WOODROCK ANIMAL RESCUE

in Gauteng cares for vulnerable dogs and cats in informal settlements, providing sustenance, hope, and healing. In 2023, they successfully nurtured over 3,500 animals through enlightenment and sterilization efforts, highlighting their strong community support. Their nourishment initiative ensures the well-being of these animals, and they seek the goodwill of supporters to continue their mission, expressing deep gratitude for any assistance.

WOODROCK ANIMAL RESCUE/ FIRST NATIONAL BANK/ ACC NUMBER: 62463902299/ BRANCH CODE: 254005/ CHEQUE ACCOUNT. REF: your name.
Explore our charming animals ready for adoption:
· Fluffy and adorable kittens and cats are in search of a loving home. Contact Zee at 061 230 0844 for adoption inquiries.
·PUPPIES: We offer a selection of charming puppies, predominantly mixed breeds, eagerly awaiting their forever families. Don't pass up the opportunity to bring home these lovely companions! Reach out at 082 925 3133 to inquire about adoption.
Cara: I was picked up in a field, and WAR has given me a bed to sleep in and food to eat. I really need a home where I can be loved and appreciated. I am a very shy girl and will need extra love.
To adopt, call 082 682 7262.
Valley : I was in an MVA. I had a pelvic reconstruction. Now I have 2 plates in my hips and a pin in my leg holding my femur together. Although I have been through so much, I am still a fun and active doggie. I am full of energy, and I long to live.
To adopt, call 082 682 7262.
Mack: I am an older boy looking for my forever home where I can have the opportunity to relax and live out my years without any worries.
To adopt, call 082 682 7262.
Chloe: I am a spunky little 2-year-old who loves affection! If I don't get your devoted love and attention, I will run around and get your attention! All eyes must be on me! I am looking for a special home that will adore me, as my owner had to surrender me as she needs to travel the world for work and not all countries allow me to visit.
To adopt, call 082 682 7262.
Woodrock is currently experiencing a considerable shortage of cat food, kitten food, dog food, puppy food, and puppy milk, which is affecting our ability to manage veterinary costs. If you can offer assistance, please reach out to Stella at 060 806 7438. Let's keep in mind the steadfast love that dogs give us and respond with equal compassion.

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009 JEWISH COMMUNITY NOTICES

BIENNIAL GENERAL MEETINGS CHEVRAH KADISHA GROUP

JOHANNESBURG JEWISH HELPING HAND & BURIAL SOCIETY
(CHEVRAH KADISHA)
JEWISH COMMUNITY SERVICES
SANDRINGHAM GARDENS
OUR PARENTS HOME
ARCADIA JEWISH CHILD AND YOUTH CARE CENTRE
THE SOCIETY FOR THE JEWISH HANDICAPPED
(SELWYN SEGAL)
KADIMAH OCCUPATIONAL CENTRE
THE SOCIETY FOR THE JEWISH DEAF

All members of the above societies are cordially invited to attend the
Biennial General Meetings
of these organisations to be held
Thursday, 14th November 2024 at 15h00
BOOKINGS ARE ESSENTIAL
R.S.V.P chevrahgroup@jhbchev.co.za
ACM/283929

191 ADULT ENTERTAINMENT



700 LEGALS

703 COURT ORDERS

KP MATHYE INCORPORATED
KPM Inc
ATTORNEYS | CONVEYANCERS | NOTARIES

CASE NO:

IN THE HIGH COURT OF SOUTH AFRICA (GAUTENG DIVISION. PRETORIA)

In the ex-parte matter between:

MABOTJA JOHANNA TUMELO (ID Number: 800605 1504 08 1)
First Applicant

MABOTJA TLOU WILLIAM (ID Number: 800427 5660 08 6)
Second Applicant

NOTICE OF MOTION APPLICATION IN TERMS OF SECTION 21(1) OF THE MATRIMONIAL PROPERTY ACT NO. 88 OF 1984

BE PLEASED TO TAKE NOTICE that an application will be made on behalf of the above-named Applicants on the **11TH NOVEMBER 2024** at **10H00**, or so soon thereafter as counsel may be heard or an order in the following terms:

1. That leave be granted to the applicants to change their matrimonial property system from a marriage in community of property to a marriage out of community of property with the exclusion of the accrual system in terms of Section 21(1) of the Matrimonial Property Act, Act Number 88 of 1984.

2. That the Register of Deeds, Pretoria, be authorized to register a prenuptial contract concluded between the parties, a copy of which is attached and marked as Annexure **"JTM1"**, hereto within three (3) months of the date of granting of this order.

3. That the marriage entered into between the first and the second Applicants on 21 July 2017 shall, from the date of registration of the said Notarial Contract, be governed by the terms of the Notarial Contract.

4. That the rights of the existing creditors of the joint estate be preserved; and

5. That the Applicants be granted further and/or alternative relief as the Honorable Court deems fit.

TAKE NOTICE FURTHER that the affidavit of **JOHANNA TUMELO MABOTJA** and annexures attached hereto will be used in support thereof.

Kindly enroll the matter for hearing accordingly.

KP MATHYE INC. ATTORNEYS
APPLICANTS' ATTORNEYS
SUITE 209-210
BANK TOWERS BUILDING
190 THABO SEHUME
PRETORIA
TEL: (010) 786 0532
FAX: 086 568 4357
E-MAIL: info@kpmathyeinc.co.za
REF: MABOTJA/TJ/10/24

TO: THE REGISTRAR OF THE HONOURABLE COURT, PRETORIA

AND TO:
THE REGISTRAR OF DEEDS
Merino Building
140 Pretorius Street
corner Bosman Street
Pretoria
0001

009 JEWISH COMMUNITY NOTICES

191 ADULT ENTERTAINMENT

700 LEGALS

704 CREDITORS/ DEBTORS

MANDERE M.

ESTATE OF THE LATE

MARGARET MANDERE, Date of Birth: 26/05/1961, Identity Number: 610526 0652 08 7, Marital Status: UNMARRIED, Last Address: 105 MIDDLE STREET, BRENTWOOD PARK, KEMPTON PARK, GAUTENG PROVINCE, Estate Number: 23889/2024 (JOHANNESBURG MASTERS OFFICE), Date of Death: 13 JUNE 2024
CREDITORS AND DEBTORS in the aforementioned estate are hereby requested to lodge their claims at the below mentioned Administrator within the 30 day period from the date of this notice.
SABELO Z.M. SIBIYA
EXECUTOR
C/O AGENT:
SM SIBIYA INC.
102L NORTH WING
SANDTON OFFICE CLUB
WOODMEAD OFFICE PARK
28 SADDLE DRIVE
WOODMEAD, SANDTON
JOHANNESBURG, 2091
E-MAIL: matt@smsibiyalegal.co.za

710 LIQUOR ACT

ESA Inc
EMIL SCHEEPERS ATTORNEYS

DIE AFRIKANER

Notice of intention to apply for a Liquor License Gauteng Liquor Act

Notice is hereby given that it is the intention of the person whose details are set out below to lodge an application for a Pub Liquor Licence with the secretary of the local committee of Tshwane Regional Liquor Licensing Office on FRIDAY the 1st day of November 2024.
1. FULL NAME: Die Afrikaner JHH (Pty) Ltd
2. INTENDED TRADING NAME: Die Afrikaner
3. REGISTRATION NUMBER: 2024/446362/07
4. FULL ADDRESS AND LOCATION OF THE PROPOSED PREMISES: Shop Reg 1, Ground Floor, Centurion Mall Office Building On Erf 88 at 1269 Gordon Hood Avenue, Centurion
5. TYPE OF LICENCE APPLIED FOR: Pub Liquor Licence
6. NAMES AND NATURE OF EDUCATIONAL INSTITUTIONS WITHIN A RADIUS OF 1KM FROM THE PROPOSED PREMISES: Richfield Centurion Campus
7. NAMES AND DISTANCES TO SIMILAR LICENSED PREMISES WITHIN A RADIUS OF 1KM FROM THE PROPOSED PREMISES: None (to the best of the applicant's knowledge)
8. PLACES OF WORSHIP WITHIN A RADIUS OF 1KM FROM THE PROPOSED PREMISES: None (to the best of the applicant's knowledge)
9. IN TERMS OF SECTION 25 ANY PERSON MAY LODGE AN OBJECTION TO GRANTING OF THE LICENCE WITHIN 21 DAYS FROM DATE OF PUBLICATION HEREOF.

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710 LIQUOR ACT

De Deluxe
GAUTENG LIQUOR ACT ,2003 (Act no 2 of 2003) NOTICE OF APPLICATION IN TERMS OF SECTION 24

Notice is given for liquor license off consumption to Secretary of the local committee of Johannesburg 2nd floor main street Johannesburg on 30 October 2024.with intended trading name De Deluxe at 9363 stretford extension 6 Orange Farm 1841 by Nokuthula Lucia Mashinini ID 8702280628.
Name of educational institutions within 1 kilometer radius: N/A
Places of worship within 1 Kilometer radius: N/A
Distance for places with similar licenses: N/A
Advertiser name:
Nokuthula Mashinini, thulimashinini 64@gmail.com
082 669 3435

711 LOST DEED

FORM JJJ

LOST OR DESTROYED DEED

Notice is hereby given in terms of Regulation 68 of the Deeds Registries Act, 1937, of the intention to apply for the issue of a certified copy of Deed of Transfer No. **T6123/2008 passed by GAUTENG PROVINCIAL HOUSING DEVELOPMENT BOARD in favour of Estate of the Late DULARIE MAANBRIDGE LUTCHMAN, Estate Number 19809/2006 in respect of certain ERF 9870 LENASIA EXTENSION 11 TOWNSHIP REGISTRATION DIVISION I.Q. PROVINCE OF GAUTENG MEASURING 325 (THREE HUNDRED AND TWENTY FIVE) Square Metres HELD BY Deed of Transfer Number T6123/2008** which has been lost or destroyed.
All persons having objection to the issue of such copy are hereby required to lodge the same in writing with the Registrar of Deeds at JOHANNESBURG within two weeks from the date of the publication of this notice.
Dated at LENASIA on this the 17 OCTOBER 2024

COOVADIA ATTORNEYS
175 PROTEA AVENUE
TEL: 011 852 4900
LENASIA

711 LOST DEED

FORM JJJ

LOST OR DESTROYED DEED

Notice is hereby given in terms of Regulation 68 of the Deeds Registries Act, 1937, of the intention to apply for the issue of a certified copy of **Deed of Transfer Number T39305/1996**, passed by **HELENA CATHARINA BESLAAR, Identiteitsnommer: 210421 0004 006, ongetroud**, in favour of **DAVID STEFANUS JACOBS VAN HEERDEN, Identiteitsnommer: 500622 5098 005 and GERTRUIDA CAROLINA VAN HEERDEN, Identiteitsnommer: 510802 0076 002, getroud binne gemeenskap van goed met mekaar**, in respect of certain **GEDEELTE 30 ('n gedeelte van Gedeelte 13) van die Plaas LEEUWPOORT 356, Registrasie Afdeling I Q, Provinsie Noordwes, GROOT 40,2228 (VEERTIG komma TWEE TWEE TWEE AGT) hektaar**, which has been lost or destroyed.
All interested persons having objection to the issue of such copy are hereby required to lodge the same in writing with the Registrar of Deeds at Pretoria, 600 Lilian Ngoyi Street, Pretoria Central, Pretoria, 0002, within two weeks from the date of publication of this notice.
Applicant:
Ngcobo SN Inc.
Address:
18 Badenhorst Road
E-mail Address:
bonga@nsninc.co.za
Contact Number:
067 615 1739

711 LOST DEED

FORM JJJ

LOST OR DESTROYED DEED

Notice is hereby given in terms of Regulation 68 of the Deeds Registries Act, 1937, of the intention to apply for the issue of a certified copy of **Deed of Transfer No. ST9738/1997**, passed by **NORTH RAND INVESTMENTS HOLDINGS (PROPRIETARY) LIMITED, (Registration Number: 1971/07842/07)**, in favour of **FRUTUOSO PIRES DA CRUZ, Identity Number: 320107 5027 10 3 and JEAN ROSELINE DA CRUZ, Identity Number: 381218 0106 00 2, Married in community of Property to each other**, in respect of certain: A Unit consisting of -
(a) **Section Number 10** as shown and more fully described on **Sectional Plan Number SS36/1997** in the scheme known as **RICHGROVE** in respect of the land and building or buildings situate at **EDEN GLEN EXTENSION 58 Township, LOCAL AUTHORITY NORTH EAST RAND TRANSITIONAL METROPOLITAN COUNCIL (EDENVALE / MODDERFONTEIN METROPOLITAN SUBSTRUCTURE)** of which section the floor area, according to the said Sectional Plan is 38 (THIRTY-EIGHT) square metres in extent; and
(b) An undivided share in the common property in the scheme apportioned to the said section in accordance with the participation quota as endorsed on the said sectional plan, HELD BY **Deed of Transfer Number ST9738/1997**.
All interested persons having objection to the issue of such copy are hereby required to lodge the same in writing with the Registrar of Deeds at Johannesburg, situated at Deeds Office information Section, Mezzanine Floor, 208-212 Marble Towers Building, c/n Von Weilligh and Pitchard Street, Johannesburg, within two weeks from the date of publication of this notice.
APPLICANT:
WILSENACH VAN WYK ATTORNEYS INC.
ADDRESS:
80 1ST AVENUE
LINDEN EXT
JOHANNESBURG, 2195
E-MAIL ADDRESS:
danie@wvw.co.za
TEL: 011 888 2554

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0860 115 115

711 LOST DEED

FORM JJJ

LOST OR DESTROYED DEED

Notice is hereby given in terms of Regulation 68 of the deeds registries act, 1937, of the intention to apply for the issue of a certified copy of **Certificate of Consolidated Title T2429/2002**, passed by City of Tshwane Metropolitan Municipality, who is the registered owner of all the properties held under Certificate of Consolidated Title T2429/2002, which has been lost or destroyed.
All persons having objection to the issue of such copy are hereby required to lodge the same in writing with the Registrar of Deeds at Pretoria Office Information Section, two weeks within the date of publication of this notice.
Dated at PRETORIA on 11 OCTOBER 2024
SELEBOGO INCORPORATED
84 HENRY SHERE
PRETORIA EAST
E-MAIL:
maria@selebogoinc.co.za
CONTACT:
012 786 0968

LOST OR DESTROYED DEED

Notice is hereby given in terms of regulation 68 of the Deeds Registries Act, 1937; of the intension to apply for the issue of a certified copy of Deed of Transfer Number **T62374/1994**
Passed by:
INTHIRAN SOOBRAMONEY Identity Number 560110 5130 05 8
and
SARASVATHIE SOOBRAMONEY Identity Number 630429 0103 05 0
Married in community of property to each other
in favour of:
SOOBRAMONEY CHINSAMY Identity Number 590820 5221 05 3
and
DEENASEGARI CHINSAMY Identity Number 690106 0131 08 6
Married in community of property to each other
in respect of certain ERF 8922 LENASIA EXTENSION 10 TOWNSHIP REGISTRATION DIVISION I.Q. THE PROVINCE OF GAUTENG MEASURING 650 (SIX HUNDRED AND FIFTY) Square metres HELD BY DEED OF TRANSFER NUMBER T62374/1994 which has been lost or destroyed.
All persons having objection to the issue of such copy are hereby required to lodge the same in writing with the Registrar of Deeds at JOHANNESBURG within two weeks after the date of publication of this notice.

711 LOST DEED

LOST OR DESTROYED DEED

Notice is hereby given in terms of Regulation 68 of the Deeds Registries Act, 1937, of the intention to apply for the issue of a certified copy of Title Deed No. T25485/2010 passed by the REGISTRAR OF DEED at JOHANNESBURG in favour of **PETERGLEN PROPERTY INVESTMENTS CC**,
Registration Number 1994/007630/23 which has been lost or destroyed, in respect of -

ERF 664 LANSERIA EXTENSION 46 TOWNSHIP
REGISTRATION DIVISION JQ, PROVINCE OF GAUTENG

MEASURING 3780 (THREE THOUSAND SEVEN HUNDRED AND EIGHTY) Square metres

HELD BY Deed of Transfer Number T25485/2010

All interested persons having objection to the issue of such copy are hereby required to lodge the same in writing with the Registrar of Deed at Johannesburg within two weeks from the date of publication of this notice.

711 LOST DEED

LOST OR DESTROYED DEED

Notice is hereby given under the provisions of Section 38 of the Deeds Registries Act, 47 of 1937, that I, the Registrar of Deeds at Johannesburg, intend to issue a Certificate of Registered Title in lieu of **Certificate of Registered Sectional Title ST251/2007 (15) (Unit)** (hereinafter "the Deed") dated 21 September 2007, in favour of **MASSICETI CONSTRUCTION CC**, which has changed its name to **MASSICON CC, Registration Number: 2000/013674/23**, in respect of a unit consisting of -
(a) **Section Number 15**, as shown and more fully described on the **Sectional Plan Number SS251/2007** in the scheme known as **EASTBRIDGE (OFF KLOOF)** in respect of the land and building or buildings situated at **ORIEL TOWNSHIP: LOCAL AUTHORITY - CITY OF EKURHULENI METROPOLITAN MUNICIPALITY**, of which section the floor area, according to the said Sectional Plan is 152 (one hundred and fifty two) in extent; and
(b) an undivided share in and to the common property in the scheme apportioned to the said section in accordance with the participation quota as endorsed on the said sectional plan, Held by **Certificate of Registered Sectional Title ST251/2007 (15) (Unit)**, which has been lost or destroyed.
All persons having objection to the issue of such Certificate of Registered Title are hereby required to lodge the same in writing with the Registrar of Deeds at JOHANNESBURG, corner Von Wielligh Street & Jeppe Street, Johannesburg, 2001, within a period of 6 (six) weeks after the date of the first publication in the Government Gazette.
REGISTRAR OF DEEDS
JOHANNESBURG

711 LOST DEED

LOST OR DESTROYED DEED

Notice is hereby given under the provisions of Section 38 of the Deeds Registries Act, 47 of 1937, that I, the Registrar of Deeds at Johannesburg, intend to issue a Certificate of Registered Title in lieu of **Certificate of Registered Sectional Title ST251/2007 (8) (Unit)** (hereinafter "the Deed") dated 21 September 2007, in favour of **MASSICETI CONSTRUCTION CC**, which has changed its name to **MASSICON CC, Registration Number: 2000/013674/23**, in respect of a unit consisting of -
(a) **Section Number 8**, as shown and more fully described on the **Sectional Plan Number SS251/2007** in the scheme known as **EASTBRIDGE (OFF KLOOF)** in respect of the land and building or buildings situated at **ORIEL TOWNSHIP: LOCAL AUTHORITY - CITY OF EKURHULENI METROPOLITAN MUNICIPALITY**, of which section the floor area, according to the said Sectional Plan is 135 (one hundred and thirty five) square metres in extent; and
(b) an undivided share in and to the common property in the scheme apportioned to the said section in accordance with the participation quota as endorsed on the said sectional plan, Held by **Certificate of Registered Sectional Title ST251/2007 (8) (Unit)**, which has been lost or destroyed.
All persons having objection to the issue of such Certificate of Registered Title are hereby required to lodge the same in writing with the Registrar of Deeds at JOHANNESBURG, corner Von Wielligh Street & Jeppe Street, Johannesburg, 2001, within a period of 6 (six) weeks after the date of the first publication in the Government Gazette.
REGISTRAR OF DEEDS JOHANNESBURG

715 SALE IN EXECUTION

IN THE HIGH COURT OF SOUTH AFRICA

GAUTENG DIVISION

PRETORIA

In the matters between:

PLAINTIFF

K C MAKGOBA CASE NO: 39266/19

M N SIBEKO CASE NO: 80804/18

C B MTHETHWA CASE NO: 56903/18

B L MAHLADISHA CASE NO: 92080/15

T GONYO CASE NO: 54979/19

M S MAGUBANE CASE NO: 87139/19

T J NKUNA CASE NO: 28329/18

G T NKADIMENG CASE NO: 44409/18

M N NTSHAQA CASE NO: 80810/18

M W KGADITSE CASE NO: 48023/16

J J MNGAMBI CASE NO: 62983/20

M S MABUYA CASE NO: 79106/17

P H SWANA CASE NO: 68610/18

W M NKADIMENG CASE NO: 44402/18

K B THEMBA CASE NO: 2554/15

B MTHEMBU CASE NO:54975/19

R A MALAPILE CASE NO: 24811/17

D NHANTUMBO CASE NO: 16597/19

C S LANGA CASE NO: 54976/19

D J MOKGABUDI CASE NO: 64342/17

J MAGWANDA CASE NO:79101/17

H MARIMBA CASE NO: 54977/19

M F MMOYANE obo MINORS CASE NO:56489/15

A N DIKOBO CASE NO: 92083/15

T P MASHEGO obo M N MOTAU CASE NO: 11768/16

G NCUBE CASE NO: 80830/18

I S NQOKO CASE NO: 54980/19

P H SWANA CASE NO: 68610/18

D R DITSHEGO CASE NO: 75466/17

N S ZWANE CASE NO:94922/16

A A APRIL CASE NO:16593/19

V S NKOSI CASE NO:61424/15

J N SHABANGU obo N CASE NO: 16607/19

M A MALOPE CASE NO: 11762/16

M P KABINDE CASE NO:10316/18

P NEL CASE NO: 64240/16

T M MAKUBA CASE NO:45462/16

R BALOYI CASE NO: 76403/17

G O MOGWASI CASE NO: 42076/18

P J GWEBU CASE NO: 98999/15

N ZINGENI CASE NO: 56467/15

S M MATIBIDI CASE NO:44407/18

P K MNGUNI CASE NO: 69337/17

M L SHABA CASE NO: 82473/14

E V SIBANYONI CASE NO: 80808/18

T G NETSHIRANDO CASE NO: 28262/18

M F TALANE CASE NO: 84161/15

J N SHABANGU CASE NO: 62538/18

V MUCHANGA CASE NO: 16603/19

A G MBELE CASE NO: 80829/18

P L MOKGABUDI CASE NO: 56903/18

M DE BEER CASE NO: 75515/19

M C DITSHEGO CASE NO: 89155/16

F PHAHLAMOHLAKA CASE NO: 69345/17

M M J MAHLANYA CASE NO: 94918/16

P K NDLOVU CASE NO:56765/17

AND

ROAD ACCIDENT FUND (DEFENDANT)

NOTICE OF SALE IN EXECUTION

IN PERSUANCE of a JUDGMENT of the abovementioned Court and a Writ for Execution the following property will be sold in execution on the **12th day of November 2024 at 12h00 at 38 Ida Street, Menlopark, by the Sheriff of the High Court Pretoria East** to the highest bidder:

Fan 10
Bar Fridge 5
Plastic chairs 100
Fridge 2
Portable Airconditioner 1
Conference Tables small 6
Trolley 4
Office Chairs 100
1 Piece Couch 2
Cabinets 3 drawers 4
2-Piece Couches 2
Cabinets 4 drawers 4
4 Piece couch 1
Display cabinets 10
Safe 1
Lockers 10
Coat Hanger 5
Desks - brown 50
Room dividers 30
White tables 10
Table Dividers 50
White board 5
Cement Garden Table 2
Stepladder 2
Cement Garden Benches 4
Washing machine 1
Credenza 4
Water fountain 1
TV 2
Generators small 2
Round Tables 6
Garden tables (concrete) 2
Overhead Projector 1
Garden chairs (concrete) 4
Paper Shredder 4
Garden pots with plants 5
Microwave Oven 5
Garden chairs (steel) 10

DATED AT PRETORIA ON THIS THE 17TH DAY OF OCTOBER 2024.

J M MODIBA ATTORNEYS
PLAINTIFF'S ATTORNEYS
SUITE326, 3RD FLOOR
STANDARD BANK CHAMBERS
236 PAUL KRUGER STREET
CHURCH SQUARE
PRETORIA
P.O. BOX 13055
THE TRAMSHED
0126
TEL: [012] 323-2577
FAX: [012] 323-1131
REF: MR MODIBA

715 SALE IN EXECUTION

HIGH COURT OF SOUTH AFRICA

GAUTENG DIVISION

PRETORIA

Plaintiffs:

ETEKANYENG JOHN MICHEL 10484/2008

THOKO JOYCE ZIKHALI 13691/2019

CLENTON MOGAPI 40524/2020

LIZL SMITH (N.O.) OBO THABO MTHETHWA 27683/2021

TSAKANI AUDREY MANGANYE OBO AMT KUBUKELI 18237/2020

And

Road Accident Fund (Defendant)

NOTICE OF SALE: MOVABLE ASSETS

IN PERSUANCE of a JUDGMENT of the abovementioned Court and a Writ for Execution the following property will be sold in execution on the **12 November 2024 at 12h00 at 38 Ida Street, Menlopark, Pretoria**, by the Sheriff of the High Court Pretoria East to the highest bidder:

Fan 10
Bar Fridge 5
Plastic chairs 100
Fridge 2
Portable Airconditioner 1
Conference Tables small 6
Trolley 4
Office Chairs 100
1 Piece Couch 2
Cabinets 3 drawers 4
2-Piece Couches 2
Cabinets 4 drawers 4
4 Piece couch 1
Display cabinets 10
Safe 1
Lockers 10
Coat Hanger 5
Desks - brown 50
Room dividers 30
White tables 10
Table Dividers 50
White board 5
Cement Garden Table 2
Stepladder 2
Cement Garden Benches 4
Washing machine 1
Credenza 4
Water fountain 1
TV 2
Generators small 2
Round Tables 6
Garden tables (concrete) 2
Overhead Projector 1
Garden chairs (concrete) 4
Paper Shredder 4
Garden pots with plants 5
Microwave Oven 5
Garden chairs (steel) 10

Dated at EMMARENTIA on this the 16TH day of OCTOBER 2024

RENIER VAN RENSBURG INC
ATTORNEY FOR PLAINTIFFS:
Address: 57 Hill Road
Corner Judith Road
Emmarentia
Phone: 011 646 6888
Email: sue@renierslaw.co.za

715 SALE IN EXECUTION



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715 SALE IN EXECUTION

CASE NO: 1582/2021

HIGH COURT OF SOUTH AFRICA

GAUTENG DIVISION

PRETORIA

Plaintiffs:

LIZL SMITH (N.O.) OBO SMART PARADZAI (Plaintiff)

And

Road Accident Fund (Defendant)

NOTICE OF SALE: MOVABLE ASSETS

IN PERSUANCE of a JUDGMENT of the abovementioned Court and a Writ for Execution the following property will be sold in execution on the **12 November 2024 at 12h00 at 38 Ida Street, Menlopark, Pretoria**, by the Sheriff of the High Court Pretoria East to the highest bidder:

Fan 10
Bar Fridge 5
Plastic chairs 100
Fridge 2
Portable Airconditioner 1
Conference Tables small 6
Trolley 4
Office Chairs 100
1 Piece Couch 2
Cabinets 3 drawers 4
2-Piece Couches 2
Cabinets 4 drawers 4
4 Piece couch 1
Display cabinets 10
Safe 1
Lockers 10
Coat Hanger 5
Desks - brown 50
Room dividers 30
White tables 10
Table Dividers 50
White board 5
Cement Garden Table 2
Stepladder 2
Cement Garden Benches 4
Washing machine 1
Credenza 4
Water fountain 1
TV 2
Generators small 2
Round Tables 6
Garden tables (concrete) 2
Overhead Projector 1
Garden chairs (concrete) 4
Paper Shredder 4
Garden pots with plants 5
Microwave Oven 5
Garden chairs (steel) 10

Dated at EMMARENTIA on this the 16TH day of OCTOBER 2024

RENIER VAN RENSBURG INC
ATTORNEY FOR PLAINTIFFS:
Address: 57 Hill Road
Corner Judith Road
Emmarentia
Phone: 011 646 6888
Email: sue@renierslaw.co.za

715 SALE IN EXECUTION

IN THE HIGH COURT OF SOUTH AFRICA (GAUTENG LOCAL DIVISION, PRETORIA)

CASE NO 89111/2015
In the matter between:

TIYANI THEODORE MABOYA PLAINTIFF

And

MINISTER OF POLICE DEFENDANT

NOTICE OF SALE IN EXECUTION- MOVABLE PROPERTIES

IN PERSUANCE of a judgment obtained in the above mentioned court of PRETORIA and a warrant of execution dated the 28th day of August 2024 issued by the Registrar of the court of Pretoria, the goods listed hereunder will be sold in execution to the highest bidder at the 7th FLOOR WACHTHUIS 231 PRETORIUS STREET, PRETORIA on the 13th of NOVEMBER 2024 at 11:00 in terms of RULE 46 of the High Court Rules.

GOODS TO BE SOLD:
100 X LAPTOPS
150 X PRINTERS
100 X OSSORTED COMPUTERS

TERMS:
CASH

SIGNED AT MIDRAND ON THIS THE 22ND DAY OF OCTOBER 2024.

DH GOLELE ATTORNEYS (APPLICANT'S ATTORNEYS)
55 Richards Drive
HRM Building
Halfway House
Midrand, 1685
Tel: (011) 254 9160
Cell: 078 787 4198
Email: **info@dhgoleleattorneys.co.za**
Ref: Ms. Golele/CIV20/4

Whether you are looking or selling a flat, cosy cottage or a house see the classifieds.
To advertise phone
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715 SALE IN EXECUTION

Case No: 2024-020219

NOTICE

IN THE HIGH COURT OF SOUTH AFRICA, GAUTENG DIVISION, JOHANNESBURG

In the matter between:

MANNIKIN CLOSE BODY CORPORATE
Execution Creditor

- and -

ANTHONY ZOLILE BUYAPHI
First Execution Debtor

- and -

LITA BUYAPHI
Second Execution Debtor

NOTICE OF SALE IN EXECUTION

KINDLY TAKE NOTICE THAT in terms of judgment granted on 14th of May 2024, in the above Honourable Court and a Writ of Execution issued thereafter, a sale in execution the under mentioned goods attached in execution will be sold in execution for cash and to the highest bidder on **Tuesday** the **12th** of **November 2024** at **11H00** by **Sheriff Boksburg - 182 Leeuwpport Street, (Sheriff's Office), Boksburg**.

SCHEDULE OF GOODS:
- 1 X WHITE NISSAN NP200 WITH CANOPY

Registration as a buyer is a pre-requisite subject to specific conditions, inter alia:
a) Directive of the Consumer protection Act, 68 of 2008 (URL http://www.info.gove.za/view/DownloadFileAuction?id=99961)
b) FICA legislation i.r.o proof of identity and address particulars.
c) A prospective bidder must comply with the requirements of financial intelligence centre Act 38 of 2001 (FICA), as amended (REG 26(2)).
d) Registration conditions: no person will be allowed on the premises if they are not registered for FICA and CPA.

This is a sale in execution pursuant to a judgment obtained in the above honourable court.

DATED 25th October 2024

SCHULER HEERSCHOP PIENAAR INC.
Execution Creditor's Attorneys
1 Block 3, First Floor
Clearwater Office Park
Millennium Boulevard
Strubens Valley, 1735
PostNet Suite 162
Private Bag X1
Florida Hills, 1716
Tel: 011 763 3050
E-mail: jp@shplaw.co.za
MAN44/0014

715 SALE IN EXECUTION

Case number: 243/2019

IN THE HIGH COURT OF SOUTH AFRICA

LIMPOPO LOCAL DIVISION

THOHOYANDOU

In the matter between:

NEMAHAGALA KHATHUTSHELO AND 13 OTHERS

PLAINTIFF

UNDER CASE NUMBER

538/2023

539/2023 x2

540/2023

541/2023 x2

542/2023 x2

543/2023

544/2023 x2

&

545/2023 x2

And

ROAD ACCIDENT FUND (DEFENDANT)

NOTICE OF SALE: MOVABLE ASSETS

IN PERSUANCE of a JUDGMENT of the abovementioned Court and a Writ for Execution the following property will be sold in execution on the 08th day of **NOVEMBER 2024 at 12h00 at 2 Eco Glades Office Park,420 Witch-Hazel Avenue, Highveld, Centurion**, by the Sheriff of the High Court Centurion East to the highest bidder:

20 Hisense silver bar fridge
8 White credenza
200 black visitors chair
2 High back chair
27 Siemes phone
15 HP monitor
7 Managerial white office desk
10 Lenova laptop
10 Flipchart
10 Black dustbin
10 Gateway fan
10 Heavy duty 2hde punch
10 Heavy duty stappler
10 HP laptop
10 Samsung monitor
10 Keyboard mouse
27 White pedestal
20 White desk/cuboard
8 Midback black chair
10 Samsung laptop
1 HP monitor + thindin
4 HP keyboard + mouse
10 Addis dustbin
8 HP monitor, thiclin, keyboard mouse
1 Plan rack
7 2 door white cabinet
20 White office desk
15 Accer minitor
19 White desk
10 Accer laptop
1 Maintenance cluster
20 Office desk
4 HP monitors + 4 thin dines
4 Extention leads
10 2 door steel cabinet
10 Sharp photo copier
10 Rexel shredde
10 Dinging masjia
10 Barcode printer zebra
30 Steel dustbin
10 HP monitor ,mouse + keyboard
10 Aro earn
5 White Samsung microwave
5 Silver Samsung microwave
2 Blue trolley
20 Black office chairs

DATED AT THOHOYANDOU ON THIS THE 22ND DAY OF OCTOBER 2024.

RICHARD MATHOBO INC
PLAINTIFF'S ATTORNEYS
2010 CENTRE,

BLOCK 2D18
NEXT TO PHALAPHALA FM
THOHOYANDOU
EMAIL: rmathoboattorneys@webmail.co.za
R.EF: RICH/RM/VARIOUS/ MATTERS

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can fill those needs!
0860 115 115

700 LEGALS

715 SALE IN EXECUTION



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717 TENDERS

717 TENDERS

717 TENDERS

717 TENDERS

Environmental Authorisations and Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province
DMRE reference number: GP 184 MR and DWS reference number: WU38176

- **Applicant:** Ergo Mining (Pty) Limited • **Project Name:** Valley Silts Expansion Project

Ergo Mining (Pty) Ltd ("Ergo") intends to expand its Valley Silts reclamation operation (the Valley Silts Expansion Project). The expansion involves mechanically excavating gold-bearing silts from the old dam wall to Nasrec Road (Blocks N1 to N20), situated immediately west of the authorised and existing Valley Silts reclamation project area and the remaining Blocks (N21 and N22) being located either side of Crownwood Road, near Booysens Reserve and Riverlea, Johannesburg.

Ergo is required to undertake a Scoping and Environmental Impact Assessment (S&EIA) process which evaluates the environmental imp

Environmental Authorisations and Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province

• DMRE reference number: GP 184 MR • DWS reference number: WU38176

• **Applicant:** Ergo Mining (Pty) Ltd: • **Project Name:** Valley Silts Expansion Project

Kongiwe Environmental (Pty) Ltd (Kongiwe) hereby gives notice that the **Draft Environmental Impact Assessment (EIA), Draft Environmental Management Programme Report (EMPr) and Draft Integrated Water and Waste Management Plan (IWWMP)** for the Valley Silts Expansion Project will be made available for public review and comment.

The Draft EIA/EMPr reports have been compiled and will be made available for a 30-day public review and comment period from **Thursday, 24 April 2025 until Monday, 26 May 2025**. The Draft IWWMP report will be made available for a 60-day public review and comment period from **Thursday, 24 April 2025 until Thursday, 26 June 2025**. An electronic copy of the non-executive summary of the DEIR will be distributed to all stakeholders on the database.

Copies of the reports will be made available for public review and comment on the following website:

- **Kongiwe's website: https://kongiwe.com/projects/**

A hard copy of the **Draft EIA/EMPr and Draft IWWMP reports** will be made available at the following public place: Riverlea Public Library, Cnr Avon & Colorado Dr, Riverlea, Johannesburg, Mr John Keith, Librarian, (011) 474 2968 or (071) 390 6549.

Invitation to Stakeholder Meetings: Stakeholders are invited to participate through online and in-person engagements. Consultation meetings will be held using Microsoft Teams, telephonic discussions, and a Public Meeting. The purpose of these Stakeholder Meetings is to discuss the **Draft EIA /EMPr and Draft IWWMP**, present findings from the specialist studies, provide stakeholders with a platform to raise comments on the **Draft EIA / EMPr and Draft IWWMP reports** and interact with the project team. Please see table below for the proposed stakeholders' meeting schedule.

Stakeholder Meetings

Proposed dates	Available time slots	Venue
Online meeting:		
Wednesday, 7 May 2025	10H00-11H00	Microsoft teams/scheduled Telephonic discussions
In-person meeting: Public Meeting		
Saturday, 10 May 2025	10H30-12H30	Riverlea Empowerment Centre 92 Sandpiper Crescent, Ext 5, Riverlea, 2093

Any person affected by or who may be interested in the proposed project is requested to register as an Interested & Affected Party (I&AP). To register as an I&AP/ to confirm your attendance at the meeting, please contact:

Kongiwe Environmental (Pty) Ltd, Contact person: Ms Vanessa Viljoen or Ms Thuli Phakathi

Tel: 010 140 1725/1726, Email: stakeholders@kongiwe.com

KONGIWE

Our team welcomes your participation and looks forward to your involvement throughout this process.

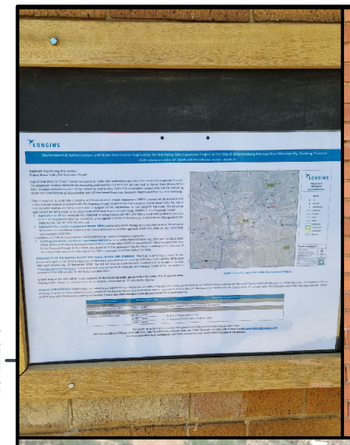
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Appendix C5: Site Notice

27°58'40"E

28°0'32"E

26°12'25"S













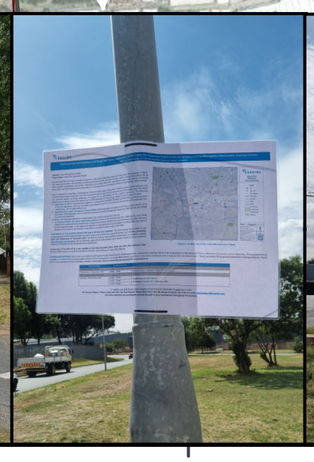














26°14'20"S

27°58'40"E

28°0'32"E

KONGIWE

VALLEY SILTS EXPANSION

LOCAL ORIENTATION

Legend

- Main Road
- Parent Farm
- Project Boundary

0 0,25 0,5 1 1,5

Kilometres

Project Code: DRDG#052
Client: Ergo Mining (Pty) Ltd
Drawn: C Strooh | Checked: Z Omar
© 2024 Kongiwe Environmental (Pty) Ltd
www.kongiwe.com | Date: 15 November 2024

1:20 000

(A3)

2024 Satellite Imagery

Coordinate System: WGS84 TM LO29
Projection: Transverse Mercator
Datum: WGS 1984

Disclaimer
The information represented in this plan is for general information purposes only and is subject to change.

FILE REF:
Z:\GIS\Projects\DRDGOLD\052 Valley Silts Expansion\Projects\General\Map Set 1\Valley Silts Expansion Site Notice Landscape A3.mxd

Environmental Authorisations and Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province

DMRE reference number: GP 184 MR and DWS reference number: WU38176

Applicant: Ergo Mining (Pty) Limited
Project Name: Valley Silts Expansion Project

Ergo Mining (Pty) Ltd ("Ergo") intends to expand its Valley Silts reclamation operation (the Valley Silts Expansion Project). The expansion involves mechanically excavating gold-bearing silts from the old dam wall to Nasrec Road (Blocks N1 to N20), situated immediately west of the authorised and existing Valley Silts reclamation project area and the remaining Blocks (N21 and N22) being located either side of Crownwood Road, near Booysens Reserve and Riverlea, Johannesburg.

Ergo is required to undertake a Scoping and Environmental Impact Assessment (S&EIA) process which evaluates the environmental impacts associated with the Proposed Project as part of an Environmental Authorisation (EA). The S&EIA and specialist studies are being undertaken in support of the applications for the required approvals. The following applications are being made to the Department of Mineral Resources and Energy (DMRE) for the Proposed Project:

- **Application for EA** for listed activities triggered in Listing Notices GN R983, GN R984 and GN R985 published pursuant to the EIA Regulations 2014 (as amended), promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA); and
- **Application for a waste management licence (WML)** authorising waste management activities listed in GN 921 of 29 November 2013 published in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (as amended) (NEM:WA).

In addition, the following application is being made to the relevant Competent Authority:

- **An Integrated Water Use Licence Application (IWULA)** in terms of the National Water Act, 1998 (Act No. 36 of 1998) (NWA) will be submitted to the Department of Water and Sanitation (DWS) for any potential impact to water resources by the Proposed Project. In this regard, any objection to that application may be lodged in writing within sixty days of the date of this notice to the Minister of the DWS as provided in Section 41(4) of the NWA.

AVAILABILITY OF THE SCOPING REPORT FOR PUBLIC REVIEW AND COMMENT: The Draft Scoping Report (DSR) for the proposed project will be made available for public review and comment for a period of 30 days, from **Tuesday, 29 October 2024 until Wednesday, 27 November 2024**. The DSR will also be made available electronically on Kongiwe's website https://kongiwe.com/projects/, and an electronic copy will be made available upon request. Copies of the non-technical summary of the DSR will also be distributed to stakeholders.

A hard copy of the DSR will be made available at the following public places within the Valley Silts Expansion Area: Riverlea Public Library, Cnr Avon & Colorado Dr, Riverlea, Johannesburg, Mr John Keith, Librarian.

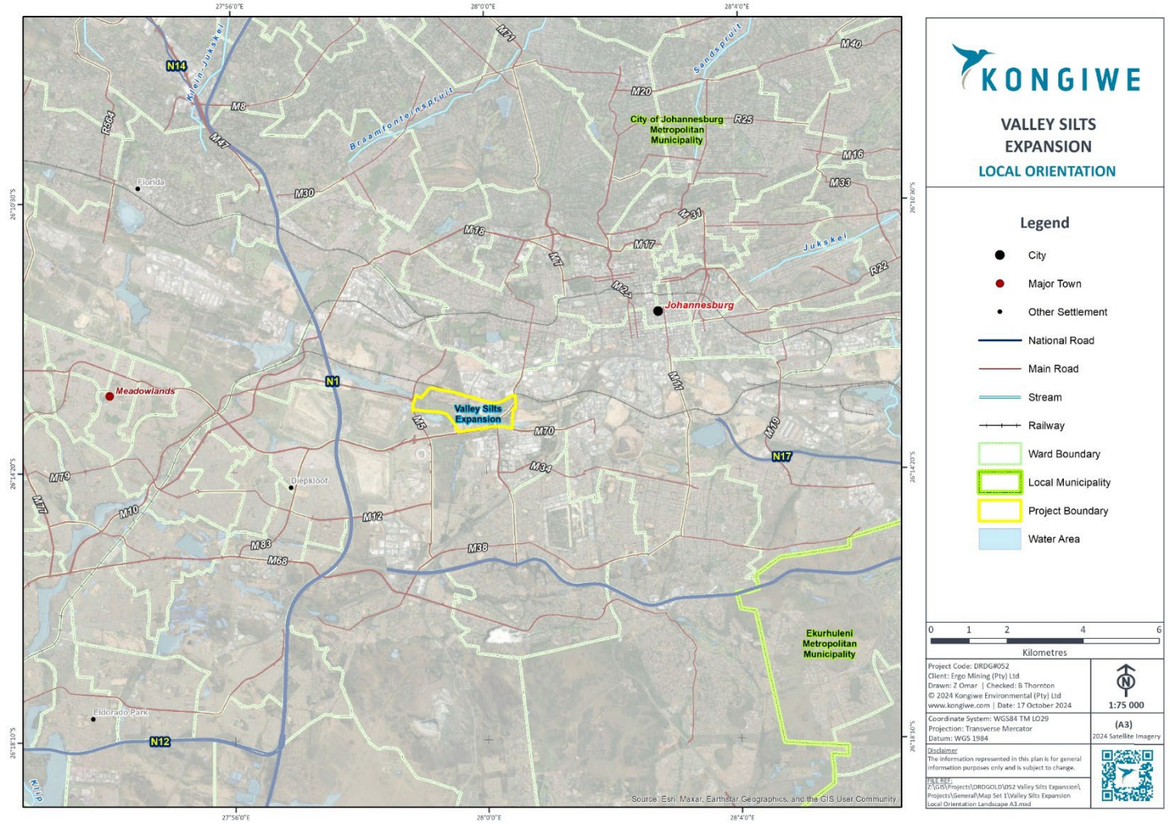


Figure 1: Locality map of the Valley Silts Expansion Project.

STAKEHOLDER MEETINGS: Stakeholders are invited to participate through virtual and non-virtual engagements. Consultation meetings will be held using platforms like Microsoft Teams, telephonic discussions, and an Open Day. The purpose of these meetings is to discuss the proposed project, contents of the Scoping Report, to provide I&APs with an opportunity to raise their comments and to interact with the project team. Please see below the proposed stakeholder meeting schedule. Please confirm your attendance at the meeting by ***Tuesday, 5 November 2024 and which time slot you would like to participate in.***

Proposed dates	Available time slots	Method of Engagement
Virtual meetings: Online		
Wednesday, 13 November 2024	10H00 – 11H00	Microsoft teams/ scheduled Telephonic discussions
Non-virtual meeting: Open Day		
Saturday, 16 November 2024	09H00 – 10H00	Riverlea Empowerment Centre 92 Sandpiper Crescent, Ext 5, Riverlea, 2093
	10H00 – 11H00	
	11H00 – 12H00	

To register as an I&AP please contact: Kongiwe Environmental Stakeholder Engagement Team
Ms Vanessa Viljoen / Phone: (010) 140 1725 / Ms Thuli Phakathi / Phone: (010) 140 1726 / Ms Anela Fixi (010) 140 1729 or E-mail: stakeholders@kongiwe.com
Our team welcomes your participation and looks forward to your involvement throughout this process.

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Environmental Authorisations and Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province

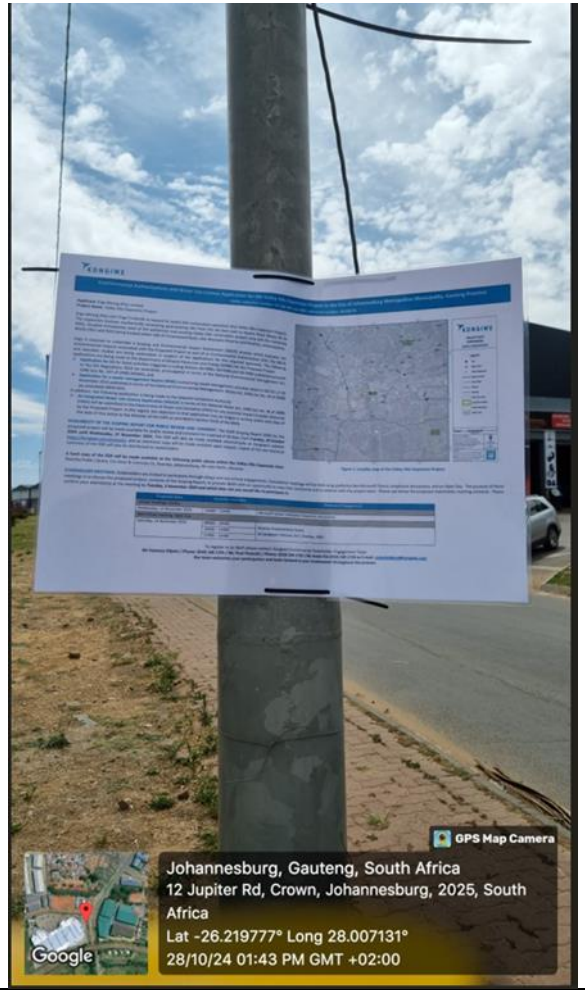
Site Notice Placement Report – Monday, 28 October 2024

Site Notice Number	Location	Co-ordinates	Photo	
1.	Anglo American	26.230738^{0}S 28.000884^{0}S		

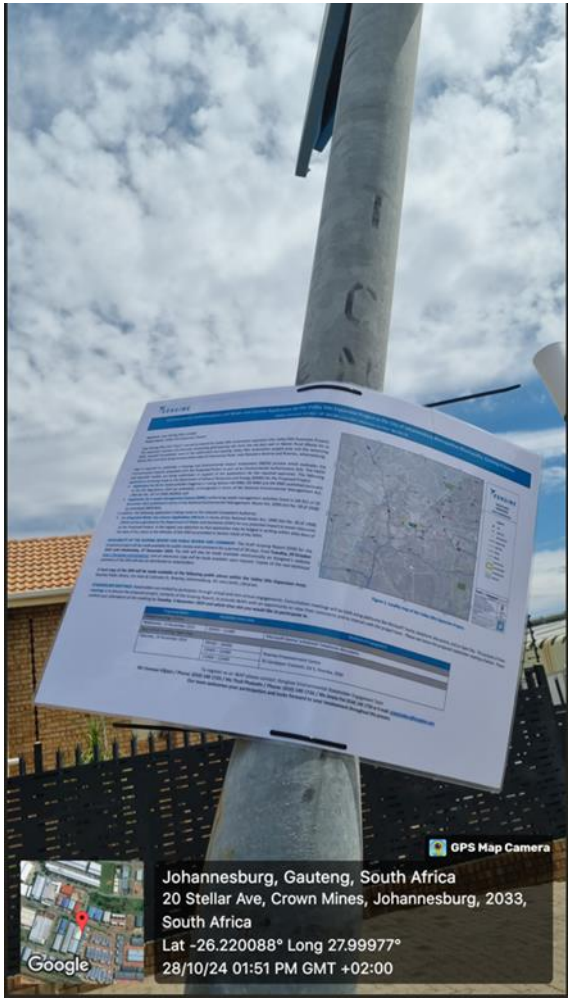
© 2024 Kongiwe Environmental (Pty) Ltd

Site Notice Number	Location	Co-ordinates	Photo
2.	63 Crownwood Rd	26.225626^{0}S 28.004882^{0}E	 

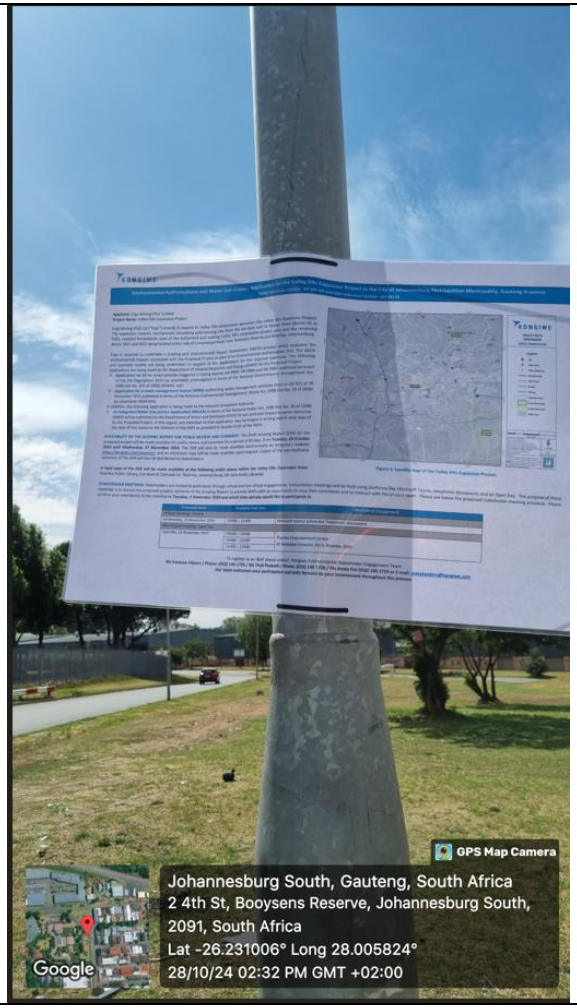
© 2024 Kongiwe Environmental (Pty) Ltd

Site Notice Number	Location	Co-ordinates	Photo	
3.	Cnr Jupiter Rd & Crown	26.219777^{0}S 28.007131^{0}E		

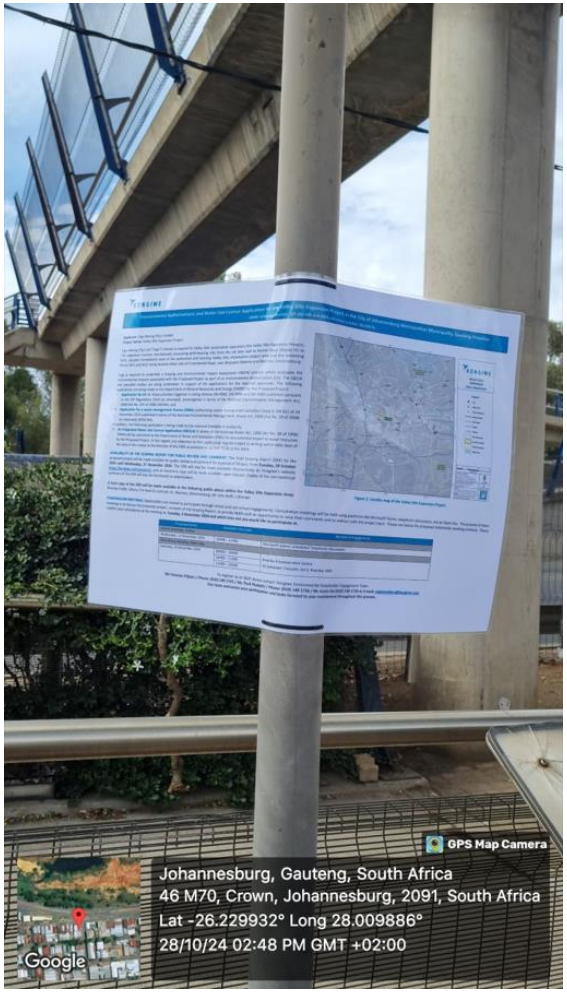
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4.	Stellar Ave	26.220088^{0}S 27.99977^{0}S		

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5.	2 4th St Booysens Reserve	26.231006^{0}S 28.005824^{0}E			

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6.	46 M70 Crown	26.229932^{0}S 28.009886^{0}E		

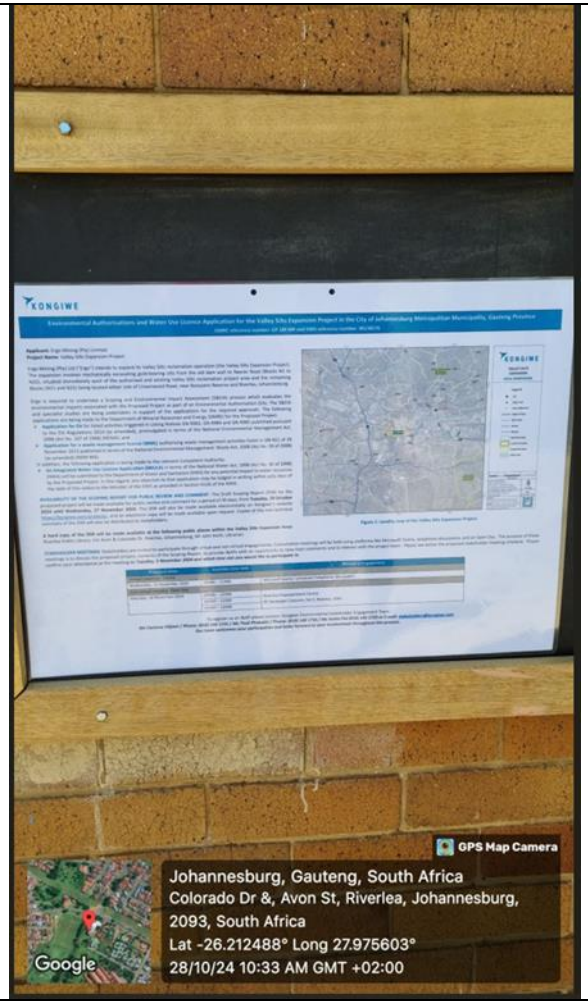
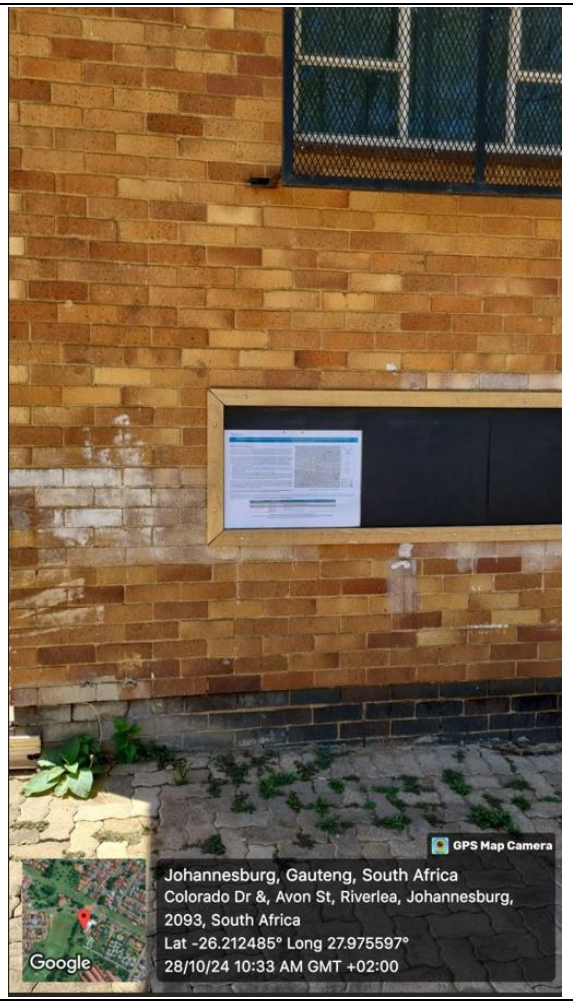
© 2024 Kongiwe Environmental (Pty) Ltd

7.	Framton Str	26.23005^{0}S 28.017977^{0}E			

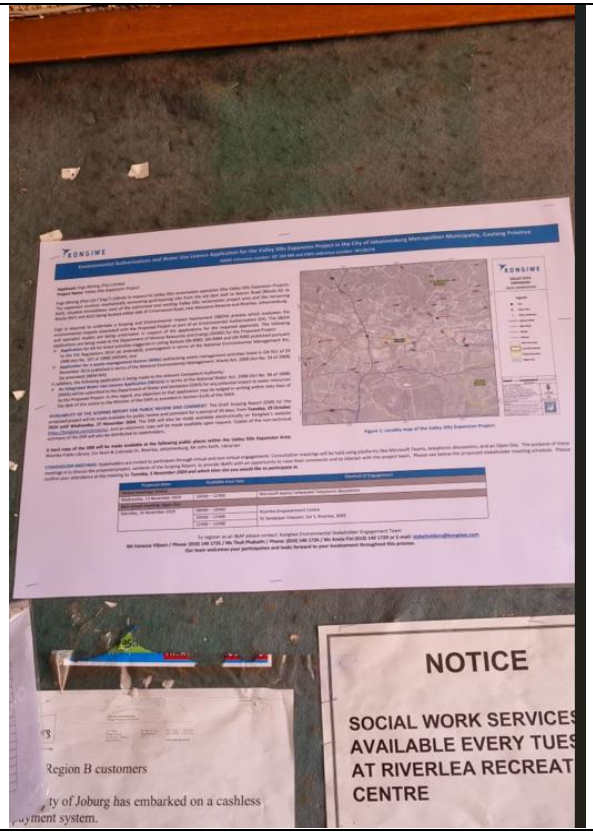
© 2024 Kongiwe Environmental (Pty) Ltd

8.	5th St Boysens Reserve	26.229905^{0}S 28.008213^{0}E		

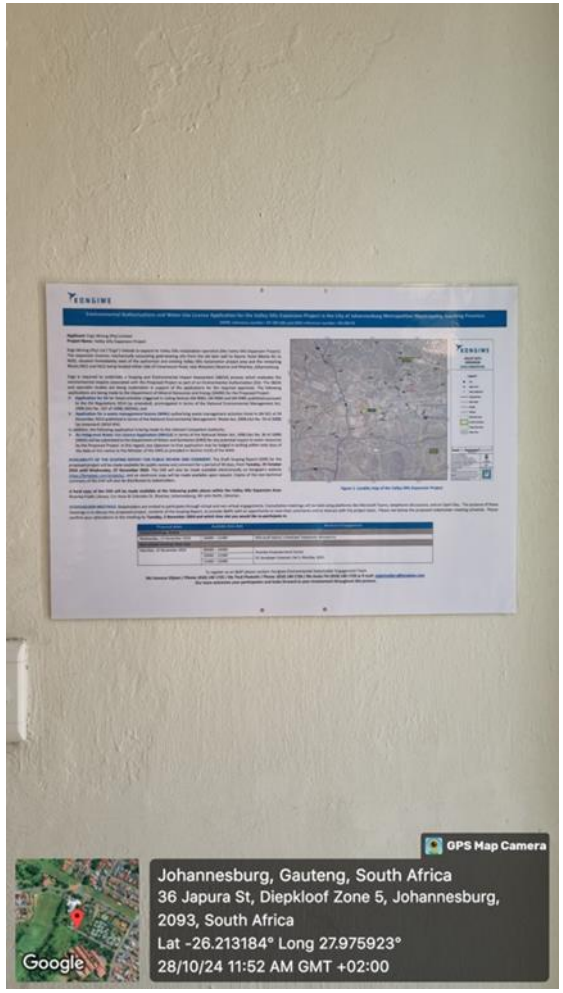
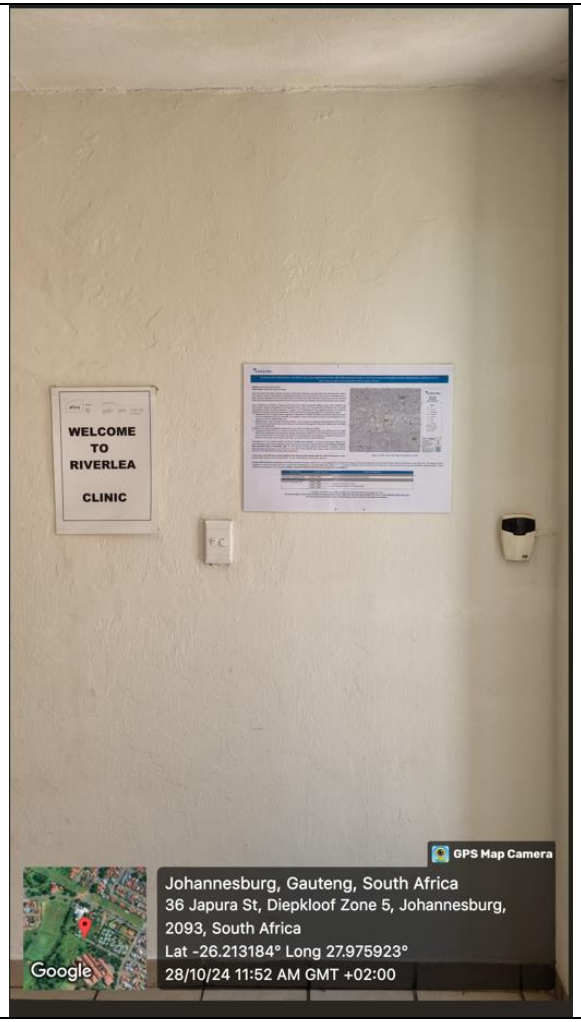
© 2024 Kongiwe Environmental (Pty) Ltd

9.	Riverlea Public Library	26.212488^{0}S 27.975603^{0}E				

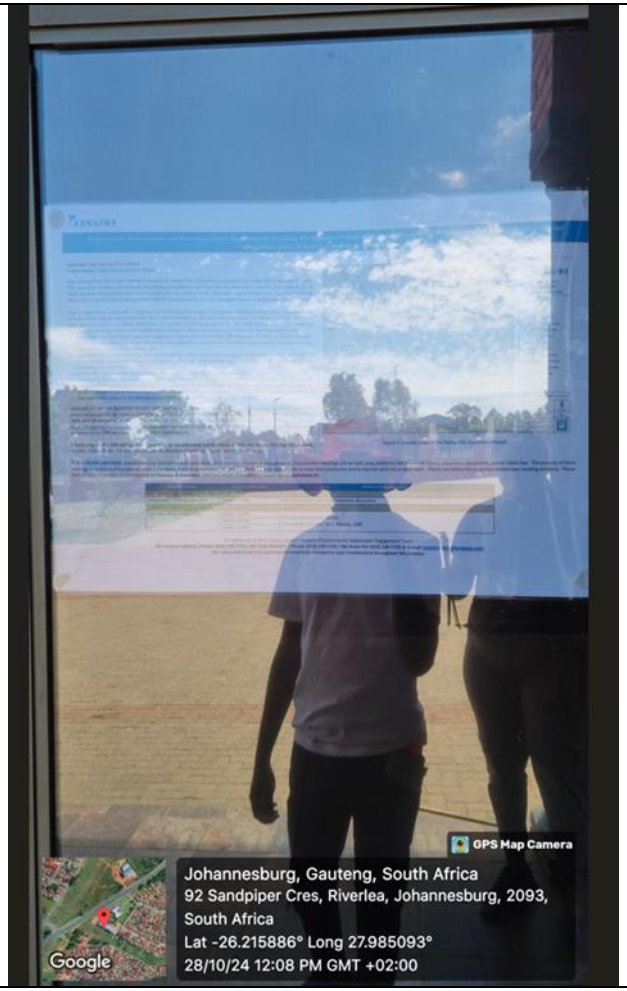
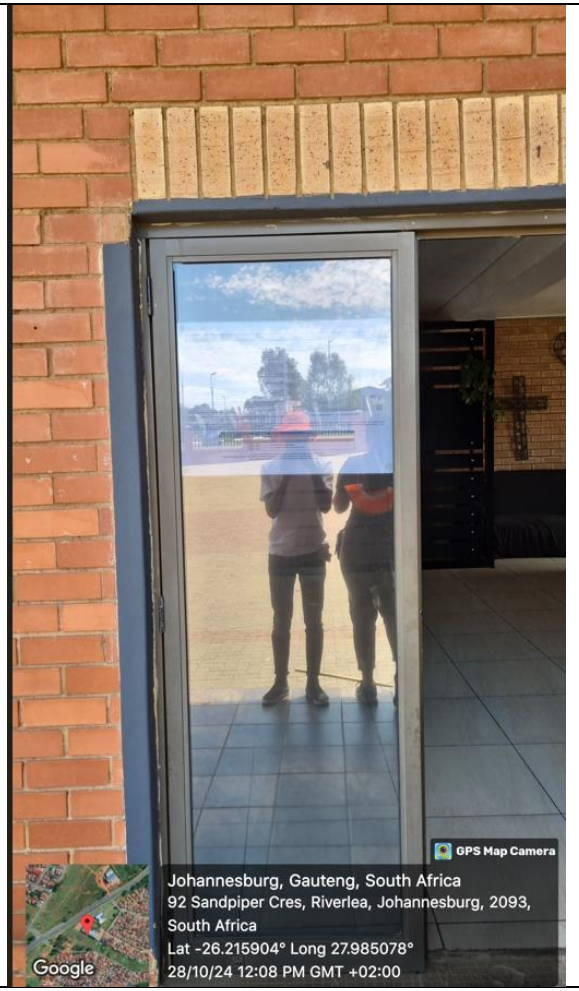
© 2024 Kongiwe Environmental (Pty) Ltd

10.	Riverlea Recreation Centre	26.22967^{0}S 28.007894^{0}E			

© 2024 Kongiwe Environmental (Pty) Ltd

11.	Riverlea Clinic	26.213184^{0}S 27.975923^{0}E		

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12.	Riverlea Empowerment Centre	26.215886^{0}S 27.985093^{0}E			

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Appendix C6: Correspondence

Kongiwe Stakeholder Engagement

From: Kongiwe Stakeholder Engagement
Sent: Thursday, 24 October 2024 15:56
To: Bradly Thornton; Gerlinde Wilreker
Subject: Environmental Authorisations and Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province
Attachments: Valley Silts_BID-Reg.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Tracking:

Recipient	Read
Bradly Thornton	
Gerlinde Wilreker	Read: 2024/10/24 15:59

Dear Stakeholder

This email serves to inform you that Ergo Mining (Pty) Ltd (Ergo) is applying for an Environmental Authorisation and Water Use Licence for the proposed Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province.

Ergo, a subsidiary of DRDGOLD Limited, holds various Mining Rights (MR) in respect of slimes dams and sand dumps extending 65 km from the western Johannesburg to Eastern Ekurhuleni with most activities occurring on the central and eastern sections of the Witwatersrand mining belt.

The proposed Expansion Phase of the Valley Silts project will consist of Sector 2 and Sector 3. Sector 2 will extend from the old dam wall to Nasrec Road with Sector 3 being located either side of Crownwood Road. The Valley Silts Expansion Project is located on the farms Randskou 324 IQ and Mayfair West 221 IQ. The project is situated in Wards 68 and 124 of the City of Johannesburg Metropolitan Municipality (CoJMM).

In terms of the environmental legislation, Kongiwe has been appointed by Ergo to undertake a Scoping and Environmental Impact Assessment (S&EIA) process which evaluates the environmental impacts associated with the Proposed Project as well as the Water Use Licence Application.

AVAILABILITY OF THE SCOPING REPORT FOR PUBLIC REVIEW AND COMMENT

The Draft Scoping Report (DSR) for the proposed project will be made available for public review and comment for a period of 30 days, from **Tuesday, 29 October 2024 until Wednesday, 27 November 2024**.

INVITATION TO AN OPEN DAY

Interested and Affected Parties (I&APs) are invited to attend an Open Day as indicated below. The purpose of these meetings is to discuss the proposed project, contents of the Scoping Report, to provide I&APs with an opportunity to raise their comments and to interact with the project team.

Please confirm your attendance at the Open Day by **Tuesday, 5 November 2024 and which time slot you would like to participate in.**

Non-virtual meeting: Open Day		
Saturday, 16 November 2024	09H00 – 10H00	Riverlea Empowerment Centre 92 Sandpiper Crescent, Ext 5, Riverlea, 2093
	10H00 – 11H00	
	11H00 – 12H00	

Any person affected by or who may be interested in the proposed project is asked to register as an I&AP by completing the attached Stakeholder Registration and Comment Form or by contacting the stakeholder engagement team.

Contact Details:		
Ms Vanessa Viljoen	+27 (10) 140 1725	stakeholders@kongiwe.com
Ms Thuli Phakathi	+27 (10) 140 1726	stakeholders@kongiwe.com
Ms Anela Fixi	+27 (10) 140 1729	stakeholders@kongiwe.com

Please refer to the attached Background Information Document for further information.

Kind Regards,

Stakeholder Engagement Team | Kongiwe Environmental (Pty) Ltd.
Tel: +27 (10) 140 6508 | Fax: +27 (86) 476 6438 | Email: stakeholders@kongiwe.com
150 Bryanston Drive, Bryanston, Sandton, 2191, South Africa.
PostNet Suite no 163, Private Bag X21, Bryanston, 2021, South Africa.
www.kongiwe.com

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Kongiwe Stakeholder Engagement

From: Kongiwe Stakeholder Engagement
Sent: Tuesday, 12 November 2024 07:47
To: Thuli Phakathi
Cc: Vanessa Viljoen; Gerlinde Wilreker
Subject: REMINDER: Environmental Authorisations and Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province
Attachments: Valley Silts_BID-Reg.pdf; VS_Non_Technical_Summary.pdf

Tracking:

Recipient	Read
Thuli Phakathi	Read: 2024/11/12 08:25
Vanessa Viljoen	Read: 2024/11/12 08:39
Gerlinde Wilreker	Read: 2024/11/12 07:49

Dear Stakeholder

This email serves as a reminder of the public participation process for the proposed Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province.

Ergo, a subsidiary of DRDGOLD Limited, holds various Mining Rights (MR) in respect of slimes dams and sand dumps extending 65 km from the western Johannesburg to Eastern Ekurhuleni with most activities occurring on the central and eastern sections of the Witwatersrand mining belt.

The proposed Expansion Phase of the Valley Silts project will consist of Sector 2 and Sector 3. Sector 2 will extend from the old dam wall to Nasrec Road with Sector 3 being located either side of Crownwood Road. The Valley Silts Expansion Project is located on the farms Randskou 324 IQ and Mayfair West 221 IQ. The project is situated in Wards 68 and 124 of the City of Johannesburg Metropolitan Municipality (CoJMM).

In terms of the environmental legislation, Kongiwe has been appointed by Ergo to undertake a Scoping and Environmental Impact Assessment (S&EIA) process which evaluates the environmental impacts associated with the Proposed Project as well as the Water Use Licence Application.

AVAILABILITY OF THE SCOPING REPORT FOR PUBLIC REVIEW AND COMMENT

The Draft Scoping Report (DSR) for the proposed project will be made available for public review and comment for a period of 30 days, from **Tuesday, 29 October 2024 until Wednesday, 27 November 2024**.

INVITATION TO AN OPEN DAY

Interested and Affected Parties (I&APs) are invited to attend an Open Day as indicated below. The purpose of these meetings is to discuss the proposed project, contents of the Scoping Report, to provide I&APs with an opportunity to raise their comments and to interact with the project team.

Please confirm your attendance at the Open Day by **Tuesday, 5 November 2024 and which time slot you would like to participate in.**

Non-virtual meeting: Open Day		
Saturday, 16 November 2024	09H00 – 10H00	Riverlea Empowerment Centre 92 Sandpiper Crescent, Ext 5, Riverlea, 2093
	10H00 – 11H00	
	11H00 – 12H00	

Any person affected by or who may be interested in the proposed project is asked to register as an I&AP by completing the attached Stakeholder Registration and Comment Form or by contacting the stakeholder engagement team.

Contact Details:		
Ms Vanessa Viljoen	+27 (10) 140 1725	stakeholders@kongiwe.com
Ms Thuli Phakathi	+27 (10) 140 1726	stakeholders@kongiwe.com
Ms Anela Fixi	+27 (10) 140 1729	stakeholders@kongiwe.com

Please refer to the attached Background Information Document and DSR Non-Technical Summary for further information.

Kind Regards,

Stakeholder Engagement Team | Kongiwe Environmental (Pty) Ltd.
Tel: +27 (10) 140 6508 | Fax: +27 (86) 476 6438 | Email: stakeholders@kongiwe.com
150 Bryanston Drive, Bryanston, Sandton, 2191, South Africa.
PostNet Suite no 163, Private Bag X21, Bryanston, 2021, South Africa.
www.kongiwe.com

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Tuesday, 10 December 2024

Environmental Authorisations and Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province

DMRE reference number: GP 184 MR
DWS reference number: WU38176

Availability of the Final Scoping Report

Kongiwe Environmental (Pty) Ltd (Kongiwe Environmental) hereby gives notice to stakeholders of the availability of the Final Scoping Report (FSR) for the for the Valley Silts Expansion Project, Gauteng Province. Kongiwe Environmental would like to share the report with all interested and affected parties and stakeholders who have contributed comments on the Proposed Project.

The Final Scoping Report is available on Kongiwe's website: https://kongiwe.com/projects/

Should you have any comments/queries, please contact the stakeholder engagement team.

Contact Details:		
Ms Vanessa Viljoen	+27 (10) 140 1725	stakeholders@kongiwe.com
Ms Thuli Phakathi	+27 (10) 140 1726	stakeholders@kongiwe.com
Ms Anela Fixi	+27 (10) 140 1729	stakeholders@kongiwe.com

Our team welcomes your participation and looks forward to your involvement throughout this process.

Yours faithfully



Ms Vanessa Viljoen
Senior Stakeholder Engagement Consultant

Kongiwe Environmental (Pty) Ltd.
Reg No 2016 / 135562 / 07
Directors: GE Cornish-Bowden, MJ Hennessy, BJ Thornton (CEO), GI Wilreker
Tel: +27 (10) 140 6508 | Fax: +27 (86) 476 6438 Email: info@kongiwe.com
150 Bryanston Drive, Bryanston, Sandton, 2191, South Africa.
PostNet Suite no 163, Private Bag X21, Bryanston, 2021, South Africa.
www.kongiwe.com

Kongiwe Stakeholder Engagement

From: Kongiwe Stakeholder Engagement
Sent: Tuesday, 10 December 2024 09:40
To: Bradly Thornton; Gerlinde Wilreker
Cc: Thuli Phakathi
Subject: Availability of the Final Scoping Report: Valley Silts Expansion Project
Attachments: 10Dec24_FSR_Notif_Let.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Tracking:

Recipient	Read
Bradly Thornton	
Gerlinde Wilreker	Read: 2024/12/10 09:41
Thuli Phakathi	Read: 2024/12/10 09:43

Dear Stakeholder

Kongiwe Environmental (Pty) Ltd (Kongiwe Environmental) hereby gives notice to stakeholders of the availability of the Final Scoping Report (FSR) for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province.

Please see attached notification letter for details.

Should you have any queries please contact the stakeholder engagement team.

Kind Regards,

Stakeholder Engagement Team | Kongiwe Environmental (Pty) Ltd.
Tel: +27 (10) 140 6508 | Fax: +27 (86) 476 6438 | Email: stakeholders@kongiwe.com
150 Bryanston Drive, Bryanston, Sandton, 2191, South Africa.
PostNet Suite no 163, Private Bag X21, Bryanston, 2021, South Africa.
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Wednesday, 16 April 2025

Environmental Authorisations and Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province

DMRE reference number: GP 184 MR
DWS reference number: WU38176

Availability of the Draft Environmental Impact Assessment Report, Environmental Management Programme and Draft Integrated Water and Waste Management Plan

Kongiwe Environmental (Pty) Ltd (Kongiwe) hereby gives notice that the **Draft Environmental Impact Assessment (EIA), Draft Environmental Management Programme Report (EMPr) and Draft Integrated Water and Waste Management Plan (IWWMP)** for the Valley Silts Expansion Project, are available for review. Kongiwe wishes to share the reports with all Interested and Affected Parties and stakeholders who have contributed comments on the proposed project.

The purpose of this document is to provide you with important information regarding the following:

- The availability of the Draft EIA / EMPr Reports;
- The availability of the Draft IWWMP Report;
- How you can provide comments on the Draft EIA/EMPr and Draft IWWMP; and
- Invitation to Stakeholders to participate through online and in-person engagements.

Availability of the Draft EIA/EMPr and the Draft IWWMP

The Draft EIA/EMPr reports have been compiled and will be made available for a 30-day public review and comment period from **Thursday, 24 April 2025 until Monday, 26 May 2025**.

The Draft IWWMP report will be made available for a 60-day public review and comment period from **Thursday, 24 April 2025 until Thursday, 26 June 2025**.

The reports will be made available as follows:

- Copies of the reports will be made available for public review and comment on the following website: Kongiwe's website: **https://kongiwe.com/projects/**
- A hard copy of the reports will be made available at the following public places:

Location	Physical Adress	Contact Person
Riverlea Public Library	Cnr Avon & Colorado Dr, Riverlea, Johannesburg	Mr John Keith, Librarian (011) 474 2968 or (071) 390 6549

Kongiwe Environmental (Pty) Ltd.
Registration Number 2016/135562/07
Telephone: +27 (10) 140 6508 / Email: info@kongiwe.com
Registered Address: 150 Bryanston Drive, Bryanston, Sandton, 2191, South Africa.
Mailing Address: PostNet Suite no 163, Private Bag X21, Bryanston, 2021, South Africa.
www.kongiwe.com

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- An electronic copy of the non-executive summary of the DEIR will be distributed to all stakeholders on the database.

You can comment on the Draft EIA/EMPr and the Draft IWWMP in any of the following ways:

- By providing comments at the Public Meeting - please see details below;
- By writing a letter or sending an email to stakeholders@kongiwe.com;
- By contacting our stakeholder engagement team telephonically.

Invitation to Stakeholder Meetings

Stakeholders are invited to participate through online and in-person engagements. Consultation meetings will be held using Microsoft Teams, telephonic discussions, and a Public Meeting.

The purpose of these Stakeholder Meetings is to discuss the Draft EIA/EMPr and Draft IWWMP, present findings from the specialist studies, provide stakeholders with a platform to raise comments on the Draft EIA / EMPr and Draft IWWMP reports and interact with the project team.

Stakeholder Meetings

Proposed dates	Available time slots	Venue
Online meeting:		
Wednesday, 7 May 2025	10H00-11H00	Microsoft teams
In-person meeting: Public Meeting		
Saturday, 10 May 2025	10H30-12H30	Riverlea Empowerment Centre 92 Sandpiper Crescent, Ext 5, Riverlea, 2093

Should you have any comments/queries, please contact the stakeholder engagement team.

Contact Details:		
Ms Vanessa Viljoen	+27 (10) 140 1725	stakeholders@kongiwe.com
Ms Thuli Phakathi	+27 (10) 140 1726	stakeholders@kongiwe.com

Our team welcomes your participation and looks forward to your involvement throughout this process.

Yours faithfully



Ms Vanessa Viljoen
Stakeholder Engagement Consultant

Kongiwe Stakeholder Engagement

From: Kongiwe Stakeholder Engagement
Sent: Wednesday, 16 April 2025 15:24
To: Bradly Thornton; Thuli Phakathi
Subject: Valley Silts Expansion Project: Availability of the Draft EIA/EMPr and the Draft IWWMP
Attachments: 16April25_DEIR_Note.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Tracking:

Recipient	Read
Bradly Thornton	
Thuli Phakathi	Read: 2025/04/16 15:31

Dear Stakeholder

Kongiwe Environmental (Pty) Ltd (Kongiwe) hereby gives notice that the Draft Environmental Impact Assessment (EIA), Draft Environmental Management Programme Report (EMPr) and Draft Integrated Water and Waste Management Plan (IWWMP) for the Valley Silts Expansion Project, will be available for public review.

Availability of the Draft EIA/EMPr and the Draft IWWMP

The Draft EIA/EMPr reports have been compiled and will be made available for a 30-day public review and comment period from **Thursday, 24 April 2025 until Monday, 26 May 2025**.

The Draft IWWMP report will be made available for a 60-day public review and comment period from **Thursday, 24 April 2025 until Thursday, 26 June 2025**.

Invitation to Public Meeting

Interested and Affected Parties (I&APS) are invited to attend a Public Meeting which will be held at **Riverlea Empowerment Centre 92 Sandpiper Crescent, Ext 5, Riverlea, 2093 on Saturday, 10 May 2025 from 10H30-12H30**. Please confirm your attendance at the meeting.

The purpose of these Stakeholder Meetings is to discuss the Draft EIA/EMPr and Draft IWWMP, present findings from the specialist studies, provide stakeholders with a platform to raise comments on the Draft EIA / EMPr and Draft IWWMP reports and interact with the project team.

Please do not hesitate to contact us if you have any queries.

Kind Regards,

Stakeholder Engagement Team | Kongiwe Environmental (Pty) Ltd.
Tel: +27 (10) 140 1725 | Email: stakeholders@kongiwe.com
150 Bryanston Drive, Bryanston, Sandton, 2191, South Africa.
PostNet Suite no 163, Private Bag X21, Bryanston, 2021, South Africa.
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Appendix C7: Authority Correspondence

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Appendix C8: Meeting Minutes

Environmental Authorisations and Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province

Stakeholder Meeting Schedule DEIR Phase

Date of the meeting	Time	Meeting type / Format	Organisation / Address	Invited / Attended / Apologies	Resources Used	Who Presented (EAP / Ergo)	Project Team Attendance (Ergo and Kongiwe)
Friday, 25 October 2024	**10H00**	**Pre-Application** **Online (Microsoft Teams)**	**Competent Authority:** Department of Water and Sanitation (DWS)	**Invited:** ❖ Mr J Lekoane, Environmental Officer, DWS ❖ Ms Felicia Diale, Environmental Officer, DWS **Attended:** ❖ Ms Felicia Diale, Environmental Officer, DWS ❖ Mr Khathutshelo Michael Mudau, Specialist Production, DWS **Apologies:** ❖ Mr J Lekoane, DWS	❖ Presentation ❖ Attendance Register	Ms Gerlinde Wilreker, Kongiwe Ms Phumla Mngwengwe, Kongiwe	Mr Masala Tshamano, Environmental Manager, Ergo Mr Mothusi Mafatshe, Environmental Coordinator Ms Gerlinde Wilreker, Kongiwe Mr Bradly Thornton, Kongiwe Ms Phumla Mngwengwe, Kongiwe
Tuesday, 05 November 2024	**09H00**	**Forum** **Online (Microsoft Teams)**	**Klip River Forum**	**Chaired by:** ❖ Mr Lesiba Mabona, Environmental Officer, DWS ❖ Mr Marc De Fontaine, Senior Water Quality Advisor, Rand Water **Attended:** Various stakeholders	❖ Presentation ❖ Attendance Register	Ms Gerlinde Wilreker, Kongiwe	Mr Greg Ovens, Project Manager, Ergo Mr Masala Tshamano, Environmental Manager, Ergo Mr Josiah Tshisevhe, Community Liaison Manager, Ergo Ms Gerlinde Wilreker, Kongiwe Ms Anela Fixi, Kongiwe Ms Thuli Phakathi, Kongiwe
12 November 2024	**12H30**	**Online (Microsoft Teams)**	**Local Municipalities** City of Johannesburg Metropolitan Municipality **(As a Directly Affected Landowner)**	**Invited:** ❖ Ms Nozipho Maduse, Deputy Director: EISD Impact Management ❖ Ms Katlego Kale, EISD Impact Management ❖ Ms Mashudu Ratshitanga, EISD Impact Management ❖ Mr Freddie Letsoko, EISD Impact Management ❖ Mr Musa Mahlatji, EISD Impact Management ❖ Mr Justice Netshandama, EISD Impact Management ❖ Ms Makhosazana Ntshali, EISD Impact Management ❖ Mr Thami Zwane, EISD Impact Management ❖ Mr Jose Monteiro, JRA	❖ Presentation ❖ Attendance Register	Ms Gerlinde Wilreker, Kongiwe	Mr Masala Tshamano, Environmental Manager, Ergo Mr Mothusi Mafatshe, Environmental Coordinator Ms Gerlinde Wilreker, Kongiwe Mr Bradly Thornton, Kongiwe Ms Anela Fixi, Kongiwe

				❖ Debby Senatel, JPC ❖ Mr Julius Sello, Development Planning Department ❖ Mr Marietjie Reinecke, Development Planning Department ❖ Mr Boledi Petje, Development Planning Department **Attended:** ❖ Ms Nozipho Maduse, Deputy Director: EISD Impact Management ❖ Ms Mashudu Ratshitanga, EISD Impact Management ❖ Mr Justice Netshandama, EISD Impact Management ❖ Thami Zwane, EISD Impact Management ❖ Ms Moseketsi Mochesane, EISD Impact Management ❖ Ms Siphokazi Ncume, EISD Impact Management ❖ Mr Simphiwe Memela, Waste Management Department ❖ Mr Lufuno Maise, Senior Specialist-Air Quality ❖ Mr Jose Monteiro, JRA ❖ Mr Julius Sello, Development Planning Department ❖ Mr Marietjie Reinecke, Development Planning Department ❖ Mr Marietjie Reinecke, Development Planning Department ❖ Ms Mbalenhle Chemane, Development Planning Department **Apologies:** ❖ Ms Katlego Kale, EISD Impact Management ❖ Mr Freddie Letsoko, EISD Impact Management ❖ Mr Musa Mahlatji, EISD Impact Management ❖ Ms Makhosazana Ntshali, EISD Impact Management			
12 November 2024	**14H30**	**Online (Microsoft Teams)**	**Environmental NGO** <u>Federation for Sustainable Environment (FSE)</u>	**Invited:** ❖ Ms Mariette Liefferink, CEO **Attended:** ❖ Ms Mariette Liefferink, CEO **Apologies:** **None**	❖ Presentation ❖ Attendance Register	Ms Gerlinde Wilreker, Kongiwe	Mr Masala Tshamano, Environmental Manager, Ergo Mr Mothusi Mafatshe, Environmental Coordinator Ms Gerlinde Wilreker, Kongiwe Mr Bradly Thornton, Kongiwe Ms Vanessa Viljoen, Kongiwe Ms Anela Fixi, Kongiwe

14 November 2024	**10H00**	**Online (Microsoft Teams)**	**Directly Affected Landowner** <u>Industrial Zone (Pty) Ltd (iProp)</u>	**Invited:** ❖ Ms Jeanie Pelser, Operations Director, iProp **Attended:** ❖ Ms Jeanie Pelser, Operations Director, iProp ❖ Mr Brian Gardner, Environmental Officer **Apologies:** **None**	❖ Presentation ❖ Attendance Register	Ms Gerlinde Wilreker, Kongiwe	Mr Masala Tshamano, Environmental Manager, Ergo Mr Mothusi Mafatshe, Environmental Coordinator Ms Gerlinde Wilreker, Kongiwe Mr Bradly Thornton, Kongiwe Ms Vanessa Viljoen, Kongiwe Ms Anela Fixi, Kongiwe
14 November 2024	**13H15**	**Online (Microsoft Teams)**	**Ward Councillor Meetings** Relevant ward councillors - Wards affected 68,124, 125 and 54 <u>City of Johannesburg Metropolitan Municipality</u>	**Invited:** ❖ Cllr Msimelelo Silobi, Ward Councillor: Ward 68 ❖ Cllr Mongameli Mnyameni, Ward Councillor: Ward 124 ❖ Cllr Matsobane, Victor Sekhu, Ward Councillor: Ward 125 ❖ Cllr Stuart Marais, Ward Councillor: Ward 54 **Attended:** ❖ Cllr Msimelelo Silobi, Ward Councillor: Ward 68 ❖ Cllr Mongameli Mnyameni, Ward Councillor: Ward 124 ❖ Cllr Matsobane, Victor Sekhu, Ward Councillor: Ward 125 **Apologies:** ❖ Cllr Stuart Marais, Ward Councillor: Ward 54	❖ Presentation ❖ Attendance Register	Ms Gerlinde Wilreker, Kongiwe	Mr Masala Tshamano, Environmental Manager, Ergo Mr Josiah Tshisevhe, Community Liaison Manager, Ergo Ms Gerlinde Wilreker, Kongiwe Ms Thuli Phakathi, Kongiwe Ms Anela Fixi, Kongiwe
14 November 2024	**15H00**	**Online (Microsoft Teams)**	**Directly Affected Landowners** <u>PRASA</u>	**Invited:** ❖ Mr Paul Motsoaledi, Real Estate Manager ❖ Ms Sphesihle Bophela, Real Estate ❖ Mr Anthony Tshatsinde, Engineer **Attended:** ❖ Mr Paul Motsoaledi, Real Estate Manager ❖ Ms Sphesihle Bophela, Real Estate **Apologies:** ❖ Mr Anthony Tshatsinde, Engineer	❖ Presentation ❖ Attendance Register	Ms Gerlinde Wilreker, Kongiwe	Mr Masala Tshamano, Environmental Manager, Ergo Ms Gerlinde Wilreker, Kongiwe Ms Thuli Phakathi, Kongiwe Ms Anela Fixi, Kongiwe
15 November 2024	**10H30**	**Online (Microsoft Teams)**	**Environmental NGOs**	**Invited:** ❖ Dr Andrew Barker, Chairman	❖ Presentation ❖ Attendance Register	Ms Gerlinde Wilreker, Kongiwe	Mr Masala Tshamano, Environmental Manager, Ergo

			KlipSA Kongiwe office, 150 Bryanston Drive, Bryanston, Sandton	**Attended:** ❖ Dr Andrew Barker, Chairman ❖ Dr Dennis Jane, KlipSA Exco and KlipWaS convener ❖ Dr Kousar Banu Hoorzook, Programme Manager for UJ Process Energy Environment Technology Station **Apologies:** ❖ **None**			Mr Greg Ovens, Ergo Mr Mothusi Mafatshe, Environmental Coordinator Ms Gerlinde Wilreker, Kongiwe Ms Thuli Phakathi, Kongiwe Ms Anela Fixi, Kongiwe
15 November 2024	**13H30**	**Online (Microsoft Teams)**	**Directly Affected Landowners** AfriSam (Trans-Atlas Ltd)	**Invited:** ❖ Mr Zielas du Preez, Regional Manager ❖ Mr Quentin Dollman, Property Manager ❖ Mr Oscar Olen ❖ Ms Allarice Prinsloo, Company Secretary Professional **Attended:** ❖ Mr Zielas du Preez, Regional Manager ❖ Mr Quentin Dollman, Property Manager ❖ Mr Oscar Olen **Apologies:** ❖ Ms Allarice Prinsloo, Company Secretary Professional	❖ Presentation ❖ Attendance Register	Ms Gerlinde Wilreker, Kongiwe	Mr Masala Tshamano, Environmental Manager, Ergo Mr Mothusi Mafatshe, Environmental Coordinator Ms Gerlinde Wilreker, Kongiwe Mr Bradly Thornton, Kongiwe Ms Vanessa Viljoen, Kongiwe Ms Thuli Phakathi, Kongiwe Ms Anela Fixi, Kongiwe
15 November 2024	**15H00**	**Online (Microsoft Teams)**	**Directly Affected Landowners** Coastal Trade Inv (Pty) Ltd) - Africa SunOil Refineries	**Invited:** ❖ Mr Farhaad Adam, Principal Process Engineer ❖ Mr A-K Essa, COO and General Manager ❖ Mr Mohammed Joosab, Head of Operations and Logistics **Attended:** ❖ Mr Farhaad Adam, Principal Process Engineer ❖ Mr A-K Essa, COO and General Manager **Apologies:** ❖ Mr Mohammed Joosab, Head of Operations and Logistics	❖ Presentation ❖ Attendance Register	Ms Gerlinde Wilreker, Kongiwe	Mr Masala Tshamano, Environmental Manager, Ergo Mr Mothusi Mafatshe, Environmental Coordinator Ms Gerlinde Wilreker, Kongiwe Mr Bradly Thornton, Kongiwe Ms Vanessa Viljoen, Kongiwe Ms Thuli Phakathi, Kongiwe Ms Anela Fixi, Kongiwe
Saturday, 16 November 2024		**Open Day** **In-Person**	**Open Day** ❖ All sectors of society / Broader Public; ❖ Riverlea Business Development Forum; and ❖ B68 Non-Profit Organisation.	**Invited:** ❖ All sectors of society / Broader Public Ward Councillors, Ward Committee members, community leaders and community members.	❖ Presentation ❖ Attendance Register ❖ Maps ❖ Posters		Mr Masala Tshamano, Environmental Manager, Ergo Mr Mothusi Mafatshe, Environmental Coordinator Mr Josiah Tshisevhe, Community Liaison Manager, Ergo Mr Zoleka Solombela, Ergo

			Riverlea Empowerment Centre 92 Sandpiper Crescent, Ext 5, Riverlea, 2093	**Attended:** Refer to the attendance register **Apologies:** **None**			Mr Abraham Maluleke, Ergo Ms Gerlinde Wilreker, Kongiwe Mr Bradly Thornton, Kongiwe Ms Vanessa Viljoen, Kongiwe Ms Thuli Phakathi, Kongiwe Ms Anela Fixi, Kongiwe Mr Ripfumelo Macavele, Kongiwe Ms Chelsea Strooh, Kongiwe
Wednesday, 13 November 2024	10H00	**Online (Microsoft Teams)**	**<u>Online Meeting</u>** ❖ An opportunity for online meetings will be given to those stakeholders who do not want to / cannot attend the open days. ❖ <u>All sectors of society / Broader Public</u>	**Invited:** ❖ <u>All sectors of society / Broader Public</u> **Attended:** **<u>No stakeholders have registered for this meeting, so we have given the opportunity with no response. The meeting was cancelled.</u>**	❖ Presentation ❖ Attendance Register	Ms Gerlinde Wilreker, Kongiwe	Mr Masala Tshamano, Environmental Manager, Ergo Mr Mothusi Mafatshe, Environmental Coordinator Ms Gerlinde Wilreker, Kongiwe Mr Bradly Thornton, Kongiwe Ms Vanessa Viljoen, Kongiwe Ms Thuli Phakathi, Kongiwe Ms Anela Fixi, Kongiwe
SANRAL **(indicated they do not want a meeting)**		**Online (Microsoft Teams)**	**Directly Affected Landowners** <u>South African National Roads Agency Limited (SANRAL)</u>	**Invited:** ❖ Ms Victoria Bota, Environmentalist	❖ Presentation ❖ Attendance Register	Ms Gerlinde Wilreker, Kongiwe	Mr Masala Tshamano, Environmental Manager, Ergo Mr Mothusi Mafatshe, Environmental Coordinator Ms Gerlinde Wilreker, Kongiwe Mr Bradly Thornton, Kongiwe Ms Vanessa Viljoen, Kongiwe Ms Thuli Phakathi, Kongiwe Ms Anela Fixi, Kongiwe
Riverlea Mining Forum **(indicated they do not want a meeting)**		**In Person** **<u>Focus Group Meeting</u>**	**Focus Group Meetings:** **(All Members)** ❖ Riverlea Mining Forum; ❖ Benchmarks Foundation Riverlea Empowerment Centre 92 Sandpiper Crescent, Ext 5, Riverlea, 2093	**Invited:** ❖ Riverlea Mining Forum and other NGO organisations **Attended:** <u>An online meeting was scheduled on **Thursday, 14 November at 17H00** which was cancelled by the RMF. It was also envisaged that an additional focus-group meeting would be held with the Riverlea Mining Forum (RMF), but the meeting was declined by the Chairman Mr Mark Kayter</u>.	❖ Presentation ❖ Attendance Register	Ms Gerlinde Wilreker, Kongiwe	Mr Masala Tshamano, Environmental Manager, Ergo Mr Mothusi Mafatshe, Environmental Coordinator Ms Gerlinde Wilreker, Kongiwe Mr Bradly Thornton, Kongiwe Ms Vanessa Viljoen, Kongiwe Ms Thuli Phakathi, Kongiwe Ms Anela Fixi, Kongiwe
Wednesday, 15 January 2025	09H00	**Online (Microsoft Teams)**	**<u>Landowner Consent</u>** **<u>South African National Roads Agency Limited (SANRAL)</u>**	**Invited:** ❖ Mr David Thubane, Land Acquisition ❖ Ms Victoria Bota, Environmental Manager ❖ Dr Ayanda Vilakazi, Business Development ❖ Ms Odwa Dilizo, Legal Advisor	❖ Presentation ❖ Attendance Register	Ms Gerlinde Wilreker, Kongiwe Ms Phumla Mngwengwe, Kongiwe	Mr Masala Tshamano, Environmental Manager, Ergo Ms Gerlinde Wilreker, Kongiwe Ms Thuli Phakathi, Kongiwe Ms Anela Fixi, Kongiwe

				❖ Ms Jacques de Villiers, Legal Advisor ❖ Mr Johan Els, Legal Advisor ❖ Mr Fuad Davids, Legal Advisor ❖ Mr Ockert Stevens, Business Development **Attended:** ❖ Mr David Thubane, Land Acquisition ❖ Dr Ayanda Vilakazi, Business Development ❖ Ms Thembelihle Ndlandla, Environmental Manager ❖ Ms Victoria Bota, Environmental Manager ❖ Mr Fuad Davids, Legal Advisor **Apologies:** ❖ Ms Odwa Dilizo, Legal Advisor ❖ Ms Jacques de Villiers, Legal Advisor ❖ Mr Johan Els, Legal Advisor ❖ Mr Ockert Stevens, Business Development			
Monday, 20 January 2025	15H00	**Online (Microsoft Teams)**	**<u>Riverlea Mining Forum</u>**	**Invited:** ❖ Ms Jennifer Katerere Mohamed, Member ❖ Mr Mark Kayter, Chairperson **Attended:** ❖ Ms Jennifer Katerere Mohamed, Member ❖ Mr Mark Kayter, Chairperson **Apologies:** **None**	❖ Presentation ❖ Attendance Register	Ms Gerlinde Wilreker, Kongiwe	Ms Gerlinde Wilreker, Kongiwe Ms Vanessa Viljoen, Kongiwe Ms Thuli Phakathi, Kongiwe
Wednesday, 29 January 2025	12H15	**Online (Microsoft Teams)**	**<u>Landowner Consent</u>** **<u>South African National Roads Agency Limited (SANRAL)</u>**	**Invited:** ❖ Mr David Thubane, Land Acquisition ❖ Ms Victoria Bota, Environmental Manager ❖ Dr Ayanda Vilakazi, Business Development ❖ Ms Odwa Dilizo, Legal Advisor ❖ Ms Jacques de Villiers, Legal Advisor ❖ Mr Johan Els, Legal Advisor ❖ Mr Fuad Davids, Legal Advisor ❖ Mr Ockert Stevens, Business Development **Attended:** ❖ Mr David Thubane, Land Acquisition	❖ Presentation ❖ Attendance Register	Ms Gerlinde Wilreker, Kongiwe	Mr Masala Tshamano, Ergo Ms Gerlinde Wilreker, Kongiwe Ms Thuli Phakathi, Kongiwe

				❖ Dr Ayanda Vilakazi, Business Development ❖ Ms Thembelihle Ndlandla, Environmental Manager ❖ Ms Victoria Bota, Environmental Manager ❖ Mr Fuad Davids, Legal Advisor **Apologies:** ❖ Ms Odwa Dilizo, Legal Advisor ❖ Ms Jacques de Villiers, Legal Advisor ❖ Mr Johan Els, Legal Advisor ❖ Mr Ockert Stevens, Business Development			
Thursday, 30 January 2025	10H00	**In-Person** **<u>Site Visit</u>**	**<u>Local Authority</u>** **<u>City of Johannesburg Metropolitan Municipality</u>**	**Invited:** ❖ Ms Nozipho Maduse, Deputy Director: EISD Impact Management ❖ Ms Mashudu Ratshitanga, EISD Impact Management ❖ Ms Moseketsi Mochesane, EISD Impact Management **Attended:** ❖ Ms Nozipho Maduse, Deputy Director: EISD Impact Management ❖ Ms Mashudu Ratshitanga, EISD Impact Management ❖ Ms Moseketsi Mochesane, EISD Impact Management **Apologies**	❖ Attendance Register ❖ Map	Ms Gerlinde Wilreker, Kongiwe	Mr Mothusi Mafatshe, Environmental Coordinator Ms Gerlinde Wilreker, Kongiwe Mr Ripfumelo Macevele, Kongiwe Mr Benjamin Dunn, Kongiwe
Tuesday, 11 March 2025	09H00	**In-Person** **<u>Site Visit</u>**	**<u>Competent Authority:</u>** **<u>Department of Water and Sanitation (DWS)</u>**	**Invited:** ❖ Ms Joyce Lekoane, Environmental Officer ❖ Ms Zanele Nyamende, Scientist **Attended:** ❖ Ms Joyce Lekoane, Environmental Officer ❖ Ms Zanele Nyamende, Scientist **Apologies**	❖ Attendance Register ❖ Map	Ms Phumla Mngwengwe, Kongiwe	Mr Masala Tshamano, Environmental Manager, Ergo Mr Mothusi Mafatshe, Environmental Coordinator Mr Mdu Nkosi, ThumaMvelo (Pty) Ltd Mr Samuel Luphoko, ThumaMvelo Mr Peter Walters, ThumaMvelo Mr Ripfumelo Macevele, Kongiwe Ms Anela Fixi, Kongiwe

Ergo Mining (Pty) Ltd

Valley Silts Expansion Project

Stakeholder Engagement Meeting

DMRE reference number: GP184MR

DWS reference number: WU38176

Agenda

1. Purpose of the Meeting
2. Important Notice
3. Introduction
4. Kongiwe's Role as an Independent Environmental Assessment Practitioner
5. Project Background
6. Project Description
7. Project Infrastructure
8. Reclamation Method
9. Water Management
10. Specialist Studies
11. Listed Activities & Water Uses
12. Legislative Framework
13. Document Availability
14. The Way Forward
15. Questions & Answers

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Purpose of the Meeting

- Discuss the proposed Valley Silts Expansion Project.
- Provide an overview of the Scoping and Environmental Impact Assessment process.
- Provide you with an opportunity to raise comments/seek clarity and provide input.
- Record comments raised and include in the Comments and Responses Report.

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Important Notice

- This meeting is a formal consultation in terms of the requirements as stipulated in the:
  - National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) for an Application for an Environmental Authorisation (EA) for listed activities triggered in Listing Notices GN R983 and GN R984 in terms of the Environmental Impact Assessment (EIA) Regulations of December 2014, as amended. The Department of Mineral Resources and Energy (DMRE) will be the Competent Authority to assess the EA for the proposed project.
  - National Water Act, 1998 (Act No.36 of 1998) (NWA) for an Integrated Water Use Licence Application (IWULA) in accordance with the Act. The Department of Water and Sanitation (DWS) will be the Competent Authority to assess the IWULA for the proposed project.

POPIA: Safeguarding registered person's personal information

In terms of section 19 of the Protection of Personal Information Act (POPIA), a responsible party must, subject to Sections 9 and 11 of the Act, ensure the integrity and confidentiality of personal information in its possession or under its control by taking appropriate, reasonable technical and organisational measures to prevent loss of, damage to or unauthorised destruction of personal information, unlawful access to or processing of personal information. POPIA requires that personal information should be adequately protected to avoid unauthorised access. Therefore, Kongiwe continuously reviews security controls and procedures to ensure that personal information is secured. It should be noted that in terms of Section 11, personal information may be processed to the extent that this is necessary for pursuing the legitimate interests of the responsible party to whom the information is supplied.

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Introductions

❖ **Ergo Mining (Applicant)**

- Masala Tshamano
- Mothusi Mafatshe
- Abraham Maluleke
- Zoleka Sombela

❖ **Kongiwe**

- Gerlinde Wilreker – Kongiwe Project Manager
- Phumla Mngwengwe – WULA Consultant
- Thuli Phakathi – Stakeholder Engagement Consultant
- Bradly Thornton – Kongiwe Project Director

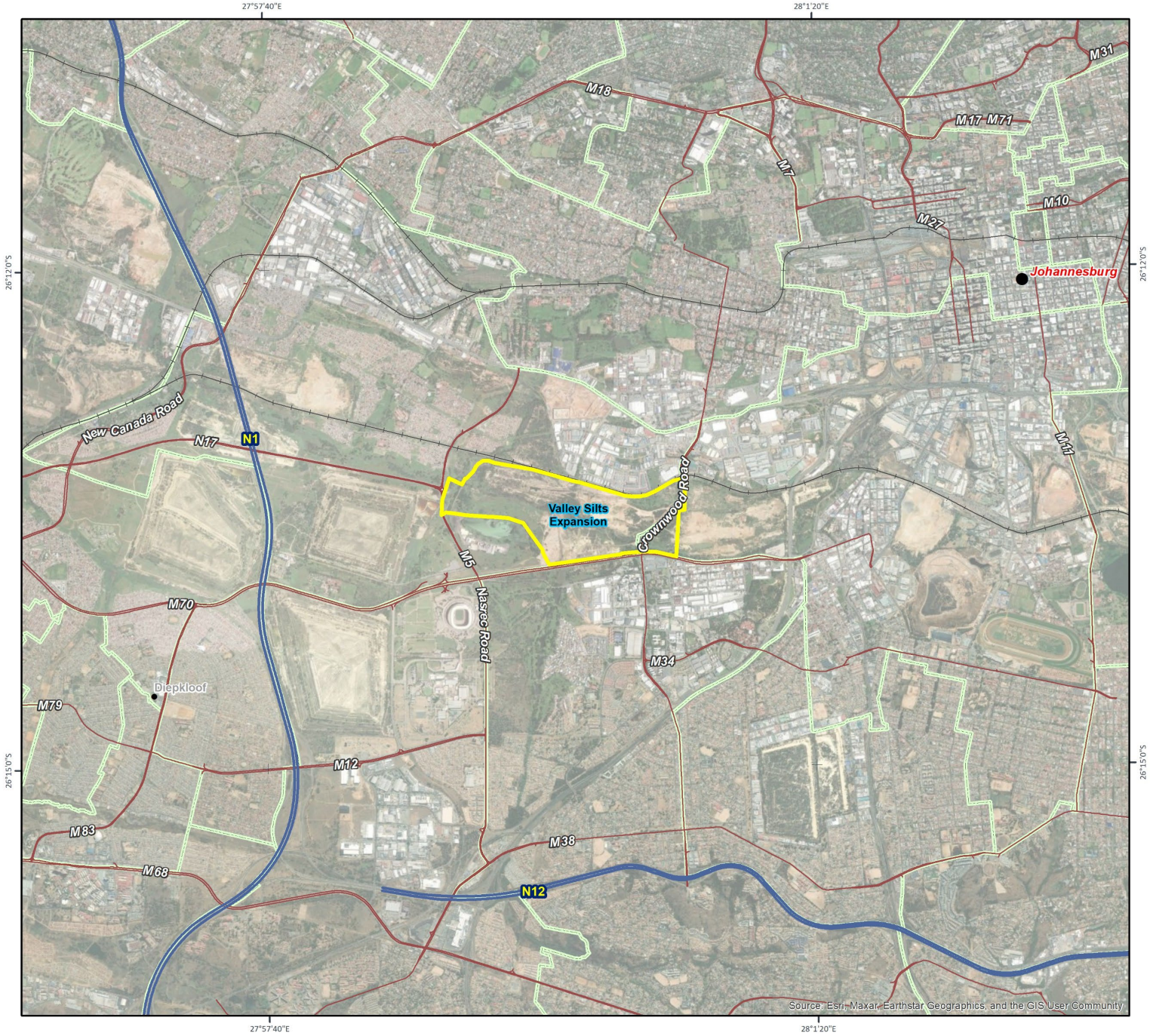
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Project Background

- **Applicant**: Ergo Mining (Pty) Ltd
- **Activity**: Reclamation of gold-bearing silts from the Russel Stream
- **Life of Operation:** 5 years
- The Proposed Project is situated near Riverlea within the CoJ MM.
- Located within the Russell Stream valley, near Booysens Reserve. The project area stretches from Nasrec Road and past Crownwood Road.
- Ergo obtained an Environmental Authorisation (EA) and an Integrated Water Use Licence (08/C221/CGI/12143) for the Valley Silts Project - the mechanical reclamation of gold bearing silts from a section of the Russell Stream north of Nasrec near Booysens Reserve, in Johannesburg.
- The mining authorisation for the removal of silts, falls within Mining Right GP 184 MR.
- The removal of silts within the already approved area has been ongoing for a period of time and as such, the requirement to fully prepare the remaining extent is now necessary to maintain an efficient mining operation, as well as a sustainable feed source to the process plant.

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Project Location



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VALLEY SILTS EXPANSION

LOCAL ORIENTATION

Legend

- City
- Major Town
- Other Settlement
- National Road
- Main Road
- Railway
- Local Municipality
- Ward Boundary
- Project Boundary

0 0,5 1 2 3

Kilometres

Project Code: DRDG#052
Client: Ergo Mining (Pty) Ltd
Drawn: C Strooh | Checked: Z Omar
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www.kongiwe.com | Date: 24 October 2024

1:40 000

Coordinate System: WGS84 TM LO29
Projection: Transverse Mercator
Datum: WGS 1984

(A3)
2024 Satellite Imagery

Disclaimer
The information represented in this plan is for general information purposes only and is subject to change.

FILE REF:
Z:\GIS\Projects\DRDGOLD\052 Valley Silts Expansion\Projects\General\Map Set 1\Valley Silts Expansion Local Orientation Landscape A3.mxd

Project Description

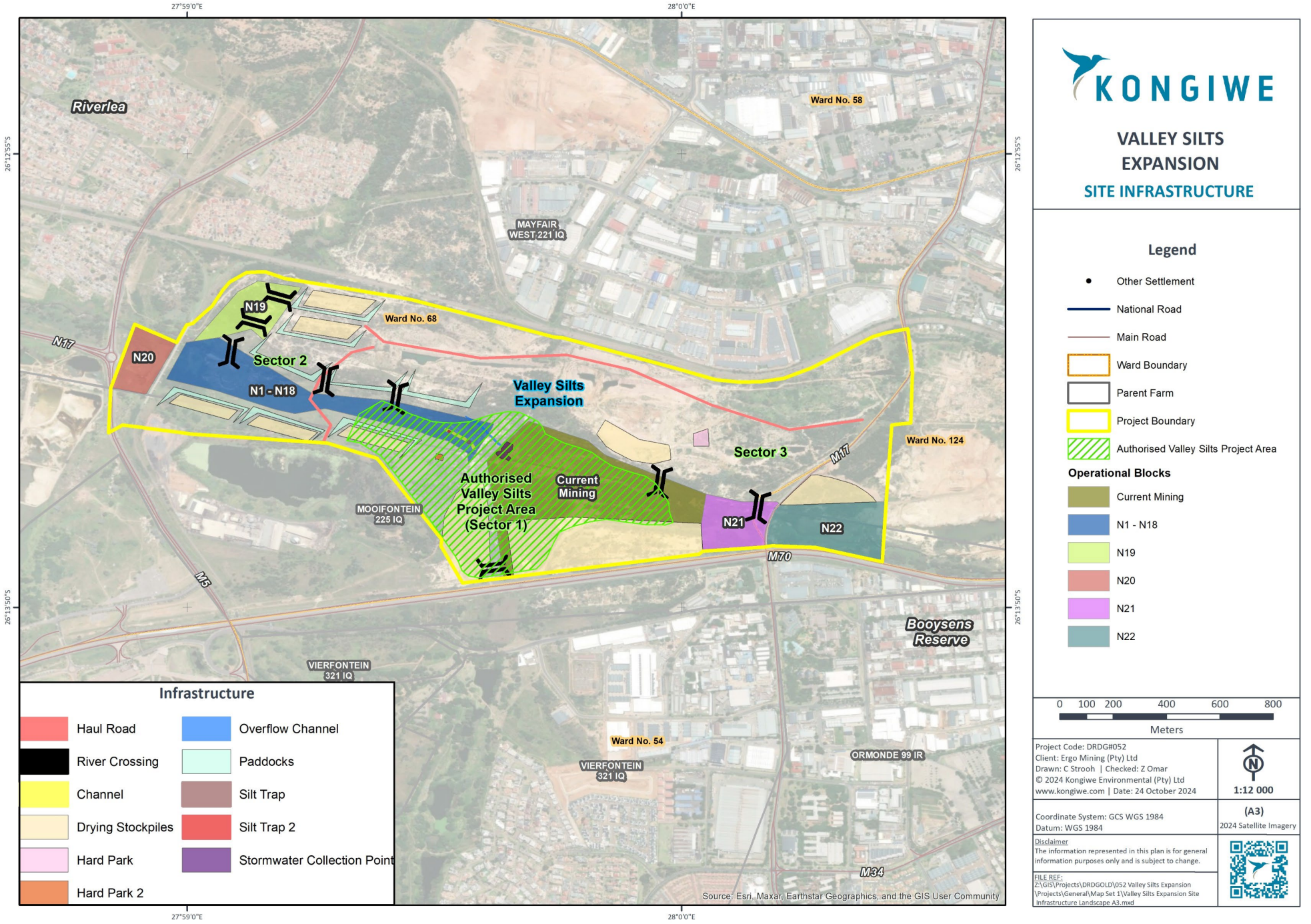
- The Valley Silts resource area has three primary sectors.
- The current approved mining area is Sector 1 and extends from the old dam wall to the end of the stockpile area near Crownwood Road.
- Sectors 2 and 3 are to be licensed.
  - Sector 2 will extend from the dam wall to Nasrec Road (N1 to N20),
  - Sector 3 will be located on either side of Crownwood Road and consists of blocks N21 and N22.
- Existing infrastructure
  - Site offices
  - Hard Park areas
  - Existing site access roads and haul roads
- Additional Infrastructure
  - Additional haul roads
  - Additional stockpile drying areas
  - Additional temporary stream crossings
  - Additional silt traps and stormwater control berms/ paddocks





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Project Infrastructure



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VALLEY SILTS EXPANSION

SITE INFRASTRUCTURE

Legend

- Other Settlement
- National Road
- Main Road
- Ward Boundary
- Parent Farm
- Project Boundary
- Authorised Valley Silts Project Area

Operational Blocks

- Current Mining
- N1 - N18
- N19
- N20
- N21
- N22

0 100 200 400 600 800

Meters

Project Code: DRDG#052
Client: Ergo Mining (Pty) Ltd
Drawn: C Strooh | Checked: Z Omar
© 2024 Kongiwe Environmental (Pty) Ltd
www.kongiwe.com | Date: 24 October 2024

1:12 000

(A3)

Coordinate System: GCS WGS 1984
Datum: WGS 1984

2024 Satellite Imagery

Disclaimer
The information represented in this plan is for general information purposes only and is subject to change.

FILE REF:
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Project Description

- Because mining exceeds the delivery rate, stockpile areas are therefore required for temporary storage. Stock is moved in a sequential manner due to the moisture content, the drying process, as well as oxidation.
- Exploration trenching will determine the depositional flank extents, and all material will be removed from the natural flow path as well as the flanks.
- Paddocks and stormwater controls are required to protect the river from any extraneous ingress.
- The new activities for the Expansion Project include:
  - Mining blocks (N 1 to N22);
  - Drying stockpiles (8 locations);
  - Stormwater control berms/paddocks;
  - Temporary river crossings (8); and
  - Haul and site roads.
- Existing silt traps will move as the mining blocks progress. The existing sump will discharge to the stream for continued safe operation.

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Reclamation Method

- The gold bearing silts will be mechanically excavated from the project area.
- 30-ton Articulated Dump Trucks (ADT) will be used to transport and stockpile the silts from the Russell Stream. The silts will be left to dry on stockpile footprints.
- Silts will have a 30 - 40% moisture content when hauled and are not expected to be fully dried out.
- The dried silts will be loaded onto tipper trucks and transported to the City Deep plant for pre-processing.
- The trucks transporting the material will follow Crownwood Road until it reaches Main Reef Road and then joins the M2 East. The trucks will then follow the M2 until they reach Heidelberg Road which is followed to the City Deep Plant where it is offloaded.





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Water Management

- This project will not require any additional process water for the mechanical excavation of gold bearing silts.
- Potable drinking water will be sourced from the Municipality and will be available to employees on site.
- The clean stormwater runoff from the area to the south of the drying sites will be diverted using a stormwater diversion drain (or berm) around the area to the west. Stormwater from the north will flow via properly constructed inlets into the Russell Stream. Temporary berms will be constructed along the banks of the channel. These banks will be raised in sections to retain flood flow and prevent flooding of any of the reclamation area during excessive rainfall. The raised riverbanks and berms will be able to contain a 1:50 year storm event.
- Dirty stormwater will be contained in paddocks on the drying sites. Should the paddocks reach capacity, the excess stormwater will need to be released into the Russel Stream.
- Stormwater from the mined-out areas flows to a stormwater collection point. Should the collection point reach capacity, it will overflow via a channel into the Russel Stream.

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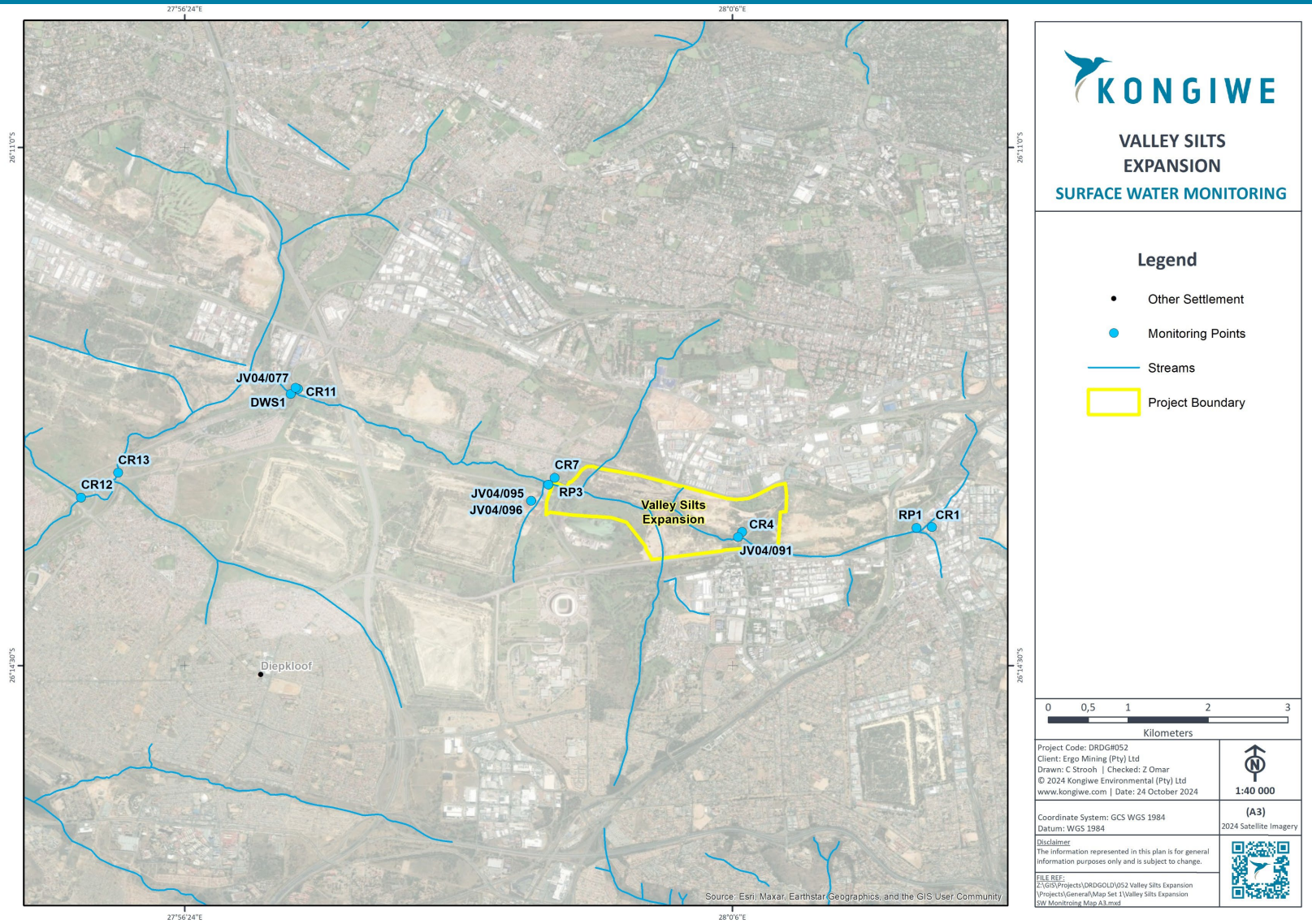
Specialist Studies

Proposed Specialist Studies	
Biodiversity Impact Assessment	Wetlands Impact Assessment
Surface Water Impact Assessment	Groundwater Impact Assessment
Air Quality Impact Assessment	Socio-Economic Impact Assessment
Heritage Impact assessment	Traffic Impact assessment
Noise Impact Assessment	

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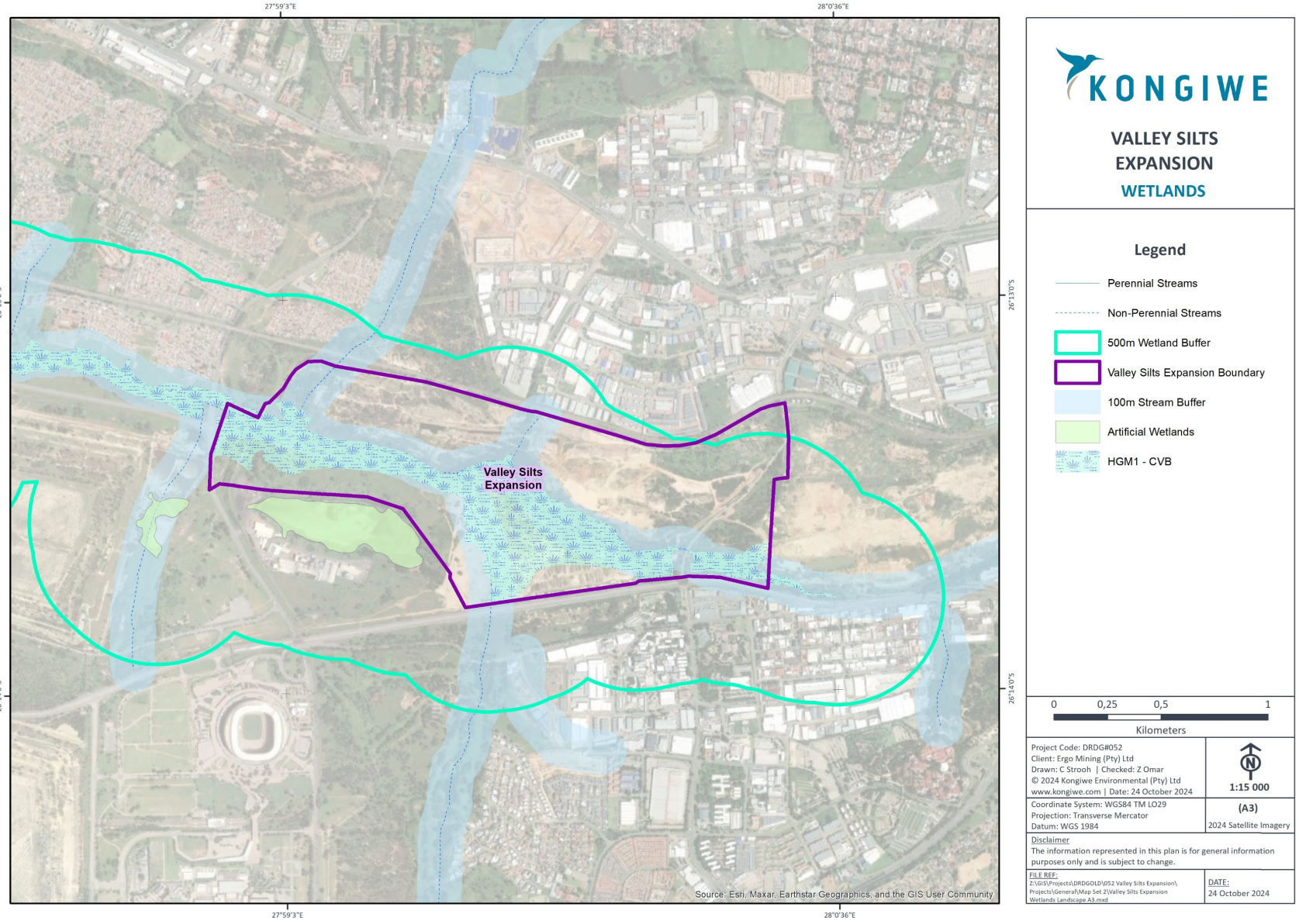
Surface Water

- The project area is situated in the Vaal-Orange WMA and quaternary catchment C22A. Drainage within the project area occurs in a westerly direction along the Russel Stream and ultimately drains into the Klip River.
- Monitoring upstream (CR4) and downstream(CR7). Results compared against Klipriver Catchment Water Quality Objectives.
- Project area activities are in a floodline area and therefore a GN704 Exemption Motivation will be submitted.



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Wetlands



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VALLEY SILTS EXPANSION

WETLANDS

Legend

- Perennial Streams
- Non-Perennial Streams
- 500m Wetland Buffer
- Valley Silts Expansion Boundary
- 100m Stream Buffer
- Artificial Wetlands
- HGM1 - CVB

0 0,25 0,5 1

Kilometers

Project Code: DRDG#052
Client: Ergo Mining (Pty) Ltd
Drawn: C Strooh | Checked: Z Omar
© 2024 Kongiwe Environmental (Pty) Ltd
www.kongiwe.com | Date: 24 October 2024

1:15 000

(A3)

Coordinate System: WGS84 TM LO29
Projection: Transverse Mercator
Datum: WGS 1984

2024 Satellite Imagery

Disclaimer
The information represented in this plan is for general information purposes only and is subject to change.

FILE REF:
Z:\GIS\Projects\DRDGOLD\052 Valley Silts Expansion\Projects\General\Map Set 2\Valley Silts Expansion Wetlands Landscape A3.mxd

DATE:
24 October 2024

Two wetland types were delineated within the project assessment boundary:

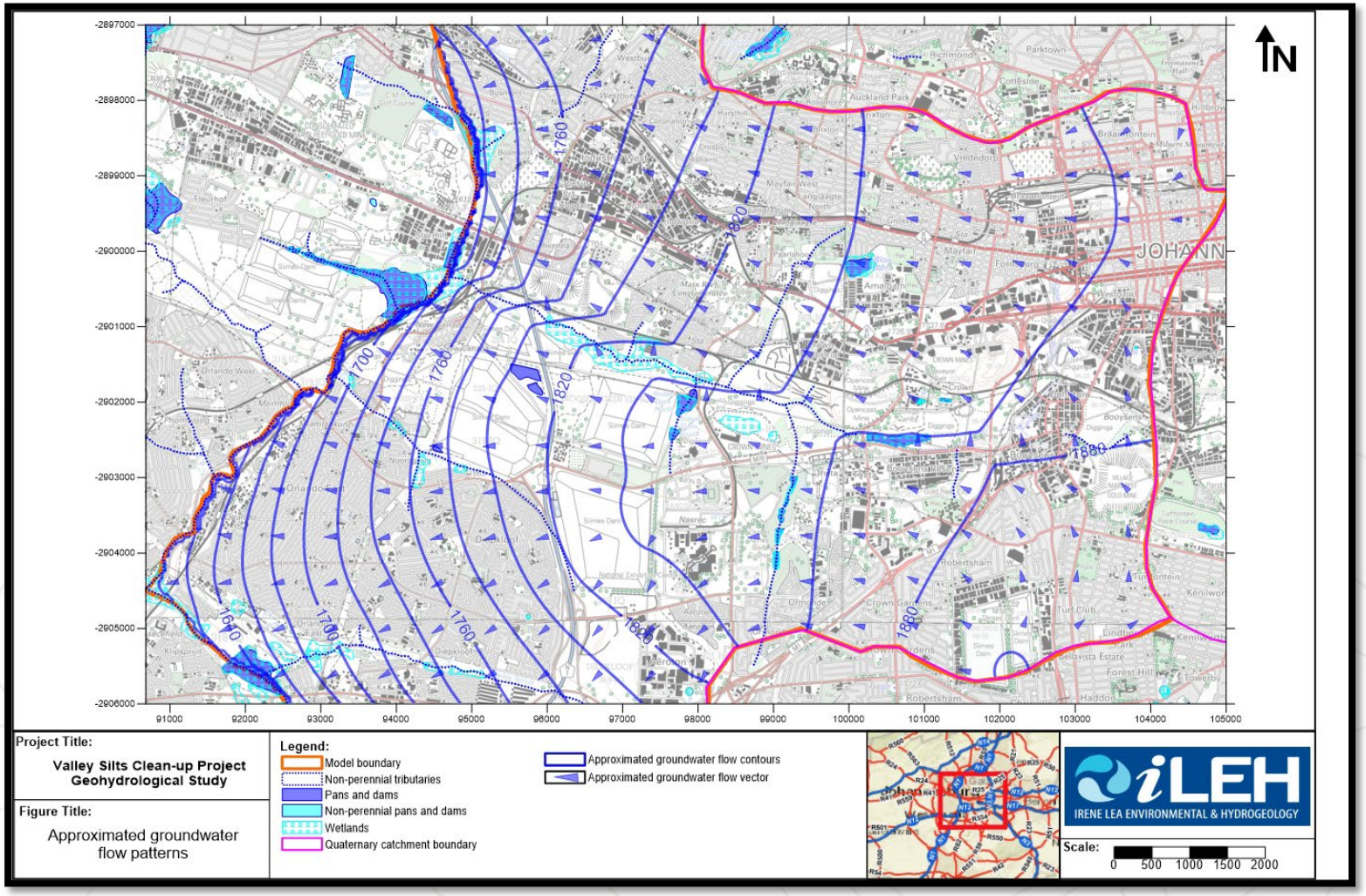
- HGM 1: Channelled valley bottoms; and
- Artificial wetlands.

The overall PES of the HGM unit was determined to be Critically Modified (Class F)

- The water within the channel, before the Project was initiated, was found to be opaque and black.
- Risk of project to wetlands was found to range from M to L after mitigation.

Groundwater

- In 2019, groundwater in the project area was found to be Calcium/ Magnesium-sulphate water, indicating contaminated water.
- The chemicals of concern for the Valley Silts project area (associated with the 3 sampled sites in 2019) are pH, dissolved iron, manganese, sulphate and total organic carbon.
- Regionally, the sulphate plumes from both the Valley Silts, as well as the historical TSFs nearby are expected to migrate in a westerly direction towards the tributary of the Klip River adjacent to the project area.
- For the Valley Silts area, the groundwater flow direction is in a westerly to south-westerly direction, towards the Klip River.



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Listed Activities & Water Uses

1. **Application for EA** for listed activities triggered in Listing Notices GN R983, GN R984 and GN R985 published pursuant to the EIA Regulations 2014 (as amended), promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA);

    - GN R983 – Activities 19,
    - GN R984 – Activities 4, 15
    - GN R985 – Activity 4, 6, 12, 14

2. **Application for a waste management licence (WML)** authorising waste management activities listed in GN 921 of 29 November 2013 published in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (as amended) (NEM:WA).

    - Category B – 10

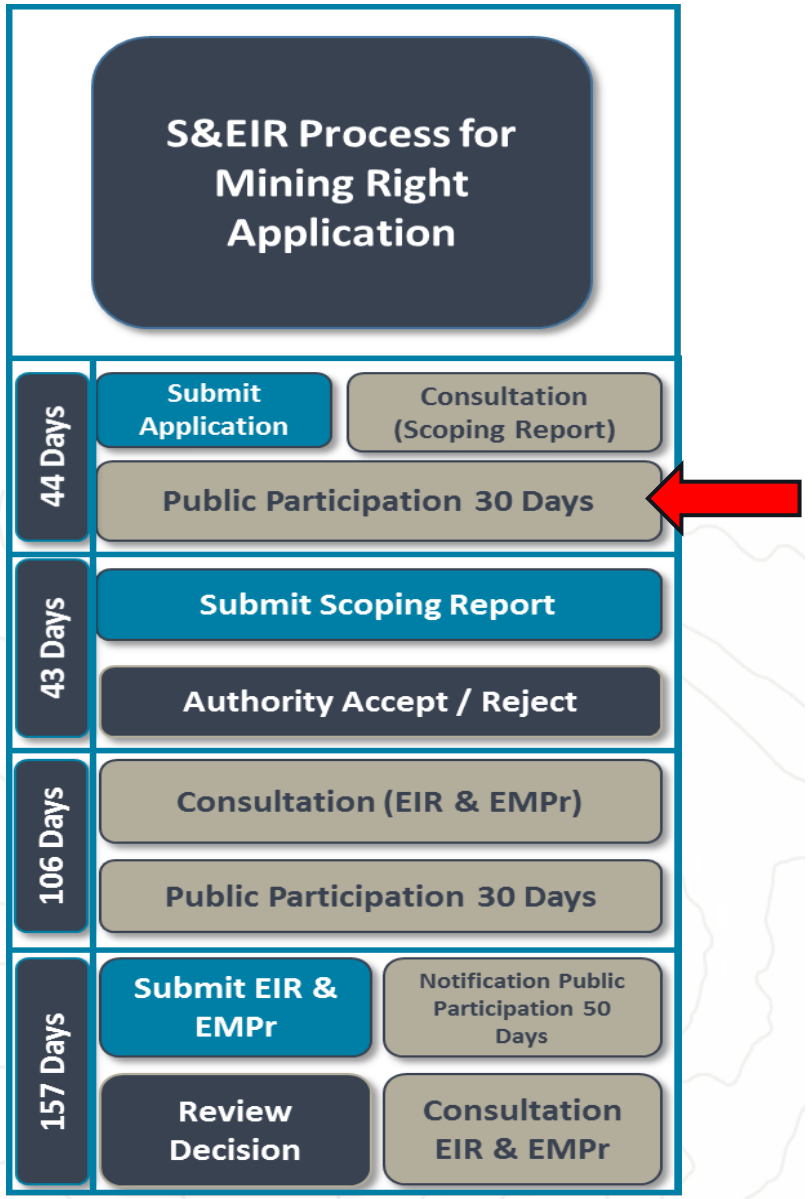
3. **An Integrated Water Use Licence Application (IWULA)** in terms of the National Water Act, 1998 (Act No. 36 of 1998) (NWA) will be submitted to the Department of Water and Sanitation (DWS) for any potential impact to water resources by the Proposed Project. In this regard, any objection to that application may be lodged in writing within sixty days of the date of this notice to the Minister of the DWS as provided in Section 41(4) of the NWA.

    - Water uses 21 a, (c and i), g

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Legislative Framework

- An integrated Environmental Authorisation (EA) application has been submitted to the DMRE as the Competent Authority for the proposed project.
- The applicable applications to be assessed by the DMRE are as follows:
  - Application for an Environmental Authorisation for listed activities triggered in Listing Notices GN R983 and GN R984 in terms of the Environmental Impact Assessment (EIA) Regulations, 2014, as amended, as promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA);
  - Application for a waste management licence (WML) authorising waste management activities in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (NEM:WA) and the Activities listed in GN R921 of 29 November 2013 published in terms of NEM:WA.
- In addition, the following applications will be made to the relevant Competent Authorities:
  - An Integrated Water Use Licence Application (IWULA) will be undertaken in accordance with the National Water Act, 1998 (Act No.36 of 1998) (NWA). The Department of Water and Sanitation will be the Competent Authority to assess the IWULA for the proposed project.



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Document Availability

Location	Physical Adress
Public Libraries with the Scoping Report	
Riverlea Public Library	Cnr Avon & Colorado Dr, Riverlea, Johannesburg
Online availability	
Kongiwe Environmental website	https://kongiwe.com/projects/
An electronic copy of the DSR will be made available upon a request directed to the stakeholder engagement team. Stakeholders are encouraged to contact the stakeholder engagement team (Vanessa Viljoen/Thuli Phakathi), tel: (010) 140 1725/(010) 140 1726, email: stakeholders@kongiwe.com should they require assistance with accessing the DSR/ have queries regarding the Proposed Project.	

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The Way Forward

- Key Dates :
  - Project Announcement: Thursday , 24 October 2024.
  - NEMA application submission: Monday, 28 October 2024
  - Public Participation Period: Tuesday, 29 October – Wednesday, 27 November 2024
    - Online Meetings
    - **Open Day: Saturday, 16 November 2024 at Riverlea Empowerment Centre, 92 Sandpiper Crescent, Ext 5, Riverlea, 2093**
  - Final Scoping Report Submission: Monday 09 December 2024

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Comment & Discussion

- Discussion
  - Questions and comments
- Action Points
  - Responsibility
  - Due Date
- Closing



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Contact

- **Name: Vanessa Viljoen / Thuli Phakathi / Anela Fixi**
- **Tel: 010 140 1725/1726/1729**
- **Email: stakeholders@kongiwe.com**

Kongiwe Environmental
150 Bryanston Drive, Bryanston, Sandton, 2191, South Africa.
PostNet Suite no 163, Private Bag X21, Bryanston, 2021, South Africa.

info@kongiwe.com
www.kongiwe.com

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Environmental Authorisations and Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province

DMRE reference number: GP184 MR
DWS reference number: WU38176

Pre-Application Meeting: Department of Water and Sanitation

Date	Friday, 25 October 2024
Time:	10H00 – 11H00
Venue:	Microsoft Teams Online Meeting

List of attendees:

Organisation	Name of attendee	Designation
Department of Water and Sanitation (DWS)	Mr Khathutshelo Michael Mudau	Specialist Production
DWS	Ms Felicia Diale	Environmental Officer
Ergo Mining (Pty) Ltd (Ergo)	Mr Masala Tshamano	Applicant Representative
Ergo	Mr Abraham Maluleke	Applicant Representative
Ergo	Mr Mothusi Mafatshe	Applicant Representative
Ergo	Ms Zoleka Sombela	Applicant Representative
Kongiwe Environmental (Pty) Ltd (Kongiwe)	Mr Bradly Thornton	Project Director
Kongiwe	Ms Phumla Mngwengwe	IWULA Consultant
Kongiwe	Ms Gerlinde Wilreker	Project Manager and Environmental Consultant
Kongiwe	Ms Thuli Phakathi	Stakeholder Engagement Consultant
Apologies:		
DWS	Ms Joyce Ramadimetja	Case Officer

Note: *These minutes are not intended as a verbatim transcript of the meeting, but rather as a summary of the salient discussions which took place.*

1. **Welcome and Introductions**
   - Ms Phumla Mngwengwe welcomed all present at the meeting.
   - All attendees introduced themselves

2. **The purpose of the Meeting was to:**
   - Present and discuss the proposed Valley Silts Expansion Project**;**
   - Provide an overview of the Integrated Water Use License Application (IWULA) process;
   - Provide the DWS officials with an opportunity to raise comments/seek clarity and provide input for the Project; and
   - Record comments raised and then include them in the Comments and Responses Report (CRR) which will be integrated into the IWULA Technical Report.

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3. Meeting Agenda:

- Introductions
- Project Background
- Project Location
- Project Description
- Project Infrastructure
- Reclamation Method
- Water Management
- Specialist Studies
- Surface Water
- Wetlands
- Groundwater
- Identified Water Uses
- Water Use Map
- Public Participation Process
- Comments & Discussion

4. Presentation

Ms Mngwengwe shared the proposed Valley Silts Expansion Project presentation. Please refer to **Appendix A** for a copy of the presentation.

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5. Discussion

STAKEHOLDER	COMMENT	RESPONSE
Mr Khathutshelo Michael Mudau, Specialist Production - DWS	Mr Mudau sought clarification on how stormwater runoff from the stockpile area is managed.	Ms Mngwengwe stated that stormwater will be managed through paddocks, which will capture the water and facilitate evaporation. However, if the paddocks reach capacity, any excess water will be discharged into the stream.
Mr Khathutshelo Michael Mudau, Specialist Production - DWS	Mr Mudau inquired whether the paddocks have engineering designs.	Mr Tshamano explained that the paddocks do not have engineering designs, but they will be constructed using the soil available on site.
Mr Khathutshelo Michael Mudau, Specialist Production - DWS	Mr Mudau asked whether Ergo has performed calculations to assess if the paddocks would be able to manage the expected rainfall within the proposed project area. He emphasized that rainfall is a concern and said that the DWS will consult with its engineers for further insights regarding the proposed paddocks.	Mr Tshamano indicated that based on Ergo's experience, the paddocks will be appropriately sized to handle the water seeping from the stockpiles. He explained that the moisture content from this seepage is usually minimal compared to the paddocks' capacity. He stated that rainfall in the area is unpredictable and emphasised that Ergo has never experienced rainfall causing an overflow into the stream, and if such an event were to occur, it would be treated as an incident.
Mr Khathutshelo Michael Mudau, Specialist Production - DWS	Mr Mudau asked why Ergo is applying for another Water Use Licence (WUL).	Mr Tshamano mentioned that this application is an extension to the existing licence, as Ergo is expanding the project area.
Mr Khathutshelo Michael Mudau, Specialist Production - DWS	Mr Mudau asked where the material will be taken.	Mr Tshamano explained that the material will be taken to the City Deep Plant.
Mr Khathutshelo Michael Mudau, Specialist Production - DWS	Mr Mudau inquired whether the City Deep Plant has a WUL and if one is required for its operations.	Mr Tshamano stated that the City Deep Plant does not have a Water Use Licence, nor is it required to have one. However, Ergo had required a WUL for the reclamation sites associated with the City Deep Plant, for which applications were submitted for sites such as 4L3, 4L4 and 4L6, among others.

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STAKEHOLDER	COMMENT	RESPONSE
Mr Khathutshelo Michael Mudau, Specialist Production - DWS	Mr Mudau sought clarity on where the waste generated from the reprocessing of silts will be taken.	Mr Tshamano explained that it will be taken to the Brakpan Tailings Storage Facility (TSF).
Ms Felicia Diale, Environmental Officer - DWS	Ms Diale inquired about how the current authorisation will be linked to the extension in terms of the Life of Mine (LoM). She also asked whether the mine is applying for an additional five years.	Mr Tshamano stated that the current Valley Silts WUL is valid for five years and will run its full course. Ergo currently has six months remaining to mine under this authorisation. Mr Tshamano also indicated that Ergo is applying for an additional five years for the Valley Silts Extension Water Use Licence Application (WULA).
Mr Khathutshelo Michael Mudau, Specialist Production - DWS	Mr Mudau noted that section 21(g) was applied for dust suppression and asked what the source of water would be.	Mr Tshamano explained that there will be two sources of water, namely the seepage resulting from mining which is collected at a collection point, and as well as the from the mining blocks around the site where water will be abstracted for safe operations.
Mr Khathutshelo Michael Mudau, Specialist Production - DWS	Mr Mudau stated that the water sourced from the mining pits is natural and it is not processed, and therefore a Section 21 (a) is triggered. He advised that a Section 21 (a) water use should be applied for instead of Section 21 (g) water use.	Mr Tshamano agreed with Mr Mudau that the water resource is natural and not processed. The comment was noted by Mr Tshamano and Kongiwe.
Mr Khathutshelo Michael Mudau, Specialist Production - DWS	Mr Mudau inquired if operation and rehabilitation will be concurrent.	Mr Tshamano confirmed that rehabilitation and operation will happen concurrently. Mr Tshamano stated that the silts will be removed as part of the rehabilitation process, leaving the area clean. He also mentioned that Ergo plans to rip the surface. However, Ergo will not be vegetating the area since light industrial development is expected to take place.
Mr Khathutshelo Michael Mudau, Specialist Production - DWS	Mr Mudau suggested that the site should be vegetated.	Mr Tshamano indicated that the banks of the stream would be stabilised based on the extent of the disturbance. Ergo will take the necessary steps to rehabilitate the area.

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STAKEHOLDER	COMMENT	RESPONSE
		He further mentioned that it would be challenging to share specific details regarding the rehabilitation process with the DWS as Ergo has not yet assessed the full extent of the disturbed area. Mr Tshamano explained that he expects that a rehabilitation plan will be required for the application and then inquired whether DWS requires a conceptual rehabilitation plan, which Ergo could provide. However, he noted that this plan would need to be updated as the project approaches completion.
Mr Khathutshelo Michael Mudau, Specialist Production - DWS	Mr Mudau asked if Ergo had not created a rehabilitation plan for the mined-out areas.	Mr Tshamano stated that Ergo has not yet mined directly on the stream and is only operating on the sides of it.
Mr Masala Tshamano, Applicant - Ergo	Mr Tshamano sought clarity on the necessity for applying for stockpile areas as Section 21 (g) water uses considering that they will be temporary.	Mr Mudau explained that Section 21(g) for stockpile areas should indeed be included in the application. He stated that according to the National Water Act (NWA), there is no provision in the Act that categorises any activity as "temporary." This means that all activities, including the stockpile areas, must comply with the regulations.
Mr Masala Tshamano, Applicant - Ergo	Mr Tshamano indicated that the quality of the water within the stream is polluted, and it would be used for dust suppression. He inquired whether this situation does not warrant a Section 21 (g) water use.	Mr Mudau explained that even if the water is contaminated, it is still considered a water resource. He made an example of the Vaal River, stating that despite its high levels of contamination, it is still treated as a water source.
Mr Masala Tshamano, Applicant - Ergo	Mr Tshamano confirmed with Mr Mudau that the dust suppression will not be considered a Section 21 (g) water use.	Mr Mudau reiterated that a Section 21 (a) would be triggered for the abstraction of water for dust suppression.

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6. Closing

COMMENT	RESPONSE
The Kongiwe and Ergo project team thanked the DWS attendees for their time and input.	The attendees thanked Kongiwe for the meeting.

The meeting adjourned at 11H00.

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Appendix A

Presentation

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Environmental Authorisations and Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province

DMRE reference number: GP184 MR
DWS reference number: WU38176

Meeting Minutes: Klip River Forum Meeting

Date	Tuesday, 05 November 2024
Time:	09:00 – 13:00
Venue:	Zoom Online Meeting

List of attendees:

Organisation	Name of attendee	Designation
Department of Water and Sanitation (DWS)	Mr Lesiba Mabona	Klip River Forum, Chairman
Federation of Sustainable Development (FSE)	Ms Mariette Liefferink	CEO
Council of Geoscience	Mr Henk Coetzee	Specialist Scientist
Klip SA	Mr Andrew Barker	Chairman
Ergo Mine (Pty) Ltd	Mr Greg Ovens	Project Manager
Kongiwe Environmental (Pty) Ltd	Ms Gerlinde Wilreker	Project Manager
Kongiwe Environmental (Pty) Ltd	Ms Thuli Phakathi	Stakeholder Engagement Consultant
Kongiwe Environmental (Pty) Ltd	Ms Anela Fixi	Environmental & Stakeholder Engagement Consultant
Other participants. Refer to attendance register.		
No apologies		
N/A		

Note: *These minutes are not intended as a verbatim transcript of the meeting, but rather as a summary of the salient discussions which took place.*

1. **Welcome and Introductions**
   - ❖ Ms Wilreker greeted the attendees and delivered her presentation.

2. **Meeting Agenda:**
   - ❖ Project Background
   - ❖ Project Location
   - ❖ Stakeholder Meetings
   - ❖ Questions and Answers

Kongiwe Environmental made a presentation to the Klip River Forum stakeholders. This presentation is attached as Appendix A.

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3. Discussion

STAKEHOLDER	COMMENT	RESPONSE
Mr Henk Coetzee, Specialist Scientist, Council of Geoscience	Mr Coetzee raised a concern regarding the ingress of water to the undermined area after the removal of tailings from streambeds. He said they acknowledge that the removal of tailings reduces polluted seepage and runoff but would like to minimise seepage which could contribute to an increased volume of ingress to the underground mine voids.	Mr Ovens acknowledged the comment but stated that he would defer his response to gather the correct information before providing an accurate answer.
Mr Lesiba Mabona, Klip River Catchment Forum, DWS	Mr Mabona asked when Mr Ovens would be able to respond to the raised comment.	Mr Ovens invited Mr. Coetzee to an online public participation meeting for the proposed project, scheduled for November 6, 2024. He stated that he would provide a response during that forum. He further explained that Ergo has conducted calculations regarding the salt load from the existing historical tailings storage facilities. However, he emphasized the need to fully understand the comment raised before providing a detailed response.
Mr Lesiba Mabona, Klip River Catchment Forum Chairperson, DWS	Mr Mabona requested that the responses be shared with the Klip River Forum.	Mr Ovens confirmed that the responses would be shared.
Mr Andrew Barker, Chairperson, Klip SA	Mr Barker inquired about the meaning of a 'free-flowing stream.' He explained that investigations are currently underway regarding the upper portion of the Russell Stream, between the N1 and Crownwood Road, and the potential for a nature-based solution to address the high levels of pollution in the area. He further highlighted that the mix of sewage and stormwater flowing from the city centre results in water pollution that is unacceptable. From a city development and management	Ms Wilreker noted the comment and expressed that Kongiwe and Ergo are looking forward to engaging with Mr Barker regarding the Valley Silts Expansion Project public participation forum.

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	perspective, he emphasized that improving water quality is not feasible due to limitations in both budget and technology. He also noted the challenges posed by the need to rebuild infrastructure in the inner city. Mr Barker concluded by explaining that, given these challenges, they are advocating for a nature-based solution as an initial step to help mitigate the water pollution flowing through the city. Mr Barker indicated that he would engage in further discussions with Kongiwe and the Ergo team to address the points raised.	
Ms Mariette Liefferink, CEO, FSE	• Ms Liefferink raised the issue of silting in the Russell Stream, which is contributing to flooding in the low-lying areas of the Riverlea settlement during heavy rains. She emphasized the need to remove the silt to improve water flow and prevent future flooding in the area. • Ms Liefferink also inquired about the current status of the appeal related to the initial environmental authorization for Valley Silts, which was submitted by the Riverlea Mining Forum. In response to Mr Coetzee's earlier statement, Ms Liefferink referenced a document produced by Professor Frank Winde. The document discusses concerns raised by ABSA and Standard Bank regarding the potential impacts of acid mine drainage on the basements of their buildings. Professor Winde identified newly emerging ingress sources that could become problematic once reclamation activities commence at highly disturbed	• Mr Ovens indicated that the appellant had withdrawn the appeal. • The comments raised were noted by Kongiwe and Ergo.

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	areas. He suggested that this could result in additional generation of acid mine drainage.	

4. Closing

COMMENT	RESPONSE
Ms Wilreker thanked the forum chairperson and attendees for their time and input.	The forum chairperson thanked Ms Wilreker for the presentation.

The meeting adjourned at 1:00 pm.

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Appendix A

Presentation

AGENDA

KLIP RIVER FORUM

Tuesday 05 November 2024
Zoom Virtual Platform
Time: 09:00 – 12:00

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1. Welcome
2. Introduction of Attendees
3. Apologies
4. Minutes of the Previous Meeting
5. Matters Arising from the Previous Minutes
6. Additions to the Agenda
   - 6.1. _____
7. Items for Presentation
   - 7.1. Withok TSF Recommissioning Project & Valley Silts Expansion project
   - 7.2. _____
8. Water Quality Monitoring and Reporting
   - 8.1. Afrimat (Glen Douglas)
   - 8.2. City of Ekurhuleni
   - 8.3. City of Johannesburg
   - 8.4. Dept. Water & Sanitation
   - 8.5. Erwat
   - 8.6. Harmony Gold
   - 8.7. Heineken SA
   - 8.8. Jo'burg Water
   - 8.9. Midvaal
   - 8.10. Rand Water
   - 8.11. Samancor Metalloys
   - 8.12. Scaw metals SA
   - 8.13. TCTA
   - 8.14. DME
9. Solid Waste Management
10. Government Departments Report Back (5-minutes)
    - 10.1. GDARD
    - 10.2. Dept. Water & Sanitation
      - 10.2.1. AMD Update
      - 10.2.2. CMA Process
      - 10.2.3. Compliance Monitoring & Enforcement (CME)
      - 10.2.4. Water Services Regulation
      - 10.2.5. Water Use Licence Status (WULA)
11. Organisations Report Back (5-minutes)
    - 11.1. Central Rand Gold
    - 11.2. ERGO
12. NGO's Other Report Back (5-minutes)
    - 12.1. Gauteng Wetland Forum
    - 12.2. Klipriviersberg Nature Reserve Association (KNRA)
    - 12.3. KlipSA / KEEDZ
    - 12.4. Federation for Sustainable Association (FSE)
13. Pollution Incidents Noted / Reported
14. Discussion of Additions to the Agenda
15. Next Meeting: TBC
16. Closure

This forum meeting is SACNASP accredited. You may claim ½ a point for attending.

Ergo Mining (Pty) Ltd

Valley Silts Expansion Project

Project Notification

DMRE reference number: GP184MR

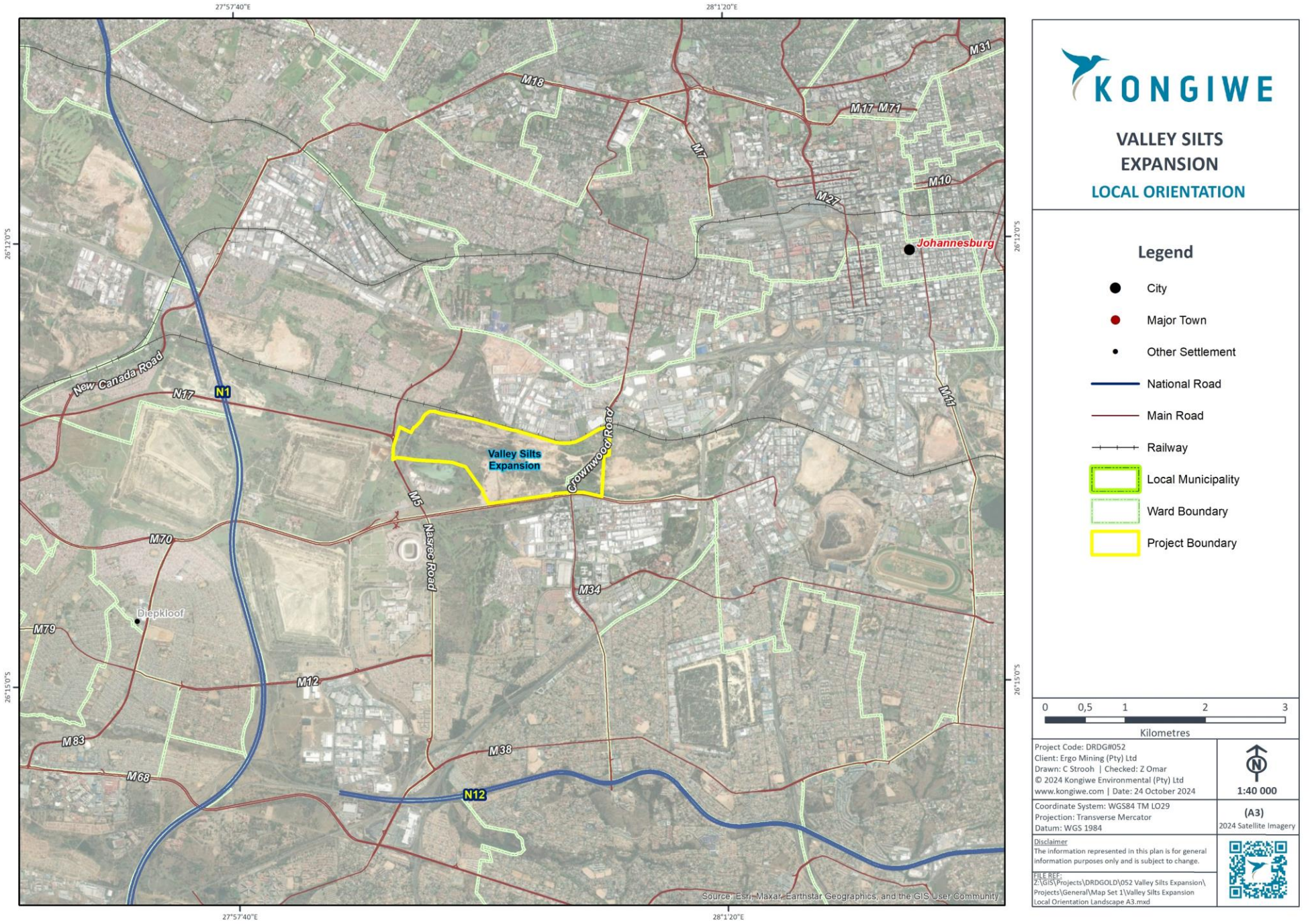
DWS reference number: WU38176

Project Background

- **Applicant**: Ergo Mining (Pty) Ltd
- **Activity**: Reclamation of gold-bearing silts from the Russel Stream. Rehabilitation of the stream once silt reclamation has been undertaken.
- **Life of Operation:** 5 years
- The Proposed Project is situated near Riverlea within the CoJ MM.
- Located within the Russell Stream valley, near Booysens Reserve. The project area stretches from Nasrec Road and past Crownwood Road.
- Ergo obtained an Environmental Authorisation (EA) and an Integrated Water Use Licence (08/C221/CGI/12143) for the Valley Silts Project - the mechanical reclamation of gold bearing silts from a section of the Russell Stream north of Nasrec near Booysens Reserve, in Johannesburg.
- The mining authorisation for the removal of silts, falls within Mining Right GP 184 MR.
- The removal of silts within the already approved area has been ongoing for a period of time and as such, the requirement to fully prepare the remaining extent is now necessary to maintain an efficient mining operation, as well as a sustainable feed source to the process plant.
- After removal of the silts from the target areas, Ergo aims to rehabilitate the target areas within the Valley area by shaping the areas where silts was removed and make the area free draining. Thereafter, appropriate species will be planted to stabilise the soil.

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Project Location



KONGIWE

VALLEY SILTS EXPANSION

LOCAL ORIENTATION

Legend

- City
- Major Town
- Other Settlement
- National Road
- Main Road
- Railway
- Local Municipality
- Ward Boundary
- Project Boundary

0 0,5 1 2 3

Kilometres

Project Code: DRDG#052
Client: Ergo Mining (Pty) Ltd
Drawn: C Strooh | Checked: Z Omar
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www.kongiwe.com | Date: 24 October 2024

1:40 000

Coordinate System: WGS84 TM LO29
Projection: Transverse Mercator
Datum: WGS 1984

(A3)
2024 Satellite Imagery

Disclaimer
The information represented in this plan is for general information purposes only and is subject to change.

FILE REF:
Z:\GIS\Projects\DRDGOLD\052 Valley Silts Expansion\Projects\General\Map Set 1\Valley Silts Expansion Local Orientation Landscape A3.mxd

Stakeholder Meetings

- Register with stakeholders@kongiwe.com as an I&AP to receive project information and invitations to meetings and Open Days.
- Public Participation Period: Tuesday, 29 October – Wednesday, 27 November 2024
- **Online Meeting: Wednesday, 13 November 2024**
- **Open Day: Saturday, 16 November 2024** at Riverlea Empowerment Centre, 92 Sandpiper Crescent, Ext 5, Riverlea, 2093

Location	Physical Adress
Online availability	
Kongiwe Environmental website	https://kongiwe.com/projects/
An electronic copy of the DSR will be made available upon a request directed to the stakeholder engagement team. Stakeholders are encouraged to contact the stakeholder engagement team (Vanessa Viljoen/Thuli Phakathi), tel: (010) 140 1725/(010) 140 1726, email: stakeholders@kongiwe.com should they require assistance with accessing the DSR/ have queries regarding the Proposed Project.	

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Contact

- **Name: Vanessa Viljoen / Thuli Phakathi**
- **Tel: 010 140 1725/6**
- **Email: Stakeholders@kongiwe.com**

Kongiwe Environmental
150 Bryanston Drive, Bryanston, Sandton, 2191, South Africa.
PostNet Suite no 163, Private Bag X21, Bryanston, 2021, South Africa.

info@kongiwe.com
www.kongiwe.com

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Environmental Authorisations and Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province
DMRE reference number: GP184 MR
DWS reference number: WU38176
Meeting Minutes: City of Johannesburg

Date	Tuesday, 12 November 2024
Time:	12:30 – 13:00
Venue:	Microsoft Teams Online Meeting

List of attendees:

Organisation	Name of attendee	Designation
City of Johannesburg Metropolitan Municipality (CoJ)	Ms Siphokazi Ncume	EISD-Impact Management
CoJ	Ms Nozipho Maduse	EISD- Impact Management
CoJ	Mr Thami Zwane	Waste Management and Regulation
CoJ	Mr Justice Netshandama	EISD-Air Quality Management
CoJ	Mr Julius Sello	Land Use Management
CoJ	Ms Moseketsi Mochesane	EISD- Impact Management
CoJ	Mr Simphiwe Memela	EISD- Waste Management
CoJ	Ms Mashudu Ratshitanga	EISD Impact Management
CoJ	Ms Mbalenhle Chemane	Development Planning - City Transformation and Spatial Planning
CoJ	Ms Marietjie Reinecke	Land Use Management
Johannesburg Roads Agency (JRA)	Mr Jose Monteiro	Operations Manager: Development Control (Private)
Ergo Mining (Pty) Ltd	Mr Masala Tshamano	Environmental Manager
Ergo	Mr Mothusi Mafatshe	Environmental Coordinator
Kongiwe Environmental (Pty) Ltd	Ms Gerlinde Wilreker	Project Manager
Kongiwe	Ms Anela Fixi	Stakeholder Engagement Consultant
No apologies		
N/A		

Note: *These minutes are not intended as a verbatim transcript of the meeting, but rather as a summary of the salient discussions which took place.*

1. **Welcome and Introductions**
   - ❖ Ms Wilreker greeted the attendees and delivered her presentation.

2. **Meeting Agenda:**

- ❖ Purpose of the Meeting
- ❖ Important Notice

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- Introduction
- Kongiwe's Role as an Independent Environmental Assessment Practitioner
- Project Background
- Project Description
- Project Infrastructure
- Reclamation Method
- Water Management
- Specialist Studies
- Listed Activities & Water Uses
- Legislative Framework
- Document Availability
- The Way Forward
- Questions & Answers

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3. Discussion

STAKEHOLDER	COMMENT	RESPONSE
Ms Mbalenhle Chemane, Development Planning - City Transformation and Spatial Planning, CoJ	Ms Chemane requested clarification on whether the project will focus on processing, or if it is intended to expand the current mining activities.	Ms Wilreker explained that the activity is a reclamation process, where Ergo will be reclaiming the gold-bearing silts that have accumulated in the Russell Stream valley. She further explained that there is an existing authorization in place, but it only covers a certain portion of the valley. Ergo would like to continue reclaiming the silts, which will expand the area it wishes to reclaim in. It therefore needs additional authorizations, as it is currently only authorized for one area.
Ms Mbalenhle Chemane	Ms Chemane requested information regarding the landowner.	Ms Wilreker explained that there are several landowners involved. She mentioned that PRASA is one of the parties due to the presence of railways, and that iProp is also one of the landowners. She offered to provide a list of all the landowners. Additionally, she noted that some portions of the adjacent land are owned by the City of Johannesburg, and she can supply that list as well.
Ms Mbalenhle Chemane	Ms Chemane acknowledged the information and expressed that it would be helpful for understanding the future use of the area. She mentioned that there is an ongoing process of reclaiming a portion of land back to the City of Johannesburg. She noted that there are several considerations, especially if the City owns the land, and that the Johannesburg Property Company (JPC) needs to make financial and budgeting arrangements for the area. Ms Chemane emphasized the importance of understanding the future use of the land once the reclamation process is completed, as well as the expected timeline for the process to be finished. She	Mr Tshamano stated that, regarding the final land use, the responsibility ultimately lies with the landowner mostly iProp) in determining how the land will be used. He explained that the area is currently zoned as mining land, and this designation will remain in place until the land is released to the landowner. The landowner may choose to rezone the area depending on its intentions, but this is beyond the scope of the current authority. He emphasized that Ergo cannot dictate how the landowner will use the land in the future.

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	explained that the information will help in planning the next steps once the project is concluded.	
Ms Mbalenhle Chemane	Ms Chemane outlined several key points for consideration regarding the project. She confirmed that comments would be submitted on the scoping report and particular attention will be paid at the Environmental Impact Assessment (EIA) stage. Specifically, she requested information on the services present in the affected properties, such as roads and water infrastructure, to assess potential impacts. Ms Chemane also raised concerns about the potential for silt to cause issues during reclamation, particularly referencing past challenges in Riverlea where silt would flow, block stormwater drains and accumulate on roads, potentially leading to flooding. Another point of clarification was regarding the rehabilitation phase following reclamation. Ms Chemane asked whether rehabilitation is included as part of this project or if it will be addressed separately, after reclamation activities are completed. Additionally, she highlighted the need to identify whether contamination from the reclamation process could occur, and if so, how this would be managed. Ms Chemane also expressed confusion about the ownership of the properties involved. Upon checking the City's GIS, she noted that the properties appeared to belong to the City of Johannesburg, whereas the site indicated SANRAL as the owner. She hoped that a representative from the Johannesburg Property Company (JPC) would be able to clarify the ownership details.	Mr Tshamano stated that the project is designed to prevent the release of any silt. He explained that measures such as paddocking are implemented to ensure that materials are contained and do not return to the stream. As such, he stated with confidence that no additional silt would be released during the reclamation process, and any erosion of material would likely come from outside the project area. Regarding the rehabilitation phase, Mr Tshamano clarified that the project, in its entirety, is essentially a rehabilitation project. He also confirmed that the environment is already contaminated, which is why rehabilitation efforts are necessary to address and mitigate the existing contamination. Ms Wilreker offered to provide the KMZ layout to assist in confirming the property portions. She explained that this layout could be uploaded into the GIS system for verification. She also mentioned that, upon the conclusion of the meeting, she would load the current land tenure map, allowing Ms Chemane to review the portions identified as belonging to the City of Johannesburg. Mr Tshamano clarified that the City of Johannesburg or the Johannesburg Property Company is not involved in the ownership of the project area. He mentioned that they own Portion 212 of Portion 224 Mayfair but do not own the greater area of the site. Mr Tshamano also expressed the intention to provide the relevant information to help everyone orient themselves with the site details.

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Mr Julius Sello, Land Use Management, CoJ	Mr Sello inquired about the end product of the reclamation process, specifically asking if the land will be developable. He also raised concerns regarding individuals who may wish to continue mining activities even after formal mining has concluded. Mr Sello expressed that he was missing information on what could happen after the reclamation process, particularly regarding the potential for manufacturing or other uses. He compared this to areas where contamination, such as radiation, limits residential development. He noted that this was a key aspect missing from the presentation and requested clarification on the future use of the land.	Mr Tshamano clarified that the developability of the land varies across the site. He explained that not the entire area is suitable for development, particularly since some portions are within the watercourse. However, certain sections of the area are developable, which is why iProp owns part of the land. He mentioned that in the future, these portions are expected to be developed. Mr Tshamano was uncertain about the intentions of other landowners, including those who own the railway and its supporting infrastructure. He noted that where iProp is the owner, the land is likely to be developed for light industrial use. Ms Wilreker explained that the purpose of the rehabilitation is to remove the silts and restore the river, which will also help in managing and preventing flooding downstream. She further emphasized that any future development in the area would need to take flood lines into consideration, given the proximity to the river, and developers would be expected to be mindful of these factors during planning.
Ms Mbalenhle Chemane	Ms Chemane inquired whether the timeline for completing the entire process is still expected to fall within the eight to twelve months range, or if there is an expectation that this particular project may take longer.	Ms Wilreker confirmed that the process is expected to take longer. She explained that the Scoping and Environmental Impact Assessment (S&EIA) process has already begun, which is expected to take approximately eight months. In addition, the Department of Mineral Resources (DMR) typically requires four months to review the process. The water use licensing process is anticipated to be submitted around the same time as the final EIA, and the Department of Water and Sanitation (DWS) is expected to take 90 days to review that. As a result, Ms Wilreker indicated that the project is expected to receive a Record of Decision from both authorities by the end of next year. Ms Wilreker clarified that the project is currently in the scoping phase, but the team plans to move into the Environmental Impact Assessment (EIA) phase next year.

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Ms Mbalenhle Chemane	Ms Chemane requested that Ms Wilreker send through all the relevant information, including the land portion details.	Ms Wilreker confirmed that the land tenure map would be sent to Ms Chemane and stated that it would also be provided in a format suitable for integration into her GIS system.

4. Closing

COMMENT	RESPONSE
Ms Wilreker thanked the CoJ attendees for their time and input.	The CoJ attendees thanked Ms Wilreker for the presentation.

The meeting adjourned at 13:00 pm.

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Environmental Authorisations and Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province

DMRE reference number: GP184 MR
DWS reference number: WU38176

Meeting Minutes: Federation for a Sustainable Environment

Date	Thursday, 12 November 2024
Time:	14:00– 16:00
Venue:	Microsoft Teams Online Meeting

List of attendees:

Organisation	Name of attendee	Designation
Federation for a Sustainable Environment (FSE)	Ms Mariette Liefferink	FSE, CEO
Ergo Mining (Pty) Ltd	Mr Masala Tshamano	Environmental Manager
Ergo	Mr Greg Ovens	Project Manager
Ergo	Mr Mothusi Mafatshe	Environmental Coordinator
Kongiwe Environmental (Pty) Ltd	Ms Gerlinde Wilreker	Project Manager/EAP
Kongiwe	Ms Anela Fixi	Environmental & Stakeholder Engagement Consultant
Kongiwe	Mr Bradly Thornton	Project Director
Kongiwe	Ms Vanessa Viljoen	Stakeholder Engagement Consultant

Note: *These minutes are not intended as a verbatim transcript of the meeting, but rather as a summary of the salient discussions which took place.*

1. **Welcome and Introductions**
   - Ms Wilreker greeted the attendees and delivered her presentation.

2. **Meeting Agenda:**

- Purpose of the Meeting
- Important Notice
- Introduction
- Kongiwe's Role as an Independent Environmental Assessment Practitioner
- Project Background
- Project Description
- Project Infrastructure
- Reclamation Method
- Water Management
- Specialist Studies

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- Listed Activities & Water Uses
- Legislative Framework
- Document Availability
- The Way Forward
- Questions & Answers

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3. Discussion

STAKEHOLDER	COMMENT	RESPONSE
Ms Mariette Liefferink, CEO, FSE	Ms Liefferink inquired about the location and ownership of a dam situated outside a fenced area adjacent to a Tailings Storage Facility (TSF). She explained that the TSF is enclosed by a concrete palisade fence, while the dam itself is unfenced and adjacent to a road. She further inquired whether the dam belongs to DRDGOLD or Ergo, if it is part of their mining right, or if it falls under the responsibility of a road management agency.	Mr Tshamano confirmed that the dam falls outside of its mining right, but it remains its responsibility.
Ms Mariette Liefferink	Ms Liefferink inquired why the dam is Ergo's responsibility if it falls outside its mining right.	Mr Tshamano explained that the dam collects stormwater and runoff from the adjacent tailings dam inside the fenced area. Due to the area's topography and historical spillages, the water naturally collects in the dam as the lowest point. He also noted that the dam is not fenced off.
Ms Mariette Liefferink	Ms Liefferink inquired whose responsibility it is to fence off the dam, stating that her question was not meant to criticize the applicant. She explained that during a site visit with Mintek and the Department of Mineral Resources (DMR), she had asked Mr Mudau and Mr Mpho (Lethlakanyane? from the Mine Health and Safety Directorate, and their response was that the dam does not belong to DRDGOLD and does not fall within DRDGOLD's mining rights.	Mr Tshamano clarified that the dam is indeed their responsibility, despite falling outside the Ergo mining right. He explained that the water contained within the dam is considered mine-affected water, and they are working to fill the dam and drain the water to prevent the current damming issues, with plans to continue draining it in the future.
Ms Mariette Liefferink	Ms Liefferink asked if Ergo intended to fence off the dam area.	Mr Tshamano stated that they do not intend to create another dam and that their goal is to fill the dam up.
Ms Mariette Liefferink	Ms Liefferink referred to the Valley Silts scoping report, which mentions that "Ingress/egress is fully controlled by security for all vehicles," and asked if this should rather be referred to as access control.	Ms Wilreker confirmed that it should indeed be referred to as access control.

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STAKEHOLDER	COMMENT	RESPONSE
Ms Mariette Liefferink	Ms Liefferink stated that the expansion in sectors two and three is 120 metres from Riverlea suburb, which is outside the 100-m regulated buffer zone required by the Mine Health and Safety Act, making it acceptable. However, she noted that the DMR has suggested a 2,000-m buffer zone between residential areas and mining activities, which would not be feasible for the applicant to implement, given the intended location for mining the silt.	Mr Tshamano stated that if the regulations are enforced, they will comply with them. He acknowledged that the current regulations still allow for the expansion, but if the 2,000-m buffer zone is gazetted and becomes enforceable, they will have to comply with that as well.
Ms Mariette Liefferink	Ms Liefferink suggested that the trucks used for transporting residue should be covered to prevent dust fallout, as although the residue contains 30-40% moisture and is less prone to dust, dust fallout has often been observed with uncovered trucks. She also referred to the scoping report, noting that coarse materials like rock and stones are stockpiled and either sold or donated to external parties. She cited the 2008 Regional Mine Closure Strategies of the Council of Geoscience and DMR, which recommends ensuring that no liabilities, such as to municipalities, are transferred when such materials are donated. Lastly, she questioned whether a one-in-50-year storm event would be sufficient for containment in light of climate change and more frequent extreme weather events.	Mr Thornton explained that there is both a compliance aspect and a good practice aspect to consider. He stated that while compliance with regulatory requirements is a minimum standard, the design must account for appropriate flood events. He mentioned that designing for extreme events like a 1 in 10,000-year flood would result in an over-engineered project. From his perspective, designing for a 1 in 50-year storm event is suitable for the scale and duration of the project.
Ms Mariette Liefferink	Ms Liefferink pointed out that the scoping report mentions "dirty stormwater" being contained in paddocks on the drying side, and emphasized that if the paddocks reach capacity, the excess dirty stormwater will need to be released into the Russell Stream. She questioned the appropriateness of releasing dirty stormwater into the Russell Stream and suggested that, instead, the excess stormwater could be directed to a return water dam or another dam, but definitely not into the Russell Stream.	Mr Tshamano explained that releasing dirty stormwater into the Russell Stream would be a last resort and considered an incident, as the project does not authorize the release of water into the stream from the paddocks. He clarified that the project is not designed with return water dams or similar water containment facilities. The intention is to separate clean and dirty water before it reaches the affected areas, minimizing the interaction between the two. He acknowledged that, in the worst-case scenario, the paddocks' lowest

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STAKEHOLDER	COMMENT	RESPONSE
		point borders the stream banks, and excess water may ultimately flow into the stream, but this would be incidental and not planned.
Ms Mariette Liefferink	Ms Liefferink pointed out that, according to NEMA regulations, pollution must be prevented, and it would not be considered best practice to include a provision in the scoping report allowing for the release of dirty stormwater into the Russell Stream, even in an extreme event. Ms Liefferink emphasized that polluted water cannot be released into the receiving environment, referencing Section 19 of the National Water Act and Section 28 of NEMA. She suggested that a water treatment plant may be necessary and requested that the issue be addressed in the comments and response report.	Mr Tshamano explained that when submitting applications like this, they include a GN704 motivation, stating their reasons for the request. He noted that Ergo applies for exemption from GN704, particularly for situations like this, as it is a short-term effect. He emphasized that the team does not intend to hide information or present the situation in a misleading way.
Ms Mariette Liefferink	Ms Liefferink suggested that while public safety assessments are done in relation to the requirements of the National Nuclear Regulator (NNR), which addresses radiological risks, other health risks associated with arsenic, cobalt, copper, manganese, and aluminium should also be assessed. She then noted that the rehabilitation plan for the Valley Silts involves shaping the areas to be free-draining and planting appropriate species to stabilize the soil but emphasized that stabilization alone does not equate to rehabilitation. She stressed that future land use should be predetermined and agreed upon with all affected parties, particularly the Riverlea community. She also questioned the acquisition of topsoil for erosion repairs, given its cost and difficulty in obtaining, and requested clarification on where it would be sourced. Finally, she asked whether the ongoing reclamation of the valley silts, mentioned in	Mr Tshamano explained that the land where the project is taking place is privately owned, primarily by iProp, with Transnet owning the railway and the City of Johannesburg being a neighboring property owner not directly affected by the mining or reclamation activities. He clarified that consultation regarding land use would need to occur with iProp, with whom they already have a relationship, as iProp is involved in industrial development, and the area may eventually be developed for such purposes. Regarding the appeal, he explained that after it was lodged, engagement took place with the Department of Water and Sanitation (DWS), and the department gave Ergo approval to proceed with the project pending the outcome of the appeal. The appeal collapsed in July when the appellant withdrew it, allowing Ergo to proceed based on the department's decision.

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STAKEHOLDER	COMMENT	RESPONSE
	the scoping report as started in May 2023, occurred after the appeal by the Riverlea Mining Forum had been declared abortive.	
Ms Mariette Liefferink	Ms Liefferink pointed out that the scoping report mentions rehabilitating the Valley Silts to an "appropriate and functioning ecological state" and asked what specific ecological state that would be. She inquired whether the intention is to rehabilitate it to an A or B system state, or a C or D system, emphasizing that an E or F state would be unacceptable.	Mr Tshamano explained that the water passing through the stream, excluding the Valley Silts area, is already heavily affected. He noted that the ultimate objective for rehabilitation would require collaboration with the municipality and other landowners affected by the stream. The focus will primarily be on removing the silt and addressing the mining impacts, but the quality of water cannot be fully addressed since it is not solely impacted by the mining activities. He emphasized the need for broader stakeholder engagement, including the City of Johannesburg, as it controls the sewer systems that also impact the area.
Ms Mariette Liefferink	Ms Liefferink acknowledged the presence of wetlands, water bodies, endangered grasslands, and air pollution hotspots within the project area, as well as the health risks posed by dust to the Riverlea community. She then inquired about the risks posed by illegal mining in the area, highlighting that despite recent backfilling of open shafts by the DMR and Mintek, illegal miners have reopened these shafts and continue operating. She asked what the risks of this illegal mining are to the applicant's project.	Mr Tshamano acknowledged that illegal mining is a widespread issue faced by many mining companies, not unique to their operation. While DRDGOLD does not promote illegal mining, it has a responsibility to prevent it within mining rights areas under its control, with 24-hour security patrolling to deter it. However, illegal mining often occurs outside their boundary, beyond their control, as it does not have the legal authority to arrest individuals outside the project area. He emphasized the importance of collaboration with law enforcement agencies and stated that DRDGOLD does not have underground mining rights, so it cannot intervene in illegal underground mining. He further highlighted that the DMR and other relevant agencies have a responsibility to secure sealed shafts and ensure they meet the required standards.
Ms Mariette Liefferink	Ms Liefferink mentioned that the open pits in the area are part of ongoing litigation involving iProp against the Minister of Mineral Resources and Energy, with the minister allegedly in contempt of court. She suggested that this legal process might assist the	The project team noted this.

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STAKEHOLDER	COMMENT	RESPONSE
	applicant's project (Ergo) by potentially addressing illegal mining. She also noted that a mining company has applied for a rehabilitation project to backfill some of these open pits.	

4. Closing

COMMENT	RESPONSE
Ms Wilreker thanked Ms Liefferink for her time and input.	Ms Liefferink thanked Ms Wilreker for the presentation.

The meeting adjourned at 16:00 pm.

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Environmental Authorisations and Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province
DMRE reference number: GP184 MR
DWS reference number: WU38176
Meeting Minutes: iProp

Date	Monday, 14 November 2024
Time:	10:00 – 10:30
Venue:	Microsoft Teams Online Meeting

List of attendees:

Organisation	Name of attendee	Designation
iProp	Ms Jeanie Pelser	Landowner
Seton Environmental	Mr Brian Gardner	Environmental Officer
Ergo Mining (Pty) Ltd	Mr Masala Tshamano	Environmental Manager
Ergo	Mr Mothusi Mafatshe	Environmental Coordinator
Kongiwe Environmental (Pty) Ltd	Ms Gerlinde Wilreker	Project Manager
Kongiwe	Ms Anela Fixi	Environmental & Stakeholder Engagement Consultant
Kongiwe	Ms Vanessa Viljoen	Stakeholder Engagement Consultant
No apologies		
N/A		

Note: *These minutes are not intended as a verbatim transcript of the meeting, but rather as a summary of the salient discussions which took place.*

1. **Welcome and Introductions**
   - ❖ Ms Wilreker greeted the attendees and delivered her presentation.

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- ❖ Purpose of the Meeting
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- ❖ Project Background
- ❖ Project Description
- ❖ Project Infrastructure
- ❖ Reclamation Method
- ❖ Water Management
- ❖ Specialist Studies

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- Listed Activities & Water Uses
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- Questions & Answers

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3. Discussion

STAKEHOLDER	COMMENT	RESPONSE
Ms Jeanie Pelser, Landowner, iProp	Ms Pelser expressed appreciation for the removal of silts and tailings, as it provides an opportunity to eventually develop the land. She explained that their primary interest is in understanding the end result of the project, specifically the final product, and whether they can align with any approvals or licences related to the project. Ms Pelser also inquired about the possibility of getting involved in the process to ensure there is no double handling of materials. Ms Pelser also inquired about the handling of materials on-site, specifically asking where materials would be stockpiled. She referenced a previous situation with the Natal Spruit in City Deep, where the river had to be realigned to its original position due to a large mine dump. Ms Pelser expressed concern about avoiding a similar situation and emphasized that understanding the scope of this aspect of the project is a key interest for them.	Ms Wilreker explained that the goal of the project is to remove all the silts and reshape the area by sloping the land in a way that it becomes suitable for industrial use, up to a certain point. She clarified that the intention is not to build directly in the riverbed, but to ensure that, at the final stage, the topography is appropriately adjusted so the land can be utilized for the intended project. Ms Wilreker also sought to confirm her understanding, asking if the intended final land use is for light industrial purposes, as this seems to be the objective. Mr Tshamano confirmed that, while the project aims to remove all the silts within the stream, the final outcome regarding the stream's path cannot yet be determined. He explained that the results will only become clear after the silts are removed, as the stream is currently heavily silted. He also mentioned that it is difficult to predict how much land will be freed for development, as there are constraints related to building regulations, including restrictions on encroaching into the riverbed. Despite these challenges, Mr Tshamano assured iProp that the Ergo team would make every effort to free as much land as possible and restore the stream to its original course
Mr Brian Gardner, Environmental Officer, Seton Environmental	Mr Gardner raised concerns about what the stream area will look like after the project is completed. He expressed uncertainty about the final outcome, as the appearance will depend on how much material is removed and the eventual alignment of the stream. He suggested that some form of rehabilitation, such as	Mr Masala Tshamano clarified that the current scope of the project involves removing the material and shaping the topography to align with the existing drainage pattern. He acknowledged that iProp would want to inherit land that is suitable for development. Mr Tshamano suggested that as the project progresses to its final stages, a

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STAKEHOLDER	COMMENT	RESPONSE
	landscaping or planting, might be needed along the stream after the materials are removed. While acknowledging that this is a rehabilitation project, Mr Gardner inquired whether any additional landscaping or planting is proposed, or if the project will simply involve removing and reshaping the area, leaving it for future development by iProp or another entity.	discussion will be necessary to determine how the land should be left, ensuring it meets the development needs of iProp and other stakeholders.
Ms Jeanie Pelser	Ms Pelser expressed her team's satisfaction with the project and reiterated their understanding that it is an ongoing process. She mentioned that they have already tasked Mr Stewart Dunsmore with monitoring the project from a hydrology perspective. Ms Pelser emphasized the importance of being involved early in the process to ensure that no issues arise at the end of the project. She offered their assistance, stating that if there is any information or alignment needed from their side, they are willing to provide it. Ms Pelser also stressed their commitment to contributing any relevant information to avoid potential concerns later in the project.	Mr Tshamano suggested that it would be beneficial to start engaging now, even with the current or approved scope of the project. He recommended scheduling a site visit to assess the progress and gain a better understanding of the area. He noted that, historically, there was a recreational dam in the area, but it will not be reinstated, which could potentially free up land for development. Mr Tshamano emphasized the importance of starting these discussions early to identify potential development areas and understand any limitations regarding where development could take place.
Ms Jeanie Pelser	Ms Pelser agreed that starting early would benefit both parties. She mentioned that she could immediately share their proposed layout, which has been developed in collaboration with SANRAL over the past few years in relation to the realignment of the N17 to its optimal position.	Ms Wilreker expressed appreciation and confirmed that sending the proposed layout would be helpful. She then inquired if it would be acceptable to send an email regarding the landowner consent.
Ms Jeanie Pelser	Ms Pelser thanked Ms Wilreker and mentioned that she had possibly already sent the email regarding the landowner consent the previous day. She then pointed out an issue with the listed farms, noting that although they are labelled as 'Mayfair West, 224 IQ,' these are actually Langlaagte farms, and she was unsure why they were listed in that way.	Ms Viljoen confirmed that on their GIS information, there is a larger farm called Mayfair, within which Langlaagte is situated. She acknowledged the correction and thanked Ms Pelser for pointing it out.

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STAKEHOLDER	COMMENT	RESPONSE
Ms Jeanie Pelser	Ms Pelser clarified that the title dates back to the turn of the previous century and confirmed that the correct description is 'Langlaagte,' She emphasized that Langlaagte is the accurate name for the property.	The project team noted this.
Ms Jeanie Pelser	Ms Pelser inquired about the listing of Transnet as an affected property owner, asking how close the project area is to the railway line, or if Transnet was listed simply because the project area is adjacent to the railway line.	Ms Wilreker explained that Transnet is listed as an affected property owner primarily because its land is adjacent to the railway line, which crosses through one section of the project area. Additionally, there is a mining area on the other side of the railway line. As the project spans across the entire area, consultation with Transnet is necessary.
Mr Brian Gardner	Mr Gardner expressed his satisfaction and gratitude, stating that he looks forward to reviewing the reports once they are available. He mentioned that it was helpful to receive a solid background on the project and thanked the team for including him in the discussions.	The project team noted this.
Ms Jeanie Pelser	Ms Pelser extended an invitation to Mr Tshamano, stating that they would be more than happy to attend a site meeting at any stage of the project.	Mr Tshamano acknowledged the invitation and confirmed that Ergo would arrange a site meeting at an appropriate time

4. Closing

COMMENT	RESPONSE
Ms Wilreker thanked the iProp attendees for their time and input.	The iProp attendees thanked Ms Wilreker for the presentation.

The meeting adjourned at 10:30 am.

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Environmental Authorisations and Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province
DMRE reference number: GP184 MR
DWS reference number: WU38176
Meeting Minutes: City of Johannesburg Ward Councillors

Date	Thursday, 14 November 2024
Time:	13:15 – 14:00
Venue:	Microsoft Teams Online Meeting

List of attendees:

Organisation	Name of attendee	Designation
City of Johannesburg Metropolitan Municipality (CoJ)	Mr Tseke Mojapelo	Ward Committee: Community Development
CoJ	Cllr Matsobane Sekhu	Ward Councillor 125
CoJ	Cllr Mongameli Mnyameni	Ward Councillor 124
Ergo Mining (Pty) Ltd	Mr Masala Tshamano	Environmental Manager
Ergo	Mr Josiah Tshisevhe	Community Liaise Officer
Kongiwe Environmental (Pty) Ltd	Ms Gerlinde Wilreker	Project Manager/EAP
Kongiwe	Ms Anela Fixi	Environmental & Stakeholder Engagement Consultant
Kongiwe	Ms Thuli Phakathi	Stakeholder Engagement Consultant
No apologies		
N/A		

Note: *These minutes are not intended as a verbatim transcript of the meeting, but rather as a summary of the salient discussions which took place.*

1. **Welcome and Introductions**
   - ❖ Ms Wilreker greeted the attendees and delivered her presentation.

2. **Meeting Agenda:**

- ❖ Purpose of the Meeting
- ❖ Important Notice
- ❖ Introduction
- ❖ Kongiwe's Role as an Independent Environmental Assessment Practitioner
- ❖ Project Background
- ❖ Project Description
- ❖ Project Infrastructure
- ❖ Reclamation Method
- ❖ Water Management

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- Specialist Studies
- Listed Activities & Water Uses
- Legislative Framework
- Document Availability
- The Way Forward
- Questions & Answers

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3. Discussion

STAKEHOLDER	COMMENT	RESPONSE
Cllr Matsobane Sekhu, Ward Councillor 125, CoJ	Cllr Sekhu noted that Ms Wilreker mentioned the intention to source water from the Johannesburg Municipality. He inquired whether they were aware of the ongoing water shortage crisis in the City of Johannesburg. Additionally, he asked if there were any alternative sources of water being considered.	Ms Wilreker clarified that the water sourced from the Johannesburg Municipality is potable water and intended for drinking purposes only. She further explained that the silts in the area are very wet, and water seeps from the ground into the mining area. This water is then pumped out and utilized for dust suppression.
Cllr Mongameli Mnyameni, Ward Councillor 124, CoJ	Cllr Mnyameni asked for clarification on when the project is expected to begin. He also inquired about potential opportunities for the local community and sought details on the overall duration of the project.	Ms Wilreker stated that the duration of the project is five years. She further explained that for the project to commence, Ergo require authorization from the Department of Mineral Resources (DMR) and the Department of Water and Sanitation (DWS). This authorization is expected to be obtained towards the end of next year. Mr Tshamano added that employees for the project will be sourced from the local community, as was done with the current operational Valley Silts project. He further mentioned that if additional information is required regarding the current beneficiaries, it can be made available.
Cllr Matsobane Sekhu	Cllr Sekhu stated that they will review the presentation, and the information provided and will offer their comments accordingly.	The project team noted this

4. Closing

COMMENT	RESPONSE
Ms Wilreker thanked the CoJ Councillors for their time and input.	The CoJ Councillors attendees thanked Ms Wilreker for the presentation.

The meeting adjourned at 14:00 pm.

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Environmental Authorisations and Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province
DMRE reference number: GP184 MR
DWS reference number: WU38176
Meeting Minutes: Passenger Rail Agency of South Africa (PRASA)

Date	Thursday, 14 November 2024
Time:	15:00– 16:00
Venue:	Microsoft Teams Online Meeting

List of attendees:

Organisation	Name of attendee	Designation
Passenger Rail Agency of South Africa (PRASA)	Mr Siphesihle Bophela	Real Estate
PRASA	Mr Paul Motsoaledi	Real Estate Manager
Ergo Mining (Pty) Ltd	Mr Masala Tshamano	Environmental Manager
Kongiwe Environmental (Pty) Ltd	Ms Gerlinde Wilreker	Project Manager/EAP
Kongiwe	Ms Anela Fixi	Environmental & Stakeholder Engagement Consultant
Kongiwe	Ms Thuli Phakathi	Stakeholder Engagement Consultant
No apologies		
N/A		

Note: *These minutes are not intended as a verbatim transcript of the meeting, but rather as a summary of the salient discussions which took place.*

1. **Welcome and Introductions**
   - ❖ Ms Wilreker greeted the attendees and delivered her presentation.

2. **Meeting Agenda:**

- ❖ Purpose of the Meeting
- ❖ Important Notice
- ❖ Introduction
- ❖ Kongiwe's Role as an Independent Environmental Assessment Practitioner
- ❖ Project Background
- ❖ Project Description
- ❖ Project Infrastructure
- ❖ Reclamation Method
- ❖ Water Management
- ❖ Specialist Studies
- ❖ Listed Activities & Water Uses

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- Legislative Framework
- Document Availability
- The Way Forward
- Questions & Answers

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3. Discussion

STAKEHOLDER	COMMENT	RESPONSE
Mr Siphesihle Bophela, Real Estate Manager, PRASA	Mr Bophela thanked Ms Wilreker for the presentation and referred to a previous email from Transnet. He asked if the six portions identified by Transnet were the same as those being discussed in the current context.	Ms Wilreker confirmed that Mr Bophela's recollection was correct and assured him that they could send a list of the identified property portions. She explained that, initially, Transnet had been listed as the property owner, but upon contacting them, they clarified that the properties actually fall under PRASA. This clarification is the reason for the current meeting, and she offered to provide the specific property details.
Mr Siphesihle Bophela	Mr Bophela inquired about what is required from their side, specifically asking if permission is needed to use their service road for the project.	Ms Wilreker explained that while the project will have its own access roads, it is important to notify Mr Bophela's team due to the proximity of the service road and infrastructure to the proposed project. She emphasized that the railway runs past one of the mining blocks, and the purpose of the notification is to prevent any confusion or surprises. Additionally, she requested that if there are any specific concerns or factors that the applicant should be aware of from PRASA's side, Kongiwe would like to address them.
Mr Paul Motsoaledi, Real Estate Manager, PRASA	Mr Motsoaledi thanked Ms Wilreker for the presentation, noting that this wasn't the first time they were dealing with such a project. He mentioned that the previous project, run by DRDGOLD, might have similarities to the current one. Referring to the land portions sent through, he pointed out that these portions are very close to the project area, and there might be existing services, such as electrical cables, running through the affected areas. He inquired whether the team is aware of these services and if they could provide more details on them.	Ms Wilreker responded, clarifying that if there are any known servitudes or infrastructure, such as electrical cables, running through the area, it would be helpful to indicate them. This would allow the team to include the information on the map and ensure that the applicant is fully aware of the existing infrastructure. She also clarified the confusion between DRDGOLD and Ergo, explaining that DRDGOLD owns Ergo, and that the application is being processed by Ergo, which is part of DRDGOLD.
Mr Paul Motsoaledi	Mr Motsoaledi explained that they do not have an environmental affairs division, they handle land-related matters and assured the	Ms Wilreker confirmed that the team would send all relevant information, including digital files, to Mr Motsoaledi and his

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	team that they would not oppose the project. He mentioned his familiarity with similar projects in the area, particularly around Soweto, and emphasized the importance of engagement and understanding the activities involved. He concluded by stating that he fully understood the situation.	colleagues for review. The purpose of sharing this information was to allow the team to assess whether any aspects of the project might affect existing infrastructure or land. Additionally, Ms Wilreker suggested that the materials be forwarded to the colleagues who were unable to attend the meeting, as they may be able to provide additional feedback or insights based on their expertise.
Mr Paul Motsoaledi	Mr Motsoaledi inquired whether PRASA was the only affected entity in relation to the project.	Ms Wilreker clarified that PRASA is not the only affected entity. She mentioned that Kongiwe has already had meetings with the City of Johannesburg, as it is an adjacent landowner, as well as with ward councillors and the property owners whose land falls within the project area.
Mr Paul Motsoaledi	Mr Motsoaledi expressed appreciation for the presentation, stating that they have no issues with the project. He confirmed that they would remain engaged in the future and requested to be kept informed, ensuring their involvement where necessary.	Ms Wilreker thanked Mr Motsoaledi and team for their input

4. Closing

COMMENT	RESPONSE
Ms Wilreker thanked the PRASA attendees for their time and input.	The PRASA attendees thanked Ms Wilreker for the presentation.

The meeting adjourned at 16:00 pm.

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Environmental Authorisations and Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province
DMRE reference number: GP184 MR
DWS reference number: WU38176
Meeting Minutes: KlipSA

Date	Friday, 15 November 2024
Time:	10:30– 11:30
Venue:	Kongiwe offices

List of attendees:

Organisation	Name of attendee	Designation
KlipSA	Mr Andrew Barker	Town and Regional Planner
KlipSA	Mr Dennis Jane	KlipSA Exco member and KlipWaS convener
University of Johannesburg (UJ)	Dr Kousar Banu Hoorzook	Programme Manager for UJ Process Energy Environment Technology Station
Ergo Mining (Pty) Ltd	Mr Mothusi Mafatshe	Environmental Coordinator
Ergo	Mr Masala Tshamano	Environmental Manager
Ergo	Mr Greg Ovens	Project Manager
Kongiwe Environmental (Pty) Ltd	Ms Gerlinde Wilreker	Project Manager/EAP
Kongiwe	Ms Anela Fixi	Stakeholder Engagement Consultant
Kongiwe	Ms Vanessa Viljoen	Stakeholder Engagement Consultant

Note: *These minutes are not intended as a verbatim transcript of the meeting, but rather as a summary of the salient discussions which took place.*

1. **Welcome and Introductions**
   - ❖ Ms Wilreker greeted the attendees and delivered her presentation.

2. **Meeting Agenda:**

- ❖ Purpose of the Meeting
- ❖ Important Notice
- ❖ Introduction
- ❖ Kongiwe's Role as an Independent Environmental Assessment Practitioner
- ❖ Project Background
- ❖ Project Description
- ❖ Project Infrastructure
- ❖ Reclamation Method

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- Legislative Framework
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- The Way Forward
- Questions & Answers

3. KlipSA Presentation, Comments, and Recommendations

- Mr Baker delivered a presentation outlining the work they are currently doing in the Klip River area.
- **Presentation Overview:**
  - Mr Baker provided a detailed profile of the Klip River, including key data and insights.
- **Comments:**
  - Mr Baker stated that KlipSA fully supports the Valley Silts expansion project, emphasizing that addressing the pollution caused by silts is a core element in improving the water quality of the area. He further noted that this aligns with their initiative of restoring the Klip River stream.
- **Recommendations:**
  - Mr Baker raised concerns about the silts being washed over during storms and recommended that Ergo focus on managing this issue to prevent further environmental impact.

3. Closing

COMMENT	RESPONSE
Ms Wilreker thanked the KlipSA attendees for their time and input.	The KlipSA attendees thanked Ms Wilreker for the presentation.

The meeting adjourned at 11:30 am.

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Environmental Authorisations and Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province
DMRE reference number: GP184 MR
DWS reference number: WU38176
Meeting Minutes: TansAtlas / AfriSam Group

Date	Friday, 15 November 2024
Time:	13:30 - 14:00
Venue:	Microsoft Teams Online Meeting

List of attendees:

Organisation	Name of attendee	Designation
AfriSam Group	Mr Quentin Dollman	Property consultant
AfriSam Group	Mr Oscar Olen	Environmental Specialist
AfriSam Group	Mr Zielas Du Prezz	Regional Manager
Ergo Mining (Pty) Ltd	Mr Masala Tshamano	Environmental Manager
Kongiwe Environmental (Pty) Ltd	Ms Gerlinde Wilreker	Project Manager/EAP
Kongiwe	Ms Anela Fixi	Environmental & Stakeholder Engagement Consultant
Kongiwe	Ms Thuli Phakathi	Stakeholder Engagement Consultant
No apologies		
N/A		

Note: *These minutes are not intended as a verbatim transcript of the meeting, but rather as a summary of the salient discussions which took place.*

1. **Welcome and Introductions**
   - Ms Wilreker greeted the attendees and delivered her presentation.

2. **Meeting Agenda:**

- Purpose of the Meeting
- Important Notice
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- Kongiwe's Role as an Independent Environmental Assessment Practitioner
- Project Background
- Project Description
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- Reclamation Method
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3. Discussion

STAKEHOLDER	COMMENT	RESPONSE
Mr Quentin Dollman, Property Consultant, AfriSam	Mr Dollman inquired about the potential impact of the proposed project on the TransAtlas properties.	Mr Tshamano clarified that TransAtlas is an adjacent property owner and therefore needs to be notified about the project.
Mr Quentin Dollman	Mr Dollman requested to be shown the location of their property on the map for clarity.	Ms Wilreker pointed out the location of the TransAtlas property on the map for Mr Dollman's reference.
Mr Quentin Dollman	Mr Dollman stated that, from the AfriSam side, he would complete the comment sheet, with his only comment being that if the property is affected by the operation, it should be properly rehabilitated and inspected by the relevant authorities before being closed.	The project team noted this.
Mr Oscar Olen, Environmental Specialist, AfriSam	Mr Olen stated that there were no other issues from their side	The project team noted this.

4. Closing

COMMENT	RESPONSE
Ms Wilreker thanked the AfriSam attendees for their time and input.	The AfriSam attendees thanked Ms Wilreker for the presentation.

The meeting adjourned at 14:00 pm.

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Environmental Authorisations and Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province
DMRE reference number: GP184 MR
DWS reference number: WU38176
Meeting Minutes: Africa Sun Oil Refineries

Date	Friday, 15 November 2024
Time:	15:00– 15:30
Venue:	Microsoft Teams Online Meeting

List of attendees:

Organisation	Name of attendee	Designation
Africa Sun oil Refineries	Mr Farhaad Adam	Principal Process Engineer
Africa Sun oil Refineries	Mr A-K Essa	COO and General Manager
Ergo Mining (Pty) Ltd	Mr Masala Tshamano	Environmental Manager
Kongiwe Environmental (Pty) Ltd	Ms Gerlinde Wilreker	Project Manager/EAP
Kongiwe	Ms Anela Fixi	Environmental & Stakeholder Engagement Consultant
Kongiwe	Ms Thuli Phakathi	Stakeholder Engagement Consultant
No apologies		
N/A		

Note: *These minutes are not intended as a verbatim transcript of the meeting, but rather as a summary of the salient discussions which took place.*

1. **Welcome and Introductions**
   - ❖ Ms Wilreker greeted the attendees and delivered her presentation.

2. **Meeting Agenda:**

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3. Discussion

STAKEHOLDER	COMMENT	RESPONSE
Mr Farhaad Adam, Principal Process Engineer, Africa Sun oil Refineries	Mr Adams inquired about the overall duration of the project. He specifically asked whether the project is expected to take five years or ten years. Based on his understanding, the Environmental Impact Assessment (EIA) process is projected to take approximately three years. Additionally, he noted that further audits could extend the preparation phase by an additional two years, bringing the total preparation time to five years. Following this, there is the operational phase, which is anticipated to last five years, marking the maximum lifespan of the project. Mr Adams seeks clarification on whether the project timeline is intended to be a ten-year journey, including both the preparation and operational phases, or if the project is expected to be completed within five years.	Ms Wilreker clarified that, from the perspective of the project's lifecycle, the main operational phase will last for five years. Following this period, the area will undergo rehabilitation, and ongoing monitoring will be required. This post-project phase will extend for several additional years to ensure proper rehabilitation and assessment.
Mr Farhaad Adam	Mr Adams inquired if the project is expected to last a total of ten years, with five years allocated for development and another five years designated for rehabilitation. He also inquired about the duration of the Environmental Impact Assessment (EIA) process.	Ms Wilreker explained that the EIA process is expected to continue until around May of next year (2025). She stated that the final EIA will be submitted by May or June, after which the authority will have approximately four months to provide a response. Therefore, a decision on both applications is anticipated by the end of next year.
Mr Farhaad Adam	Mr Adams inquired that if everything proceeds as planned, the project will begin by January 2026. Mr Adams pointed out that he observed at least three stockpiles near the border of their premises and requested clarification on the expected height of these stockpiles and their proximity to the	Ms. Wilreker confirmed that this timeline would be correct. Mr Tshamano responded by addressing the dust management concerns, stating that the project already has trucks in place to suppress dust on its premises. He explained that, for the current scope

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STAKEHOLDER	COMMENT	RESPONSE
	property boundary. He sought to understand how these factors would be managed from a dust suppression perspective.	of the project, which is based on the site plan, Ergo has not experienced significant dust issues to date.
Mr Farhaad Adam	Mr Adams raised a concern regarding the stockpiles, questioning whether dust suppression would solely rely on the moisture content and the characteristics of the stockpiles themselves to prevent dust from drifting into neighbouring communities and lands. He highlighted the proximity of a natural body of water near the proposed stockpile locations and asked whether the team could provide assurance that appropriate measures would be in place to mitigate any potential dust issues.	Mr Tshamano assured Mr Adams that the stockpiles, by their nature, remain wet. He explained that they are transported when the moisture content is between 40% and 30%, at which point the stockpiles do not generate any dust.
Mr Farhaad Adam	Mr Adams raised a question regarding the management of dirty stormwater, seeking clarification on whether the holding area for stormwater, as mentioned in the project, would be located near their boundary line. He asked if this area, intended to contain stormwater when it cannot be properly managed, would be in close proximity to their property boundary.	Mr Tshamano clarified that the stormwater, or any affected water, would be contained on the site, specifically on the side facing the stream. He assured Mr. Adams that at no point would the water flow towards their side of the property.
Mr Farhaad Adam	Mr Adams stated that, overall, they have no objections to the expansion project but made one specific request. He explained that their area is close to a crime hotspot and that they rely on natural vegetation to help protect against unauthorized access. He emphasized that, while they want to be good neighbours, they would like to request that a fence be erected along the border of the proposed site. The aim is to prevent any potential ingress into their area, particularly after the project is completed and the site is left for rehabilitation. Mr Adams noted that their long-term goal is to secure their property as well.	Mr Tshamano responded by explaining that the nature of the project means they will not vacate the site until all activities are completed. He assured Mr Adams that they can control access to the mining area, similar to the measures they take on the Crown Roadside, to prevent trespassing. He also acknowledged that this would contribute to safeguarding the neighbouring area. However, he clarified that they would not be installing a physical fence at this stage of the project.
Mr A-K Essa, COO, Africa Sun Oil Refineries	Mr Essa inquired about the type of material being mined.	Mr Tshamano stated that the material being mined is gold-bearing silts.

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STAKEHOLDER	COMMENT	RESPONSE
Mr A-K Essa	Mr Essa expressed concerns about the potential for many vagrants in the area, noting that this issue could become significant. He then inquired whether the mining operations would be conducted during both day and night, or just during regular working hours.	Mr Tshamano responded that the mining operations are carried out only during working days and working hours. He clarified that, at present, they do not experience any unauthorized access or illegal mining activities while the site is operational.
Mr A-K Essa	Mr Essa expressed that, at this point in time, there have been instances where illegal miners have attempted to access the property, even trying to get onto their site. He emphasized that their request for fencing is based on prior experience with such incidents. Mr Essa stated that he is almost certain that once the project concludes and operations cease, illegal miners will likely begin to trespass during the night, leading to an increase in unauthorized activity. This, he explained, is the primary reason behind their concern and request for fencing.	Mr Tshamano acknowledged the concern and stated that they would consider the request. He reassured Mr Essa that they have security measures in place, with security personnel managing access to the site during operations. While he acknowledged that the situation at night may be different, he emphasized that during operational hours, they take full responsibility for securing the site.
Mr Farhaad Adam	Mr Adams raised a concern about the expansion, noting that while operations are currently confined to a specific area, the proposed expansion would extend significantly towards Riverlea. He pointed out that as the project grows, it would become increasingly difficult to monitor every part of the expanded site, particularly during nighttime. He emphasized that, given the size of the area, it would be nearly impossible to secure every few metres effectively. Mr Adams suggested that the most practical solution would be to erect a physical boundary to mitigate security risks. He explained that, like the mining operation, their side also produces a high-value product, and they want to prevent any additional security threats, especially since the clearing of land and creation of new pathways could lead to easier access for vagrants.	Mr Tshamano acknowledged Mr Adams' concerns and asked for clarification, inquiring whether their site was fenced. Upon learning that it was, he then asked if the primary concern was that people might get closer to their site as a result of the expansion. Mr Adams confirmed this concern.

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STAKEHOLDER	COMMENT	RESPONSE
Mr Farhaad Adam	Mr Adams explained that the issue arises because the proximity of the fence to their buildings allows vagrants to come too close to their boundary, which creates a security concern. He expressed that while they have no objections to the project proceeding, their request is for the area within the project boundary to be fenced off. He emphasized that they would prefer the site to remain secure and separate, politely asking that the project's boundary be clearly defined and contained.	Mr Tshamano acknowledged the concern and suggested that a separate discussion would be necessary to address the issue. He proposed that Mr Adams and his team meet with their security personnel to discuss how they can secure the site and find a solution. He clarified that there was no initial plan to install a fence around the site but expressed a willingness to engage and work towards finding common ground on the matter.
Mr A-K Essa	Mr Essa emphasized the importance of considering the fencing request, stating that it is a significant concern for their safety. He expressed that while they do not wish to obstruct the project's progress and wish the team success, they need some assurance regarding security due to past incidents. He urged that this issue is not taken lightly and stressed that while meeting with security personnel is important, the key point is the psychological reassurance a fence would provide. Mr Essa clarified that he was not asking for walls to be built, but rather a simple fence that would deter unauthorized entry, which is the main request.	The project team noted this.
Mr A-K Essa	Mr Essa raised another concern regarding the potential impact of traffic on their site. He inquired whether the movement of trucks to and from the mining site would affect their operations or pose any issues for their access. To provide context, he explained that the majority of their trucks currently use Nasrec Road, specifically passing under the bridge R85 Nasrec Road. He requested clarification on the expected flow of trucks at the mining site and whether it would impact their route or site access	Mr Tshamano clarified that the trucks will primarily use Crownwood Road, as previously mentioned. Ms Wilreker confirmed that this is the current access point to the site, and it will remain unchanged. The trucks will then continue along Crownwood Road, onto the M2, and further along to Heidelberg Road, without coming onto Nasrec Road. She also noted that a traffic impact assessment is being conducted for the project to evaluate any potential impacts.
Mr A-K Essa	Mr Essa asked about the potential for underground cabling in the area, expressing concern that any disruption to City Power infrastructure could impact their ability to operate their plant. He	Mr Tshamano clarified that, as the operation proceeds closer to Nasrec Road, there would be no digging or disruption to the area. He explained that the work would primarily involve activities within the

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STAKEHOLDER	COMMENT	RESPONSE
	wanted to know what information the team had regarding any cabling that might be present and at risk of being damaged during the project.	Russell Stream, where the silts are located, and gave the assurance that there is no infrastructure in that area that could be affected, either temporarily or permanently.
Mr A-K Essa	Mr Essa asked if the potential impacts on infrastructure, such as underground cabling, would be covered in the EIA.	Mr Tshamano explained that infrastructure concerns are separate from the EIA. He clarified that if the project were to encroach on any servitudes, they would approach the municipality for a waiver. However, for this project, there is no need for that, as no infrastructure is being crossed. He also confirmed that they have already been in consultation with the City of Johannesburg, providing them with the site layout and asking them to identify any infrastructure in the area that they should be aware of.
Mr A-K Essa	Mr Essa inquired about the potential impact on water infrastructure, specifically asking about municipal water pipes in the area.	Mr Tshamano provided details about the water infrastructure in the area. He mentioned that there is a water pipe running from Crown facilities to City Deep, which carries process water and runs on the surface. Additionally, he noted that there is a Rand water pipe running under the bridge at Nasrec Road, near Riverlea, but noted that the Ergo operations would not interfere with it.
Mr A-K Essa	Mr Essa requested confirmation that the map provided accurately reflects the mining boundaries and ensures that there will be no encroachment onto their property or any other properties during the mining process.	Mr Tshamano confirmed that the mining operations would not encroach on the Africa Sun property, and if there were any doubts about property boundaries, they could be verified. Mr Tshamano offered to provide the scoping report and assured that no property would be affected without the owner's consent. He also mentioned that Kongiwe could assist in providing any necessary details about properties that may be impacted.
Mr A-K Essa	Mr Essa inquired about the next steps in the process, asking what the following actions would be moving forward.	Mr Tshamano outlined the next steps in the process. He explained that the minutes from the meeting would be drafted and made available to Mr Essa. The scoping report will be submitted to the department at the beginning of December. From February onwards, the team would begin the EIA phase. Once the documents are ready

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STAKEHOLDER	COMMENT	RESPONSE
		for public review, Mr Essa will be notified, and the documents will be made available for his review. Additionally, any other relevant information will be provided as it becomes available.

4. Closing

COMMENT	RESPONSE
Ms Wilreker thanked the Africa Sun oil Refineries for their time and input.	The Africa Sun oil Refineries attendees thanked Ms Wilreker for the presentation.

The meeting adjourned at 15:30 pm.

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Environmental Authorisation and Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province

DMRE reference number: GP184 MR

DWS reference number: WU38176

Meeting Minutes: Open Day

Date	Saturday, 16 November 2024
Time:	09H00 – 12H00
Venue:	Riverlea Empowerment Centre

List of attendees from the Project Team:

Organisation	Name of attendee	Designation
Ergo Mining (Pty) Ltd	Mr Masala Tshamano	Environmental Manager
Ergo	Mr Mothusi Mafatshe	Environmental Coordinator
Ergo	Mr Josiah Tshisevhe	Community Liaison Officer
Kongiwe Environmental (Pty) Ltd	Ms Gerlinde Wilreker	Project Manager
Kongiwe	Ms Anela Fixi	Stakeholder Engagement
Kongiwe	Ms Thuli Phakathi	Stakeholder Engagement
Kongiwe	Ms Vanessa Viljoen	Stakeholder Engagement
Kongiwe	Mr Bradly Thornton	CEO
Kongiwe	Mr Ripfumelo Macevele	Environmental Consultant
Kongiwe	Mr Grant Cornish- Bowden	COO
Kongiwe	Ms Chelsea Strooh	GIS consultant

Note: A list of stakeholders who attended the Open Day is added in Appendix A to these minutes.

Note: *These minutes are not intended as a verbatim transcript of the meeting, but rather as a summary of the salient discussions which took place.*

Welcome and Introductions

The project team welcomed all Open Day attendees upon arrival.

The purpose of the Open Day was to:

- Present and discuss the proposed Valley Silts Expansion Project**;**
- Provide an overview of the Scoping Report and the Integrated Water Use License Application (IWULA) processes;
- Provide the stakeholders with an opportunity to raise comments/seek clarity and provide input into the Project; and

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- Record comments raised and then include them in the Comments and Responses Report (CRR) which will be integrated into the Scoping Report, and the IWULA.

Open Day Agenda:

- Kongiwe's Role as an Independent Environmental Assessment Practitioner;
- Stakeholder Role;
- Public Participation Process;
- Stakeholder Engagement;
- Way Forward;

Please refer to **Appendix B** for the posters that were on display.

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STAKEHOLDER	COMMENT	RESPONSE
Mr Andrew de Blocq, Member of Parliament, Democratic Alliance	Mr de Blocq inquired about the environmental studies conducted to assess the impacts of the proposed project on the community and the outcomes of these studies.	Mr Ceronio explained which environmental studies were being conducted for the proposed project and further clarified that the project is still in the scoping phase. He noted that the outcomes of these studies will be reported during the EIA (Environmental Impact Assessment) phase.
	Mr de Blocq inquired whether the stockpiles would cause any pollution or dust.	Mr Ceronio explained that the stockpiles are wet and are temporarily stored on-site. He clarified that they are removed before they have the chance to dry out and become loose, preventing them from being blown away as dust.
	Mr de Blocq inquired about the impacts of the existing operation.	Mr Ceronio explained that noise is one of the impacts of the existing operation, but it is addressed through the complaint book during the operation. He added that noise levels are monitored and there are measures in place to manage these.
	Mr de Blocq inquired about the potential opportunities for the community.	Mr Ceronio explained that there might be employment opportunities for the community, but these would be limited, as there is already an operation currently taking place.
	Mr de Blocq inquired about the date of the next open day.	Mr Ceronio explained that the next open day is dependent on the timeframes of the EIA and the responses received.
Ms Blanche Elias, Community member	Ms Elias inquired whether the project would affect the Riverlea community.	Mr Ceronio explained that the Valley Silts expansion will not affect the community, as it will only involve the removal of silts along the stream.
	Ms Elias inquired about the landowner of the proposed project site.	Mr Ceronio stated that the landowner is iProp.
Mr Vaughan Rey Reyneke, Community member	Mr Reyneke sought clarification on whether the purpose of this public participation is to request consent for the operation, considering that the operation is already ongoing.	Mr Ceronio explained that the public participation process for the operating side was already completed in 2018-2019.
	Mr Reyneke asked for clarification on the location of the operation, questioning why consent is being requested when the operation is already ongoing. He also raised	Mr Ceronio explained that the current project focused on the new section, which was not part of the 2018 operation.

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STAKEHOLDER	COMMENT	RESPONSE
	concerns about not being included or benefiting from the existing operation.	
During the Open Day, community members expressed a desire to have a single meeting involving all participants. They emphasized the importance of having one consolidated session to facilitate direct communication between the various stakeholders and ensure that everyone's voice is heard.		
Mr Ishmael Van Werk, Community member	Mr van Werk raised a concern about how the information was received, claiming that he did not receive the necessary details from the consultant in his capacity as the leader of the mining forum. He inquired about how the community should protect itself, as their voices were not heard during the previous Valley Silts project, and their issues were not addressed. He emphasized that the community is suffering from the consequences of mining without receiving any benefits.	Mr Thornton explained that the information was disseminated in accordance with Public Participation Process (PPP) requirements. He further added that they are currently conducting an environmental impact assessment to ensure that the environmental aspects of the proposed project are thoroughly examined, and that appropriate mitigation measures are put in place.
Community member	A community member inquired if the EIA is being submitted to the Department of Mineral Resources and Energy (DMRE), why the community stakeholders were not given the opportunity to submit their own EIA report, which they had compiled over the years. The member further stated that the mine's operations have a direct impact on them, their children, and that the health impact of the operating mine can even be observed at their local clinic. They requested that Kongiwe ensure the	Mr Thornton requested the community to please share their reports, as this would help address their concerns. He emphasized that Kongiwe is committed to being part of the solution and wants to work together with the community to ensure their issues are properly addressed.

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STAKEHOLDER	COMMENT	RESPONSE
	community's concerns are properly addressed and reflected in the report.	
Community member	A community member inquired whether the proposed project is a new project or a continuation of an existing one. He further stated that the community is not interested in the infrastructure and other aspects being discussed. What they are more concerned about is understanding what benefits they will receive from the project, rather than facing health issues. He also asked about the measures in place to manage the stockpiles during the rainy season.	Mr Thornton responded that there are berms in place to prevent pollution from reaching the river and the community. These berms are designed as part of the measures to mitigate environmental impact and protect the surrounding area.
Community member	A community member shared the history of pollution from Johannesburg to New Canada, emphasizing his understanding that all mines generate acid mine drainage. He mentioned having conducted thorough research on the effects of acid mine drainage on both the community and local streams and is now seeking compensation for the harm caused. He also asked for clarification on how much Ergo will profit from the mining operation and, more importantly, how the community will be compensated for the environmental and health impacts. He further complained about the lack of proper consultation with the community, stating that the community needs to be more actively involved in the decision-making process. He emphasized that, in addition to addressing environmental concerns, the community requires financial benefits and	Mr Thornton explained that there are NGOs currently in place, such as the Riverlea Mining Forum, that are already working with the mines to address community concerns and environmental issues.

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STAKEHOLDER	COMMENT	RESPONSE
	development opportunities to improve their living conditions and well-being.	
Community member	The community member expressed the view that the information provided was very general and not detailed enough. He emphasized the importance of involving the community in these assessments, as they should have a direct role in the process. He claimed that the impact assessments had already been conducted, but no tangible outcomes or discussions have come to them.	Mr Thornton clarified that this is the initial stage of engagement with the community, aimed at gathering their concerns and feedback. He explained that the process is still in its early phases and that further discussions and consultations will follow to address the community's issues.
Community member	A community member requested that at the next meeting, all the involved stakeholders (iProp, DMRE, DWS, and Ergo) be present to explain in detail how the community will benefit from the project. They emphasized the importance of having a clear understanding of the benefits and compensation for the community.	Mr Thornton expressed appreciation for the comments regarding the inclusion of all stakeholders in consultation meetings. He stated that he would be happy to have them in attendance; however, Kongiwe does not have the mandate to bring/force them to the stakeholder consultation meetings. Cllr Lobi added that Ergo should have been present at the meeting to address the community's queries. He stated that he would try to get the relevant department involved in the next engagement. He emphasized that the community's concerns should be taken seriously, as the issues raised today were the same as those brought up years ago, with no positive feedback or resolution. Cllr Mlobi further requested collaboration among all parties to effectively address the issues raised by the community.
Community member	Community member inquired about the authorisation process moving forward. She asked how updates will be communicated after the submission of applications and reports, and who will be responsible for this communication. Additionally, she raised concerns	Mr Thornton clarified that this is the application for Environmental Authorisation and the Water Use License application for the proposed Valley Silts Expansion project. He highlighted that this as a scoping phase, which is crucial for defining the scope and boundaries of the assessment. This phase aims to identify and address the most significant environmental and social impacts while also gathering community concerns and comments that will be

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STAKEHOLDER	COMMENT	RESPONSE
	regarding meeting organisation, pointing out that some community members were absent.	incorporated into the upcoming Environmental Impact Report. Specialist studies (air quality, surface water, health etc.) will also be conducted. There will be a second round of stakeholder consultation dealing with the impact identified during the EIA phase and by specialists as well as proposed mitigation measures. Additionally, the consultation process involves a diverse range of stakeholders, including national, provincial, and local government departments, ward councillor, NGOs, and various interested and affected parties. Ms Wilreker indicated that the information from the signed register will be used to send updates to the community. She also requested that those who have received the information help spread the word to ensure that everyone is informed.
Community member	A community member asked how the post operations will look like moving forward.	Mr Thornton stated that iProp, as the landowner, needs to be consulted on this matter.
Community member	A community member asked how the river will look after the operations have concluded.	Mr Thornton responded by suggesting that the rehabilitation of the stream should aim to produce wetland systems that clean the Russell stream and the river system. He suggests promoting Russell Stream as a wetland area that can effectively clean the river system. He further stated that it is important to note that this is a suggestion aimed at improving the ecological health of the area.
Community member	A community member asked, if iProp is the landowner, why the community is being consulted. They questioned whether iProp should be free to do as they please with its property, or if this consultation is merely a "tick-box" exercise.	Mr Thornton explained that while iProp is the landowner, they do not have the expertise to remove the silts. Ergo specializes in the removal of silts, and this process requires community consultation to ensure the concerns of the community are addressed. Mr Thornton confirmed that the consultation is not a ‘’tick-box’’ exercise.

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STAKEHOLDER	COMMENT	RESPONSE
Community member	A community member suggested that the next meeting be held at Riverlea Extension.	Project team noted this, but the community objected to the suggestion.
Mr Josiah Tshisevhe, Community Liaison Officer, Ergo	Mr Tshisevhe explained that, as the community liaison officer, he will work closely with the Riverlea community on this proposed project. He further clarified the role of Kongiwe as the consultant and emphasized the importance of collaborating with the community to develop effective solutions	
Mr Masala Tshamano, Environmental Manager, Ergo	Mr Tshamano clarified that Kongiwe is independent from Ergo and conducts the environmental impact assessment of the proposed project independently. He explained that Kongiwe submits a report outlining the impacts and mitigation measures, which Ergo can implement to manage the environmental aspects of the project. He further explained that Ergo's role is to observe the process without interfering, ensuring that it remains transparent. He also mentioned that the previous process was transparent, with the councillor being involved in the recruitment process.	Cllr Lobi confirmed his involvement is the previous Valley Silts project
Mr Jarrad Smith, RMF, Ward 68	Mr Smith expressed his disappointment regarding the presentation shared by Ms Wilreker with the community, noting that it was identical to the one presented in 2019. He pointed out that the community had not received any feedback from Kongiwe following the 2019 presentation. He questioned the tangible benefits the community would gain from the proposed project, expressing concerns that	Ms Wilreker clarified that the presentation may appear similar to the 2019 version because the applicant is seeking approval to expand the Valley Silts project. Mr Thornton added that the proposed project would benefit the community by improving the environmental conditions. He emphasized that the pollution of the Klip River is primarily caused by sewage from the CBD.

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STAKEHOLDER	COMMENT	RESPONSE
	the mine is directly responsible for the poor condition of the river. Mr Smith emphasized that DRDGOLD should offer both employment opportunities and financial benefits to community members. He stated that the community is frustrated with both the mining companies and the "zama zamas" operating in the area. He made it clear that the community is demanding 40% from the mine and raised concerns about health issues, specifically eczema and asthma, which he attributed to the chemicals from the mining operations. He further stated that the Rivelea Mining Forum (RFM) would provide guidance on how any funds or resources from the mine should be allocated for community development. Mr Smith concluded by sharing that the RFM is interested in building a multipurpose medical centre to address the various health issues the community is facing, including those caused by mining-related chemicals.	Kongiwe acknowledged and took note of all the comments raised by the attendees.
Ms Patricia Mogano, Community member	Ms Magono stated that she is suffering from a chronic illness due to the current mine operations. She asked how the community would receive responses to the questions raised. Additionally, she inquired about how people were informed about the Public Participation Process (PPP) meeting, as she only learned about it the day before.	Mr Thornton explained that the information was disseminated in accordance with PPP requirements. Notices were placed in the local newspaper, and open day notices were displayed in various public places to inform the community about the project and invite them to the open day. He added that the same procedure would be followed for the EIA report.

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STAKEHOLDER	COMMENT	RESPONSE
Mr Danny Du Preez, Community Leader, Ward 68	Mr Du Preez expressed his disappointment with the consultation process conducted by Kongiwe. He stated that, based on the presentation, the community was not informed about the economic, social, and health impacts of the project or where the community stands in relation to these issues. He further emphasized that the community is not currently benefiting from the project and made it clear that they would continue to advocate for their rightful benefits.	Mr Thornton expressed his appreciation for the constructive feedback provided. He clarified that the project is still in the scoping phase and assured attendees that all the comments raised would be thoroughly addressed during the EIA phase.
Mr Bassie Maile, SANCO Greater Johannesburg	Mr Maile suggested that it would be most effective to directly engage with the client to address the community's concerns, particularly regarding past issues and the 30% benefit. He also noted that the Klip River flows between Rivelea and Diepkloof and expressed a preference that the project employ 50% of the local community members. Additionally, he requested that these workers receive medical aid and proper safety PPE (Personal Protective Equipment).	Mr Thornton thanked the community for raising the issue of engaging directly with the client to address the community's concerns, including past issues and the 30% beneficiation. He emphasized that Kongiwe recognizes the importance of these matters and is committed to facilitating constructive dialogue between the client and the community. Mr Thornton indicated that he understands the significance of local employment opportunities, particularly with regard to the Klip River project. This includes looking into opportunities for skills training, long-term employment, and local sourcing where possible.
Mr Reece Resenbeck, Community member	Mr Resenbeck expressed frustration that the mine had made many promises to the community, but none had been fulfilled. The only noticeable impact has been health issues caused by the mine's operations, particularly the open pits.	Kongiwe took note of the community's feedback and indicated that the concerns raised are recorded.

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STAKEHOLDER	COMMENT	RESPONSE
	He highlighted that school children are being directly impacted by the mine, with many experiencing health problems and even requiring oxygen tanks. He emphasized that the mine's operations are putting a strain on the community's well-being. Mr Resenbeck raised concerns about the high unemployment rate in the area, especially among youth. He noted that there has been no progress in creating jobs for young people in the community. He urged that the mine should contribute more to the community by building infrastructure or supporting community projects, as this has not yet been done. He recommended that the mine should stop engaging with individuals and instead communicate with RMF (Riverlea Mining Forum), as they serve as the primary point of entry to the community. Mr Resenbeck emphasized the need for actions to be above board and expressed that if the mine works with Kongiwe, they could rebuild the trust of the community. He expressed the view that mining companies have been taking the community for granted and that urgent changes	

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STAKEHOLDER	COMMENT	RESPONSE
	are needed to address the ongoing health and employment challenges. Mr Resenbeck further suggested that Kongiwe's attendance register should reflect that the application under discussion is a proposed one.	
Ms Blanche Elins, Community member	Ms Elins inquired about iProp's attendance at the meeting, emphasizing that as landowners, they should be actively involved in their property upliftment. She pointed out that iProp, as stakeholder in the land, has an obligation to contribute positively to the community's development. She acknowledged that iProp had consulted the community; however, she expressed concerns about the lack of transparency in the consultation process. She called for more open and honest communication moving forward, ensuring that the community's concerns and needs are genuinely addressed.	Kongiwe noted the comment.
Mr Theo Doyle, Community member	Mr Doyle inquired about the project's start date.	Mr Macevele explained that after the scoping phase, an EIA will be conducted, and it is expected to be concluded sometime after June 2025. Only after the completion of the EIA can the project commence.
	Mr Doyle inquired how is the scoping report circulated to the community.	Mr Macevele explained that site notices have been erected around public places, such as libraries, clinics, and etc to notify the community about the project.
	Mr Doyle inquired whether Ergo has a good track record. He further stated that the community will likely oppose the project.	Mr Macevele responded that he cannot say for certain, as Ergo has many projects currently involving gold reclamation. He suggested that this question would be better answered by a representative from Ergo.

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STAKEHOLDER	COMMENT	RESPONSE
Cllr Msimelelo Lobi, Ward 68 councillor, CoJ	Cllr Lobi inquired about the method of extraction.	Mr Macevele explained that the method of extraction is mechanical reclamation.
Mr Teddy Snyders, Community member	Mr Snyders asked who authorizes the project and whether the community has the ability to object to it.	Mr Macevele explained that the DMRE authorizes the project. He added that Kongiwe is an independent consultant who conducts the environmental and social impacts of the proposed project, records the community's concerns and submit them to the DMRE as part of the final report.
Ms Patricia, Community member	Ms Patricia asked what "silt" refers to in the name "Valley Silts."	Mr Macevele explained that "silt" refers to the sediment or mud that contains the gold to be extracted.
	Ms Patricia asked how the community can be sure that their comments are being considered as part of the process.	Mr Macevele explained that the report will be sent with community responses to the client, ensuring that community comments are addressed as part of the process.
Community member (Ward 68)	Community member has expressed concerns regarding the transparency of the public participation process. It was stated that during the previous EIA for the Valley Silt reclamation project, there was a noticeable lack of transparency, as he is unaware of anyone who received feedback related to the projects. The member has proposed a re-evaluation of the public participation approach to ensure that future presentations are effectively tailored to communicate with all stakeholders involved.	Mr Thornton explained that Kongiwe was responsible for conducting the EIA and public participation for the previous Valley Silts project. He emphasized that, despite the challenges posed by COVID-19 restrictions, numerous meetings were held with the community in Riverlea at appropriate times to facilitate consultation. He clarified that Kongiwe does not make the final decision on whether the project proceeds; instead, Kongiwe facilitates the EIA and Water Use License Application (WULA) processes, taking into account the comments, issues, and input raised during these processes. The final decisions are made by the competent authorities, specifically the Department of Mineral Resources and the Department of Water and Sanitation. Mr Thornton stressed that this is a transparent process, and that Kongiwe's role is to provide information about the project, gather community feedback, and ensure that all comments are incorporated into the reports submitted to the competent authorities for evaluation.

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STAKEHOLDER	COMMENT	RESPONSE
Mr Ishmael Van Wyk, Community member	Mr van Wyk raised the point that the Riverlea Mining Forum is mandated by the community to represent their interests on mining related issues. He questioned why information regarding these projects did not come from the forum to the community, given its role as the organisation mandated to represent them. He further raised concerns regarding the allocation of R60 million from iProp to the community, noting that another report indicates these funds may instead be directed to the City of Johannesburg. He expressed concern that the mining activities could damage local infrastructure due to the proposed highly mechanical activities, which is not expected to generate jobs. He further questioned why the community should remain passive without receiving any benefits. He emphasised the need for clarity on these issues to prevent misunderstandings and blame among community members.	Mr Thornton acknowledged that the Riverlea Mining Forum is an NGO operating for the community and clarified that iProp is the landowner while Ergo is the mining company (the applicant). He explained that this is an independent EIA process, which focuses on assessing the social and environmental impacts of the project. He further noted that issues of benefits, should be directed to Ergo. He assured the community that all comments received will be incorporated into the Environmental Impact Report.
Mr Teddy Snyders, Environmental Activist	Mr Snyders inquired about how the community will benefit from the project, noting that the community is affected by mine dumps in the area and pollution from upstream sources at the Russell Stream.	Mr Thornton encouraged all parties to collaborate to improve the current situation. He indicated that an environmental benefit would be the rehabilitation of Russell Stream through the removal of silt and the reshaping of areas to ensure proper drainage. Additionally, he stated that local residents should be considered for economic opportunities arising from this project; however, this should be discussed as an economic discussion with the applicant since it will be operating in the area.

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STAKEHOLDER	COMMENT	RESPONSE
Community member	Community member expressed concerns regarding the lack of a social development plan, which he believes is contributing to ongoing community complaints. He noted that the scoping report appears to be generic and inquired about the next phase of the project. Additionally, he emphasised the need for transparency in the EIA process and insisted that the community should receive some financial benefits from the project	Mr Thornton clarified that this is the scoping phase, which is essential for defining the scope and boundaries of the assessment. This phase ensures that the most significant environmental and social impacts are identified and addressed in the upcoming environmental impact report. He acknowledged the concerns raised regarding the consultation process, community benefits, and improvements to environmental quality and emphasising that all comments have been noted.
Community member	Community member expressed concern that the community has frequently been sidelined and has not benefited from projects like this one. He highlighted issues such as high unemployment rates, gang violence, and other social challenges affecting the community. He urged for greater unity within the community during the EIA process to ensure that their voices are heard and taken into account.	Mr Thornton responded by explaining that their consultation process involves a diverse range of stakeholders, including national, provincial, and local government departments, NGOs, and various interested and affected parties. He emphasising that Kongiwe does not engage in consultations with undisclosed individuals.
Community member	Community member has requested a list of individuals from the community who are currently working on the authorised section of the Valley Silts project	Mr Tshamano stated that he was happy to release the list of the current beneficiaries to the community.
Community member	Community member has requested that all communications and details regarding the next meeting be conveyed through a ward councillor. Additionally, he urged the community to address this matter outside of the current consultation meeting	The project team noted this.
Mr Bradly Thornton, Project Director, Kongiwe	Mr Thornton outlined a way forward that includes compiling the minutes of the meeting, which will be circulated to all attendees to ensure transparency. He	The attendees thanked Kongiwe team for informing them about the project.

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STAKEHOLDER	COMMENT	RESPONSE
	indicated that the issues raised during the meeting will be incorporated into the EIA phase and specialist studies. Additionally, he reminded attendees that there will be another consultation meeting next year, which will provide more detailed information about the environmental impacts and proposed mitigation measures, as well as address community concerns. He encouraged collaboration between Ergo and the Riverlea community. Above all, he noted that the public participation window for the scoping phase is open until November 28, 2024, and urged community members to submit their comments.	

The meeting adjourned at 12:00 pm.

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Appendix A – Attendance Register

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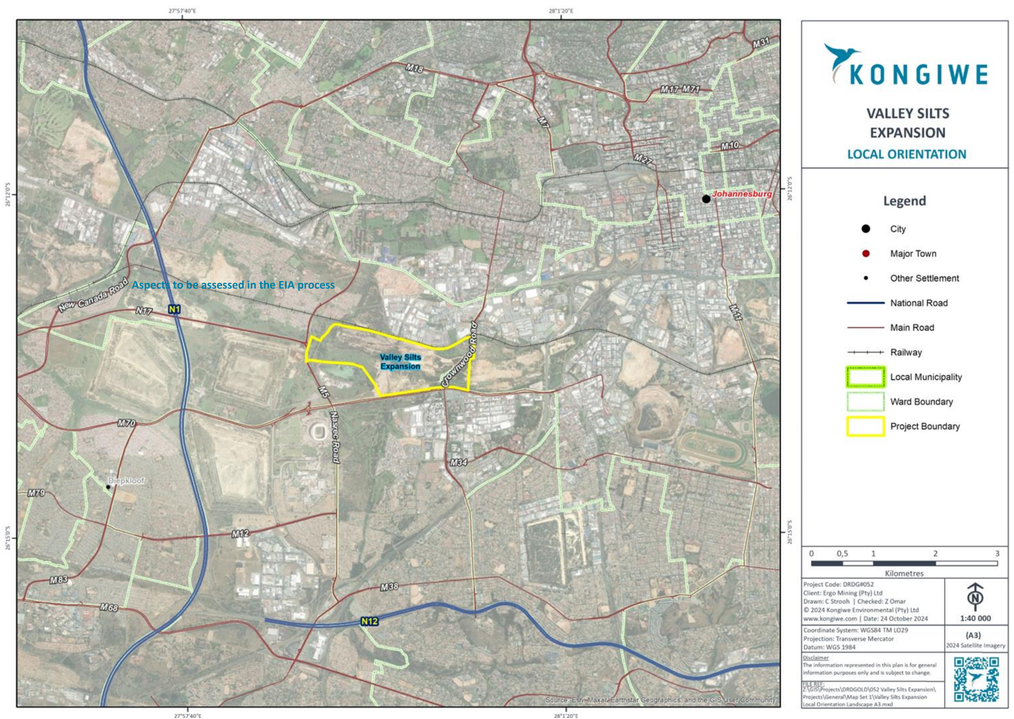
Appendix B – Posters

Environmental Authorization and Integrated Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province
Draft Scoping Report Findings

Proposed Project

Kongiwe Environmental (Pty) Ltd (Kongiwe) has been appointed by Ergo Mining (Pty) Limited, to undertake the Scoping and Environmental Impact Assessment (S&EIA) process which is aimed at critically evaluating the potential environmental and social impacts of the proposed Valley Silts Expansion Project located within the City of Johannesburg Metropolitan Municipality (CoJ), Gauteng Province.

Ergo intends to expand its Valley Silts reclamation operation. The expansion involves mechanically excavating gold-bearing silts from the old dam wall to Nasrec Road (Blocks N1 to N20), situated immediately west of the authorised and existing Valley Silts reclamation project area and the remaining Blocks (N21 and N22) being located either side of Crownwood Road, near Booysens Reserve and Riverlea, Johannesburg. The Proposed Project is expected to take approximately 5 years.



Project Background

During the mid-20th century, mining operations in the Witwatersrand area often involved designing tailings dumps within floodplains and watercourses, including around the Klipspruit River, near New Canada and Fleurhof Dams. The Russell Stream Dam (No. 12 Shaft Dam) and Golf Meer Lake were constructed to serve multiple mines in the region. However, mining was poorly regulated, and after operations ceased, the tailings were left unmanaged. Over time, erosion from surrounding old tailings dumps caused significant sediment buildup in both dams, creating a thick layer of silt, up to 12 meters deep in some areas. This accumulation has reduced the velocity of the Russell Stream and caused it to shift northward, impacting surrounding areas like Riverlea and Crown Industrial.

Ergo obtained an Environmental Authorisation (EA) and an Integrated Water Use Licence (IWUL) for the mechanical reclamation of gold bearing silts from a section near the Russell Stream north of NASREC near Booysens Reserve, in Johannesburg. The reclamation authorisation for the removal of silts, falls within Mining Right GP 184 MR. Further to this, Ergo (a subsidiary of DRDGOLD Limited) holds various Mining Rights (MR) in respect of slimes dams and sand dumps extending 65 km from Western Johannesburg to Eastern Ekurhuleni with most activities occurring on the central and eastern sections of the Witwatersrand mining belt.

The removal of silts within the already authorised Valley Silts Project area has been ongoing since and as such, the requirement to prepare for the Valley Eastern Expansion, Southern Expansion, and Valley Expansion Northwest is now necessary for continuous reclamation operation, as well as a sustainable feed source to the process plant.

Aspects to be assessed in the EIA process

No.	Environmental Theme	Applicable Protocol	Response
1.	Archaeological and Cultural Heritage Impact Assessment Sensitivity Rating: Very High Requiring an Archaeological and Cultural Impact Assessment Actual Sensitivity: To be determined in the EIA Phase	Site Sensitivity verification requirements where a specialist assessment is required but no specific assessment protocol has been prescribed (Published in GN No. 320, government Gazette 43110; Dated 20 March 2020).	**The STR denoted the site as Very High sensitivity.** **A Heritage Impact Assessment (HIA) will be included as an appendix to the EIA/EMPr.**
2.	Palaeontology Sensitivity Rating: Very Low Requiring a Palaeontology Impact Statement Actual Sensitivity: To be determined in the EIA Phase	Site Sensitivity verification requirements where a specialist assessment is required but no specific assessment protocol has been prescribed (Published in GN No. 320, government Gazette 43110; Dated 20 March 2020).	**The STR indicates that the Palaeontological Sensitivity of the proposed project area is Very Low.** **A palaeontological Impact Statement will be undertaken and included in the HIA which will be included as an appendix to the EIA/EMPr.**
3.	Terrestrial Biodiversity Sensitivity Rating: Very High Requiring a Terrestrial Biodiversity Impact Assessment Actual Sensitivity: To be determined in the EIA Phase	Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity (Published in Government Notice No. 320, Government Gazette 43110, dated 20 March 2020)	**The Screening Tool has marked the site as Very High Sensitivity.** **A Terrestrial Biodiversity Assessment will be undertaken and will include management measures for the protection of terrestrial biodiversity. The Assessment will be included as an appendix to the EIA Report.**
4.	Aquatic Biodiversity Sensitivity Rating: Very High Requiring an Aquatic Biodiversity Impact Assessment	Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Aquatic Biodiversity (Published in GN No. 320, Government Gazette 43110, dated 20 March 2020)	**The Screening Tool denoted the site as Very High sensitivity.** **This theme will be further addressed in the EIA which will provide measures to protect aquatic biodiversity on site as per the specialist recommendations. The Assessment will be included as an appendix to the EIA/EMPr.**
5.	Hydrology No sensitivity rating. Requiring a Hydrology Assessment	Site Sensitivity verification requirements where a specialist assessment is required but no specific assessment protocol has been prescribed (Published in GN No. 320, government Gazette 43110; Dated 20 March 2020).	**The screening tool has not assigned a sensitivity rating to hydrology.** **The Surface Water Study is a requirement as per the NWA. A comprehensive surface water impact assessment will be prepared to assess the potential impacts that the proposed activities may have and to provide mitigation measures for identified impacts. The impact assessment will make use of a numerical rating system, that takes into consideration the intensity, duration, spatial scale and probability of the impacts to determine the impact significance. The cumulative impacts will also be assessed.** **The final deliverable will be a Surface Water Report that details all methodologies, assumptions, results, discussions and recommendations. Detailed plans will be provided in the report.**
6.	Noise No sensitivity rating. Requiring a Noise Impact Assessment	Protocol for Specialist Assessment and Minimum Report Content Requirements for Noise Impacts, Published in Gazette Notice No. 320, Government Gazette 43110 dated 20 March 2020)	**The STR has not assigned a sensitivity rating for this theme. The main construction related noises that are expected are listed below:** ❖ **Transport of workers, components & equipment to site;** ❖ **Digging of foundations for infrastructure – TLB;** ❖ **Development of stormwater infrastructure – TLB;** ❖ **Civil construction activities.** **Noise impacts are anticipated to during construction and operation. As a result, noise impacts will be assessed for the proposed expansion project**
7	Health No sensitivity rating.	Site Sensitivity verification requirements where a specialist assessment is required but no specific assessment protocol has been prescribed (Published in GN No. 320, government Gazette 43110; Dated 20 March 2020).	**The screening tool has not assigned a sensitivity rating to the Health Theme. It has, however, indicated the need for further assessment.** **Due to the scope and the nature of the project it was determined that air quality impact will be assessed to determine the possible health related effects expected to occur as a result of the reclamation of the silts. The specialist study will include an assessment of potential impacts that are anticipated during the construction, operational, and decommissioning phases, and provide an air quality management plan to mitigate negative impacts.**
8.	Ambient Air Quality No sensitivity rating. Requiring an Ambient Air Impacts Assessment	Site Sensitivity verification requirements where a specialist assessment is required but no specific assessment protocol has been prescribed (Published in GN No. 320, government Gazette 43110; Dated 20 March 2020).	**The STR has not assigned a sensitivity rating to the ambient air theme. It has, however, indicated the need for further assessment.** **The ambient air aspects of the proposed project site have been considered and will be addressed in the EIA. The Air Quality Impact Assessment will include an assessment of potential impacts that are anticipated during the construction, operational, and decommissioning phases, and provide an air quality management plan to mitigate negative impacts.**
9	Animal Species Theme Sensitivity Rating: Medium Requiring a Terrestrial Animal Species Assessment Actual Sensitivity: To be confirmed in the EIA Phase	Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Animal Species Published in Government Gazette No. 1150, Government Gazette 43855, dated 30 October 2020)	**According to the STR, the Animal Theme sensitivity is 'Medium' for the project area.** **The Medium Sensitivity denoted by the Screening Tool cannot be disputed at this point. A Terrestrial Biodiversity (Flora and Fauna) Assessment will be undertaken and will provide measures to protect any sensitive animal species that may occur on site.** **The Terrestrial Biodiversity Assessment will be included as an appendix to the EIA report.**
10.	Plant Species Theme Sensitivity Rating: Medium Requiring a Terrestrial Plant Species Impact Assessment Actual Sensitivity: To be confirmed in the EIA Phase	Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Plant Species (Published in GN No. 1150, Government 43855, dated 30 October 2020)	**The Screening Tool has marked the site as Medium Sensitivity for the plant species theme, and this is based on the possible occurrence of a sensitive plant's species within the Russell stream.** **The Medium Sensitivity denoted by the Screening Tool cannot be disputed at this point. A Terrestrial Biodiversity (Flora and Fauna) Assessment will be undertaken and will provide measures to protect any sensitive plant species that may occur on site.** **The Terrestrial Biodiversity Assessment will be included as an appendix to the EIA report.**
11	Agricultural Sensitivity Rating: Medium Requiring an Agricultural Impact Assessment Actual Sensitivity: To be confirmed in the EIA Phase	Protocol for the specialist assessment and minimum report content requirements for environmental impact on agricultural resources. (Published in GN No. 320, government Gazette 43110; Dated 20 March 2020)	**The Screening Tool has marked the site as Medium Sensitivity for the Agriculture theme, due to the likelihood that the area will be very marginal arable land.** **Agricultural Compliance Statement will be undertaken. The statement will be included as an appendix to the EIA Report.**
12	Landscape/Visual Impact No sensitivity rating. Requiring a Landscape/Visual Impact	Site Sensitivity verification requirements where a specialist assessment is required but no specific assessment protocol has been prescribed (Published in GN No. 320, government Gazette 43110; Dated 20 March 2020).	**The STR has not assigned a sensitivity rating to the Landscape/Visual Impact theme. It has, however, indicated the need for further assessment.** **The Landscape/Visual Impact aspects of the proposed project site have been considered and will be addressed in the EIA. The Landscape/Visual Impact Assessment will include an assessment of potential impacts that are anticipated during the construction, operational, and decommissioning phases, and provide the mitigation measures.**
13	Traffic No sensitivity rating. Requiring a Traffic Impact Assessment	Site Sensitivity verification requirements where a specialist assessment is required but no specific assessment protocol has been prescribed (Published in GN No. 320, government Gazette 43110; Dated 20 March 2020).	**The screening tool has not assigned a sensitivity rating to the Traffic Theme.** **The Proposed Project Site is located in an area with an existing road network. The trucks transporting the material will follow Crownwood Road until it reaches Main Reef Road and then joins the M2 East. The trucks will then follow the M2 until they reach Heidelberg Road which is followed to the City Deep Plant where it is offloaded.** **No major access road construction is planned for the project. Existing Roads will mainly be utilised during the construction and decommissioning and rehabilitation phase of the Proposed Project where possible. However, the traffic impact to be assessed further during the EIA process.** **Further to this, South African National Roads Agency SOC Limited (SANRAL) are on our stakeholder database and have been notified about the Proposed Project.**
14	Geotechnical Assessment No sensitivity rating. Requiring a Geotechnical Assessment.	Site Sensitivity verification requirements where a specialist assessment is required but no specific assessment protocol has been prescribed (Published in GN No. 320, government Gazette 43110; Dated 20 March 2020).	**The screening tool has not assigned a sensitivity rating to the Geotechnical Assessment.** **The proposed expansion of the reclamation project is of limited scope and scale, and it will involve minimal disturbance to the streambed and surrounding areas. The mechanical processes employed are designed to be low impact, reducing the need for extensive geotechnical analysis. It was therefore deemed unnecessary for this aspect to be assessed as part of the EIA process.**
15	Climate Impact No sensitivity rating. Requiring a Climate Impact	Site Sensitivity verification requirements where a specialist assessment is required but no specific assessment protocol has been prescribed (Published in GN No. 320, government Gazette 43110; Dated 20 March 2020).	**The screening tool has not assigned a sensitivity rating to the Climate Impact.** **The reclamation project is designed to be completed within 5 years (silts removal is planned for three years and rehabilitation 2 years) significantly reducing the potential for long-term climate change impacts. The limited duration of the project minimises the relevance of a climate change impact assessment. However, a climate change adaptation plan for the proposed project to be assessed during the EIA process.**
16	**Seismicity Assessment** **No sensitivity rating.** **Requiring a Seismicity Assessment.**	**Site Sensitivity verification requirements where a specialist assessment is required but no specific assessment protocol has been prescribed (Published in GN No. 320, government Gazette 43110; Dated 20 March 2020).**	**The screening tool has not assigned a sensitivity rating to the Seismicity Assessment.** **The project involves minimal structural development, focusing primarily on the mechanical reclamation of silts. The absence of significant infrastructure reduces the risk associated with seismic events, further supporting the exclusion of a Seismicity Assessment study.**

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Environmental Authorization and Integrated Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province
Draft Scoping Report Findings

Reclamation Method

The gold bearing silts will be mechanically excavated from the project area.

30-ton Articulated Dump Trucks (ADT) will be used to transport and stockpile the silts from the Russell Stream. The silts will be left to dry on stockpile footprints.

Silts will have a 30 - 40% moisture content when hauled and are not expected to be fully dried out.

The dried silts will be loaded onto tipper trucks and transported to the City Deep plant for pre-processing.

The trucks transporting the material will follow Crownwood Road until it reaches Main Reef Road and then joins the M2 East. The trucks will then follow the M2 until they reach Heidelberg Road which is followed to the City Deep Plant where it is offloaded.





Stage 1 → Stage 2 → Stage 3 → Stage 4 → Stage 5

Mechanically Removal of Silts and temporarly stockpile for drying purposes on site

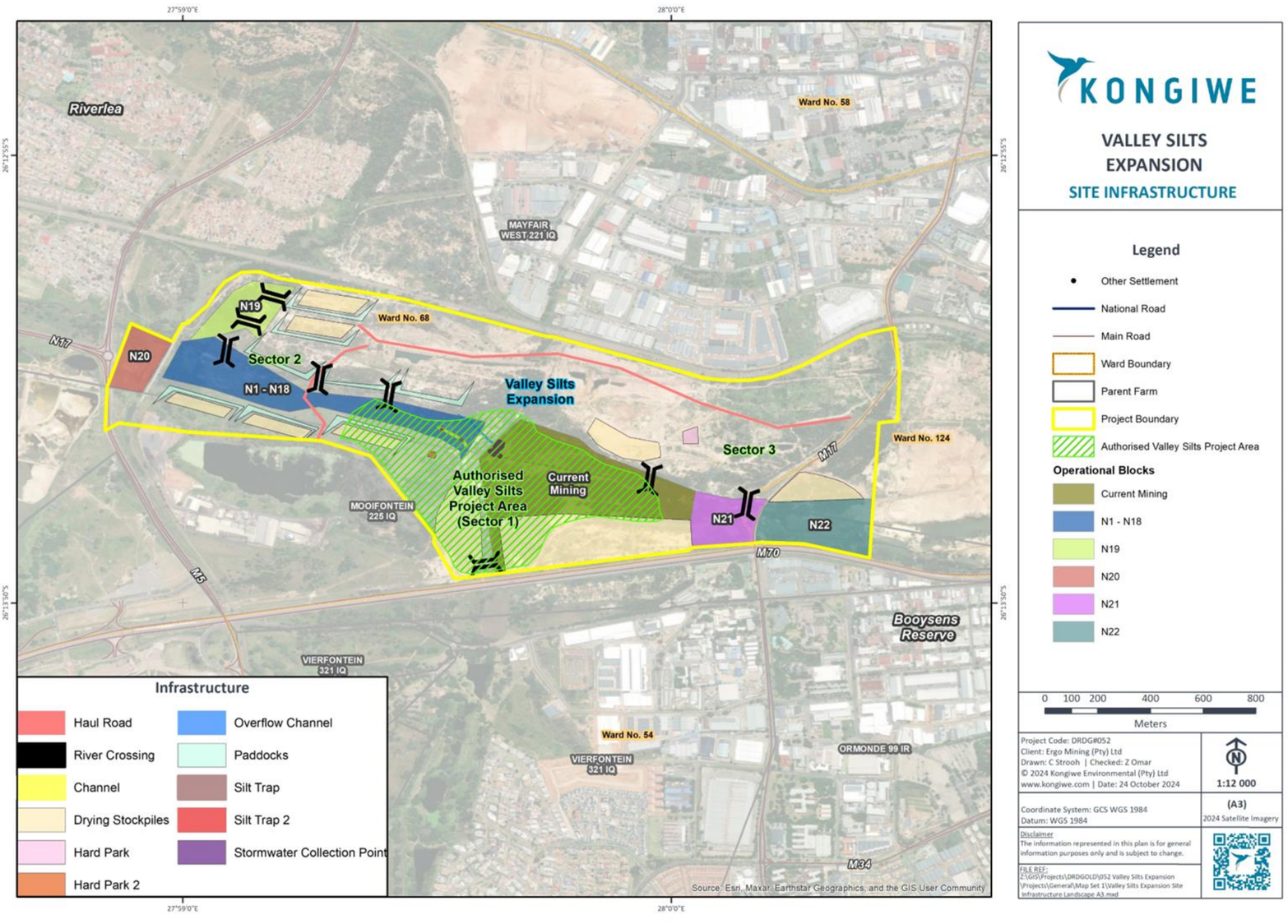
Transport of dried silts/materials via truck to the City Deep Plant

Concurrent Rehabilitation of the affected site

Pre-Processing at City Deep Plant

Processing and Refining

Project Infrastructure



Existing infrastructure:

- ❖City Deep Plant;
- ❖Stockpile area;
- ❖Main haul roads;
- ❖Existing site access roads;
- ❖Existing pipelines;
- ❖Electricity reticulation for domestic purposes;
- ❖Hauling road: access roads and main roads,
- ❖Administration buildings, including change houses and ablution facilities,
- ❖Mechanical excavation equipment (Backhoes or Excavators);
- ❖30 ton Articulated Dump Trucks (ADT's);
- ❖30 ton Dump Trucks;

New Infrastructure

- ❖Drying stockpiles (8 locations);
- ❖Stormwater control berms/paddocks;
- ❖River crossings (8); and
- ❖Additional site access roads;

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Environmental Authorization and Integrated Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province
Draft Scoping Report Findings

National Environmental Management Act and National Water Act

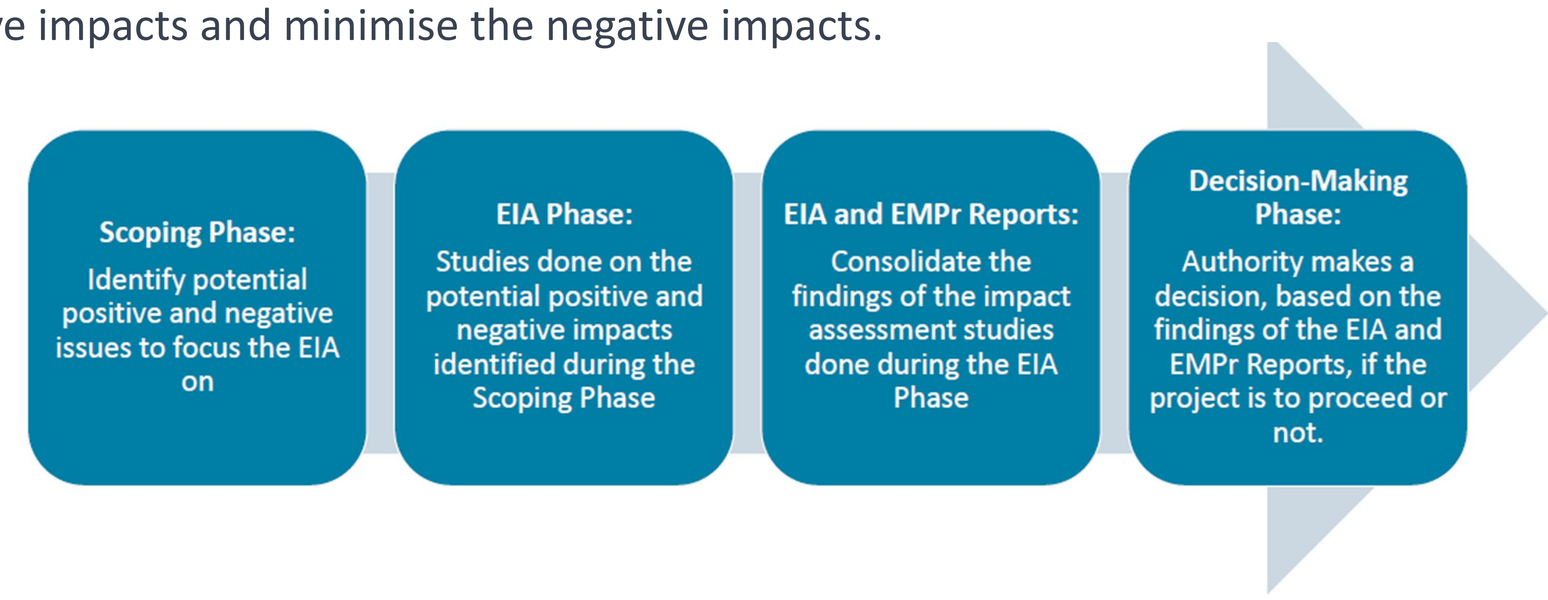
The proposed project requires and Environmental Authorisation (EA) in terms of the NEMA and NEM:WA and will follow a Scoping and Environmental Impact Assessment (S&EIA) process in terms of the EIA 2014 Regulations, as amended. The aforesaid Regulations enforce a strict timeframe and require a decision by the Competent Authority CA), the DMRE, within 300 days of the submission of the EA application.

The proposed project will require a Water Use Licence (WUL) in terms of the National Water Act, An Integrated Water Use Licence Application (IWULA) will be prepared and submitted in accordance with the Water Use Licence Application and Appeals Regulations 2017 and will be supported by a technical report and other supplementary information.

The Draft Scoping Report has been conducted to identify potential positive and negative impacts on the environment and to gather comments and queries from stakeholders. It documents the process followed, the findings and recommendations of the scoping phase study and the proposed plan of study for the EIA Phase to follow.

The overarching objectives of the EIA process will be to:

- Prepare integrated sensitivity maps for the study area based on the findings of the specialist assessments as input into the project design process;
- Identify and assess the significance of potential impacts associated with the project activities; and
- Recommend mitigation and enhancement measures to ensure that the development is undertaken in such a way as to promote the positive impacts and minimise the negative impacts.



Listed Activities & Water Uses

- **Application for EA** for listed activities triggered in Listing Notices GN R983, GN R984 and GN R985 published pursuant to the EIA Regulations 2014 (as amended), promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA);
  - GN R983 – Activities 9,
  - GN R984 – Activities 4,15
  - GN R985 – Activity 4, 6, 12, 14
- **Application for a waste management licence (WML)** authorising waste management activities listed in GN 921 of 29 November 2013 published in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (as amended) (NEM:WA).
  - Category B – 10
- **An Integrated Water Use Licence Application (IWULA)** in terms of the National Water Act, 1998 (Act No. 36 of 1998) (NWA) will be submitted to the Department of Water and Sanitation (DWS) for any potential impact to water resources by the Proposed Project. In this regard, any objection to that application may be lodged in writing within sixty days of the date of this notice to the Minister of the DWS as provided in Section 41(4) of the NWA.
  - Water uses 21 a, (c and i), g

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Environmental Authorization and Integrated Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province
Draft Scoping Report Findings

Public Participation Process

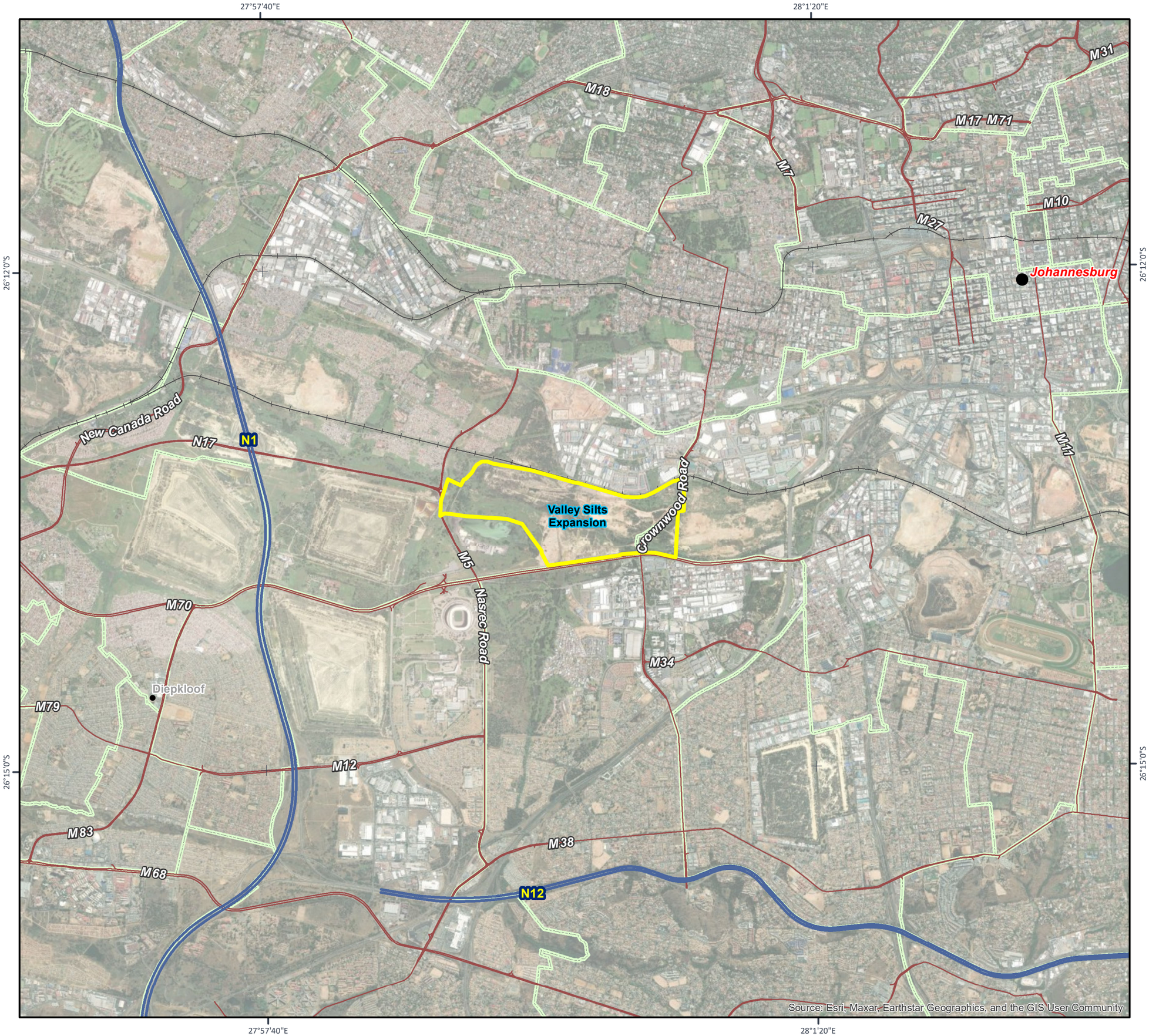
AVAILABILITY OF THE SCOPING REPORT FOR PUBLIC REVIEW AND COMMENT: The Draft Scoping Report (DSR) for the proposed project will be made available for public review and comment for a period of 30 days, from **Tuesday, 29 October 2024 until Wednesday, 27 November 2024**.

Location	Physical Adress
Public Libraries with the Scoping Report	
Riverlea Public Library	Cnr Avon & Colorado Dr, Riverlea, Johannesburg
Online availability	
Kongiwe Environmental website	https://kongiwe.com/projects/
An electronic copy of the DSR will be made available upon a request directed to the stakeholder engagement team. Stakeholders are encouraged to contact the stakeholder engagement team (Vanessa Viljoen/Thuli Phakathi), tel: (010) 140 1725/(010) 140 1726, email: stakeholders@kongiwe.com should they require assistance with accessing the DSR/ have queries regarding the Proposed Project.	

The Way Forward

- **NEMA application submission:** Monday, 28 October 2024
- **Project Announcement**: Thursday , 24 October 2024.
- **Public Participation Period**: Tuesday, 29 October – Wednesday, 27 November 2024
  - **Online Meetings:**
  - **Open Day:** Saturday, 16 November 2024 at Riverlea Empowerment Centre, 92 Sandpiper, Ext 5, Riverlea
- **Final Scoping Report Submission**: Monday 09 December 2024
- **EIA Phase:** February to June 2025
  - 30 day Public Participation period for EIA/EMPr
  - 60 day Public Participation period for Water Use Licence

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KONGIWE

VALLEY SILTS EXPANSION

LOCAL ORIENTATION

Legend

- City
- Major Town
- Other Settlement
- National Road
- Main Road
- Railway
- Local Municipality
- Ward Boundary
- Project Boundary

0 0,5 1 2 3

Kilometres

Project Code: DRDG#052
Client: Ergo Mining (Pty) Ltd
Drawn: C Strooh | Checked: Z Omar
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www.kongiwe.com | Date: 24 October 2024

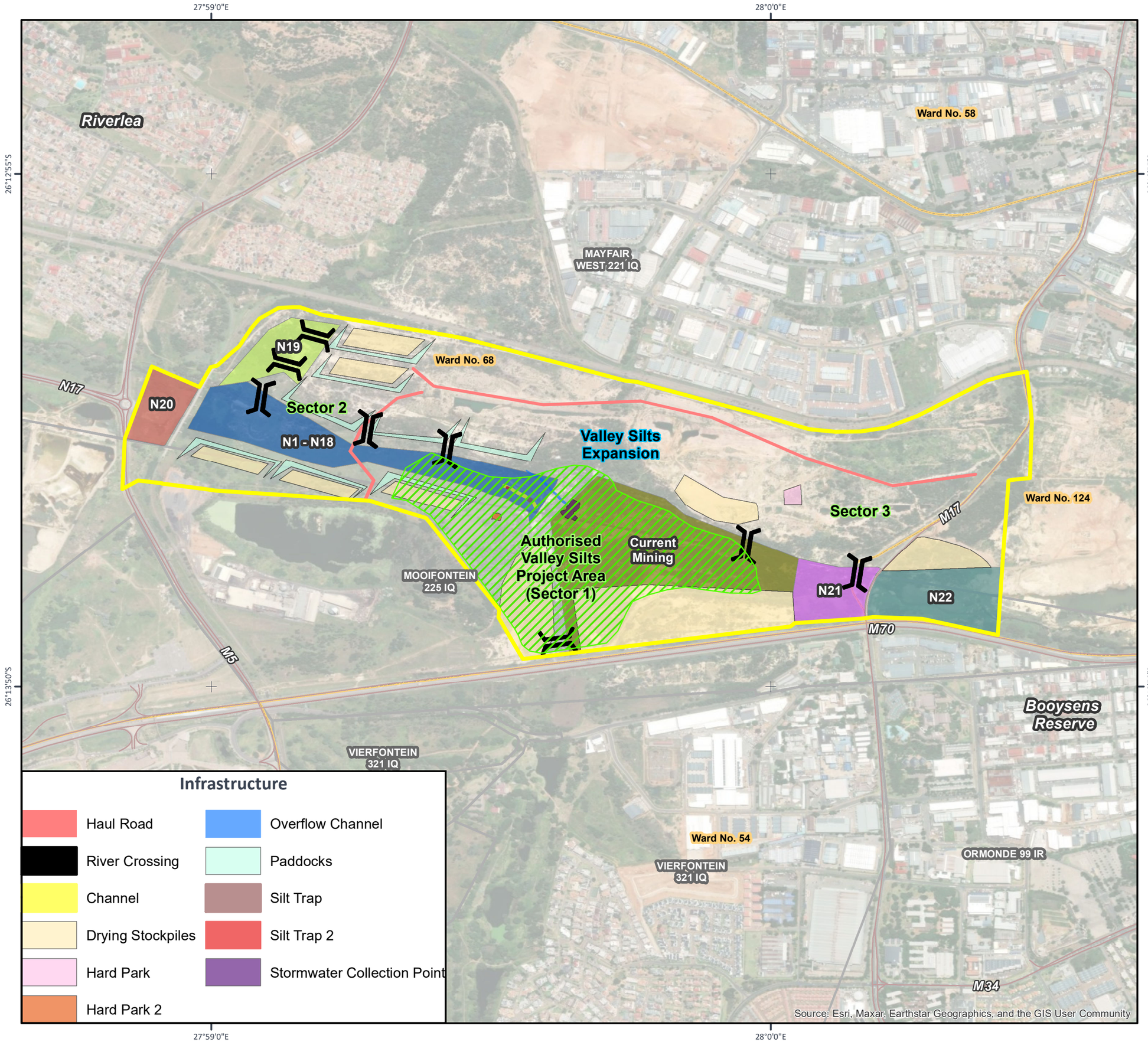
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Coordinate System: WGS84 TM LO29
Projection: Transverse Mercator
Datum: WGS 1984

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2024 Satellite Imagery

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FILE REF:
Z:\GIS\Projects\DRDGOLD\052 Valley Silts Expansion\Projects\General\Map Set 1\Valley Silts Expansion Local Orientation Landscape A3.mxd



Infrastructure

- Haul Road
- River Crossing
- Channel
- Drying Stockpiles
- Hard Park
- Hard Park 2
- Overflow Channel
- Paddocks
- Silt Trap
- Silt Trap 2
- Stormwater Collection Point

KONGIWE

VALLEY SILTS EXPANSION

SITE INFRASTRUCTURE

Legend

- Other Settlement
- National Road
- Main Road
- Ward Boundary
- Parent Farm
- Project Boundary
- Authorised Valley Silts Project Area

Operational Blocks

- Current Mining
- N1 - N18
- N19
- N20
- N21
- N22

0 100 200 400 600 800

Meters

Project Code: DRDG#052
Client: Ergo Mining (Pty) Ltd
Drawn: C Strooh | Checked: Z Omar
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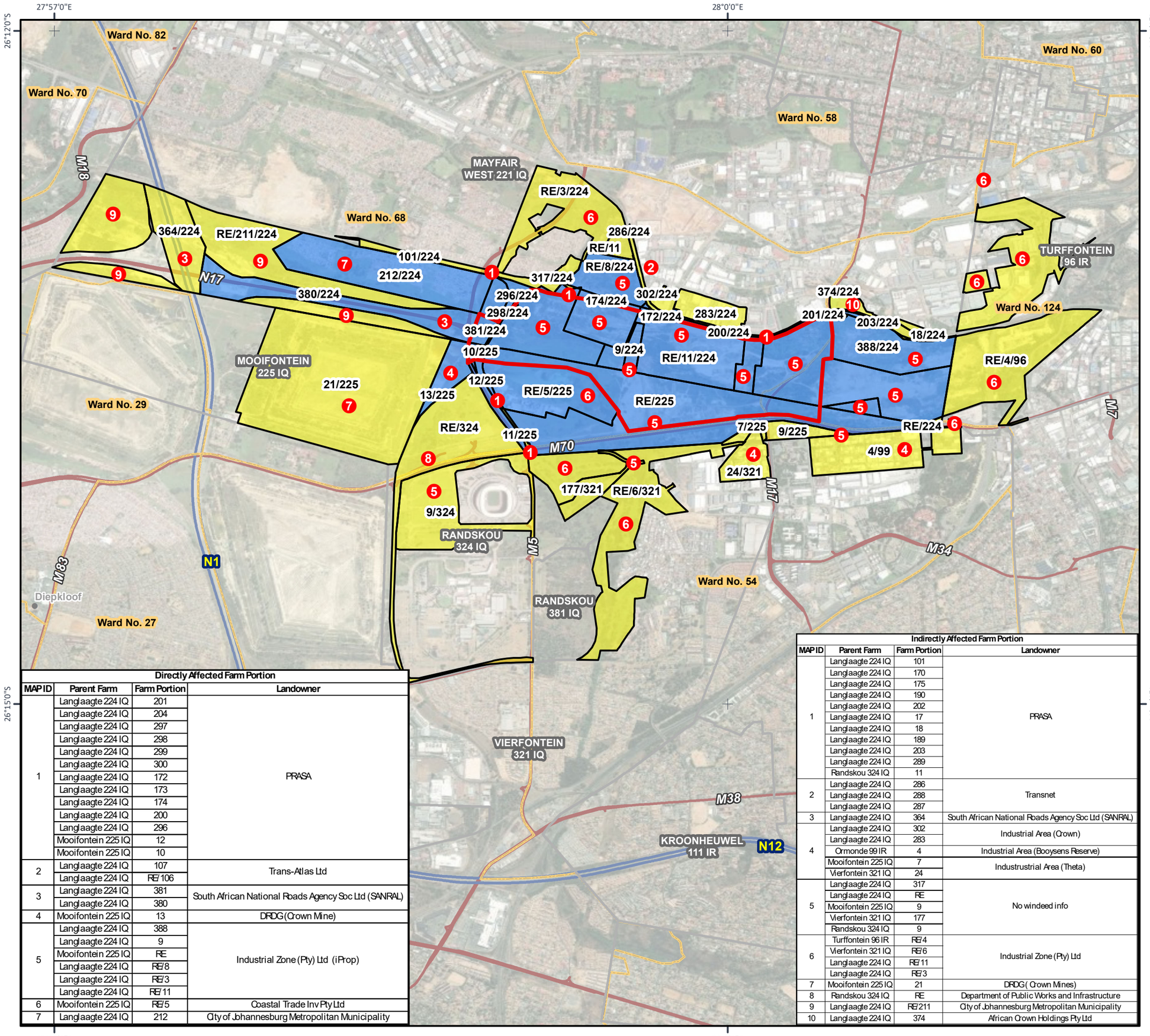
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Coordinate System: GCS WGS 1984
Datum: WGS 1984

2024 Satellite Imagery

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KONGIWE

VALLEY SILTS EXPANSION

LAND TENURE MAP

Legend

- Other Settlement
- National Road
- Main Road
- Parent Farm
- Ward Boundary
- Project Boundary
- Directly Affected Properties
- Indirectly Affected Properties

0 0,5 1 2

Kilometers

Project Code: DRDG#052
Client: Ergo Mining (Pty) Ltd
Drawn: Z Omar | Checked: B Thornton
© 2024 Kongiwe Environmental (Pty) Ltd
www.kongiwe.com | Date: 13 November 2024

1:30 000

Coordinate System: GCS WGS 1984
Datum: WGS 1984

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\Projects\General\Valley Silts Expansion Landscape A3.mxd

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Environmental Authorisations and Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province
DMRE reference number: GP184 MR
DWS reference number: WU38176
Meeting Minutes: SANRAL

Date	Wednesday, 15 January 2025
	09:00– 10:00
Venue:	Microsoft Teams Online Meeting

List of attendees:

Organisation	Name of attendee	Designation
South African Road Agency Limited (SANRAL)	Mr David Thubane	Land Acquisition Specialist
SANRAL	Dr Ayanda Vilakazi	Business Development
SANRAL	Mr Fuad Davids	Legal Advisor
SANRAL	Ms Thembelihle Ndlandla	Environmental Manager
SANRAL	Ms Victoria Bota	Environmentalist
Kongiwe Environmental (Pty) Ltd	Ms Gerlinde Wilreker	Project Manager/EAP
Kongiwe	Ms Anela Fixi	Environmental & Stakeholder Engagement Consultant
Kongiwe	Ms Thuli Phakathi	Stakeholder Engagement Consultant
Kongiwe	Ms Phumla Mngwengwe	Environmental Consultant
Kongiwe	Mr Lubabalo Zongolo	Environmental Consultant
Apologies		
SANRAL	Ms Odwa Dilizo	Legal Advisor
SANRAL	Ms Jacques de Villiers	Legal Advisor
SANRAL	Mr Johan Els	Legal Advisor
SANRAL	Mr Ockert Stevens	Business Development

Note: *These minutes are not intended as a verbatim transcript of the meeting, but rather as a summary of the salient discussions which took place.*

1. **Welcome and Introductions**
   - ❖ Ms Mngwengwe greeted the attendees and delivered her presentation.

2. **Meeting Agenda:**

- ❖ Introduction
- ❖ Project Background
- ❖ Project Location
- ❖ Project Description
- ❖ Project Infrastructure

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- Reclamation Method
- Identified Water Uses
- Water Use Map
- Landowner Consent
- Comments and Discussion

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3. Discussion

STAKEHOLDER	COMMENT	RESPONSE
Mr David Thubane, Land Acquisition Specialist, SANRAL	Mr Thubane sought clarity, noting that Ergo requires landowner consent from SANRAL, a document with which he is familiar with. However, he expressed uncertainty regarding Ergo's expectation and SANRAL's involvement beyond this. Dr Vilakazi added, requesting a more practical explanation. He asked for details on the nature of the activity that would take place in the area, should consent be granted. Dr Vilakazi sought further clarity on the following points: **Nature of the Activity**: He requested a clear explanation of the specific activities that would take place in the area if consent were granted. He emphasized the importance of understanding exactly what would be allowed under the consent. **Terms of Consent**: He inquired whether there had been any discussions regarding the terms of consent. He noted that the project is stated to last for five years and asked if the consent being sought was for a fixed period of five years, or if it was intended to be for a longer or shorter duration.	Ms Wilreker explained that the only activity to take place on the property will involve the N20 mining block. The plan is to remove the silts that have accumulated in the Russell Stream valley. These silts will be taken to a drying stockpile located off the property. Afterward, the silts will be processed, with gold extracted as part of the process. Once the silts are removed, the land will be sloped and natural vegetation will be allowed to regrow. The aim of this project is to rehabilitate the Russell Stream, which is currently causing significant flooding issues due to being completely silted up and lacking its natural function. By removing the silts, the project will restore the stream and help prevent further flooding, while also recovering the gold contained in the silts. Ms Wilreker added that agreements have already been secured from other property owners, specifically for those properties which are owned by iProp. These owners have given their approval as they also wish to develop their land eventually, and removing the silts will enable that. All relevant information will be submitted to the Department of Water and Sanitation. She further explained that an environmental authorization is also being undertaken for the project, and the report is available on the Kongiwe website for anyone interested in

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	Time frames: Dr Vilakazi raised concerns about the commercial time and schedule for the project, noting that certain activities could impact the land use. He highlighted the need to consider carefully how the consent would be structured over the duration of the project, rather than viewing it as a one-time commitment. He suggested that a follow-up meeting might be necessary to discuss the commercial terms and timelines specifically if the consent was to be considered for the project. Lastly, Mr Davids added that he wanted to know what would physically occur on the SANRAL land. If any physical activity is planned, they need a clear understanding of what it is before they can decide whether to grant consent. He emphasized that this clarity is necessary to assess the legality of granting consent.	reviewing it. The Environmental Impact Assessment (EIA) phase will begin on February 2nd, and once the specialist studies and impact reports are completed, they will be made available for public consultation. The community will have the opportunity to review the reports, provide comments and attend consultation meetings where the findings from the specialists will be presented. All documentation, including the consultation results, will then be submitted to the authorities, who will decide whether to grant authorization for the project. Regarding the water use licence, it will be granted for a specific period based on the project's duration, five years in this case. The licence will cover the entire site. Ms Wilreker clarified that the landowner consent form being requested is to allow the application for the water use licence. The form indicates that the landowner is aware of the project and specifies that the consent is solely for the removal of silts on the property, with no other activities taking place. It also mentions that the land will be rehabilitated once the silts are removed.
Mr David Thubane	Mr Thubane inquired whether, during the silt's removal process, SANRAL's land would be unavailable for use, seeking confirmation of this assumption.	Ms Wilreker explained that it is difficult to determine exactly when the team will begin working on the SANRAL property. Until access to the site is needed, SANRAL will still be able to use the land. It will only be during the silts removal process that access to the site may be restricted. She added that an

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		agreement will need to be made between Ergo and SANRAL regarding land access and other related matters.
Mr David Thubane	Mr Thubane also inquired about compensation.	Ms Wilreker stated that compensation is something that needs to be discussed between Ergo and SANRAL.
Dr Ayanda Vilakazi, Business Development, SANRAL	Dr Vilakazi thanked Ms Wilreker for the clarification and sought to confirm his understanding. From a requirements perspective, he understood that consent is being requested for the removal of the silts from the land. However, he noted that the timeline for when this would take place is uncertain, as it could occur next year or potentially within the next five years. Dr Vilakazi elaborated on the issue, stating that there is considerable data available regarding the land in question. He noted that the process of identifying all the greenfields properties they own or have access to for potential alienation or further development is ongoing. This includes land that might be subject to agreements of various kinds. He raised concerns regarding the potential development of the land, emphasizing that if the land were developed in a way that restricted access due to the nature of the development or its intended use, this could result in no access to that land. He highlighted the risk that this could prevent any future access and suggested that to mitigate this risk, it should be clearly established that within the next five year, regardless of any activities deemed necessary for	Ms Wilreker acknowledged that Dr Vilakazi's concerns were valid and fair. She explained that removing the silts would make the land more usable for SANRAL, as the current silts prevent any construction. Since the silts are located within the stream, she emphasized that removing them would benefit everyone, including the city, by rehabilitating the river and allowing it to flow more naturally. She suggested that, as the process of obtaining authorization would take about a year and no work could begin before that time, it could be beneficial to arrange a meeting between the stakeholders and Ergo during the EIA phase. This meeting would provide an opportunity to discuss the terms and conditions in more detail, ensuring that all parties are in agreement. Ms Wilreker highlighted that the rehabilitation process must align with the landowner's preferences for the site. She cited the example of iProp, where the rehabilitation included sloping the land to prepare for future light industrial development. For SANRAL, she suggested that they may have different plans for the land, such as building something in a green, vegetated area, and the land could be sloped accordingly. She further asked if

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	SANRAL, there would be no plans to utilize the land. The land would only be considered for use after this five-year period. Dr Vilakazi emphasized that this is a critical consideration, and as a result, the terms of any agreement need to be carefully outlined. He pointed out that his second question was informed by this background, particularly regarding the timing of the activities and how they might affect potential future use of the land. He stressed that the terms must be clear to ensure that no party is disadvantaged, particularly in terms of land access during the five-year period.	Dr Vilakazi and the team would be amenable to such a meeting to discuss the specifics of the terms and conditions. ***Post meeting notes:*** ***Consent is not required for the excavation of the silt: this is covered by the mining right. Nor is consent required for the EA itself: this is covered by the EIA Regulations. Consent is only required to apply for the WUL, because this is a specific requirement of the NWA Regulations.***
Dr Ayanda Vilakazi	Dr Vilakazi emphasized the importance of discussing the terms and conditions, as well as addressing the concern regarding the availability of the land for future use. He expressed that before any consent is provided, it is crucial to ensure that an agreement is in place. Given the urgency of the matter, he suggested that the meeting could take place as soon as this week to clarify these issues. The goal would be to ensure that any consent given is informed by a clear understanding of the terms and conditions, which should be documented in an agreement or term sheet. This would help regulate the future use of the land from a governance perspective, ensuring that both parties are aligned on what the future holds for the greenfield.	Ms Wilreker confirmed that they would provide additional materials to assist with visualization. She mentioned that for the Valley Silts project, the current activities could be seen in the presentation, but they would also send photos showing the area before the activity began. While rehabilitation hasn't started yet, as Ergo is still finalizing the mining phase, she noted that Ergo had worked upstream on the Crownwood road section, which had already reached the rehabilitation phase, including sloping and other activities. She offered to gather photos from that project, as well as aerial footage of the area, to provide a clearer picture of what the land might look like after the work is completed.

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	Mr Thubane, adding to Dr Vilakazi's statement, suggested that a site visit could greatly assist in understanding the project. He recommended seeing the site both before and after the work is completed, as this would provide valuable insight. He also asked if any pictures from previous projects could be shared to illustrate the process; showing the property before and after the silts were removed. This would help them visualize what the property could look like in the future, which he believed would be very helpful for their decision-making.	
Dr Ayanda Vilakazi	Dr Vilakazi raised two key points: **Cost Implications:** He mentioned that, while the timeline for the rehabilitation is still to be discussed, it would be helpful to understand the cost implications for both the rehabilitation process and the removal of the silts. He acknowledged that the financial side of the project had not yet been considered but expressed an interest in knowing what the cost of these activities would be from Ergo's side. **Zoning Information:** Dr Vilakazi also inquired about the zoning of the land, particularly whether it has been designated for mining operations or other uses such as development or industry. He asked if there was any information available on whether the area adjacent to their land had been rezoned, and if so, what the new zoning was for.	Ms Wilreker responded that they would investigate that information and provide details.

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Mr David Thubane	Mr Thubane noted that the municipality may require a consent use application because the land was originally zoned for one purpose but is now intended to be used for something else. He emphasized that the team should investigate this aspect as well, as it is an important consideration.	Ms Wilreker responded that they would send Dr Vilakazi and SANRAL team the background information document on the project. Additionally, they would provide a link to the draft scoping report, which she believed would address many of his questions, particularly regarding the timeframes for the project.
Dr Ayanda Vilakazi	Dr Vilakazi concluded by highlighting the importance of understanding the timeframes involved. He noted that while he sensed the team was under a tight deadline, it was crucial to ensure that all statutory processes are followed and that everything is in line with the relevant regulations. He requested a clearer outline of the project's timeline, including the steps involved from consent to legal processes, as well as public participation requirements. He suggested a one-page summary with a high-level overview of the timeframes, which would be very helpful for their understanding and decision-making.	Kongiwe team noted this
Ms Gerlinder Wilreker, Project Manager/EAP, Kongiwe Environmental	Ms Wilreker confirmed that a meeting would be organized between SANRAL and Ergo to discuss the commercial agreements and other related matters. She asked if that covered everything required.	SANRAL team noted this
Mr David Thubane	Mr Thubane raised a concern regarding the timeline for providing feedback on the consent. He noted that, to avoid delaying the process, it would be helpful to understand what kind of timeline Kongiwe might expect from their side for providing feedback on the consent request, even though	Ms Mngwengwe responded that, given the urgency of the project, they would expect feedback on the consent within a week at most. She explained that they are already in phase one of the water use licence application, and there is a requirement to submit the landowner consent as part of the process.

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	it might not be strictly fixed. He asked for guidance on the expected timeframe for SANRAL response.	
Dr Ayanda Vilakazi	Dr Vilakazi clarified that while he understood the urgency on Kongiwe's side, their ability to provide feedback within a week would depend on the information they receive and how comfortable they are with it. He mentioned that seeking legal advice would also be necessary to ensure everything is above board before proceeding. He expressed that he did not want to commit to a strict one-week deadline, as it might not be feasible, but that a response within a week would be acceptable if possible. He also noted that the availability of other people who need to review the information would influence the timeline.	Ms Mngwengwe acknowledged Dr Vilakazi's point and assured him that they understand the need for discussions and seeking advice from other parties. She confirmed that they would keep this in mind as they move forward.
Mr David Thubane	Mr Thubane requested that the recording, the presentation, and all the relevant information be shared with everyone present at the meeting. He emphasized that this would allow everyone to review the materials and provide informed comments.	Kongiwe team noted this

4. Closing

COMMENT	RESPONSE
Ms Mngwengwe thanked the SANRAL attendees for their time and input.	The SANRAL attendees thanked Ms Mngwengwe for the presentation.

The meeting adjourned at 10:00 am.

Ergo Mining (Pty) Ltd

Valley Silts Expansion Project

Landowner Consent Meeting – SANRAL

DWS reference number: WU38176

Wednesday, 15 January 2025

Agenda

1. Introductions
2. Project Background
3. Project Location
4. Project Description
5. Project Infrastructure
6. Reclamation Method
7. Identified Water Uses
8. Water Use Map
9. Landowner Consent
10. Comments & Discussion

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Introductions

- SANRAL
- Ergo Mining (Applicant)
- Kongiwe Environmental

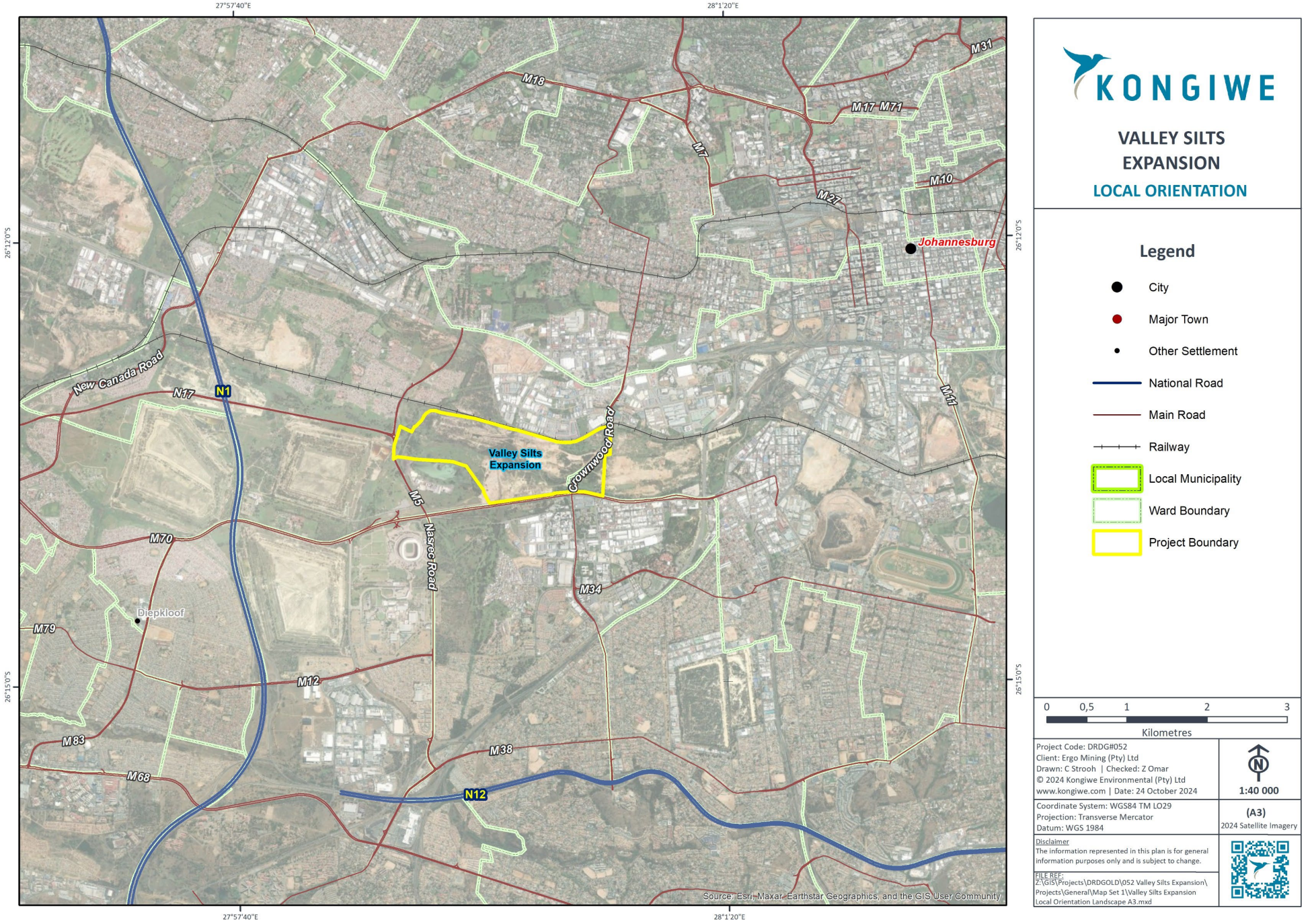
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Project Background

- **Applicant**: Ergo Mining (Pty) Ltd
- **Activity**: Reclamation of gold-bearing silts from the Russel Stream
- **Life of Operation:** 5 years
- The Proposed Project is situated near Riverlea within the CoJ MM.
- Located within the Russell Stream valley, near Booysens Reserve. The project area stretches from Nasrec Road and past Crownwood Road until the stream meets the M1.
- Ergo obtained an Environmental Authorisation (EA) and an Integrated Water Use Licence (08/C221/CGI/12143) for the Valley Silts Project - the mechanical reclamation of gold bearing silts from a section of the Russell Stream north of Nasrec near Booysens Reserve, in Johannesburg.
- The mining authorisation for the removal of silts, falls within Mining Right GP 184 MR.
- The removal of silts within the already approved area has been ongoing for a period of time and as such, the requirement to fully prepare the remaining extent is now necessary to maintain an efficient mining operation, as well as a sustainable feed source to the process plant.

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Project Location



KONGIWE

VALLEY SILTS EXPANSION

LOCAL ORIENTATION

Legend

- City
- Major Town
- Other Settlement
- National Road
- Main Road
- Railway
- Local Municipality
- Ward Boundary
- Project Boundary

0 0,5 1 2 3

Kilometres

Project Code: DRDG#052
Client: Ergo Mining (Pty) Ltd
Drawn: C Strooh | Checked: Z Omar
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www.kongiwe.com | Date: 24 October 2024

1:40 000

Coordinate System: WGS84 TM LO29
Projection: Transverse Mercator
Datum: WGS 1984

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2024 Satellite Imagery

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Project Description

- The Valley Silts resource area has three primary sectors.
- The current approved mining area is Sector 1 and extends from the old dam wall to the end of the stockpile area near Crownwood Road.
- Sectors 2 and 3 are being licensed.
- Sector 2 will extend from the dam wall to Nasrec Road (N1 to N20),
- Sector 3 will be located on either side of Crownwood Road and consists of blocks N21 and N22.

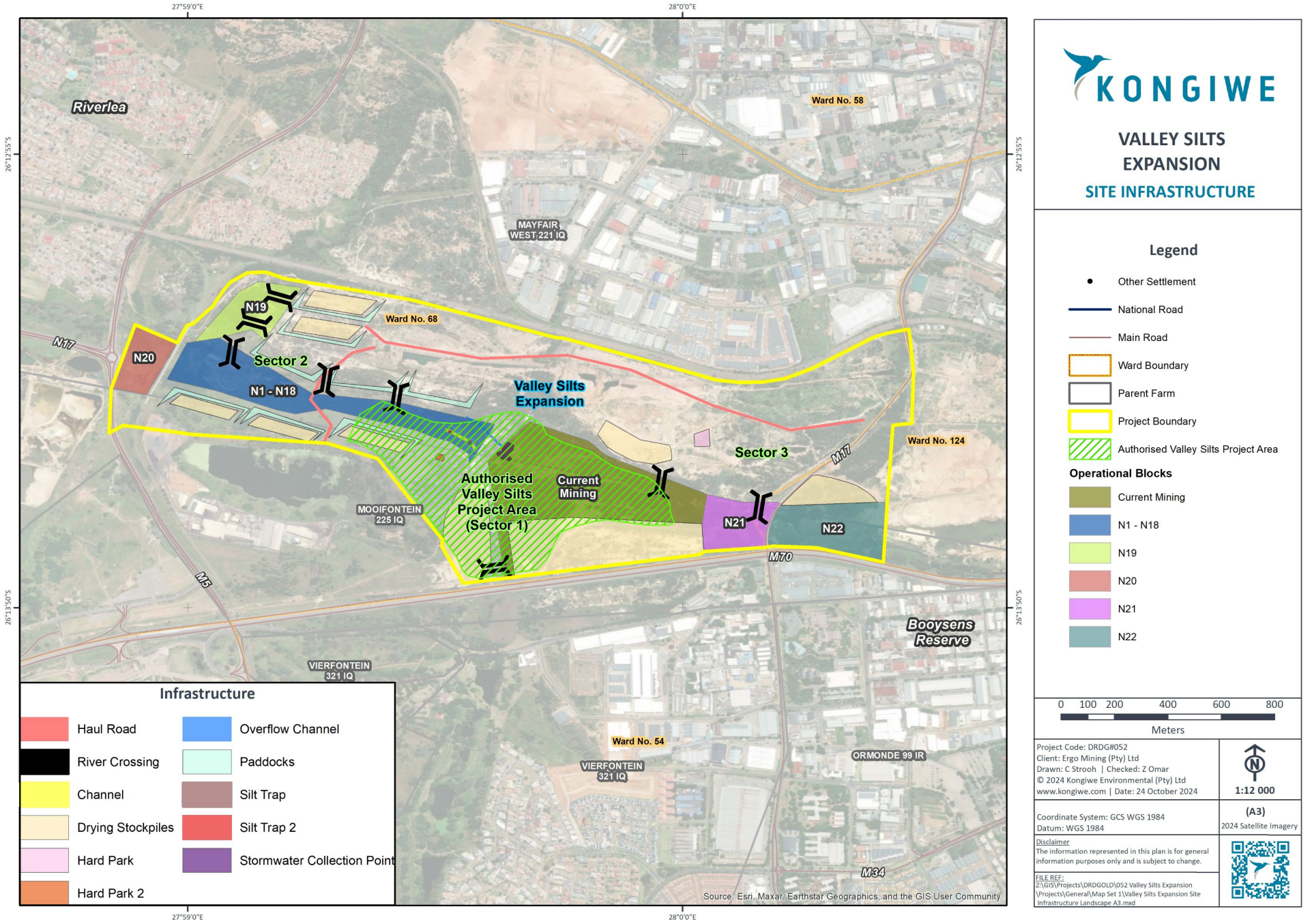




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Project Infrastructure

- Existing
  - Site offices
  - Hard Park areas
  - Existing site access roads
  - Hauling road: access roads and main roads
- Additional
  - Additional haul roads
  - Additional stockpile drying areas
  - Additional temporary stream crossings
  - Additional silt traps and stormwater control berms/ paddocks



KONGIWE

VALLEY SILTS EXPANSION

SITE INFRASTRUCTURE

Legend

- Other Settlement
- National Road
- Main Road
- Ward Boundary
- Parent Farm
- Project Boundary
- Authorised Valley Silts Project Area

Operational Blocks

- Current Mining
- N1 - N18
- N19
- N20
- N21
- N22

0 100 200 400 600 800

Meters

Project Code: DRDG#052
Client: Ergo Mining (Pty) Ltd
Drawn: C Strooh | Checked: Z Omar
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www.kongiwe.com | Date: 24 October 2024

1:12 000

(A3)

Coordinate System: GCS WGS 1984
Datum: WGS 1984

2024 Satellite Imagery

Disclaimer
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FILE REF:
Z:\GIS\Projects\DRDGOLD\052 Valley Silts Expansion \Projects\General\Map Set 1\Valley Silts Expansion Site Infrastructure Landscape A3.mxd

Reclamation Method

- The gold bearing silts will be mechanically excavated from the project area.
- 30-ton Articulated Dump Trucks (ADT) will be used to transport and stockpile the silts from the Russell Stream. The silts will be left to dry on stockpile footprints.
- Silts will have a 30 - 40% moisture content when hauled and are not expected to be fully dried out.
- The dried silts will be loaded onto tipper trucks and transported to the City Deep plant for re-processing.
- The trucks transporting the material will follow Crownwood Road until it reaches Main Reef Road and then joins the M2 East. The trucks will then follow the M2 until they reach Heidelberg Road which is followed to the City Deep Plant where it is offloaded.





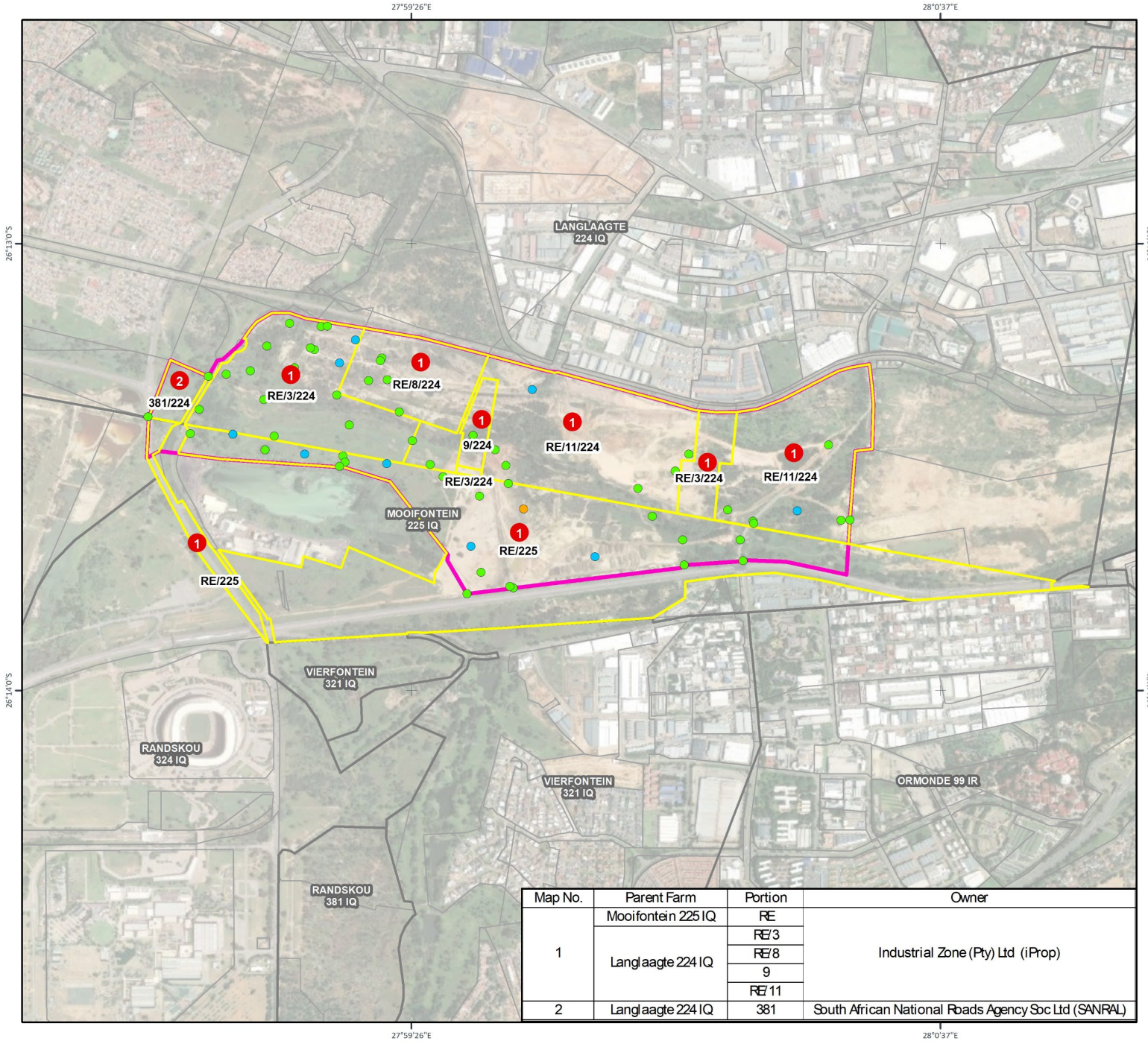
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Identified Section 21 Water Uses

Water uses applicable to the Proposed Project are as follows:

- Section 21 (c) & (i) - Infrastructure proposed to be within 500m of a wetland and/or within 100 m of a river/stream:
  - N1 to N22 mining blocks;
  - Drying stockpiles (8) and berms;
  - Temporary river crossings (8);
  - Haul and site roads;
  - Hard park area;
  - Silt traps and channels.
- Section 21 (g) - Disposal of effluent into a water containment facility as well as dust suppression.
  - Dust suppression of haul and site roads.

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Map No.	Parent Farm	Portion	Owner
1	Mooifontein 225 IQ	RE	Industrial Zone (Pty) Ltd (iProp)
	Langlaagte 224 IQ	RE/3	
		RE/8	
		9	
		RE/11	
2	Langlaagte 224 IQ	381	South African National Roads Agency Soc Ltd (SANRAL)

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VALLEY SILTS EXPANSION

WATER USE MAP

Legend

Water Uses

- Section 21 (a)
- Section 21 (c) and (i)
- Section 21 (g)
- Farm Portion
- Parent Farm
- Water Use Portions
- Project Boundary

0 250 500 1 000

Meters

Project Code: DRDG#052
Client: Ergo Mining (Pty) Ltd
Drawn: C Strooh | Checked: Z Omar
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www.kongiwe.com | Date: 20 November 2024

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\Projects\General\Valley Silts Expansion Water Use Portions Landscape A3.mxd

Landowner Consent

According to the National Water Act 36 of 1998, read with Annexure C: Checklist for evaluation of application prior to acceptance of Water Use Licence Application and Appeals Regulations, 2017, a **Landowner Consent Form** is to be completed by the Property Owner (or authorised representative of the Property Owner), which provides consent for a Water Use Licence to be granted over the Property Owners' Property.

- SANRAL's affected property: Portion 381 of Langlaagte 224 IQ
- Water use activity: Removal of silts and rehabilitation within mining block N20, within a regulated area (Section 21 (c) and (i)).

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Landowner Consent – Document Requests

- Signed Landowner Consent form
- ID copy of signatory/property owner

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Comment & Discussion

- Discussion
  - Questions and comments
- Action Points
  - Responsibility
  - Due Date
- Closing



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Contact

- **Name: Phumla Mngwengwe / Gerlinde Wilreker**
- **Tel: 010 140 6508**
- **Email: PMngwengwe@kongiwe.com/GWilreker@kongiwe.com**

Kongiwe Environmental
150 Bryanston Drive, Bryanston, Sandton, 2191, South Africa.
PostNet Suite no 163, Private Bag X21, Bryanston, 2021, South Africa.

info@kongiwe.com
www.kongiwe.com

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Environmental Authorisations and Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province
DMRE reference number: GP184 MR
DWS reference number: WU38176

Meeting Minutes: Department of Water and Sanitation Site Visit

Date	Tuesday, 11 March 2025
Time:	08:30 – 15:00
Venue:	Valley Silts, Crownwood Road, Johannesburg

List of attendees:

Organisation	Name of attendee	Designation
Department of Water and Sanitation (DWS)	Ms Joyce Lekoane	Environmental Officer
DWS	Ms Zanele Nyamende	Scientist
ThumaMvelo (Pty) Ltd (ThumaMvelo)	Mr Mdu Nkosi	Site Manager
ThumaMvelo	Mr Samuel Luphoko	SHEQ
ThumaMvelo	Mr Peter Walters	Operations Manager
Ergo Mining (Pty) Ltd (Ergo)	Ms Zoleka Solombela	Environmental Officer
Ergo	Mr Abraham Maluleke	Environmental Officer
Ergo	Mr Masala Tshamano	Environmental Manager
Ergo	Mr Mothusi Mafatshe	Environmental Coordinator
Kongiwe Environmental (Pty) Ltd (Kongiwe)	Ms Phumla Mngwengwe	Environmental Consultant
Kongiwe	Ms Anela Fixi	Stakeholder Engagement Consultant
Kongiwe	Mr Ripfumelo Macevele	Environmental Consultant
No apologies		
N/A		

Note: *These minutes are not intended as a verbatim transcript of the meeting, but rather as a summary of the salient discussions which took place*.

1. **Welcome and Introductions**
   - ❖ Ms Mngwengwe greeted and welcomed the meeting attendees, and the attendees introduced themselves.

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2. A summary of the DWS's comments and recommendations for the Valley Silts Expansion Integrated Water Use Licence Application (IWULA) during the Phase 2 Site Visit.

Legend Clarification:

- The DWS advised that the water uses labels on the water use map should explicitly state the activity, such as "dust suppression", instead of just "Section 21 (g)".

Water Use Clarity:

- There must be a clear distinction between authorised and proposed water use activities on the water use map. The water use map should clearly indicate which activities are already authorised and which are proposed and therefore require licensing.

Valley Silts previous application:

- The DWS officials recommended reviewing the old Valley Silts Water Use Licence (WUL) and if any current activities or water uses were missed in the previous WUL, they must form part of the current Water Use Licence Application (WULA) for the Valley Silts Expansion Project.

River crossing:

- The term "river crossing" should be rephrased to "culvert".

Scope of work:

- The scope of work in the application needs to be updated with detailed descriptions of all site activities. Every aspect of the work being undertaken should be clearly stated.

Water use naming:

- The DWS highlighted the need to specify which stockpile numbers correspond to Section 21 (c) and (i) water uses and which correspond to each Section 21 (g) use. This will ensure clarity in the application.

Geotechnical Report:

- The geotechnical reports should clearly indicate that any seepage found at Valley Silts results from the artificial elevated floor and not from the natural groundwater flow.

Seepage vs. Baseflow:

- DWS officials indicated they will investigate whether the seepage observed at Valley Silts is baseflow. They will assess the situation from their side to determine how to proceed with handling seepage.

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Abstraction Points:

- The DWS recommended specifying the exact coordinates of the abstraction points as the project progresses, as one abstraction point for the whole site is not accurate nor sufficient. They advised that the water use table and map must be updated to include abstraction points to accommodate the location of abstraction points as reclamation progresses.

The meeting adjourned at 15:00 pm.

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Appendix C9: Comments and Response Report

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Environmental Authorisation and Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality
Gauteng Province
DMRE reference number: GP184 MR
DWS reference number: WU38176

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Comments and Responses Report:

Draft EIA Report

1 Directly Affected Landowners

1.1 City of Johannesburg Metropolitan Municipality (CoJ)

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
Mr Oupa Mbhalati, Intern: Environmental Impact Management: Environment and Infrastructure Services Department (EISD)	Email Correspondence	Friday, 01 November 2024	Good morning, Hope this email finds you well. The notice below is hereby acknowledged, please note the department assessed properties for the proposed Valley Silts Expansion Project using the City's GIS services and the following environmental layers were triggered: **Bioregional plan**: In terms of the City of Johannesburg Biodiversity Sector plan, part of the proposed development site (Mayfair West 204, 296, 297, 298, 299, 300/224, Randskou 324 IQ 13/225, 107, 106 (RE)/224, 381/224, 380/224 Mayfair West 221 IQ	Good day Mr Mbhalati Thank you for your email and your comments and recommendations. Kongiwe confirm that the studies you recommend be undertaken are in the process are being done. These will be made available during the EIA phase.	Section 8.5 Section 8.6 Appendix D Appendix E

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			are mapped as critical biodiversity area (CBA 2) and ecological Support Areas (ESA 2). **<u>CoJ Wetlands audit:</u>** In terms CoJ wetland audit layer 1 and 2 the above-mentioned portions are affected by a Channelled valley bottom and a Hillslope wetland system. **Recommendations:** Having noted the above findings, the department recommends the following studies to be conducted and be included as part of the EIA application. • Aquatic impact assessment •Terrestrial Biodiversity impact assessment •Environmental management plan It should be noted that the application is not only limited to the above-mentioned studies.		

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			Should you have any queries or require any further information, please do not hesitate to contact the Department.		
Ms Mbalenhle Chemane, Development Planning - City Transformation and Spatial Planning, CoJ	MS Teams Online Meeting	Tuesday, 12 November 2024	Ms Chemane requested clarification on whether the project will focus on processing, or if it is intended to expand the current mining activities.	Ms Wilreker explained that the activity is a reclamation process, where Ergo will be reclaiming the gold-bearing silts that have accumulated in the Russell Stream valley. She further explained that there is an existing authorization in place, but it only covers a certain portion of the valley. Ergo would like to continue reclaiming the silts, which will expand the area it wishes to reclaim in. It therefore needs additional authorizations, as it is currently only authorized for one area.	Section 3
Ms Mbalenhle Chemane, Development Planning - City Transformation and Spatial Planning	MS Teams Online Meeting	Tuesday, 12 November 2024	Ms Chemane requested information regarding the landowner.	Ms Wilreker explained that there are several landowners involved. She mentioned that PRASA is one of the parties due to the presence of railways, and that iProp is also one of the landowners. She offered to provide a list of all the landowners. Additionally, she noted that some portions of the adjacent land are owned by the City of Johannesburg, and she can supply that list as well.	Section 1.6
Ms Mbalenhle Chemane, Development Planning - City	MS Teams Online Meeting	Tuesday, 12 November 2024	Ms Chemane acknowledged the information and expressed that it would be helpful for understanding the future use of the area. She mentioned that there is an ongoing process of	Mr Tshamano stated that, regarding the final land use, the responsibility ultimately lies with the landowner mostly iProp) in determining how the land will be used. He explained that the area is currently zoned as mining	Section 3.9

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
Transformation and Spatial Planning			reclaiming a portion of land back to the City of Johannesburg. She noted that there are several considerations, especially if the City owns the land, and that the Johannesburg Property Company (JPC) needs to make financial and budgeting arrangements for the area. Ms Chemane emphasized the importance of understanding the future use of the land once the reclamation process is completed, as well as the expected timeline for the process to be finished. She explained that the information will help in planning the next steps once the project is concluded.	land, and this designation will remain in place until the land is released to the landowner. The landowner may choose to rezone the area depending on its intentions, but this is beyond the scope of the current authority. He emphasized that Ergo cannot dictate how the landowner will use the land in the future.	
Ms Mbalenhle Chemane, Development Planning - City Transformation and Spatial Planning	MS Teams Online Meeting	Tuesday, 12 November 2024	Ms Chemane outlined several key points for consideration regarding the project. She confirmed that comments would be submitted on the scoping report and particular attention will be paid at the Environmental Impact Assessment (EIA) stage. Specifically, she requested information on the services present in the affected properties, such as roads and water infrastructure, to assess potential impacts. Ms Chemane also raised concerns about the potential for silt to cause issues during	Mr Tshamano stated that the project is designed to prevent the release of any silt. He explained that measures such as paddocking are implemented to ensure that materials are contained and do not return to the stream. As such, he stated with confidence that no additional silt would be released during the reclamation process, and any erosion of material would likely come from outside the project area. Regarding the rehabilitation phase, Mr Tshamano clarified that the project, in its entirety, is essentially a rehabilitation project. He also confirmed that the	Section 3.1 & Section 3.6 Section 3.7

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			reclamation, particularly referencing past challenges in Riverlea where silt would flow, block stormwater drains and accumulate on roads, potentially leading to flooding. Another point of clarification was regarding the rehabilitation phase following reclamation. Ms Chemane asked whether rehabilitation is included as part of this project or if it will be addressed separately, after reclamation activities are completed. Additionally, she highlighted the need to identify whether contamination from the reclamation process could occur, and if so, how this would be managed. Ms Chemane also expressed confusion about the ownership of the properties involved. Upon checking the City's GIS, she noted that the properties appeared to belong to the City of Johannesburg, whereas the site indicated SANRAL as the owner. She hoped that a representative from the Johannesburg Property Company (JPC) would be able to clarify the ownership details.	environment is already contaminated, which is why rehabilitation efforts are necessary to address and mitigate the existing contamination. Ms Wilreker offered to provide the KMZ layout to assist in confirming the property portions. She explained that this layout could be uploaded into the GIS system for verification. She also mentioned that, upon the conclusion of the meeting, she would load the current land tenure map, allowing Ms Chemane to review the portions identified as belonging to the City of Johannesburg. Mr Tshamano clarified that the City of Johannesburg or the Johannesburg Property Company is not involved in the ownership of the project area. He mentioned that they own Portion 212 of Portion 224 Mayfair but do not own the greater area of the site. Mr Tshamano also expressed the intention to provide the relevant information to help everyone orient themselves with the site details.	

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
Mr Julius Sello, Land Use Management, CoJ	MS Teams Online Meeting	Tuesday, 12 November 2024	Mr Sello inquired about the end product of the reclamation process, specifically asking if the land will be developable. He also raised concerns regarding individuals who may wish to continue mining activities even after formal mining has concluded. Mr Sello expressed that he was missing information on what could happen after the reclamation process, particularly regarding the potential for manufacturing or other uses. He compared this to areas where contamination, such as radiation, limits residential development. He noted that this was a key aspect missing from the presentation and requested clarification on the future use of the land.	Mr Tshamano clarified that the developability of the land varies across the site. He explained that not the entire area is suitable for development, particularly since some portions are within the watercourse. However, certain sections of the area are developable, which is why iProp owns part of the land. He mentioned that in the future, these portions are expected to be developed. Mr Tshamano was uncertain about the intentions of other landowners, including those who own the railway and its supporting infrastructure. He noted that where iProp is the owner, the land is likely to be developed for light industrial use. Ms Wilreker explained that the purpose of the rehabilitation is to remove the silts and restore the river, which will also help in managing and preventing flooding downstream. She further emphasized that any future development in the area would need to take flood lines into consideration, given the proximity to the river, and developers would be expected to be mindful of these factors during planning.	Section 3.7 Section 3.9
Ms Mbalenhle Chemane, Development Planning - City Transformation	MS Teams Online Meeting	Tuesday, 12 November 2024	Ms Chemane inquired whether the timeline for completing the entire process is still expected to fall within the eight to twelve months range, or if there is an expectation that this particular project may take longer.	Ms Wilreker confirmed that the process is expected to take longer. She explained that the Scoping and Environmental Impact Assessment (S&EIA) process has already begun, which is expected to take approximately eight months. In addition, the Department of Mineral	Section 2.2.4

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
and Spatial Planning				Resources (DMR) typically requires four months to review the process. The water use licensing process is anticipated to be submitted around the same time as the final EIA, and the Department of Water and Sanitation (DWS) is expected to take 90 days to review that. As a result, Ms Wilreker indicated that the project is expected to receive a Record of Decision from both authorities by the end of next year. Ms Wilreker clarified that the project is currently in the scoping phase, but the team plans to move into the Environmental Impact Assessment (EIA) phase next year.	
Ms Mbalenhle Chemane, Development Planning - City Transformation and Spatial Planning	MS Teams Online Meeting	Tuesday, 12 November 2024	Ms Chemane requested that Ms Wilreker send through all the relevant information, including the land portion details.	Ms Wilreker confirmed that the land tenure map would be sent to Ms Chemane and stated that it would also be provided in a format suitable for integration into her GIS system.	
Cllr Matsobane Sekhu, Ward Councillor 125, CoJ	MS Teams Online Meeting	Thursday, 14 November 2024	Cllr Sekhu noted that Ms Wilreker mentioned the intention to source water from the Johannesburg Municipality. He inquired whether they were aware of the ongoing water shortage crisis in the City of Johannesburg. Additionally, he asked if there were any alternative sources of water being considered.	Ms Wilreker clarified that the water sourced from the Johannesburg Municipality is potable water and intended for drinking purposes only. She further explained that the silts in the area are very wet, and water seeps from the ground into the mining area. This water is then pumped out and utilized for dust suppression.	Section 3.4

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
Cllr Mongameli Mnyameni, Ward Councillor 124, CoJ	MS Teams Online Meeting	Thursday, 14 November 2024	Cllr Mnyameni asked for clarification on when the project is expected to begin. He also inquired about potential opportunities for the local community and sought details on the overall duration of the project.	Ms Wilreker stated that the duration of the project is five years. She further explained that for the project to commence, Ergo require authorization from the Department of Mineral Resources (DMR) and the Department of Water and Sanitation (DWS). This authorization is expected to be obtained towards the end of next year. Mr Tshamano added that employees for the project will be sourced from the local community, as was done with the current operational Valley Silts project. He further mentioned that if additional information is required regarding the current beneficiaries, it can be made available.	Section 3.8 Section 9.2.1.7 Section 9.2.3.6
Cllr Matsobane Sekhu	MS Teams Online Meeting	Thursday, 14 November 2024	Cllr Sekhu stated that they will review the presentation, and the information provided and will offer their comments accordingly.	The project team noted this ***No comments received at the time of finalisation of Scoping Report.***	-
Ms Moseketsi Mochesane, Senior Specialist: Impact Management, Environment and Infrastructure Services	Email Correspondence	Monday, 18 November 2024	Good afternoon, Thuli. Attached are the comments from CoJ-EISD. May you kindly assist in arranging a site visit for CoJ, the site visit would be for the current operational areas and for the expansion areas.	Good day Moseketsi Thank you for your comments. They are noted and will be addressed in the relevant studies and reports.	Appendix C

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
Department (EISD)			Hoping to hear from you soon. Comments are outlined below.	Due to schedule constraints can we recommend undertaking the site visit in the third week of January 2025. ***The CoJ site visit was scheduled and took place on the 30 January 2025.***	
The Comments received from the City of Johannesburg Metropolitan Municipality were as follows:					
Ms Nozipho Maduse, DD-Impact Management and Compliance Monitoring	Email Correspondence	Monday, 18 November 2024	Environmental Authorisations and Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province The Draft Scoping Report (DSR – The Report) dated 25 October 2024 refers. **1. <u>Description of the project</u>** The project is a reclamation and rehabilitation project and entails expansion of mechanical reclamation of gold-bearing silts within Mining Right GP 184 MR. The expansion involves mechanically excavating gold-bearing silts near the Russell stream from the dam wall to Nasrec Road (Blocks N1 to N20), located immediately west of the currently operational and authorised Valley Silts project area and the remaining Blocks		Section 5

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			(N21 and N22) being located either side of Crown wood Road. The project is located within Region B and F of the City of Johannesburg (CoJ) on the Remainder of Portion 13, Remainder of Portion 3, Remainder of Portion 13 and Portion 9 of Farm Langlaagte 224-IQ.		
			2. <u>Guidelines, by-laws, and policies</u> The following CoJ guidelines and policies are applicable to the project: ▪ SDF 2040.- The proposed reclamation and rehabilitation expansion of the Mining Belt and associated historical spatial discontinuity presents significant opportunities for integration and improving cross-border linkages with Ekurhuleni and the West Rand by identifying strategic interventions along the belt - road linkages, mixed use redevelopments, rehabilitation of degraded and damaged land. The project is a rehabilitation and reclamation project of degraded land after mining activities occurred		Section 5

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			• **Integrated Development Plan 2023/24 (2023)** The Integrated Development plan seeks to pro-actively deliver and create a city environment in 2040 that is resilient, sustainable, and liveable. The continual removal of the silts will assist with the alleviation of impacts associated with flooding in the area and help restore the natural element and ecological functioning of the Russell Stream. • **Air Pollution Control By-Law** Air pollution must be controlled, avoided and minimised where avoidance is not possible. • **Water Services By-laws** The proposed development requires approval from the council for any use of the CoJ's water and sanitation services. • **Stormwater Management By-laws**		

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			A Stormwater Management Plan (SWMP) is required for approval by the department and Johannesburg Roads Agency.		
			3. **Description of alternatives** The Report indicated that there is no alternative for the project due to the nature of the project being a reclamation and rehabilitation project. The no-go option and alternative layout plans for all other ancillary infrastructure will be assessed further in the EIA phase.		Section 4
			4.2. CoJ Requirements ▪ In terms of the CoJ **Wetland Protection and Management Plan** the project area falls within into Zone 4 - which notes the following in respect of this management zone: managing the wetlands in this zone to improve their capacity to improve water quality requires that current channeled flows be diffused and directed through vegetation or subjected to extended residence (>48 hours) in impoundments and : managing the wetlands in this zone for enhanced biodiversity support requires the maintenance of a mosaic of wetland types, for example peripheral seasonal wetlands maintained by	This will be assessed in the Biodiversity Study and Rehabilitation Plan.	Appendix D3 Appendix D11

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			seepages off the side slopes, as well as marginal wetlands inundated during high flow events, together with in stream wetlands and open water habitats.		
			▪ In terms of the CoJ **Biodiversity Sector Plan**, the rivers are identified to be Critical Biodiversity Area - Critical Biodiversity Areas (CBA's) are irreplaceable sites that are required to meet biodiversity patterns and/or ecological targets. No alternative sites are available to meet these targets. Therefore, the desired management of this area is to maintain it in a natural state with limited or no biodiversity loss, to rehabilitate degraded areas to a natural or near natural state, and to manage for no further degradation. In addition, Ecological Support Areas play an important role in supporting the ecological functioning of CBA's in delivering ecosystem goods and services.	This will be assessed in the Biodiversity Study and Rehabilitation Plan.	Appendix D2 Appendix D11 GN 704
			▪ In terms of the **CoJ Catchment Management Policy** does not allow development of infrastructure within 30 metres wetland buffer zone of any watercourse, or whichever is greatest. It should also be noted that a wetland buffer of 50 metres is required for development	The project involves the removal of silts within a wetland. Therefore this cannot be adhered to. A GN704 exemption motivation will be submitted to the Department of Water and Sanitation.	

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			proposed outside the urban development boundary.		
			▪ In terms of the **CoJ Stormwater Management By-law** the proposed project requires to develop a Stormwater Management Plan (SWMP) which should consider design principles of Sustainable Urban Drainage System (SUDS), The South African National Roads Agency SOC Limited (SANRAL) "Drainage Manual and JRA's Stormwater Design Guidelines.	A stormwater Management Plan will be developed.	Section 3.6 Appendix D5
			▪ In terms of the Air Pollution Control By-Laws, air pollution must be controlled, avoided where possible and minimised where avoidance is not possible. CoJ requires that all specialist studies take cognisance of the current operations impacts and the monitoring data and provide new changes where necessary for the expansion operations.	Air pollution mitigation measures will be proposed by the air quality specialist.	Section 9.4 Section 10
			7. <u>Recommendations</u> Russell Stream has been known to cause periodic flooding, which in-turn results in damages to infrastructure and houses of the community of Riverlea and Booysens Reserve. The continual removal of the silts will assist with the alleviation		Section 9.2.1.1

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			of these impacts and help restore the natural element and ecological functioning of the Russell Stream. There is a challenge of severe erosion in the project area as it receives stormwater runoff from the CBD. Considering that this is an expansion of previously approved and currently in operation activities, CoJ requires that the following issues be addressed in the final SR where applicable, draft Impact Assessment phase, and form part of the DEIR:		
			All specialist studies take cognisance of the current operations impacts and mitigation measures and the implementation success or failure thereof. The specialist studies are to include all available monitoring data and provide new mitigation measures where necessary for these proposed expansion operations.	Kongiwe confirms that the specialist studies will take cognisance of the impacts of the current operations and mitigation measures. Monitoring data will be included in the studies.	Section 8 Appendix D
			Highlight differences, if any, between the process of the current operation and the proposed expansion.	There will be no operational differences, except for coverage/ footprint.	Section 3
			A tabulated composite analysis of the Specialist recommendations.	This table will be presented in the EIA.	Section 9

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			The WULA Technical Report is to be submitted to the Department for review once available.	The Technical Report will be made available for review once it is completed.	IWWMP
			A Services inventory within the affected areas, current services, and any potential future services requirements.	There are no services in the area. However in future due to development planned there will be a need for services. These services will be detailed by the landowner, iProp, at the time.	-
			The current Stormwater Management Plan which should include the implementation and monitoring data and indication of whether same plan is to be applied to the expansion areas.	The same plan will be applied to the expansion area. The details of the stormwater management and monitoring plan will form part of the EIA and the Integrated Water and Waste Management Plan (IWWMP).	Section 3.6 Appendix D5 IWWMP
			Address rehabilitation vs clearance. On rehabilitation, the report states that Ergo will rehabilitate the Valley Silts area by “shaping the areas where silt was removed and make the area free draining. Thereafter, appropriate species will be planted to stabilise the soil.” The Report further confirms that the proposed rehabilitation, extent, and viability will need to be evaluated through specialist studies during the EIA phase.	The project is considered a rehabilitation project in that the gold-bearing silts are being cleared from the site, which will in assist in the rehabilitation of the area and the reinstatement and correct functioning of the stream. The end land use is being finalised with iProp and the rehabilitation will be done in accordance with iProp’s requirements. The specialist studies will provide rehabilitation recommendations.	Section 3.7

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			Indicate at what point clearance will be obtained.	The life of the project is anticipated to be 5 years. Once the silts have been removed and the site rehabilitated, the property will be handed back to iProp for their use.	Section 3.7 Section 3.8
			Indicate how the project will ensure that when silts are removed the natural soils are not contaminated with mine silts.	The silts will be removed down to red earth. The purpose of the project is to remove all the silts and not leave any behind.	Section 3.7
			A Rehabilitation plan must be included in the EIA which also includes creating wetlands in the spruit to mimic erosion reduction measures.	A Rehabilitation Plan will form part of the EIA.	Appendix 11
			Provide details on the silts to be removed from a dam including dam stability and overflow/outlet structure and minimum requirements to verify the integrity of the dam and outlet structure. Rehabilitation measures must be included in the rehabilitation plan.	There is no dam present on the proposed site. On the existing authorised area of valley silts there was once a mine wastewater dam with a dam wall and spillway. It was concluded that this dam was used to service the many historical mines that were operational in the early to mid-1900's. During the extraction of the silts it was identified that the dam wall had historically collapsed, which resulted in downstream siltation. It was decided to remove the remainder of the wall from a safety perspective and to allow continued silt removal.	Section 1.3 Section 3
			An indication of the types of development that may occur on site after rehabilitation.	IProp, the landowner, is planning light industrial development. There is also the possible extension of the N17 through the Russel Stream Valley from Crownwood interchange to Nasrec Road	Section 3.9

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			The FSR and DEIR must be submitted to CoJ with all the required amendments for review.	Kongiwe confirms that the Final SR and DEIR will be made available to the CoJ.	-
COJ Official	Site Visit	Thursday, 30 January 2025	Made note of the positive impact which the vegetation on the perimeter of the site has on dust management for the active mining operations on the Valley Silt site.	Mr Mafatshe noted this and discussed the dust management practices which are utilised across the current operation.	Appendix C
COJ Official	Site Visit	Thursday, 30 January 2025	Made note of the pollution levels in the Russell Stream and emphasised the problems which impact the water upstream. It was further explained that the City of Johannesburg is interested in this project due to the positive impact which it may have on the stream.	Kongiwe team and Mr Mafatshe acknowledged this point.	Appendix C
COJ Official	Site Visit	Thursday, 30 January 2025	Asked about the current mining operation and the stockpiles, with a focus on the dust impacts.	Mr Mafatshe explained that there are water trucks which spray down the area of operation where heavy earth moving machinery and trucks operate. This is part of the dust management practice utilised. It was explained that the stockpiles have a high moisture content, and that dust is limited. Water trucks were seen in operation as he explained the management practice.	Appendix C
COJ Official	Site Visit	Thursday, 30 January 2025	Asked about the reclamation method used.	Mr Mafatshe explained that it is all mechanical reclamation.	Appendix C

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
COJ Official	Site Visit	Thursday, 30 January 2025	Commented on the positive progress which Ergo has made on the site.	Mr Mafatshe acknowledged this point and explained the planning which goes into maintaining the operational efficiency of the operation.	Appendix C
COJ Official	Site Visit	Thursday, 30 January 2025	Asked about the dust management where mechanical reclamation was taking place. Furthermore, enquiries were made surrounding the depth to which the material is excavated. It was noted by officials that is it quite windy at present however minimal dust can be seen.	Mr Mafatshe explained that the same dust management practices apply at this portion of the operation and that dust was limited due to the high moisture content of the extracted material. The operational activities relating to depth were explained.	Appendix C
COJ Official	Site Visit	Thursday, 30 January 2025	Asked about the future plans and rehabilitation of the land.	Ms Wilreker first explained the history of the mine and then explained the rehabilitation plans, as well as the impacts it will have on the Russell stream. She explained that iProp (Pty) Ltd has future plans for the land. Ms Wilreker also explained the design which the landscape may have in the future, in relation to the slope.	Appendix C
COJ Official	Site Visit	Thursday, 30 January 2025	Asked about access roads in relation to the expansion project.	Mr Mafatshe explained that the current access roads would be utilised.	Appendix C
COJ Official	Site Visit	Thursday, 30 January 2025	Asked about the gold levels within the stockpiles.	Mr Mafatshe explained that there was a good amount of gold present.	Appendix C
COJ Official	Site Visit	Thursday, 30 January 2025	Asked about the timeframes of the mining operation.	Ms Wilreker explained that the mine has been in operation since around 2021 and further explained the EIA process which Kongiwe Environmental undertook for Ergo. She also explained the Public Participation	Appendix C

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
				Process which undertaken at that time. The current process in relation to the expansion project was also discussed.	
COJ Official	Site Visit	Thursday, 30 January 2025	Asked about future infrastructure and development on the land. Requested that the plans be shown in the final EIA/EMPr.	Mr Mafatshe and Ms Wilreker explained that to their current knowledge iProp (Pty) Ltd has plans to develop the land in the future, as well as SANRAL which has an interest in developing a road on a portion of the land.	Appendix C

1.2 Industrial Zone (Pty) Ltd (iProp)

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
Ms Jeanie Pelser, Landowner, iProp	Microsoft Teams Online Meeting	Thursday, 14 November 2024	Ms Pelser expressed appreciation for the removal of silts and tailings, as it provides an opportunity to eventually develop the land. She explained that their primary interest is in understanding the end result of the project, specifically the final product, and whether they can align with any approvals or licences related to the project. Ms Pelser also inquired about the possibility of getting involved in the process to ensure there is no double handling of materials.	Ms Wilreker explained that the goal of the project is to remove all the silts and reshape the area by sloping the land in a way that it becomes suitable for industrial use, up to a certain point. She clarified that the intention is not to build directly in the riverbed, but to ensure that, at the final stage, the topography is appropriately adjusted so the land can be utilized for the intended project.	Section 3 Section 3.9

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			Ms Pelser also inquired about the handling of materials on-site, specifically asking where materials would be stockpiled. She referenced a previous situation with the Natal Spruit in City Deep, where the river had to be realigned to its original position due to a large mine dump. Ms Pelser expressed concern about avoiding a similar situation and emphasized that understanding the scope of this aspect of the project is a key interest for them.	Ms Wilreker also sought to confirm her understanding, asking if the intended final land use is for light industrial purposes, as this seems to be the objective. Mr Tshamano confirmed that, while the project aims to remove all the silts within the stream, the final outcome regarding the stream's path cannot yet be determined. He explained that the results will only become clear after the silts are removed, as the stream is currently heavily silted. He also mentioned that it is difficult to predict how much land will be freed for development, as there are constraints related to building regulations, including restrictions on encroaching into the riverbed. Despite these challenges, Mr Tshamano assured iProp that the Ergo team would make every effort to free as much land as possible and restore the stream to its original course	
Mr Brian Gardner, Environmental Officer, Seton Environmental	Microsoft Teams Online Meeting	Thursday, 14 November 2024	Mr Gardner raised concerns about what the stream area will look like after the project is completed. He expressed uncertainty about the final outcome, as the appearance will depend on how much material is removed and the eventual alignment of the stream. He suggested that some form of rehabilitation, such as landscaping or planting, might be needed along the stream after the materials are removed. While	Mr Masala Tshamano clarified that the current scope of the project involves removing the material and shaping the topography to align with the existing drainage pattern. He acknowledged that iProp would want to inherit land that is suitable for development. Mr Tshamano suggested that as the project progresses to its final stages, a discussion will be necessary to determine how the land should be left, ensuring it	Section 3 Section 3.9

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			acknowledging that this is a rehabilitation project, Mr Gardner inquired whether any additional landscaping or planting is proposed, or if the project will simply involve removing and reshaping the area, leaving it for future development by iProp or another entity.	meets the development needs of iProp and other stakeholders.	
Ms Jeanie Pelser, Landowner, iProp	Microsoft Teams Online Meeting	Thursday, 14 November 2024	Ms Pelser expressed her team's satisfaction with the project and reiterated their understanding that it is an ongoing process. She mentioned that they have already tasked Mr Stewart Dunsmore with monitoring the project from a hydrology perspective. Ms Pelser emphasized the importance of being involved early in the process to ensure that no issues arise at the end of the project. She offered their assistance, stating that if there is any information or alignment needed from their side, they are willing to provide it. Ms Pelser also stressed their commitment to contributing any relevant information to avoid potential concerns later in the project.	Mr Tshamano suggested that it would be beneficial to start engaging now, even with the current or approved scope of the project. He recommended scheduling a site visit to assess the progress and gain a better understanding of the area. He noted that, historically, there was a recreational dam in the area, but it will not be reinstated, which could potentially free up land for development. Mr Tshamano emphasized the importance of starting these discussions early to identify potential development areas and understand any limitations regarding where development could take place.	-
Ms Jeanie Pelser, Landowner, iProp	Microsoft Teams Online Meeting	Thursday, 14 November 2024	Ms Pelser agreed that starting early would benefit both parties. She mentioned that she could immediately share their proposed layout, which has been developed in collaboration with	Ms Wilreker expressed appreciation and confirmed that sending the proposed layout would be helpful. She then inquired if it would be acceptable to send an email regarding the landowner consent.	-

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			SANRAL over the past few years in relation to the realignment of the N17 to its optimal position.		
Ms Jeanie Pelser, Landowner, iProp	Microsoft Teams Online Meeting	Thursday, 14 November 2024	Ms Pelser thanked Ms Wilreker and mentioned that she had possibly already sent the email regarding the landowner consent the previous day. She then pointed out an issue with the listed farms, noting that although they are labelled as 'Mayfair West, 224 IQ,' these are actually Langlaagte farms, and she was unsure why they were listed in that way.	Ms Viljoen confirmed that on their GIS information, there is a larger farm called Mayfair, within which Langlaagte is situated. She acknowledged the correction and thanked Ms Pelser for pointing it out.	Section 1.6
Ms Jeanie Pelser, Landowner, iProp	Microsoft Teams Online Meeting	Thursday, 14 November 2024	Ms Pelser clarified that the title dates back to the turn of the previous century and confirmed that the correct description is 'Langlaagte,' She emphasized that Langlaagte is the accurate name for the property.	The project team noted this.	-
Ms Jeanie Pelser, Landowner, iProp	Microsoft Teams Online Meeting	Thursday, 14 November 2024	Ms Pelser inquired about the listing of Transnet as an affected property owner, asking how close the project area is to the railway line, or if Transnet was listed simply because the project area is adjacent to the railway line.	Ms Wilreker explained that Transnet is listed as an affected property owner primarily because its land is adjacent to the railway line, which crosses through one section of the project area. Additionally, there is a mining area on the other side of the railway line. As the project spans across the entire area, consultation with Transnet is necessary.	

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
Mr Brian Gardner, Environmental Officer, Seton Environmental	Microsoft Teams Online Meeting	Thursday, 14 November 2024	Mr Gardner expressed his satisfaction and gratitude, stating that he looks forward to reviewing the reports once they are available. He mentioned that it was helpful to receive a solid background on the project and thanked the team for including him in the discussions.	The project team noted this.	-
Mr Brian Gardner, Environmental Officer, Seton Environmental	Microsoft Teams Online Meeting	Thursday, 14 November 2024	Ms Pelser extended an invitation to Mr Tshamano, stating that they would be more than happy to attend a site meeting at any stage of the project.	Mr Tshamano acknowledged the invitation and confirmed that Ergo would arrange a site meeting at an appropriate time	-

1.3 Passenger Rail Agency of South Africa (PRASA)

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
Mr Siphesihle Bophela, Real Estate, PRASA	Microsoft Teams Online Meeting	Thursday, 14 November 2024	Mr Bophela thanked Ms Wilreker for the presentation and referred to a previous email from Transnet. He asked if the six portions identified by Transnet were the same as those being discussed in the current context.	Ms Wilreker confirmed that Mr Bophela's recollection was correct and assured him that they could send a list of the identified property portions. She explained that, initially, Transnet had been listed as the property owner, but upon contacting them, they clarified that the properties actually fall under PRASA. This clarification is the reason for the current meeting, and she offered to provide the specific property details.	Section 1.6

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
Mr Siphesihle Bophela, Real Estate, PRASA	Microsoft Teams Online Meeting	Thursday, 14 November 2024	Mr Bophela inquired about what is required from their side, specifically asking if permission is needed to use their service road for the project.	Ms Wilreker explained that while the project will have its own access roads, it is important to notify Mr Bophela's team due to the proximity of the service road and infrastructure to the proposed project. She emphasized that the railway runs past one of the mining blocks, and the purpose of the notification is to prevent any confusion or surprises. Additionally, she requested that if there are any specific concerns or factors that the applicant should be aware of from PRASA's side, Kongiwe would like to address them.	-
Mr Paul Motsoaledi, Real Estate Manager, PRASA	Microsoft Teams Online Meeting	Thursday, 14 November 2024	Mr Motsoaledi thanked Ms Wilreker for the presentation, noting that this wasn't the first time they were dealing with such a project. He mentioned that the previous project, run by DRDGOLD, might have similarities to the current one. Referring to the land portions sent through, he pointed out that these portions are very close to the project area, and there might be existing services, such as electrical cables, running through the affected areas. He inquired whether the team is aware of these services and if they could provide more details on them.	Ms Wilreker responded, clarifying that if there are any known servitudes or infrastructure, such as electrical cables, running through the area, it would be helpful to indicate them. This would allow the team to include the information on the map and ensure that the applicant is fully aware of the existing infrastructure. She also clarified the confusion between DRDGOLD and Ergo, explaining that DRDGOLD owns Ergo, and that the application is being processed by Ergo, which is part of DRDGOLD.	-
Mr Paul Motsoaledi, Real	Microsoft Teams Online Meeting	Thursday, 14 November 2024	Mr Motsoaledi explained that they do not have an environmental affairs division, they handle land-related matters and assured the team that	Ms Wilreker confirmed that the team would send all relevant information, including digital files, to Mr Motsoaledi and his colleagues for review. The purpose of	Appendix C

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
Estate Manager, PRASA			they would not oppose the project. He mentioned his familiarity with similar projects in the area, particularly around Soweto, and emphasized the importance of engagement and understanding the activities involved. He concluded by stating that he fully understood the situation.	sharing this information was to allow the team to assess whether any aspects of the project might affect existing infrastructure or land. Additionally, Ms Wilreker suggested that the materials be forwarded to the colleagues who were unable to attend the meeting, as they may be able to provide additional feedback or insights based on their expertise.	
Mr Paul Motsoaledi, Real Estate Manager, PRASA	Microsoft Teams Online Meeting	Thursday, 14 November 2024	Mr Motsoaledi inquired whether PRASA was the only affected entity in relation to the project.	Ms Wilreker clarified that PRASA is not the only affected entity. She mentioned that Kongiwe has already had meetings with the City of Johannesburg, as it is an adjacent landowner, as well as with ward councillors and the property owners whose land falls within the project area.	Section 1.6
Mr Paul Motsoaledi, Real Estate Manager, PRASA	Microsoft Teams Online Meeting	Thursday, 14 November 2024	Mr Motsoaledi expressed appreciation for the presentation, stating that they have no issues with the project. He confirmed that they would remain engaged in the future and requested to be kept informed, ensuring their involvement where necessary.	Ms Wilreker thanked Mr Motsoaledi and team for their input	-

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1.4 TransAtlas / AfriSam Group

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
Mr Quentin Dollman, Property Consultant, AfriSam	Microsoft Teams Online Meeting	Thursday, 14 November 2024	Mr Dollman inquired about the potential impact of the proposed project on the TransAtlas properties.	Mr Tshamano clarified that TransAtlas is an adjacent property owner and therefore needs to be notified about the project.	Section 9.2
Mr Quentin Dollman, Property Consultant, AfriSam	Microsoft Teams Online Meeting	Thursday, 14 November 2024	Mr Dollman requested to be shown the location of their property on the map for clarity.	Ms Wilreker pointed out the location of the TransAtlas property on the map for Mr Dollman's reference.	-
Mr Quentin Dollman, Property Consultant, AfriSam	Microsoft Teams Online Meeting	Thursday, 14 November 2024	Mr Dollman stated that, from the AfriSam side, he would complete the comment sheet, with his only comment being that if the property is affected by the operation, it should be properly rehabilitated and inspected by the relevant authorities before being closed.	The project team noted this.	-
Mr Oscar Olen, Environmental Specialist, AfriSam	Microsoft Teams Online Meeting	Thursday, 14 November 2024	Mr Olen stated that there were no other issues from their side	The project team noted this.	-
Mr Quentin Dollman, Property	Email Correspondence	Friday, 22 November 2024	**Comment received via the Kongiwe Stakeholder Registration and Comment Form:**	Good day Mr Dolloman,	-

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
Consultant, AfriSam			Mr Dolloman enquired if the project has a direct impact on R/E 106 and 107 of Farm Langlaagte 224 IQ owned by Trans Atlas. Any impact on the surface area will require rehabilitation with final sign-off by AfriSam. AfriSam is a willing seller of the two properties as they serve no purpose to AfriSam which will consider an offer but no value in mind.	R/E 106 and 107 of Farm Langlaagte 224 IQ are portions adjacent to the project site. No activities are planned close to those portions and therefore it is not anticipated that there will be any impacts on those portions. Please refer to the attached land tenure map. Your request regarding purchase has been sent on to Ergo Mining for their consideration. Please do not hesitate to contact us if you have any queries.	

1.5 Africa SunOil Refineries (Coastal Trade)

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
Mr Farhaad Adam, Principal Process Engineer, Africa Sun Oil Refineries	Microsoft Teams Online Meeting	Friday, 15 November 2024	Mr Adams inquired about the overall duration of the project. He specifically asked whether the project is expected to take five years or ten years. Based on his understanding, the Environmental Impact Assessment (EIA) process is projected to take approximately three years. Additionally, he noted that further audits could	Ms Wilreker clarified that, from the perspective of the project's lifecycle, the main operational phase will last for five years. Following this period, the area will undergo rehabilitation, and ongoing monitoring will be required. This post-project phase will extend for several additional years to ensure proper rehabilitation and assessment.	Section 2.2.4 section 3.8.1

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			extend the preparation phase by an additional two years, bringing the total preparation time to five years. Following this, there is the operational phase, which is anticipated to last five years, marking the maximum lifespan of the project. Mr Adams seeks clarification on whether the project timeline is intended to be a ten-year journey, including both the preparation and operational phases, or if the project is expected to be completed within five years.		
Mr Farhaad Adam, Principal Process Engineer, Africa Sun Oil Refineries	Microsoft Teams Online Meeting	Friday, 15 November 2024	Mr Adams inquired if the project is expected to last a total of ten years, with five years allocated for development and another five years designated for rehabilitation. He also inquired about the duration of the Environmental Impact Assessment (EIA) process.	Ms Wilreker explained that the EIA process is expected to continue until around May of next year (2025). She stated that the final EIA will be submitted by May or June, after which the authority will have approximately four months to provide a response. Therefore, a decision on both applications is anticipated by the end of next year.	Section 2.2.4 section 3.8.1
Mr Farhaad Adam, Principal Process Engineer, Africa Sun Oil Refineries	Microsoft Teams Online Meeting	Friday, 15 November 2024	Mr Adams inquired that if everything proceeds as planned, the project will begin by January 2026. Mr Adams pointed out that he observed at least three stockpiles near the border of their premises and requested clarification on the	Ms. Wilreker confirmed that this timeline would be correct. Mr Tshamano responded by addressing the dust management concerns, stating that the project already has trucks in place to suppress dust on its premises. He explained that, for the current scope of the project,	Section 2.2.4 section 3.8.1 Section 9.2.1.5

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			expected height of these stockpiles and their proximity to the property boundary. He sought to understand how these factors would be managed from a dust suppression perspective.	which is based on the site plan, Ergo has not experienced significant dust issues to date.	Appendix D4
Mr Farhaad Adam, Principal Process Engineer, Africa Sun Oil Refineries	Microsoft Teams Online Meeting	Friday, 15 November 2024	Mr Adams raised a concern regarding the stockpiles, questioning whether dust suppression would solely rely on the moisture content and the characteristics of the stockpiles themselves to prevent dust from drifting into neighbouring communities and lands. He highlighted the proximity of a natural body of water near the proposed stockpile locations and asked whether the team could provide assurance that appropriate measures would be in place to mitigate any potential dust issues.	Mr Tshamano assured Mr Adams that the stockpiles, by their nature, remain wet. He explained that they are transported when the moisture content is between 30% to 40%, at which point the stockpiles do not generate any dust.	Section 8.7 Section 9.2.1.5 Appendix D4
Mr Farhaad Adam, Principal Process Engineer, Africa Sun Oil Refineries	Microsoft Teams Online Meeting	Friday, 15 November 2024	Mr Adams raised a question regarding the management of dirty stormwater, seeking clarification on whether the holding area for stormwater, as mentioned in the project, would be located near their boundary line. He asked if this area, intended to contain stormwater when it cannot be properly managed, would be in close proximity to their property boundary.	Mr Tshamano clarified that the stormwater, or any affected water, would be contained on the site, specifically on the side facing the stream. He assured Mr. Adams that at no point would the water flow towards their side of the property.	Section 3.6 Appendix D5

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Mr Farhaad Adam, Principal Process Engineer, Africa Sun Oil Refineries	Microsoft Teams Online Meeting	Friday, 15 November 2024	Mr Adams stated that, overall, they have no objections to the expansion project but made one specific request. He explained that their area is close to a crime hotspot and that they rely on natural vegetation to help protect against unauthorized access. He emphasized that, while they want to be good neighbours, they would like to request that a fence be erected along the border of the proposed site. The aim is to prevent any potential ingress into their area, particularly after the project is completed and the site is left for rehabilitation. Mr Adams noted that their long-term goal is to secure their property as well.	Mr Tshamano responded by explaining that the nature of the project means they will not vacate the site until all activities are completed. He assured Mr Adams that they can control access to the mining area, similar to the measures they take on the Crown Roadside, to prevent trespassing. He also acknowledged that this would contribute to safeguarding the neighbouring area. However, he clarified that they would not be installing a physical fence at this stage of the project.	-
Mr A-K Essa, COO, Africa Sun Oil Refineries	Microsoft Teams Online Meeting	Friday, 15 November 2024	Mr Essa inquired about the type of material being mined.	Mr Tshamano stated that the material being mined is gold-bearing silts.	Section 3
Mr A-K Essa, COO, Africa Sun Oil Refineries	Microsoft Teams Online Meeting	Friday, 15 November 2024	Mr Essa expressed concerns about the potential for many vagrants in the area, noting that this issue could become significant. He then inquired whether the mining operations would be conducted during both day and night, or just during regular working hours.	Mr Tshamano responded that the mining operations are carried out only during working days and working hours. He clarified that, at present, they do not experience any unauthorized access or illegal mining activities while the site is operational.	-

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
Mr A-K Essa, COO, Africa Sun Oil Refineries	Microsoft Teams Online Meeting	Friday, 15 November 2024	Mr Essa expressed that, at this point in time, there have been instances where illegal miners have attempted to access the property, even trying to get onto their site. He emphasized that their request for fencing is based on prior experience with such incidents. Mr Essa stated that he is almost certain that once the project concludes and operations cease, illegal miners will likely begin to trespass during the night, leading to an increase in unauthorized activity. This, he explained, is the primary reason behind their concern and request for fencing.	Mr Tshamano acknowledged the concern and stated that they would consider the request. He reassured Mr Essa that they have security measures in place, with security personnel managing access to the site during operations. While he acknowledged that the situation at night may be different, he emphasized that during operational hours, they take full responsibility for securing the site.	-
Mr Farhaad Adam, Principal Process Engineer, Africa Sun Oil Refineries	Microsoft Teams Online Meeting	Friday, 15 November 2024	Mr Adams raised a concern about the expansion, noting that while operations are currently confined to a specific area, the proposed expansion would extend significantly towards Riverlea. He pointed out that as the project grows, it would become increasingly difficult to monitor every part of the expanded site, particularly during nighttime. He emphasized that, given the size of the area, it would be nearly impossible to secure every few metres effectively. Mr Adams suggested that the most practical solution would be to erect a physical boundary to mitigate security risks. He explained	Mr Tshamano acknowledged Mr Adams' concerns and asked for clarification, inquiring whether their site was fenced. Upon learning that it was, he then asked if the primary concern was that people might get closer to their site as a result of the expansion. Mr Adams confirmed this concern.	-

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			that, like the mining operation, their side also produces a high-value product, and they want to prevent any additional security threats, especially since the clearing of land and creation of new pathways could lead to easier access for vagrants.		
Mr Farhaad Adam, Principal Process Engineer, Africa Sun Oil Refineries	Microsoft Teams Online Meeting	Friday, 15 November 2024	Mr Adams explained that the issue arises because the proximity of the fence to their buildings allows vagrants to come too close to their boundary, which creates a security concern. He expressed that while they have no objections to the project proceeding, their request is for the area within the project boundary to be fenced off. He emphasized that they would prefer the site to remain secure and separate, politely asking that the project's boundary be clearly defined and contained.	Mr Tshamano acknowledged the concern and suggested that a separate discussion would be necessary to address the issue. He proposed that Mr Adams and his team meet with their security personnel to discuss how they can secure the site and find a solution. He clarified that there was no initial plan to install a fence around the site but expressed a willingness to engage and work towards finding common ground on the matter.	-
Mr A-K Essa, COO, Africa Sun Oil Refineries	Microsoft Teams Online Meeting	Friday, 15 November 2024	Mr Essa emphasized the importance of considering the fencing request, stating that it is a significant concern for their safety. He expressed that while they do not wish to obstruct the project's progress and wish the team success, they need some assurance regarding security due to past incidents. He urged that this issue is not taken lightly and	The project team noted this.	-

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			stressed that while meeting with security personnel is important, the key point is the psychological reassurance a fence would provide. Mr Essa clarified that he was not asking for walls to be built, but rather a simple fence that would deter unauthorized entry, which is the main request.		
Mr A-K Essa, COO, Africa Sun Oil Refineries	Microsoft Teams Online Meeting	Friday, 15 November 2024	Mr Essa raised another concern regarding the potential impact of traffic on their site. He inquired whether the movement of trucks to and from the mining site would affect their operations or pose any issues for their access. To provide context, he explained that the majority of their trucks currently use Nasrec Road, specifically passing under the bridge R85 Nasrec Road. He requested clarification on the expected flow of trucks at the mining site and whether it would impact their route or site access	Mr Tshamano clarified that the trucks will primarily use Crownwood Road, as previously mentioned. Ms Wilreker confirmed that this is the current access point to the site, and it will remain unchanged. The trucks will then continue along Crownwood Road, onto the M2, and further along to Heidelberg Road, without coming onto Nasrec Road. She also noted that a traffic impact assessment is being conducted for the project to evaluate any potential impacts.	Section 3.3 Section 8.13 Appendix D10
Mr A-K Essa, COO, Africa Sun Oil Refineries	Microsoft Teams Online Meeting	Friday, 15 November 2024	Mr Essa asked about the potential for underground cabling in the area, expressing concern that any disruption to City Power infrastructure could impact their ability to operate their plant. He wanted to know what information the team had regarding any cabling	Mr Tshamano clarified that, as the operation proceeds closer to Nasrec Road, there would be no digging or disruption to the area. He explained that the work would primarily involve activities within the Russell Stream, where the silts are located, and gave the assurance that there is no infrastructure in that area	-

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			that might be present and at risk of being damaged during the project.	that could be affected, either temporarily or permanently.	
Mr A-K Essa, COO, Africa Sun Oil Refineries	Microsoft Teams Online Meeting	Friday, 15 November 2024	Mr Essa asked if the potential impacts on infrastructure, such as underground cabling, would be covered in the EIA.	Mr Tshamano explained that infrastructure concerns are separate from the EIA. He clarified that if the project were to encroach on any servitudes, they would approach the municipality for a waiver. However, for this project, there is no need for that, as no infrastructure is being crossed. He also confirmed that they have already been in consultation with the City of Johannesburg, providing them with the site layout and asking them to identify any infrastructure in the area that they should be aware of.	-
Mr A-K Essa, COO, Africa Sun Oil Refineries	Microsoft Teams Online Meeting	Friday, 15 November 2024	Mr Essa inquired about the potential impact on water infrastructure, specifically asking about municipal water pipes in the area.	Mr Tshamano provided details about the water infrastructure in the area. He mentioned that there is a water pipe running from Crown facilities to City Deep, which carries process water and runs on the surface. Additionally, he noted that there is a Rand water pipe running under the bridge at Nasrec Road, near Riverlea, but noted that the Ergo operations would not interfere with it.	-
Mr A-K Essa, COO, Africa Sun Oil Refineries	Microsoft Teams Online Meeting	Friday, 15 November 2024	Mr Essa requested confirmation that the map provided accurately reflects the mining boundaries and ensures that there will be no encroachment onto their property or any other properties during the mining process.	Mr Tshamano confirmed that the reclamation operations would not encroach on the Africa Sun property, and if there were any doubts about property boundaries, they could be verified. Mr Tshamano offered to provide the scoping report and assured that	Section 1.6

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				no property would be affected without the owner's consent. He also mentioned that Kongiwe could assist in providing any necessary details about properties that may be impacted.	
Mr A-K Essa, COO, Africa Sun Oil Refineries	Microsoft Teams Online Meeting	Friday, 15 November 2024	Mr Essa inquired about the next steps in the process, asking what the following actions would be moving forward.	Mr Tshamano outlined the next steps in the process. He explained that the minutes from the meeting would be drafted and made available to Mr Essa. The scoping report will be submitted to the department at the beginning of December. From February onwards, the team would begin the EIA phase. Once the documents are ready for public review, Mr Essa will be notified, and the documents will be made available for his review. Additionally, any other relevant information will be provided as it becomes available.	Section 2.2.4
Farhaad Adam, Principal Process Engineer, Africa SunOil Refineries	Email Correspondence	Wednesday, 20 November 2024	Morning Thuli Could you please forward a map demarcating boundaries of your Site. Thank You.	Good day Mr Adam, As requested, please find attached the site boundary.	Appendix C
Farhaad Adam, Principal Process Engineer, Africa SunOil Refineries	Email Correspondence	Wednesday, 11 December 2024	Thanks Gerlinde I'd just like to test the previous point pertaining to the requirement for a fence along the boundary.	Good day all Compliments of the new year, Farhaad we have considered your request and to date we are still of the view that we do not need a fence. SunOil has a boundary wall which is approximately 125m away at	Appendix C

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			Has there any further discussion/ development on the same? Thank You.	the closest point which surround your facility. ERGO has a responsibility to control access into its workings as such security guards are permanently placed in areas where we are actively operating the same protocol will be followed with this project. If security risk arises because of our operations, we will be more than happy to engage at that point and see what improvements can be made on our side. I hope this provide much needed clarity as per your email below.	

2 Organs of the State

2.1 Department of Water and Sanitation (DWS)

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
Mr Khathutshelo Michael Mudau, Specialist Production - DWS	Microsoft Teams Online Meeting	Friday, 25 October 2024	Mr Mudau sought clarification on how stormwater runoff from the stockpile area is managed.	Ms Mngwengwe stated that stormwater will be managed through paddocks, which will capture the water and facilitate evaporation. However, if the paddocks reach capacity, any excess water will be discharged into the stream.	Section 3.6 Appendix D5
Mr Khathutshelo Michael Mudau, Specialist Production - DWS	Microsoft Teams Online Meeting	Friday, 25 October 2024	Mr Mudau inquired whether the paddocks have engineering designs.	Mr Tshamano explained that the paddocks do not have engineering designs, but they will be constructed using the soil available on site.	Section 3.6.4

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
Mr Khathutshelo Michael Mudau, Specialist Production - DWS	Microsoft Teams Online Meeting	Friday, 25 October 2024	Mr Mudau asked whether Ergo has performed calculations to assess if the paddocks would be able to manage the expected rainfall within the proposed project area. He emphasized that rainfall is a concern and said that the DWS will consult with its engineers for further insights regarding the proposed paddocks.	Mr Tshamano indicated that based on Ergo's experience, the paddocks will be appropriately sized to handle the water seeping from the stockpiles. He explained that the moisture content from this seepage is usually minimal compared to the paddocks' capacity. He stated that rainfall in the area is unpredictable and emphasised that Ergo has never experienced rainfall causing an overflow into the stream, and if such an event were to occur, it would be treated as an incident.	Section 3.6
Mr Khathutshelo Michael Mudau, Specialist Production - DWS	Microsoft Teams Online Meeting	Friday, 25 October 2024	Mr Mudau asked why Ergo is applying for another Water Use Licence (WUL).	Mr Tshamano mentioned that this application is an extension to the existing licence, as Ergo is expanding the project area.	-
Mr Khathutshelo Michael Mudau, Specialist Production - DWS	Microsoft Teams Online Meeting	Friday, 25 October 2024	Mr Mudau asked where the material will be taken.	Mr Tshamano explained that the material will be taken to the City Deep Plant.	Section 3
Mr Khathutshelo Michael Mudau, Specialist Production - DWS	Microsoft Teams Online Meeting	Friday, 25 October 2024	Mr Mudau inquired whether the City Deep Plant has a WUL and if one is required for its operations.	Mr Tshamano stated that the City Deep Plant does not have a Water Use Licence, nor is it required to have one. However, Ergo had required a WUL for the reclamation sites associated with the City Deep Plant, for which applications were submitted for sites such as 4L3, 4L4 and 4L6, among others.	-

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
Mr Khathutshelo Michael Mudau, Specialist Production - DWS	Microsoft Teams Online Meeting	Friday, 25 October 2024	Mr Mudau sought clarity on where the waste generated from the reprocessing of silts will be taken.	Mr Tshamano explained that it will be taken to the Brakpan Tailings Storage Facility (TSF).	-
Ms Felicia Diale, Environmental Officer - DWS	Microsoft Teams Online Meeting	Friday, 25 October 2024	Ms Diale inquired about how the current authorisation will be linked to the extension in terms of the Life of Mine (LoM). She also asked whether the mine is applying for an additional five years.	Mr Tshamano stated that the current Valley Silts WUL is valid for five years and will run its full course. Ergo currently has six months remaining to mine under this authorisation. Mr Tshamano also indicated that Ergo is applying for an additional five years for the Valley Silts Extension Water Use Licence Application (WULA).	Section 3.8 IWWMP
Mr Khathutshelo Michael Mudau, Specialist Production - DWS	Microsoft Teams Online Meeting	Friday, 25 October 2024	Mr Mudau noted that section 21(g) was applied for dust suppression and asked what the source of water would be.	Mr Tshamano explained that there will be two sources of water, namely the seepage resulting from mining which is collected at a collection point, and as well as the from the mining blocks around the site where water will be abstracted for safe operations.	IWWMP
Mr Khathutshelo Michael Mudau, Specialist Production - DWS	Microsoft Teams Online Meeting	Friday, 25 October 2024	Mr Mudau stated that the water sourced from the mining pits is natural and it is not processed, and therefore a Section 21 (a) is triggered. He advised that a Section 21 (a) water use should be applied for instead of Section 21 (g) water use.	Mr Tshamano agreed with Mr Mudau that the water resource is natural and not processed. The comment was noted by Mr Tshamano and Kongiwe.	IWWMP
Mr Khathutshelo Michael Mudau, Specialist Production - DWS	Microsoft Teams Online Meeting	Friday, 25 October 2024	Mr Mudau inquired if operation and rehabilitation will be concurrent.	Mr Tshamano confirmed that rehabilitation and operation will happen concurrently. Mr Tshamano stated that the silts will be removed as part of the rehabilitation process, leaving the area	Section 3.7

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
				clean. He also mentioned that Ergo plans to rip the surface. However, Ergo will not be vegetating the area since light industrial development is expected to take place.	
Mr Khathutshelo Michael Mudau, Specialist Production - DWS	Microsoft Teams Online Meeting	Friday, 25 October 2024	Mr Mudau suggested that the site should be vegetated.	Mr Tshamano indicated that the banks of the stream would be stabilised based on the extent of the disturbance. Ergo will take the necessary steps to rehabilitate the area. He further mentioned that it would be challenging to share specific details regarding the rehabilitation process with the DWS as Ergo has not yet assessed the full extent of the disturbed area. Mr Tshamano explained that he expects that a rehabilitation plan will be required for the application and then inquired whether DWS requires a conceptual rehabilitation plan, which Ergo could provide. However, he noted that this plan would need to be updated as the project approaches completion.	Section 3.7 Appendix D11
Mr Khathutshelo Michael Mudau, Specialist Production - DWS	Microsoft Teams Online Meeting	Friday, 25 October 2024	Mr Mudau asked if Ergo had not created a rehabilitation plan for the mined-out areas.	Mr Tshamano stated that Ergo has not yet mined directly on the stream and is only operating on the sides of it.	-
Mr Masala Tshamano, Applicant - Ergo	Microsoft Teams Online Meeting	Friday, 25 October 2024	Mr Tshamano sought clarity on the necessity for applying for stockpile areas as Section 21 (g)	Mr Mudau explained that Section 21(g) for stockpile areas should indeed be included in the application. He stated that according to the National Water Act (NWA),	Section 2.3 IWWMP

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			water uses considering that they will be temporary.	there is no provision in the Act that categorises any activity as "temporary." This means that all activities, including the stockpile areas, must comply with the regulations.	
Mr Masala Tshamano, Applicant - Ergo	Microsoft Teams Online Meeting	Friday, 25 October 2024	Mr Tshamano indicated that the quality of the water within the stream is polluted, and it would be used for dust suppression. He inquired whether this situation does not warrant a Section 21 (g) water use.	Mr Mudau explained that even if the water is contaminated, it is still considered a water resource. He made an example of the Vaal River, stating that despite its high levels of contamination, it is still treated as a water source.	IWWMP
Mr Masala Tshamano, Applicant - Ergo	Microsoft Teams Online Meeting	Friday, 25 October 2024	Mr Tshamano confirmed with Mr Mudau that the dust suppression will not be considered a Section 21 (g) water use.	Mr Mudau reiterated that a Section 21 (a) would be triggered for the abstraction of water for dust suppression.	Section 5
Comments received during the Department of Water and Sanitation Site Visit: Tuesday, 11 March 2025 at 08:30 – 15:00					
			A summary of the DWS's comments and recommendations for the Valley Silts Expansion Integrated Water Use Licence Application (IWULA) during the Phase 2 Site Visit. **<u>Legend Clarification:</u>** ❖ The DWS advised that the water uses labels on the water use map should explicitly state the activity, such as "dust suppression", instead of just "Section 21 (g)".		Appendix C IWWMP

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			Water Use Clarity: ❖ There must be a clear distinction between authorised and proposed water use activities on the water use map. The water use map should clearly indicate which activities are already authorised and which are proposed and therefore require licensing.		
			Valley Silts previous application: ❖ The DWS officials recommended reviewing the old Valley Silts Water Use Licence (WUL) and if any current activities or water uses were missed in the previous WUL, they must form part of the current Water Use Licence Application (WULA) for the Valley Silts Expansion Project.		
			River crossing: ❖ The term "river crossing" should be rephrased to "culvert".		IWWMP
			Scope of work:		IWWMP

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			❖ The scope of work in the application needs to be updated with detailed descriptions of all site activities. Every aspect of the work being undertaken should be clearly stated.		
			Water use naming: ❖ The DWS highlighted the need to specify which stockpile numbers correspond to Section 21 (c) and (i) water uses and which correspond to each Section 21 (g) use. This will ensure clarity in the application.		IWWMP
			Geotechnical Report: ❖ The geotechnical reports should clearly indicate that any seepage found at Valley Silts results from the artificial elevated floor and not from the natural groundwater flow.		
			Seepage vs. Baseflow: ❖ DWS officials indicated they will investigate whether the seepage observed at Valley Silts is baseflow. They will assess the situation from their		

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			side to determine how to proceed with handling seepage.		
			<u>Abstraction Points:</u> ❖ The DWS recommended specifying the exact coordinates of the abstraction points as the project progresses, as one abstraction point for the whole site is not accurate or sufficient. They advised that the water use table and map must be updated to include abstraction points to accommodate the location of abstraction points as reclamation progresses.		IWWMP

2.2 Eskom (National Transmission Company South Africa SOC Ltd (NTCSA)

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
Mr John Geeringh, Senior Consultant Environmental Management,	Email Correspondence	Monday, 28 October 2024	Please send me a KMZ file of the affected property and proposed development. Please find attached Eskom requirements for work at or near Eskom infrastructure and servitudes.	Good day Mr Geeringh; Thank you for your response.	Appendix C

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
Grid Planning: Land and Rights National Transmission Company South Africa SOC Ltd (NTCSA)			**The attachment entailed the following:** **The attachment details with the requirements from Eskom when working at or near infrastructure and servitudes:** TO WHOM IT MAY CONCERN Eskom requirements for work in or near Eskom servitudes. 1. Eskom's rights and services must be acknowledged and respected at all times. 2. Eskom shall at all times retain unobstructed access to and egress from its servitudes. **3.** Eskom's consent does not relieve the developer from obtaining the necessary statutory, land owner or municipal approvals. 4. Any cost incurred by Eskom as a result of non-compliance to any relevant environmental legislation will be charged to the developer.	Eskom's requirements are noted and have been sent to the applicant. Please find attached the project boundary as requested.	

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			5. If Eskom has to incur any expenditure in order to comply with statutory clearances or other regulations as a result of the developer's activities or because of the presence of his equipment or installation within the servitude restriction area, the developer shall pay such costs to Eskom on demand. 6. The use of explosives of any type within 500 metres of Eskom's services shall only occur with Eskom's previous written permission. If such permission is granted the developer must give at least fourteen working days prior notice of the commencement of blasting. This allows time for arrangements to be made for supervision and/or precautionary instructions to be issued in terms of the blasting process. It is advisable to make application separately in this regard. 7. Changes in ground level may not infringe statutory ground to conductor clearances or statutory visibility clearances. After any changes in ground level, the surface shall be rehabilitated and stabilised so as to prevent erosion. The measures taken shall be to Eskom's satisfaction.		

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			8. Eskom shall not be liable for the death of or injury to any person or for the loss of or damage to any property whether as a result of the encroachment or of the use of the servitude area by the developer, his/her agent, contractors, employees, successors in title, and assignees. The developer indemnifies Eskom against loss, claims or damages including claims pertaining to consequential damages by third parties and whether as a result of damage to or interruption of or interference with Eskom's services or apparatus or otherwise. Eskom will not be held responsible for damage to the developer's equipment. 9. No mechanical equipment, including mechanical excavators or high lifting machinery, shall be used in the vicinity of Eskom's apparatus and/or services, without prior written permission having been granted by Eskom. If such permission is granted the developer must give at least seven working days' notice prior to the commencement of work. This allows time for arrangements to be made for supervision and/or precautionary instructions to be issued by the relevant Eskom Manager.		

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			Note: Where and electrical outage is required, at least fourteen work days are required to arrange it. 10. Eskom's rights and duties in the servitude shall be accepted as having prior right at all times and shall not be obstructed or interfered with. 11. Under no circumstances shall rubble, earth or other material be dumped within the servitude restriction area. The developer shall maintain the area concerned to Eskom's satisfaction. The developer shall be liable to Eskom for the cost of any remedial action which has to be carried out by Eskom. 12. The clearances between Eskom's live electrical equipment and the proposed construction work shall be observed as stipulated by Regulation 15 of the Electrical Machinery Regulations of the Occupational Health and Safety Act, 1993 (Act 85 of 1993). 13. Equipment shall be regarded electrically live and therefore dangerous at all times.		

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			14. In spite of the restrictions stipulated by Regulation 15 of the Electrical Machinery Regulations of the Occupational Health and Safety Act, 1993 (Act 85 of 1993), as an additional safety precaution, Eskom will not approve the erection of houses, or structures occupied or frequented by human beings, under the power lines or within the servitude restriction area. 15. Eskom may stipulate any additional requirements to highlight any possible exposure to Customers or Public to coming into contact or be exposed to any dangers of Eskom plant. 16. It is required of the developer to familiarise himself with all safety hazards related to Electrical plant. 17. Any third party servitudes encroaching on Eskom servitudes shall be registered against Eskom's title deed at the developer's own cost. If such a servitude is brought into being, its existence should be endorsed on the Eskom servitude deed concerned, while the third party's servitude deed must also include the rights of the affected Eskom servitude		

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
Ms Priscilla Mogomotsi, Senior Advisor Land & Rights Land Development, Gauteng Cluster, Distribution Division	Email Correspondence	29 October and 12 November 2024	Good day See attached for your attention **The attachment detailed the following:** **RE: APPLICATION FOR SERVICES- ENVIRONMENTAL AUTHORISATIONS AND WATER USE LICENCE APPLICATION FOR THE VALLEY SILTS EXPANSION PROJECT IN THE CITY OF JOHANNESBURG METROPOLITAN MUNICIPALITY,** Your letter dated the 28 October 2024 refers. **The following Eskom Distribution Services are affected.** • **ASTRA/WEILERS FARM 122Kv Feeder from AWF95/21 to AWF95/22 Conductor** • **ASTRA/WEILERS FARM 122Kv Feeder from AWF95/22 to AWF95/24 Conductor** Eskom will raise no objection to this application provided its rights and services are acknowledged and respected at all times, and the requirements as laid down by the Occupational Health and Safety Act	Good day Ms Mogomotsi Thank you for your email. Eskom's requirements have been submitted to the applicant for their attention and to ensure compliance with Eskom's requirements.	Appendix C

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			No 85/1993, are complied with. As additional safety measures Eskom require that the following conditions are complied with: 1. The applicant or his contractor must notify Eskom Diepkloof Customer Services Center Contact Person, Solly Lekalakala Tel: (011) 241-5007 - 083 652 7827, at least fourteen (14) days prior to the commencement of any work whatsoever, under or in close proximity to Eskom services. 2. The consent is further subject to the Landowner's permission for the proposed works as per this application. A copy of the permission must be filed with Eskom seven days before any work is carried out in the servitude area. 3. Please note that, under no circumstances will any relocation work proceed prior to the submission of a formal application to Eskom Customer Services and acceptance of the relocation costs by the applicant. A formal application for the relocation of Eskom services must be submitted at least three months prior to the commencement of any construction work.		

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			4. Any cost and claims due to interruptions or interference to Eskom services causing power supply loss or loss of income, due to this application, will be borne by the applicant. 5. Statutory clearances are to be maintained at all times. If Eskom has to incur any costs to comply with statutory requirements because of your work or the presence of your equipment, then you will refund Eskom such proven costs on demand. 6. Eskom must always have ingress to and egress from its services. 7. No mechanical equipment, including mechanical excavators, may be used under or in close proximity to Eskom's services without the prior approval of Eskom's authorized representatives. 8. The use of explosives of any type within 500 meters of Eskom's services shall only occur with Eskom's previous written permission. If such permission is granted the applicant must give at least fourteen working days prior notice of the commencement of blasting. This allows time for arrangements to be made for supervision and/or precautionary instructions to be issued in terms of the blasting process.		

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			9. Eskom shall not be liable for the death of or injury to any person or for the loss of or damage to any property caused in whatsoever manner by the applicant, his employees, agents or contractors. The applicant indemnifies Eskom against all claims including claims for consequential damages by third parties which includes but is not limited to claims as a result of damage to, or interruption of or interference with Eskom's services or equipment. The applicant's attention is drawn to section 27(3) of the Electricity Act 1987. 10. No excavations may be executed closer than 3 meters from any of Eskom underground electric power cables and 10 meters from Eskom overhead electrical power lines unless Eskom authorized representative is on site. 11. Equipment shall be always regarded electrically live and therefore dangerous. 12. No dumping shall be allowed in the servitude area. 13. No squatting to be allowed in the servitude area. 14. Eskom may stipulate any additional requirements to illuminate any possible exposure to Customers of Public to coming into		

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			contact or be exposed to any dangers of Eskom plant. 15. The contractor in charge of the construction or maintenance work on site must at all times be in possession of the letter of approval of the services concerned, and as well as all plans that are required and that are referred to in the correspondence, so that during an inspection the contractor can present the documentation to Eskom official(s) when requested to do so. If no approval is presented, then the Eskom Official(s) can order the work to be ceased until approval can be presented. 16. We have no record of our low voltage services in this Department, and these will be indicated on site by Eskom Technical Services Officer mentioned in our conditions. 17. This wayleave is only valid for six months due to the constant infrastructure development over the area. If construction is over the six-month period, a re-application must be submitted 18. Should the applicant or his contractor damage any of Eskom's services during commencement of any work whatsoever, then Eskom's 24-hour Fault number 011 800 4441 must be dialed immediately to report the incident.		

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2.3 South African National Roads Agency Limited (SANRAL)

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
Ms Victoria, Environmental Officer, SANRAL	Email Correspondence	Wednesday, 06 November 2024	Good day Thuli Please see response from my colleague below. You may note that as SANRAL response, Regards Victoria Bota Hi Victoria, It seems as if SANRAL is not affected by this matter, especially from a traffic perspective. Regards Izak Van Der Linde	Dear Ms Bota Thank you for your response, we take note of it. Please indicate if you would like any further notifications with regards to this project. Thank you	Appendix C
Ms Victoria, Environmental Officer, SANRAL	Email Correspondence	Wednesday, 06 November 2024	Good day, No, no further notification required Regards Victoria Bota	Kongiwe noted.	-

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Ms Ria Barkhuizen	Email Correspondence	Wednesday, 06 November 2024	The South African National Roads Agency SOC Limited (SANRAL) has no objection to the application as no roads or interchanges under the jurisdiction of SANRAL are affected.	Thank you	-
Mr David Thubane, Land Acquisition specialist	Microsoft Teams Online Meeting	Thursday, 30 January 2025	Mr Thubane sought clarity, noting that Ergo requires landowner consent from SANRAL, a document with which he is familiar with. However, he expressed uncertainty regarding Ergo's expectation and SANRAL's involvement beyond this. Dr Vilakazi added, requesting a more practical explanation. He asked for details on the nature of the activity that would take place in the area, should consent be granted. Dr Vilakazi sought further clarity on the following points: **Nature of the Activity**: He requested a clear explanation of the specific activities that would take place in the area if consent were granted. He emphasized the importance of understanding exactly what would be allowed under the consent. **Terms of Consent**: He inquired whether there had been any discussions regarding the terms of consent.	Ms Wilreker explained that the only activity to take place on the property will involve the N20 mining block. The plan is to remove the silts that have accumulated in the Russell Stream valley. These silts will be taken to a drying stockpile located off the property. Afterward, the silts will be processed, with gold extracted as part of the process. Once the silts are removed, the land will be sloped and natural vegetation will be allowed to regrow. The aim of this project is to rehabilitate the Russell Stream, which is currently causing significant flooding issues due to being completely silted up and lacking its natural function. By removing the silts, the project will restore the stream and help prevent further flooding, while also recovering the gold contained in the silts. Ms Wilreker added that agreements have already been secured from other property owners, specifically for those properties which are owned by iProp. These owners have given their approval as they also wish to develop their land eventually, and	Section 1.6 Section 3

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			He noted that the project is stated to last for five years and asked if the consent being sought was for a fixed period of five years, or if it was intended to be for a longer or shorter duration. **Time frames**: Dr Vilakazi raised concerns about the commercial time and schedule for the project, noting that certain activities could impact the land use. He highlighted the need to consider carefully how the consent would be structured over the duration of the project, rather than viewing it as a one-time commitment. He suggested that a follow-up meeting might be necessary to discuss the commercial terms and timelines specifically if the consent was to be considered for the project. Lastly, Mr Davids added that he wanted to know what would physically occur on the SANRAL land. If any physical activity is planned, they need a clear understanding of what it is before they can decide whether to grant consent. He emphasized that this clarity is necessary to assess the legality of granting consent.	removing the silts will enable that. All relevant information will be submitted to the Department of Water and Sanitation. She further explained that an environmental authorization is also being undertaken for the project, and the report is available on the Kongiwe website for anyone interested in reviewing it. The Environmental Impact Assessment (EIA) phase will begin on February 2nd, and once the specialist studies and impact reports are completed, they will be made available for public consultation. The community will have the opportunity to review the reports, provide comments and attend consultation meetings where the findings from the specialists will be presented. All documentation, including the consultation results, will then be submitted to the authorities, who will decide whether to grant authorization for the project. Regarding the water use licence, it will be granted for a specific period based on the project's duration, five years in this case. The licence will cover the entire site.	

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				Ms Wilreker clarified that the landowner consent form being requested is to allow the application for the water use licence. The form indicates that the landowner is aware of the project and specifies that the consent is solely for the removal of silts on the property, with no other activities taking place. It also mentions that the land will be rehabilitated once the silts are removed.	
Mr David Thubane, Land Acquisition Specialist	Microsoft Teams Online Meeting	Thursday, 30 January 2025	Mr Thubane inquired whether, during the silt's removal process, SANRAL's land would be unavailable for use, seeking confirmation of this assumption.	Ms Wilreker explained that it is difficult to determine exactly when the team will begin working on the SANRAL property. Until access to the site is needed, SANRAL will still be able to use the land. It will only be during the silts removal process that access to the site may be restricted. She added that an agreement will need to be made between Ergo and SANRAL regarding land access and other related matters.	-
			Mr Thubane also inquired about compensation.	Ms Wilreker stated that compensation is something that needs to be discussed between Ergo and SANRAL.	-
Dr Ayanda Vilakazi, Business Development	Microsoft Teams Online Meeting	Thursday, 30 January 2025	Dr Vilakazi thanked Ms Wilreker for the clarification and sought to confirm his understanding. From a requirements perspective, he understood that consent is being requested for the removal of the silts from the land. However, he noted that the timeline	Ms Wilreker acknowledged that Dr Vilakazi's concerns were valid and fair. She explained that removing the silts would make the land more usable for SANRAL, as the current silts prevent any construction. Since the silts are located within the	

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			for when this would take place is uncertain, as it could occur next year or potentially within the next five years. Dr Vilakazi elaborated on the issue, stating that there is considerable data available regarding the land in question. He noted that the process of identifying all the greenfields properties they own or have access to for potential alienation or further development is ongoing. This includes land that might be subject to agreements of various kinds. He raised concerns regarding the potential development of the land, emphasizing that if the land were developed in a way that restricted access due to the nature of the development or its intended use, this could result in no access to that land. He highlighted the risk that this could prevent any future access and suggested that to mitigate this risk, it should be clearly established that within the next five year, regardless of any activities deemed necessary for SANRAL, there would be no plans to utilize the land. The land would only be considered for use after this five-year period.	stream, she emphasized that removing them would benefit everyone, including the city, by rehabilitating the river and allowing it to flow more naturally. She suggested that, as the process of obtaining authorization would take about a year and no work could begin before that time, it could be beneficial to arrange a meeting between the stakeholders and Ergo during the EIA phase. This meeting would provide an opportunity to discuss the terms and conditions in more detail, ensuring that all parties are in agreement. Ms Wilreker highlighted that the rehabilitation process must align with the landowner's preferences for the site. She cited the example of iProp, where the rehabilitation included sloping the land to prepare for future light industrial development. For SANRAL, she suggested that they may have different plans for the land, such as building something in a green, vegetated area, and the land could be sloped accordingly. She further asked if Dr Vilakazi and the team would be amenable to such a meeting to discuss the specifics of the terms and conditions.	

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			Dr Vilakazi emphasized that this is a critical consideration, and as a result, the terms of any agreement need to be carefully outlined. He pointed out that his second question was informed by this background, particularly regarding the timing of the activities and how they might affect potential future use of the land. He stressed that the terms must be clear to ensure that no party is disadvantaged, particularly in terms of land access during the five-year period.	***Post meeting notes:*** ***Consent is not required for the excavation of the silt: this is covered by the mining right. Nor is consent required for the EA itself: this is covered by the EIA Regulations. Consent is only required to apply for the WUL, because this is a specific requirement of the NWA Regulations.***	
Dr Ayanda Vilakazi, Business Development	Microsoft Teams Online Meeting	Thursday, 30 January 2025	Dr Vilakazi emphasized the importance of discussing the terms and conditions, as well as addressing the concern regarding the availability of the land for future use. He expressed that before any consent is provided, it is crucial to ensure that an agreement is in place. Given the urgency of the matter, he suggested that the meeting could take place as soon as this week to clarify these issues. The goal would be to ensure that any consent given is informed by a clear understanding of the terms and conditions, which should be documented in an agreement or term sheet. This would help regulate the future use of the land from a governance perspective, ensuring that both parties are aligned on what the future holds for the greenfield.	Ms Wilreker confirmed that they would provide additional materials to assist with visualization. She mentioned that for the Valley Silts project, the current activities could be seen in the presentation, but they would also send photos showing the area before the activity began. While rehabilitation hasn't started yet, as Ergo is still finalizing the mining phase, she noted that Ergo had worked upstream on the Crownwood road section, which had already reached the rehabilitation phase, including sloping and other activities. She offered to gather photos from that project, as well as aerial footage of the area, to provide a clearer picture of what the land might look like after the work is completed.	-

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			Mr Thubane, adding to Dr Vilakazi's statement, suggested that a site visit could greatly assist in understanding the project. He recommended seeing the site both before and after the work is completed, as this would provide valuable insight. He also asked if any pictures from previous projects could be shared to illustrate the process; showing the property before and after the silts were removed. This would help them visualize what the property could look like in the future, which he believed would be very helpful for their decision-making.		
Dr Ayanda Vilakazi, Business Development	Microsoft Teams Online Meeting	Thursday, 30 January 2025	Dr Vilakazi raised two key points: **Cost Implications:** He mentioned that, while the timeline for the rehabilitation is still to be discussed, it would be helpful to understand the cost implications for both the rehabilitation process and the removal of the silts. He acknowledged that the financial side of the project had not yet been considered but expressed an interest in knowing what the cost of these activities would be from Ergo's side. **Zoning Information:** Dr Vilakazi also inquired about the zoning of the land, particularly whether it has been designated for mining operations or other uses such as development or industry. He asked if there	Ms Wilreker responded that they would investigate that information and provide details.	

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			was any information available on whether the area adjacent to their land had been rezoned, and if so, what the new zoning was for.		
Mr David Thubane, Land Acquisition Specialist	Microsoft Teams Online Meeting	Thursday, 30 January 2025	Mr Thubane noted that the municipality may require a consent use application because the land was originally zoned for one purpose but is now intended to be used for something else. He emphasized that the team should investigate this aspect as well, as it is an important consideration.	Ms Wilreker responded that they would send Dr Vilakazi and SANRAL team the background information document on the project. Additionally, they would provide a link to the draft scoping report, which she believed would address many of his questions, particularly regarding the timeframes for the project.	Appendix C
Dr Ayanda Vilakazi, Business Development	Microsoft Teams Online Meeting	Thursday, 30 January 2025	Dr Vilakazi concluded by highlighting the importance of understanding the timeframes involved. He noted that while he sensed the team was under a tight deadline, it was crucial to ensure that all statutory processes are followed and that everything is in line with the relevant regulations. He requested a clearer outline of the project's timeline, including the steps involved from consent to legal processes, as well as public participation requirements. He suggested a one-page summary with a high-level overview of the timeframes, which would be very helpful for their understanding and decision-making.	Kongiwe team noted this	
Ms Gerlinde Wilreker, Kongiwe	Microsoft Teams Online Meeting	Thursday, 30 January 2025	Ms Wilreker confirmed that a meeting would be organized between SANRAL and Ergo to discuss the	SANRAL team noted this	

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			commercial agreements and other related matters. She asked if that covered everything required.		
Mr David Thubane, Land Acquisition Specialist	Microsoft Teams Online Meeting	Thursday, 30 January 2025	Mr Thubane raised a concern regarding the timeline for providing feedback on the consent. He noted that, to avoid delaying the process, it would be helpful to understand what kind of timeline Kongiwe might expect from their side for providing feedback on the consent request, even though it might not be strictly fixed. He asked for guidance on the expected timeframe for SANRAL response.	Ms Mngwengwe responded that, given the urgency of the project, they would expect feedback on the consent within a week at most. She explained that they are already in phase one of the water use licence application, and there is a requirement to submit the landowner consent as part of the process.	
Dr Ayanda Vilakazi, Business Development	Microsoft Teams Online Meeting	Thursday, 30 January 2025	Dr Vilakazi clarified that while he understood the urgency on Kongiwe's side, their ability to provide feedback within a week would depend on the information they receive and how comfortable they are with it. He mentioned that seeking legal advice would also be necessary to ensure everything is above board before proceeding. He expressed that he did not want to commit to a strict one-week deadline, as it might not be feasible, but that a response within a week would be acceptable if possible. He also noted that the availability of other people who need to review the information would influence the timeline.	Ms Mngwengwe acknowledged Dr Vilakazi's point and assured him that they understand the need for discussions and seeking advice from other parties. She confirmed that they would keep this in mind as they move forward.	-

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
Mr David Thubane, Land Acquisition specialist	Microsoft Teams Online Meeting	Thursday, 30 January 2025	Mr Thubane requested that the recording, the presentation, and all the relevant information be shared with everyone present at the meeting. He emphasized that this would allow everyone to review the materials and provide informed comments.	Kongiwe team noted this	

2.4 Department of Forestry, Fisheries and the Environment (DFFE)

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
Mashudu Mudau, Protected Areas Planning and Management Effectiveness, Department of Forestry, Fisheries and the Environment, Environment House	Email Correspondence	Thursday, 14 November 2024	Dear Ripfumelo The Directorate: Protected Areas Planning and Management Effectiveness, would like to thank you for the opportunity to review the Draft Scoping report for the Environmental Authorisations and Water Use Licence Application for the Valley Silts Expansion Project in the City of Johannesburg Metropolitan Municipality, Gauteng Province. Ergo Mining (Pty) Ltd (Ergo) intends to expand its Valley Silts reclamation operation (the Valley Silts Expansion Project). The expansion involves mechanically excavating gold-bearing silts from the	Good day Ms Mudau. Thank you for your comments. We take note that you have no objection to the proposed, provided mitigation measures are adhered to.	-

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			old dam wall to Nasrec Road (Blocks N1 to N20), situated immediately west of the authorised and existing Valley Silts reclamation project area and the remaining Blocks (N21 and N22) being located either side of Crownwood Road, near Booysens Reserve and Riverlea, Johannesburg After conducting the review of the submitted documents, we have noted that the proposed silt reclamation will not take place within any protected area in terms of Section 9 of the National Environmental Management: Protected Areas Act (NEMPAA), Act No. 57 of 2003. However, the proposed area is within the 5km buffer zone of a protected area as identified in terms of NEMPAA. The borrow pits are located within 4.7km away from the Klipriviersberg Nature Reserve (see attached). It is noted that the proposed removal of silt is an expansion to an already authorised operating Valley Silts Project. Further noting that there are various developments such as residential area, industrial area and mining activities in between of the proposed mining activity and the protected area,		

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			which screens and reduces the visual impact to be expected from the nature reserve. The directorate has no objection to the proposed, provided mitigation measures are adhered to.		
Ms Boikanyo Matsha, Directorate: Forest Resources Protection	Email Correspondence	Friday, 22 November 2024	Good day Vanessa Hope this email finds you well. As per our telephonic communication, according to our mandate, National Forests Act no.84 of 1998 the branch Forestry under the Department of Forestry Fisheries and the Environment is an Interested and Affected Party for the proposed Valley Silts Expansion Project in the City Johannesburg Metropolitan Municipality, Gauteng Province. May I kindly request the following information so that the Department can make informed comments regarding the proposed project: - KML, KMZ or GIS shapefiles for the proposed project footprint. - Biodiversity Specialist report May, I also request an extension for the commenting timeframe.	Good day Boikanyo, Thank you for your email. As requested please find attached the kmz for the property boundary. The biodiversity study is at presently still underway. It will be made available during the EIA phase. We will ensure you get a copy as requested. The legislated Scoping Phase PPP timeframe finishes Wednesday, 27 November 2024. However, please do not hesitate to send us any comments at any time. These will be captured, but will only reflect in the EIA phase Comments and Response Report. We will endeavour to respond as quickly as possible to your comments and ensure they are addressed in the EIA report. Consultation is ongoing throughout the entire process.	Section 8.5 Appendix D2

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2.5 Department of Public Works and Infrastructure

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
Mr Malusi Ganiso, Director: Town Planning Services	Email Correspondence	Monday, 02 December 2024	Good Day, I hope this email finds you well. The Department of Public Works and Infrastructure: Town Planning Services (DPWI: TPS) has reviewed and provided comments on the afore-stated notice of application. Herein attached are the said comments. **The comments detailed the following:** The Department of Public Works and Infrastructure (DPWI) acknowledges the receipt of the notice and confirms ownership of the adjacent property (Portion 0 of Randskou 324 IQ), therefore the department registers an affected stakeholder for the EIA process.	Good day, Thank you for your comments. We have you registered as an interested and affected party.	Appendix C

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2.6 Rand Water

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
Ms Nomzamo Sithole	Email Correspondence	Tuesday, 12 November 2024	Good morning, I hope you are well. I would like to kindly make a follow up on whether you were able to successfully create your profile and submit your environmental application through our system as per the below email? If so, could you kindly share the wayleave number so as to track the status of your application. Kind regards, Nomzamo	Good day Ms Sithole Should the applicant require wayleaves, these will be submitted through the correct channels. No applications are required at present.	

2.7 Transnet

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
Carol Gore, Property Technician,	Email Correspondence	Tuesday, 10 December 2024	Good Day, Please send a kml with your application	Dear Carol, Thank you for your email.	

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
Transnet Property			Kind regards,	Attached please find the Project Boundary KMZ as per your request. Please do not hesitate to contact us if you have any further queries.	

3 Environmental - Non-Government Organisations (NGOs)

3.1 Klipriviersberg Sustainability Association (KlipSA)

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
Mr Andrew Barker, Chairman, KlipSA	Email Correspondence	Thursday, 24 October 2024	Hi Vanessa. I trust that you are keeping well. Thank you for this notification. I would like to request an opportunity to meet with you and your team to share with you what KlipSA/KlipWaS are working on within the Klip River catchment area and particularly to understand the extensive research and testing initiatives that KlipSA/KlipWaS are undertaking with UJ PEETS in the Crown valley area and with the communities of Bosmont and	Good day, Thank you for your response. We will be presenting at the Klip River forum on 5 November 2024. There is also an online meeting on 06 November 2024 at 10H00 if you would like to attend it. Otherwise, we are available to meet at our offices on alternative dates.	Appendix C

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			Riverlea. Please let us have some possible dates that we can meet at your offices. May I also suggest that make arrangements to present to the Klip River Catchment Forum, the next meeting is on 5 November 2024.		
Mr Andrew Barker, Chairman, KlipSA	In-Person Meeting	Friday, 15 November 2024	Mr Baker delivered a presentation outlining the work they are currently doing in the Klip River area. Mr Baker provided a detailed profile of the Klip River, including key data and insights.	The project team noted.	Appendix C
Mr Andrew Barker, Chairman, KlipSA	In-Person Meeting	Friday, 15 November 2024	Mr Baker stated that KlipSA fully supports the Valley Silts expansion project, emphasizing that addressing the pollution caused by silts is a core element in improving the water quality of the area. He further noted that this aligns with their initiative of restoring the Klip River stream.	The project team noted.	-
Mr Andrew Barker, Chairman, KlipSA	In-Person Meeting	Friday, 15 November 2024	Mr Baker raised concerns about the silts being washed over during storms and recommended that Ergo focus on managing this issue to prevent further environmental impact.	Ergo and Kongiwe project team noted.	Section 3.6 Appendix D5

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3.2 Federation of Sustainable Environment (FSE)

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
Ms Mariette Liefferink, CEO, FSE	Microsoft Teams Online Meeting	Thursday, 12 November 2024	Ms Liefferink inquired about the location and ownership of a dam situated outside a fenced area adjacent to a Tailings Storage Facility (TSF). She explained that the TSF is enclosed by a concrete palisade fence, while the dam itself is unfenced and adjacent to a road. She further inquired whether the dam belongs to DRDGOLD or Ergo, if it is part of their mining right, or if it falls under the responsibility of a road management agency.	Mr Tshamano confirmed that the dam falls outside of its mining right, but it remains its responsibility.	-
Ms Mariette Liefferink, CEO, FSE	Microsoft Teams Online Meeting	Thursday, 12 November 2024	Ms Liefferink inquired why the dam is Ergo's responsibility if it falls outside its mining right.	Mr Tshamano explained that the dam collects stormwater and runoff from the adjacent tailings dam inside the fenced area. Due to the area's topography and historical spillages, the water naturally collects in the dam as the lowest point. He also noted that the dam is not fenced off.	-
Ms Mariette Liefferink, CEO, FSE	Microsoft Teams Online Meeting	Thursday, 12 November 2024	Ms Liefferink inquired whose responsibility it is to fence off the dam, stating that her question was not meant to criticize the applicant. She explained that during a site visit with Mintek and the Department of Mineral Resources (DMR), she had asked Mr Mudau and Mr Mpho (Lethlakanyane) from the Mine Health and Safety Directorate, and their response was that	Mr Tshamano clarified that the dam is indeed their responsibility, despite falling outside the Ergo mining right. He explained that the water contained within the dam is considered mine-affected water, and they are working to fill the dam and drain the water to prevent the current damming issues, with plans to continue draining it in the future.	-

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			the dam does not belong to DRDGOLD and does not fall within DRDGOLD's mining rights.		
Ms Mariette Liefferink, CEO, FSE	Microsoft Teams Online Meeting	Thursday, 12 November 2024	Ms Liefferink asked if Ergo intended to fence off the dam area.	Mr Tshamano stated that they do not intend to create another dam and that their goal is to fill the dam up.	-
Ms Mariette Liefferink, CEO, FSE	Microsoft Teams Online Meeting	Thursday, 12 November 2024	Ms Liefferink referred to the Valley Silts scoping report, which mentions that "Ingress/egress is fully controlled by security for all vehicles," and asked if this should rather be referred to as access control.	Ms Wilreker confirmed that it should indeed be referred to as access control.	Section 3
Ms Mariette Liefferink, CEO, FSE	Microsoft Teams Online Meeting	Thursday, 12 November 2024	Ms Liefferink stated that the expansion in sectors two and three is 120 metres from Riverlea suburb, which is outside the 100-m regulated buffer zone required by the Mine Health and Safety Act, making it acceptable. However, she noted that the DMR has suggested a 2,000-m buffer zone between residential areas and mining activities, which would not be feasible for the applicant to implement, given the intended location for mining the silt.	Mr Tshamano stated that if the regulations are enforced, they will comply with them. He acknowledged that the current regulations still allow for the expansion, but if the 2,000-m buffer zone is gazetted and becomes enforceable, they will have to comply with that as well.	Section 5
Ms Mariette Liefferink, CEO, FSE	Microsoft Teams Online Meeting	Thursday, 12 November 2024	Ms Liefferink suggested that the trucks used for transporting residue should be covered to prevent dust fallout, as although the residue contains 30-40% moisture and is less prone to dust, dust fallout has often been observed with uncovered trucks. She also referred to the scoping report, noting that coarse materials like rock and stones are stockpiled and	Mr Thornton explained that there is both a compliance aspect and a good practice aspect to consider. He stated that while compliance with regulatory requirements is a minimum standard, the design must account for appropriate flood events. He mentioned that designing for extreme events like a 1 in 10,000-year flood would result in an over-	Section 3.6 Section 8.7 Appendix D4 Appendix D5

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			either sold or donated to external parties. She cited the 2008 Regional Mine Closure Strategies of the Council of Geoscience and DMR, which recommends ensuring that no liabilities, such as to municipalities, are transferred when such materials are donated. Lastly, she questioned whether a one-in-50-year storm event would be sufficient for containment in light of climate change and more frequent extreme weather events.	engineered project. From his perspective, designing for a 1 in 50-year storm event is suitable for the scale and duration of the project.	
Ms Mariette Liefferink, CEO, FSE	Microsoft Teams Online Meeting	Thursday, 12 November 2024	Ms Liefferink pointed out that the scoping report mentions "dirty stormwater" being contained in paddocks on the drying side, and emphasized that if the paddocks reach capacity, the excess dirty stormwater will need to be released into the Russell Stream. She questioned the appropriateness of releasing dirty stormwater into the Russell Stream and suggested that, instead, the excess stormwater could be directed to a return water dam or another dam, but definitely not into the Russell Stream.	Mr Tshamano explained that releasing dirty stormwater into the Russell Stream would be a last resort and considered an incident, as the project does not authorize the release of water into the stream from the paddocks. He clarified that the project is not designed with return water dams or similar water containment facilities. The intention is to separate clean and dirty water before it reaches the affected areas, minimizing the interaction between the two. He acknowledged that, in the worst-case scenario, the paddocks' lowest point borders the stream banks, and excess water may ultimately flow into the stream, but this would be incidental and not planned.	Section 3.6 Appendix D5

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
Ms Mariette Liefferink, CEO, FSE	Microsoft Teams Online Meeting	Thursday, 12 November 2024	Ms Liefferink pointed out that, according to NEMA regulations, pollution must be prevented, and it would not be considered best practice to include a provision in the scoping report allowing for the release of dirty stormwater into the Russell Stream, even in an extreme event. Ms Liefferink emphasized that polluted water cannot be released into the receiving environment, referencing Section 19 of the National Water Act and Section 28 of NEMA. She suggested that a water treatment plant may be necessary and requested that the issue be addressed in the comments and response report.	Mr Tshamano explained that when submitting applications like this, they include a GN704 motivation, stating their reasons for the request. He noted that Ergo applies for exemption from GN704, particularly for situations like this, as it is a short-term effect. He emphasized that the team does not intend to hide information or present the situation in a misleading way.	-
Ms Mariette Liefferink, CEO, FSE	Microsoft Teams Online Meeting	Thursday, 12 November 2024	Ms Liefferink suggested that while public safety assessments are done in relation to the requirements of the National Nuclear Regulator (NNR), which addresses radiological risks, other health risks associated with arsenic, cobalt, copper, manganese, and aluminium should also be assessed. She then noted that the rehabilitation plan for the Valley Silts involves shaping the areas to be free-draining and planting appropriate species to stabilize the soil but emphasized that stabilization alone does not equate to rehabilitation. She stressed that future land use	Mr Tshamano explained that the land where the project is taking place is privately owned, primarily by iProp, with Transnet owning the railway and the City of Johannesburg being a neighbouring property owner not directly affected by the mining or reclamation activities. He clarified that consultation regarding land use would need to occur with iProp, with whom they already have a relationship, as iProp is involved in industrial development, and the area may eventually be developed for such purposes.	Section 3.10

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			should be predetermined and agreed upon with all affected parties, particularly the Riverlea community. She also questioned the acquisition of topsoil for erosion repairs, given its cost and difficulty in obtaining, and requested clarification on where it would be sourced. Finally, she asked whether the ongoing reclamation of the valley silts, mentioned in the scoping report as started in May 2023, occurred after the appeal by the Riverlea Mining Forum had been declared abortive.	Regarding the appeal, he explained that after it was lodged, engagement took place with the Department of Water and Sanitation (DWS), and the department gave Ergo approval to proceed with the project pending the outcome of the appeal. The appeal collapsed in July when the appellant withdrew it, allowing Ergo to proceed based on the department's decision.	
Ms Mariette Liefferink, CEO, FSE	Microsoft Teams Online Meeting	Thursday, 12 November 2024	Ms Liefferink pointed out that the scoping report mentions rehabilitating the Valley Silts to an "appropriate and functioning ecological state" and asked what specific ecological state that would be. She inquired whether the intention is to rehabilitate it to an A or B system state, or a C or D system, emphasizing that an E or F state would be unacceptable.	Mr Tshamano explained that the water passing through the stream, excluding the Valley Silts area, is already heavily affected. He noted that the ultimate objective for rehabilitation would require collaboration with the municipality and other landowners affected by the stream. The focus will primarily be on removing the silt and addressing the mining impacts, but the quality of water cannot be fully addressed since it is not solely impacted by the mining activities. He emphasized the need for broader stakeholder engagement, including the City of Johannesburg, as it controls the sewer systems that also impact the area.	Section 3.7 Appendix D11

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Ms Mariette Liefferink, CEO, FSE	Microsoft Teams Online Meeting	Thursday, 12 November 2024	Ms Liefferink acknowledged the presence of wetlands, water bodies, endangered grasslands, and air pollution hotspots within the project area, as well as the health risks posed by dust to the Riverlea community. She then inquired about the risks posed by illegal mining in the area, highlighting that despite recent backfilling of open shafts by the DMR and Mintek, illegal miners have reopened these shafts and continue operating. She asked what the risks of this illegal mining are to the applicant's project.	Mr Tshamano acknowledged that illegal mining is a widespread issue faced by many mining companies, not unique to their operation. While DRDGOLD does not promote illegal mining, it has a responsibility to prevent it within mining rights areas under its control, with 24-hour security patrolling to deter it. However, illegal mining often occurs outside their boundary, beyond their control, as it does not have the legal authority to arrest individuals outside the project area. He emphasized the importance of collaboration with law enforcement agencies and stated that DRDGOLD does not have underground mining rights, so it cannot intervene in illegal underground mining. He further highlighted that the DMR and other relevant agencies have a responsibility to secure sealed shafts and ensure they meet the required standards.	-
Ms Mariette Liefferink, CEO, FSE	Microsoft Teams Online Meeting	Thursday, 12 November 2024	Ms Liefferink mentioned that the open pits in the area are part of ongoing litigation involving iProp against the Minister of Mineral Resources and Energy, with the minister allegedly in contempt of court. She suggested that this legal process might assist the applicant's project (Ergo) by potentially addressing illegal mining. She also noted that a	The project team noted this.	-

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			mining company has applied for a rehabilitation project to backfill some of these open pits.		

3.3 Johannesburg Heritage Foundation

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
Mr Wynand Dreyer PrEng, Heritage Plans Committee – West, Johannesburg Heritage Foundation	Email Correspondence	Monday, 28 October 2024	Dear Vanessa, Thuli and Anela, Thank you again for conscientiously keeping the JHF in the loop. Unlike earlier BIDs, the current doc is silent on Heritage Resources adjacent to or present in the affected area and makes no provision for a Specialist Heritage Study. Please would you advise if historical mine infrastructure has been removed or what the status of such resources is? Our big concern in previous applications, was the rehabilitation and restoration of the natural amenity to adjacent communities, notably that of Riverlee, whose separation remains a painful relic of the	Good day, A heritage impact assessment is being undertaken for the project. No historical mine infrastructure is present on site. The project involves the removal of silts that accumulated in the Russel stream bed as a result of historical upstream mine dumps. Please do not hesitate to contact us if you have any further queries.	Section 8.10 Appendix D7

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			colonial/ apartheid era. We will study the BID in these respects and revert with comments.		

4 Forums

4.1 Riverlea Mining Forum

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
Ms Jennifer Mohamed-Katerere, RMF	Email Correspondence	Friday, 27 November 2024	Dear Vanessa, It is our pleasure to submit our comments on the Draft Scoping Report. Our focus is to contribute to the scoping and assessment process by identifying key issues and gaps, and additional measures or processes that should be incorporated into the assessment process and the application for Environmental Authorisation and Integrated Water Use License, to ensure key objectives of the EIA process are met and the rights and interests of residents of Riverlea and other affected communities and workers are protected.	Dear Jennifer, Thank you for your email, we acknowledge receipt of your comments. Please note that these comments will be incorporated into the Comments and Response Report. A formal response will be compiled and emailed to you. Please do not hesitate to contact us if you have any further queries	Appendix C

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			kind regards Jennifer Mohamed-Katerere, Mark Kayter, Arlen Humphries, Ulinda Lotz and David van Wyk		
				Kongiwe shared the response to the comments with RMF on Wednesday, 04 December 2024.	
			The attachment detailed the following: These comments are based on a review of three documents made available as part of the review of initial scoping of DRD ERGO's proposed expanded Valley Silts, provided by Kongiwe. The documents are Background Information Document, Non-technical Summary and the Draft Scoping Report (DSR). Our focus is to contribute to the scoping and assessment process by identifying key issues and gaps, and additional measures or processes that should be incorporated into the assessment process and the application for Environmental Authorisation and Integrated Water Use License, to ensure key objectives of the EIA process are met and the rights and interests of residents of Riverlea and other affected communities and workers are protected.	Dear Ms Mohamed-Katerere, Mr Kayter, Mr Humphries, Ms Lotz and Mr van Wyk **RIVERLEA MINING FORUM's (RMF) COMMENTS ON THE DRAFT SCOPING REPORT FOR ERGO MINING's ENVIRONMENTAL AUTHORISATION APPLICATION FOR VALLEY SILTS EXPANSION PROJECT. DMRE Reference number: GP 184** We refer to your email of 27 November 2024, to our Stakeholder Engagement Team. We respond to each of the comments raised in the email under reply as set out in the table overleaf. For ease of reference, we have extracted the comments and incorporated our input in the next column for your consideration.	Section 3 Section 6 Section 8 Appendix C

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			A. Urgent need to assess and document existing impacts on people and the environment DRD ERGO has been mining the Russel Stream since 2023 (exact date not provided). Expansion of the existing project is motivated by the desire for further gold extraction: "The removal of silts within the already authorised Valley Silts Project area has been ongoing since and as such, the requirement to prepare for the Valley Eastern Expansion, Southern Expansion, and Valley Expansion Northwest is now necessary for continuous reclamation operation, as well as a sustainable feed source to the process plant." (Kongiwe, DSR, p iv). The Kongiwe team notes that: "The reclamation of the gold-bearing Valley Silts is already underway, thus any negative effects from the proposed extension project would not be new. There are existing air quality, surface water and		

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			groundwater impacts occurring." (Kongiwe, DSR, p 50). It makes sense to assess these impacts as part of the EIA and incorporate the data into risk analysis, scenario development and other supporting research. Reporting on and sharing these findings and sharing of earnings is a important also to finding solutions for this controversial mining project in the municipality of Johannesburg, in close proximity to communities and industrial areas. It is recommended that the community of Riverlea be engaged in the assessment of impacts. **B. Adequacy of proposed assessment process to address required objectives** The scoping and assessment process can be improved to achieve the objectives of the EIA process as set out by law. Our proposals are made in the comment column of the Table Below.		
			It is our pleasure to submit our comments on the Draft Scoping Report.	Thank you for your email, we acknowledge receipt of your comments.	Appendix C

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			Our focus is to contribute to the scoping and assessment process by identifying key issues and gaps, and additional measures or processes that should be incorporated into the assessment process and the application for Environmental Authorisation and Integrated Water Use License, to ensure key objectives of the EIA process are met and the rights and interests of residents of Riverlea and other affected communities and workers are protected	We appreciate Riverlea Mining Forum's comments an input into the project. Please note that these comments will be considered and incorporated into the Comments and Response Report.	
			A. Urgent Need to assess and document existing impacts on people and the environment DRD ERGO has been mining the Russel Stream since 2023 (exact date not provided). Expansion of the existing project is motivated by the desire for further gold extraction: "The removal of silts within the already authorised Valley Silts Project area has been ongoing since 2023 and as such, the requirement to prepare for the Valley Eastern Expansion, Southern Expansion, and Valley Expansion Northwest is now necessary for continuous reclamation operation, as well as a	The existing monitoring data is being included and assessed in the specialist studies that are currently underway. The monitoring data will be presented in the Environmental Impact Assessment Report (EIA). As indicated in Section 7.6.5 of the Draft Scoping Report (DSR) (p 77) "*Consultation with stakeholders during the Environmental Impact Assessment phase entails providing stakeholders with comments on specialist study findings, recommendations and mitigation measures proposed. These studies and recommendations will be included as part of the Environmental Impact Assessment Report and the*	Section 6 Section 8

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			sustainable feed source to the process plant." (Kongiwe, DSR, p iv) The Kongiwe team notes that: "The reclamation of the gold-bearing silts is already underway, thus any negative effects from the proposed extension project would not be new. There are existing air quality, surface water and groundwater impacts occurring." (Kongiwe, DSR, p50). It makes sense to assess these impacts as part of the EIA and incorporate the data into risk analysis, scenario development and other supporting research.	*Environmental Management Programme Report (EIA/EMPr). Stakeholder meetings will also be held to present the findings of the specialist studies and to get comments from stakeholders. The format of stakeholder meetings will be similar to the Scoping phase, these will be determined on a case-by-case depending on stakeholders' preference*." The Riverlea community has been involved in stakeholder meetings, including the Open Day held at Riverlea on 16 November 2024. Consultation with the community will be ongoing throughout the EIA Phase. Section 7 and Section 10.303 of the DSR and the Final	
			Reporting on and sharing these findings and sharing of earnings is a important also to finding solutions for this controversial mining project in the municipality of Johannesburg, in close proximity to communities and industrial areas. It is recommended that the community of Riverlea be engaged in the assessment of impacts.	Scoping Report (FSR), as well as Appendix C detail the proposed consultation for the EIA phase.	Appendix C

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			B. Adequacy of proposed assessment process to address required objectives The scoping and assessment process can be improved to achieve the objectives of the EIA process as set out by law. Our proposals are made in the comment column of the Table below.		
			(a) Identifying the relevant policies and legislation relevant to the activity; In addition to the laws mention, greater attention should be given to: 1. The overall framing provided by the Constitution of South Africa and particularly the rights of citizens to safe and healthy environment and fair and just administrative processes. 2. How this mining development in the Municipality of Johannesburg should – in law and from a best practice perspective – interface with the Stormwater Management By-laws of the City of Johannesburg and other municipal laws and realities 3. Common law responsibilities for incorrect determination of floodlines.	Chapter 3 of the Scoping Report spells out the constitutional rights to a safe environment and Table 3-1 sets how these rights are addressed. Ergo is not a developer as contemplated in the Stormwater Management By-laws of the City of Johannesburg. Nonetheless, there is an existing Stormwater Management Plan for the existing Valley Silts Project and a further Management Plan will be developed for the Valley Silts Expansion. See Page 29 of the Scoping Report. The Russell Stream is heavily silted and causing stormwater issues further downstream. The result of the proposed project will result in the removal of silts and the reinstatement of the natural channel or flow path.	Section 5 Section 9.4 Section 8.8.4 Appendix 5

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				During the silt removal operations, Ergo will aim to ensure that the activities do not contribute to downstream erosion, sedimentation, degradation of water quality or flooding. It is uncertain what "incorrect determination of floodlines" is being referred to.	
			(b) Motivate the need and desirability of the proposed activity, including the need and **desirability of the activity in the context of the preferred location;**	As detailed in Section 1.3 of the DSR (p6) "*When mining was at its peak in the mid-late 1900's it was known practice to design tailings dumps within the immediate floodline, even within watercourses. At the same time dams were built on the Klipspruit,*	Section 4.1 Section 6.1
			The desirability of the location should not only be addressed from the perspective of the mining company but should also consider the perspective of the impacted communities. Kongiwe is per the law required to be independent. The report boldly asserts at page v that it will not consider alternative locations, even though it is required, as noted in section 6.1. The project is proximate to Riverlea; hence the community is concerned about how the mining will impact on their environmental rights as set out in the Constitution. This needs proper consideration (and integrated discussion in the report) to inform	As detailed in Section 1.3 of the DSR (p6) "*When mining was at its peak in the mid-late 1900's it was known practice to design tailings dumps within the immediate floodline, even within watercourses. At the same time dams were built on the Klipspruit, approximately 5.5 km east of New Canada and Fleurhof Dams, these were called the Russell Stream dam (also known as the No. 12 Shaft dam) and the Golf Meer Lake (Figure 1 2). Both the Russell Stream Dam and the Golf Meer Lake were utilised as wastewater dams / mine dams to service the several mines in the area. Mining operations were not adequately regulated and once mining had ceased*	Section 4.1 Section 6.1 Section 9.2

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			decision making for the EA and other licences. Three key considerations are Dust Pollution, Water Management and Disaster Risk Management. Profits need to be balanced against the rights of communities. The alternative is not to mine the stream in this locality, but to identify other locations of silt mining where environmental health impacts are minimal and DRD ERGO can earn desired profit.	*around the project area, these tailing were left unmanaged.* *Over time tailings materials have accumulated in the Russell Stream Dam and the Golf Meer Lake due to erosion from the Rand Leases, Crown Mines, Bantjies and other old tailings dumps in the area. This has formed a thick layer of sediment, averaging 2m thick, but up to 12m in some areas. As a result of the silts build-up in the valley, the Russell Stream has a reduced stream velocity and has become displaced northward toward the areas of Riverlea and Crown Industrial.*" Because of the history of the Russell Stream, there is no alternative location for the removal of gold-bearing silts. Therefore no alternative location for this project is proposed. Based on your comment, more detail and motivation have been presented in Section 6.1.1 of the Final Scoping Report (FSR). Specialist studies are being undertaken. These, with the feedback received to date during the public participation process, will assess the impacts of the project. The findings will be presented in the Environmental Impact Assessment / Environmental Management Programme Report (EIA/EMPr). Dust	

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				Pollution, Water Management and Disaster Risk Management will be detailed in the EIA/EMPr. The No-Go option is presented in Section 6.1.6 (p65) of the DSR.	
			(c) Identify and confirm the preferred activity **and technology alternative through an impact and risk assessment and ranking process**; 1. The draft scoping report does not consider any technological alternatives or how environmental rehabilitation process led by environmentalists may be different from the silt mining process. 2. In Table 6-1, Kongiwe identifies advantages and disadvantages, no data or evidence is provided to back up these claims.	1. Technology alternatives refer to the way the activity will be undertaken. For the option of reclaiming the silts, due to the nature of the silts and their location, the only alternative is to undertake mechanical reclamation. 2. Statements that there are economic benefits from the reclamation of gold, that there will be a removal of pollution source after rehabilitation and cessation of project, an improvement of the natural stream functioning.	Section 4.4
			(d) Identify and confirm the preferred site through a detailed site selection process which includes an impact and risk assessment process **inclusive of cumulative impacts** and a ranking process of all the identified alternatives focusing on	1. Cumulative impacts will be assessed in the specialist studies and presented in the EIA/EMPr. The Plan of Study (section 10.1, p98) has been updated in the Final Scoping Report (FSR) to include the assessment of the impacts on health in	Section 9.2 Appendix D2 Appendix D3

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			the geographical, physical, biological, social, economic and cultural aspects of the environment; 1. What is the existing baseline and how will cumulative impact particularly on health be assessed in Riverlea for the project duration. There is no mention of any intention to address these impacts in Riverlea in the EIA process. The report only refers to impact in City Deep. 2. As there is a risk of increased impact over and above existing pollution, what will Kongiwe propose to address these adverse impacts. Due consideration should be given to issues of redress (including compensation) for impacted individuals / communities. 3. Which communities proximate to City Deep will be monitored for cumulative impact? **Activities already underway** As noted by Kongiwe the stream bed mining is already underway with impacts on biodiversity and the biophysical environment. The noted studies should also assess the impact of the existing stream	Riverlea, as raised by numerous stakeholders during the public consultation process. 2. The cumulative impacts will be assessed by the specialists. The mitigation measures will be detailed in the EMPr. 3. The City Deep plant does not form part of the assessment of this project. Dust monitoring is being undertaken at City Deep Plant. The mining of the current Sector of Valley Silts is expected to be completed by the time a Record of Decision is anticipated from the authorities. However, the impacts of the current mining will be assessed in the specialist reports to determine the cumulative impacts.	

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			bed mining along with additional impact to have full appreciation of cumulative impacts.		
			e) Identify the key issues to be addressed in the assessment phase; In addition to the identified areas: 1. An assessment of existing impacts on the people and the environment of the existing Valley Silts stream bed mining. 2. Disaster Risk Management should be specifically considered. 3. 3. All the key issues identified need to be addressed both from an environmental and human well-being perspective	1. The existing impacts will be presented in the EIA. 2. A Disaster Risk Management Plan will be developed as requested. 3. Kongiwe confirms that key issues will be addressed both from an environmental and human well-being perspective.	Section 8 Section 9
			f) Agree on the level of assessment to be undertaken, including the methodology to be applied, the expertise required as well as the extent of further consultation to be undertaken to determine the impacts and risks the activity will impose on the preferred site through the life of the activity, including the nature, significance, consequence, extent, duration and probability of the impacts to	The DSR details the consultation to be undertaken during the Scoping Phase (Section 7) as well as the planned consultation during the EIA phase (Section10.3.3, p106). 1. Extensive engagement has been undertaken with stakeholders. At the stage of making the DSR available, stakeholder consultation has just commenced. The FSR is updated to reflect the consultation undertaken. Please refer	Section 8 Section 9 Appendix C

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			inform the location of the development footprint within the preferred site; and The DSR doesn't elaborate on further consultation. It simply lists the possible ways for engagement and asserts compliance, and no consideration is given to best practice. Improvements to proposed Public Participation 1. Public participation processes should be designed to effectively engage the community. However, the Draft Scoping Report does not provide for direct community engagement beyond meeting / open day held to review the draft scoping report (16 November 2024). As required by law, Kongiwe notes its intention to comply and make various reports available for public review. 2. It is proposed that further opportunity for participation should be incorporated into assessment process to create sufficient opportunity for consultation. As suggested in the Centre for Environmental Rights – Mining and your Community: Know your	to Appendix C of the FSR for the full details of the consultation undertaken. 2. (a) Requests have been made to stakeholders for the preferred means of communication. (b) Should the RMF have any experts they would like included in the consultation we encourage them to send us a list with contact details to enable Kongiwe to invite these experts to register as interested an affected parties (I&APs) to be involved in the consultation process. (c) The request for topics to be discussed is noted. These will be discussed in further consultation during the EIA phase. Kongiwe has attempted to have face-to face consultation with the RMF since the start of this process. Meetings have been set up by Kongiwe and cancelled by the RMF. Kongiwe has attempted to have follow up meetings with the RMF, but these meeting requests have been declined. Records showing the attempts and cancellations are included as an appendix to this response.	

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			Environmental Rights (also cited by Kongiwe as a key Policy document), this includes: (a) Agreeing to appropriate times for face-to-face consultation, such as after working hours and on weekends (b) Ensuring that various issues (that directly impact the community) are adequately discussed. It is proposed that in addition to the Kongiwe expert, engaged by DRD, independent experts identified in consultation with community organisations should be invited to meetings and the relevant information, data etc should be shared ahead of the meeting. (c) It is proposed that meetings are held to discuss: i) Existing impacts the stream bed mining currently undertaken by DRD ERGO in its first phase of the Valley Silts project ii) Socio-economic benefits to the community: jobs, profit-sharing etc iii) Dust pollution: monitoring processes, mitigation,		

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			compensation/support for adverse health impact iv) Water impacts, including storm water management and flood management adequacy v) Disaster risk management (and continuous rehabilitation). This should bring the community, CoJ and others stakeholders together vi) Timely sharing of the records of the various steps/meetings in the consultation process. It is recommended that Kongiwe urgently meet with the affected community and Riverlea Mining Forum to agree on a meaningful participation process.		
			(g) Identify suitable measures to avoid, manage, or mitigate identified impacts and to determine the extent of the residual risks that need to be managed and monitored. The proposed management or mitigation insufficiently addresses community concerns,	The DSR proposed high-level mitigation measures. The EMPr will detail the full mitigation measures that are proposed for the project once the specialist studies have been conducted and the specialist recommendations have been considered. 1. Dust pollution mitigation measures will be presented in the EIA phase once the specialist studies have been undertaken.	Section 8 Section 9 Appendix D4 Appendix D5

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			specifically the following should be addressed, and adequate consultation should be undertaken **1. Mitigation for dust pollution** The scoping should investigate appropriate mitigation measures that can be implemented prior to undertaking the stream bed mining to reduce the adverse health impact of dust from the drying process. For example, the feasibility of planting fast growing plants, such as bamboo, as a buffer should be considered. **2. Disaster Risk Management: Contamination of water resources and flooding** The proposed mining takes place within the Municipality of Johannesburg and hence there must be effective minimisation of the risk of flooding in non-mining land and in residential areas. It is proposed that Kongiwe recommend a disaster risk management plan as one of the measures DRD should implement. It is important that DRD engage with the municipality and community. The report page 9, notes the risk of excessive rainfall and elsewhere that the area has been prone to flooding problems. There is also a risk	2. The flooding referred to is the flooding resulting from the build-up of the silts in the Russell Stream as a result of erosion of historic TSFs. Surface water contamination is as a result of sewage from failed municipal infrastructure. The current baseline and impact of the current activities will be presented in the EIA. Groundwater contamination is occurring due to the TSFs in the area. 3. The risks to communities will be assessed and presented in the EIA phase. 4. The request for community monitoring is noted. 5. Ergo are in consultation with the landowner, iProp, with regards to the desired end-land use. The rehabilitation plan will be developed in line with the desired end land use and will form part of the EIA.	Appendix D6 Appendix D8 Appendix D11

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			of surface and groundwater contamination. It is not clear how this will be factored into the proposals/recommendations or how extreme weather events associated with climate change will be considered. Kongiwe should reevaluate how it will assess flooding risk. It currently proposes to raise riverbanks only to the 50-year flood line. Further the DSR notes that dirty stormwater will be released into the Russel Stream. Given Kongiwe's stated commitment to best practice, it should consider of municipal development legislation, given the mining activity location. A recent expert report from the Water Research Council (A Best Practice Guideline for Design Flood Estimation in Municipalities in South Africa, 2023), notes that flood management needs to look beyond flood lines: "Design flood estimation is perhaps most frequently associated with the determination of flood lines, typically the 100-year flood line that is widely used for development control. There is however a much wider range of requirements in Municipal applications. The design of stormwater network		

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			requires the determination of smaller events such as 1-year, 2-year and 5-year events. Design of attenuation systems may include mid level events such as 10-year to 50-year events. Events larger than the 100-year event may also be required for disaster management and planning. For example, in the United Kingdom the determination of the 1000-year flood event is now a requirement for planning and disaster risk analysis." The report proposes that between 1:50 and 1:100 year flood lines or 32 m either side from the centre of the watercourse, whichever is the largest, and further there should be: -No structure that results in a loss of flood storage from the system. - No fill, dykes, levees or beams intended to restrict the area of the floodplain inundated. - No structure not designed by structural engineer to withstand the floodwater load.		

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			3. Risk assessment that includes impact on the community of Riverlea and other affected communities It is important to weigh up the potential risks and benefits for the community, using participatory methods. The risks associated with the project are significant and yet there are limited benefits. The lack of community benefits must be addressed in the socioeconomic assessment and proposals should be made to identify/propose opportunities. To support this there should be disclosure of likely profit and a proposal on profit sharing. Past and existing SLP have provided scant community investment. The value and independence of the report could also be enhanced by including discussion of responsibility for harm caused and what reparations the mining company will take. **4. Enhance opportunities for community monitoring and oversight** Communities are on the frontline of impact and have demonstrated active interest and concern about their wellbeing, including through legal action and demonstrations. It is recommended		

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			that opportunities for engaging the community (with relevant experts) in monitoring and oversight of the Valley Silts expansion activities would enhance compliance with the environmental authorisation and other licences. This would contribute to improved transparency and trust. **5. Consider viability of continuous rehabilitation** This should be based on a review of the literature on best practice for rehabilitation in mining. Currently the DSR states "rehabilitation will take place as and when exaction progresses to other target areas."		
			C. Desirability of the Project This Table in the DSR is heavily weighted in favour of the mining company, the risks to health from pollution and radiation are not considered. Similarly, the lack of opportunity for the neighbouring community is glossed over. Communities are effectively being asked to take on substantial risk without safeguards (community monitoring, continuous rehabilitation, disaster risk management) and without opportunity or benefits.	The project desirability in the DSR is a preliminary finding. As indicated in Section 4, "*the Need and Desirability Guideline (GN891 of 2014) questions will be used to identify key issues and alternatives and will help to determine which areas require further investigation in the EIA phase*". Following the undertaking of the specialist studies, Table 4-1 will be updated in the EIA.	Section 6

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			It is recommended that a more balanced overview of the project desirability is given. Kongiwe is obligated in terms of the law to demonstrate independence.		
Mr Mark Kayte, Chairman, RMF	Email Correspondence	Friday, 27 November 2024	Good Evening Vannessa The Riverlea Mining Forum acknowledge your email. Regards Mark Kayter	Thank you, Mark, As per our telephonic discussion yesterday, you indicated that you are the correct person to speak to as the Riverlea Mining Forum Chairman. We will liaise with you as we did in the Scoping Phase to set up Face-to Face meetings with the RMF. Please do not hesitate to contact us if you have any further queries.	Appendix C
Jennifer Mohamed-Katerere	Email Correspondence	Friday, 28 November 2024	Kindly note, that as the main author of these comments and a registered interested and affected part, I expect to be directly contacted on these comments, with the other authors in CC Jennifer Mohamed-Katerere	Kongiwe noted.	-
Mr David Van Wyk, Bench-Marks Foundation	Email Correspondence	Thursday, 28 November 2024	Dear colleagues of RNF, please also note that Kongiwe and Ergo should take direct responsibility for any negative health, safety and environmental impacts and incidents that may occur during and after the life of the operation, and the community	Dear Mrs Mohamed-Katerere, With regard to the email from Mr David van Wyk dated 28 November 2024, we are uncertain as to whether this constitutes a formal response from the	Appendix C

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			assumes the right to launch a class action against the parties individually and collectively should this project commence. Regards David van Wyk	Riverlea Mining Forum, since it was addressed to you direct. Nonetheless, we confirm that Ergo takes responsibility for full compliance with the relevant environmental and mining laws and regulations, as well as the provisions of the Environmental Management Programme Report, in the event that Environmental Authorisation is granted by the authorities	

4.2 Klip River Forum

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Mr Henk Coetzee, Specialist Scientist, Council of Geoscience	Zoom Online Meeting	Tuesday, 05 November 2024	Mr Coetzee raised a concern regarding the ingress of water to the undermined area after the removal of tailings from streambeds. He said they acknowledge that the removal of tailings reduces polluted seepage and runoff but would like to minimise seepage which could contribute to an increased volume of ingress to the underground mine voids.	Mr Ovens acknowledged the comment but stated that he would defer his response to gather the correct information before providing an accurate answer	Appendix C
Mr Lesiba Mabona, Klip River Catchment Forum, DWS	Zoom Online Meeting	Tuesday, 05 November 2024	Mr Mabona asked when Mr Ovens would be able to respond to the raised comment.	Mr Ovens invited Mr. Coetzee to an online public participation meeting for the proposed project, scheduled for November 6, 2024. He stated that he would provide a response during that forum. He further explained that Ergo has conducted calculations regarding the salt load from the existing historical tailings storage facilities. However, he emphasized the need to fully understand the comment raised before providing a detailed response.	-
Mr Lesiba Mabona, Klip River Catchment Forum Chairperson, DWS	Zoom Online Meeting	Tuesday, 05 November 2024	Mr Mabona requested that the responses be shared with the Klip River Forum.	Mr Ovens confirmed that the responses would be shared.	-

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Mr Andrew Barker, Chairperson, Klip SA	Zoom Online Meeting	Tuesday, 05 November 2024	Mr Barker inquired about the meaning of a 'free-flowing stream.' He explained that investigations are currently underway regarding the upper portion of the Russell Stream, between the N1 and Crownwood Road, and the potential for a nature-based solution to address the high levels of pollution in the area. He further highlighted that the mix of sewage and stormwater flowing from the city centre results in water pollution that is unacceptable. From a city development and management perspective, he emphasized that improving water quality is not feasible due to limitations in both budget and technology. He also noted the challenges posed by the need to rebuild infrastructure in the inner city. Mr Barker concluded by explaining that, given these challenges, they are advocating for a nature-based solution as an initial step to help mitigate the water pollution flowing through the city. Mr Barker indicated that he would engage in further discussions with Kongiwe and the Ergo team to address the points raised.	Ms Wilreker noted the comment and expressed that Kongiwe and Ergo are looking forward to engaging with Mr Barker regarding the Valley Silts Expansion Project public participation forum.	Appendix C

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Ms Mariette Liefferink, CEO, FSE	Zoom Online Meeting	Tuesday, 05 November 2024	• Ms Liefferink raised the issue of silting in the Russell Stream, which is contributing to flooding in the low-lying areas of the Riverlea settlement during heavy rains. She emphasized the need to remove the silt to improve water flow and prevent future flooding in the area. • Ms Liefferink also inquired about the current status of the appeal related to the initial environmental authorization for Valley Silts, which was submitted by the Riverlea Mining Forum. In response to Mr Coetzee's earlier statement, Ms Liefferink referenced a document produced by Professor Frank Winde. The document discusses concerns raised by ABSA and Standard Bank regarding the potential impacts of acid mine drainage on the basements of their buildings. Professor Winde identified newly emerging ingress sources that could become problematic once reclamation activities commence at highly disturbed areas. He suggested that this could result in additional generation of acid mine drainage.	• Mr Ovens indicated that the appellant had withdrawn the appeal. • The comments raised were noted by Kongiwe and Ergo.	Appendix C

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5 Key Stakeholders and Interested and Affected Parties

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
JC Mohamed-Katerere	Email Correspondence	Saturday, 26 October 2024	Kindly send me the draft scoping report or a link.	Good day, Thank you for your email. The scoping report is available for download on the Kongiwe Website: https://kongiwe.com/projects/	-
Mr Teddy Snyders, NPO/Business Forum	Email Correspondence	Wednesday, 06 November 2024	Open Day 16 November 2024 Riverlea Greetings: Vanessa, Thuli and Anela Aggrievance: The time slot set out for 16 November 2024, is unfair and unconstitutional. My argument is fairly based on the information that the resident need to know, there are many kinds of people, the ones that is in the Business Forum, and there are those that has formed the Mining Forum, and last there will be the person that is un-informed and has no clue about his surroundings and lived in harsh poverty. Then there are those that are well informed and educated about the complete process. And such	Good day Mr Snyders The date of and time of Saturday 16 November from 09h00 to 12h00 was chosen to enable those stakeholders who work during the week to attend the open day. The open day is set up to enable all stakeholders, irrespective of their background, to attend and raise their comments and concerns. Public consultation is undertaken as stipulated in the National Environmental Management Act Public Participation Guideline (2012). As is detailed in the Background Information Document, there is an existing authorisation for the current Valley Silts Project. The authorised area is indicated on the map (hashed green area). Ergo wish to expand the reclamation areas (Blocks N1 to N22) and as such these areas need to be authorised. Stakeholders are therefore being	Appendix C

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			information needed to be given to the people to understand the reality of what will happen in their environment and lives, will they benefit or be left behind. As a self thought environment activist and very active, with that nothing goes un-notice for example, Kongiwe Proposal under the section Technical Details: you stated first paragraph: The removal of stilts within the already authorised Valley Project area has been ongoing since May 2023. The construction and site establishment began in October 2022 and as such, the requirement to prepare for the Valley Eastern Expansion, Southern, and Valley Expansion Northwest is now necessary to maintain an ongoing operation as well as a sustainable feed source to the process plant. The last paragraph read: Gold bearing silts will be mechanically excavated from the project area. 30 ton Articulated Dump Trucks [ADT] will be used to transport and stockpile the silts from Russel Stream. The silts will be left to dry on stockpile footprints. This is considered a "dirty" footprint. Silts will have 30% to 40% moisture content when hauled and are	informed of the proposed expansion and invited to register as interested and affected parties. Extensive consultation was undertaken for the current authorised valley silts project. Ergo Mining (Pty) Ltd has a procurement process in place that anyone wishing to conduct business with Ergo can participate in. Whichever contractor is appointed to undertake the reclamation works has to adhere to Ergo's requirements of employing from the local communities.	

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			not expected to be fully dried out. The dried silts will be loaded onto tipper trucks and transported to the City Deep Plant for pre-processing. Well, according to my research and investigation the above process is already undertaken, so the question is why bring old news to the citizens of Riverlea and affected surrounding areas [there is no we in without us] the decision was undertaken without the community, for Kongiwe, DRD Gold and other Stakeholders has clearly make the decision for us, and denied us the opportunity to develop our Emerging Small Businesses and others to grow. Who? and who have told you we cannot afford tipper trucks or signed joint ventures with some companies. It clearly shows how you treat people who are living in poverty and then come with the logo that you guys are here to lift the people out of poverty? Kind Regards		
Mr Teddy Snyders, NPO/Business Forum	Email Correspondence	Monday, 11 November 2024	The presentation of DRDGOLD CEO Neil Pretorius at the thirty-sixth annual Gold Forum Americas 2024 in Colorado Springs highlighted the company's world leading gold from- tailings advances that	Dear Teddy, Thank you for the information.	Appendix C

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			restore the environment, uplift communities and pay consistent dividends to shareholders. Earlier this month [September], DRDGOLD transferred an agriculture entrepreneurship project to the community of Riverlea, near its Ergo mining operation, as part of creating self-sustaining livelihood. Please also find attachment document		
Mr Andrew de Blocq, Member of Parliament, Democratic Alliance	Open Day	Saturday, 16 November 2024	Mr de Blocq inquired about the environmental studies conducted to assess the impacts of the proposed project on the community and the outcomes of these studies.	Mr Ceronio explained which environmental studies were being conducted for the proposed project and further clarified that the project is still in the scoping phase. He noted that the outcomes of these studies will be reported during the EIA (Environmental Impact Assessment) phase.	Section 9.3 Appendix D
Mr Andrew de Blocq, Member of Parliament, Democratic Alliance	Open Day	Saturday, 16 November 2024	Mr de Blocq inquired whether the stockpiles would cause any pollution or dust.	Mr Ceronio explained that the stockpiles are wet and are temporarily stored on-site. He clarified that they are removed before they have the chance to dry out and become loose, preventing them from being blown away as dust.	Section 8.7 Section 9.2.1.5 Appendix D4
Mr Andrew de Blocq, Member of Parliament,	Open Day	Saturday, 16 November 2024	Mr de Blocq inquired about the impacts of the existing operation.	Mr Ceronio explained that noise is one of the impacts of the existing operation, but it is addressed through the complaint book during the	Section 9.2

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
Democratic Alliance				operation. He added that noise levels are monitored and there are measures in place to manage these.	
Mr Andrew de Blocq, Member of Parliament, Democratic Alliance	Open Day	Saturday, 16 November 2024	Mr de Blocq inquired about the potential opportunities for the community.	Mr Ceronio explained that there might be employment opportunities for the community, but these would be limited, as there is already an operation currently taking place.	Section 9.2
Mr Andrew de Blocq, Member of Parliament, Democratic Alliance	Open Day	Saturday, 16 November 2024	Mr de Blocq inquired about the date of the next open day.	Mr Ceronio explained that the next open day is dependent on the timeframes of the EIA and the responses received.	Appendix C
Ms Blanche Elias, Community member	Open Day	Saturday, 16 November 2024	Ms Elias inquired whether the project would affect the Riverlea community.	Mr Ceronio explained that the Valley Silts expansion will not affect the community, as it will only involve the removal of silts along the stream.	Section 9.2 Section 10
Ms Blanche Elias, Community member	Open Day	Saturday, 16 November 2024	Ms Elias inquired about the landowner of the proposed project site.	Mr Ceronio stated that the landowner is iProp.	Section 1.6
Mr Vaughan Rey Reyneke, Community member	Open Day	Saturday, 16 November 2024	Mr Reyneke sought clarification on whether the purpose of this public participation is to request consent for the operation, considering that the operation is already ongoing.	Mr Ceronio explained that the public participation process for the operating side was already completed in 2018-2019.	-

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Mr Vaughan Rey Reyneke, Community member	Open Day	Saturday, 16 November 2024	Mr Reyneke asked for clarification on the location of the operation, questioning why consent is being requested when the operation is already ongoing. He also raised concerns about not being included or benefiting from the existing operation.	Mr Ceronio explained that the current project focused on the new section, which was not part of the 2018 operation.	-
During the Open Day, community members expressed a desire to have a single meeting involving all participants. They emphasized the importance of having one consolidated session to facilitate direct communication between the various stakeholders and ensure that everyone's voice is heard.					
Mr Ishmael Van Werk, Community member	Open Day	Saturday, 16 November 2024	Mr van Werk raised a concern about how the information was received, claiming that he did not receive the necessary details from the consultant in his capacity as the leader of the mining forum. He inquired about how the community should protect itself, as their voices were not heard during the previous Valley Silts project, and their issues were not addressed. He emphasized that the community is suffering from the consequences of mining without receiving any benefits.	Mr Thornton explained that the information was disseminated in accordance with Public Participation Process (PPP) requirements. He further added that they are currently conducting an environmental impact assessment to ensure that the environmental aspects of the proposed project are thoroughly examined, and that appropriate mitigation measures are put in place.	Appendix C
Community member	Open Day	Saturday, 16 November 2024	A community member inquired if the EIA is being submitted to the Department of Mineral Resources and Energy (DMRE), why the community stakeholders were not given the opportunity to submit their own EIA report, which they had compiled over the years. The member further stated that the mine's operations have a direct impact on them, their children, and that the health impact of	Mr Thornton requested the community to please share their reports, as this would help address their concerns. He emphasized that Kongiwe is committed to being part of the solution and wants to work together with the community to ensure their issues are properly addressed.	-

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			the operating mine can even be observed at their local clinic. They requested that Kongiwe ensure the community's concerns are properly addressed and reflected in the report.		
Community member	Open Day	Saturday, 16 November 2024	A community member inquired whether the proposed project is a new project or a continuation of an existing one. He further stated that the community is not interested in the infrastructure and other aspects being discussed. What they are more concerned about is understanding what benefits they will receive from the project, rather than facing health issues. He also asked about the measures in place to manage the stockpiles during the rainy season.	Mr Thornton responded that there are berms in place to prevent pollution from reaching the river and the community. These berms are designed as part of the measures to mitigate environmental impact and protect the surrounding area.	Section 3 Section 3.6
Community member	Open Day	Saturday, 16 November 2024	A community member shared the history of pollution from Johannesburg to New Canada, emphasizing his understanding that all mines generate acid mine drainage. He mentioned having conducted thorough research on the effects of acid mine drainage on both the community and local streams and is now seeking compensation for the harm caused. He also asked for clarification on how much Ergo will profit from the mining operation and, more importantly, how the community will be compensated for the environmental and health impacts. He further	Mr Thornton explained that there are NGOs currently in place, such as the Riverlea Mining Forum, that are already working with the mines to address community concerns and environmental issues.	-

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			complained about the lack of proper consultation with the community, stating that the community needs to be more actively involved in the decision-making process. He emphasized that, in addition to addressing environmental concerns, the community requires financial benefits and development opportunities to improve their living conditions and well-being.		
Community member	Open Day	Saturday, 16 November 2024	The community member expressed the view that the information provided was very general and not detailed enough. He emphasized the importance of involving the community in these assessments, as they should have a direct role in the process. He claimed that the impact assessments had already been conducted, but no tangible outcomes or discussions have come to them.	Mr Thornton clarified that this is the initial stage of engagement with the community, aimed at gathering their concerns and feedback. He explained that the process is still in its early phases and that further discussions and consultations will follow to address the community's issues.	-
Community member	Open Day	Saturday, 16 November 2024	A community member requested that at the next meeting, all the involved stakeholders (iProp, DMRE, DWS, and Ergo) be present to explain in detail how the community will benefit from the project. They emphasized the importance of having a clear understanding of the benefits and compensation for the community.	Mr Thornton expressed appreciation for the comments regarding the inclusion of all stakeholders in consultation meetings. He stated that he would be happy to have them in attendance; however, Kongiwe does not have the mandate to bring/force them to the stakeholder consultation meetings.	Appendix C

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
				Cllr Lobi added that Ergo should have been present at the meeting to address the community's queries. He stated that he would try to get the relevant department involved in the next engagement. He emphasized that the community's concerns should be taken seriously, as the issues raised today were the same as those brought up years ago, with no positive feedback or resolution. Cllr Mlobi further requested collaboration among all parties to effectively address the issues raised by the community.	
Community member	Open Day	Saturday, 16 November 2024	Community member inquired about the authorisation process moving forward. She asked how updates will be communicated after the submission of applications and reports, and who will be responsible for this communication. Additionally, she raised concerns regarding meeting organisation, pointing out that some community members were absent.	Mr Thornton clarified that this is the application for Environmental Authorisation and the Water Use License application for the proposed Valley Silts Expansion project. He highlighted that this as a scoping phase, which is crucial for defining the scope and boundaries of the assessment. This phase aims to identify and address the most significant environmental and social impacts while also gathering community concerns and comments that will be incorporated into the upcoming Environmental Impact Report. Specialist studies (air quality, surface water, health etc.) will also be conducted.	Section 2.2.4 Appendix C

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				There will be a second round of stakeholder consultation dealing with the impact identified during the EIA phase and by specialists as well as proposed mitigation measures. Additionally, the consultation process involves a diverse range of stakeholders, including national, provincial, and local government departments, ward councillor, NGOs, and various interested and affected parties. Ms Wilreker indicated that the information from the signed register will be used to send updates to the community. She also requested that those who have received the information help spread the word to ensure that everyone is informed.	
Community member	Open Day	Saturday, 16 November 2024	A community member asked how the post operations will look like moving forward.	Mr Thornton stated that iProp, as the landowner, needs to be consulted on this matter.	-
Community member	Open Day	Saturday, 16 November 2024	A community member asked how the river will look after the operations have concluded.	Mr Thornton responded by suggesting that the rehabilitation of the stream should aim to produce wetland systems that clean the Russell stream and the river system. He suggests promoting Russell Stream as a wetland area that can effectively clean the river system. He further stated that it is important to note that this is a suggestion aimed at improving the ecological health of the area.	Section 3.7 Appendix D11

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Community member	Open Day	Saturday, 16 November 2024	A community member asked, if iProp is the landowner, why the community is being consulted. They questioned whether iProp should be free to do as they please with its property, or if this consultation is merely a "tick-box" exercise.	Mr Thornton explained that while iProp is the landowner, they do not have the expertise to remove the silts. Ergo specializes in the removal of silts, and this process requires community consultation to ensure the concerns of the community are addressed. Mr Thornton confirmed that the consultation is not a ''tick-box'' exercise.	-
Community member	Open Day	Saturday, 16 November 2024	A community member suggested that the next meeting be held at Riverlea Extension.	Project team noted this, but the community objected to the suggestion.	-
Mr Josiah Tshisevhe, Community Liaison Officer, Ergo	Open Day	Saturday, 16 November 2024		Mr Tshisevhe explained that, as the community liaison officer, he will work closely with the Riverlea community on this proposed project. He further clarified the role of Kongiwe as the consultant and emphasized the importance of collaborating with the community to develop effective solutions	-
Mr Masala Tshamano, Environmental Manager, Ergo	Open Day	Saturday, 16 November 2024	Mr Tshamano clarified that Kongiwe is independent from Ergo and conducts the environmental impact assessment of the proposed project independently. He explained that Kongiwe submits a report outlining the impacts and mitigation measures, which Ergo can implement to manage the environmental aspects of the project. He further explained that Ergo's role is to observe the process without interfering, ensuring that it remains transparent. He also mentioned that	Cllr Lobi confirmed his involvement is the previous Valley Silts project	-

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			the previous process was transparent, with the councillor being involved in the recruitment process.		
Mr Jarrad Smith, RMF, Ward 68	Open Day	Saturday, 16 November 2024	Mr Smith expressed his disappointment regarding the presentation shared by Ms Wilreker with the community, noting that it was identical to the one presented in 2019. He pointed out that the community had not received any feedback from Kongiwe following the 2019 presentation. He questioned the tangible benefits the community would gain from the proposed project, expressing concerns that the mine is directly responsible for the poor condition of the river. Mr Smith emphasized that DRDGOLD should offer both employment opportunities and financial benefits to community members. He stated that the community is frustrated with both the mining companies and the "zama zamas" operating in the area. He made it clear that the community is demanding 40% from the mine and raised concerns about health issues, specifically eczema and asthma, which he attributed to the chemicals from the mining operations.	Ms Wilreker clarified that the presentation may appear similar to the 2019 version because the applicant is seeking approval to expand the Valley Silts project. Mr Thornton added that the proposed project would benefit the community by improving the environmental conditions. He emphasized that the pollution of the Klip River is primarily caused by sewage from the CBD. Kongiwe acknowledged and took note of all the comments raised by the attendees.	-

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			He further stated that the Riverlea Mining Forum (RFM) would provide guidance on how any funds or resources from the mine should be allocated for community development. Mr Smith concluded by sharing that the RFM is interested in building a multipurpose medical centre to address the various health issues the community is facing, including those caused by mining-related chemicals.		
Ms Patricia Mogano, Community member	Open Day	Saturday, 16 November 2024	Ms Magono stated that she is suffering from a chronic illness due to the current mine operations. She asked how the community would receive responses to the questions raised. Additionally, she inquired about how people were informed about the Public Participation Process (PPP) meeting, as she only learned about it the day before.	Mr Thornton explained that the information was disseminated in accordance with PPP requirements. Notices were placed in the local newspaper, and open day notices were displayed in various public places to inform the community about the project and invite them to the open day. He added that the same procedure would be followed for the EIA report.	Section 7 Appendix C
Mr Danny Du Preez, Community Leader, Ward 68	Open Day	Saturday, 16 November 2024	Mr Du Preez expressed his disappointment with the consultation process conducted by Kongiwe. He stated that, based on the presentation, the community was not informed about the economic, social, and health impacts of the project or where the community stands in relation to these issues.	Mr Thornton expressed his appreciation for the constructive feedback provided. He clarified that the project is still in the scoping phase and assured attendees that all the comments raised would be thoroughly addressed during the EIA phase.	-

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			He further emphasized that the community is not currently benefiting from the project and made it clear that they would continue to advocate for their rightful benefits.		
Mr Bassie Maile, SANCO Greater Johannesburg	Open Day	Saturday, 16 November 2024	Mr Maile suggested that it would be most effective to directly engage with the client to address the community's concerns, particularly regarding past issues and the 30% benefit. He also noted that the Klip River flows between Riverlea and Diepkloof and expressed a preference that the project employ 50% of the local community members. Additionally, he requested that these workers receive medical aid and proper safety PPE (Personal Protective Equipment).	Mr Thornton thanked the community for raising the issue of engaging directly with the client to address the community's concerns, including past issues and the 30% beneficiation. He emphasized that Kongiwe recognizes the importance of these matters and is committed to facilitating constructive dialogue between the client and the community. Mr Thornton indicated that he understands the significance of local employment opportunities, particularly with regard to the Klip River project. This includes looking into opportunities for skills training, long-term employment, and local sourcing where possible.	-
Mr Reece Resenbeck, Community member	Open Day	Saturday, 16 November 2024	Mr Resenbeck expressed frustration that the mine had made many promises to the community, but none had been fulfilled. The only noticeable impact has been health issues caused by the mine's operations, particularly the open pits.	Kongiwe took note of the community's feedback and indicated that the concerns raised are recorded.	Appendix C

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			He highlighted that school children are being directly impacted by the mine, with many experiencing health problems and even requiring oxygen tanks. He emphasized that the mine's operations are putting a strain on the community's well-being. Mr Resenbeck raised concerns about the high unemployment rate in the area, especially among youth. He noted that there has been no progress in creating jobs for young people in the community. He urged that the mine should contribute more to the community by building infrastructure or supporting community projects, as this has not yet been done. He recommended that the mine should stop engaging with individuals and instead communicate with RMF (Riverlea Mining Forum), as they serve as the primary point of entry to the community. Mr Resenbeck emphasized the need for actions to be above board and expressed that if the mine works with Kongiwe, they could rebuild the trust of the community. He expressed the view that mining companies have been taking the community for		

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			granted and that urgent changes are needed to address the ongoing health and employment challenges. Mr Resenbeck further suggested that Kongiwe's attendance register should reflect that the application under discussion is a proposed one.		
Ms Blanche Elins, Community member	Open Day	Saturday, 16 November 2024	Ms Elins inquired about iProp's attendance at the meeting, emphasizing that as landowners, they should be actively involved in their property upliftment. She pointed out that iProp, as stakeholder in the land, has an obligation to contribute positively to the community's development. She acknowledged that iProp had consulted the community; however, she expressed concerns about the lack of transparency in the consultation process. She called for more open and honest communication moving forward, ensuring that the community's concerns and needs are genuinely addressed.	Kongiwe noted the comment.	-
Mr Theo Doyle, Community member	Open Day	Saturday, 16 November 2024	Mr Doyle inquired about the project's start date	Mr Macevele explained that after the scoping phase, an EIA will be conducted, and it is expected to be concluded sometime after June 2025. Only after the completion of the EIA can the project commence.	Section 2.2.4

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Mr Theo Doyle, Community member	Open Day	Saturday, 16 November 2024	Mr Doyle inquired how is the scoping report circulated to the community.	Mr Macevele explained that site notices have been erected around public places, such as libraries, clinics, and etc to notify the community about the project.	Section 7 Appendix C
Mr Theo Doyle, Community member	Open Day	Saturday, 16 November 2024	Mr Doyle inquired whether Ergo has a good track record. He further stated that the community will likely oppose the project.	Mr Macevele responded that he cannot say for certain, as Ergo has many projects currently involving gold reclamation. He suggested that this question would be better answered by a representative from Ergo.	-
Cllr Msimelelo Lobi, Ward 68 councillor, CoJ	Open Day	Saturday, 16 November 2024	Cllr Lobi inquired about the method of extraction.	Mr Macevele explained that the method of extraction is mechanical reclamation.	Section 3
Mr Teddy Snyders, Community member	Open Day	Saturday, 16 November 2024	Mr Snyders asked who authorizes the project and whether the community has the ability to object to it.	Mr Macevele explained that the DMRE authorizes the project. He added that Kongiwe is an independent consultant who conducts the environmental and social impacts of the proposed project, records the community's concerns and submit them to the DMRE as part of the final report.	Section 2.3 Appendix C
Ms Patricia, Community member	Open Day	Saturday, 16 November 2024	Ms Patricia asked what "silt" refers to in the name "Valley Silts."	Mr Macevele explained that "silts" refers to the sediment or mud that contains the gold to be extracted.	-
Ms Patricia, Community member	Open Day	Saturday, 16 November 2024	Ms Patricia asked how the community can be sure that their comments are being considered as part of the process.	Mr Macevele explained that the report will be sent with community responses, ensuring that	Appendix C

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				community comments are addressed as part of the process.	
Community member (Ward 68)	Open Day	Saturday, 16 November 2024	Community member has expressed concerns regarding the transparency of the public participation process. It was stated that during the previous EIA for the Valley Silt reclamation project, there was a noticeable lack of transparency, as he is unaware of anyone who received feedback related to the projects. The member has proposed a re-evaluation of the public participation approach to ensure that future presentations are effectively tailored to communicate with all stakeholders involved	Mr Thornton explained that Kongiwe was responsible for conducting the EIA and public participation for the previous Valley Silts project. He emphasized that, despite the challenges posed by COVID-19 restrictions, numerous meetings were held with the community in Riverlea at appropriate times to facilitate consultation. He clarified that Kongiwe does not make the final decision on whether the project proceeds; instead, Kongiwe facilitates the EIA and Water Use License Application (WULA) processes, taking into account the comments, issues, and input raised during these processes. The final decisions are made by the competent authorities, specifically the Department of Mineral Resources and the Department of Water and Sanitation. Mr Thornton stressed that this is a transparent process, and that Kongiwe's role is to provide information about the project, gather community feedback, and ensure that all comments are incorporated into the reports submitted to the competent authorities for evaluation.	Appendix C

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Mr Ishmael Van Wyk, Community member	Open Day	Saturday, 16 November 2024	Mr van Wyk raised the point that the Riverlea Mining Forum is mandated by the community to represent their interests on mining related issues. He questioned why information regarding these projects did not come from the forum to the community, given its role as the organisation mandated to represent them. He further raised concerns regarding the allocation of R60 million from iProp to the community, noting that another report indicates these funds may instead be directed to the City of Johannesburg. He expressed concern that the mining activities could damage local infrastructure due to the proposed highly mechanical activities, which is not expected to generate jobs. He further questioned why the community should remain passive without receiving any benefits. He emphasised the need for clarity on these issues to prevent misunderstandings and blame among community members.	Mr Thornton acknowledged that the Riverlea Mining Forum is an NGO operating for the community and clarified that iProp is the landowner while Ergo is the mining company (the applicant). He explained that this is an independent EIA process, which focuses on assessing the social and environmental impacts of the project. He further noted that issues of benefits should be directed to Ergo. He assured the community that all comments received will be incorporated into the Environmental Impact Report.	-
Mr Teddy Snyders, Environmental Activist	Open Day	Saturday, 16 November 2024	Mr Snyders inquired about how the community will benefit from the project, noting that the community is affected by mine dumps in the area and pollution from upstream sources at the Russell Stream.	Mr Thornton encouraged all parties to collaborate to improve the current situation. He indicated that an environmental benefit would be the rehabilitation of Russell Stream through the removal of silt and the reshaping of areas to ensure proper drainage. Additionally, he stated that local	-

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				residents should be considered for economic opportunities arising from this project; however, this should be discussed as an economic discussion with the applicant since it will be operating in the area.	
Community member	Open Day	Saturday, 16 November 2024	Community member expressed concerns regarding the lack of a social development plan, which he believes is contributing to ongoing community complaints. He noted that the scoping report appears to be generic and inquired about the next phase of the project. Additionally, he emphasised the need for transparency in the EIA process and insisted that the community should receive some financial benefits from the project	Mr Thornton clarified that this is the scoping phase, which is essential for defining the scope and boundaries of the assessment. This phase ensures that the most significant environmental and social impacts are identified and addressed in the upcoming environmental impact report. He acknowledged the concerns raised regarding the consultation process, community benefits, and improvements to environmental quality and emphasising that all comments have been noted.	Appendix C
Community member	Open Day	Saturday, 16 November 2024	Community member expressed concern that the community has frequently been sidelined and has not benefited from projects like this one. He highlighted issues such as high unemployment rates, gang violence, and other social challenges affecting the community. He urged for greater unity within the community during the EIA process to ensure that their voices are heard and taken into account.	Mr Thornton responded by explaining that their consultation process involves a diverse range of stakeholders, including national, provincial, and local government departments, NGOs, and various interested and affected parties. He emphasising that Kongiwe does not engage in consultations with undisclosed individuals.	Appendix C

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
Community member	Open Day	Saturday, 16 November 2024	Community member has requested a list of individuals from the community who are currently working on the authorised section of the Valley Silts project	Mr Tshamano stated that he was happy to release the list of the current beneficiaries to the community.	-
Community member	Open Day	Saturday, 16 November 2024	Community member has requested that all communications and details regarding the next meeting be conveyed through a ward councillor. Additionally, he urged the community to address this matter outside of the current consultation meeting	The project team noted this.	-
Mr Bradly Thornton, Project Director, Kongiwe	Open Day	Saturday, 16 November 2024	Mr Thornton outlined a way forward that includes compiling the minutes of the meeting, which will be circulated to all attendees to ensure transparency. He indicated that the issues raised during the meeting will be incorporated into the EIA phase and specialist studies. Additionally, he reminded attendees that there will be another consultation meeting next year, which will provide more detailed information about the environmental impacts and proposed mitigation measures, as well as address community concerns. He encouraged collaboration between Ergo and the Riverlea community. Above all, he noted that the public participation window for the scoping phase is open until	The attendees thanked Kongiwe team for informing them about the project.	-

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			November 28, 2024, and urged community members to submit their comments.		
Denny Du Preez, Riverlea Community Member	Email Correspondence	Tuesday, 12 November 2024	Good moring I hereby wish to confirm my atendance between the 1st session @ 09h00- 10h00 Key isssues of m concern and needed to be attended with this project. I am currently not employede have been enaging with Kongi since the inception. 1.Employment of residence within the affected wards to receive firs prioroty 2.Business opportunities to be made availble and given to residens of ward 68 3 The session to appoint business owners who business, tipper trucks to transport the soil as indicated ad not only ourside transporters. 4 Promise to rehabilitate all sides and closing of mining holes after the completion of mining.	Good day Mr Du Preez, Thank you for your email. Thank you for registering to attend the open day. Your comments are recorded . Ergo Mining (Pty) Ltd has a procurement process in place that anyone wishing to conduct business with Ergo can participate in. Whichever contractor is appointed to undertake the reclamation works has to adhere to Ergo's requirements of employing from the local communities. Employment prioritisation ever since the commencement of valley silts project in 2022 has always been for the people of Ward 68. The employment of local community specifically for ward 68 includes Skills transfer. Unfortunately working under the current authorizations issued for this project does not require an SLP (Social Labour Plan) as prerequisite,	Section 3.7

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			5. Social planing plan and targets to be realized, not like in the past with jus promises. 6.Project sesssion must leave a legacy of skills and training to communties of the affected ward in particular ward 68. Regards	ERGO Mining is committed to comply with its SLP where required to. ERGO Mining has not left any unrehabilitated holes at valley silts. The holes which are on the northern side (outside project area) of Valley silts were created by a different mining company, as such it cannot be the responsibility of ERGO Mining to rehabilitate. ERGO Mining will ensure that they rehabilitate the authorized project area in line with the rehab plan which will be submitted to competent authorities. It is important to note that Valley Silts project is in itself a rehabilitation project. The areas from which silts are removed will be rehabilitated in line with the land use required by the landowners and what has been committed to on the rehabilitation plan.	
Mr Nico Godfrey	Email Correspondence	Wednesday, 13 November 2024	Good day Vanessa Viljoen Kindly note your name and contact details has been provided for the above project.	Dear Godfrey Thank you for your email. Due to size, we cannot email you the Draft Scoping Report, but you can download from the Kongiwe's website: https://kongiwe.com/projects/.	-

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			I am in need of the draft scope report as I need to review the information prior to attending the meeting on Saturday. Please assist as early as possible so that I can come prepared on Saturday Yours sincerely	We have attached the Background Information Document and well and the Non-Technical Summary of the DSR for your information. Please do not hesitate to contact if you have any further enquires.	
Mr Michael Benham	Email Correspondence	Tuesday, 12 November 2024	Dear Vansessa I really appreciate the reminder on the above-mentioned, however we will not be able to attend. However ! I know that you and your Organisation will be addressed with a bagrage of ??? about how you and your employer has to toe the line about this "work " that has been going on for a long time and needs to adhere with the SLP and other requirements knowing full well that you all have all your ducks in a row. Basically it will be just "hot smoke " Carry on mining	Good day Michael, Thak you for your comment. If you would like a one on meeting online, we can organise this with you. The valley silts project was only fully authorized in July 2022, and since it started progress can be clearly seen on site, Unfortunately working under the authorizations issued for this project does not require an SLP (Social Labour Plan). ERGO Mining is committed to comply with its SLP where required to.	-

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
Mr Teddy Snyders, Environmental Activist	Email Correspondence	Saturday, 16 November 2024	Dear Guys First, thanks to all your guys for bringing this inniative to us, and hope everybody has arrived safe. As can be observed, in today's open day lots of people were lost due to mis-information, or lack thereof, we then needed to ask ourselves, do those that represent the community especially the Riverlea Mining Forum and the Riverlea Business Forum, why is it that only they attended the meeting? and where were the rest. Mark's leadership of the Mining forum was seriously lost and cannot differ between a tailing and silt, and the drying period for the silts from my observation it looks that they are here for their own personal gain. Maybe we should give the community proper educational training on the Environment Impact Issues and the danger the chemical within those silt holds to the community and how it has contaminated water resources. Also as a serious concern to me or us all Riverlea is huge and those present has exclude Riverlea Ext [also known as Zombie] is the community closes to the	Good day Mr Snyders Thank you for your email. Thank you for your comments, they are noted. Kongiwe endeavours to communicate with all stakeholders as far as is possible and we do not rely on one organisation to disseminate information to the community. We hope that liaising with numerous representatives we can get the project information out to as many stakeholders as possible.	Appendix C

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
			tailings and streams and is the most effected, with the most highest unemployment and poverty as was heard that the Mining Forum stated that the current expansion only includes them, and only when it comes to the Russel Stream will Zombie be include, I forecast bloodshed and fighting. Kind Regards Teddy Snyders		
Mr Mark Kayter, Chairman, RMF	Email Correspondence	Tuesday, 19 November 2024	Dear Mark Hope you are doing well. Can you please indicate if the Riverlea Mining Forum would still like to have a meeting	Good Evening Vanessa. Thank you for your email. we will send our questions, comments via email. Regards Mark	-
Mr Mark Kayter, Chairman, RMF	Email Correspondence	Wednesday, 20 November 2024	Morning Mark, Thank you for your email, we await your written comments. Kind Regards	Good Afternoon Vanessa. is there a deadline to submit written submissions? Regards Mark	Appendix C

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues as mandated by the Applicant	Section Reference in the Report
Mr Mark Kayter, Chairman, RMF	Email Correspondence	Thursday, 21 November 2024	Dear Mark The Draft Scoping Report (DSR) for the proposed projects public review and comment period is from Tuesday, 29 October 2024 until Wednesday, 27 November 2024. We will accept comments later but these will only be captured in the comments and response report for the Environmental Impact Assessment Phase which starts in February. If you have any further queries do not hesitate to contact us. Kind Regards	Good Morning Vanessa. Thank you. Noted	Appendix C

APPENDIX D:
Biodiversity Impact Assessment

TERRESTRIAL BIODIVERSITY COMPLIANCE STATEMENT FOR THE PROPOSED VALLEY SILTS EXPANSION PROJECT

City of Johannesburg Metropolitan Municipality, Gauteng Province, South Africa

11/11/2024

Prepared by:

The Biodiversity Company

Cell: +27 81 319 1225

Fax: +27 86 527 1965

info@thebiodiversitycompany.com

www.thebiodiversitycompany.com

Report Name	**TERRESTRIAL BIODIVERSITY COMPLIANCE STATEMENT FOR THE PROPOSED VALLEY SILTS EXPANSION PROJECT**
Specialist Theme	Terrestrial Biodiversity Compliance Statement
Project Reference	Valley Silts Expansion Project
Report Version	Draft 1 / 11/11/2024
Environmental Assessment Practitioner	KONGIWE
Fieldwork & Report Writer	Byron Goris (Cert. Nat. Sci. 170720) 
Reviewer	Andine Erasmus (Cand. Nat. Sci. 164894) 
Reviewer	Carami Burger (SACNASP 121757) 
Declaration	The Biodiversity Company and its associates operate as independent consultants under the auspice of the South African Council for Natural Scientific Professions. We declare that we have no affiliation with or vested financial interests in the proponent, other than for work performed under the Environmental Impact Assessment Regulations, 2017. We have no conflicting interests in the undertaking of this activity and have no interests in secondary developments resulting from the authorisation of this project. We have no vested interest in the project, other than to provide a professional service within the constraints of the project (timing, time and budget) based on the principals of science.

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1 Introduction

1.1 Background

The Biodiversity Company (TBC) was appointed to undertake a terrestrial biodiversity baseline assessment for the proposed Valley Silts Expansion Phase project near NASREC (National Recreation Centre), in Johannesburg, Gauteng Province. The project site is located approximately 1 km north of the FNB (First National Bank) Stadium and approximately 300 m southeast from the Booysens Reserve in the Gauteng Province. The site is located within the City of Johannesburg Metropolitan Municipality. The full mine area, including expansion areas, are collectively referred to as the Project Area of Influence (PAOI) for reporting purposes. A map presenting the regional context of the PAOI can be seen in Figure 1-1 and a map presenting the project layout can be seen in Figure 1-2.

To determine the baseline ecological state of the area and to present a detailed description of the receiving environment, both a desktop assessment as well as a field survey on 7 October 2024, were conducted. Furthermore, the desktop assessment and field survey both involved the detection, identification and description of any locally relevant sensitive receptors and habitats. The manner in which these sensitive features may be affected by the proposed development was also investigated.

This assessment was conducted in accordance with the amendments to the Environmental Impact Assessment Regulations, 2014 (No. 982, 8 December 2014, as amended by GN 326 of 7 April 2017 and GN 517 of 11 June 2021) of the National Environmental Management Act (NEMA), 1998 (Act No. 107 of 1998). The approach has taken cognisance of Government Notice 320 in terms of NEMA dated 20 March 2020 as well as the Government Notice 1150 in terms of NEMA dated 30 October 2020: “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 National Environmental Management Act, 1998, when applying for Environmental Authorisation”.

- The National Web based Environmental Screening Tool has characterised the terrestrial biodiversity theme for the area as ‘Very High’ sensitivity (National Environmental Screening Tool, 2024).

The purpose of conducting the specialist study is to provide relevant input into the Environmental Authorisation application process, with a focus on the proposed activities and their impacts associated with the project. This report, after taking into consideration the findings and recommendations provided by the specialist herein, should inform and guide the Registered Environmental Assessment Practitioner (EAP) and regulatory authorities, enabling informed decision making as to the ecological viability of the proposed project.

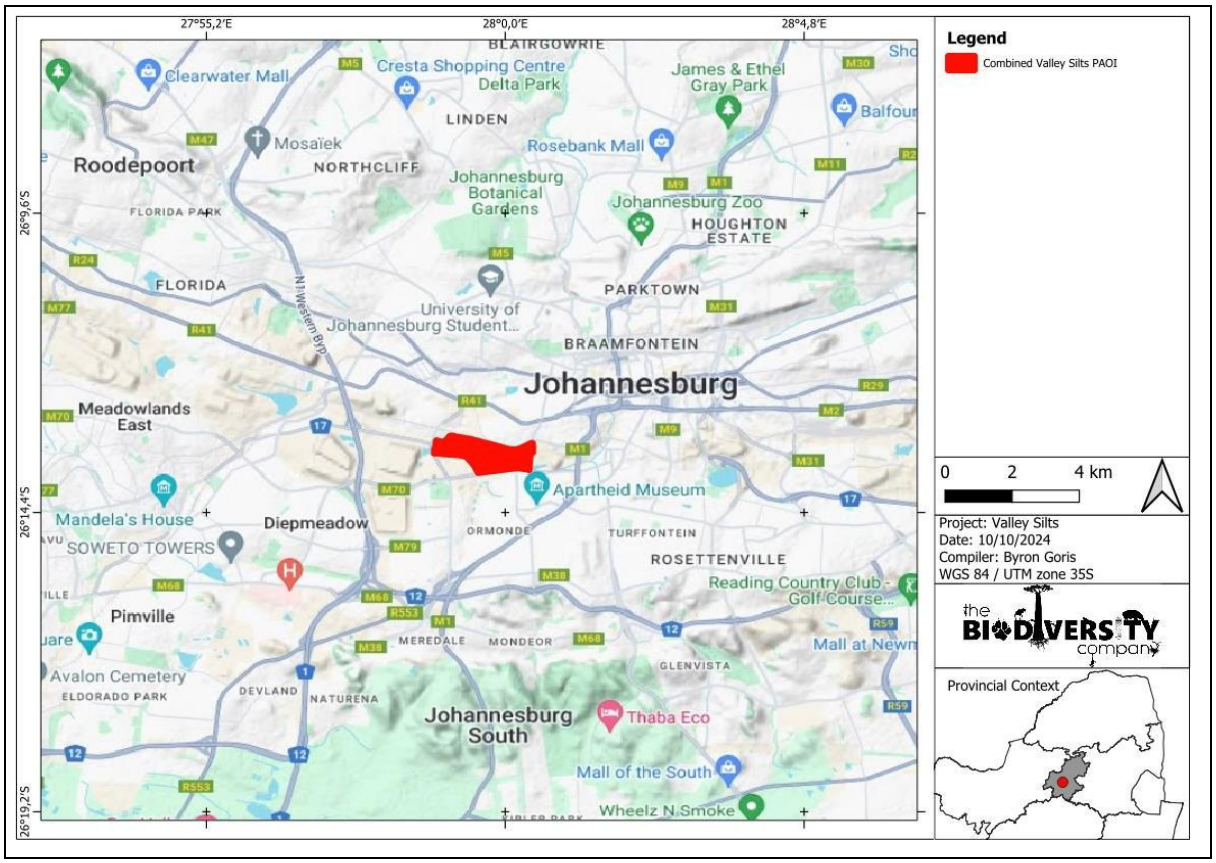


Figure 1-1 Map illustrating the regional context of the Project Area of Influence (PAOI)

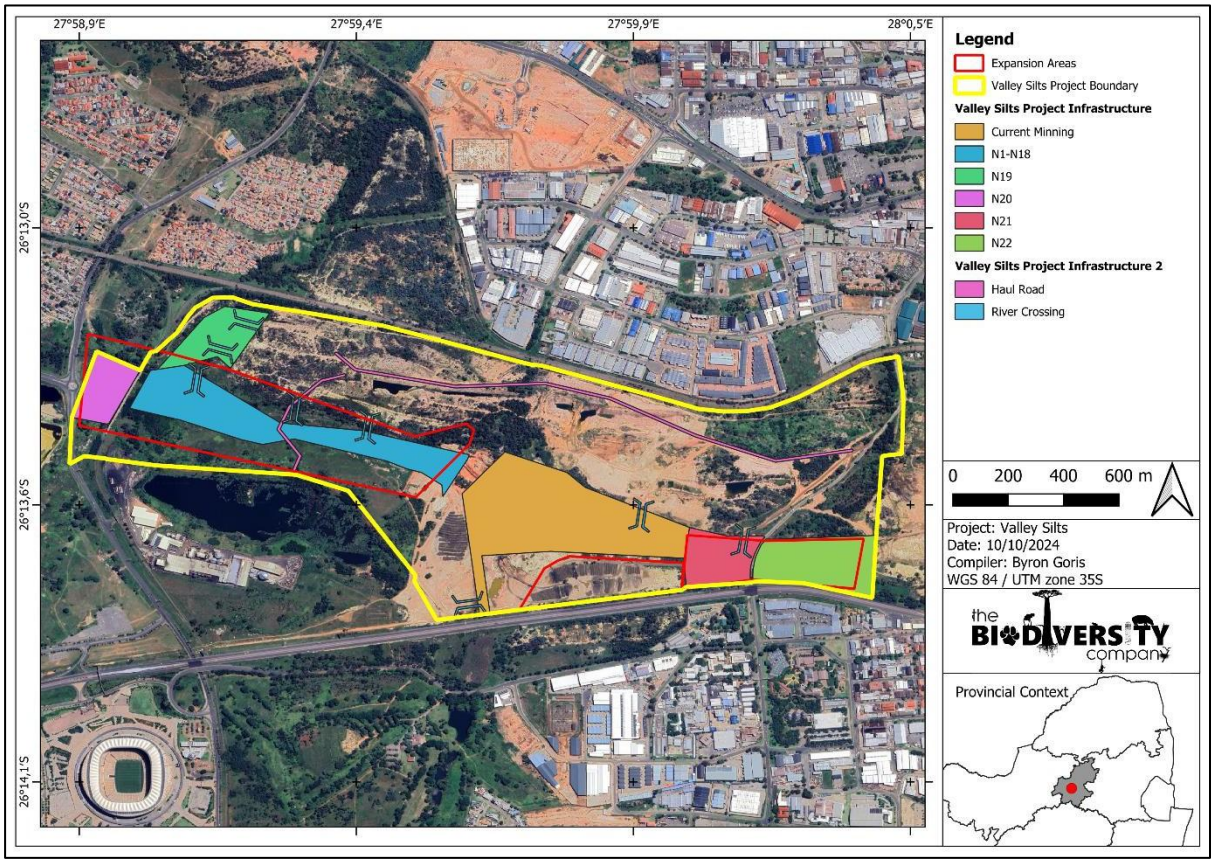


Figure 1-2 Map illustrating the project layout

1.2 Project Description

Ergo Mining (Pty) Ltd (Ergo), a subsidiary of DRDGOLD Limited, holds various Mining Rights (MR) for slimes dams and sand dumps, extending 65 km from western Johannesburg to Eastern Ekurhuleni, with primary activities concentrated in the central and eastern sections of the Witwatersrand mining belt (Kongiwe, 2024).

Furthermore, Ergo has secured an Environmental Authorisation (EA) and an Integrated Water Use License (IWUL) for the mechanical reclamation of gold-bearing silts from the Russell Stream, located north of NASREC near Booysens Reserve in Johannesburg. This is the Valley Silts Project.

The entire Valley Silts project is divided into three primary sectors:

- **Sector 1:** The current approved mining area, extending from the dam wall to the stockpile area near Crownwood Road. This sector is fully operational with established infrastructure, including fenced facilities, solar-powered security lights, haul roads and site offices.
- **Sector 2:** Extends from the dam wall to NASREC Road (N1 to N20 on Figure 1-2).
- **Sector 3:** Comprises blocks N21 and N22 (on Figure 1-2), located on either side of Crownwood Road.

The proposed Valley Silts Expansion project will consist of Sector 2 and Sector 3.

The new activities for the Expansion will include:

- Mining Blocks:
    - The expansion phase will include mining blocks N1 to N22.
- Drying stockpiles:
    - Eight drying stockpile locations are planned to manage the moisture content and oxidation of the mined material.
- Stormwater control berms/paddocks:
    - Berms and paddocks will be installed to protect the river from extraneous ingress.
- River crossings:
    - Eight river crossings will be constructed.
- Haul and site roads
    - Existing roads will be utilized and expanded as necessary.

Exploration trenching will determine the depositional flank extents, and all material will be removed from the natural flow path and flanks. Existing facilities in Sector 1, such as hard parks, cut-off trenches, and sumps, will be utilized for the expansion. Silt traps will be relocated as mining progresses, with the existing sump discharging to the stream.

1.3 Scope of Work

The aim of the biodiversity assessment was to provide information to guide the risk of the proposed activity to the current state of the associated ecosystems within the development area. This was achieved through the following:

- Desktop assessment to identify the ecologically important features within the landscape comprising of terrestrial features;
- Desktop assessment to identify possible Species of Conservation Concern (SCC) that occur within the landscape;
- Field survey to record flora and fauna species, especially Species of Conservation Concern (SCC);
- Determination of the Site Ecological Importance (SEI), also commonly referred to as sensitivity; and
- The prescription of mitigation measures for identified risks.

1.4 Assumptions and Limitations

The following assumptions and limitations are applicable for this assessment:

- It is assumed that all information received from the client and landowner is accurate;
- All datasets accessed and utilised for this assessment are considered to be representative of the most recent and suitable data for the intended purposes;
- The assessment area (PAOI) was based on the footprint areas as provided by the client, and any alterations to the area and/or missing GIS information pertaining to the assessment area would have affected the area surveyed and hence the results of this assessment;
- The project description was based on information provided by the client, and any alterations to the area and/or missing data pertaining to the development would have affected the area surveyed and hence the results of this assessment;
- The area was surveyed during a single site visit, therefore, this assessment does not consider temporal trends (note that the data collected is considered sufficient to derive a meaningful baseline);
- The field survey was conducted on 7 October 2024. The survey was conducted during the early wet season, limiting accurate biodiversity representation. This constitutes a limitation, meaning that certain flora and fauna would not have been present or observable due to seasonal constraints. Due to the modified and disturbed condition of the PAOI and the lack of expected SCCs, this project only necessitates a compliance statement, and the seasonality would unlikely affect the main outcomes of this study. Additionally, some of the construction for the project development is planned for the already ‘Modified’ areas;
- Whilst every effort was made to cover as much of the PAOI as possible, representative sampling was completed, and by its nature it is possible that some plant and animal species that are present within the PAOI were not recorded during the field investigations;
- This assessment was conducted from a terrestrial perspective only and must be considered in conjunction with the accompanying wetland report (TBC, 2024); and

- The GPS used in the assessment has an accuracy of 5 m and consequently any spatial features may be offset by up to 5 m.

1.5 Legislative Framework

In line with the protocol for the specialist assessment and minimum report content requirements for environmental impacts on terrestrial biodiversity, as per Government Notice 320 published in terms of NEMA, dated 20 March 2020: "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 National Environmental Management Act, 1998, when applying for Environmental Authorisation" – section 3, subsection 1:

- An applicant intending to undertake an activity identified in the scope of the protocol, on a site identified on the screening tool as being of 'Very High' sensitivity for terrestrial biodiversity, must submit a Terrestrial Biodiversity Specialist Assessment; however
- Where the information gathered from the site sensitivity verification differs from the designation of 'Very High' terrestrial biodiversity sensitivity on the screening tool and it is found to be of a 'Low' sensitivity, then a Terrestrial Biodiversity Compliance Statement must be submitted.

The information obtained from a site sensitivity verification, which involved both a desktop assessment as well as a field survey, confirmed that the proposed PAOI is of a 'Very Low' and 'Low' sensitivity. Therefore, this report constitutes a Terrestrial Biodiversity Compliance Statement.

As per sections 2 and 3 of the protocol discussed above, a Terrestrial Biodiversity Compliance Statement must contain the information as presented in Table 1-1 below.

Table 1-1 Terrestrial Biodiversity Compliance Statement information requirements as per the relevant protocol, including the location of the information within this report

Information to be Included (as per GN 320, 20 March 2020)	Report Section
Methodology used to undertake the site assessment and survey, and prepare the compliance statement, including relevant equipment and modelling used	7.1
Description of the assumptions and any uncertainties or gaps in knowledge or data	1.4
A baseline profile description of biodiversity and ecosystems of the site	3.1
Site sensitivity verification: Desktop Analysis using satellite imagery and available information	3.1
A statement on the duration, date and season of the site inspection	3.2
Site sensitivity verification: Onsite inspection, include a description of current land use and vegetation found on-site	3.2
Site sensitivity verification: Photographs/evidence of environmental sensitivity	3.2
Screening tool confirmation/dispute: The assessment must verify the "low" sensitivity of the site, in terms of plant, animal, and terrestrial biodiversity themes	3.4.2
Proposed impact management outcomes or monitoring requirements for inclusion in the EMPr	4
Indicate whether or not the proposed development will have any impact on the terrestrial environment, animals and/or plants	5
A signed statement of independence by the specialist	7.3
Specialist details, including a CV	0

A signed copy of the compliance statement must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.

2 Fieldwork

2.1 Biodiversity Field Assessment

A single season field survey was undertaken on 7 October 2024, which constitutes an early wet season survey, to determine the presence of any local SCC and to achieve the delineation of local habitat types and their associated sensitivities. Effort was made to cover all the different habitat types within the PAOI, within the limits of time, access and security. This site visit is considered sufficient for the project (Figure 2-1).

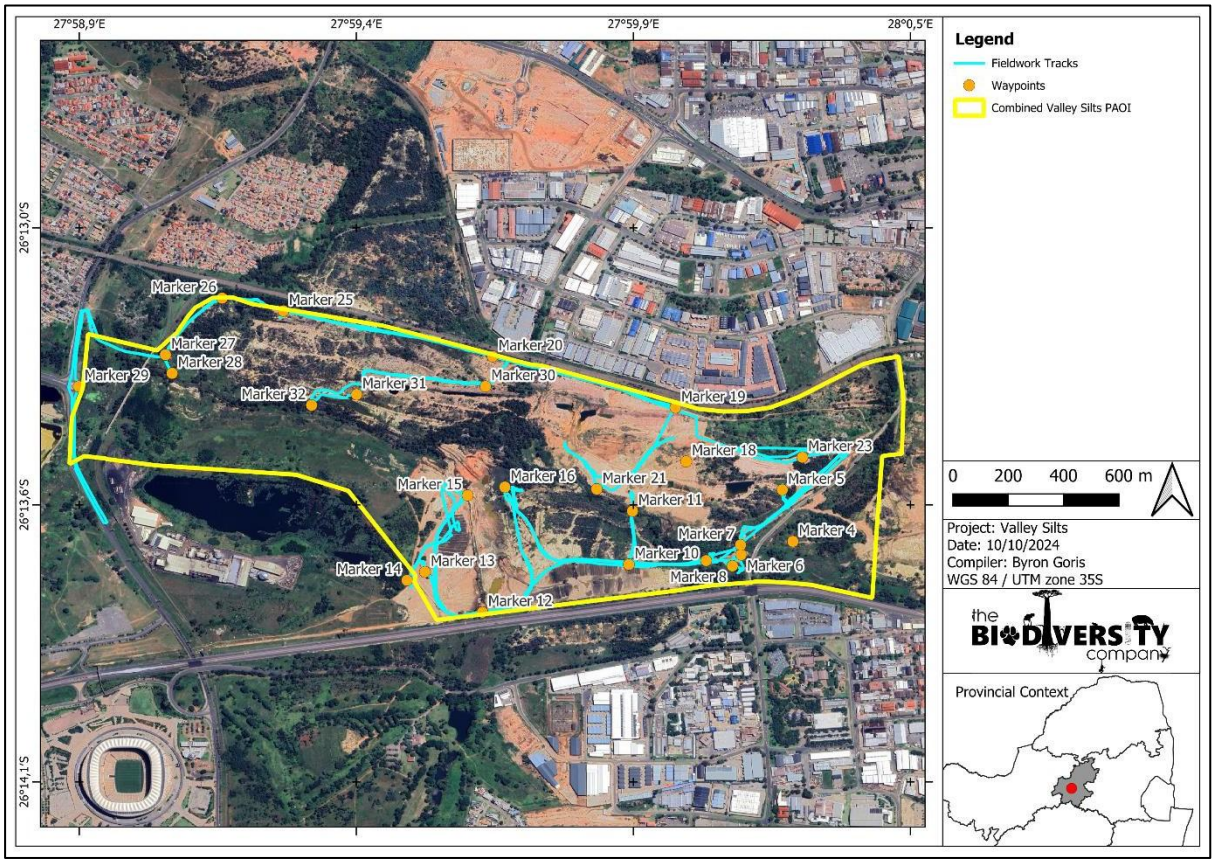


Figure 2-1 Map illustrating the field survey points

3 Results & Discussion

3.1 Ecologically Important Landscape Features

Table 3-1 below has been produced as a result of the spatial data collected and analysed as provided by relevant sources. It presents a summative breakdown of the ecological boundaries considered and the associated relevance that each has to the region or PAOI.

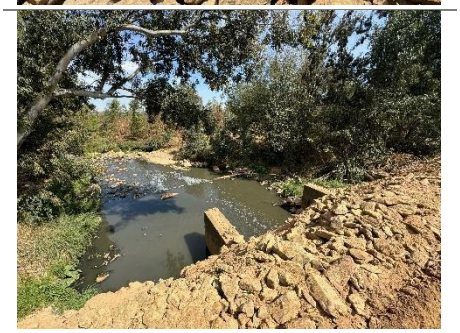
Table 3-1 Summary of relevance of the proposed project to ecologically important landscape features

Desktop Information Considered	Relevance	Reasoning
Ecosystem Threat Status	Relevant	Overlaps with a 'Vulnerable' Ecosystem – Soweto Highveld Grassland (Red List of Ecosystems, 2021).
Ecosystem Protection Level	Relevant	Overlaps with a 'Not Protected' Ecosystem.
Provincial Conservation Plan	Relevant	Overlaps with CBA Important Area, and Ecological Support Area.
SAPAD & SACAD	Relevant	Located 5.5 km from Melville Koppies Nature Reserve, 5.6 km from Klipriviersberg Nature Reserve, and 8.1 km from the Olifantsvlei Nature Reserve – all protected areas; as well as approximately 19.8 km from the nearest conservation area (Walter Sisulu National Botanical Gardens).
Gauteng Ridges	Relevant	Overlaps with a Class 4 Gauteng Ridge.
National Protected Areas Expansion Strategy (NPAES)	Relevant	Overlaps with Priority Focus Areas on the western side of the PAOI (NPAES, 2018).
Key Biodiversity Areas (KBA)	Relevant	Located 17.1 km from the Cradle of Humankind KBA and 29.2 km from the Suikerbosrand KBA.
South African Inventory of Inland Aquatic Ecosystems (SAIIAE)	Relevant	The PAOI and the 500 m regulated area overlaps with an Unchanneled valley-bottom which is 'Not Protected' and 'Critically Endangered (CR)'.
National Freshwater Priority Area	Relevant	The 500 m regulated area overlaps with non-priority (unclassified) seep wetlands.
Strategic Water Source Area (SWSA)	Irrelevant	The PAOI does not overlap with any Strategic Water Source Areas.

3.2 Biodiversity Field Survey

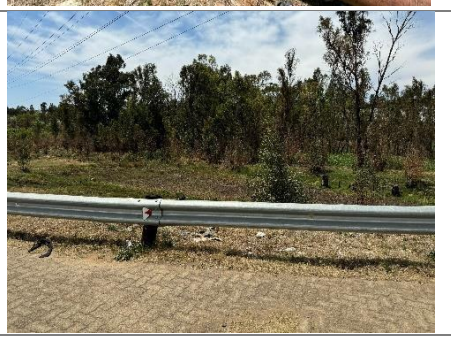
The following sections discuss the results from the field survey that was conducted for the proposed project, which was undertaken on 7 October 2024. A selection of key sample points is described below in Table 3-2.

Table 3-2 Sensitivity summary of the survey points and habitat types delineated within the PAOI

Survey Point	Description	SEI	Photographs
Marker 4 Date: 7/10/2024 GPS Coordinates: 26°13'37.86"S 28° 0'15.06"E	**Modified** High levels of degradation and anthropogenic disturbance is present. This area is impacted by mining activities. Evidence of past vegetation clearing and secondary growth is present. High numbers of alien and invasive plants, such as *Eucalyptus camaldulensis*, *Verbena brasiliensis, V. bonariensis, Bidens pilosa, Tagetes minuta,* and *Erigeron bonariensis,* occur. Dominant species include, *Cynodon dactylon, Pogonarthria squarrosa, Eragrostis curvula* and *Paspalum dilatatum.* Species identifications were limited by seasonality. No flora or fauna SCC were recorded or are expected.	Very Low	 
Marker 7 Date: 7/10/2024 GPS Coordinates: 26°13'38.27"S 28° 0'8.94"E	**Water Resource** This point consists of a channelled valley bottom wetland, which is a non-terrestrial habitat. No flora or fauna SCC recorded, and none expected. More information is available in the accompanying wetland assessment (TBC, 2024).	Low	 

Survey Point	Description	SEI	Photographs
Marker 10 Date: 7/10/2024 GPS Coordinates: 26°13'40.56"S 27°59'55.87"E	**Modified** This area has experienced high levels of degradation and anthropogenic disturbance leading to modification. It is impacted by mining activities. Evidence of past vegetation clearing can be seen, as little to no vegetation remains. No flora or fauna SCC were recorded or are expected.	Very Low	 
Marker 12 Date: 7/10/2024 GPS Coordinates: 26°13'46.15"S 27°59'38.74"E	**Water Resource** This point is characterised by a channelled valley bottom wetland, which is a non-terrestrial habitat. High levels of disturbance from mining activities, as well as a strong presence of alien and invasive plants, such as *Eucalyptus camaldulensis,* is present. No flora or fauna SCC recorded, and none are expected. More information is available in the accompanying wetland assessment (TBC, 2024).	Low	 
Marker 14 Date: 7/10/2024 GPS Coordinates: 26°13'42.42"S 27°59'29.92"E	**Modified** High levels of degradation and anthropogenic disturbance is present here, leading to a modification of the expected natural habitat. Impacts from nearby mining activities are present. Evidence of past vegetation clearing and secondary growth can be seen. High numbers of alien and invasive plants, such as *Eucalyptus camaldulensis*, *Verbena brasiliensis,*	Very Low	

Survey Point	Description	SEI	Photographs
	V. bonariensis, Bidens Pilosa, Tagetes minuta, and *Erigeron bonariensis,* are present. Dominant species include, *Cynodon dactylon, Pogonarthria squarrosa, Eragrostis curvula* and *Paspalum dilatatum.* Species identifications were limited by seasonality. No flora or fauna SCC were recorded or are expected.		
Marker 16 Date: 7/10/2024 GPS Coordinates: 26°13'31.51"S 27°59'41.38"E	**Water Resource** Made up of a channelled valley bottom wetland, which is a non-terrestrial habitat. This area has high levels of disturbance from the mining activities. No vegetation is present. No flora or fauna SCC were recorded and none expected. More information is available in the accompanying wetland assessment (TBC, 2024).	Low	 
Marker 18 Date: 7/10/2024 GPS Coordinates: 26°13'28.51"S 28° 0'2.57"E	**Modified** High levels of degradation and anthropogenic disturbance has led to complete modification of the expected natural habitat. This area is impacted by the mining activities, including vegetation clearance. There is little to no remaining vegetation. No flora or fauna SCC were recorded or are expected.	Very Low	 

Survey Point	Description	SEI	Photographs
Marker 25 Date: 7/10/2024 GPS Coordinates: 26°13'10.90"S 27°59'15.45"E	**Modified** High levels of degradation and anthropogenic disturbance has modified this area. Impacts from the mining activities are evident, as well as past vegetation clearing and secondary growth. High numbers of alien and invasive plants, such as *Eucalyptus camaldulensis*, *Verbena brasiliensis, V. bonariensis, Bidens pilosa, Tagetes minuta,* and *Erigeron bonariensis,* are present throughout this area. Dominant species include, *Cynodon dactylon, Pogonarthria squarrosa, Eragrostis curvula* and *Paspalum dilatatum.* Species identifications were limited by seasonality. No flora or fauna SCC were recorded or are expected.	Very Low	 
Marker 27 Date: 7/10/2024 GPS Coordinates: 26°13'16.03"S 27°59'1.67"E	**Modified** This area has been modified due to high levels of degradation and anthropogenic disturbance. Impacts from the mining activities, pipeline, and bridge construction exist here, as well as past vegetation clearing and secondary growth. High numbers of alien and invasive plants, such as *Eucalyptus camaldulensis*, *Verbena brasiliensis, V. bonariensis, Bidens Pilosa, Tagetes minuta,* and *Erigeron bonariensis,* are present. Dominant species include, *Cynodon dactylon, Pogonarthria squarrosa, Eragrostis curvula* and *Paspalum dilatatum.* Species identifications were limited by seasonality. No flora or fauna SCC were recorded or are expected.	Very Low	 
Marker 29 Date: 7/10/2024 GPS Coordinates: 26°13'19.74"S 27°58'51.53"E	**Modified / Water Resource** This point is characterised by high levels of degradation and anthropogenic disturbance, such as impacts from the mining activities, powerline, and road construction. Evidence of past vegetation clearing and secondary growth can also be seen. High numbers of alien and invasive plants, such as *Eucalyptus camaldulensis*, *Verbena brasiliensis, V.*	Very Low	

Survey Point	Description	SEI	Photographs
	bonariensis, Bidens Pilosa, Tagetes minuta, and *Erigeron bonariensis,* are present. Dominant species include, *Cynodon dactylon, Pogonarthria squarrosa, Eragrostis curvula* and *Paspalum dilatatum.* Species identifications were limited by seasonality. No flora or fauna SCC were recorded or are expected.		
Marker 30 Date: 7/10/2024 GPS Coordinates: 26°13'19.74"S 27°59'39.11"E	**Artificial Water Resource** This point is characterised by quarries with artificial water collection. It is a non-terrestrial habitat. High levels of disturbance from the mining activities, with a strong presence of alien and invasive plants, such as *Eucalyptus camaldulensis*.. No flora or fauna SCC were recorded and none are expected. More information available in the accompanying wetland assessment (TBC, 2024).	Low	 
Marker 32 Date: 7/10/2024 GPS Coordinates: 26°13'21.93"S 27°59'18.76"E	**Modified** This area has been modified due to the high levels of degradation and anthropogenic disturbance. Impacts from mining activities are evident, as well as past vegetation clearing and secondary growth. High numbers of alien and invasive plants, such as *Eucalyptus camaldulensis*, *Verbena brasiliensis, V. bonariensis, Bidens Pilosa, Tagetes minuta,* and *Erigeron bonariensis,* can be seen. Dominant species include, *Cynodon dactylon, Pogonarthria squarrosa, Eragrostis curvula* and *Paspalum dilatatum.* Species identifications were limited by seasonality. No flora or fauna SCC were recorded or are expected.	Very Low	 

3.3 Habitat Assessment

Three (3) main habitat types were identified across the PAOI and include:

- Modified;
- Water Resource; and
- Artificial Water Resource.

The habitat units for the PAOI can be seen delineated in Figure 3-1 and descriptions of the habitat units can be found in Table 3-3.

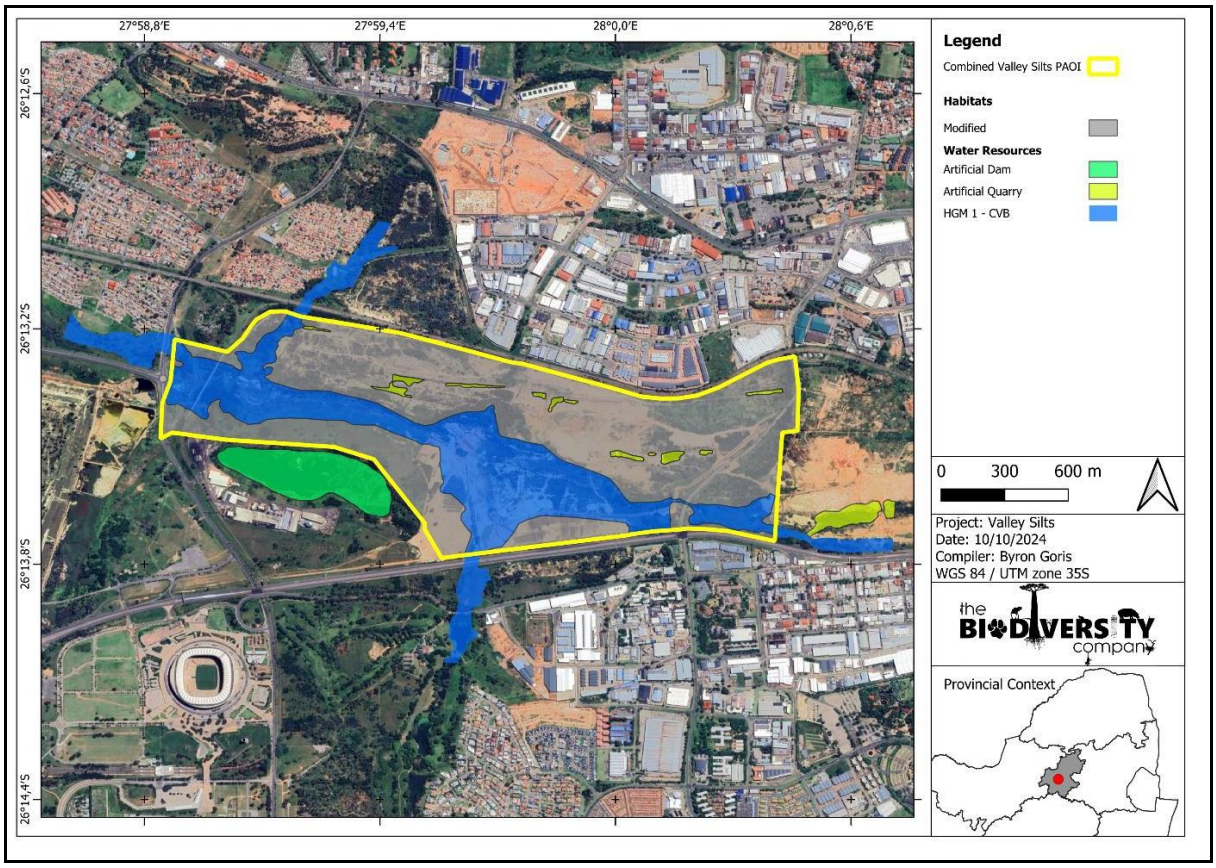


Figure 3-1 Habitats identified within the PAOI

Table 3-3 Table providing descriptions of the habitat types delineated for the PAOI

Habitat	Description and Condition
Modified	This habitat unit includes all areas that maintain little to no native vegetation and/or where anthropogenic activity has substantially modified an area's primary ecological functions and species composition. Within the PAOI, these areas are mostly comprised of roads, mining areas, and other construction activities. These areas include very few, if any, indigenous species and are associated with alien and invasive plant species. No fauna or flora SCC were observed, and none are expected for the habitat unit.
Water Resource	This is a non-terrestrial habitat made up of wetlands and drainage features within the PAOI. Vegetation associated with this habitat unit includes hydrophytes. No fauna or flora SCC were observed, and none are expected for the habitat unit. Additional information regarding this habitat unit may be found in the accompanying wetland assessment (TBC, 2024).
Artificial Water Resource	This is a non-terrestrial habitat made up of artificial wetlands and water features within the PAOI. No fauna or flora SCC were observed, and none are expected for the habitat unit. Additional information regarding this habitat unit may be found in the accompanying wetland assessment (TBC, 2024).

3.4 Site Ecological Importance

Based on the criteria provided in Appendix B of this report, all habitats within the PAOI were assigned a sensitivity category, i.e., a SEI category. The PAOI was categorised as possessing habitats with areas ranging from 'Very Low' to 'Medium' SEI (Table 3-3 and Figure 3-5). This indicates that the findings of this assessment are contrary to the Screening Tool with respect to the Combined Terrestrial Biodiversity Theme sensitivity.

Table 3-4 Summary of habitat types delineated within the PAOI

Habitat Type	Conservation Importance	Functional Integrity	Biodiversity Importance	Receptor Resilience	Site Ecological Importance Guidelines
Modified	**Very Low**	**Very Low**	**Very Low**	**Very High**	**Very Low**
	No natural habitat remaining	Several major current negative ecological impacts.		Habitat that can recover rapidly (~ less than 5 years) to restore > 75% of the original species composition and functionality of the receptor functionality	Minimisation mitigation – development activities of medium to high impact acceptable and restoration activities may not be required.
Water Resource	**Low**	**Low**	**Low**	**Low**	**Medium**
	No confirmed or highly likely populations of SCC	Almost no habitat connectivity but migrations still possible across some modified or degraded natural habitat		Habitat that is unlikely to be able to recover fully after a relatively long period: > 15 years required to restore ~ less than 50% of the original species composition and functionality of the receptor functionality, or species that have a low likelihood of: (i) remaining at a site even when a disturbance or impact is occurring, or (ii) returning to a site once the disturbance or impact has been removed.	Minimisation and restoration mitigation – development activities of medium impact acceptable followed by appropriate restoration activities.
Artificial Water Resource	**Low**	**Low**	**Low**	**Medium**	**Low**
	No confirmed or highly likely populations of SCC	Almost no habitat connectivity but migrations still possible across some modified or degraded natural habitat		Will recover slowly (~ more than 10 years) to restore > 75% of the original species composition and functionality of the receptor functionality	Minimisation and restoration mitigation – development activities of medium to high impact acceptable followed by appropriate restoration activities.

3.4.1 Desktop Ecological Sensitivity

The following is deduced from the National Web-based Environmental Screening Tool Regulation 16(1)(v) of the Environmental Impact Assessment Regulations 2014, as amended):

- Animal Species Theme sensitivity is High for the proposed development area, due to five (5) medium sensitivity mammal species, two (2) medium sensitivity invertebrate species, and one (1) medium sensitivity avifaunal species possibly occurring in the area (Figure 3-2);

- Plant Species Theme sensitivity is Medium for the proposed development area due to four (4) Medium Sensitivity Plant species which may potentially occur (Figure 3-3); and

- Terrestrial Biodiversity Theme sensitivity is Very High for the proposed development area, due to the PAOI overlapping with the vulnerable (VU) Soweto Highveld Grassland, NPAES areas, CBA 1 & 2, as well as ESA 1 & 2 (Figure 3-4).

MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY



Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Medium	Aves-Eupodotis senegalensis
Medium	Insecta-Aloeides dentatis dentatis
Medium	Mammalia-Chrysospalax villosus
Medium	Mammalia-Crocidura maquassiensis
Medium	Mammalia-Dasymys robertsii
Medium	Mammalia-Hydrictis maculicollis
Medium	Mammalia-Ourebia ourebi ourebi
Medium	Invertebrate-Clonia uvarovi

Figure 3-2 Animal Species Theme Sensitivity

MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY



Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity
Medium	Sensitive species 1252
Medium	Khadia beswickii
Medium	Cineraria longipes
Medium	Sensitive species 691

Figure 3-3 Plant Species Theme Sensitivity



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Very High	CBA 1
Very High	CBA 2
Very High	ESA 1
Very High	ESA 2
Very High	National Protected Area Expansion Strategy (NPAES)
Very High	VU_Soweto Highveld Grassland

Figure 3-4 Terrestrial Biodiversity Theme Sensitivity

3.4.2 Fauna Species of Conservation Concern

The Screening Tool indicates that five medium sensitivity mammal species, one medium sensitivity invertebrate species, one medium and one high sensitivity avifaunal species could occur in the general area (Table 3-5). The likelihood of occurrence within the PAOI are included in Table 3-. None have been confirmed for the site during the site assessment and likelihood of occurrence is considered low.

Please note, as per the best practise guideline that accompanies the Animal and Plant Species Protocol for the screening tool, that the name of the sensitive species may not appear in the final EIA report nor any of the specialist reports released into the public domain. It should be referred

to as sensitive plant or sensitive animal and its threat status may be included, e.g. critically endangered sensitive plant or endangered sensitive animal.

Table 3-5 Threatened fauna species that are expected to occur within the PAOI. VU = Vulnerable; EN = Endangered

Scientific Name	Common Name	Screening Tool Sensitivity	Regional Conservation Status	Likelihood of Occurrence	Reason
Avifauna					
Eupodotis senegalensis	White-bellied Bustard	Medium	VU	Low	Ongoing disturbances
Mammalia					
Dasymys robertsii	Robert's Shaggy Rat	Medium	VU	Low	Wetland heavily disturbed
Chrysospalax villosus	Rough-haired Golden Mole	Medium	VU	Low	High site disturbance levels
Crocidura maquassiensis	Makwassie Musk Shrew	Medium	VU	Low	High site disturbance levels
Hydrictis maculicollis	Spotted-necked Otter	Medium	VU	Low	Limited food availability, high disturbance levels in wetland
Ourebia ourebi ourebi	Oribi	Medium	EN	Low	High levels of human activity
Invertebrates					
Clonia uvarovi	Uvarov's Clonia	Medium	VU	Low	On-site disturbances; Species prefers tall, woodland savannah

3.4.3 Flora Species of Conservation Concern

The Screening Tool indicates that no threatened flora species are expected to occur within the PAOI. Furthermore, no flora SCC were observed within the PAOI.

Table 3-6 Threatened plant species that are expected to occur within the project area

Species	Common Name	Conservation Status (Regional)	Screening Tool Sensitivity	Likelihood of Occurrence
Khadia beswickii	Khadiwortel	VU	Medium	Low (limited suitable habitat & high anthropogenic impacts/vegetation clearing)
Cineraria longipes	none	VU		Low (limited suitable habitat & high anthropogenic impacts/vegetation clearing)
Sensitive species 1252		VU	Medium	Low (limited suitable habitat & high anthropogenic impacts/vegetation clearing)
Sensitive species 691		EN	Medium	Low (limited suitable habitat & high anthropogenic impacts/vegetation clearing)

3.4.4 Screening Tool Comparison

The allocated sensitivities for each of the relevant themes are either disputed or validated for the overall PAOI in Table 3-7 below. A summative explanation for each result is provided as relevant. The specialist-assigned sensitivity ratings are based largely on the SEI process followed in the previous section, and consideration is given to any observed or likely presence of SCC or protected species. A map illustrating the overall SEI allocations for the PAOI can be seen in Figure 3-5.

Table 3-7 Summary of the screening tool vs specialist assigned sensitivities

Screening Tool Theme	Screening Tool	Specialist	Tool Validated or Disputed by Specialist - Reasoning
Animal Theme	**Medium**	**Low**	Disputed – Habitat exists in a largely degraded or modified state with high levels of anthropogenic disturbance, particularly those associated with the mining activities on site. No SCC observed and unlikely to occur.
Plant Theme	**Medium**	**Low**	Disputed – Habitat exists in a largely degraded or modified state with high levels of anthropogenic disturbance, particularly those associated with the mining activities on site. High numbers of alien and invasive plants. No SCC observed and unlikely to occur.
Terrestrial Theme	**Very High**	**Low**	Disputed – Habitat exists in a largely degraded or modified state with high levels of anthropogenic disturbance, particularly those associated with the mining activities on site, and has therefore lost much of its ecosystem functionality. Habitat will not recover without human intervention and will continue to degrade over time without rehabilitation. No longer representative of a CBA or ESA. No SCC observed and unlikely to occur

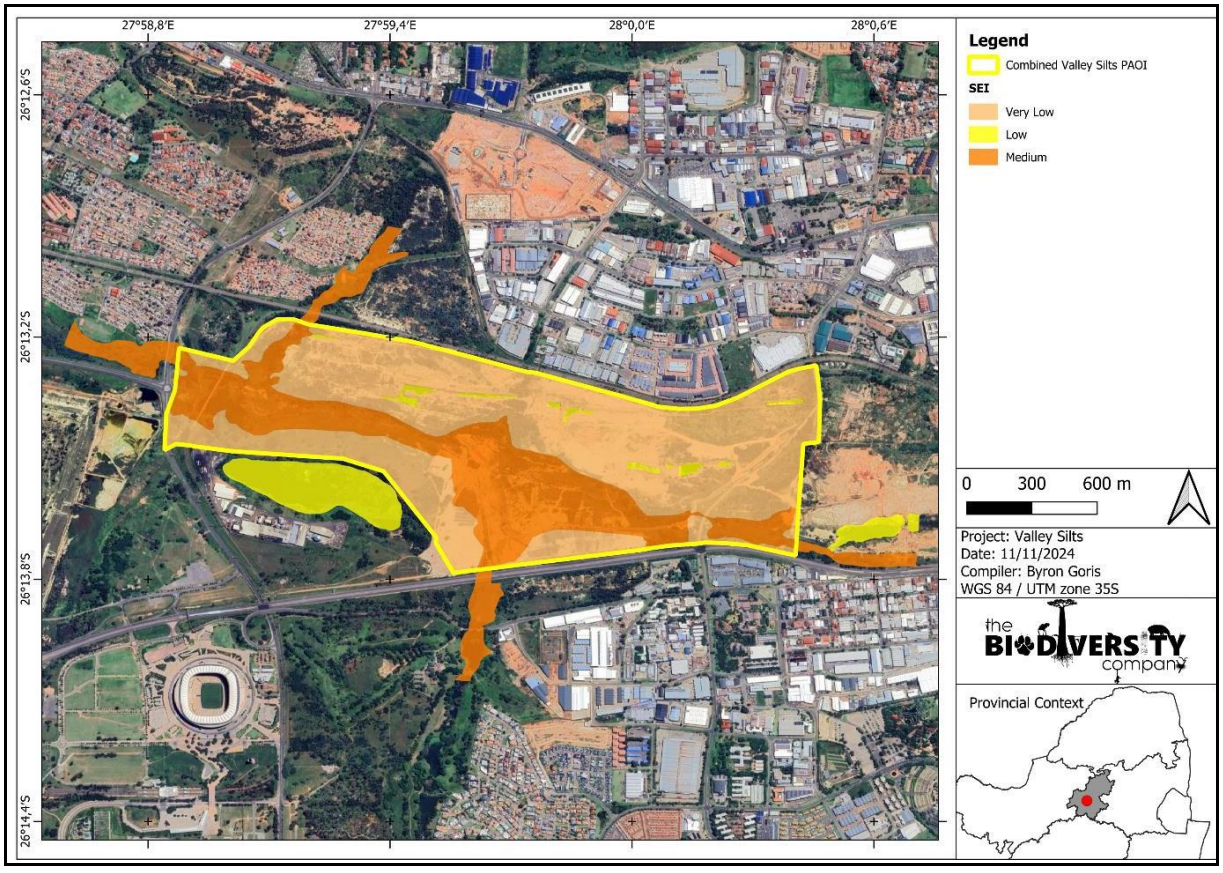


Figure 3-5 Map illustrating the site ecological importance for the PAOI

4 Impact Management and Mitigation Plan

The aim of the management outcomes is to present mitigation actions in such a way that they can be incorporated into the Environmental Management Programme (EMPr), and possible biodiversity management programme, for the project, which should in turn allow for a more successful implementation and auditing of the mitigations and monitoring guidelines. Table 4-1 presents the recommended mitigation measures and the respective time frames, targets, and performance indicators relative to the terrestrial assessment.

The focus of mitigation measures is to reduce the significance of the likely impacts associated with the development, and thereby:

- Prevent the further loss and fragmentation of indigenous vegetation communities within the ecosystem in the vicinity of the PAOI;
- Reduce the negative fragmentation effects of the development and enable the safe movement of fauna species;
- Prevent the direct and indirect loss and disturbance of flora and fauna species and communities, including the negative effects associated with the introduction and proliferation of alien and invasive species; and
- Adequately follow the guidelines for interpreting the Site Ecological Importance ratings assigned to the PAOI.

Table 4-1 Project specific mitigation measures including requirements for timeframes, roles and responsibilities

Management outcome: Vegetation and Habitats				
Impact Management Actions	**Implementation**		**Monitoring**	
	Phase	Responsible Party	Aspect	Frequency
Laydown and construction preparation activities (such as cement mixing, temporary toilets, etc.) must be limited to already modified areas and should take up the smallest footprint possible.	Construction Phase	Project manager, Environmental Officer	Development footprint	Ongoing
Areas classified as Medium sensitivity (water resource habitat) must have mitigations applied as stipulated in the accompanying freshwater/wetland assessment.	Life of operation	Project Manager	Medium sensitivity areas	Ongoing
Develop post-mining environments, in conjunction with regional development plans; and the recreation of habitats, where possible; or structure altered landscapes to be compatible with regional habitats.	Life of operation	Project manager, Environmental Officer	Development footprint	Ongoing
It is recommended that areas to be developed/disturbed be specifically demarcated so that during the construction/activity phase, only the demarcated areas be impacted upon.	Construction Phase	Project manager, Environmental Officer	Development footprint	Ongoing
Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, should not be fragmented or disturbed further if possible.	Construction Phase	Project manager, Environmental Officer	Development footprint	Ongoing
All vehicles and personnel must make use of existing roads and walking paths as far as possible, especially construction/operational vehicles.	Construction Phase	Project manager, Environmental Officer	Development footprint	Ongoing

The clearing of vegetation must be minimised where possible. All activities must be restricted to within the authorised areas.	Life of operation	Project manager, Environmental Officer	Areas of indigenous vegetation	Ongoing
Materials may not be stored for extended periods of time and must be removed from the PAOI once the construction phase has been concluded. No permanent construction phase structures should be permitted. Construction buildings should preferably be prefabricated or constructed of re-usable/recyclable materials. No storage of vehicles or equipment will be allowed outside of the designated laydown areas.	Construction and Operational Phase	Environmental Officer, Design Engineer, and Contractor	Laydown areas	Ongoing
Areas that are denuded during construction need to be re-vegetated with indigenous vegetation according to a habitat rehabilitation plan, to prevent erosion during flood and wind events and to promote the regeneration of functional habitat. This will also reduce the likelihood of encroachment by alien invasive plant species.	Operational phase	Environmental Officer & Contractor	Assess the state of rehabilitation and encroachment of alien vegetation	Quarterly for up to two years after the closure
A habitat rehabilitation plan must be implemented, and areas of bare ground must be revegetated with species indigenous to the region.	Life of Operation	Project manager, Environmental Officer	Rehabilitation	Ongoing
A hydrocarbon spill management plan must be put in place to ensure that should there be any chemical spill out or over that it does not run into the surrounding areas. The Contractor shall be in possession of an emergency spill kit that must always be complete and available on site. • Drip trays or any form of oil absorbent material must be placed underneath vehicles/machinery and equipment when not in use. • No servicing of equipment on site unless necessary. • All contaminated soil shall be treated in situ or removed and be placed in containers. • Appropriately contain any generator diesel storage tanks, machinery spills (e.g., accidental spills of hydrocarbons, oils, diesel etc.) in such a way as to prevent them from leaking and entering the environment. • Construction activities and vehicles could cause spillages of lubricants, fuels and waste material negatively affecting the functioning of the ecosystem. • All vehicles and equipment must be maintained, and all re-fueling and servicing of equipment is to take place in demarcated areas outside of the PAOI.	Life of operation	Environmental Officer & Contractor	Spill events, Vehicles dripping.	Ongoing
It must be made an offence for any staff member to remove any indigenous plant species from the PAOI or bring any alien species in. This is to prevent the spread of exotic or alien species or the illegal collection of plants.	Life of operation	Project manager, Environmental Officer	Any instances	Ongoing
All construction waste must be removed from site at the closure of the construction phase.	Construction phase	Environmental Officer & Contractor	Construction waste	During Phase

Storm Water run-off & Discharge Water Quality monitoring • Incorporate green /soft engineering storm water measures. Avoid unnecessary vegetation clearing and avoid preferential surface flow paths; • Cut-off trenches must be incorporated into the design to decrease contamination of watercourses via heavy metals. • Clean and dirty water must be separated. This water should be looked at for treatment and then re-introduced to mitigate losses to the catchment water hydro-dynamics; • All released water must be within DWAF (1996) water quality standards for aquatic ecosystems, and discharge must be managed to avoid scouring and erosion of the receiving systems; • Keep the surface & sub-surface water and storm water that may run off from the mining areas away from the low lying areas, such as wetlands, as well as the surrounding areas. Prevention from leaving the PAOI in an uncontrolled manner; • Implement Storm Water Run-Off & Discharge Water Quality monitoring; • Storage of potential contaminants in bunded areas; and • To at least minimise impacts to water quality, a treatment strategy is required, and the Groundwater report needs to be considered.	Life of operation	Environmental Officer & Design Engineer	Water Quality	Monthly

Management outcome: Fauna				
Impact Management Actions	**Implementation**		**Monitoring**	
	Phase	Responsible Party	Aspect	Frequency
A qualified environmental control officer must be on site when activities begin. Should animals not move out of the area on their own, relevant specialists must be contacted to advise on how the species can be relocated.	Construction Phase	Environmental Officer, Contractor	Presence of any floral or faunal SCC	During phase
Clearing and disturbance activities must be conducted in a progressive linear manner, always outwards and away from the centre of the PAOI and over several days, so as to provide an easy escape route for all small mammals and herpetofauna.	Construction Phase	Environmental Officer & Contractor	Progressive land clearing operations and the movement of fauna	Ongoing
The areas to be disturbed must be specifically and responsibly demarcated to prevent the movement of staff or any individual into the surrounding environments, signs must be put up to enforce this.	Construction/Operational Phase	Project manager, Environmental Officer	Infringement into these areas	Ongoing
The duration of the activities should be minimised to as short a term as possible, to reduce the period of disturbance on fauna.	Construction	Project manager, Environmental Officer & Design Engineer	Construction/Closure Phase	Ongoing

Noise must be kept to an absolute minimum during the evenings and at night to minimise all possible disturbances to reptile species and nocturnal mammals.	Construction/Operational Phase	Environmental Officer	Noise levels	Ongoing
No trapping, killing, or poisoning of any wildlife is to be allowed and **s**igns must be put up to enforce this. Monitoring must take place in this regard.	Life of operation	Environmental Officer	Evidence of trapping etc	Ongoing
Outside lighting should be designed and limited to minimise impacts on fauna. All outside lighting should be directed away from any sensitive areas. Fluorescent and mercury vapor lighting should be avoided, and sodium vapor (green/red) lights should be used wherever possible.	Construction/Operational Phase	Project manager, Environmental Officer & Design Engineer	Light pollution and period of light	Ongoing
All construction and maintenance motor vehicle operators should undergo an environmental induction that includes instruction on the need to comply with speed limits, to respect all forms of wildlife. Speed limits must be enforced to ensure that road killings and erosion is limited.	Life of operation	Health and Safety Officer	Compliance to the training	Ongoing
Schedule activities and operations during least sensitive periods, to avoid migration, nesting, and breeding seasons. In this case, activities should take place during the day.	Life of operation	Project manager, Environmental Officer & Design Engineer	Activities should take place during the day	Ongoing
Any holes/deep excavations must be dug in a progressive manner and shouldn't be left open overnight. Should any holes remain open overnight they must be properly covered temporarily to ensure that no small fauna species fall in. Holes must be subsequently inspected for fauna prior to backfilling.	Planning and Construction	Environmental Officer & Contractor, Engineer	Presence of trapped animals and open holes	Ongoing
If fencing is required: wildlife-permeable fencing with holes large enough for mongoose and other smaller mammals should be installed, the holes must not be placed in the fence where it is next to a major road as this will increase road killings in the area.	Planning and construction	Environmental Officer & Contractor, Engineer	Fauna movement corridor	Ongoing

Management outcome: Alien Species

Impact Management Actions	**Implementation**		**Monitoring**	
	Phase	Responsible Party	Phase	Responsible Party
An Alien Invasive Plant (AIP) Management Plan must be compiled and implemented. This should regularly be updated to reflect the annual changed in AIP composition.	Life of operation	Project manager, Environmental Officer & Contractor	Manage and assess presence and encroachment of alien vegetation	Twice a year
The footprint area of the construction should be kept to a minimum. The footprint area must be clearly demarcated to avoid unnecessary disturbances to adjacent areas. Footprints of the roads must be kept to prescribed widths.	Construction/Operational Phase	Project manager, Environmental Officer & Contractor	Footprint Area	Life of operation
A pest control plan must be put in place and implemented; it is imperative that poisons not be used to control pests.	Life of operation	Environmental Officer & Health and Safety Officer	Evidence or presence of pests	Life of operation

Management outcome: Dust

Impact Management Actions	**Implementation**		**Monitoring**	
	Phase	Responsible Party	Phase	Responsible Party

Dust-reducing mitigation measures must be put in place and must be strictly adhered to. This includes the wetting of exposed soft soil surfaces. No non-environmentally friendly suppressants may be used as this could result in the pollution of water sources.	Construction phase	Contractor	Dustfall	Dust monitoring program.

Management outcome: Waste Management

Impact Management Actions	Implementation		Monitoring	
	Phase	Responsible Party	Phase	Responsible Party
Waste management must be a priority and all waste must be collected and stored effectively and responsibly according to a site-specific waste management plan. Dangerous waste such as metal wires and glass must only be stored in fully sealed and secure containers, before being moved off site as soon as possible.	Life of operation	Environmental Officer & Contractor	Waste Removal	Weekly
Litter, spills, fuels, chemical and human waste in and around the PAOI must be minimised and controlled according to the waste management plan.	Construction/Closure Phase	Environmental Officer & Health and Safety Officer	Presence of Waste	Daily
Cement mixing may not be performed on the ground. It is recommended that only closed side drum or pan type concrete mixers be utilised. Any spills must be immediately contained and isolated from the natural environment, before being removed from site.	Construction Phase	Environmental Officer & Contractor	Cement mixing and spills	Every occurrence
Toilets at the recommended Health and Safety standards must be provided. These should be emptied regularly and once no longer required, they must be pumped dry to prevent leakage into the surrounding environment and removed from site.	Life of operation	Environmental Officer & Health and Safety Officer	Number of toilets per staff member. Waste levels	Daily
The Contractor should supply sealable and properly marked domestic waste collection bins and all solid waste collected shall be disposed of at a licensed disposal facility within every 10 days at least.	Life of operation	Environmental Officer & Health and Safety Officer	Availability of bins and the collection of the waste	Ongoing
Where a registered disposal facility is not available close to the PAOI, the Contractor shall provide a method statement with regards to waste management. Under no circumstances may domestic waste be burned on site or buried on open pits.	Life of operation	Environmental Officer, Contractor & Health and Safety Officer	Collection/handling of the waste	Ongoing
Refuse bins will be responsibly emptied and secured. Temporary storage of domestic waste shall be in covered and secured waste skips. Maximum domestic waste storage period will be 10 days.	Life of operation	Environmental Officer, Contractor & Health and Safety Officer	Management of bins and collection of waste	Ongoing, every 10 days

Management outcome: Environmental Awareness Training

Impact Management Actions	Implementation		Monitoring	
	Phase	Responsible Party	Phase	Responsible Party
All personnel and contractors are to undergo Environmental Awareness Training. A signed register of attendance must be kept for proof. Discussions are required on sensitive environmental receptors within the PAOI to inform contractors and site staff of the presence of protected species, their identification, conservation status and importance, biology, habitat requirements and management	Pre-construction phase	Health and Safety Officer, Environmental Officer	Compliance to the training	Ongoing

requirements in line with the Environmental Authorisation and within the EMPr. Contractors and employees must all undergo the induction and must be made aware of any sensitive areas to be avoided (water resources).				
	Management outcome: Erosion			
Impact Management Actions	**Implementation**		**Monitoring**	
	Phase	Responsible Party	Phase	Responsible Party
Speed limits must be put in place to reduce erosion. Soil surfaces must be wetted as necessary to reduce the dust generated by the project activities. Speed bumps and signs must be erected to enforce slow speeds.	Life of operation	Project manager, Environmental Officer	Water Runoff from road surfaces	Ongoing
Only existing access routes and walking paths may be made use of.	Life of operation	Project manager, Environmental Officer	Routes used within the area	Ongoing
Areas that are denuded during construction need to be re-vegetated with indigenous vegetation to prevent erosion during flood events etc.	Life of operation	Project manager, Environmental Officer	Re-establishment of indigenous vegetation	Progressively
A stormwater management plan must be compiled and implemented if necessary.	Life of operation	Project manager, Environmental Officer	Management plan	Before construction phase: Ongoing
Precautions must be taken against the erosion damage that would be caused by unplanned pipe leaks or leaching in general. This involves the installation of leak warning and detection systems, as well as the planting of dense indigenous pioneer grass seeds across all bare earth areas.	Closure Phase/Rehabilitation phase	Environmental Officer & Contractor	Erosion Management and Control/ Leaks	During Phase and Ongoing Monitoring

5 Conclusion

The PAOI exists in a predominantly degraded or modified state, having been subjected to various anthropogenic impacts such as - human and vehicle ingress, invasions and infestations of alien and invasive plants and the effects associated with mining activities within the PAOI. This habitat is unlikely to recover without human intervention and will continue to degrade further without active rehabilitation.

Completion of the terrestrial biodiversity assessment led to the dispute of the 'Very High' classification for the terrestrial biodiversity theme sensitivity as allocated by the National Environmental Screening Tool. The PAOI is instead assigned an overall terrestrial sensitivity of 'Very Low' and 'Low', with water resource sensitivities ranging from 'Low' to 'Medium'. The Terrestrial habitat is no longer representative of VU Soweto Highveld Grassland ecosystem type.

5.1 Impact Statement

The location, state and size of the ecosystem suggests that it is unlikely that any functional habitat or SCCs will be lost as a result of the impacts arising from the proposed activities. However, these assumptions pertain to the terrestrial habitat within the PAOI only and the recommendations and mitigations presented in the accompanying freshwater assessment must be strictly adhered to.

5.2 Specialist Opinion

It is the opinion of the specialist that the proposed development is favourable only if all mitigation measures provided in this and other specialist reports are implemented, as well as the following:

- An alien invasion plant (AIP) management plan must be compiled and implemented; and
- A rehabilitation plan must be compiled and implemented for all areas of the PAOI impacted by the project activities.

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7 Appendix Items

7.1 Appendix A: Methods

7.1.1 Desktop Dataset Assessment

7.1.1.1 Ecologically Important Landscape Features

Existing ecologically relevant data layers were incorporated into a GIS to establish how the proposed development might interact with any ecologically important entities. Emphasis was placed around the following spatial datasets:

- National Biodiversity Assessment 2018 (Skowno *et al,* 2019) - The purpose of the National Biodiversity Assessment (NBA) is to assess the state of South Africa's biodiversity based on best available science, with a view to understanding trends over time and informing policy and decision-making across a range of sectors. The NBA deals with all three components of biodiversity: genes, species and ecosystems; and assesses biodiversity and ecosystems across terrestrial, freshwater, estuarine and marine environments. The two headline indicators assessed in the NBA are:
    - Ecosystem Protection Level – indicator of the extent to which ecosystems are adequately protected or under-protected. Ecosystem types are categorised as Well Protected (WP), Moderately Protected (MP), Poorly Protected (PP), or Not Protected (NP), based on the proportion of the biodiversity target for each ecosystem type that is included within one or more protected areas. Not Protected, Poorly Protected or Moderately Protected ecosystem types are collectively referred to as under-protected ecosystems.
    - Red List of Ecosystems (RLE) 2021 – The list was first published in 2011 and has since been substantially revised by authors Dr Andrew Skowno and Mrs Maphale Monyeki (SANBI, 2022). This list is based on assessments that followed the International Union for Conservation of Nature (IUCN) Red List of Ecosystems Framework (version 1.1) and covers all 456 terrestrial ecosystem types described in South Africa by Mucina and Rutherford (2006). A total of 120 of the 456 terrestrial ecosystem types assessed are categorised as threatened and together make up approximately 10% of the remaining natural habitat in the country. Of these 120 ecosystem types, 55 are Critically Endangered (CR), 51 Endangered (EN) and 14 are Vulnerable (VU). The remainder are categorised as Least Concern (LC) (SANBI, 2022; Skowno & Monyeki, 2021).
- Protected areas:
    - South Africa Protected Areas Database (SAPAD) and South Africa Conservation Areas Database (SACAD) (DFFE, 2023a) – The South African Protected Areas Database (SAPAD) and South Africa Conservation Areas Database (SACAD) contains spatial data for the conservation of South Africa. It includes spatial and attribute information for both formally protected areas and areas that have less formal protection. The database is updated on a continuous basis and forms the basis for the Register of Protected Areas which is a legislative requirement under the National Environmental Management: Protected Areas Act, Act 57 of 2003.
    - National Protected Areas Expansion Strategy (NPAES) (DFFE, 2022b) – The National Protected Area Expansion Strategy (NPAES) provides spatial information on areas that are suitable for terrestrial ecosystem protection. These focus areas are large, intact

and unfragmented and are therefore, of high importance for biodiversity, climate resilience and freshwater protection.

- Conservation/Biodiversity Sector Plans:

  The Gauteng Conservation Plan (Version 3.3) (GDARD, 2014b) classified areas within the province on the basis of its contribution to reach the conservation targets within the province. These areas are classified as Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs) to ensure sustainability in the long term. The CBAs are classified as either 'Irreplaceable' (must be conserved), or 'Important'.

  Critical Biodiversity Areas (CBAs) are terrestrial and aquatic areas of the landscape that need to be maintained in a natural or near-natural state to ensure the continued existence and functioning of species and ecosystems and the delivery of ecosystem services. Thus, if these areas are not maintained in a natural or near natural state then biodiversity targets cannot be met.

- Gauteng Ridges

  The quartzite ridges of Gauteng are one of the most important natural assets in this northern province of South Africa. This is because these ridges, and the areas immediately surrounding them, provide unique habitat for a wide variety of fauna and flora, some of which are Red-Listed, rare or endemic species, or in the case of certain plant species, are found nowhere else in South Africa or around the world.

  In order to give practical effect to this policy, the Gauteng Department of Agriculture and Rural Development (GDARD) has classified all ridges in Gauteng into one of four classes, based on the existing extent and percentage of area converted by urban development or disturbed by other human activities. According to GDARD (2019), the ridges within Gauteng may be classified as follows:

  - Class 1 Ridges: 5% or less of the ridge area has been transformed by human activity (Approx. 58% of ridges fall within this category);
  - Class 2 Ridges: Between 6 and 34% of the ridge area has been transformed by human activity (Approx. 23% of ridges fall within this category);
  - Class 3 Ridges: Between 35 and 64% of the ridge area has been transformed by human activity (Approx. 8% of ridges fall within this category); and
  - Class 4 Ridges: Over 65% of the ridge area has been transformed by human activity (Approx. 11% of ridges fall within this category).

  The 2019 Ridges Guideline has defined general guidelines that must be followed with regard to the amount of development that should be permitted on different ridges according to their class. GDARD (2019) stipulates that no development is to be permitted on any class 1 ridge, and varying levels of development may be permissible with regards to the higher ridge classes – depending on the impact level of the proposed activity and the corresponding spatial scale. Buffers and permitted developments are as follows (GDARD, 2019):

  - Class 1 Ridges: Only low impact activities with an ecological footprint of 5% or less in the 200 m buffer zone of the ridge will be supported and no development will be permitted in the ridge itself;

  - Class 2 Ridges: Development activities and uses that have a high environmental impact on a Class 2 ridge will not be permitted. Low impact development activities, such as tourism facilities, which comprise of an ecological footprint of 5% or less of the property may be supported (the ecological footprint includes all areas directly impacted on by a development activity, including all paved surfaces, landscaping, property access and service provision). Low impact development activities on a ridge will not be supported where it is feasible to undertake the development on a portion of the property abutting the ridge;

  - Class 3 Ridges: The guidelines for Class 2 ridges will be applied to areas of the ridge that have not been significantly impacted on by human activity. The guidelines for Class 3 ridges will be applied to areas of the ridge that have been significantly impacted on by human activity; and

  - Class 4 Ridges: Further development activities will not be supported in areas of the ridge where the remaining contiguous extent of natural habitat is 4 ha or more.

- Key Biodiversity Areas (KBAs) (SANBI, 2024) – KBAs are identified using the Global Standard for the Identification of KBAs, developed by the International Union for the Conservation of Nature (IUCN). The standard involves applying five criteria to gauge an area's importance for biodiversity. These criteria consider the presence of threatened species or ecosystems, species with limited global distributions, pristine wilderness, significant biological processes, or irreplaceable biodiversity. Each criterion has specific quantitative thresholds to determine if they are met. As of 2023, over 16,000 KBAs have been identified globally, covering more than 20 million square kilometres. South Africa completed its first comprehensive national assessment in 2023, evaluating over 9,900 species or ecosystem types and identifying 260+ individual KBAs; and

- Freshwater Ecology:

  - Strategic Water Source Areas (SWSAs) (Le Maitre *et al,* 2018) – SWSAs are defined as areas of land that supply a quantity of mean annual surface water runoff in relation to their size and therefore, contribute considerably to the overall water supply of the country. These are key ecological infrastructure assets and the effective protection of surface water SWSAs areas is vital for national security because a lack of water security will compromise national security and human wellbeing.

  - South African Inventory of Inland Aquatic Ecosystems (SAIIAE) (Van Deventer *et al*, 2018) – A South African Inventory of Inland Aquatic Ecosystems (SAIIAE) was established during the National Biodiversity Assessment of 2018. It is a collection of data layers that represent the extent of river and inland wetland ecosystem types as well as pressures on these systems.

  - National Freshwater Ecosystem Priority Area (NFEPA) (Nel *et al.,* 2011) – The NFEPA database provides strategic spatial priorities for conserving the country's freshwater ecosystems and associated biodiversity as well as supporting sustainable use of water resources.

7.2 Appendix B: Terrestrial Site Ecological Importance

The different habitat types within the PAOI were delineated and identified based on observations made during the field survey, and information from available satellite imagery. These habitat types were assigned Ecological Importance (EI) categories based on their ecological integrity, conservation value, the presence of SCC and their ecosystem processes.

Site Ecological Importance (SEI) is a function of the Biodiversity Importance (BI) of the receptor (e.g., SCC, the vegetation/fauna community or habitat type present in the Project Area) and Receptor Resilience (RR) (its resilience to impacts).

BI is a function of Conservation Importance (CI) and the Functional Integrity (FI) of the receptor. The criteria for the CI and FI ratings are provided in Table 7-1 and Table 7-2 respectively.

Table 7-1 Summary of Conservation Importance (CI) criteria

Conservation Importance	Fulfilling Criteria
Very High	Confirmed or highly likely occurrence of Critically Endangered (CR), Endangered (EN), Vulnerable (VU) or Extremely Rare or CR species that have a global extent of occurrence (EOO) of < 10 km^2. Any area of natural habitat of a CR ecosystem type or large area (> 0.1% of the total ecosystem type extent) of natural habitat of an EN ecosystem type. Globally significant populations of congregatory species (> 10% of global population).
High	Confirmed or highly likely occurrence of CR, EN, VU species that have a global EOO of > 10 km^2. IUCN threatened species (CR, EN, VU) must be listed under any criterion other than A. If listed as threatened only under Criterion A, include if there are less than 10 locations or < 10 000 mature individuals remaining. Small area (> 0.01% but < 0.1% of the total ecosystem type extent) of natural habitat of EN ecosystem type or large area (> 0.1%) of natural habitat of VU ecosystem type. Presence of Rare species. Globally significant populations of congregatory species (> 1% but < 10% of global population).
Medium	Confirmed or highly likely occurrence of populations of Near Threatened (NT) species, threatened species (CR, EN, VU) listed under Criterion A only and which have more than 10 locations or more than 10 000 mature individuals. Any area of natural habitat of threatened ecosystem type with status of VU. Presence of range-restricted species. > 50% of receptor contains natural habitat with potential to support SCC.
Low	No confirmed or highly likely populations of SCC. No confirmed or highly likely populations of range-restricted species. < 50% of receptor contains natural habitat with limited potential to support SCC.
Very Low	No confirmed and highly unlikely populations of SCC. No confirmed and highly unlikely populations of range-restricted species. No natural habitat remaining.

Table 7-2 Summary of Functional Integrity (FI) criteria

Functional Integrity	Fulfilling Criteria
Very High	Very large (> 100 ha) intact area for any conservation status of ecosystem type or > 5 ha for CR ecosystem types. High habitat connectivity serving as functional ecological corridors, limited road network between intact habitat patches. No or minimal current negative ecological impacts, with no signs of major past disturbance.
High	Large (> 20 ha but < 100 ha) intact area for any conservation status of ecosystem type or > 10 ha for EN ecosystem types. Good habitat connectivity, with potentially functional ecological corridors and a regularly used road network between intact habitat patches. Only minor current negative ecological impacts, with no signs of major past disturbance and good rehabilitation potential.
Medium	Medium (> 5 ha but < 20 ha) semi-intact area for any conservation status of ecosystem type or > 20 ha for VU ecosystem types. Only narrow corridors of good habitat connectivity or larger areas of poor habitat connectivity and a busy used road network between intact habitat patches. Mostly minor current negative ecological impacts, with some major impacts and a few signs of minor past disturbance. Moderate rehabilitation potential.
Low	Small (> 1 ha but < 5 ha) area. Almost no habitat connectivity but migrations still possible across some modified or degraded natural habitat and a very busy used road network surrounds the area. Low rehabilitation potential. Several minor and major current negative ecological impacts.
Very Low	Very small (< 1 ha) area. No habitat connectivity except for flying species or flora with wind-dispersed seeds. Several major current negative ecological impacts.

BI can be derived from a simple matrix of CI and FI as provided in Table 7-3.

Table 7-3 Matrix used to derive Biodiversity Importance (BI) from Functional Integrity (FI) and Conservation Importance (CI)

Biodiversity Importance		Conservation Importance				
		Very High	**High**	**Medium**	**Low**	**Very Low**
Functional Integrity	**Very High**	Very High	Very High	High	Medium	Low
	High	Very High	High	Medium	Medium	Low
	Medium	High	Medium	Medium	Low	Very Low
	Low	Medium	Medium	Low	Low	Very Low
	Very Low	Medium	Low	Very Low	Very Low	Very Low

The fulfilling criteria to evaluate RR are based on the estimated recovery time required to restore an appreciable portion of functionality to the receptor, as summarised in Table 7-4.

Table 7-4 Summary of Receptor Resilience (RR) criteria

Resilience	Fulfilling Criteria
Very High	Habitat that can recover rapidly (~ less than 5 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a very high likelihood of: (i) remaining at a site even when a disturbance or impact is occurring, or (ii) returning to a site once the disturbance or impact has been removed.
High	Habitat that can recover relatively quickly (~ 5–10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a high likelihood of: (i) remaining at a site even when a disturbance or impact is occurring, or (ii) returning to a site once the disturbance or impact has been removed.
Medium	Will recover slowly (~ more than 10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a moderate likelihood of: (i) remaining at a site even when a disturbance or impact is occurring, or (ii) returning to a site once the disturbance or impact has been removed.
Low	Habitat that is unlikely to be able to recover fully after a relatively long period: > 15 years required to restore ~ less than 50% of the original species composition and functionality of the receptor functionality, or species that have a low likelihood of: (i) remaining at a site even when a disturbance or impact is occurring, or (ii) returning to a site once the disturbance or impact has been removed.
Very Low	Habitat that is unable to recover from major impacts, or species that are unlikely to: (i) remain at a site even when a disturbance or impact is occurring, or (ii) return to a site once the disturbance or impact has been removed.

After the determination of BI and RR, the SEI can be ascertained using the matrix as provided in Table 7-5.

Table 7-5 Matrix used to derive Site Ecological Importance from Receptor Resilience (RR) and Biodiversity Importance (BI)

Site Ecological Importance		Biodiversity Importance				
		Very High	**High**	**Medium**	**Low**	**Very Low**
Receptor Resilience	**Very Low**	Very High	Very High	High	Medium	Low
	Low	Very High	Very High	High	Medium	Very Low
	Medium	Very High	High	Medium	Low	Very Low
	High	High	Medium	Low	Very Low	Very Low
	Very High	Medium	Low	Very Low	Very Low	Very Low

Interpretation of the SEI in the context of the proposed project is provided in Table 7-6.

Table 7-6 Guideline for interpreting Site Ecological Importance in the context of proposed activities

Site Ecological Importance	Interpretation in relation to proposed development activities
Very High	Avoidance mitigation – no destructive development activities should be considered. Offset mitigation not acceptable/not possible (i.e., last remaining populations of species, last remaining good condition patches of ecosystems/unique species assemblages). Destructive impacts for species/ecosystems where persistence target remains.
High	Avoidance mitigation wherever possible. Minimisation mitigation – changes to project infrastructure design to limit the amount of habitat impacted, limited development activities of low impact acceptable. Offset mitigation may be required for high impact activities.
Medium	Minimisation and restoration mitigation – development activities of medium impact acceptable followed by appropriate restoration activities.
Low	Minimisation and restoration mitigation – development activities of medium to high impact acceptable followed by appropriate restoration activities.
Very Low	Minimisation mitigation – development activities of medium to high impact acceptable and restoration activities may not be required.

The SEI evaluated for each taxon can be combined into a single multi-taxon evaluation of SEI for the assessment area. Either a combination of the maximum SEI for each receptor should be applied, or the SEI may be evaluated only once per receptor but for all necessary taxa simultaneously. For the latter, justification of the SEI for each receptor is based on the criteria that conforms to the highest CI and FI, and the lowest RR across all taxa.

7.3 Appendix C: Specialist Declaration of Independence

I, Byron Goris, declare that:

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing any decision to be taken with respect to the application by the competent authority; and the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of Section 24F of the Act.



Byron Goris

Environmental Consultant

The Biodiversity Company

November 2024

I, Andine Erasmus, declare that:

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing any decision to be taken with respect to the application by the competent authority; and the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of Section 24F of the Act.



Andine Erasmus

Terrestrial Ecologist

The Biodiversity Company

November 2024

I, Carami Burger, declare that:

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing any decision to be taken with respect to the application by the competent authority; and the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of Section 24F of the Act.

CBurger

Carami Burger

Ecologist

The Biodiversity Company

November 2024

7.4 Appendix D: Specialist CVs



Byron Goris

B.Sc Hons in Global Socio-Ecological Systems Change (Cert. Nat. Sci.)

Cell: +27 81 790 8603
Email: byron@thebiodiversitycompany.com
Identity Number: 9904145161083
Date of birth: 14 April 1999

Profile Summary

Environmental work experience across South Africa (2 years).

Theoretical and practical understanding of methodology in both aquatic, terrestrial, and global change ecology.

General training and experience in aspects of conservation, biogeography, and socio-economic sustainability.

Areas of Interest

Ecological systems approaches, global environmental change, socio-economic sustainability, multi/trans-disciplinarity, sports ecology, traditional medicinal plant science.

Key Experience

- Aquatic, Terrestrial, and Wetland Ecological Assessments
- Environmental Field work and basic field methodology
- Business sustainability
- Sports Ecology Research
- Habitat delineation
- Field work and research

Country Experience

South Africa

Nationality

South African

Languages

English – Proficient

Afrikaans – Basic

Qualifications

- BSc (Hons) Animals, Plants, and Environmental Sciences; University of the Witwatersrand
- BSc Biology, University of the Witwatersrand
- Certificated Natural Scientist (170720)

CURRICULUM VITAE: Byron Goris



Andine Erasmus

M.Sc. Zoology

Candidate Natural Scientist 164894

Cell: +27 64 417 6320

Email: andine@thebiodiversitycompany.com

Identity Number: 9504080028089

Date of birth: 8 April 1995

Profile Summary

Work experience in South Africa and Mauritius.

Biodiversity specialist experience in projects related to infrastructure development, renewable energy, mining, and prospecting.

Specific expertise includes terrestrial ecology, including mammals, herpetofauna, avifauna and flora, as well as report writing for environmental compliance, monitoring, management, and rehabilitation.

Areas of Interest

Zoology, Biodiversity, Conservation, Rehabilitation and Marine Biology.

Key Experience

- Terrestrial Ecological Assessments
- Rehabilitation plans and monitoring
- Habitat delineation
- Field work and research
- Environmental Management Programs (EMPr)
- Invasive Species Plans

Country Experience

South Africa

Mauritius

Nationality

South African

Languages

English – Proficient

Afrikaans – Proficient

Qualifications

- MSc Zoology *(Cum Laude)*, University of Pretoria
- BSc (Hons) Zoology, University of Pretoria
- BSc Zoology, University of Pretoria
- Cand Sci Nat (164894)
- Africa Land-Use Training, Grass Identification (2024)

Carami Burger

B.Sc. Honours – Ecological Interactions and Ecosystem Resilience (Cum Laude)

(*Pr Sci Nat*)

Cell: +27 83 630 9077

Email: Carami@thebiodiversitycompany.com

Identity Number: 9606250185084

Date of birth: 25 June 1996



Profile Summary

Working experience in South Africa and Mozambique.

Specialist experience with infrastructure development, road development, renewable energy, mining and prospecting.

Specialist expertise include terrestrial ecology, wetland resources, rehabilitation and management plans, environmental compliance and monitoring.

Areas of Interest

Renewable Energy & Bulk Services Infrastructure Development, Mining, Farming, Sustainability and Conservation.

Key Experience

- Environmental Impact Assessments (EIA)
- Basic Assessments
- Terrestrial Ecological Assessments
- Wetland Delineation and Ecological Assessments
- Environmental Management Programmes (EMPr)
- Rehabilitation Plans
- Invasive Species Plans
- Search and Rescue Plans
- Environmental Compliance Audits
- Water Use License Applications
- Dust Fallout Monitoring
- Water Quality Monitoring

Countries worked in

South Africa

Mozambique

Zambia

Angola

Sierra Leone

Nationality

South African

Languages

English – Proficient

Afrikaans – Proficient

Qualifications

- BSc Hons Ecological Interactions and Ecosystem Resilience.
- BSc Botany and Zoology.
- Pr Sci Nat (121757)

APPENDIX E:
Wetland Impact Assessment Report

WETLAND FUNCTIONAL AND IMPACT ASSESSMENT FOR THE PROPOSED VALLEY SILTS EXPANSION PROJECT

City of Johannesburg Metropolitan Municipality, Gauteng Province, South Africa

10/10/2024

Prepared by:

The Biodiversity Company

Cell: +27 81 319 1225

Fax: +27 86 527 1965

info@thebiodiversitycompany.com

www.thebiodiversitycompany.com

Report Name	**WETLAND FUNCTIONAL AND IMPACT ASSESSMENT FOR THE PROPOSED VALLEY SILTS EXPANSION PROJECT**
Specialist Theme	Aquatic Biodiversity Theme
Project Reference	Valley Silts Expansion
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Environmental Assessment Practitioner	KONGIWE
Fieldwork & Report Writer	Divan van Rooyen (Can. Sci. Nat. 151272) 
Reviewer	Rian Pienaar (SACNASP 135544) 
Declaration	The Biodiversity Company and its associates operate as independent consultants under the auspice of the South African Council for Natural Scientific Professions. We declare that we have no affiliation with or vested financial interests in the proponent, other than for work performed under the Environmental Impact Assessment Regulations, 2017 (as amended). We have no conflicting interests in the undertaking of this activity and have no interests in secondary developments resulting from the authorisation of this project. We have no vested interest in the project, other than to provide a professional service within the constraints of the project (timing, time and budget) based on the principals of science.

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1 Introduction

1.1 Background

The Biodiversity Company was appointed to undertake a wetland functional and impact assessment for the proposed Valley Silts Expansion Phase project near NASREC, in Johannesburg, Gauteng Province. The project site is located approximately 1 km north of the FNB Stadium and approximately 300 m southeast from the Booysens Reserve in the Gauteng Province. The site is located within the City of Johannesburg Metropolitan Municipality. A map presenting the regional context of the 500 m Project Area of Interest (PAOI) can be seen in Figure 1-1.

This assessment has been completed in accordance with the requirements of the published General Notice (GN) 4167 by the Department of Water and Sanitation (DWS) (previously GN 509 of 2016 and GN 3139 of 2023). The said notice was published in the Government Gazette (no. 49833) under Section 39 of the National Water Act (Act no. 36 of 1998) in December 2023, for a Water Use Licence (WUL) in terms of Section 21(c) & (i) water uses. The GN 4167 process provides an allowance to apply for a WUL for Section 21(c) & (i) under a General Authorisation (GA), as opposed to a full Water Use Licence Application (WULA). A water use (or potential) qualifies for a GA under GN 4167 when the proposed water use/activity is subjected to analysis using the DWS Risk Assessment Matrix (RAM), provided the identified risks are all considered a low risk, and the applicant is listed under Appendix D1 or Appendix D2 of the same notice. This assessment will implement the RAM and provide a specialist opinion on the appropriate water use authorisation.

This assessment was conducted in accordance with the amendments to the Environmental Impact Assessment Regulations (2014) (GNR 326, 7 April 2017) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA). The approach has taken cognisance of the published Government Notices (GN) 320 (20 March 2020) and GN 1150 (30 October 2020) in terms of NEMA, dated 20 March and 30 October 2020: “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 National Environmental Management Act, 1998, when applying for Environmental Authorisation” (Reporting Criteria).

After considering the findings and recommendation provided by the specialist herein, this report should inform and guide the Environmental Assessment Practitioner (EAP) and regulatory authorities, enabling informed decision making regarding the ecological viability of the proposed development and related activities.

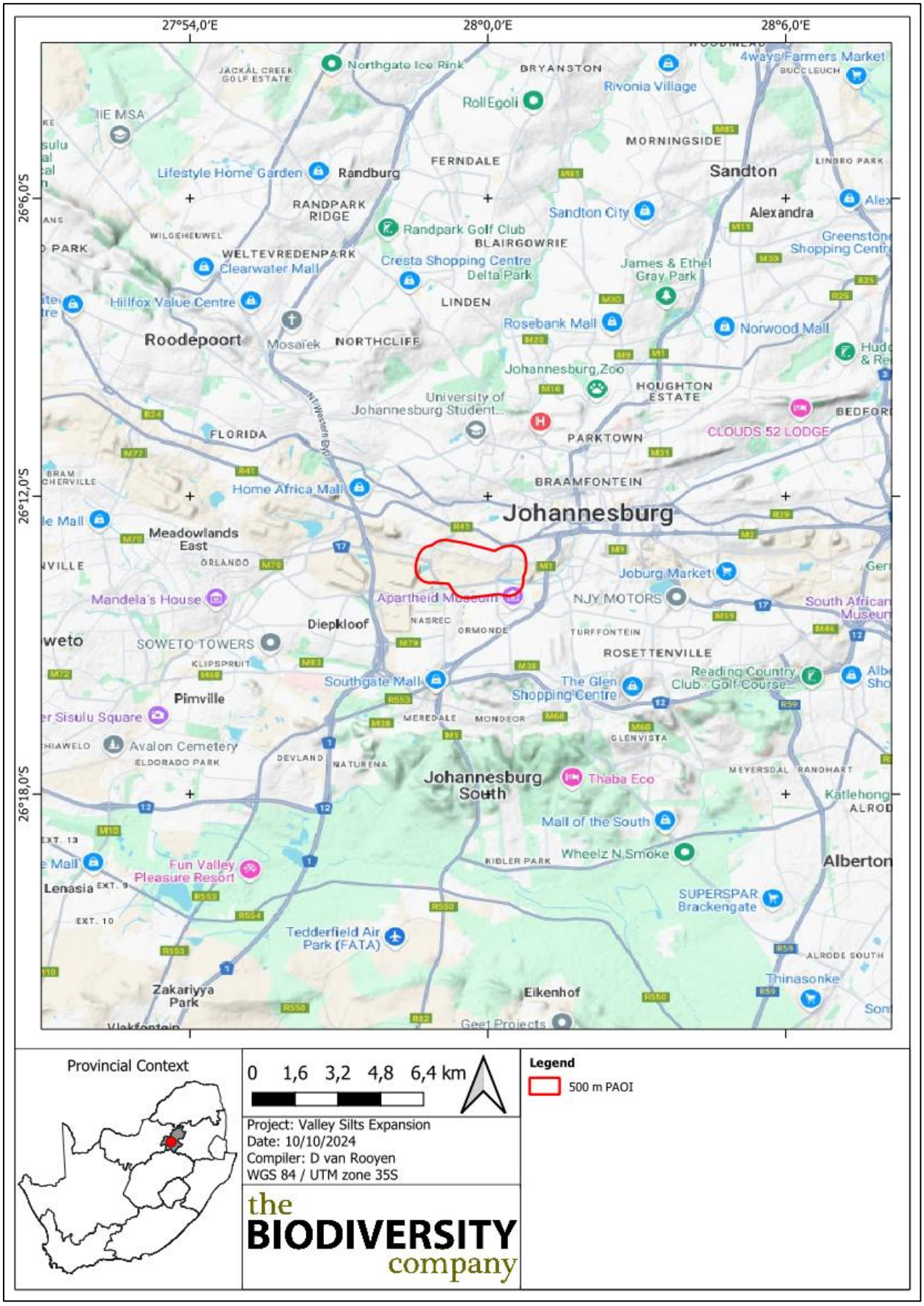


Figure 1-1 Location of the proposed project

1.2 Scope of Work

The following tasks were completed in fulfilment of the terms of reference for this assessment:

- A desktop assessment of available and related datasets to provide context of the freshwater biodiversity of the project area and to indicate potential wetland areas;
- The delineation, classification and assessment of wetlands within 500 m of the project area;
- The provision of recommendations relevant to associated impacts; and
- Report compilation detailing the baseline findings.

1.3 Project Description

Ergo Mining (Pty) Ltd (Ergo), a subsidiary of DRDGOLD Limited, holds various Mining Rights (MR) for slimes dams and sand dumps, extending 65 km from western Johannesburg to Eastern Ekurhuleni, with primary activities concentrated in the central and eastern sections of the Witwatersrand mining belt (Kongiwe, 2024).

Furthermore, Ergo has secured an Environmental Authorisation (EA) and an Integrated Water Use License (IWUL) for the mechanical reclamation of gold-bearing silts from the Russel Stream, located north of NASREC near Booysens Reserve in Johannesburg. This is the Valley Silts Project.

The entire Valley Silts project is divided into three primary sectors:

- **Sector 1:** The current approved mining area, extending from the dam wall to the stockpile area near Crownwood Road. This sector is fully operational with established infrastructure, including fenced facilities, solar-powered security lights, haul roads, and site offices.
- **Sector 2:** Extends from the dam wall to NASREC Road (N1 to N20).
- **Sector 3:** Comprises blocks N21 and N22, located on either side of Crownwood Road.

The proposed Valley Silts Expansion project will consist of Sector 2 and Sector 3 (see Figure 1-2).

The new activities for the Expansion will include:

- Mining Blocks:
    - The expansion phase will include mining blocks N1 to N22.
- Drying stockpiles:
    - Eight drying stockpile locations are planned to manage the moisture content and oxidation of the mined material.
- Stormwater control berms/paddocks:
    - Berms and paddocks will be installed to protect the river from extraneous ingress.
- River crossings:
    - Eight river crossings will be constructed

- Haul and site roads
    - Existing roads will be utilized and expanded as necessary

Exploration trenching will determine the depositional flank extents, and all material will be removed from the natural flow path and flanks. Existing facilities in Sector 1, such as hard parks, cut-off trenches, and sumps, will be utilized for the expansion. Silt traps will be relocated as mining progresses, with the existing sump discharging to the stream.

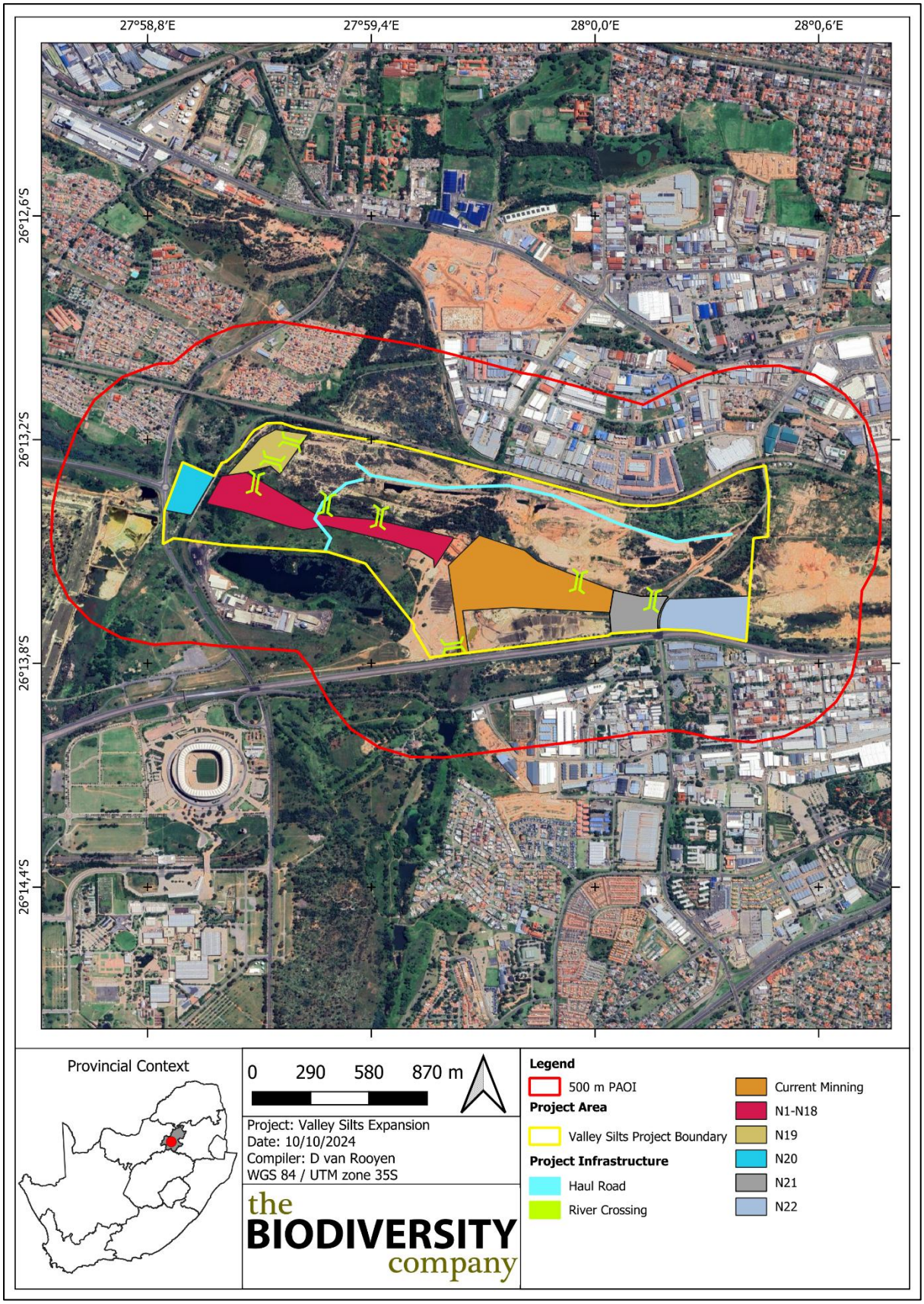


Figure 1-2 Map illustrating the details of the project area

1.4 Assumptions and Limitations

The following aspects were considered as limitations; however, despite these limitations, this wetland assessment is deemed sufficient for the purpose of the Environmental Impact Assessment (EIA):

- It has been assumed that the extent of the project area provided to the specialist is accurate;
- Areas characterised by external wetland indicators have been the focus for this assessment. Areas lacking these characteristics have not been focussed on; and
- The GPS used for water resource delineations is accurate to within five meters. Therefore, the wetland delineation plotted digitally may be offset by a maximum of five metres to either side.

1.5 Key Legislative Requirements

The legislation, policies and guidelines listed below in Table 1-1 are applicable to the current project. The list below, although extensive, may not be complete and other legislation, policies and guidelines may apply in addition to those listed below.

Table 1-1 A list of key legislative requirements

Region	Legislation / Guideline	Comment
National	National Environmental Management Act (Act No. 107 of 1998) (NEMA)	To provide for the effective protection and controlled utilisation of the environment and for matters incidental thereto.
	The National Environmental Management: Biodiversity Act (Act No. 10 of 2004) (NEM:BA), Threatened or Protected Species Regulations	The protection of species and ecosystems that warrant protection
	NEMA: Environmental Impact Assessment Regulations (2014), as amended, with cognisance of Appendix 6 requirements in GNR 326 (7 April 2017, as amended).	The minimum criteria for reporting.
	NEMA: Government Notices (GN) 320 (20 March 2020) and GN 1150 (30 October 2020)	Protocol for the specialist assessment and minimum report content requirements.
	National Environmental Management: Waste Act (Act No. 59 of 2008)	The regulation of waste management to protect the environment.
	NWA: Government Notice (GN) 4167 (previously GN 509 of 2016 and GN 3139 of 2023)	Water Use Licence (WUL) in terms of Section 21(c) & (i) water uses and the provision to apply for a General Authorisation subject to usage and outcome of the Risk Assessment Matrix.
	NEM:BA: Alien and Invasive Species Lists (2020) (GN 1003, September 2020)	The regulation and management of alien invasive species.
	Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983) (CARA)	To provide for control over the utilisation of the natural agricultural resources, including the vegetation and the combating of weeds and invader plants.
Provincial	Transvaal Nature Conservation Ordinance (Act No. 12 of 1998)	To consolidate and amend the laws relating to nature conservation and to provide matters incidental thereto.
	Gauteng Conservation Plan (2022)	The spatial designation of conservation areas and targets within the province.

1.6 National Water Act (NWA, 1998)

The DWS is the custodian of South Africa's water resources and therefore assumes public trusteeship of water resources, which includes watercourses, surface water, estuaries, or aquifers. The National Water Act (Act No. 36 of 1998) (NWA) allows for the protection of water resources, which includes:

- The maintenance of the quality of the water resource to the extent that the water resources may be used in an ecologically sustainable way;
- The prevention of the degradation of the water resource; and

- The rehabilitation of the water resource.

A watercourse means:

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

The NWA recognises that the entire ecosystem and not just the water constitutes the resource and as such needs to be conserved. No activity may therefore take place within a watercourse unless it is authorised by the DWS. Any area within a wetland or riparian zone is therefore excluded from development unless authorisation is obtained from the DWS in terms of Section 21 (c) and (i).

1.7 National Environmental Management Act (NEMA, 1998)

The National Environmental Management Act (NEMA) (Act 107 of 1998) and the associated Regulations as amended in April 2017 and June 2021, states that prior to any development taking place within a wetland or riparian area, an environmental authorisation process needs to be followed. This could follow either the Basic Assessment Report (BAR) process or the Scoping and Environmental Impact Assessment (S&EIA) process depending on the scale of the impact.

1.8 Legislative Framework

In line with the protocol for the specialist assessment and minimum report content requirements for environmental impacts on freshwater biodiversity, as per Government Notice 320 published in terms of NEMA, dated 20 March 2020: “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 National Environmental Management Act, 1998, when applying for Environmental Authorisation” – the following has been assumed:

- An applicant intending to undertake an activity identified in the scope of this protocol on a site identified on the screening tool as being of:
    - “very high sensitivity” for aquatic biodiversity, must submit an Aquatic Biodiversity Specialist Assessment;
    - “low sensitivity” for aquatic biodiversity, must submit an Aquatic Biodiversity Compliance Statement;
    - Where the information gathered from the site sensitivity verification differs from the screening tool designation of “very high” aquatic biodiversity sensitivity, and it is found to be of a “low” sensitivity, an Aquatic Biodiversity Compliance Statement must be submitted; and
    - Similarly, where the information gathered from the site sensitivity verification differs from the screening tool designation of “low” aquatic biodiversity sensitivity, and it is found to be of a “very high” sensitivity, an Aquatic Biodiversity Specialist Assessment must be submitted.

An Aquatic / Freshwater Biodiversity Specialist Assessment Report must contain the information as presented in Table 1-2 below.

Table 1-2 Aquatic Biodiversity Specialist Assessment information requirements as per the relevant protocol, including the location of the information within this report

Information to be Included (as per GN 320, 20 March 2020)	Report Section
The assessment must be prepared by a specialist registered with the South African Council for Natural Scientific Professionals (SACNASP) with expertise in the field of aquatic sciences	7.3
Contact details of the specialist, their SACNASP registration number, their field of expertise and a curriculum vitae	7.3
A signed statement of independence by the specialist(s)	7.3
The assessment must be undertaken on the preferred site and within the proposed development footprint	1.3
A baseline description of the aquatic biodiversity and ecosystems on the site, including: aquatic ecosystem types; presence of aquatic species, and composition of aquatic species communities, their habitat, distribution and movement patterns.	3.1.5
The threat status of the ecosystem and species as identified by the screening tool	3.6.1
An indication of the national and provincial priority status of the aquatic ecosystem, including a description of the criteria for the given status (i.e. if the site includes a wetland or a river freshwater ecosystem priority area or sub catchment, a strategic water source area, a priority estuary, whether or not they are free-flowing rivers, wetland clusters, a critical biodiversity or ecologically sensitivity area)	3.1.5
A description of the ecological importance and sensitivity of the aquatic ecosystem including: (a) the description (spatially, if possible) of the ecosystem processes that operate in relation to the aquatic ecosystems on and immediately adjacent to the site (e.g., movement of surface and subsurface water, recharge, discharge, sediment transport, etc.); and (b) the historic ecological condition (reference) as well as present ecological state of rivers (in- stream, riparian and floodplain habitat), wetlands and/or estuaries in terms of possible changes to the channel and flow regime (surface and groundwater)	3.4.1
The assessment must identify alternative development footprints within the preferred site which would be of a "low" sensitivity as identified by the screening tool and verified through the site sensitivity verification and which were not considered appropriate	-
Related to impacts, a detailed assessment of the potential impacts of the proposed development on the following aspects must be undertaken to answer the following questions: Is the proposed development consistent with maintaining the priority aquatic ecosystem in its current state and according to the stated goal? Is the proposed development consistent with maintaining the resource quality objectives for the aquatic ecosystems present? How will the proposed development impact on fixed and dynamic ecological processes that operate within or across the site? This must include: (a) impacts on hydrological functioning at a landscape level and across the site which can arise from changes to flood regimes (e.g. suppression of floods, loss of flood attenuation capacity, unseasonal flooding or destruction of floodplain processes); (b) will the proposed development change the sediment regime of the aquatic ecosystem and its sub-catchment (e.g. sand movement, meandering river mouth or estuary, flooding or sedimentation patterns); (c) what will the extent of the modification in relation to the overall aquatic ecosystem be (e.g. at the source, upstream or downstream portion, in the temporary / seasonal / permanent zone of a wetland, in the riparian zone or within the channel of a watercourse, etc.); and (d) to what extent will the risks associated with water uses and related activities change.	4.2
How will the proposed development impact on the functioning of the aquatic feature? This must include: (a) base flows (e.g., too little or too much water in terms of characteristics and requirements of the system); (b) quantity of water including change in the hydrological regime or hydroperiod of the aquatic ecosystem (e.g., seasonal to temporary or permanent; impact of over -abstraction or instream or off stream impoundment of a wetland or river); (c) change in the hydrogeomorphic typing of the aquatic ecosystem (e.g., change from an unchanneled valley-bottom wetland to a channelled valley -bottom wetland);	4.2

(d) quality of water (e.g., due to increased sediment load, contamination by chemical and/or organic effluent, and/or eutrophication); (e) fragmentation (e.g., road or pipeline crossing a wetland) and loss of ecological connectivity (lateral and longitudinal); and (f) the loss or degradation of all or part of any unique or important features associated with or within the aquatic ecosystem (e.g., waterfalls, springs, oxbow lakes, meandering or braided channels, peat soils, etc.)	
How will the proposed development impact on key ecosystems regulating and supporting services especially: (a) flood attenuation; (b) streamflow regulation; (c) sediment trapping; (d) phosphate assimilation; (e) nitrate assimilation; (f) toxicant assimilation; (g) erosion control; and (h) carbon storage?	4.2
How will the proposed development impact community composition (numbers and density of species) and integrity (condition, viability, predator-prey ratios, dispersal rates, etc.) of the faunal and vegetation communities inhabiting the site?	-
A statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment	2.1
The methodology used to undertake the site inspection and the specialist assessment, including equipment and modelling used, where relevant	7.1
A description of the assumptions made, any uncertainties or gaps in knowledge or data	1.4
The location of areas not suitable for development, which are to be avoided during construction and operation, where relevant	3.5
Additional environmental impacts expected from the proposed development	-
Any direct, indirect and cumulative impacts of the proposed development on site	4.2.2
The degree to which impacts and risks can be mitigated	4.2.2
The degree to which the impacts and risks can be reversed	4.2.2
The degree to which the impacts and risks can cause loss of irreplaceable resources	4.2.2
A suitable construction and operational buffer for the aquatic ecosystem, using the accepted methodologies	7.1.5
Proposed impact management actions and impact management outcomes for inclusion in the Environmental Management Programme (EMPr)	4.2.2
A motivation must be provided if there were development footprints identified as having a “low” aquatic biodiversity sensitivity and that were not considered appropriate	-
A substantiated statement, based on the findings of the specialist assessment, regarding the acceptability or not of the proposed development and if the proposed development should receive approval or not; and	5.2
Any conditions to which this statement is subjected	5.2

A signed copy of the assessment must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.

2 Fieldwork

2.1 Freshwater Biodiversity Field Assessment

A field survey for the area was undertaken on 07 October 2024 (spring), which constitutes an early-wet season survey, to identify the presence of freshwater features (wetlands) and to delineate their spatial extents. Furthermore, to determine vegetation composition of the identified features and the likelihood of features to be used as habitat for fauna. The seasonality is not considered to be a limiting factor to the assessment of which the results are conclusive.

3 Results & Discussion

3.1 Desktop Dataset Assessment

3.1.1 Vegetation Types

The PAOI is situated in the Grassland biome. The grassland biome of South Africa occurs mainly on the high central plateau (Highveld), inland areas of the eastern seaboard, mountainous areas of KwaZulu-Natal and the central parts of the Eastern Cape (Mucina & Rutherford, 2006).

On a fine-scale vegetation type, the PAOI overlaps with Soweto Highveld Grassland (Gm 8; Figure 3-1). The following information pertaining to the above-mentioned vegetation types is noted as per Mucina and Rutherford (2006):

The distribution of the Soweto Highveld Grassland (Gm 8) vegetation type is restricted to Gauteng and Mpumalanga with small portions of this vegetation type occurring in the North-West and Free State provinces. This vegetation type is roughly delineated by the Vaal River, Perdekop in the south-east and the N17 between Johannesburg and Ermelo. The Gm 8 vegetation type extends further westward as far as Randfontein and includes parts of Soweto. The Gm 8 vegetation type surround parts to the south as well, including Vanderbijlpark, Vereeniging and Sasolburg, which is located in the northern most parts of the Free State (Mucina & Rutherford. 2006).

The vegetation within the Gm 8 region is dominated by short to medium-high, dense, tufted grassland which mostly includes *Themeda triandra* within gently to moderately undulating landscapes on the Highveld plateau. Other grass species which occur to a lesser extent include *Eragrostis recemosa*, *Elionurus muticus*, *Tristachya leucothrix* and *Heteropogon contortus* (Mucina & Rutherford, 2006).

The conservation status of the Gm 8 vegetation type is endangered with a target percentage of 24. Half of the area is already transformed into agriculture, mining, urban build-up etc. with a handful of conservation areas still up and running. These include Waldrift, Suikerbosrand and Rolfe's Pan Nature Reserve (just to name a few).

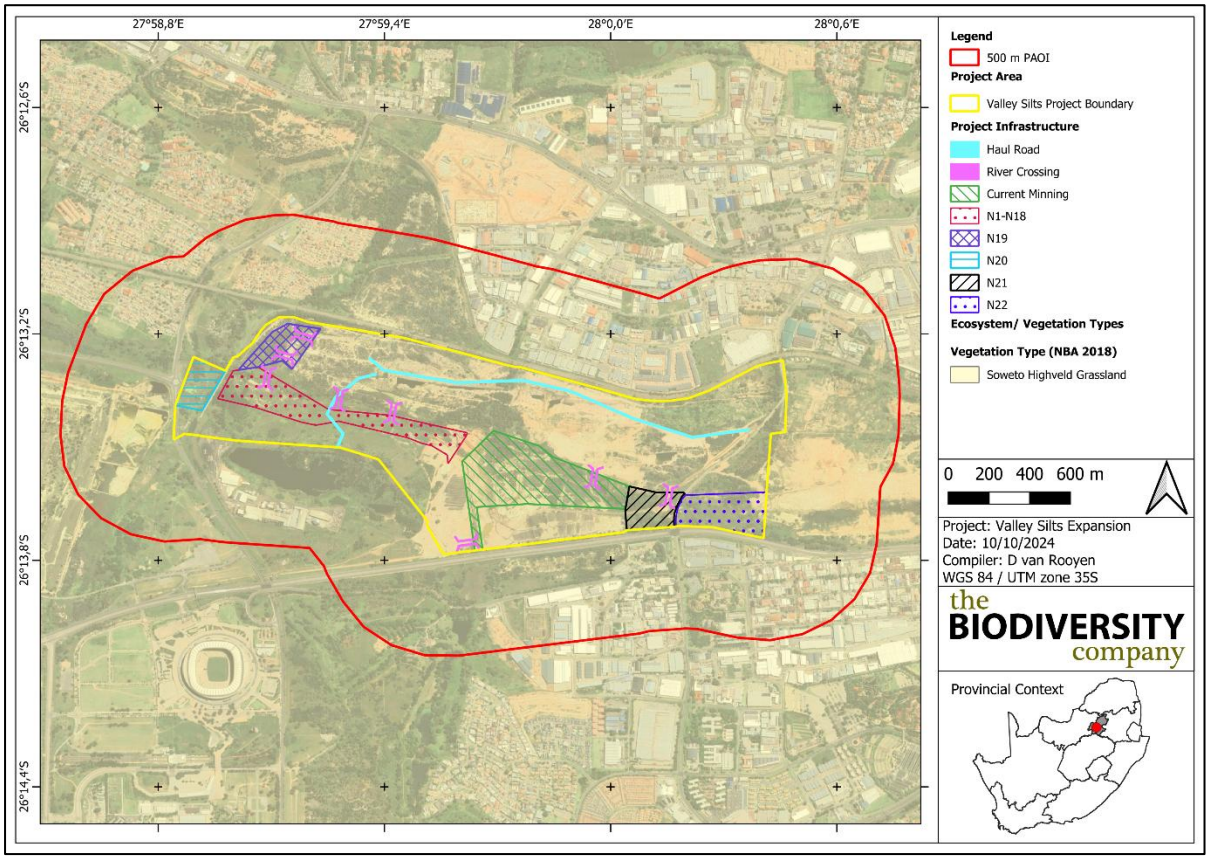


Figure 3-1 Vegetation type associated with the Project Area of Influence

3.1.2 Climate

The mean annual precipitation for this region reaches approximately 662 mm and is characterised by summer rainfall (Mucina & Rutherford, 2006). This area is characterised by high and low extreme temperatures during the summer and winter respectively with frost frequently occurring (Figure 3-2).

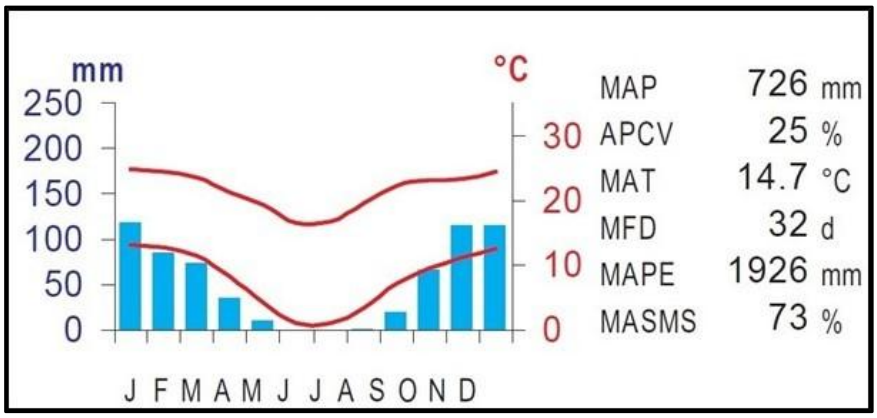


Figure 3-2 Climate for the Soweto Highveld Grassland (Mucina & Rutherford, 2006)

3.1.3 Soils and Geology

According to the land type database (Land Type Survey Staff, 1972 - 2006), the project area is characterised by the Ba 35 and Ba 36 land types. According to the land type database (Land Type Survey Staff, 1972 - 2006), the Ba land type is characterised by plinthic catena with upland duplex and margalitic soils being rare. Dystrophic and mesotrophic red soils are widespread (Land Type Survey Staff, 1972 - 2006).

The geology of this area is characterised by the Madzaringwe Formation shale, mudstone and sandstone from the Karoo Supergroup or the Karoo Suite dolerites which feature prominently in this area. To the west, the rocks of Ventersdorp, old Transvaal and Witwatersrand Supergroups are significant with the south being characterised by the Volksrust Formation from the Karoo Supergroup. Deep soils occur in this area and is typically labelled by Ea, Ba and Bb land types (Mucina and Rutherford, 2006).

3.1.4 Hydrological Characteristics

The PAOI falls within the Highveld Ecoregion, within the Vaal Water Management Area (WMA). At a finer scale, the PAOI falls within the C22A quaternary catchment. The fine scale hydrological features are presented in the following section.

3.1.4.1 Topographical River Lines and Inland Water Areas

Four inland water areas have been identified within the proposed project area and its respective PAOI by means of the “2627” and “2628” quarter degree squares topographical river line data set (Figure 3-3). Within the proposed project area and its PAOI, the five inland water areas have been identified as dams, large reservoirs, marsh vleis and a pool. Several non-perennial features were identified within the PAOI and the project area.

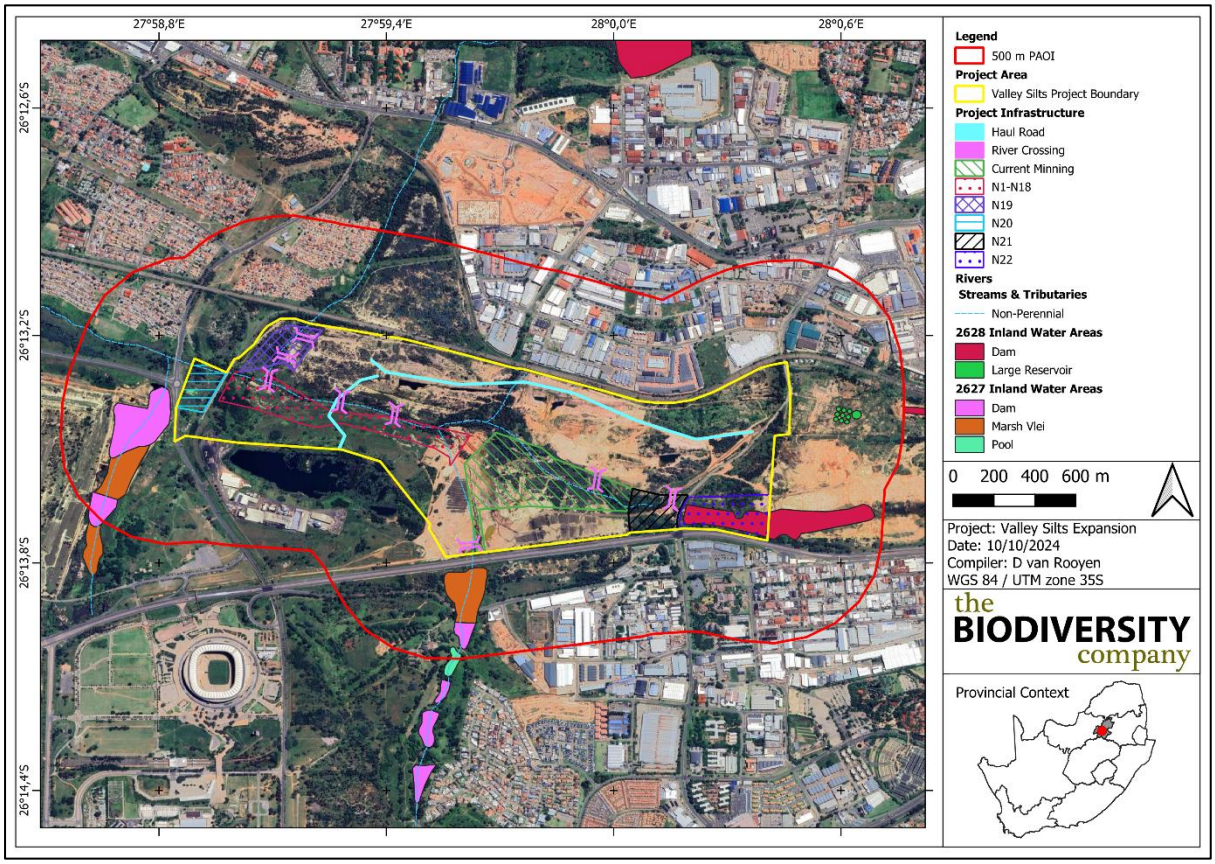


Figure 3-3 Topographical Drainage and Inland Water Areas relevant to the project

3.1.5 Ecologically Important Landscape Features

The GIS analysis pertaining to the relevance of the proposed project to ecologically important landscape features is summarised in Table 3-1.

Table 3-1 Summary of relevance of the proposed project to ecologically important landscape features

Desktop Information Considered	Relevant/Irrelevant	Section
South African Inventory of Inland Aquatic Ecosystems (SAIIAE)	Relevant – PAOI does overlap with NBA water resources	3.1.5.1
National Freshwater Priority Area	Relevant – PAOI overlaps with NFEPA wetlands.	3.1.5.2
Strategic Water Source Areas	Irrelevant – PAOI does not overlap with SWSA.	-
Provincial Conservation Plan	Relevant – POAI does overlap with Aquatic CBA and ESA.	3.1.5.3

3.1.5.1 South African Inventory of Inland Aquatic Ecosystems

One wetland type by means of the SAIIAE was identified within the proposed project area and its respective PAOI. This wetland type was identified as a Unchannelled valley-bottom wetland (Figure 3-4).

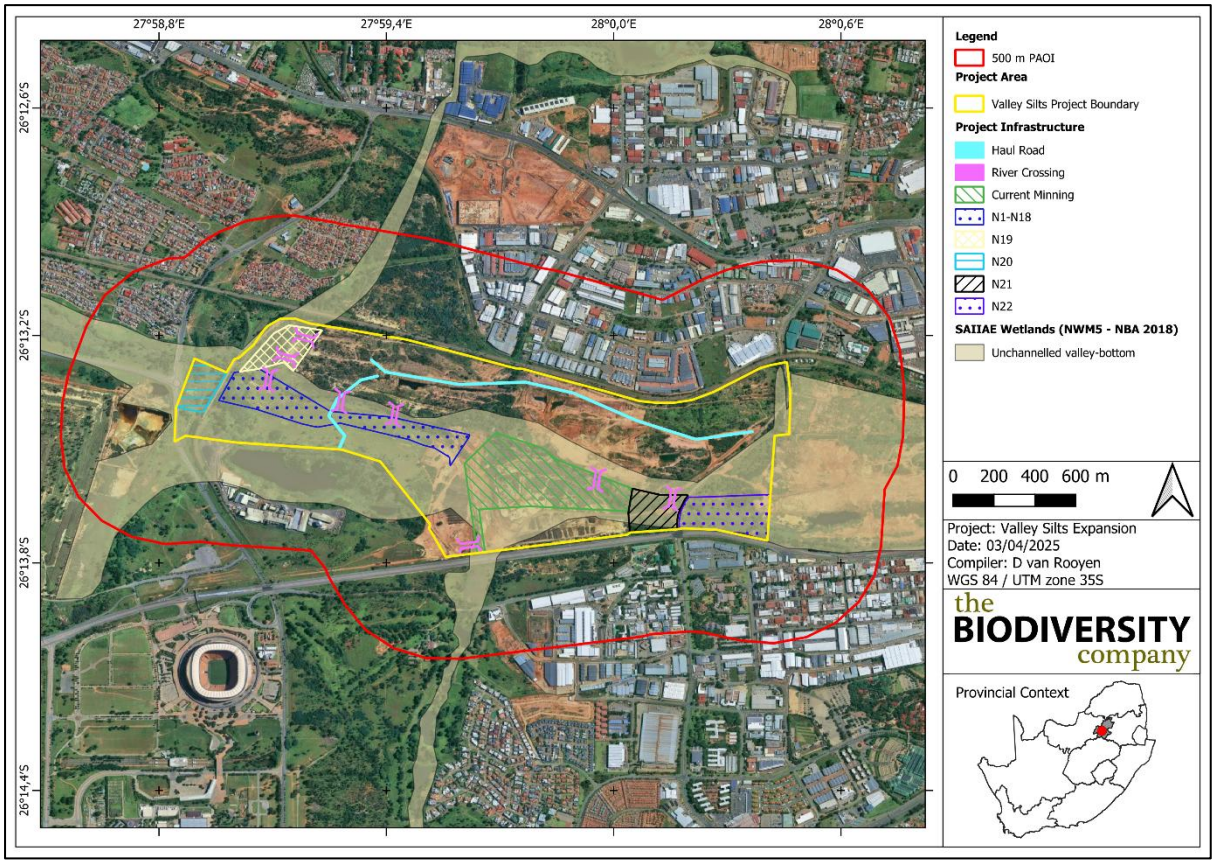


Figure 3-4 South African Inventory of Inland Aquatic Ecosystems of relevance to the project

3.1.5.2 National Freshwater Ecosystem Priority Areas

One NFEPA wetland type was identified within the proposed project area and its respective PAOI, namely a seep wetland (Figure 3-5). Several seep wetlands were identified within the proposed project area and its respective PAOI and were all classified to be either artificial or natural, non-priority wetlands. All artificial wetlands were classified with a condition within the "Z3 – Less than 25% natural land cover remaining" category while all natural wetlands were classified within the "C – between 25-75% of natural land cover remaining" category, as per the dataset.

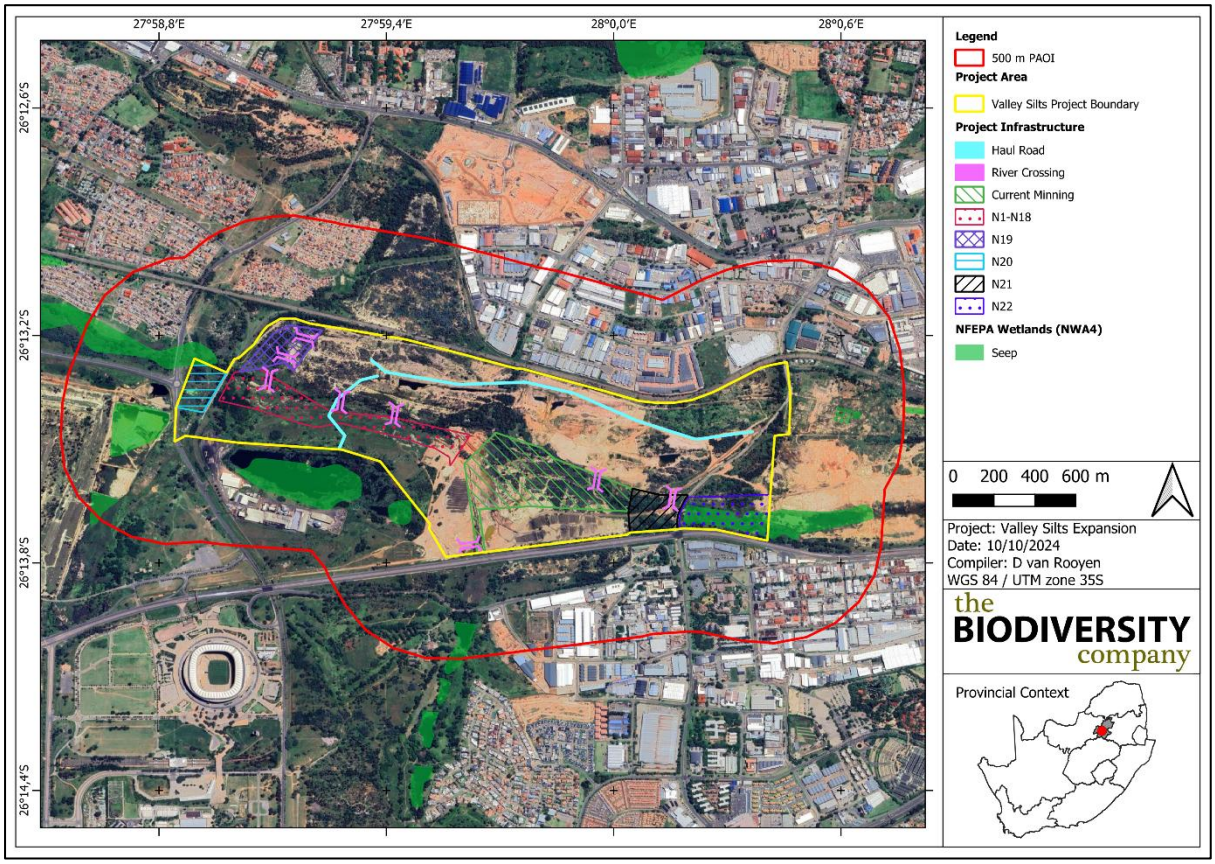


Figure 3-5 NFEPA Wetlands of relevance to the project

3.1.5.3 Gauteng Conservation Plan

The proposed project area is largely within areas designated as Ecological Support Areas (ESA's) with small sections of the proposed project infrastructures within areas classified as Critical Biodiversity Areas (CBA's) as per the Gauteng Conservation Plan spatial dataset (GDARD, 2014; Figure 3-6).

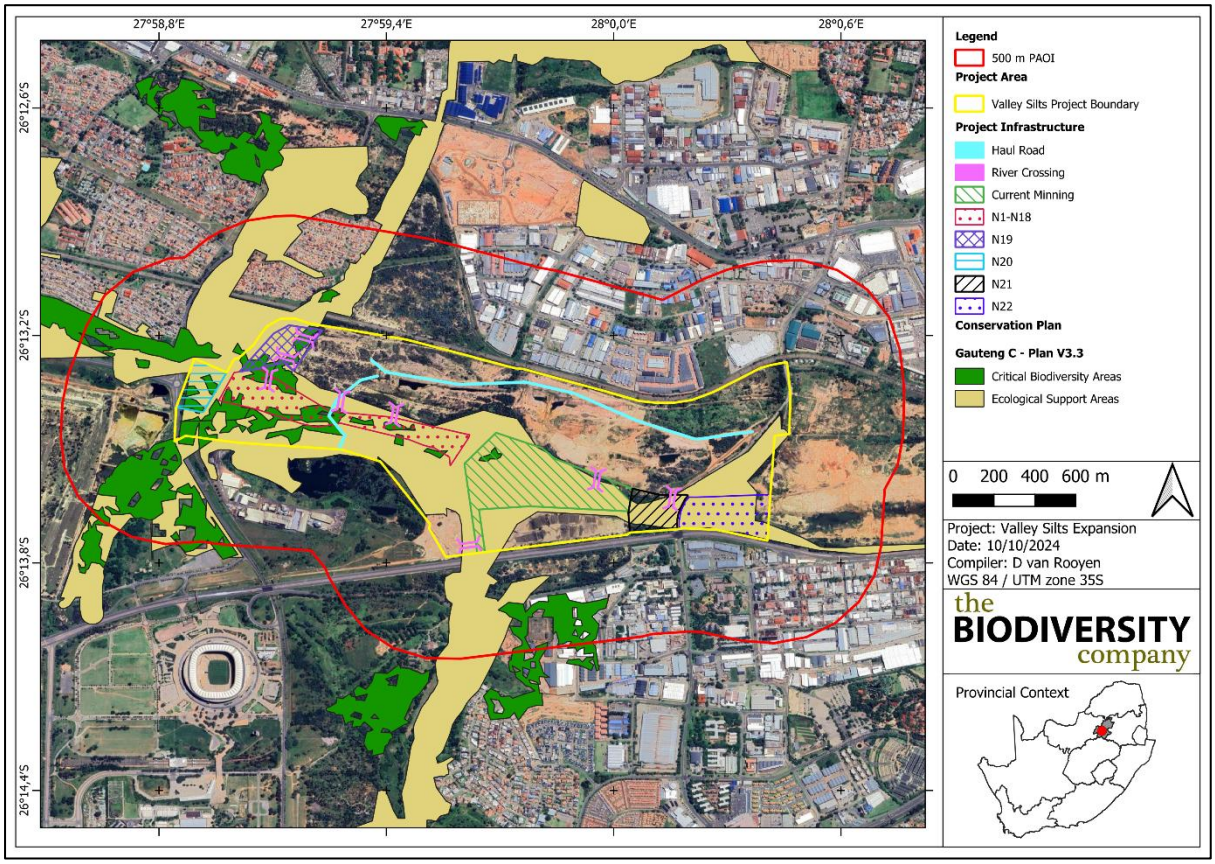


Figure 3-6 Gauteng Conservation Plan in relation to project area (Generalised)

3.2 Wetland Field Survey

3.2.1 Identification and Mapping

Topography and external wetland characteristics such as the presence of hydrophytes was used to identify wetland areas. Commonly encountered hydrophytes within wetland areas of the PAOI included sedges, reeds and grasses (Figure 3-7).



Figure 3-7 Examples of the hydrophytic vegetation encountered within the project area of Influence

3.2.2 Delineation

One wetland type, consisting of one hydrogeomorphic (HGM) unit, has been identified in relation to the proposed project site and its respective PAOI (Figure 3-8 and Figure 3-9). This wetland type has been classified as a channelled valley-bottom (CVB; HGM 1). Wetland functional assessment has only been conducted for natural wetlands.

HGM 1 has been identified to be within the proposed Valley Silts Expansion project area (Figure 3-8). The CVB has been critically modified for a considerable time and has received mine water discharge as well as tailings sediments and the contaminants that accompany it.

Apart from these features, several artificial quarries (as a result of historical mining activities) and one artificial dam were identified within the PAOI and project footprints (Figure 3-8).

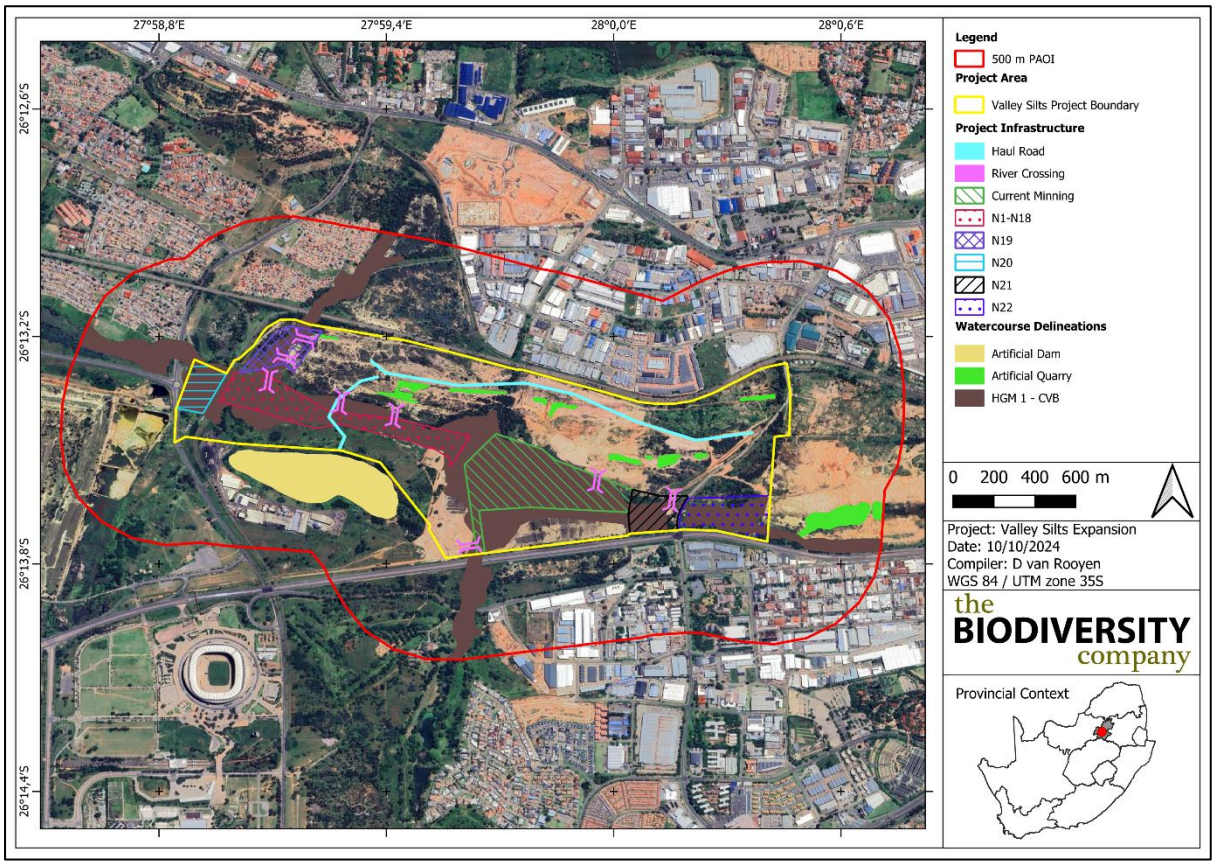


Figure 3-8 Delineation of wetland features within the Proposed Site and Project Area of Influence



Figure 3-9 Examples of the watercourses delineated within the project area. A & B) Artificial Quarries, C and D) Channelled valley-bottom (HGM 1)

3.2.3 Classification and Description

The wetland classification as per SANBI guidelines (Ollis *et al*., 2013) for the Valley Silts Expansion project area is presented in Table 3-2. One wetland type was identified within the project area, consisting of a channelled valley-bottom wetland.

Table 3-2 Wetland classification as per SANBI guideline (Ollis et al., 2013)

Wetland Unit	Level 1	Level 2		Level 3	Level 4		
	System	DWS Ecoregion/s	NFEPA Wet Veg Group/s	Landscape Unit	4A (HGM)	4B	4C
HGM 1	Inland	Highveld	Mesic Highveld Grassland Group 3	Valley floor	Channelled valley-bottom	N/A	N/A

Channelled valley bottom wetlands are typically found on valley floors with a clearly defined, finite stream channel and lacks floodplain features, referring specifically to meanders. Channelled valley bottom wetlands are known to undergo loss of sediment in cases where the wetlands' slope is steep and the deposition thereof in cases of low relief. Figure 3-10 presents a diagram of a typical channelled valley bottom, showing the dominant movement of water into, through and out of the system.

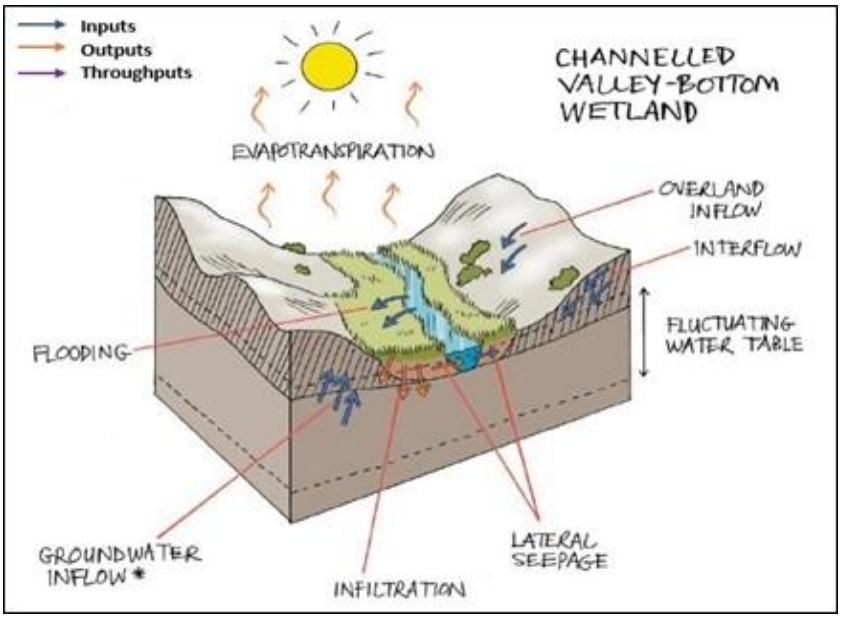


Figure 3-10 Amalgamated diagram of a typical channelled valley bottom, highlighting the dominant water inputs, throughputs and outputs, SANBI guidelines (Ollis et al. 2013)

The DWAF (2005) manual separates the classification of watercourses into three (3) separate types of channels or sections defined by their position relative to the zone of saturation in the riparian area (Figure 3-11). The classification system separates channels into:

- those that do not have baseflow ('A' Sections);
- those that sometimes have baseflow ('B' Sections) or non-perennial; or
- those that always have baseflow ('C' Sections) or perennial.

The drainage feature on site can be described as "A Section" channels.

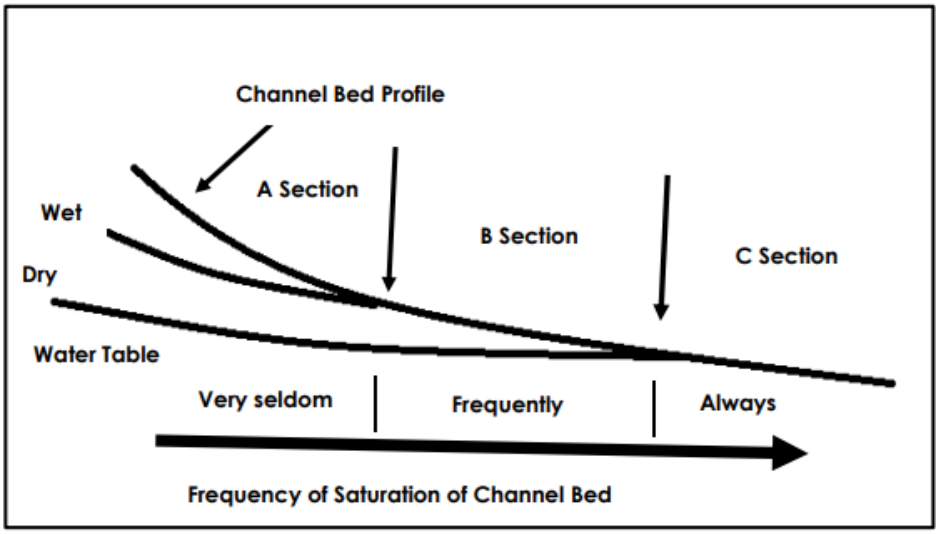


Figure 3-11 Watercourse classifications (DWAF, 2005)

3.3 Risk Screening

Table 3-3 and Figure 3-12 provides the results of risk screening for the delineated wetland and provides motivation for each of the determined categories.

Table 3-3 Risk status of the delineated wetlands

HGM unit	Risk Status	Rationale
HGM 1	At Risk	This HGM unit was identified to be traversed by the project area. The HGM unit has therefore been determined as "At Risk". If the proposed development layout cannot be amended to avoid the wetland and its calculated buffers, it is expected that direct impacts to the wetlands and consequent modifications to the systems will occur.
Artificial watercourses (quarries and dam)	Not at Risk	The artificial watercourses are located in a position of the landscape that allows for potential impacts to be avoided or to be buffered by existing topographic features or infrastructure that allows for the buffering of impacts to the watercourses.

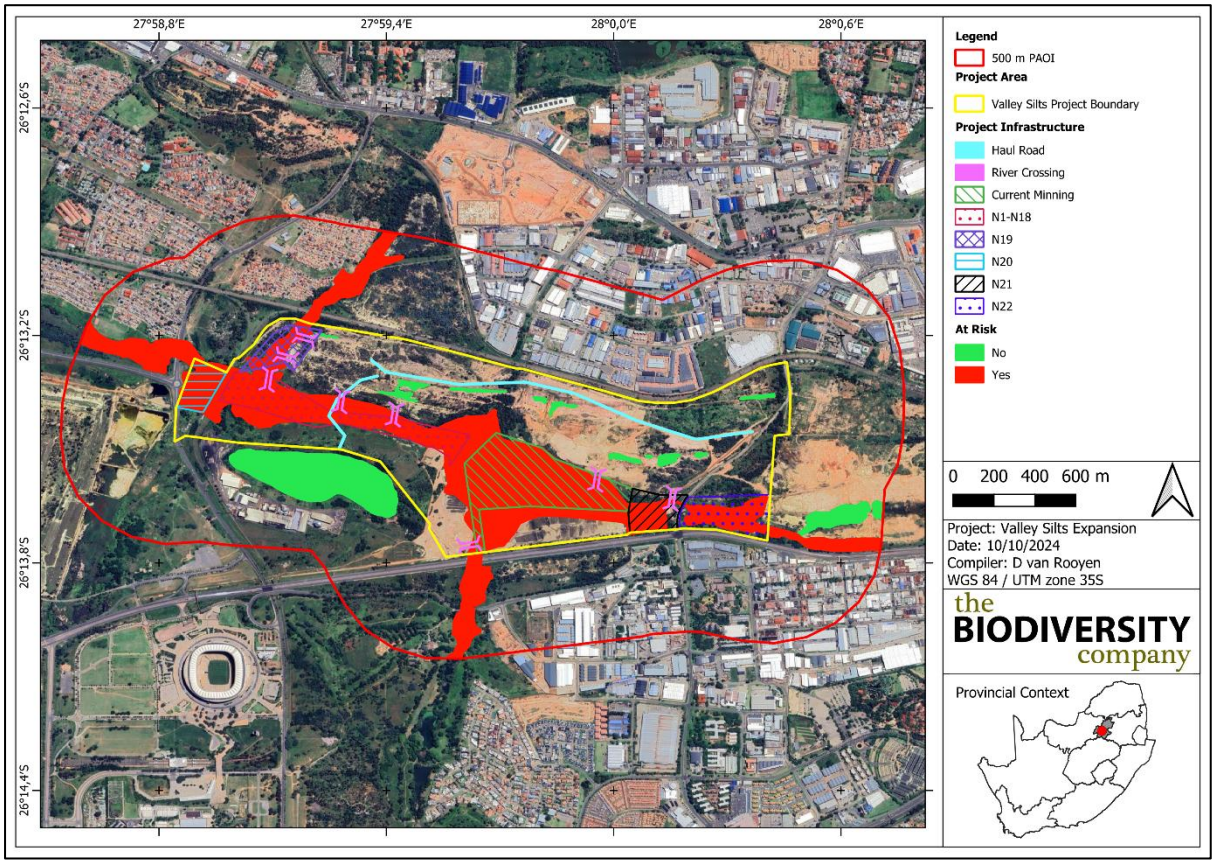


Figure 3-12 Risk status of the delineated wetland and other watercourses

3.4 Functional and Ecological Assessment

Only wetlands at an appreciable level of risk in relation to the proposed project and related activities were considered for the Functional and Ecological Assessments.

3.4.1 Functional Assessment

3.4.1.1 General Functional Description

Channelled valley bottom wetlands tend to contribute less to sediment trapping and flood attenuation than other systems. Channelled valley bottom wetlands are well known to improve the assimilation of toxicants, nitrates and sulphates, especially in cases where sub-surface flows contribute to the system's water source (Kotze *et al*., 2009).

It should be noted that these characteristics are representative of ideal wetland features and may not necessarily represent the characteristics of all wetlands. The functionality of wetlands and the provision of benefits is largely dependent on wetland size and influence from abiotic drivers.

3.4.1.2 Ecosystem Services

The ecosystem services provided by the relevant wetland units on site were assessed and rated using the WET-EcoServices method (Kotze *et al.,* 2008). The results of the assessment are presented in Table 3-4 and Figure 3-13. Ecosystem services contributing to these scores include flood attenuation, stream flow regulation, nutrient and toxicant assimilation and the maintenance of biodiversity.

HGM 1 was scored within the "Intermediate" ecosystem service score range. HGM 1 being valley-bottom wetland plays an important role in other services such as erosion control, sediment trapping, and toxicant assimilation (from runoff) will be provided at higher rates due to the fact that the wetland is

well-vegetated with hydrophytes. Due to the surrounding landscape being relatively disturbed the wetlands will provide a corridor and refugia for fauna.

The potential for all wetlands to be used for tourism and recreation is unlikely. Furthermore, the direct benefits such as the provisioning of harvestable resources and cultivated foods is unlikely due to the type of vegetation present. The use of the wetlands for cultural benefits and education and research is not supported.

Table 3-4 Summary of the average ecosystem scores of the assessed wetland unit

Wetland Unit					HGM 1
Ecosystem Services Supplied by Wetlands	Indirect Benefits	Regulating and supporting benefits		Flood attenuation	3.1
				Streamflow regulation	2.7
			Water Quality enhancement benefits	Sediment trapping	2.8
				Phosphate assimilation	3.2
				Nitrate assimilation	3.0
				Toxicant assimilation	3.2
				Erosion control	3.2
				Carbon storage	2.4
	Direct Benefits	Biodiversity maintenance			1.4
		Provisioning benefits		Provisioning of water for human use	0.9
				Provisioning of harvestable resources	0.8
				Provisioning of cultivated foods	0.8
		Cultural benefits		Cultural heritage	0.0
				Tourism and recreation	0.1
				Education and research	1.0
Overall					28.6
Average					1.91
Class					Intermediate

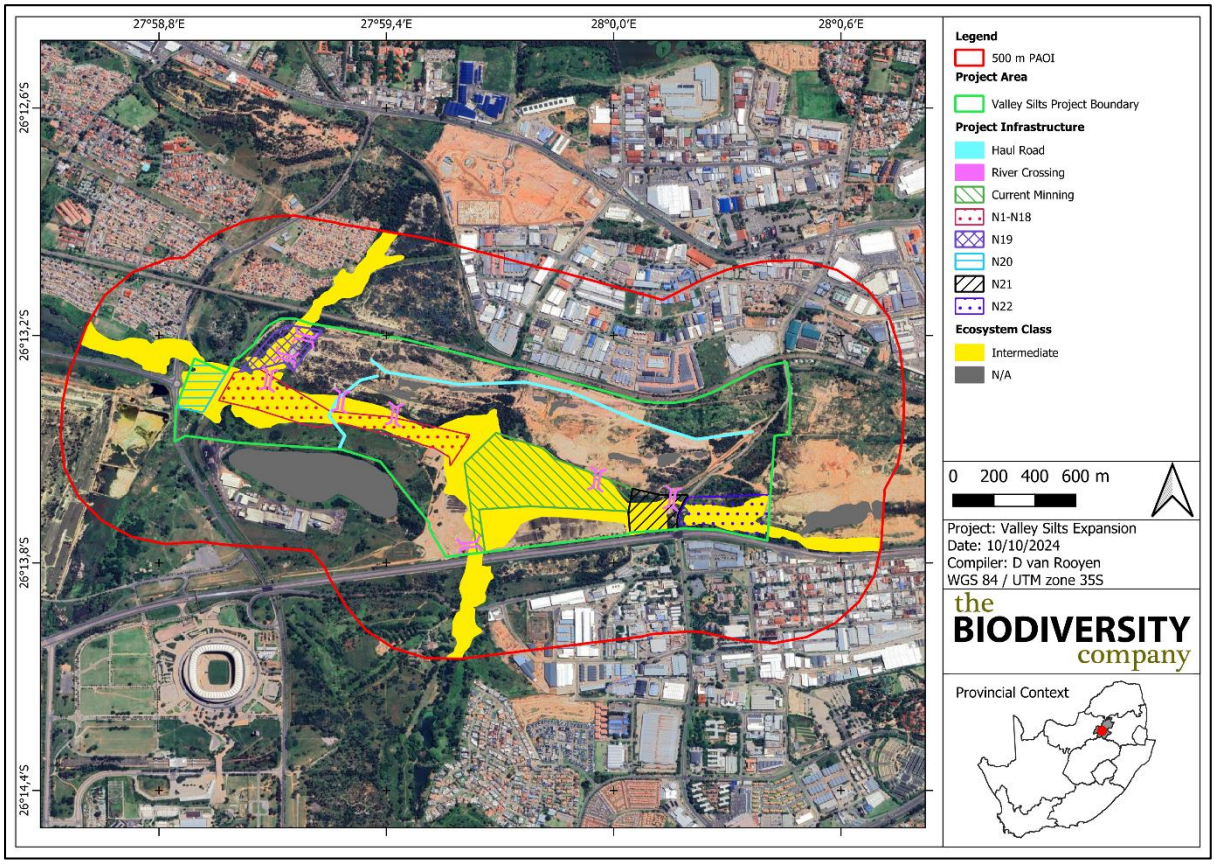


Figure 3-13 Average Ecosystem Service Scores of the assessed wetland unit

3.4.2 Present Ecological State

The wetland has exhibited a high degree of modification resulting from natural physical changes as well as anthropogenically induced impacts at both the local and catchment level. Resultingly, the wetland scored an average Present Ecological State (PES) score within the "F – Critically Modified" PES class. These impacts are further discussed in Section 4.1. The results of the wetland health and integrity assessment is provided in Table 3-5.

Table 3-5 Summative results of the PES Assessment

	Area (ha)	Hydrology		Geomorphology		Vegetation	
		Rating	Score	Rating	Score	Rating	Score
HGM 1	74.41	F: Critically Modified	9.5`	E: Seriously Modified	7.1	E: Seriously Modified	7.2
	Overall PES	8.2		Overall PES Class		F: Critically Modified	

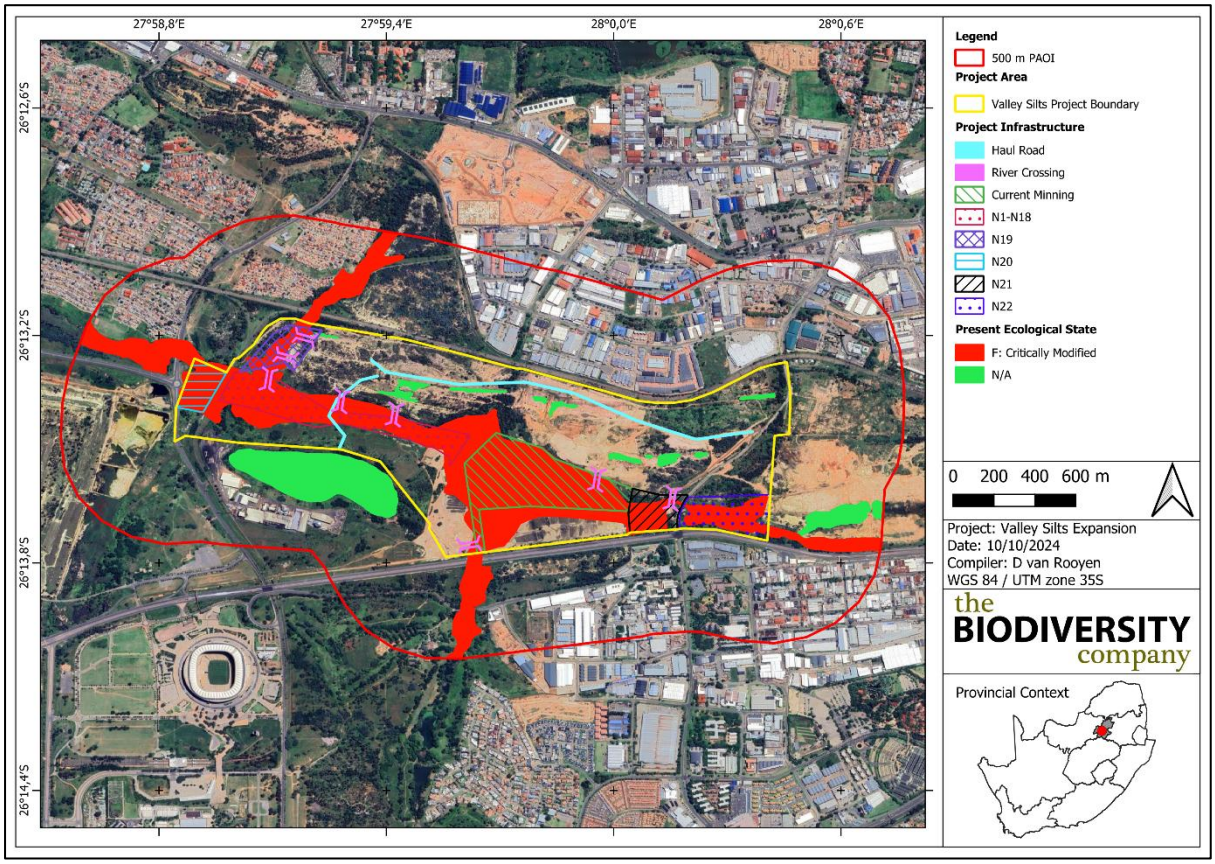


Figure 3-14 Overall present ecological state of delineated wetlands

3.4.3 Ecological Importance and Sensitivity

The Ecological Importance and Sensitivity (EIS) assessment was applied to the HGM unit in conjunction with the ecosystem service scores in the preceding sections, to assess the levels of sensitivity and ecological importance of the wetland. Various components pertaining to the protection status of a wetland is considered for the EIS, including Strategic Water Source Areas (SWSA), the NFEPA wet veg protection status and the protection status of the wetland itself considering the NBA wetland dataset as displayed in Table 3-6.

The wetlands average EIS score was determined to be within the “Low/Marginal” class due to the wetland experiencing a large degree of modifications and impacts (Figure 3-15). As a result, increased pollution, invasive species, or hydrological alterations have reduced its ecological functionality and biodiversity value which can lead to a lower ecological importance despite its location within CBA’s and ESA’s. Furthermore, the wetland was classified as critically modified due to historical and ongoing impacts, making it less sensitive to further changes causing a lower sensitivity rating.

Table 3-6 Aspects considered in the Ecological Importance and Sensitivity assessment

HGM Type	NFEPA Wet Veg			NBA Wetlands			SWSA (Y/N)	CBA/ESA (Y/N)
	Type	Ecosystem Threat Status	Ecosystem Protection Level	Wetland Condition	Ecosystem Threat Status 2018	Ecosystem Protection Level		
Channelled valley-bottom	Mesic Highveld Grassland Group 3	Critical	Not protected	F: Critically Modified (Field Visit)	Critical	Not Protected	N	Y

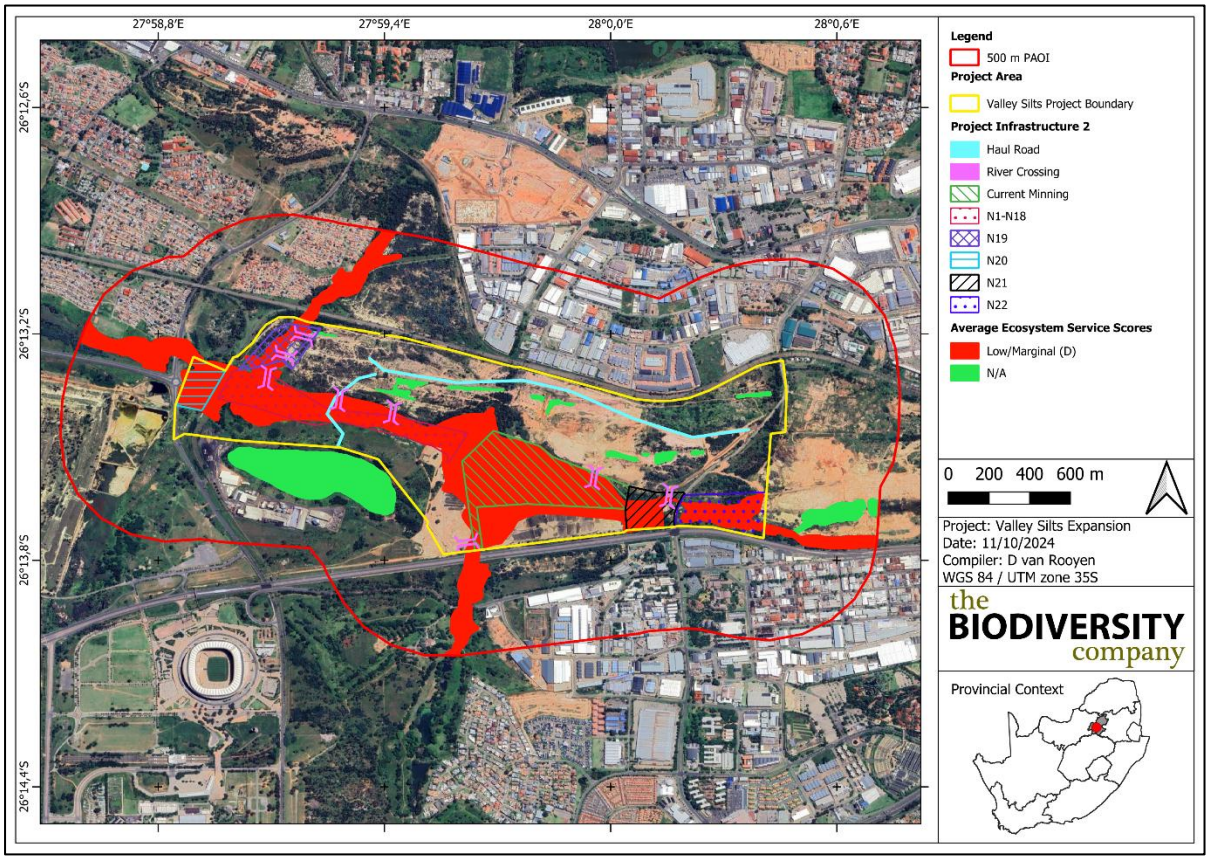


Figure 3-15 Average Ecological Importance and Sensitivity of the assessed wetlands

3.4.4 Recommended Ecological Category and Recommended Management Objective

The Recommended Ecological Category (REC) and Recommended Management Objective (RMO) for the wetland area was determined from the results of the PES and EIS assessments. These assessments indicated that all wetland features within the site, had to an extent, undergone transformation as a result of historical and current impacts. Nevertheless, despite the altered ecological integrity of these systems, they are considered to provide important ecological services. The appropriate REC and RMO estimated for the wetland area is presented in Table 3-7 below.

Table 3-7 Summary of the REC and RMO categories assigned to the relevant wetlands

HGM Unit	REC – RMO
HGM 1	E/F: Maintain

3.5 Buffer Requirements

The buffer requirements for all wetlands within the Valley Silts Expansion project area and PAOI were calculated using the Site-Based Tool: Determination of buffer zone requirements for wetland ecosystems (Macfarlane *et al.,* 2014) together with the "GDARD Requirements for Biodiversity Assessments: Version 2" (GDARD, 2012) were used to determine the appropriate watercourse buffer zones for the proposed project. The recommended buffer zones were calculated and are presented in Table 3-8 below. The soil type and erodibility within the wetland was also considered in this assessment and contributed to the calculated buffer widths.

For the purposes of the report and figures, only the buffers of wetlands partially or wholly overlapping with the development area are shown. The pre-mitigation buffer for HGM unit 1 was calculated to be 35 m. With the implementation of mitigation measure these buffer widths may be reduced to 30 m (Figure 3-16).

Importantly, the project will not avoid the buffer zones as the removal of silts will occur within the HGM unit. Therefore, these buffer zones serve as a guideline to restore the affected areas within the buffer zones to their natural state in the post-activity stages.

Table 3-8 Buffer requirements for the relevant wetland features

Aspect	Pre-Mitigation	Post-Mitigation
HGM 1	35 m	30 m

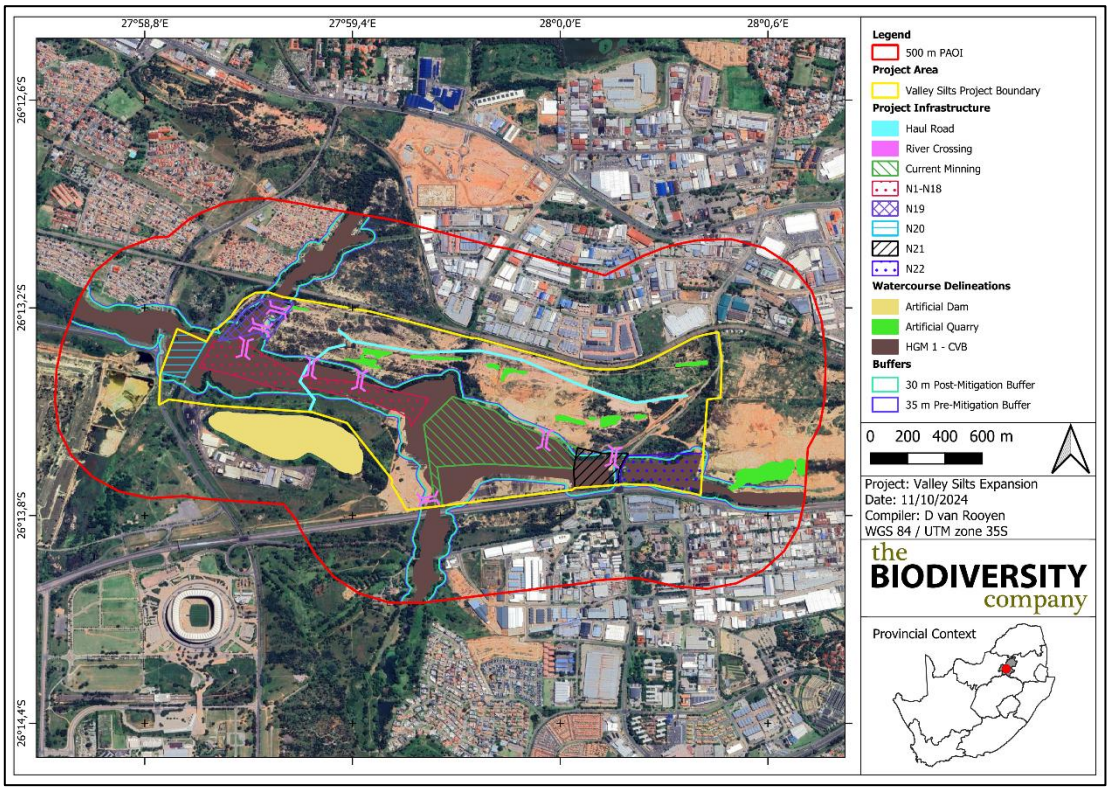


Figure 3-16 Recommended Buffers for the identified wetlands at risk in relation to the proposed development

3.5.1 Regulation Zones

Table 3-9 presents the legislated zones of regulation that would be applicable to the wetland areas.

In accordance with General Notice (GN) 509 of 2016 as it relates to the NWA (1998), a regulated area of a watercourse for Section 21 (c) and 21 (i) of the NWA, 1998 means the outer edge of the 1 in 100 year flood or where no flood line has been determined it means 100 m from the edge of a watercourse or a 500 m radius from the delineated boundary (extent) of any wetland or pan.

Listed activities in terms of the NEMA (1998), (Act 107 of 1998) EIA Regulations as amended in April 2017 must be taken into consideration if any infrastructure is to be placed within the applicable zone of regulation.

Table 3-9 Legislated zones of regulation

Regulatory authorisation required	Zone of applicability
Water Use License Application in terms of the National Water Act, 1998 (Act No. 36 of 1998). Department of Water and Sanitation (DWS)	In accordance with GN509 of 2016 as it relates to the National Water Act, 1998 (Act 36 of 1998), a regulated area of a watercourse in terms of water uses as listed in Section 21c and 21i is defined as: the outer edge of the 1 in 100 year flood line and/or delineated riparian habitat, whichever is the greatest distance, measured from the middle of the watercourse of a river, spring, natural channel, lake or dam; in the absence of a determined 1 in 100 year flood line or riparian area the area within 100 m from the edge of a watercourse where the edge of the watercourse is the first identifiable annual bank fill flood bench; or a 500 m radius from the delineated boundary (extent) of any wetland or pan in terms of this regulation.
Listed activities in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) EIA Regulations (2014), as amended.	Activity 12 of Listing Notice 1 (GN R983) of the National Environmental Management Act, 1998 (Act No.107 of 1998) EIA regulations, 2014 (as amended) states that: The development of: (xii) Infrastructure or structures with a physical footprint of 100 square metres or more; Where such development occurs— Within a watercourse; In front of a development setback; or If no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse. Excluding – … (dd) where such development occurs within an urban area… Activity 19 of Listing Notice 1 (GN R983) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) EIA regulations, 2014 (as amended) states “The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse.”

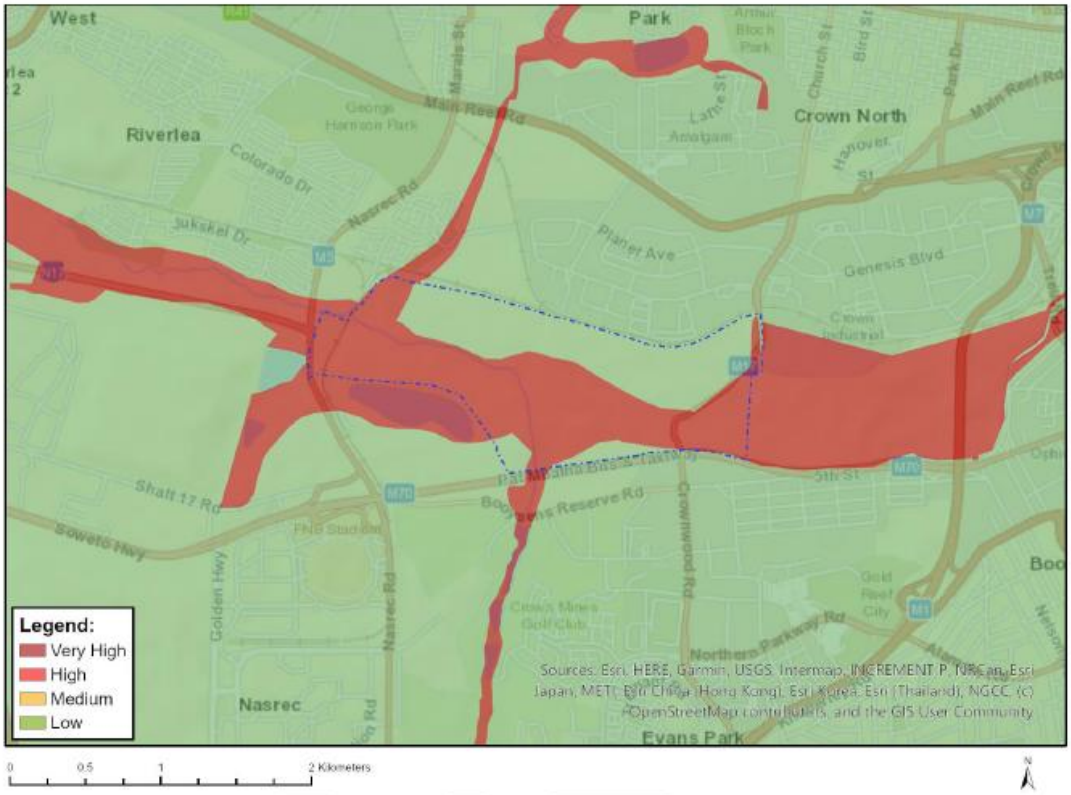
3.6 Site Sensitivity Verification

3.6.1 Desktop Ecological Senstivity

The following is deduced from the National Web-based Environmental Screening Tool (Regulation 16(1)(v) of the Environmental Impact Assessment Regulations 2014, as amended):

- The National Web-based Environmental Screening Tool has characterised the Aquatic Biodiversity Theme sensitivity as “Very High” for Valley Silts Expansion project area (Figure 3-17).

MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity
Very High	Wetlands_Dry Highveld Grassland Bioregion (Valley-bottom)

Figure 3-17 The Aquatic Biodiversity Theme Sensitivity for the proposed Valley Silts Expansion project (National Environmental Web-based Screening Tool (DEA, 2024))

3.6.2 Screening Tool Comparison

The allocated sensitivities for each of the relevant themes are either disputed or validated for the assessed areas in Table 3-10 below. A summative explanation for each result is provided as relevant. The specialist-assigned sensitivity ratings are based largely on the PES and EIS assessment processes followed in the previous section, and consideration is given to any observed or likely presence of sensitive fauna and flora. A map highlighting the Freshwater Sensitivities for the PAOI is depicted in Figure 3-18.

Table 3-10 Summary of the screening tool vs specialist assigned sensitivities

Features	Screening Tool Theme	Environmental Screening Tool Sensitivity	Specialist Sensitivity	Tool Validated or Disputed by Specialist - Reasoning
HGM 1	Aquatic Biodiversity Theme	Very High	High	Screening Tool Sensitivity Disputed. Rationale for the specialist assigned 'High' rating: The wetland system has experienced historical impact related to mining as well as from the surrounding developments in the catchment. The wetland is perceived to be seasonal as surface water was observed in the wetland. Wetland vegetation within the system was abundant. The ecosystem services these wetlands provide together with the PES and EIS have contributed towards determining the sensitivity rating. The wetland has therefore been assigned a 'High' sensitivity rating.
Artificial watercourses	Aquatic Biodiversity Theme	Low	Low	Screening Tool Sensitivity Validated. Rationale for the specialist assigned 'Low' rating: These watercourses were all artificially created through mining activities and other developments such as the Gauteng Oil and Cake Milll. Therefore, a "Low" sensitivity has been assigned for these areas in relation to freshwater biodiversity.
Remaining Area	Aquatic Biodiversity Theme	Low	Low	Screening Tool Sensitivity Validated. Rationale for the specialist assigned 'Low' rating: Much of the area has been historically modified through mining and other developments. The proposed activities are not anticipated to significantly modify the hydrological characteristics of the entire area; therefore a "Low" sensitivity has been assigned for these areas in relation to freshwater biodiversity.

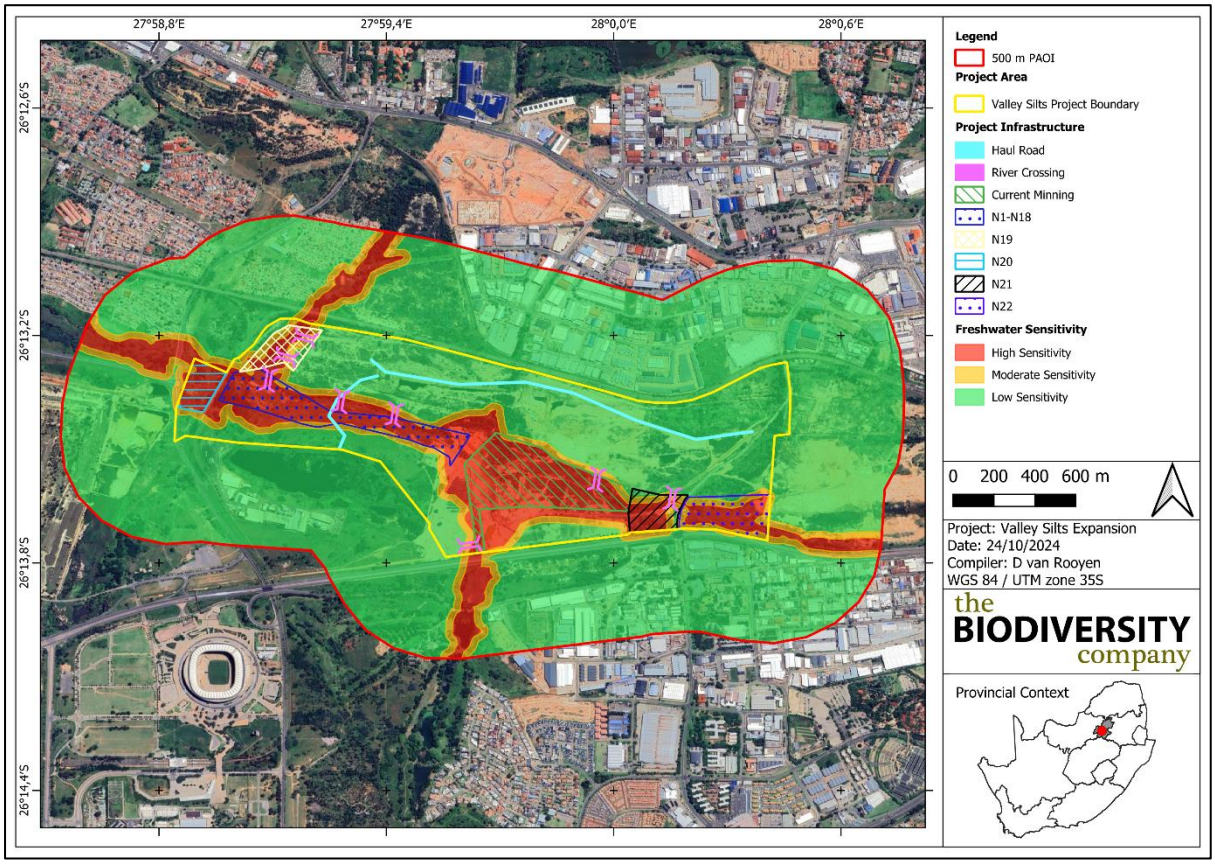


Figure 3-18 Sensitivity Map for the project area of interest

4 Risk and Impact Assessment

4.1 Current Impacts to Freshwater Biodiversity

The assessed wetlands exhibit impacts at local scale. These impacts result from present and historical land use relating to agricultural practices and access roads as well as artificial dams which have transformed the wetland habitats and has altered their natural hydrological regime and vegetation composition. The list below refers to the present-day local impacts observed within the assessed wetland areas:

- Wetland disturbance from other mining, development of infrastructure and foot traffic;
- Altered hydrological inputs resulting from changes to the surrounding landscape;
- Altered geomorphology from historical mining practices and development of infrastructure in close proximity to wetlands;
- Loss of wetland vegetation from continual disturbances, historical land use and the establishment of alien invasive flora species in some approaches of the wetlands; and
- Wetland degradation from mining activities and development of infrastructure.

Alternatives Considered

No alternatives were considered for the project.

4.2 Quantitative Risk and Impact Assessment

The Risk / Impact Assessment considered the direct and indirect impacts to the wetland system. The mitigation hierarchy as discussed by the Department of Environmental Affairs (2013) will be considered for this component of the assessment (Figure 4-1). In accordance with the mitigation hierarchy, the preferred mitigatory measure is to avoid impacts by considering options in project location, sitting, scale, layout, technology, and phasing to avoid impacts.

Three levels of risk have been identified and considered for the overall risk assessment, these include high, medium, and low risks. High risk refers to wetland areas where the impacts will only occur inside the wetland itself. Medium risk refers to wetland areas where the impacts will only occur inside the wetlands buffer and not on the wetlands themselves. Low risks are wetland systems where both the wetlands and their buffers are avoided by the proposed activities. These risks can be lowered through following the appropriate mitigation measures.

For this assessment, the specialist was provided with the proposed footprint for the Valley Silts Expansion. The specialist focussed on the wetland within and close to the proposed site.

It is assumed that the proposed development will avoid the delineated wetland and its respective buffer zones. Emphasis was therefore placed on minimising impacts by means of mitigation.

A Risk / Impact Assessment was undertaken for the proposed development.

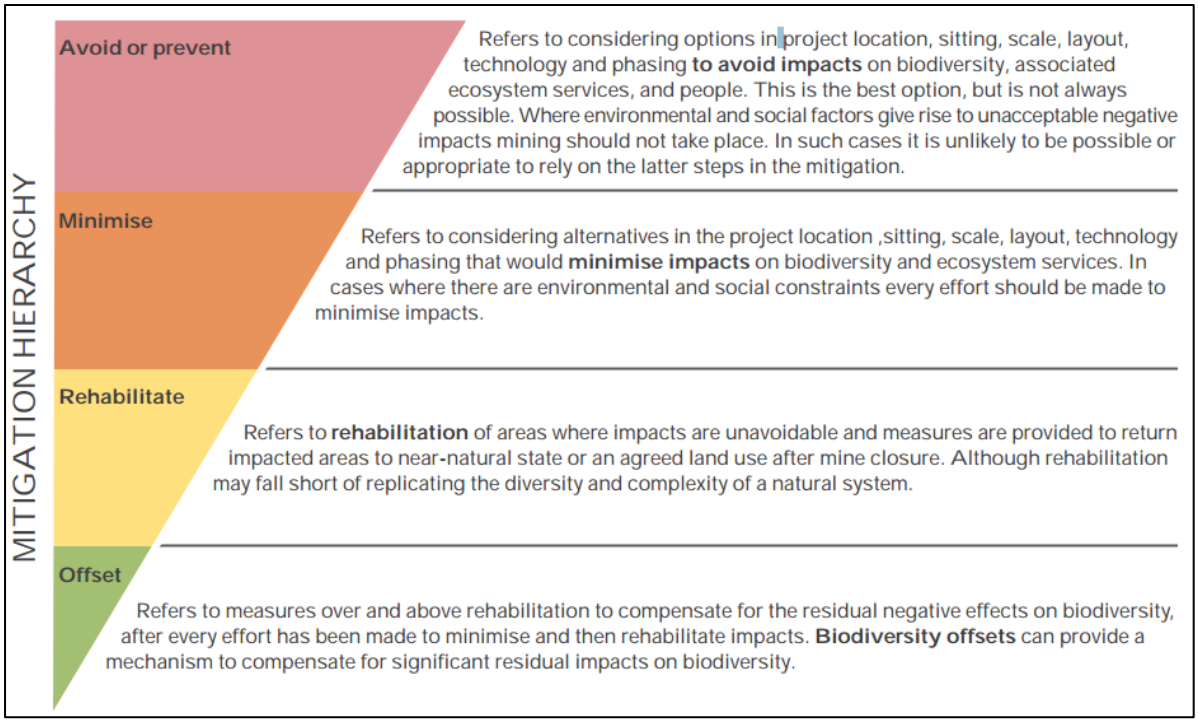


Figure 4-1 The mitigation hierarchy as described by the DEA (2013)

4.2.1 Potential Aniticipated Impacts

Table 4-1 illustrates the potential aspects expected to threaten the integrity of sensitive receptors during the proposed activities. The pre- and post- mitigation significance ratings have been calculated considering various parameters, these results are presented in the subsequent tables (Table 4-2).

Table 4-1 Aspects and impacts relevant to the proposed activity

Phases	Activity	Impact
Construction of mining infrastructure	Excavation	Loss of wetlands and associated organic material and vegetation through site excavation
		Increased contamination of downstream watercourse through the upheaval and liberation of toxins accumulated / trapped in the sediments
		Flow impediment leading to flooding, backlogging or wetland drowning upstream of the expansion activities
		Flow concentration leading to increased erosion and scouring downstream of the expansion activities
		Sedimentation and increased turbidity in downstream watercourses
	Drying and hauling	Altered hydrological regimes from increased bare surfaces and altered topography with subsequent increase in overland flow and flood peaks
		Potential loss / disturbance of wetland soil and vegetation
		Impaired water quality of the Russel Stream with leachate from the drying area
	Operation of machinery and equipment and vehicle movement	Altered hydrological regimes from hardened surfaces arising from compacted surfaces attributed to the use of machinery and equipment
		Increase in erosion and sedimentation of receiving systems attributed to altered hydrological regimes
		Impaired water quality from contamination of water resources by stochastics spills and leaks from machinery and equipment (e.g., fuel and machine oils)
		Loss or degradation of ecosystem services attributed to the above-mentioned impacts
	River Crossings	Altered hydrological regimes from channelling or diversion of flow during crossing preparation and installation and, from compacted surfaces attributed to the use of heavy machinery
		Increase in erosion and sedimentation of receiving systems attributed to altered hydrological regimes
		Establishment and proliferation of alien vegetation from disturbances related to installation of infrastructure
		Impaired water quality attributed to the above-mentioned impacts and from contamination by polluted runoff
		Loss or degradation of ecosystem services
	Landscaping	Final landscaping and reshaping
Operation of mining infrastructure	Vehicle Traffic	Potential contamination of wetlands from polluted runoff
		Wetland pollution from indiscriminate dumping of litter

	Stormwater	Operation of stormwater management (runoff generated from hardened surfaces)
Decommissioning of mining infrastructure	Rehabilitation	Potential loss or degradation of wetlands through inappropriate closure
	Landscaping	Final landscaping and concurrent rehabilitation

Given the current layout received, it is expected that the project will pose “Moderate” post-mitigation risks to the wetland due to the proposed footprint boundary overlapping with the wetland and its respective buffer zones.

It is expected that the project will pose “Moderate” post-mitigation risks provided that the suggested mitigations are implemented. Should the wetland areas and their respective post-mitigation buffers be avoided by the proposed development, the greatest risk to the wetlands is anticipated to be from the increased surface water runoff from mining infrastructure which will alter the hydrodynamics of the system and has the potential to adversely affect water quality. However, the impact of this can still be mitigated to a large degree by demarcating all wetland areas and avoid any placement of materials or movement within the wetland areas. It should be noted that much of the wetland and the buffer has already exhibited disturbance and in this instance, it would be practical to avoid areas within the wetland and buffer that do not already exhibit extensive disturbance.

Table 4-2 Summative results of the Risk Assessment conducted for the proposed project

Phase	Activity	Impact	Significance (max = 100)	Risk Rating	Confidence level
CONSTRUCTION	Excavation	Loss of wetlands and associated organic material and vegetation through site excavation	33,6	M	High
		Increased contamination of downstream watercourse through the upheaval and liberation of toxins accumulated / trapped in the sediments	33,6	M	High
		Flow impediment leading to flooding, backlogging or wetland drowning upstream of the expansion activities	16,8	L	High
		Flow concentration leading to increased erosion and scouring downstream of the expansion activities	16,8	L	High
		Sedimentation and increased turbidity in downstream watercourses	38,4	M	High
	Drying and hauling	Altered hydrological regimes from increased bare surfaces and altered topography with subsequent increase in overland flow and flood peaks	16,8	L	High
		Potential loss / disturbance of wetland soil and vegetation	21,6	L	High
		Impaired water quality of the Russel Stream with leachate from the drying area	31,2	M	High
	Operation of machinery and equipment and vehicle movement.	Altered hydrological regimes from hardened surfaces arising from compacted surfaces attributed to the use of machinery and equipment	33,6	M	High
		Increase in erosion and sedimentation of receiving systems attributed to altered hydrological regimes	38,4	M	High
		Impaired water quality from contamination of water resources by stochastics spills and leaks from machinery and equipment (e.g., fuel and machine oils)	26,4	L	High
		Loss or degradation of ecosystem services attributed to the above-mentioned impacts	21,6	L	High
	River Crossings	Altered hydrological regimes from channelling or diversion of flow during crossing preparation and installation and, from compacted surfaces attributed to the use of heavy machinery	26,4	L	High
		Increase in erosion and sedimentation of receiving systems attributed to altered hydrological regimes	26,4	L	High
		Establishment and proliferation of alien vegetation from disturbances related to installation of infrastructure	31,2	M	High
		Impaired water quality attributed to the above-mentioned impacts and from contamination by polluted runoff	31,2	M	High
		Loss or degradation of ecosystem services	26,4	L	High

	Landscaping	Final landscaping and reshaping	**-42**	**+**	High
OPERATIONAL	Vehicle traffic.	Potential contamination of wetlands from polluted runoff	**26,4**	**L**	High
		Wetland pollution from indiscriminate dumping of litter	**19,8**	**L**	High
	Stormwater	Operation of stormwater management (runoff generated from hardened surfaces)	**26,4**	**L**	High
DECOMMISSIONING	Rehabilitation	Potential loss or degradation of wetlands through inappropriate closure	**14,4**	**L**	High
	Landscaping	Final landscaping and concurrent rehabilitation	**-30**	**+**	High

4.2.2 Mitigation Measures

In light of the expected impacts from proposed activities the following mitigation measures have been proposed to lower the intensity of the impacts on the ecological integrity of the wetlands.

The focus of mitigation measures should be to reduce the significance of potential environmental impacts associated with the proposed development and thereby to:

- Prevent the unnecessary destruction and fragmentation of the vegetation community of the wetland areas; and
- Limit the construction area to the defined project areas and only impact those areas where it is unavoidable to do so otherwise.

4.2.2.1 General Mitigation Measures

The following general mitigation measures are provided in addition to the aforementioned mitigation:

- Construction activities must take place during the low flow period (as much as possible). In addition to this, basic stormwater structures such as berms must be designed and implemented prior to and throughout the duration of the construction activities;
- A qualified Hydrologist with experience in arid areas must develop a suitable and adaptive Stormwater management plan to ensure no erosion takes place and that clean water reports back to the local watercourses;
- The water resources outside of the specific project site area must be avoided;
- Prevent uncontrolled access of vehicles through the watercourse that can cause a significant adverse impact on the hydrology and alluvial soil structure of these areas;
- Laydown yards, camps and storage areas must be beyond the watercourse and associated buffer areas.
- Have action plans on site, and training for contactors and employees in the event of spills, leaks and other impacts to the drainage systems;
- The contractors used for the project should have spill kits available to ensure that any fuel or oil spills are clean-up and discarded correctly;
- All chemicals and toxicants to be used for the construction must be stored outside the watercourses and in a bunded area;
- Appropriately contain any generator diesel storage tanks, machinery spills (e.g. accidental spills of hydrocarbons oils, diesel etc.) or construction materials on site (e.g. concrete) in such a way as to prevent them leaking and entering the environment;
- All machinery and equipment should be inspected regularly for faults and possible leaks, these should be serviced off-site;
- Mixing of concrete must under no circumstances take place within the drainage systems. Scrape the area where mixing and storage of sand and concrete occurred to clean once finished;

- All contractors and employees should undergo induction which is to include a component of environmental awareness. The induction is to include aspects such as the need to avoid littering, the reporting and cleaning of spills and leaks and general good “housekeeping”;

- Adequate sanitary facilities and ablutions on the servitude must be provided for all personnel throughout the project area. These should not be placed near any watercourse or in buffer zones. Use of these facilities must be enforced (these facilities must be kept clean so that they are a desired alternative to the surrounding vegetation);

- The haul road and associated road margins, and silt traps must be inspected on a monthly basis for signs of erosion. When erosion is observed, the area should be rehabilitated within 7 days. In addition, inspections following a >50 mm/ 24 hr rainfall event must occur within 7 days of the event;

- No dumping of construction material on-site may take place;

- All waste generated on-site during construction must be adequately managed. Separation and recycling of different waste materials should be supported; and

- Make sure all excess consumables and building materials / rubble are removed from site and deposited at an appropriate waste facility.

5 Conclusion

One HGM type (CVB) was identified within the proposed project area and its respective PAOI, consisting of one HGM unit which will be at risk given the current project footprint. In addition, a few artificial quarries and one large artificial dam were identified within the PAOI.

A summary of the ecological results for the features are displayed in the table below (Table 5-1). HGM 1 was given a 30 m Buffer using the Site-Based Tool: Determination of buffer zone requirements for wetland ecosystems (Macfarlane *et al.,* 2014) together with the "GDARD Requirements for Biodiversity Assessments: Version 2" (GDARD, 2012) were used to determine the appropriate watercourse buffer zones for the proposed project.

Table 5-1 Ecological characteristics and buffer requirements of the freshwater features within the Valley Silts Expansion Project Area

Aspect	Present Ecological State	Ecological Importance and Sensitivity (EIS)	Buffer Requirement
HGM 1 – Channelled valley bottom	F – Critically Modified	Low/Marginal	30 m

5.1 Risk and Impact Statement

The overall residual risk of the proposed development was calculated to be "Moderate" given that the proposed area for development intersect wetland features.

5.2 Specialist Opinion

A wetland feature was identified within the Project Site itself, which does coincide with the screening tool findings as screening tool findings indicated "Very High" sensitivity for the project footprint. Therefore, considering the assessment findings, no fatal flaws are evident for the proposed project at this stage. It is the opinion of the specialists that the delineated freshwater habitats should be used to inform the final layout of the project, with avoidance of the delineated freshwater habitats being imperative in reducing potential impact on the systems. The project can be favourably considered for authorisation given that the removal of silts from the system will provide an opportunity to rehabilitate the watercourse in the post-activity stages which will be beneficial to the system in the long-term.

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7 Appendix Items

7.1 Appendix A – Methodology

7.1.1 Desktop Dataset Assessment

The desktop assessment was undertaken using Geographic Information System (GIS) to access, view and overlay the latest available related datasets with the project area. The information represented within the datasets was used to develop the relevant digital maps used to identify potentially environmentally sensitive areas. These datasets and their respective dates of publishing are provided below:

- Vegetation Types - Vegetation Map of South Africa, Lesotho and Swaziland (SANBI, 2018 & Mucina and Rutherford 2006);
- Soils and Geology - Land Types Database (Land Type Survey Staff, 1972 - 2006); and
- Topographical Inland Water Areas and River Lines (based on the 1994 1:500 000 topographic maps as per the Chief Directorate of the National Geo-spatial Information).

7.1.1.1 Vegetation Types - Vegetation Map of South Africa, Lesotho and Swaziland

The Vegetation Map of South Africa, Lesotho and Swaziland (SANBI, 2018) is the latest and updated version of the maps published in earlier time such as those presented by Mucina and Rutherford (2006) and those presented in the National Biodiversity Assessment (2011). The map provides spatial details on the representative vegetation of South Africa and is complemented in this report using information from Strelitzia (Mucina & Rutherford, 2006) to provide insight on the landscape features, biogeography, climate, geology, and soils of the project area.

7.1.1.2 Soils and Geology - Land Type Database

The Land Type Survey provides information on the soils, terrain, climate, and geology of areas within South Africa. The data includes the pedological classification of soils and is used in this report to provide insight on the common soil forms associated with aquatic or freshwater systems of a particular area.

7.1.1.3 Topographical River Lines and Inland Water Areas

Topographical Inland Water Areas and River Lines for South Africa are based on the topographic maps dated 1994 as per the National Geo-spatial Information. These datasets are used in this report to provide insight on potential wetland areas and serves to highlight the location and extent of drainage features, dams, wetlands, reservoirs and other relevant inland waterbodies.

7.1.1.4 Ecologically Important Landscape Features

The datasets listed below were incorporated to establish the relation between the project and ecologically important or sensitive freshwater entities. Emphasis was placed around the following spatial datasets:

- South African Inventory of Inland Aquatic Ecosystems (SAIIAE), NBA 2018 Rivers and Wetlands (Van Deventer *et al.,* 2019);
- National Freshwater Priority Areas, Rivers and Wetlands, 2011 (Nel *et al.,* 2011); and
- Strategic Water Source Areas, 2021 (Lötter & Le Maitre, 2021).

7.1.1.4.1 The South African Inventory of Inland Aquatic Ecosystems

The South African Inventory of Inland Aquatic Ecosystems (SAIIAE) was established during the 2018 NBA, the SAIIAE is a collection of spatial data layers that represent the extent of river and inland wetland ecosystem types as well as the pressures on these systems. The same two headline indicators, and their associated categorisations, are applied as with the terrestrial ecosystem NBA, namely Ecosystem Threat Status and Ecosystem Protection Level. The Ecosystem Threat Status of river and wetland ecosystem types are based on the extent to which each ecosystem type had been altered from its natural condition.

7.1.1.4.2 National Freshwater Ecosystem Priority Areas, Rivers and Wetlands

In an attempt to better conserve aquatic ecosystems, South Africa has categorised its inland aquatic systems according to set ecological criteria (i.e., ecosystem representation, water yield, connectivity, unique features, and threatened taxa) to identify Freshwater Ecosystem Priority Areas (FEPAs). The FEPAs are intended to be conservation support tools and it is envisioned that they will guide the effective implementation of measures to achieve the National Environment Management: Biodiversity Act's biodiversity conservation goals (Nel *et al.,* 2011).

7.1.2 Wetland Field Survey

7.1.2.1 Identification and Mapping

The wetland areas were delineated in accordance with the DWAF (2005) guidelines, a cross section is presented in Figure 7-1. The outer edges of the wetland areas were identified by considering the following four specific indicators:

- The Terrain Unit Indicator helps to identify those parts of the landscape where wetlands are more likely to occur;
- The Soil Form Indicator identifies the soil forms, as defined by the Soil Classification Working Group (1991), which are associated with prolonged and frequent saturation.
- The soil forms (types of soil) found in the landscape were identified using the South African soil classification system namely; Soil Classification: A Taxonomic System for South Africa (Soil Classification Working Group, 1991);
- The Soil Wetness Indicator identifies the morphological "signatures" developed in the soil profile as a result of prolonged and frequent saturation; and
- The Vegetation Indicator identifies hydrophilic vegetation associated with frequently saturated soils.

Vegetation is used as the primary wetland indicator. However, in practise the soil wetness indicator tends to be the most important, and the other three indicators are used in a confirmatory role.

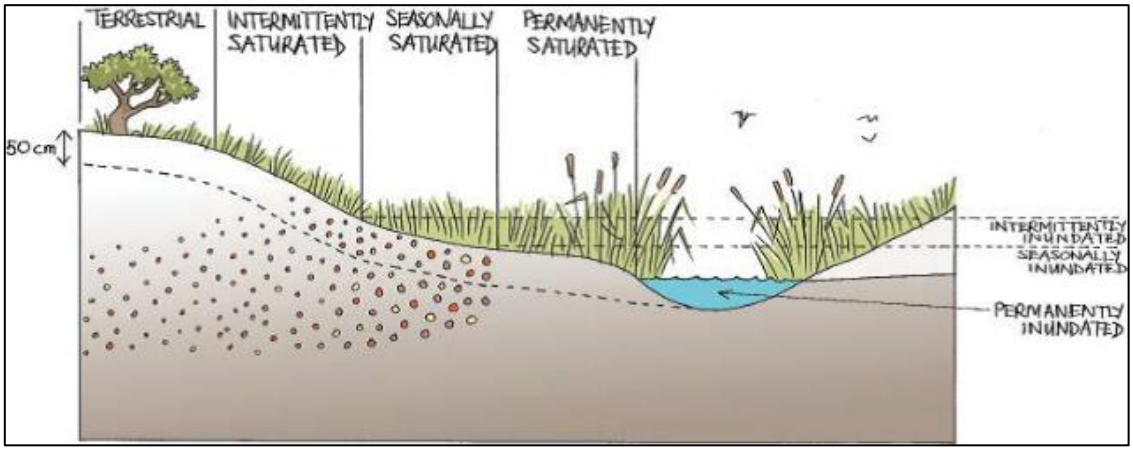


Figure 7-1 Cross section of a wetland, indicating how the soil wetness and vegetation indicators respond to changes in topography (Ollis et al. 2013)

7.1.2.2 Delineation

The wetland indicators described above are used to determine the boundaries of the wetlands within the project area. These delineations are then illustrated by means of maps accompanied by descriptions.

7.1.2.3 Classification and Description

The National Wetland Classification Systems (NWCS) developed by the South African National Biodiversity Institute (SANBI) will be considered for this study. This system comprises a hierarchical classification process of defining a wetland based on the principles of the hydrogeomorphic (HGM) approach at higher levels, and then also includes structural features at the lower levels of classification (Ollis *et al.,* 2013).

7.1.3 Risk Screening

A risk screening procedure which considers the general topography of the proposed area in conjunction with the spatial proximity of the natural wetlands to the proposed areas of development was used to determine the 'Risk Status' of the delineated wetlands. Two broad categories are included in the screening process which classify wetlands to be 'At Risk' or 'Not at Risk'.

7.1.4 Wetland Functional and Ecological Assessment

7.1.4.1 Functional Assessment

Wetland Functionality refers to the ability of wetlands to provide healthy conditions for the wide variety of organisms found in wetlands as well as humans. Eco Services serve as the main factor contributing to wetland functionality.

The assessment of the ecosystem services supplied by the identified wetlands was conducted per the guidelines as described in WET-EcoServices (Kotze *et al.,* 2009). An assessment was undertaken that examines and rates the following services according to their degree of importance and the degree to which the services are provided (Table 7-1).

Table 7-1 Classes for determining the likely extent to which a benefit is being supplied

Score	Rating of likely extent to which a benefit is being supplied
< 0.5	Low
0.6 - 1.2	Moderately Low

1.3 - 2.0	Intermediate
2.1 - 3.0	Moderately High
> 3.0	High

7.1.4.2 Present Ecological Status

The overall approach is to quantify the impacts of human activity or clearly visible impacts on wetland health, and then to convert the impact scores to a Present Ecological Status (PES) score. This takes the form of assessing the spatial extent of impact of individual activities/occurrences and then separately assessing the intensity of impact of each activity in the affected area. The extent and intensity are then combined to determine an overall magnitude of impact. The Present State categories are provided in Table 7-2.

Table 7-2 The Present Ecological Status categories (Macfarlane et al., 2007)

Impact Category	Description	Impact Score Range	PES
None	Unmodified, natural	0 to 0.9	A
Small	Largely Natural with few modifications. A slight change in ecosystem processes is discernible and a small loss of natural habitats and biota may have taken place.	1.0 to 1.9	B
Moderate	Moderately Modified. A moderate change in ecosystem processes and loss of natural habitats has taken place, but the natural habitat remains predominantly intact.	2.0 to 3.9	C
Large	Largely Modified. A large change in ecosystem processes and loss of natural habitat and biota has occurred.	4.0 to 5.9	D
Serious	Seriously Modified. The change in ecosystem processes and loss of natural habitat and biota is great, but some remaining natural habitat features are still recognizable.	6.0 to 7.9	E
Critical	Critical Modification. The modifications have reached a critical level and the ecosystem processes have been modified completely with an almost complete loss of natural habitat and biota.	8.0 to 10	F

7.1.4.3 Ecological Importance and Sensitivity

The importance and sensitivity of water resources is determined in order establish resources that provide higher than average ecosystem services, biodiversity support functions or are particularly sensitive to impacts. The mean of the determinants is used to assign the Ecological Importance and Sensitivity (EIS) category as listed in Table 7-3.

Table 7-3 Description of Ecological Importance and Sensitivity categories

EIS Category	Range of Mean	Recommended Ecological Management Class
Very High	3.1 to 4.0	A
High	2.1 to 3.0	B
Moderate	1.1 to 2.0	C
Low Marginal	< 1.0	D

7.1.4.4 Recommended Ecological Category and Recommended Management Objective

The Recommended Ecological Category (REC) and Recommended Management Objective (RMO) (Table 7-4) was determined based on the results obtained from the PES and EIS of the assessed wetlands, with the objective of recommending how a water resource should be managed. This is achieved by either maintaining or improving the ecological integrity of the wetland in order to ensure continued ecological functionality (DWA, 1999).

Table 7-4 Recommended Ecological Category and Recommended Management Objectives for water resources based on Present Ecological State and Ecological Importance and Sensitivity scores

		Ecological Importance and Sensitivity			
		Very High	***High***	***Moderate***	***Low***
PES	***A (Pristine)***	A Maintain	A Maintain	A Maintain	A Maintain
	B (Natural)	A Improve	A/B Improve	B Maintain	B Maintain
	C (Good)	A Improve	B/C Improve	C Maintain	C Maintain
	D (Fair)	C Improve	C/D Improve	D Maintain	D Maintain
	E/F (Poor)	D Improve	E/F Improve	E/F Maintain	E/F Maintain

7.1.5 Buffer Requirements

The "Preliminary Guideline for the Determination of Buffer Zones for Rivers, Wetlands and Estuaries" (Macfarlane *et al.,* 2014) was used to determine the appropriate buffer zone for the proposed activity. The "GDARD Requirements for Biodiversity Assessments: Version 2" was used to provide a buffer zone for wetlands and rivers located within rural and urban areas (GDARD, 2012).

7.1.6 Site Sensitivty Verification

The baseline aquatic / freshwater sensitivity of the project area was obtained using the National Web-based Environmental Screening Tool (Regulation 16(1)(v) of the Environmental Impact Assessment Regulations 2014, as amended). The allocated sensitivities for each of the relevant themes are either disputed or validated for the assessed areas based on the specialist assigned Ecological Importance and Sensitivity of the different systems (where applicable), with consideration been given to the presence of observed or likely sensitive fauna and flora.

7.2 Appendix B – Risk and Impact Assessment

The Department of Water and Sanitation (DWS) risk matrix assesses impacts in terms of consequence and likelihood. The significance of the impact is rated according to the classes presented in Table 7-5.

Table 7-5 Significance ratings matrix

Rating	Class	Management Description
1 – 29	(L) Low Risk	Acceptable as is or consider requirement for mitigation. Impact to watercourses and resource quality small and easily mitigated. Wetlands may be excluded.
30 – 60	M) Moderate Risk	Risk and impact on watercourses are notably and require mitigation measures on a higher level, which costs more and require specialist input. Wetlands are excluded.
61 – 100	(H) High Risk	Always involves wetlands. Watercourse(s)impacts by the activity are such that they impose a long-term threat on a large scale and lowering of the Reserve.

7.3 Appendix C – Specialist Declaration of Independence

I, Divan van Rooyen, declare that:

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing any decision to be taken with respect to the application by the competent authority; and the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of Section 24F of the Act.



Divan van Rooyen

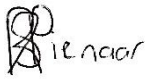
Freshwater Ecologist

The Biodiversity Company

October 2024

I, Rian Pienaar, declare that:

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing any decision to be taken with respect to the application by the competent authority; and the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of Section 24F of the Act.



Rian Pienaar

Ecologist

The Biodiversity Company

October 2024

7.4 Appendix D – Specialist CVs

Divan van Rooyen

Ph.D. Environmental Science

Can Sci Nat (151272)

Cell: +27 83 265 8776
Email: divan@thebiodiversitycompany.com
Identity Number: 9312205072085
Date of birth: 20 December 1993



Profile Summary

Working experience throughout Southern Africa

Specialist experience with mining, WWTW's and construction.

Specialist expertise include wetlands resources, aquatic ecology and ecotoxicology.

Areas of Interest

Mining, Seismic Surveys, Renewable Energy, Bulk Services Infrastructure Development & WWTW's.

Key Experience

- Environmental Impact Assessments (EIA)
- Environmental Management Programmes (EMP)
- Wetland delineations and ecological assessments
- Rehabilitation Plans and Monitoring
- Aquatic biomonitoring

Country Experience

South Africa

Nationality

South African

Languages

English – Proficient

Afrikaans – Proficient

Qualifications

- PhD (North-West University of Potchefstroom) – Environmental Science with Aquatic Ecosystem Health
- MSc (North-West University of Potchefstroom) – Environmental Science (Ecological Remediation and Sustainable Management)
- BSc Honours (North-West University of Potchefstroom) – Environmental Science with Ecological Remediation and Sustainable Management
- BSc Environmental sciences
- Can Sci Nat (151272)

Rian Pienaar

M.Sc. Environmental Science

Pri Sci Nat (135544)

Cell: +27 78 0505 0201
Email: rian@thebiodiversitycompany.com
Identity Number: 9405235011089
Date of birth: 23 May 1994



Profile Summary

Working experience throughout Southern Africa

Specialist experience with mining, construction and agriculture.

Specialist expertise include wetlands resources, aquatic ecology, parasitology and ecotoxicology.

Areas of Interest

Mining, Oil & Gas, Renewable Energy & Bulk Services Infrastructure Development, Farming, Land Contamination, Sustainability and Conservation.

Key Experience

- Environmental Impact Assessments (EIA)
- Environmental Management Programmes (EMP)
- Wetland delineations and ecological assessments
- Rehabilitation Plans and Monitoring
- Soil classification
- Agriculture potential assessments
- Land contamination assessments

Country Experience

South Africa

Mozambique

Botswana

Nationality

South African

Languages

English – Proficient

Afrikaans – Proficient

Qualifications

- MSc (North-West University of Potchefstroom) – Environmental Science (Cum Lauda)
- BSc Honours (North-West University of Potchefstroom) – Environmental Science with Aquatic ecosystem heath.
- BSc Environmental sciences
- Pri Sci Nat (135544)