Jelani Resources (Pty) Ltd

Jelani Exploration Joint-Venture (EJV): Underground Mining Project

DRAFT INTEGRATED WATER AND WASTE MANAGEMENT PLAN IN SUPPORT OF THE WATER USE LICENCE APPLICATION

VOCMA REF NO.: WU50090

28 September 2026

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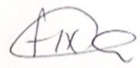
By Author	Environmental Consultant	Anela Fixi		11 September 2026
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Executive Summary

Kongiwe Environmental (Pty) Ltd ("Kongiwe") has been appointed by Jelani Resources (Pty) Ltd ("Jelani") as the Environmental Service Provider and has been 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 **Jelani Joint Venture (JV) Area Underground Mining Project** (hereafter the Proposed Project).

As part of the Water Use Licence Application (WULA) process, a proponent is required to compile an 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 **Tuesday, 29 September 2026** to **Friday, 27 November 2026.** Following this commenting period, this report will be updated to include all comments received and then will be submitted to the Vaal-Orange Catchment Management Agency (VOCMA) for consideration.

Jelani Resources (Pty) Ltd is a Joint Venture (JV) company established by White Rivers Exploration (WRE) and Harmony Gold Mining Company Limited ("Harmony Gold"). The JV was formed to conduct underground mining operations within the JV area, which is made up of areas within the existing Harmony Target Mining Right (MR) (Harmony contribution) and Prospecting Right (PR) areas to the west of Harmony Gold's existing Target Operation (WRE contribution) in the Free State Province of South Africa. Jelani initially secured a PR for various minerals within the JV area. Following the exploration and licensing phases, Jelani intends to initiate underground mining operations within the same area.

The Proposed Project entails licencing the underground mining of the following potential mineral resources:

- Gold ore (primary target),
- Silver ore,
- Uranium ore,
- Sulphur,
- Platinum Group Metals,
- Rare earths,
- Diamonds (alluvial),
- Copper ore,
- Cobalt ore,
- Manganese ore,
- Molybdenum ore,
- Nickel ore,
- Lead ore,
- Tungsten ore,
- Zinc ore, and
- Iron ore.

The proposed underground mining activity will require authorisation in terms of the National Water Act, 1998 (Act No. 36 of 1998) (NWA) for Section 21 water uses. An IWULA will be prepared and submitted in accordance with the WULA 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).

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 commitments pertaining to this IWWMP is also included to show Jelani'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 IWULA for the relevant water uses under Section 21 of the NWA. This document is based on the following technical guidelines:

- Best Practice Guidelines 1.1: Integrated Mine Water and Waste Management developed by the Department of Water Affairs (DWAF, 2008);
- Operational Guidelines 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

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- 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 Proposed 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 surface water, groundwater and wetlands (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.

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 (c): Impeding or diverting the flow of water in a watercourse.
- Section 21 (i): Altering the bed, banks, courses or characteristics of a watercourse.

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 impacts. Mitigation measures are discussed in Chapter 5 of this report.

The risk assessment identified a range of material water-resource risks associated with the proposed underground mining activities, including wetland subsidence and dewatering, stormwater contamination, mine-water management, groundwater plume migration, reliance on shared Harmony water-management infrastructure, and potential impacts on third-party groundwater users. Additional risks include groundwater drawdown, hydrocarbon spills, altered drainage patterns, inadequate dirty-water management, and the potential release of contaminated water to wetlands, watercourses, and downstream receptors. The assessment concluded that, with the implementation of appropriate mitigation measures and management controls, the majority of identified impacts can be reduced to a low residual significance.

Effective waste management will form a key component of these mitigation measures, particularly in preventing contamination of surface water and groundwater resources. The Proposed Project is anticipated to generate significant volumes of waste, primarily in the form of excavated waste rock and general operational waste. The table below presents the anticipated waste streams associated with the underground mining operation, together with their classification, storage and containment requirements, water-contact risks, disposal routes, and responsible parties.

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Waste Stream Register

Waste Stream	Typical Quantity*	Classification	Storage / Handling	Containment Measures	Water Contact Risk	Disposal / Management Route	Responsible Party
Waste Rock	To be quantified during operations	General mining waste (potentially acid-generating where applicable)	Designated waste rock stockpiles	Engineered stockpiles, stormwater controls, runoff diversion	Medium to High	Reuse for construction/backfilling where suitable; long-term storage in approved facilities	Mine Operations Manager
Ore (Low-Grade/Stockpiled)	To be quantified	Mineral-bearing material	Designated ore stockpiles	Bunding, stormwater diversion and drainage controls	Medium	Processing or future recovery	Processing Manager
Tailings	To be quantified	Mining residue	TSF	Engineered TSF with seepage and water management controls	High	Deposition in approved TSF	TSF Manager
Water-Treatment Sludge	To be quantified	Industrial treatment waste	Covered containers or dedicated sludge drying areas	Impermeable floors and bunding	Medium	Disposal at licensed waste facility or approved reuse, subject to characterisation	Environmental Manager
Sewage Sludge	To be quantified	Domestic wastewater treatment waste	Sludge holding tanks or drying beds	Lined containment and runoff control	Medium	Disposal at licensed facility or approved beneficial use, where authorised	Camp/Facilities Manager
Used Oil	To be quantified	Hazardous waste	Clearly labelled containers in bunded storage area	Impermeable surface and 110% bund capacity	High	Collection by licensed waste oil recycler	Engineering/Maintenance Manager
Hydrocarbon Waste (Fuel, Solvents, Grease)	To be quantified	Hazardous waste	Sealed, labelled containers in hazardous waste area	Bunding and spill containment systems	High	Removal by licensed hazardous waste contractor	Engineering/Maintenance Manager
Contaminated Soil	As generated	Hazardous or general waste depending on contamination	Designated temporary storage area	Lined and covered storage with runoff controls	High	Remediation, treatment, or disposal at licensed facility	Environmental Manager

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Chemical and Reagent Containers	As generated	Hazardous or general waste depending on residue	Segregated storage area	Covered, secure storage and spill controls	Medium	Return to supplier, recycling, or disposal through licensed contractor	Processing Manager
General Waste	As generated	General waste	Waste skips and bins	Covered containers to prevent litter and stormwater ingress	Low	Disposal at licensed municipal landfill	Facilities Manager
Recyclable Waste (Paper, Plastic, Metal, Glass)	As generated	Recyclable waste	Segregated recycling bins	Covered storage where required	Low	Recycling through approved service providers	Facilities Manager

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Abbreviations and Units

Abbreviation/ Symbol	Description
AMD	Acid Mine Drainage
AIP	Alien Invasion Plants
ASG	Advanced Strike Gully
BID	Background Information Document
CA	Competent Authority/Authorities
CBA	Critical Biodiversity Area
CRR	Comments and Response Report
DEFF	Department of Forestry, Fisheries and the Environment
DWS	Department of Water and Sanitation
DMPR	Department of Mineral and Petroleum Resources
DoH	Department of Health
DPWI	Department of Public Works and Infrastructure
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EIS	Ecological Importance and Sensitivity
EJV	Exploration Joint Venture
EMPr	Environmental Management Programme Report
ESA	Ecologically Sensitive Areas
GA	General Authorisation
GDP	Growth Domestic Product
Ha	Hectare
IDP	Integrated Development Plan
IWULA	Integrated Water Use Licence Application

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Abbreviation/ Symbol	Description
JV	Joint Venture
Km	Kilometre
LDM	Lejweleputswa District Municipality
m	Metre
mbs	Meters below surface
MLM	Matjhabeng Local Municipality
MPRDA	Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)
MR	Mining Right
NBSAP	National Biodiversity Strategy and Action Plan
NDP	National Development Plan
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEM:BA	National Environmental Management: Biodiversity Act, 2004 (Act No.10 of 2004)
NEM:PAA	National Environmental Management Protected Areas Act, 2003 (Act No 57 of 2003)
NEM:WA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
NFEPA	National Freshwater Ecosystem Priority Area
NNR	National Nuclear Regulator
NWA	National Water Act, 1998 (Act No. 36 of 1998)
PA	Protected Area
PAIA	Promotion of Access to Information Act (Act No. 2 of 2000)
PES	Present Ecological State
PR	Prospecting Rights
PPP	Public Participation Process
RoD	Record of Decision
RMO	Recommended Management Objective
REC	Recommended Ecological Category
SANBI	South African National Biodiversity Institute

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Abbreviation/ Symbol	Description
SDF	Spatial Development Framework
SIA	Social Impact Assessment
SLP	Social and Labour Plan.
SPLUMA	Spatial Planning and Land Use Management Act (Act No. 16 of 2013)
SRP	Surface Right Permit
TSF	Tailings Storage Facility
VOCMA	Vaal-Orange Catchment Management Agency
WULA	Water Use Licence Application
WUL	Water Use Licence
WRE	White Rivers Exploration
WMA	Water Management Area
WML	Waste Management Licence

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1. INTRODUCTION

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- Silver ore,
- Uranium ore,
- Sulphur,
- Platinum Group Metals,
- Rare earths,
- Diamonds (alluvial),
- Copper ore,
- Cobalt ore,
- Manganese ore,
- Molybdenum ore,
- Nickel ore,
- Lead ore,
- Tungsten ore,
- Zinc ore, and
- Iron ore.

Jelani's underground mining operations initially will target shallower mineral resource deposits at the project site. As mine development progresses, new mining areas will be developed which will allow for the production rate to be steadily increased to the targeted full production rate of 60 000 tonnes of mined ore per month.

Two mining methods have been identified as the most practical for exploiting the mineral resources: conventional drill-and-blast breast mining and shrinkage stoping. The selection of each method is primarily based on the dip of the mineralised reef, with the shrinkage stoping being used for the steeper slopes (3% of the total stope tonnage).

Conventional Breast Mining

Where the orebody dips below 55°, conventional breast mining will be used. Footwall drives will be developed in the strike direction, between 40 to 48m below the mining horizon. Crosscuts will subsequently be developed perpendicularly to the footwall drives, towards the reef horizon. Access to the reef horizon will be by travelling way, developed from the crosscut. Ore passes will be developed between the reef horizon and the crosscut for the removal of blasted ore from the stope. On the stope horizon, a raise or centre gully will be developed between levels up the centre of the mining block. Breast mining panels will be established off the centre gully. The panels will be mined approximately in the strike direction away from the centre gully to the stope block limit. An advanced strike gully (ASG) will be carried on the down dip side of each mining panel for access to the stope face and for clearing of blasted ore from the face. Typically, two stope ore passes will be situated in the centre gully which will connect the stoping areas to the footwall infrastructure. All ore produced in the stopes will be scraped into the ore passes for loading in the crosscut. Figure 1-1 shows a plan of a typical stope block.

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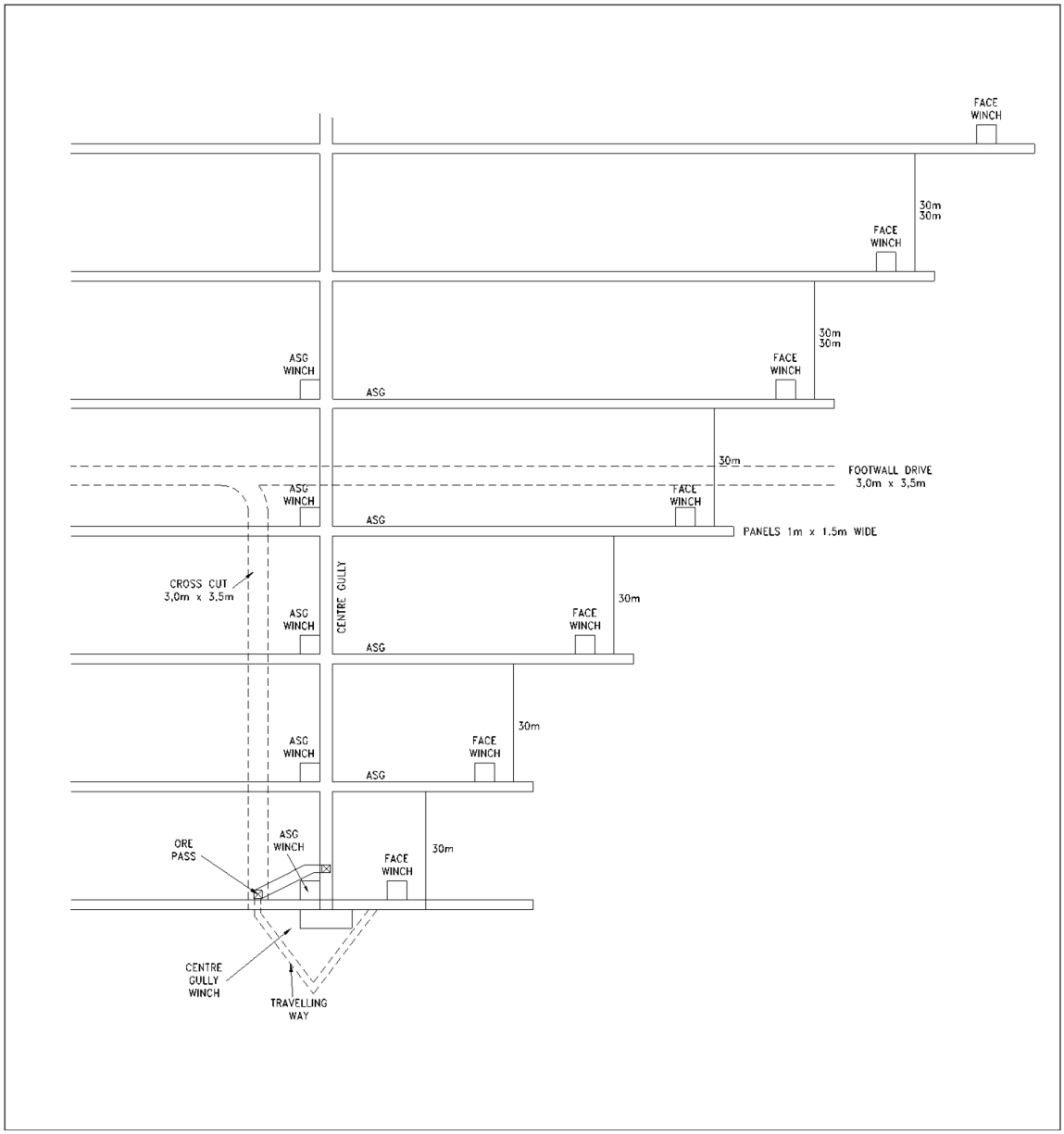

Figure 1-1: Schematic Plan View of a Conventional Stope Block

The breast faces will be drilled using hand-held, hydro-powered rock drills and airlegs. Blast holes will be charged with packaged emulsion explosives. Scraper cleaning will be used in the stope horizon. Ore will be scraped from the face, into the ASG and then into the centre gully. From the centre gully the rock is scraped over a stope grizzly into the ore pass. The bottom of the ore pass is equipped with a box front with a hydraulically operated gate.

Where multiple reefs occur, and both are payable and are planned to be mined, the order of mining will be to extract the uppermost reef first, working downwards.

Shrinkage Stoping

Shrinkage stoping is an overhand mining method that relies on broken material being left in the stope to be used as the “working floor” and to support the walls (see Figure 1-2). The shrinkage stope is accessed via a travelling way. The stope is established and accessed by the development of two raises, one on each end of the stope panel.

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Two drives, separated by a sill pillar, are established at the bottom of the stope. Draw points are developed between the two drives for loading ore from the stope. Once the stope preparation development and equipping have been completed stoping commences by advancing the stope face up-dip from the sill drive. After each blast sufficient ore is drawn out to allow access between the new stope face and the top of the muckpile. Once the stope face reaches the upper limit, which is normally defined by a crown pillar, all men and equipment are withdrawn from the stope and the remaining ore is drawn from the stope. Ore is drawn out of the stope by operating the scraper winch in the reef drive. This clears rock from the draw points and allows the ore to continue to flow.

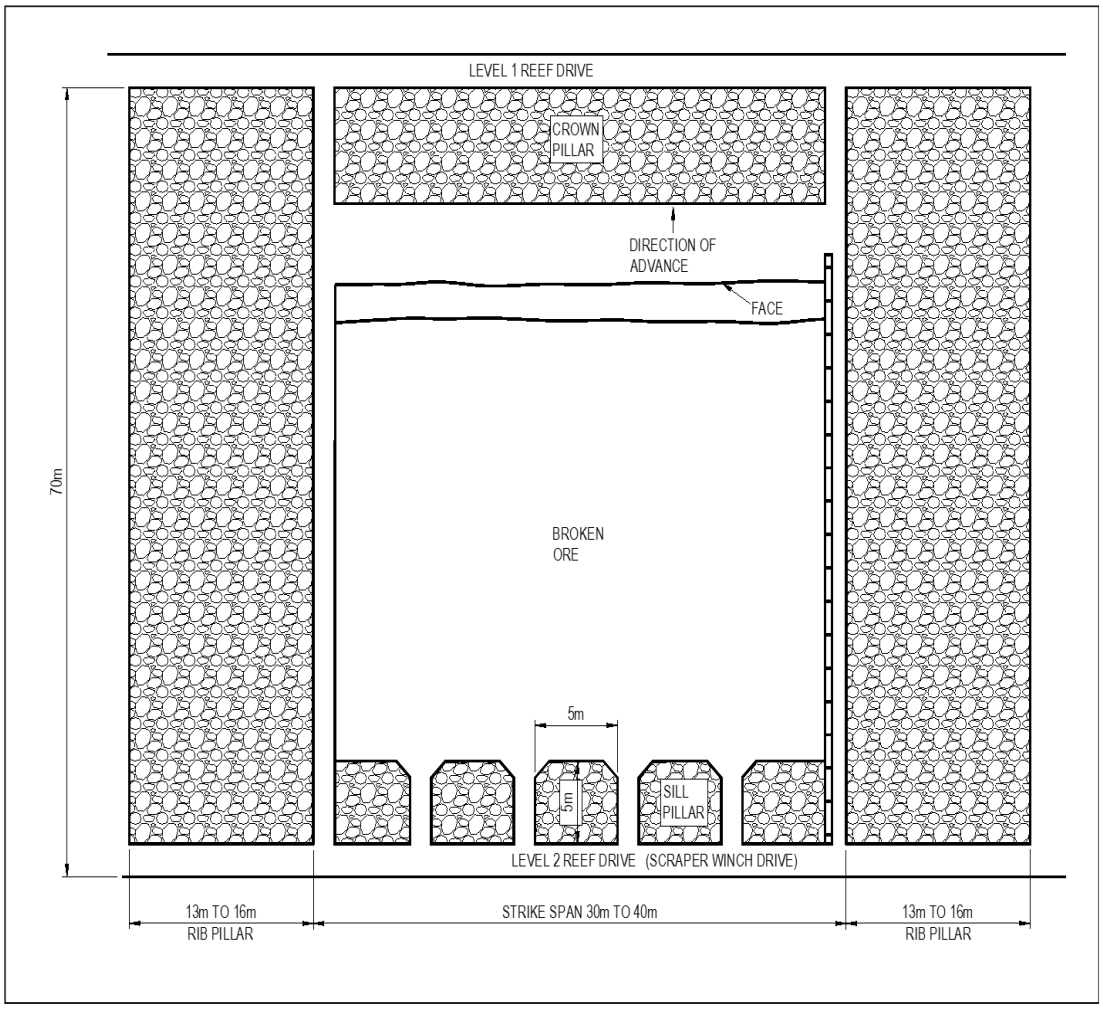

Figure 1-2: Schematic Long Section Illustrating a Typical Shrinkage Stope

Ore will be transported to the shaft ore pass system using a conveyor system loaded by a fleet of 30-tonne dump trucks which are loaded by 10-tonne loaders (LHD). Subsequently, the broken rock will be loaded into hoisting bins and will be hoisted to surface, where the rock will either be sent to the processing plant or to the waste rock dump.

Existing underground access (shafts and level access) will be refurbished and re-equipped. Target No 2 and Target No 3 shafts will, over the course of the mines life, be used for the movement of men, material and rock depending on which phase the mine is in.

1.1.1 Applicant Details

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

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Table 1-1: Contact Details of Applicant

Applicant	Jelani Resources (Pty) Ltd
Registration No:	2014/099861/07
Primary Contact:	Neels Hoek
Head Office Address:	HHK House North Corner Ruth Crescent, Northcliff, Johannesburg, Gauteng, 2115
Postal Address	HHK House North Corner Ruth Cresen, Northcliff, Johannesburg, Gauteng, 2115
Telephone:	076 254 2506 / 082 071 7571
E-mail:	nhoek@mera.co.za

1.2 Regional Setting and Location of Activity

Approximately 11 km northwest of Odendaalsrus, 2,5 km west of Allanridge, and 22 km east of Wesselsbron

1.3 Property Description

The spatial orientation of the Proposed Project site relative to the surrounding area is illustrated Figure 1-3. Below is a summary of the location of the Proposed Project site (Table 1-2).

Table 1-2: Summary of the Location of the Proposed Project Site

Province	Free State Province
Municipality	Matjhabeng Local Municipality
Ward Number	Ward 36
Nearest Town	Allanridge

Table 1-3 and Figure 1-4 below shows the properties that are directly affected by the Proposed Project.

Table 1-3: Description of Directly Affected Properties

MAP ID	Parent Farm	Farm Portion	Landowner
Directly Affected Farm Portion			
1	WELVAART No. 63	0	BLAAUWKLIP TRUST
2	WELVAART No. 63	1	TALJAARD WILLEM HENDRIK
	WELVAART No. 63	2	
	DIAMANT No. 37	0	
	GRASPAN No. 40	0	
	GRASPAN No. 40	1	
	SWARTPAN No. 436	0	

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Indirectly Affected Farm Portion			
3	ONRUST No. 377	0	JACO GROBBELAAR TRUST
4	NOOITGEDACHT No. 378	0	EDU-HAN TRUST
5	KROMDRAAI No. 386	0	AVGOLD LTD
6	KROMDRAAI No. 386	1	MATJHABENG LOCAL MUNICIPALITY
	ALLANRIDGE No. 425	4	
7	KROMDRAAI No. 386	3	FREE STATE PROVINCIAL GOVERNMENT
1	WELGELUK No. 214	0	BLAAUWKLIP TRUST
8	ELIM No. 336	0	GOLDSTEIN SAMUEL-TRUSTEES
2	SWARTPAN No. 436	0	TALJAARD WILLEM HENDRIK
	GENOEG No. 330	0	
	GENOEG No. 330	1	
	WELGEVONDEN No. 183	1	

1.4 Purpose of IWWMP

Regulation 267 dated March 2017 under the National Water Act, 1998 (Act No. 36 of 1998) NWA, regarding the Procedural Requirements for WULAs requires that an IWWMP must be submitted with the IWULA if the purpose of a water use is for industry or mining.

The original intent of the IWWMP was aimed at collecting and rationalising the information submitted for WULAs, 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.

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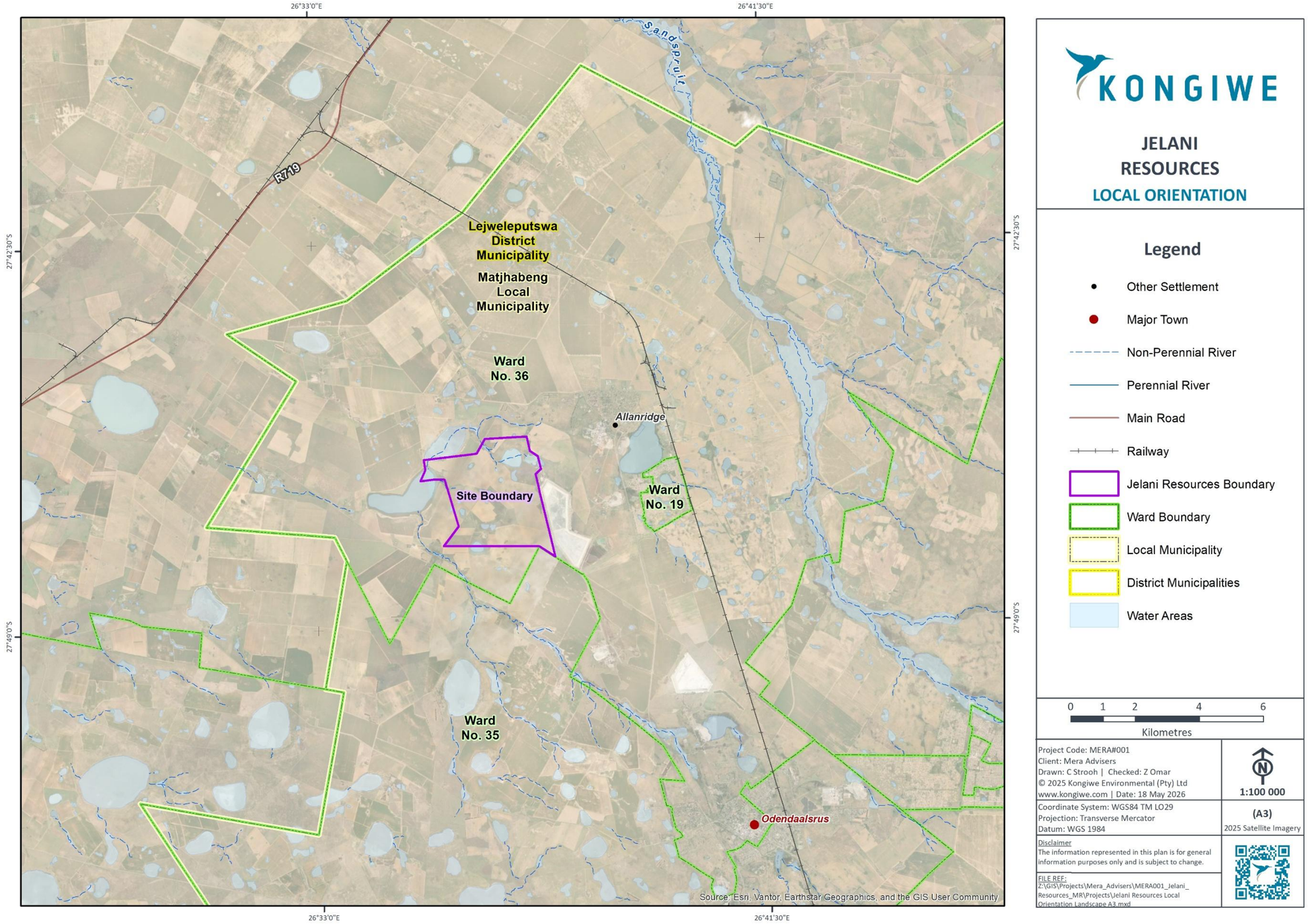

Figure 1-3: Proposed Project Locality Map

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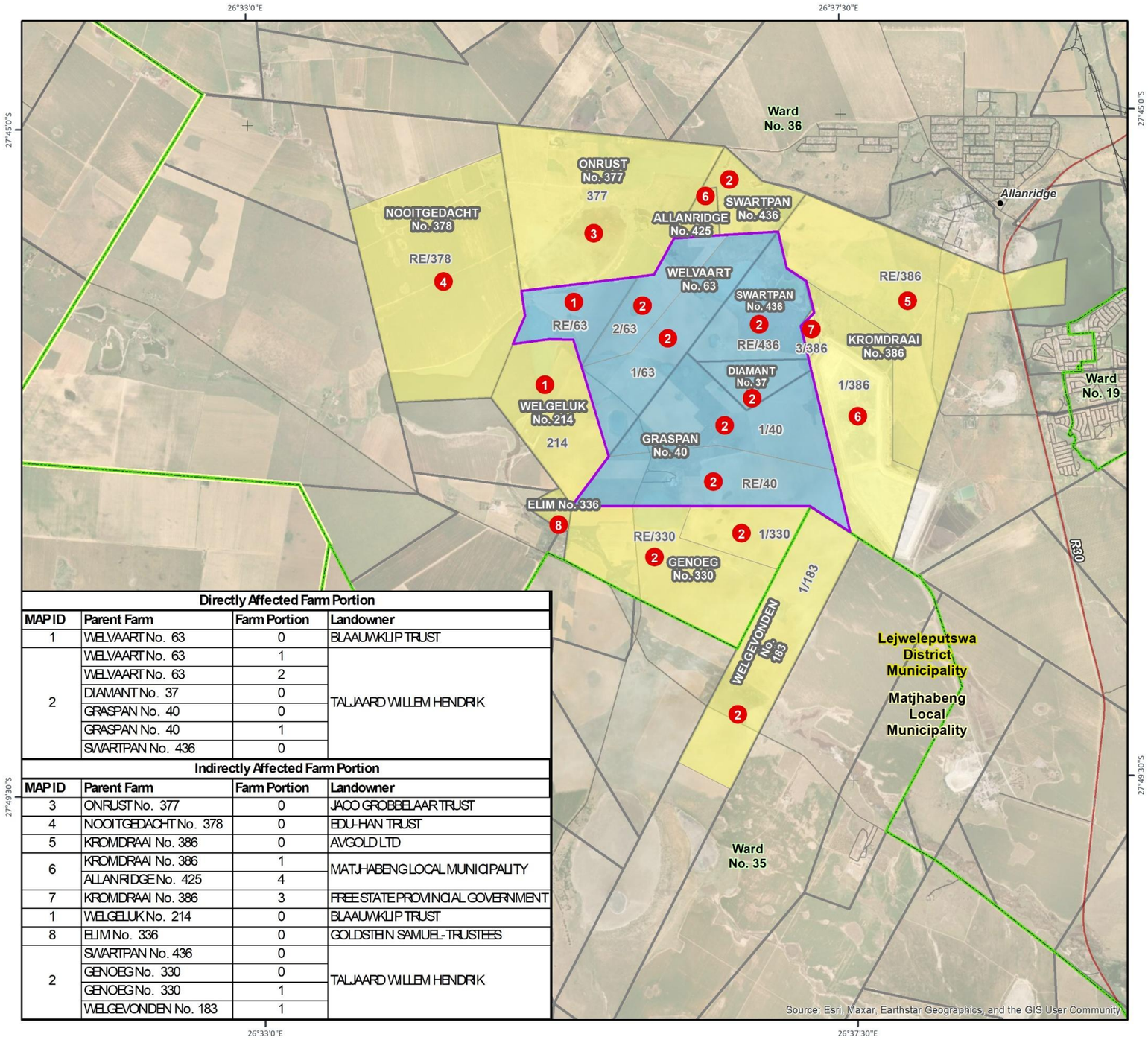

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	WELVAART No. 63	2	
	DIAMANT No. 37	0	
	GRASPAN No. 40	0	
	GRASPAN No. 40	1	
	SWARTPAN No. 436	0	

Indirectly Affected Farm Portion

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	ALLANRIDGE No. 425	4	
7	KROMDRAAI No. 386	3	FREE STATE PROVINCIAL GOVERNMENT
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2	SWARTPAN No. 436	0	TALJAARD WILLEM HENDRIK
	GENOEG No. 330	0	
	GENOEG No. 330	1	
	WELGEVONDEN No. 183	1	

KONGIWE

JELANI RESOURCES
LAND TENURE

Legend

- Other Settlement
- Local Roads
- Main Road
- Railway
- Jelani Resources Boundary
- Parent Farm
- Ward Boundary
- Local Municipality
- District Municipalities
- Directly Affected
- Indirectly Affected

0 0.5 1 2 3
Kilometres

Project Code: JELA#001
Client: Jelani Resources
Drawn: C Strooh | Checked: Z Omar
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www.kongiwe.com | Date: 04 December 2025

1:45 000

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

(A3)
2025 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\Jelani_Resources\JELA001_Jelani_Resources_MR\Projects\Jelani Resources Land Tenure Landscape A3.mxd

Figure 1-4: Project Area Land Tenure Map

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2. CONCEPTUALISATION OF ACTIVITY

This section describes a broad description of the activities, processes and products related to the Proposed Project. It also provides the background information of the organisational structure of the water user i.e., Jelani, and all the business and corporate policies related to the environment.

2.1 Description of Activity

As described in Section 1.1 above, Jelani intends to undertake underground mining operations within the EJV area for the extraction of gold and other minerals.

2.2 Extent of Activity

The total surface area assessed for the Proposed Project is 956,76 hectares (ha). A total area required for underground mining is 80,64 km^2 (8064 ha).

2.3 Key Activity Related Processes and Products

Jelani intends to initiate underground mining operations within the Proposed Project area. The Proposed Project will initially target shallower mineral resource deposits at the Proposed Project site, estimated at approximately 1,200 meters below surface (mbs). As mine development progresses, new mining areas will be developed which will allow for the production rate to be steadily increased to the targeted full production rate of 60 000 tonnes of mined ore per month.

Two mining methods have been identified as the most practical for exploiting the mineral resources: conventional breast mining and shrinkage stoping as described in sections 0 and 0 respectively. Selection between these methods will be based primarily on the dip of the mineralised reef.

The development plan is phased:

- Phase 1: Access to the underground mine will occur via the existing Target 3 Shaft, with mining activities to be undertaken between 57 Level and 48 Level.
- Phase 2: Access will occur via the existing Target 2 Shaft, with mining activities taking place above 48 Level and below 57 Level.

All surface infrastructure required for the Proposed Project will be located within the existing Harmony Target Operation Mining Right (MR) area. The surface infrastructure owned by the Target Operation is existing infrastructure that was constructed prior to the promulgation of the NWA and is currently undergoing the IWULA process in terms of the NWA. The application reference for the Harmony Target Operation IWULA is WU43378, and this application is in Phase 3 of the IWULA process

Target No. 2 and Target No. 3 shafts will, over the life of the mine, be used for the movement of personnel, materials, and ore, depending on the phase of mining operations. All ore produced from underground mining operations will be transported to the existing Target 1 metallurgical plant for processing. The final tailings residue will be deposited at the new TSF. Waste rock generated during mining operations will be disposed of at the Target 2 Waste Rock Dump (WRD) and the Lorraine 1 WRD. Excess water generated by mining operations will be pumped to and managed at Target 2 Shaft and the D-Dam facility.

Figure 2-1 illustrates infrastructure flow diagram of the Proposed Project.

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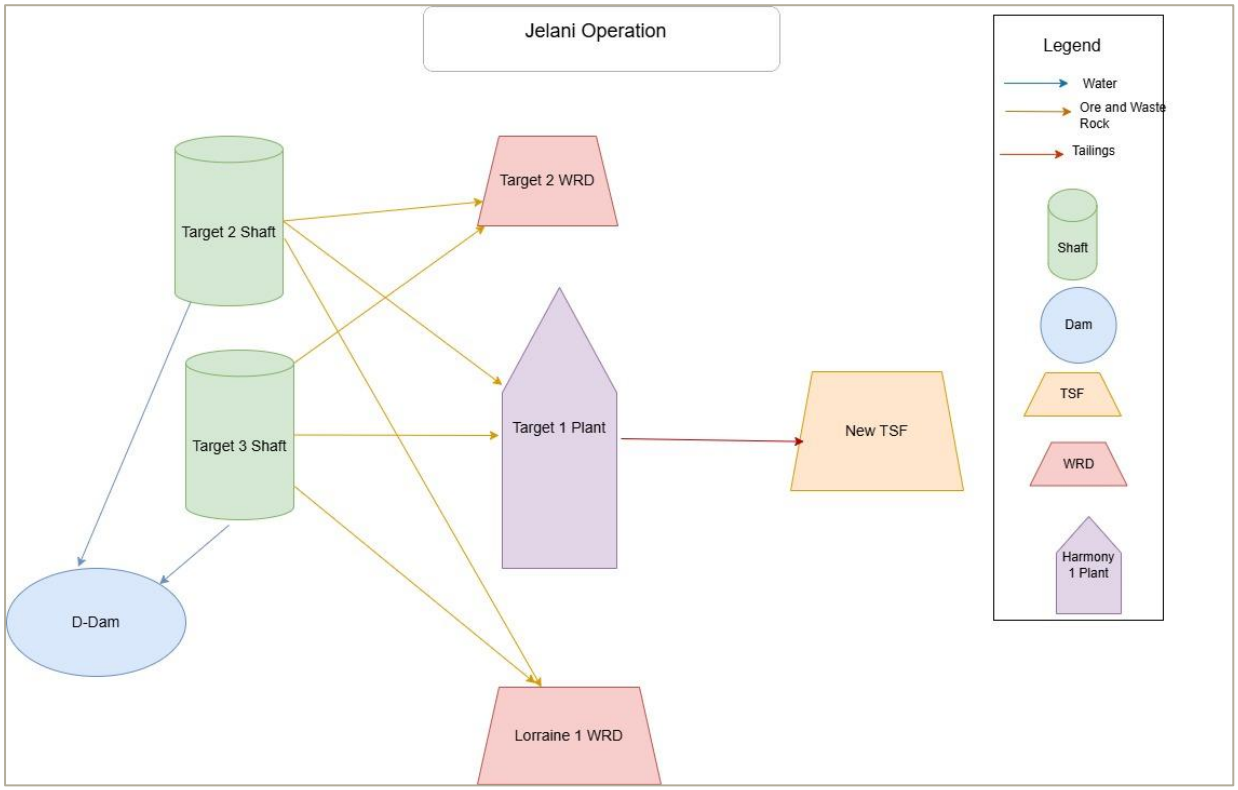

Figure 2-1: Process Flow Diagram

2.4 Activity Life Description

The Proposed Project is divided into several stages, as illustrated in Figure 2-2 below. Stage 1 has already been completed. During stage 1, Jelani successfully secured a PR for various minerals within the EJV area. Currently, the Proposed Project is in Stage 2 and as part of this stage, Jelani is the process of acquiring the required environmental approvals i.e., a WUL and an EA, before mine development and construction

Figure 2-2: Project Process

2.4.1 Life-Cycle Phases of the Proposed Project

Table 2-1 provides a summary of the activities to be undertaken during the different phases of the Proposed Project.

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As mentioned in Section 2.4 above, Jelani has successfully completed Stage 1 of the Proposed Project, which encompassed the majority of the pre-construction phase. The Proposed Project has now progressed to the second stage of pre-construction, focusing on conducting feasibility studies and obtaining the necessary environmental approvals.

Table 2-1: Summary of Activities Per Phase

Activity	Description
Pre-Construction	
1	Conduct feasibility studies and obtain all required environmental approvals, including the Environmental Authorisation (EA) and Water Use Licence (WUL).
Construction Phase	
2	No new infrastructure is planned within the Proposed Project area.
3	Refurbishment and re-equipment of shafts and level access
4	Installation of underground support, power, water, and communication systems
Operational Phase	
5	Drilling, blasting, loading and hauling
6	Ore transportation and processing
7	Ventilation management, ground support & water control
Decommissioning and Rehabilitation Phase	
8	Sealing shafts and tunnels
9	Removing equipment & decommissioning services
10	Long-term water treatment & land rehabilitation

2.4.1.1 Pre-construction Phase

Jelani has successfully secured a PR for various minerals within the EJV area. The results obtained from the PR will feed into environmental approval processes, including the Environmental Impact Assessment (EIA) related authorisations and the IWULA that must be in place before construction commences. Site access points will be via Harmony's Target shaft 2 and 3, and baseline environmental and geotechnical monitoring will begin and continue until mining operations commence.

2.4.1.2 Construction Phase

No construction activities are planned for the Proposed Project, as no new infrastructure will be developed. The Proposed Project will utilise the existing Target Operation's infrastructure, with works limited to the refurbishment and re-equipping of existing underground access, including shafts and level access and installation of underground support, power, water, and communication systems for this phase.

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2.4.1.3 Operational Phase

Once the construction phase is completed, underground mining operations will be initiated within the Proposed Project area, initially targeting the shallower mineral resource deposits located at approximately 1 200 metres below surface. As mine development advances, additional mining areas will be established, allowing production to progressively increase until the planned steady-state output of 60 000 tonnes of ore per month is achieved.

As mentioned above, two mining methods have been identified as most suitable for extracting the mineral resources, namely conventional breast mining and shrinkage stoping, with the selection of the appropriate method primarily dependent on the dip of the mineralised reef.

The development approach will be implemented in phases. During Phase 1, access to the underground workings will be established via the existing Target 3 Shaft, with mining activities conducted between 57 Level and 48 Level. This will be followed by Phase 2, during which access will be established through the existing Target 2 Shaft, enabling mining operations to take place both above 48 Level and below 57 Level, thereby expanding the operational footprint and supporting increased production capacity.

2.4.1.4 Decommissioning Phase

During the decommissioning phase, shafts and tunnels will be permanently sealed by installing reinforced concrete plugs, backfilling openings, and capping surface entrances to prevent access and control water or gas movement, while ventilation raises will be closed off safely. All underground and surface infrastructure will be dismantled, including the removal of machinery, electrical systems, hazardous materials, pumps, and support services, followed by the demolition or deactivation of surface facilities. At the same time, long-term water management will begin, involving controlled flooding of mine workings, continuous water-quality monitoring, and the construction of treatment systems to manage contaminated or acidic mine water. Finally, the land will be rehabilitated through demolition of remaining structures, recontouring disturbed areas, replacing topsoil, planting indigenous vegetation, controlling erosion, and monitoring environmental recovery to ensure the site will be left safe, stable, and environmentally sustainable.

2.4.2 Estimated Project Timeframes

Prior to the initiation of mine implementation and construction phase activities, various stages of design work will be required. It is expected that these design activities will take approximately four years to complete. Once finalised, implementation can begin, with active mining anticipation to commence in year 7. The key timelines are listed in Table 2-2 below.

Table 2-2: Proposed Project Development Timelines to Mine Production

Period		Description
Year 1- 3	Feasibility Studies	Environmental approval processes (EA and WUL), Geotechnical studies, Metallurgical Sample, Engineering Designs
		Confirmation of infrastructure sharing with Harmony
Year 4	Detailed Engineering	Final engineering design
		Tender process and contracts adjudication and awards
Year 5 - 8	Construction phase	Site establishment
		Target No. 3shaft rehabilitation (surface and shaft barrel
		UG level access and rehabilitation at Target No. 3

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		Target No. 2 shaft refurbishment (surface and shaft barrel)
		UG level access, rehabilitation and development at Target 2
Year 7	Staffing of mine	Advertising and appointment of employees
Year 7	**Production mining**	**Initiation of mining activities underground**

2.4.2.1 Explanation of Production Build up Period Once Production Commences

The production build-up is planned to occur in two phases.

Phase 1 is scheduled to last four years, commencing in Year 5, with construction, refurbishment, and mining activities beginning in Year 7. The first two years will be dedicated to establishing level access and completing refurbishment work, after which Target No. 3 Shaft will be used for the hoisting of personnel, materials, and ore.

Phase 2 will commence in Year 9, following the start of mining activities in Year 7. Access to the underground workings will be provided via Target No. 2 Shaft, while Target No. 3 Shaft will be retained as a secondary outlet.

As mine development progresses, new mining areas will be established, enabling a gradual increase in production rates to the targeted full production capacity of 60,000 tonnes of ore per month. This production rate is expected to be achieved in Year 10.

A graphical representation of the production build-up period is presented in Figure 2-3. Note that the graph begins at the start of Project Year 5 (Month 49) and is presented in months. Underground mining activities are shown as commencing in Year 7.

A total of 10.34 Million tonnes (Mt) of ore are expected to be mined over the 14-year Life of Mine (LOM)

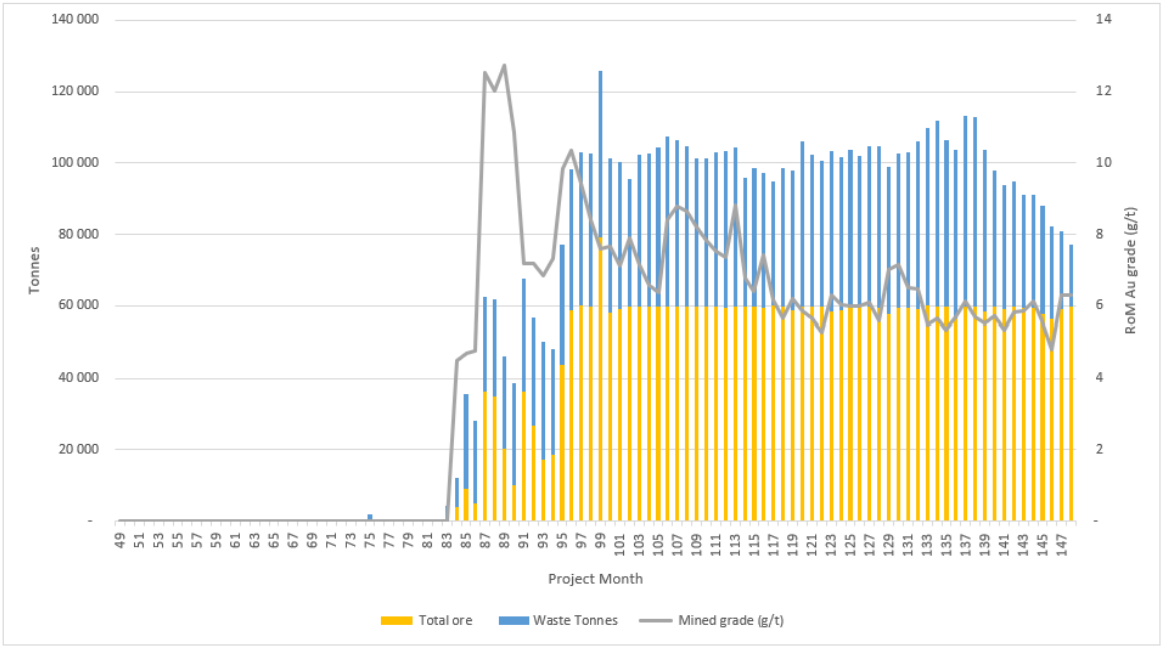

Figure 2-3: Production Build Up Period for the Jelani Underground Project.

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2.5 Activity Infrastructure Description

As mentioned in Section 2.4, all operational mining infrastructure required for the Proposed Project is located within the existing Target Operation MR area. No new operational mining infrastructure is planned within the project area. Underground access infrastructure will either consist of refurbished facilities at Target Shafts No. 3, 4 and 5 or newly constructed infrastructure at the Target No. 2 Shaft site, all within the existing MR.

The infrastructure requirements are intended to support the managerial, supervisory, and operational functions associated with the respective underground mining operations/targets. A layout of the proposed Target 3 shaft surface infrastructure which either needs to be refurbished or constructed is presented in Figure 2-5. Target 3 shaft will be used to access the underground workings during Phase 1 of the Proposed Project whilst Target 2 shaft is refurbished.

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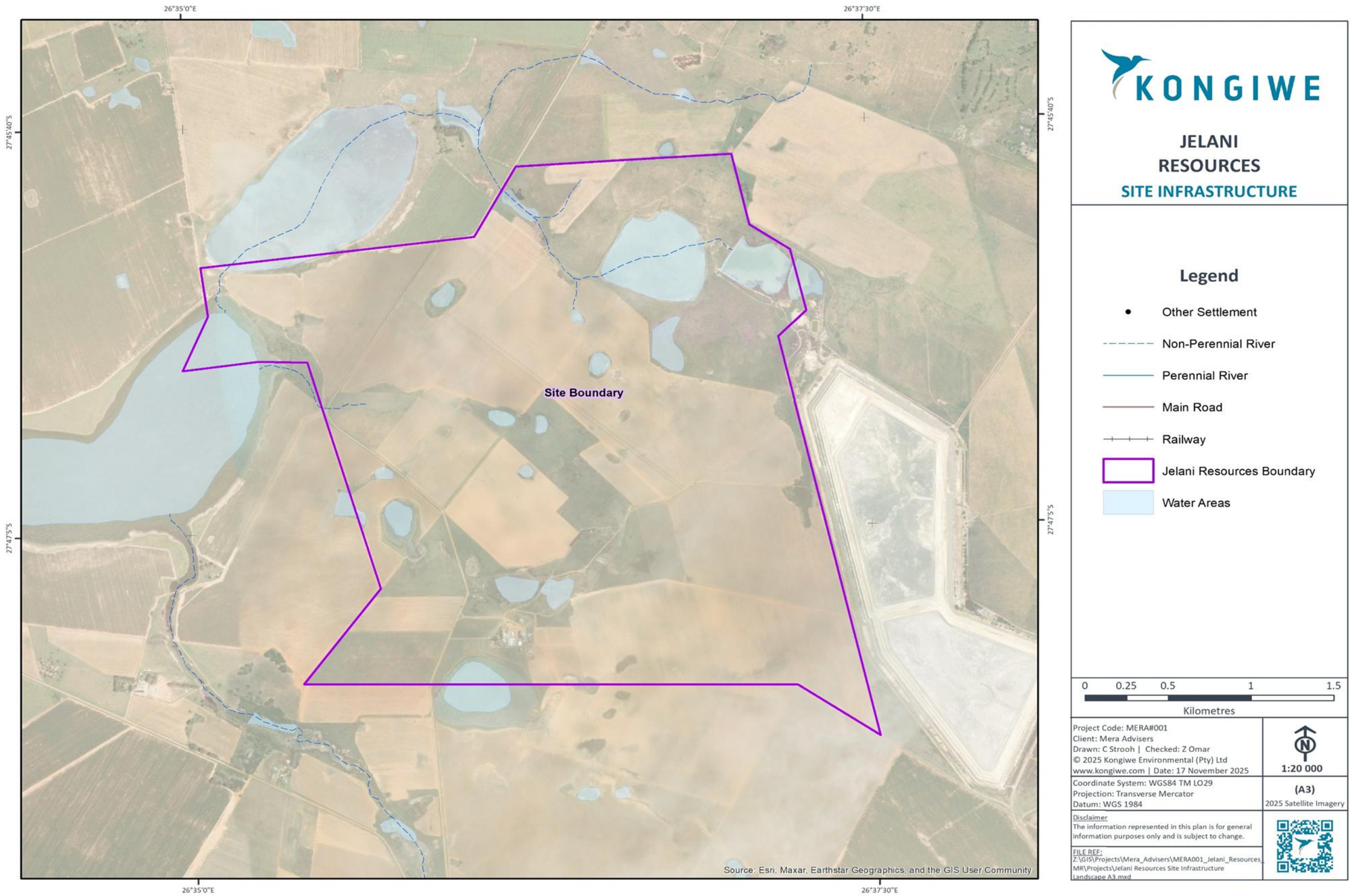

Figure 2-4: Jelani Underground Mining Project Infrastructure Map

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Figure 2-5: Target No 3 Shaft surface Infrastructure Layout

The No 3 shaft surface infrastructure will compromise of the following (as numbered):

1. No 3 shaft
2. Shaft facilities
   (a) Lamp repair
   (b) Proto room
   (c) Lamp room
3. Change house facilities
   (a) Main laundry
   (b) Main change house
4. Compressor house
5. Waste rock dump (not on Figure 2-5)
6. Surface rock handling
7. Main substation
8. Parking area
9. Offices
   (a) Management, administration and technical services
   (b) Mining
   (c) Engineering
10. Man winder
11. Barlow winder
12. Rock winder
13. Fridge plant
14. Store building
15. Services/fitting workshops
16. Dirty water dam & pump station
17. Sewerage plant
18. Evaporation plant
19. Change house (not on Figure 2-5)
20. No 4 shaft ventilation fans
21. Security office
22. Explosives store
23. Conveyors
24. Laydown area and salvage yard
25. Walkway
26. Marshalling yard
27. Drop off area
28. Ablution block
29. Laundry
30. Change houses
31. Offices
32. Lapa
33. Parking (not on Figure 2-5)
34. Parking
35. Turnstiles
36. Waiting area
37. Lean to roof
38. Underground store
39. Pump house
40. Service boiler shop (not on Figure 2-5)
41. Services boiler store (not on Figure 2-5)
42. Rail line
43. Pipeline
44. Security
45. Timber yard
46. Electrical workshop
47. Flammable store
48. Old oil store

An overview of the Target 3 Shaft with level elevations, is shown in .

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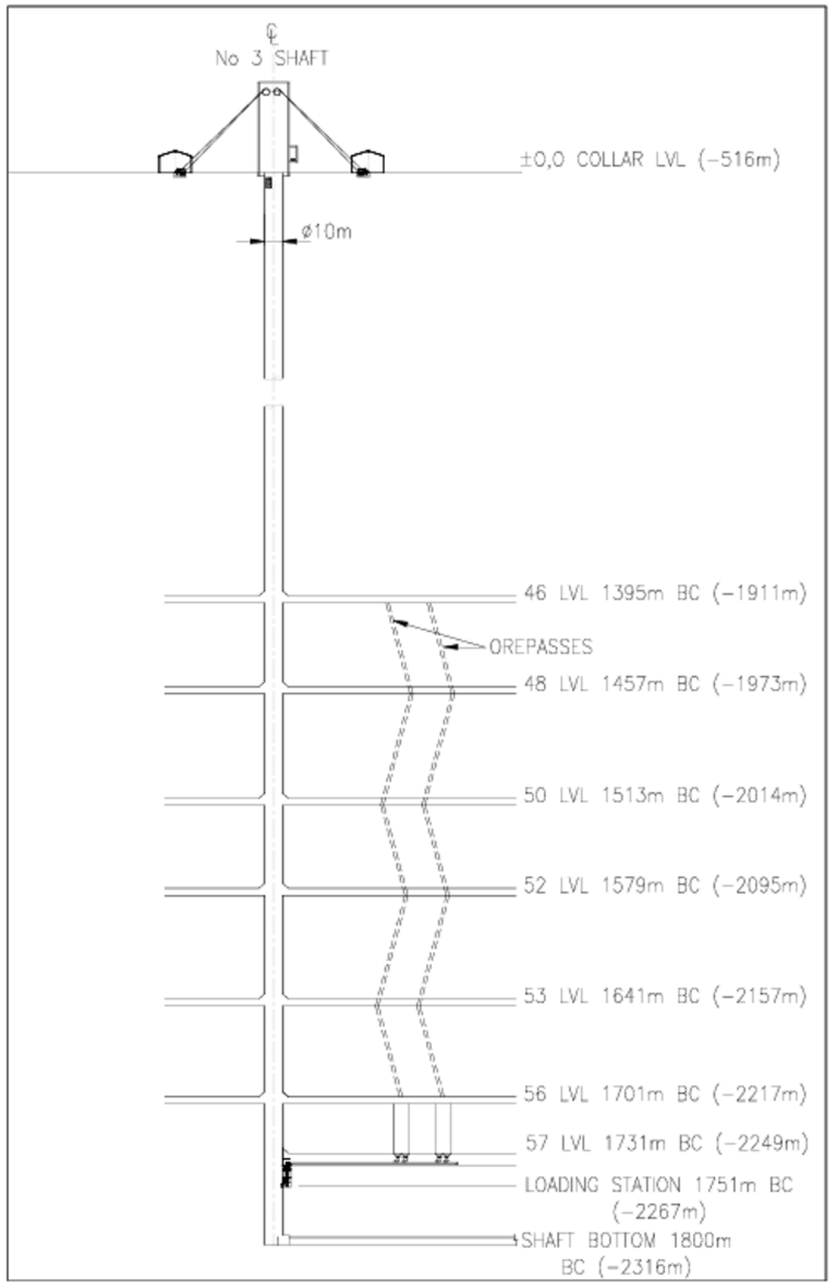

Figure 2-6: Target 3 shaft Longitudinal Arrangement

Figure 2-7: Harmony Target No 3 Shaft

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The Target No 2 shaft will be used as the main access to the underground orebody and workings in Phase 2, and Target No 3 shaft will be maintained as a second outlet. Mining activities in this phase are planned to occur above 48 Level and below 57 Level.

The Target No 2 shaft is currently not utilised for mining production activities. Instead, it acts as the emergency exit for Target No. 1 Shaft with only a limited amount of infrastructure remaining in place. Once the shaft has been refurbished and surface infrastructure is completed and the shaft commissioned, mining operations associated with the Proposed Project will be relocated to this shaft.

Figure 2-8: Target No 2 Shaft

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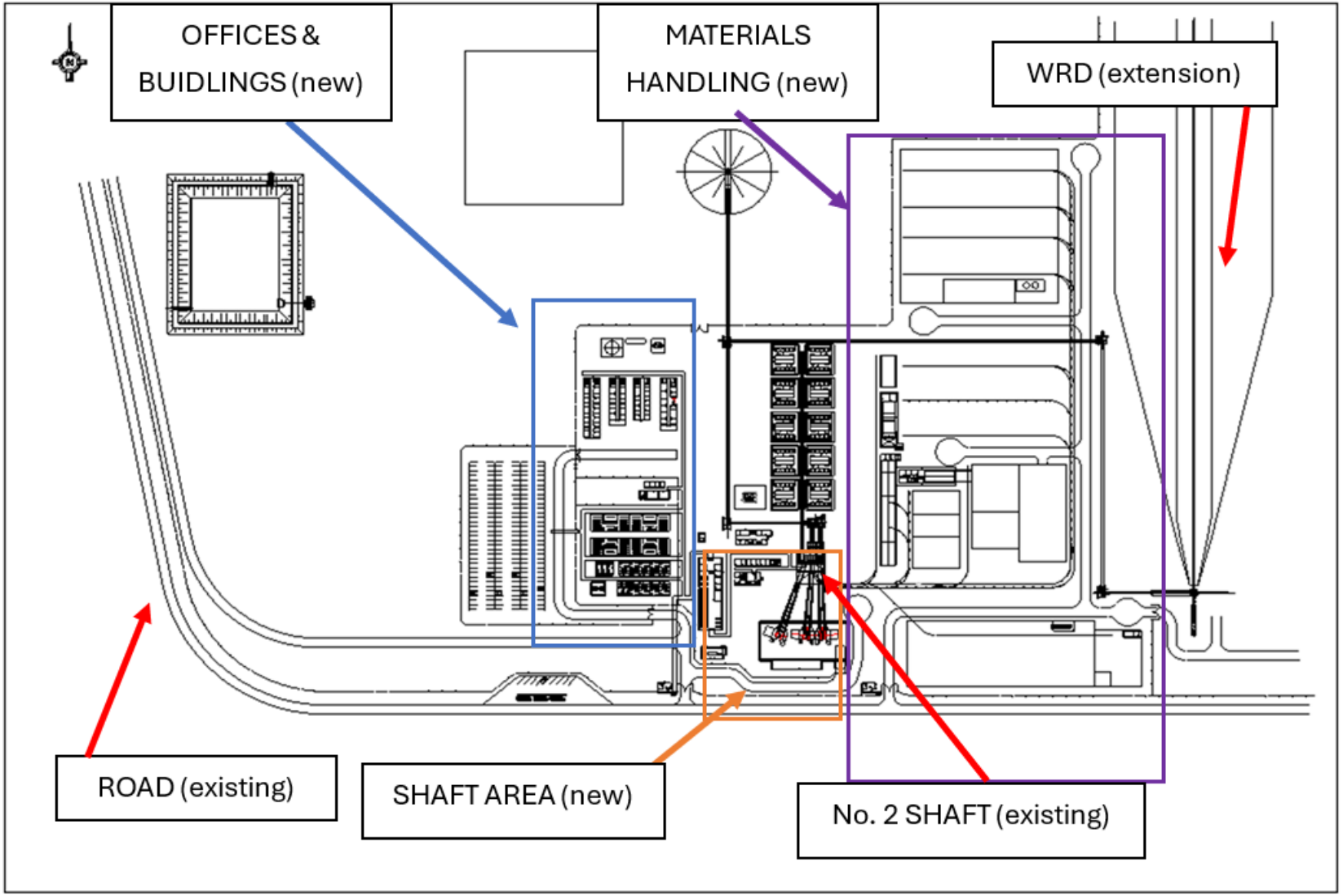

Figure 2-9: Target No 2 Shaft New and Existing Infrastructure

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A new Tailings Storage Facility (TSF) will be constructed to the west of the existing Target metallurgical plant and north of the existing Target TSF. The total area required for this new facility is approximately 69 Hectares (Ha). This TSF is a separate project (and application) being undertaken by Harmony Gold.

2.6 Key Water Uses and Waste Streams

2.6.1 Water Uses

In terms of Section 21 of the NWA, the following water uses are triggered by the Proposed Project:

- Section 21(c) of the NWA: Impeding or diverting the flow of water in a watercourse; and
- Section 21(i) of the NWA: Altering the bed, banks, course or characteristics of a watercourse.

Section 3.6 outlines project-specific details on the water uses triggered by The Proposed Project.

2.6.2 Water and Power Supply

2.6.2.1 Water Supply

All infrastructure requirements for the Proposed Project will be located within the existing Target Operation MR area. Potable water will be sourced from the Target Operation, which receives its supply of water from Vaal Central Water for both domestic use and metallurgical processing.

2.6.2.2 Bulk Power Supply

The Proposed Project mining area will initially be accessed from Target No. 3 Shaft and once maintenance upgrades completed, from Target No. 2 Shaft. Both No. 3 and No. 2 Shaft have existing Eskom bulk supplies providing power for the care and maintenance operations. The 3 Shaft main substation has sufficient installed capacity in order to supply the power requirements for the phase 1 mining operation. The 2 Shaft main substation will require a complete upgrade.

2.7 Organisational Structure of Activity

As mentioned in Section 1.3. Jelani is a JV company established by WRE and Harmony Gold. The JV was formed to conduct underground mining operations within the EJV area, situated adjacent to and west of Harmony Gold's existing Target Operation in the Free State Province of South Africa. Jelani initially secured a PR for various minerals within the EJV area.

The roles, responsibilities and authority of personnel at Jelani will be assigned to facilitate effective environmental management.

2.8 Business and Corporate policies

Business and corporate policies provide the framework for the effective management of water and waste throughout the project life cycle. These policies demonstrate an organisation's commitment to environmental stewardship, regulatory compliance, sustainable resource use, pollution prevention, risk management, and continual improvement. As the Proposed Project is at the planning phase, Jelani is not yet an operational entity and currently has no employees. Therefore, project-specific business and corporate policies have not yet been developed. However, as Harmony is the principal partner in the Joint Venture, the relevant Harmony corporate policies, standards, procedures, and environmental management systems will be adopted and applied to the Proposed Project, where appropriate. This approach will ensure that the Proposed Project is developed and operated in accordance with recognised industry best practice, established environmental management principles, and applicable legal requirements.

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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 water use activities of the Proposed 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. There are a number of legal and regulatory frameworks which regulate water management and environmental controls in South Africa. A summary of these is provided Table 3-1.

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 ecological 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 legislation and regulations ensure that there remains a key focus on various aspects 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(2) of the Constitution, "The state must respect, protect, promote and fulfil the rights in the Bill of Rights", which includes the environmental rights set out in Section 24.

Table 3-1: Applicable National Legislation and Guidelines

Legislation
Constitution of the Republic of South Africa, 1996 The Bill of Rights set out in Chapter 2 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;

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Legislation
• 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.
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. **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 application. **The General Authorisation for Section 21(c) and (i) water uses (GN509, Gazette No. 40229, 26 August 2016**) defines a regulated area of a watercourse as either: • 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, lakeor 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 iden□fiable annual bank fill flood bench; or • A 500 m radius from the delineated boundary (extent) of any wetland or pan.
Water Services Act (Act No. 108 of 1997) (WSA) Provides for the regulation of water boards and the setting of national water quality standards.
The National Water Amendment Act (Act No. 27 of 2014) The National Water Amendment Act, 2014 (Act No. 27 of 2014) amended the NWA to improve water resource management, strengthen institutions responsible for water governance, and align water legislation with broader government reforms.
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 Environmental Management Act (NEMA): Environmental Impact Assessment Regulations, 2014 (GN R982 of 8 December 2014, as amended, 7 April 2017 and 21 June 2021) • Regulates the procedure and criteria relating to the preparation and processing of applications for

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Legislation
environmental authorisations **Appendix 6 requirements** Minimum content for specialist reports
National Environment Management: Waste Act (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 safely disposed of. The objectives of this Act are- a. to protect health, well-being and the environment by providing reasonable measures for- i. minimising the consumption of natural resources; ii. avoiding and minimising the generation of waste; iii. reducing, re-using, recycling and recovering waste; iv. treating and safely disposing of waste as a last resort; v. preventing pollution and ecological degradation; vi. securing ecologically sustainable development while promoting justifiable economic and social development; vii. promoting and ensuring the effective delivery of waste services; viii. remediating land where contamination presents, or may present, a significant risk of harm to health or the environment; and ix. achieving integrated waste management reporting and planning; b. to ensure that people are aware of the impact of waste on their health, well-being and the environment; c. to provide for compliance with the measures set out in paragraph (a); and d. 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.
The National Environmental Management: Biodiversity Act (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).
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.
South African National Standards (SANS) 1936 The purpose of these regulations is to ensure for the safe development of areas where dolomite is present. This standard provides the required action needed to be implemented as well as specific investigations required to ensure for the safe development on top of dolomitic land.

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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:

(a) Taking water from a water resource
(b) Storing water
(c) Impeding or diverting the flow of water in a watercourse
(d) Engaging in a stream flow reduction activity contemplated in section 36
(e) Engaging in a controlled activity identified as such in section 37(1) or declared under section 38(1)
(f) Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit
(g) Disposing of waste in a manner which may detrimentally impact on a water resource
(h) Disposing in any manner of water which contains waste from, or which has been heated in, any industrial or power generation process
(i) Altering the bed, banks, course or characteristic of a watercourse
(j) 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
(k) Using water for recreational purposes.

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:

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

OR

(b) Which has been declared an existing lawful water use under section 33"

The Proposed Project involves a new application for the licensing of underground mining activities. It will utilise existing infrastructure, which does not form part of the current application. Therefore, the Proposed Project is regarded as a new application and does not qualify for declaration as an ELU.

As discussed in Section 2.3, All surface infrastructure required for the Proposed Project will be located within the existing Harmony Target Operation MR area. The surface infrastructure owned by the Target Operation is existing infrastructure that was constructed prior to the promulgation of the NWA and is currently undergoing the IWULA process in terms of the NWA. The application reference for the Harmony Target Operation IWULA is WU43378, and this application is in Phase 3 of the IWULA process. Table 3-2presents the status of the infrastructure to be utilised by the Proposed Project, including the applicable water use authorisations and their current regulatory status.

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Table 3-2: The Status of the Infrastructure to be Utilised by the Proposed Project.

Infrastructure	Status	Owner	Operator	Relevant Section 21 Water Use(s)	Applicable Authorisation	DWS Reference Number	Responsible Party for Compliance
Phase 1							
Target 3 Shaft	Existing	Harmony	Jelani	Section 21 (a) and (j)	Existing WULA (Phase 3)	WU43378	Harmony/Jelani
Target 1 Metallurgical Plant	Existing	Harmony	Jelani	Section 21 (g)	Existing WULA (Phase 3)	WU43378	Harmony/Jelani
Lorraine 1 WRD	Existing	Harmony	Jelani	Section 21 (g)	Existing WULA (Phase 3)	WU43378	Harmony/Jelani
New TSF	New Facility	Harmony	Jelani	Section 21 (g)	New WULA required	None	Harmony/Jelani
D-Dam	Existing	Harmony	Jelani	Section 21 (g)	Existing WULA (Phase 3)	WU43417	Harmony/Jelani
Phase 2							
Target 2 Shaft	Existing	Harmony	Jelani	Section 21 (a) and (j)	Existing WULA (Phase 3)	WU43378	Harmony/Jelani
Target 2 WRD	Existing	Harmony	Jelani	Section 21 (g)	Existing WULA (Phase 3)	WU43378	Harmony/Jelani

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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. The Proposed Project requires exemption in relation to GN R704.

The GN R704 Exemption Motivation will be compiled and submitted as part of Phase 3 of the Proposed Project's IWULA.

3.5 Generally Authorised Water Use

A General Authorisation (GA) is not applicable to the Proposed Project as this application is for a mining project which requires full licensing of water use activities.

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3.6 New Water Uses to be Licensed

Jelani intends to apply for a WUL for the proposed underground mining activities. The supporting surface infrastructure required for the operation will be located within the existing Harmony Target Operations MR area. These infrastructure are currently being authorised through the Harmony Target Operations IWULA process (Reference No. WU43378), which is presently in Phase 3 of the licensing process.

The new water uses to be licenced for the Proposed Project are listed in Table 3-3 and shown in Figure 3-1.

Table 3-3: Section 21 Water Uses Applicable to the Proposed Project

Source/Infrastructure	Description of the activity	Purpose of activity	Materials used to build infrastructure	Dimensions	Farm Portion	Co-ordinates
Section 21 (c) and (i)						
Underground mining activities	Operation of the underground mining area and the associated undermining of the freshwater ecosystems (depression, seeps and Channelled Valley Bottom (CVB) wetlands).	Underground Mining	Not applicable	Depth:1800m Length: 4 270.48m Width: 3 759.17m	Portion 0 (RE) Graspan No.40 Remaining Extent of Welvaart No. 63 Portion 1 of Welvaart No. 63 Portion 2 of Welvaart No. 63 Remaining Extent of Swartpan No. 63 Portion 0 of Diamant No. 37 Portion 1 of Graspan No. 40 Portion 36 of Swartpan No.436	Start: 27° 45' 47.24" S 26° 37' 0.93" E End: 27° 47' 36.62" S 26° 35' 24.49" E

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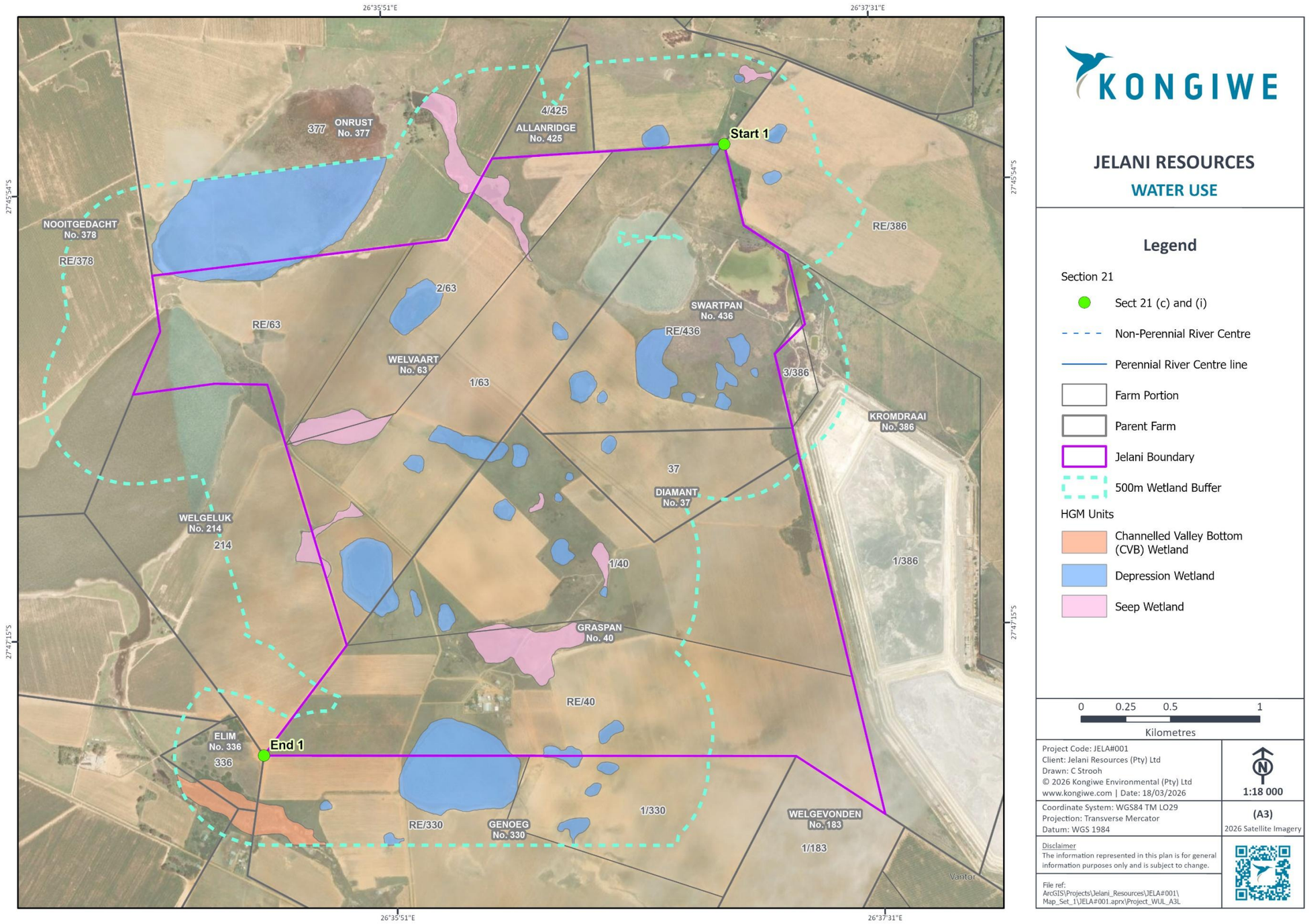

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JELANI RESOURCES

WATER USE

Legend

Section 21

- Sect 21 (c) and (i)
- Non-Perennial River Centre
- Perennial River Centre line
- Farm Portion
- Parent Farm
- Jelani Boundary
- 500m Wetland Buffer

HGM Units

- Channelled Valley Bottom (CVB) Wetland
- Depression Wetland
- Seep Wetland

0 0.25 0.5 1
Kilometres

Project Code: JELA#001 Client: Jelani Resources (Pty) Ltd Drawn: C Strooh © 2026 Kongiwe Environmental (Pty) Ltd www.kongiwe.com | Date: 18/03/2026	N 1:18 000
Coordinate System: WGS84 TM LO29 Projection: Transverse Mercator Datum: WGS 1984	(A3) 2026 Satellite Imagery
Disclaimer The information represented in this plan is for general information purposes only and is subject to change.	
File ref: ArcGIS\Projects\Jelani_Resources\JELA#001\Map_Set_1\JELA#001.aprx\Project_WUL_A3L	

Figure 3-1: Water Uses for the Jelani Operation

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3.7 Other authorisations (EIAs, EMPs, RODs, Regulations)

Jelani intends to acquire an EA in terms of NEMA. The Competent Authority (CA) for the EA application is the Department of Mineral and Petroleum Resources (DMPR) (previously Department of Mineral Resources and Energy (DMRE)). The required EA application is currently under preparation for submission to the DMPR.

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4. PRESENT ENVIRONMENTAL SITUATION

This Chapter presents information on the status of the biophysical and socio-economic environment associated with the Proposed Project. The assessment is based on available information and the on-site specialist investigations conducted as part of the IWWMP. The full impact assessments undertaken by the independent specialists, including detailed descriptions of the affected environment, are attached as appendices to this IWWMP.

4.1 Climate

The Proposed Project is situated in Allanridge, within the MLM in the LDM of the Free State Province. Allanridge's climate is classified as Mid-latitude desert (BWk) under the Köppen–Geiger system, based on 1 km global climate maps (Beck et al., 2018; Beck et al., 2023; Kottek et al., 2006), and is influenced by its elevation of approximately 1322m above sea level (asl).

4.1.1 Temperature

The Figure 4-1 illustrates the typical weather at Allanridge, a small gold-mining town situated less than 3 km from site, based on a statistical analysis of historical hourly weather reports and model reconstructions from January 1, 1980 to December 31, 2016 (Weather Spark, 2026). This area experiences a clear seasonal temperature cycle typical of the central South African Highveld interior. Summers are long, mostly clear and warm; winters are short, clear, dry and cold. Over the course of the year the temperature typically varies from about 0 °C to 30 °C and is rarely below -3 °C or above 34 °C. The hot season lasts approximately four months (early November to early March), when average daily highs exceed 28 °C. The cool season lasts about 2.5 months (late May to early August), when average daily highs remain below 21 °C. Night-time temperatures in mid-winter frequently fall to near or below freezing, while summer nights remain mild (typically 14–17 °C). These patterns form the observed baseline against which future climate-change projections are compared.

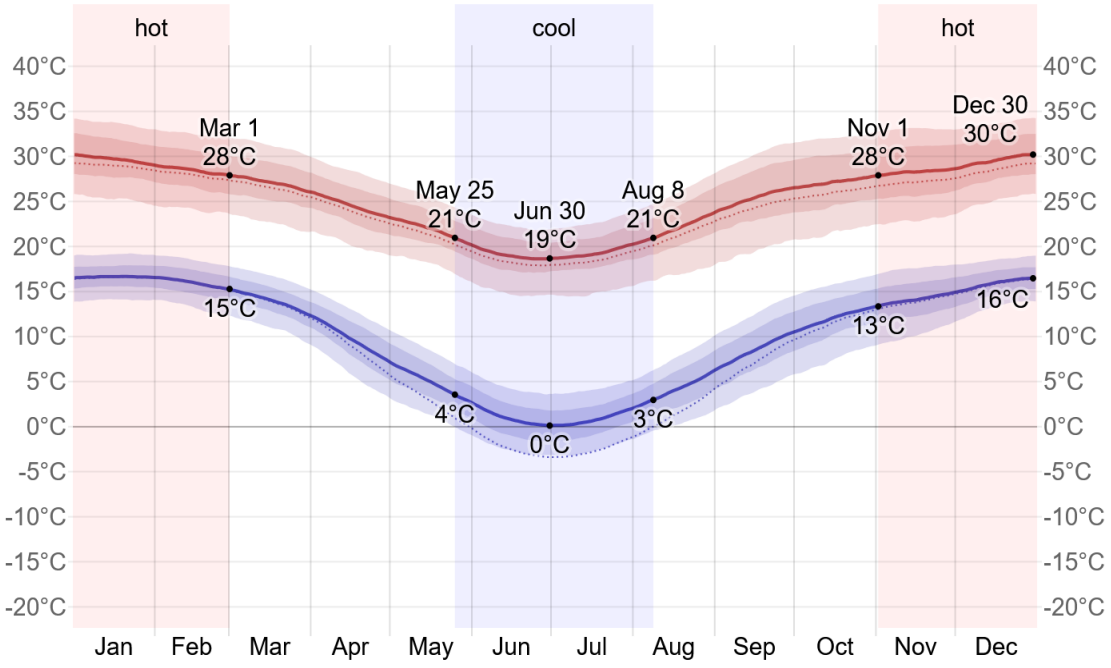

Figure 4-1: Average Low (blue line) and High (red line) Temperatures Recorded at the Allanridge Weather Station (Copyright © 2026 WeatherSpark.com).

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4.1.2 Regional Climate Rainfall

The Free State Province lies within South Africa's summer rainfall zone and experiences a strong west-east rainfall gradient. Rainfall is delivered primarily by convective systems, including tropical-temperate troughs (TTTs), mesoscale convective systems (MCSs), and associated thunderstorms (Munday, et al., 2025).

The mean monthly rainfall for the Welkom (0364300 W) weather station between October 1920 – March 2022 is shown in Figure 4-2. Rainfall is highest over the summer months of October to April, with December and January generally being the wettest months. Very little rainfall falls over the winter months.

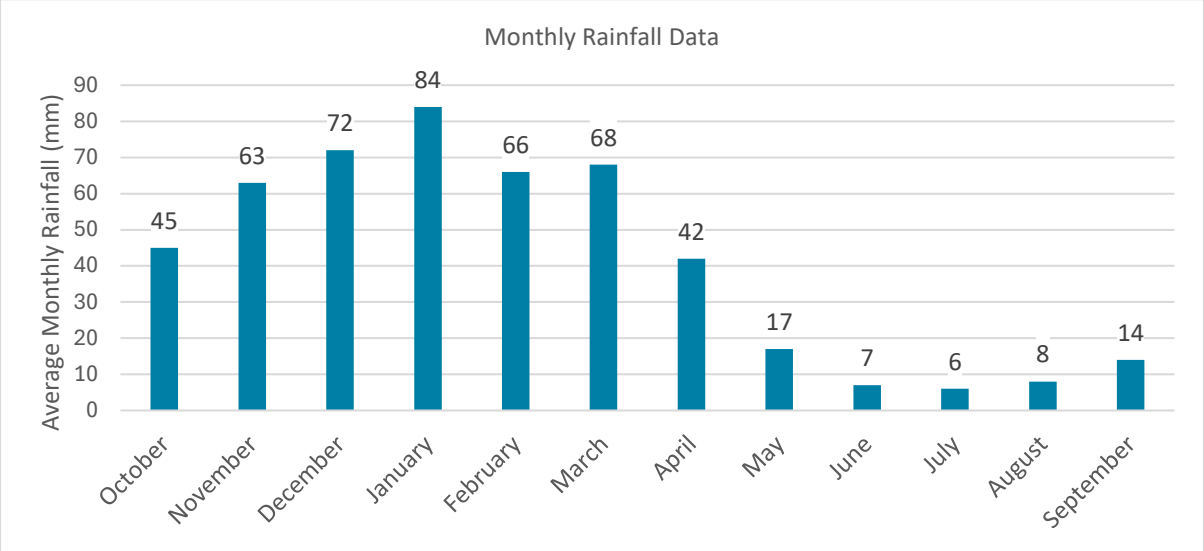

Figure 4-2: Average Monthly Rainfall over the Proposed Project Area (0364300 W).

More than 79% of the mean annual precipitation occurs in the six months period October to March and the storm rainfall depths in the vicinity of Welkom 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 position to calculate the storm rainfall depths. The extracted storm rainfall depths for the Proposed Project are indicated in Table 4-1.

Table 4-1: Storm Rainfall Depth for the Area

Storm Duration	Storm Rainfall Depth (mm)						
	1:2 yr	1:5 yr	1:10 yr	1:20 yr	1:50 yr	1:100 yr	1:200 yr
5 min	9	13	15	17	20	23	25
10 min	14	19	22	25	30	33	37
15 min	17	24	28	32	38	42	47
30 min	22	30	35	41	48	53	59
45 min	25	34	40	46	55	61	68
1 hr	28	38	45	51	60	68	75
1.5 hr	32	43	51	59	69	78	86
2 hr	35	48	56	65	76	85	95
4 hr	41	56	66	76	89	100	111
6 hr	45	61	72	83	98	109	121

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Storm Duration	Storm Rainfall Depth (mm)						
	1:2 yr	1:5 yr	1:10 yr	1:20 yr	1:50 yr	1:100 yr	1:200 yr
8 hr	48	65	77	89	104	117	129
10 hr	51	68	81	93	110	123	136
12 hr	53	71	84	97	114	128	142
16 hr	56	76	90	103	122	136	151
20 hr	59	80	94	109	128	143	159
24 hr	62	83	98	113	133	149	165
1 day	51	69	82	94	111	124	138
2 day	63	85	101	116	136	153	169
3 day	71	96	114	131	154	172	191
4 day	77	104	123	142	167	187	207
5 day	82	111	131	151	178	199	220
6 day	87	117	138	159	187	209	232
7 day	90	122	144	166	196	219	242

4.1.3 Evaporation

Evaporation data was sourced from the Department of Water Affairs (DWA)'s hydrological dataset (2012). Evaporation data was available between 2000 and 2012, and the average evaporation based on the data is provided in Table 4-2 (Jones & Wagener, 2017). The mean evaporation for 2019 is indicated in Table 4-3.

Table 4-2: Monthly and Annual Evaporation (2000 – 2012)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average	189	204	225	215	171	159	119	101	77	88	120	161	1 869
Minimum	92	99	105	100	95	93	82	76	63	57	64	59	997
Maximum	247	274	315	298	244	218	144	138	97	121	150	234	2 197

Table 4-3: Mean Monthly and Annual Evaporation for 2019

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Evaporation	206	163	146	110	86	69	78	107	147	184	202	213	1 711

4.1.4 Topography

The Proposed Project area is situated in the Highveld region of South Africa. The topography is relatively flat, with low hills or ''koppies''. The elevation of the Proposed Project varies from a high of 1 310 metres above mean sea level (mamsl) in the north-eastern corner, to a low of 1 298 mamsl at Pan A on the western boundary (see Figure 4-3). The topography of the Proposed Project area is flat, with an average slope of less than 3 %. The only areas where steep slopes occur, are along the sides of the TSFs and WRDs outside the Proposed Project area.

The Proposed Project area drains towards the Losdoringspruit and Pan A. Several natural occurring pans characterise the landscape, resulting in much of the area of the Proposed Project being endoreic (i.e. not discharging into any of the surrounding river systems).

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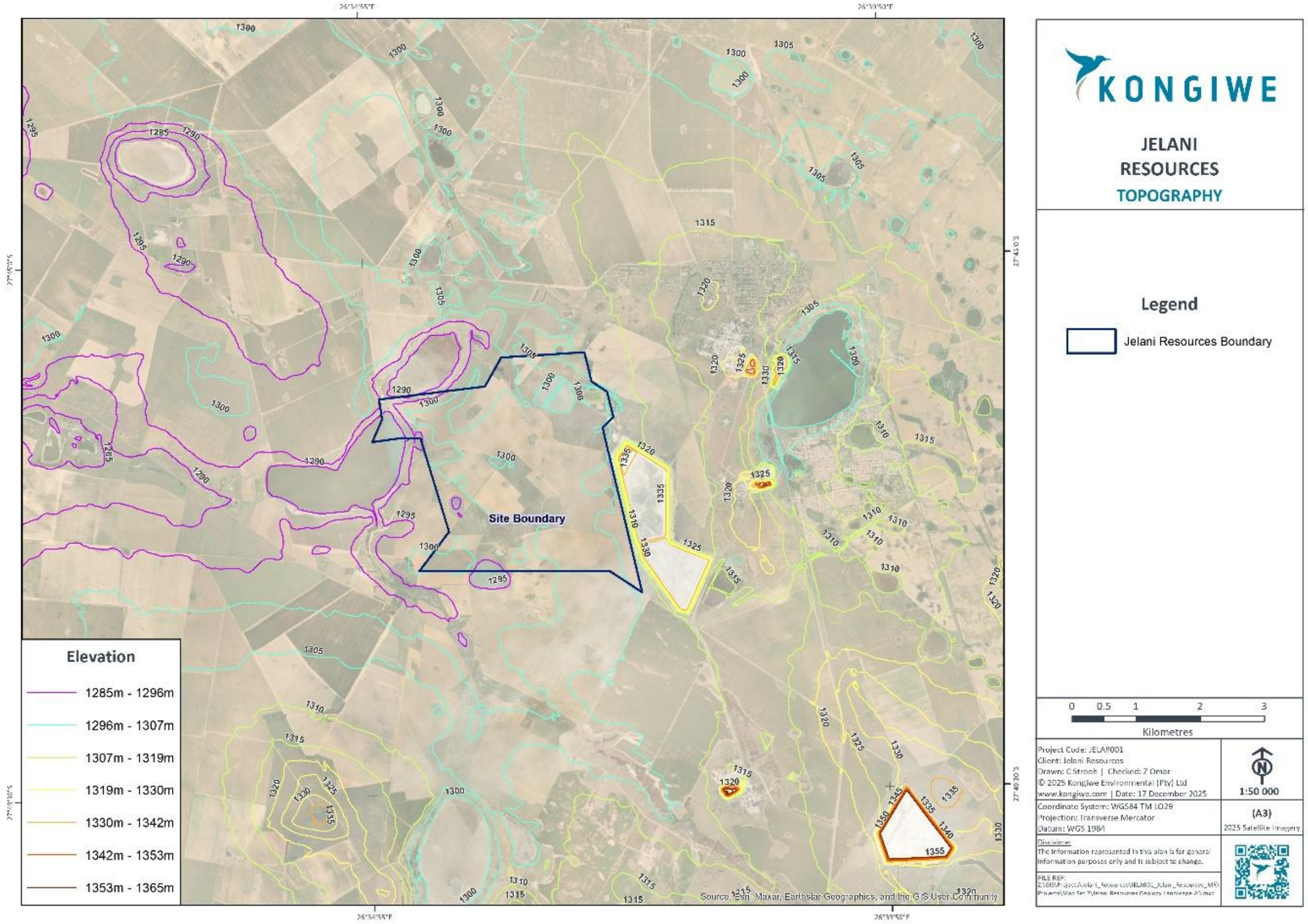

Figure 4-3: Topography of the Project Area.

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4.2 Geology

4.2.1 Regional Geology

The Proposed Project is located within the north-western portion of the Free State Goldfield, situated on the south-western margin of the Witwatersrand Basin. The Witwatersrand Basin comprises a thick sequence of sedimentary rocks that host the world-renowned gold-bearing conglomerate reefs and forms one of the most extensively mined geological provinces in South Africa (Bara Consulting, 2026).

The regional geological succession consists of sedimentary rocks of the Witwatersrand Supergroup, overlain by volcanic rocks of the Ventersdorp Supergroup and, in turn, by sedimentary rocks of the Karoo Supergroup (Figure 4-4). The geological sequence generally youngs upward from the Witwatersrand strata through the Ventersdorp volcanics to the Karoo sediments exposed at surface (Bara Consulting, 2026) and (AquiSim Consulting, 2025).

The Witwatersrand Supergroup comprises quartzites, conglomerates, shales and argillaceous sedimentary units deposited in a fluvial environment. Within the Free State Goldfield, the principal economic units occur within the Central Rand Group and include the Basal Reef, B Reef, A Reef, EA Reef and ED Reef horizons targeted by the proposed mining operation. The Witwatersrand succession exceeds 2 000 m in thickness within parts of the goldfield and forms the principal bedrock sequence underlying the Proposed Project area (Bara Consulting, 2026).

The Witwatersrand rocks are unconformably overlain by volcanic rocks of the Ventersdorp Supergroup, predominantly consisting of andesitic lavas, pyroclastic units and associated volcanic sediments. The Ventersdorp succession is approximately 1,300 m thick in the central portions of the Free State Goldfield and is associated with significant tectonic activity that resulted in extensive faulting and block movements throughout the basin (MvB Consulting, 2026) (AquiSim Consulting, 2025).

The uppermost geological sequence, occurring below aeolian sands that cover large parts of the Study Area, comprises Karoo Supergroup sediments, which attain an average thickness of approximately 200 m (Figure 4-4 and Figure 4-5). Locally, the Allanridge Formation (part of the Ventersdorp Supergroup) is exposed at surface.

The Karoo succession includes the Beaufort Group (including the Normandien Formation), the Ecca Group (including Volksrust and Vryheid Formations) and the Dwyka Group (Dwyka Formation). The Beaufort Group contains extensive sandstone horizons capable of supporting groundwater occurrences, while the Ecca Group consists predominantly of shale and mudstone with subordinate sandstone units. The Dwyka Formation commonly consists of a low permeability tillite unit separating the shallow Karoo aquifer system from the deeper fractured aquifer systems associated with the Ventersdorp and Witwatersrand rocks. (MvB Consulting, 2026) (AquiSim Consulting, 2025).

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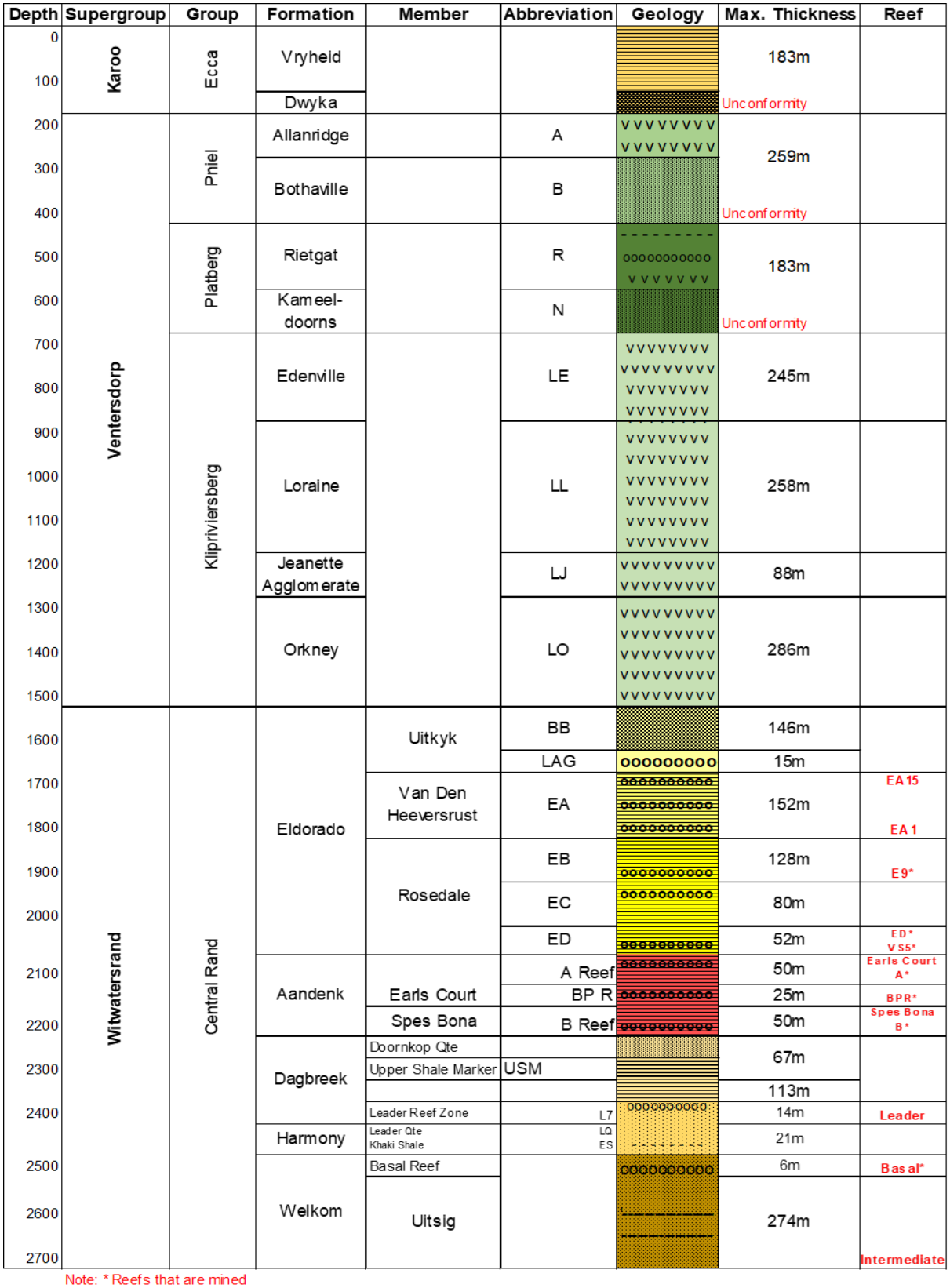

Note: * Reefs that are mined

Figure 4-4: Free State Goldfields Stratigraphy (from: Harmony Geology Department).

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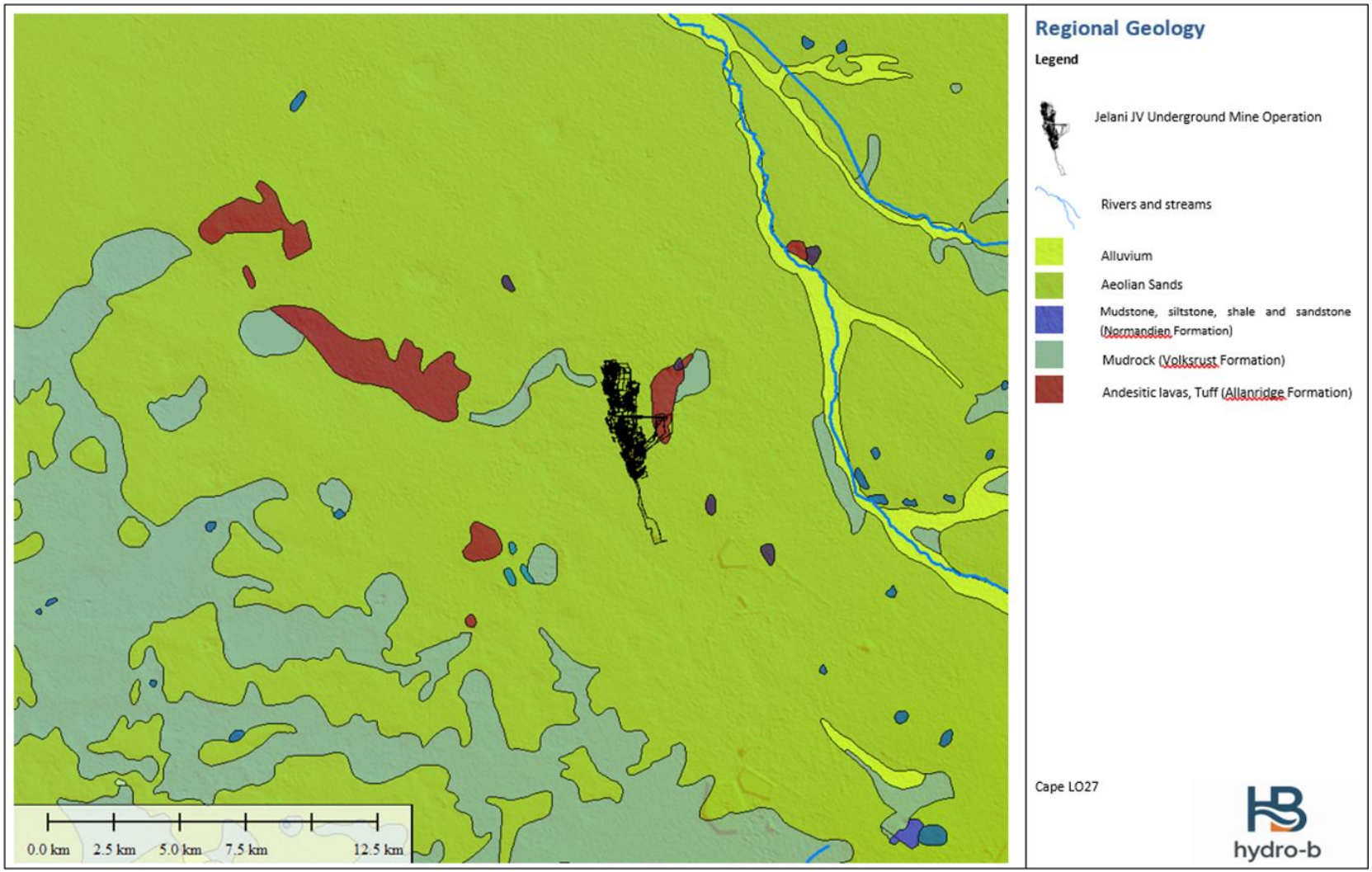

Figure 4-5: Regional Surface Geology (Hydro-b, 2026)

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4.2.2 Local Geology

The Proposed Project area is situated along the western margin of the Free State Goldfield in close proximity to the historical and current Target Operation. The local geology intersected by the mining operations comprises a thick sequence of Witwatersrand strata affected by faulting, folding and erosional truncation associated with subsequent tectonic events (Bara Consulting, 2026).

The near-surface geology within the Proposed Project area is dominated by Karoo sediments consisting mainly of weathered shale, mudstone, sandstone and unconsolidated surficial materials. The Karoo sediments are underlain by the Ventersdorp Supergroup which, based on the exploration drilling throughout the gold field, has an average thickness of 1 300 m. The Ventersdorp Supergroup can be divided into the Pniel sequence, the Platberg Group and the basal Klipriviervberg Group consisting of alternating sediments, andesitic lavas, tuffs and agglomerates. The thickness and preservation of these units varies locally due to erosion and fault displacement (AquiSim Consulting, 2025) (MvB Consulting, 2026).

The principal lithostratigraphic units underlying the Ventersdorp Supergroup belong to the Central Rand Group and include the Luipaardsvlei, Harmony, Booysens, Kimberley, Eldorado and Mondeor Formations. These formations comprise interbedded quartzites, conglomerates and shale units. Within these lithostratigraphic units the Jelani underground operations will target the EA reef, A reef, B reef and Basal reef at mining depths ranging between 1 513 m – 2 600 m below surface.

The stratigraphic sequence contains numerous shale horizons that provide important stratigraphic controls and may act as local barriers to vertical groundwater movement where sufficiently continuous (Bara Consulting, 2026).

From a hydrogeological perspective, the geological sequence can be broadly divided into three hydrostratigraphic domains:

- A shallow weathered Karoo aquifer system associated with weathered sandstones, fractured mudstones and surficial deposits.
- An intermediate fractured-rock aquifer system associated with the Ventersdorp volcanic succession;
- A deeper fractured-rock aquifer system associated with the Witwatersrand Supergroup, including fault zones, fracture networks and mining-induced secondary permeability associated with historic and proposed underground workings.

Groundwater occurrence within the Karoo sequence is generally restricted to weathered zones, sandstone horizons, fracture zones and dyke contacts. Groundwater occurrence within the deeper Ventersdorp and Central Rand geological sequences is primarily controlled by faulting, fracturing, dyke contacts and mining-related disturbance of the rock mass (AquiSim Consulting, 2025) (MvB Consulting, 2026). Soil, Land Use and Land Capability. Figure 4-6 illustrates the local geology of the Proposed Project area.

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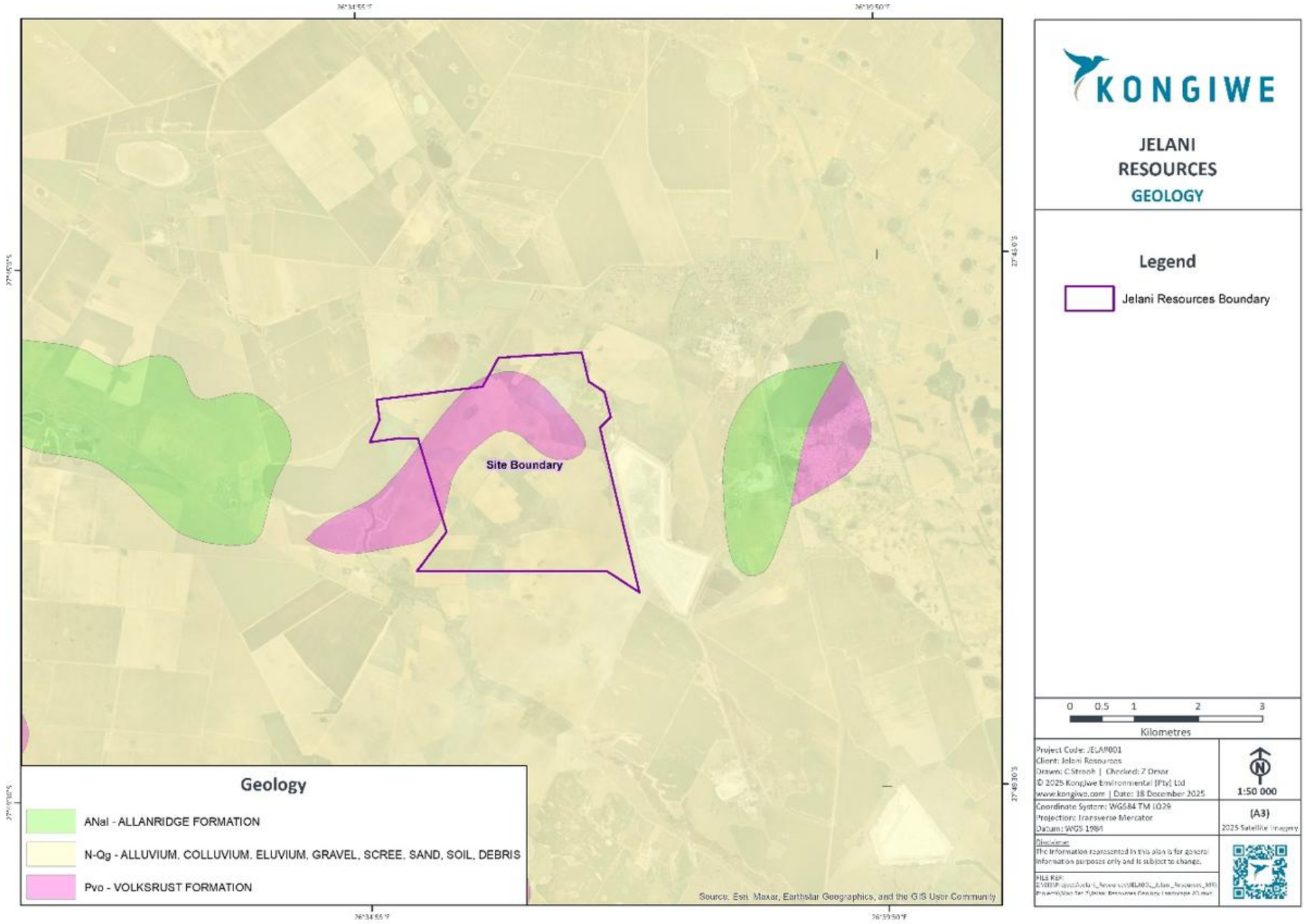

Figure 4-6: Jelani Local Geology Map

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4.3 Soil, Land Use and Agricultural

4.3.1 Soil

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 Project footprint is predominantly underlain by Ae40 – Red-Yellow Apedal, Freely Drained Soils, which are characterised by red, high base-status profiles typically deeper than 300 mm, with no dunes. In addition to this dominant unit, there are smaller, patchy occurrences of Dc9 – Prismacutanic and/or Pedocutanic diagnostic horizons, which may include vertic, melanic, and red structured diagnostic horizons (Figure 4-7).

The study area falls within two generalised soil patterns:

- PT2 – Red, yellow and greyish soils with a high base status;
- LP – 2 Soil with minimum development, usually shallow, or on hard weathering rock, with or without intermittent diverse soils. Lime generally present in part or most of the landscape; and
- CM – Soils with high base status.

Soil depth across the study area is generally high, exceeding 750 mm, and is associate with a high-water holding capacity of 81-100 mm deep. The soils are also predominantly eutrophic, indicating low leaching potential (Table 4-7). The area has loamy sand to the north-east and mostly sands present and sub-dominant on the remaining area. Soil clay class is medium, between 15% and 35%. The swell shrink potential of the clay is mostly low to very low, however moderate to high swell-shrink potential clays are present to the southern part of the area, where Virginia is located. Soils have scarce or absent textural transitions with some transition present to the north-west.

The Proposed Project area has a low to moderate potential for water erosion and is susceptible to moderately susceptible to wind erosion, this is due to the sandy nature of the soils.

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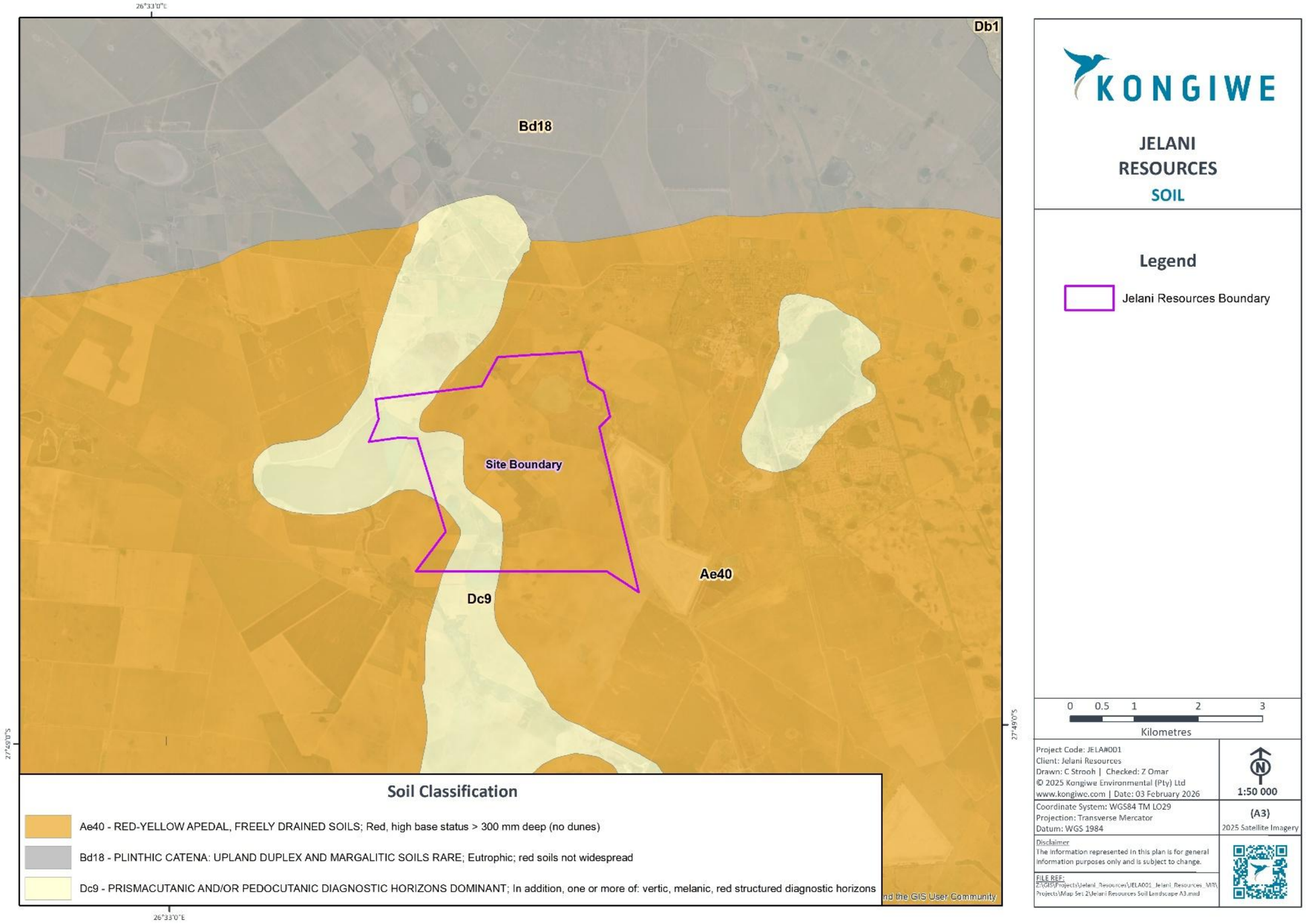

Figure 4-7: Soil Map

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4.3.2 Land Use and Land Capability

Based on the site assessment observations, the study area is primarily comprised of commercial agricultural (dryland) cultivation of crops such as maize and sunflower, open grassland often utilised for livestock (cattle and sheep) grazing, as well as several watercourses distributed across the study area.

The current land uses identified within the study area are illustrated in Figure 4-8 below.

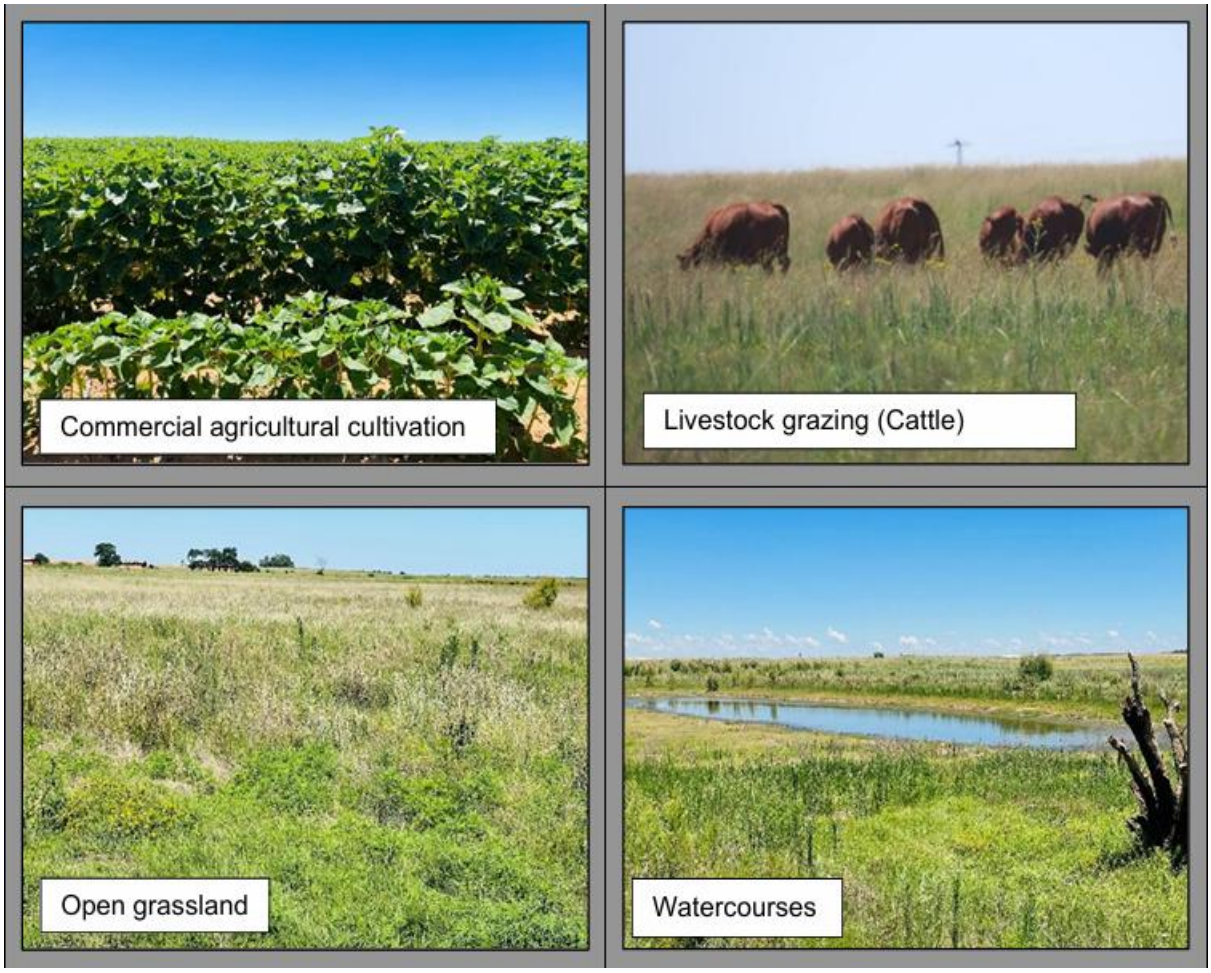

Figure 4-8: Photographs Depicting the Current Land Uses within the Study Area.

Historically the area (pre-mining) was used for grazing and crop planting, but the majority of the area was earmarked for urban extension. Historically, the agricultural production on neighbouring farms consisted of maize crops in summer and wheat in winter, normally planted on a rotational basis. Sunflower crops are alternated with the maize crops on occasion. Apart from mining activities to the east of the lease area and municipal development to the north, the remainder of the existing land use is residential, grazing and crop production. Refer to Figure 4-9 for the land use map.

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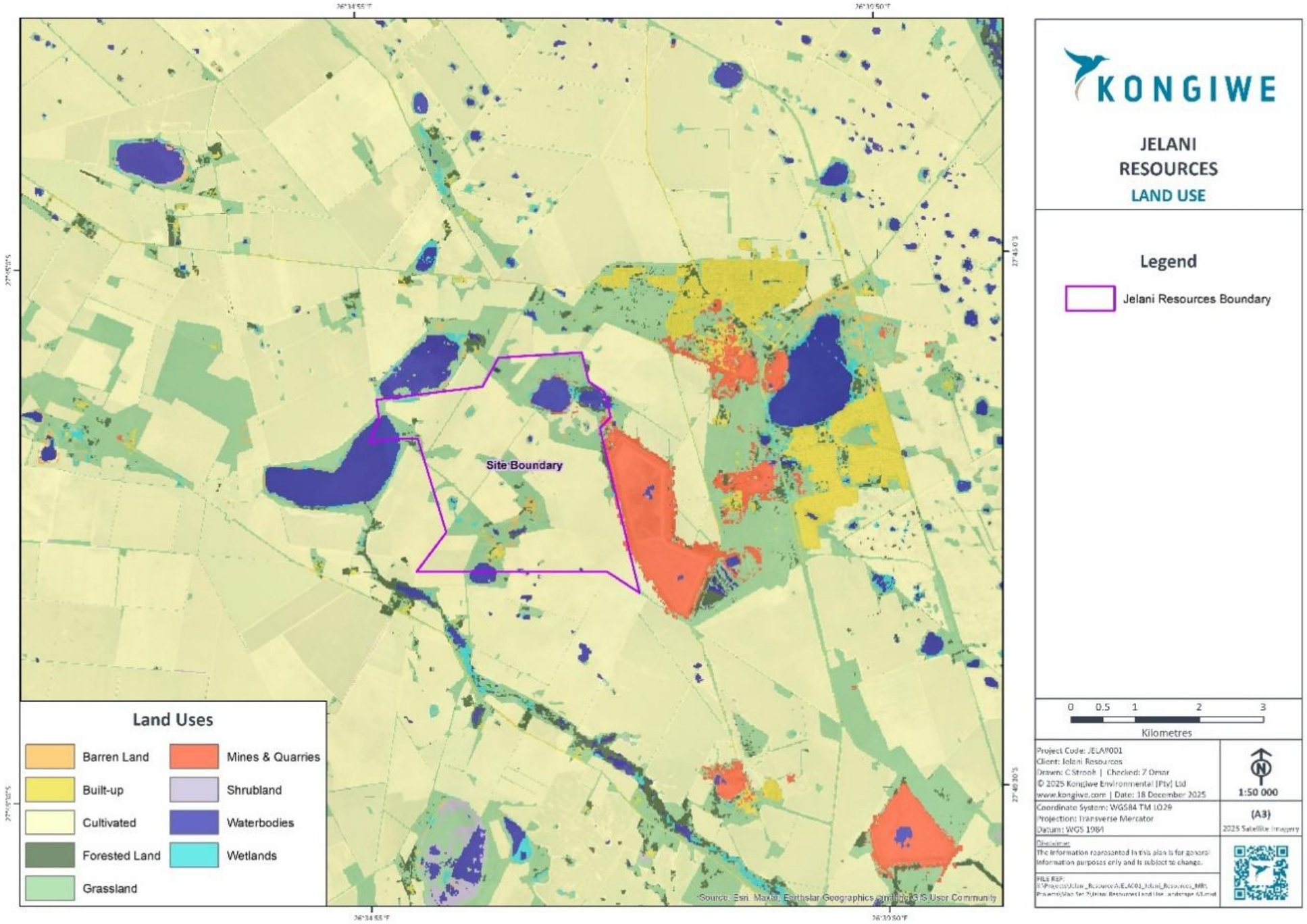

Figure 4-9: Land Use Map

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4.4 Aquatic Biodiversity

Refer to Specialist Study: Appendix D – Wetland Assessment

4.4.1 Freshwater Ecosystem Characterisation

The freshwater ecosystems (namely the seep and depression wetlands) associated with the proposed underground mining operation were classified according to the Classification System (Ollis et al., 2013) as an Inland System within the Dry Highveld Grassland Groups 3 WetVeg (wetland vegetation) group, classified by Mbona et al. (2015) as "Vulnerable". At Levels 3 (Landscape Unit) and 4 (Hydrogeomorphic (HGM) Type) of the Classification System, the wetlands are classified as per the summary in the Table 4-4 below.

Table 4-4: Characterisation at Levels 3 and 4 of the Classification System (Ollis et al., 2013) of the Freshwater Ecosystems within the Study Area.

Freshwater Ecosystem	Level 3: Landscape unit	Level 4: HGM Type
Depression wetland	Valley floor: The base of a valley, situated between two distinct valley side-slopes.	A wetland with closed (or near-closed) elevation contours which increases in depth from the perimeter to a central area of greatest depth and within which water typically accumulates, giving rise to vertical water fluctuations. Depressions may be linked to a river and have channelled in and out flow (exorheic) but may also form in the absence of a river where the water table (groundwater input) intercepts the land surface, with no in and outflow channel present (known as endorheic isolated depressions).
Seep wetland		A wetland area located on (gently to steeply) sloping land, which is dominated by the colluvial (i.e. gravity-driven), unidirectional movement of material down-slope. Seeps are often located on the side-slopes of a valley, but they do not, typically, extend into a valley floor.

4.4.2 Anthropogenically derived artificial features

Two artificial features were identified within the study and associated investigation areas.

According to Ollis et al., (2013) an artificially created system is defined as a feature that is "produced by humans, not naturally occurring". Ollis et al., (2013) further elaborates "artificial features are aquatic ecosystems where hydric soil features have developed, or where wetland plants have colonised, in historically non-wetland areas due to human activities". In addition to the identified freshwater ecosystems, anthropogenically derived features in which water ponds, were also noted within the study area and associated investigation area.

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Two large artificial impoundments were identified within the northern portion of the study area and two smaller impoundments in the southern portion. Multiple smaller impoundments were identified during the site assessment but have not been delineated further due to their artificial nature. The impoundment located in the northeastern portion of the study area is associated with the current mining activities, while the impoundment located in the northwestern portion of the study area is associated with the current agricultural activities.

These features have formed due to land-use changes prompting increased runoff and ponding, as well as historic excavation activities which have altered the natural topography, thus allowing water to collect. As these features are of an artificial origin and anthropogenically derived they were not further assessed, however these were included for mapping purposes to indicate locality within the landscape. Figure 4-10 below presents photographs of the artificial features in relation to the wetlands.

Figure 4-10: Representative Photographs of the Artificial Impoundments within the Study Area. (Left) The Large Agricultural Dam in the Northwestern Portion of the Study Area which is Downstream of the CVB Wetland and (Right) the Artificial Impoundment Related to the Existing Mining Activities, Located in the Northeastern Portion of the Study Area.

4.4.3 Freshwater Ecosystem Delineation

The freshwater ecosystem assessment was limited to the study area and associated investigation area as provided by the proponent. It was confirmed during the site assessment that various land transformation had occurred within the study area and immediate surrounds over time with the most significant impact from the ongoing agricultural activities and mining activities (to a lesser degree). As a result, changes to the topography, soil and vegetation profiles were evident. Thus, where necessary, delineations were refined and augmented with the use of digital satellite imagery, historical aerial imagery and 5 m contours to improve the accuracy of the delineations, where necessary. The delineations as presented in this report are, nevertheless, deemed the best estimate of the temporary zone boundaries of the freshwater ecosystems based on site conditions present at the time of the assessment, and are considered adequate to allow for informed decision-making.

During the site assessment (undertaken in December 2025), the following indicators were used to verify the boundaries of the freshwater ecosystems:

- Terrain units were used as the primary indicator. Despite transformation of the landscape associated with the investigation area, the terrain provided an indication of low-lying areas where water is likely to collect and/or move through the landscape;
- Vegetation was utilised in conjunction with the soil indicators associated with the freshwater ecosystems, where feasible. The distinction between obligate, facultative, and terrestrial vegetation was relatively discernible;

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- Soil wetness indicator, duration and frequency of saturation in the soil profile is a diagnostic indicator since it influences the colour change in the soil. Low chroma (grey and muted colours) as well as mottles are more prominent in soil which have higher saturation frequency. Moist soil also indicates an increased hydroperiod and thus the potential presence of hydromorphic characteristics. This was utilised with the vegetation as the secondary indicator; and
- Soil morphological characteristics typically associated with freshwater ecosystem conditions, such as gleying or mottling were utilised in conjunction with saturation as the secondary indicator.

The delineated freshwater ecosystems and artificial features are conceptually depicted in Figure 4-11 below.

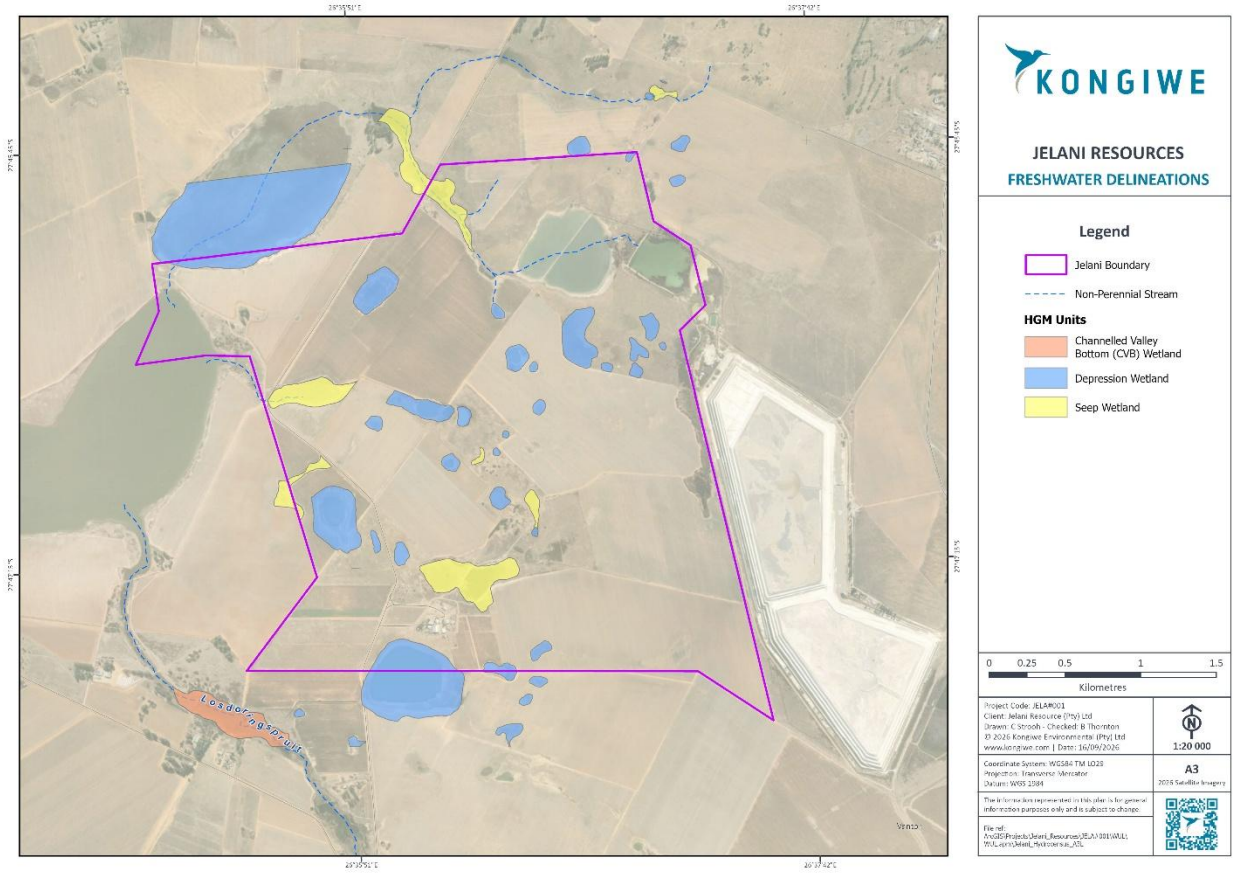

Figure 4-11: Delineated Freshwater Ecosystems and Artificial Features Associated with the Study and Investigation Areas.

4.4.4 Freshwater Ecosystem Site Verification Results

Considering the nature of the proposed activities (i.e. Restricted to underground mining only) and due to similar catchment wide impacts posed on the wetlands (cultivation with livestock grazing husbandry, informal road crossings and Alien and Invasive Plant (AIP) proliferation), the assessments were undertaken in a combined manner for each Hydrogeomorphic (HGM) type. Only the freshwater ecosystems within the study area were assessed, i.e. the seep wetlands (Table 4-5) and depression wetlands (Table 4-6).

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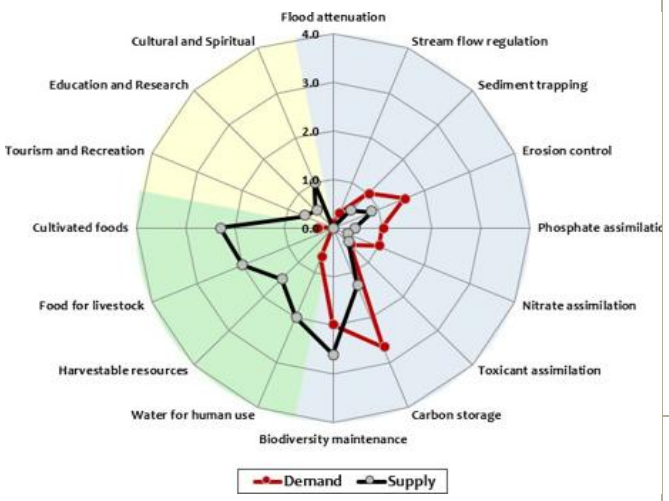
Table 4-5: Summary of the Assessment of the Seep Wetlands Associated with the Proposed Underground Mining Operation

<table>
<tr>
<td colspan="2">Ecological & socio-cultural service provision graph:

</td>
<td colspan="2">
Representative photographs of the seep wetlands and the various impacts affecting the ecological condition of the wetlands including linear infrastructure, agricultural activities, embankment erosion and (AIP) encroachment.</td>
</tr>
<tr>
<td>Present Ecological State (PES) Discussion</td>
<td>PES Category: C (Moderately modified)

The seep wetlands were assessed to be in a moderately modified ecological condition due to changes in the natural functioning and ecological state of the wetlands. Numerous anthropogenic impacts relating to catchment wide mining, agricultural activities and urbanisation has resulted in changes to the natural timing and pattern of flows, increased sediment loads and erosion, altered water quality which has subsequently led to a transformed habitat with numerous AIP species outcompeting the natural vegetation.</td>
<td>Ecoservice provision</td>
<td>Ecoservices importance category: Very Low to Low

The ecosystem service provided by the seep wetlands of greatest importance is biodiversity maintenance. These wetland areas provide some of the only remaining natural habitat in the area and as such are important in terms of biodiversity maintenance, as well as for livestock grazing. The wetlands are also identified by the Screening Tool (2020), National Freshwater Ecosystem Priority Areas (NFEPA) (2011) and National Biodiversity Assessment (NBA) (2018) datasets as wetlands on a landscape scale, thus increasing their ecosystem provision for biodiversity maintenance. The importance of sediment trapping, phosphate, nitrate and toxicant assimilation is due to increased hardened surfaces and stormwater</td>
</tr>
</table>

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			inputs into the seep wetlands from the surrounding catchment, and cultivated areas. The limited ecological service provisioning across all components was primarily attributed to the degraded ecological integrity of the wetlands.
Ecological Importance and Sensitivity (EIS) discussion	**EIS Category: Moderate** The seep wetlands are considered to be of moderate ecological importance and sensitive. This is mainly due to the systems being identified by the Screening Tool (2020), as well as the NFEPA (2011) and NBA (2018) datasets as wetlands on a landscape scale. The wetlands are also considered importance for biodiversity maintenance as they provide some of the only remaining natural habitat in an area dominated by agricultural and mining activities, as well as rural settlements.	**Recommended Ecological Category (REC), Resource Management Objective (RMO) & Biodiversity Assessment Screening Category (BAS) Category**	**REC: C / BAS: C/ RMO: Maintain** The Recommended Management Objective (RMO) of the seep wetlands is to maintain the PES. The maintenance of the PES of these systems is likely as only underground mining activities are proposed. Any decrease in the PES of these systems would potentially be as a result of the ongoing agricultural activities over which the proponent has no control. Potential improvement of the PES of these systems would require a catchment-wide approach by all stakeholders, and ecological restoration of the wetlands is not the sole responsibility of a single stakeholder. Please refer to the discussion below pertaining to impacts and mitigation measures.
Freshwater Ecosystem drivers and receptors discussion (hydraulic regime, geomorphological processes, water quality and habitat and biota):			
Alterations to the natural hydraulic regime and geomorphological processes of the seep wetlands have occurred. These impacts include road crossings as well as disturbed and hardened surfaces due to catchment wide agricultural and mining activities. The road crossings cause head cut erosion on lateral inflows due to the flow being concentrated and has exacerbated gully erosion within the wetlands. Upstream impoundments and road crossings alter the natural flow path and velocity of flow within the wetlands which can negatively impact habitat and ecoservice provision of the systems. Increased hardened surfaces reduce infiltration rates and increase inputs of sediment laden runoff to the wetlands and subsequently changes in water quality. These impacts have resulted in AIP proliferation. Basic water quality parameters were taken, during the December 2025 assessment of the seep wetland in the southern portion of the study area (See Figure 13 below for sampling site locations), and the water quality was noted to be poor. Temperature was 32.1 ºC, whilst Electrical Conductivity (EC) was 12.6 mS/m, which is within the acceptable (<30mS/m) to tolerable (≤ 85 mS/m) range limit and pH of 10.61 which is well above the acceptable range limit (≥ 6.5 mS/m - ≤ 8.0 mS/m) according to the Research Water Quality objectives (RWQO) of South Africa (DWA, 2011).		

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High levels of agricultural and mining activities were noted within the surrounding area, which have had a significant impact on the habitat provisioning of the seep wetlands due to the limited existing buffer zone around the wetlands. However, the wetlands provide isolated habitat for biota with numerous provincially protected floral species present (STS, 2026a) such as Haemanthus sp., Gladiolus sp., Helichrysum sp. (Status = Species-specific. Probability of Occurrence [POC] = High), as well as Nerine sp., Orchidaceae sp. and Kniphofia sp. (Status = Species-specific. POC = Medium). The wetlands are well vegetated with the following species (STS, 2026a): AIP species: Agave americana, Argemone ochroleuca subsp. ochroleuca, Cirsium vulgare, Tamarix ramosissima, Verbena bonariensis and Xanthium strumarium; Forb species: Conyza bonariensis, Denekia capensis, Drimia elata, Lobelia erinus, Monsonia angustifolia and Senecio coronatus; Graminoid species: Afroscirpoides dioeca, Aristida congesta, Cyperus congestus, Cyperus laevigatus, Cyperus marginatus, Imperata cylindrica, Juncus rigidus, Kyllinga alba, Phragmites australis, Sporobolus africanus and Typha capensis; and Tree species: Asparagus laricinus and Gomphocarus fruticosus. Overall, the wetlands are considered likely to provide some roosting, breeding and feeding habitat for avifauna, small mammals, amphibians, reptiles and invertebrates, albeit less sensitive species. Although the extent of anthropogenic activity surrounding the wetlands will largely deter faunal activity. According to STS (2026b), several vulnerable bird species were found within the wetlands, including the Yellow billed stork and the Great crested grebe. Many bird species of Least Concern (Not threatened) were also identified, such as the Yellow billed duck, African darter, Cape shoveler, Great flamingo, Red billed teal and the Knob-billed duck (STS, 2026b).	
Extent of modification anticipated	The proposed undermining of the seep wetlands has the potential to alter the functioning of the wetlands to an overall low degree. The extraction of ore can potentially lead to destabilisation of the surrounding environment and to subsequent potential subsidence of the land and creation of a cone of depression. Water entering the underground mining area as a result of ingress into underground mine workings may necessitate dewatering of the underground mining area, which may result in the discharge of dirty water into the wetland environment. Possible decant from the underground mining also poses a low threat to the seep wetlands as contaminated water may alter water quality, flow regimes and lead to a subsequent loss of biodiversity of the wetlands. Thus, strict implementation of the recommended mitigation measures will need to occur to prevent direct impacts and edge-effects from occurring.
Risk Assessment Outcome & Business Case: **The DWS Risk Assessment (2023) only considers activities within the delineated extent of freshwater ecosystems and/or within the regulated zone (GN 4167 500 m ZoR). As such, the seep wetlands located within the study area were considered in this assessment.**	
Low	Based on the PES and EIS of the wetlands and the findings of the DWS Risk Assessment Matrix (2023), the activities associated with the proposed

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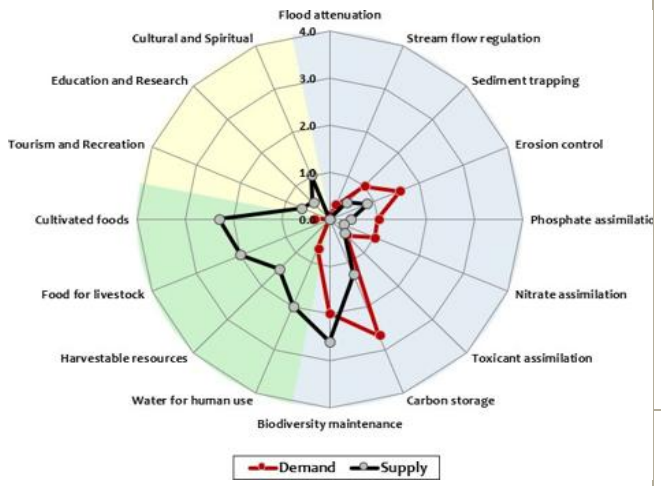
	undermining of the wetlands will pose a "Low" risk to the ongoing functionality of the systems. Key mitigation measures include: • Mitigation measures as stipulated in the Technical Report compiled by Bara Consulting (2025), to mitigate against subsidence and dewatering, formation of a pollution plume and decant respectively, must be implemented; and • It is advised that the pillar safety factor under the wetlands be increased to further ensure no subsidence takes place.

Table 4-6: Summary of the Assessment of the Depression Wetlands Associated with the Proposed Underground Mining Operation

Ecological & socio-cultural service provision graph:  			Representative photographs of the depression wetlands and the various impacts affecting the ecological condition of the wetlands including animal grazing, embankment erosion and algal blooms.
PES Discussion	**PES Category: D (largely modified)** The largely modified ecological condition of the depression wetlands is ascribed to numerous changes to the hydraulic regimes, geomorphological processes and vegetation	**Ecoservice provision**	**Ecoservices importance category: Very Low to Moderate** The Ecosystem service provided by these seep wetlands of greatest importance is biodiversity maintenance. These wetland areas provide some of the only remaining natural habitat in the area and as such are

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	composition which have occurred within the wetlands as well as the catchments thereof. Impacts such as ongoing agricultural activities, road crossings, hardened surfaces, historical and current mining activities, as well as dense alien vegetation have altered the ecological condition of the wetlands.		important in terms of biodiversity maintenance, as well as for livestock grazing. The wetlands are also identified by the Screening Tool (2020), NFEPA (2011) and NBA (2018) datasets as wetlands on a landscape scale, thus increasing their ecosystem provision for biodiversity maintenance. The importance of sediment trapping, phosphate, nitrate and toxicant assimilation is due to increased hardened surface and stormwater inputs into the seep wetlands from the surrounding catchment and cultivated areas. The limited ecological service provisioning across all components was primarily attributed to the degraded ecological integrity of the wetlands.
EIS discussion	**EIS Category: Moderate** The depression wetlands are considered to be of moderate ecological importance and sensitive. This is mainly due to the systems being identified by the Screening Tool (2020), NFEPA (2011) and NBA (2018) datasets as wetlands on a landscape scale. The wetlands are also considered importance for biodiversity maintenance as they provide some of the only remaining natural habitat in an area dominated by agricultural and mining activities.	**REC, RMO & BAS Category**	**REC: D / BAS: D/ RMO: Maintain** The Recommended Management Objective (RMO) of the depression wetlands is to maintain the PES. The maintenance of the PES of these systems is likely as only underground mining activities are proposed. Any decrease in the PES of these systems would potentially be as a result of the ongoing agricultural activities over which the proponent has no control. Potential improvement of the PES of these systems would require a catchment-wide approach by all stakeholders, and ecological restoration of the wetlands is not the sole responsibility of a single stakeholder. Please refer to the discussion below pertaining to impacts and mitigation measures.
Freshwater ecosystems drivers and receptors discussion (hydraulic regime, geomorphological processes, water quality and habitat and biota):			
Alterations to the natural hydraulic regime and geomorphological processes of the depression wetlands have occurred. These impacts include hardened surfaces due to catchment wide agricultural and mining activities. Increased hardened surfaces reduce infiltration rates and increase inputs of sediment laden runoff to the wetlands, especially due to the inward draining characteristics of the wetlands, and subsequently changes in water quality. These impacts has subsequently also led to AIP proliferation. Although no onsite specific water quality testing was undertaken for the depression wetlands, water quality is likely to be similar to that of the seep wetlands as these			

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HGM types occur in close proximity to one another and are influenced by similar impacts. High levels of agricultural and mining activities were noted within the surrounding area, which have had a significant impact on the habitat provisioning of the depression wetlands due to the limited existing buffer zone around the wetlands. However, the wetlands provide isolated habitat for biota with numerous provincially protected floral species present (STS, 2026a). Overall, the wetlands are considered likely to provide some roosting, breeding and feeding habitat for avifauna, small mammals, amphibians, reptiles and invertebrates, albeit less sensitive species. Although the extent of anthropogenic activity surrounding the wetlands will largely deter faunal activity. Flora and fauna species present in the depression wetlands were largely similar to those in the seep wetlands (see full list in Table 3 above), with the exception of Forb species which were more abundant in the seep wetlands.	
Extent of modification anticipated	The proposed undermining of the depression wetlands has the potential to alter the functioning of the wetlands to an overall low degree. The extraction of ore can potentially lead to destabilisation of the surrounding environment and to subsequent potential subsidence of the land and creation of a cone of depression. Water entering the underground mining area as a result of ingress into underground mine workings may necessitate dewatering of the underground mining area, which may result in the discharge of dirty water into the wetland environment. Possible decant from the underground mining also poses a low threat to the depression wetlands as contaminated water may alter water quality, flow regimes and lead to a subsequent loss of biodiversity of the wetlands. Thus, strict implementation of the recommended mitigation measures will need to occur to prevent direct impacts and edge-effects from occurring.
Risk Assessment Outcome & Business Case: The DWS Risk Assessment (2023) only considers activities within the delineated extent of freshwater ecosystems and/or within the regulated zone (GN 4167 500 m ZoR). As such, the depression wetlands located within the study area were considered in this assessment.	
Low	Based on the PES and EIS of the wetlands and the findings of the DWS Risk Assessment Matrix (2023), the activities associated with the proposed undermining of the wetlands will pose a “Low” risk to the ongoing functionality of the systems. Key mitigation measures include: • Mitigation measures as stipulated in the Technical Report compiled by Bara Consulting (2025), to mitigate against subsidence and dewatering, formation of a pollution plume and decant respectively, must be implemented; and • It is advised that the pillar safety factor under the wetlands be increased to further ensure no subsidence takes place.

Diatom Analysis Results (See Figure 12 below for sampling site locations)			
Parameter	**J1**	**J2**	**Discussion**

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Dominant Taxa	Navicula sp., Cyclotella meneghiniana, Nitzschia palea, Gyrosigma sp., Nitzschia sp.,Rhopalodia gibba, Fragilaria biceps.	Cyclotella meneghiniana, Diploneis elliptica, Navicula sp.	Site J1 has a moderate species diversity with a high species evenness. The site is considered to be in a Poor ecological condition (Category D) with meso-eutrophic nutrient conditions, elevated electrolyte concentrations, and very heavily to extremely contaminated conditions, as per the calculated SPI score (9.5) and dominant diatom taxa. The dominant diatom taxa included Navicula sp., Cyclotella meneghiniana, Nitzschia palea, Gyrosigma sp., Nitzschia sp., Rhopalodia gibba, and Fragilaria biceps, representing a community dominated by motile taxa with contributions from planktonic and high-profile forms. The dominance of Navicula sp., Nitzschia sp., and Gyrosigma sp. further indicates nutrient enrichment, elevated electrolytes, and physical disturbance (sedimentation, scouring, erosion, trampling, etc.), while the presence of Fragilaria sp. and Rhopalodia sp. indicates some periods of substrate stability. The functional groups indicate mixed habitat conditions with sedimentation and variable flow regimes. The diatom size classes ranged from small motile taxa to larger benthic forms, consistent with mixed disturbance and nutrient enrichment. The calculated %PTV score (15.1%) indicates that the site is free from organic contamination. Site J2 has a low species diversity with a moderate species evenness. The site is considered to be in a Moderate ecological condition (Category C) with mesotrophic nutrient conditions, moderate electrolyte concentrations, and contaminated conditions, as per the calculated SPI score (13.1) and dominant diatom community. The dominant diatom taxa included Cyclotella meneghiniana, Diploneis elliptica, and Navicula sp., indicating a community dominated by low-profile taxa with some motile and adnate forms present. The dominance of Cyclotella sp. further indicates nutrient enrichment and possible hydrological variability, while the presence of Navicula sp. indicates physical disturbances and possibly industrial contamination. The functional groups indicate relatively stable substrate conditions with moderate nutrient enrichment. The diatom size classes consisted mostly of small to medium-sized taxa with some larger adnate forms present, supporting the results of moderately enriched but stable conditions. The calculated %PTV score (0%) indicates that the site is free from organic contamination.
Functional Groups	Mix of benthic motile, planktonic centric, and erect taxa.	Mix of planktonic centric and benthic motile taxa with adnate forms present.	
Ecological Guilds	Motile guild dominate site, with low-profile and high-profile guilds also present.	Low-profile guild dominant at site with motile and adnate guilds present.	
Size Classes	Wide range of size classes with small–medium taxa dominant and some larger forms present.	Mostly small to medium-sized taxa with some larger adnate forms present.	
SPI	9.5 - Poor quality (Category D); Meso-eutrophic	13.1 – Moderate quality (Category C); Mesotrophic	
%PTV	15.1 – Site free from organic pollution	0.0 – Site free from organic pollution	
Diversity	2.73 – Moderate	1.41 – Low	
Evenness	0.97 – High	0.89 – Moderate	

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			While some of the observed diatom community patterns may reflect natural geomorphological variability for the sites, the consistent dominance of motile and tolerant taxa across multiple sites indicates anthropogenic impacts and influences at the sites.

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4.5 Surface Water

Refer to Specialist Study: Appendix A – Surface Water Assessment

4.5.1 Regional Catchments and Drainage

The DWS has divided South Africa into primary, secondary, tertiary and quaternary catchments. This hierarchy is outlined as follows:

- Primary catchments are the largest defined catchments for South Africa, of which there are 22, and are assigned a letter ranging from A to X (excluding O);
- Secondary catchments are subdivisions of the primary catchments and are the second largest catchments in South Africa. These catchments are assigned the primary catchment letter within which they are located, followed by reference number to the respective secondary catchment. For example, 'A5' refers to primary catchment 'A' and secondary catchment 'B';
- Tertiary catchments are subdivisions of secondary catchments, so are represented as, for example, 'A53', which refers to tertiary catchment '3' located within secondary catchment 'A5'; and
- Quaternary catchments are the smallest defined catchments and are assigned the tertiary catchment number, along with a quaternary catchment letter. For example, A53D refers to quaternary catchment D located within tertiary catchment A53.

Further to the above, the DWS has divided South Africa into six WMAs. The six WMAs comprise the Limpopo-Olifants, Inkomati-Usuthu, Pongola-Mtamvuna, Vaal-Orange, Mzimvubu-Tsitsikamma and Breede-Olifants.

The Proposed Project is located within the Vaal-Orange Catchment Management Agency (VOCMA), specifically in quaternary catchment C25B. The surface water resource within the site boundary includes a non-perennial river located to the north of the Proposed Project area. Another non-perennial river is situated to the west of the site boundary. The surface water map (Figure 4-12) indicates that the Proposed Project area contains surface water areas, including wetlands.

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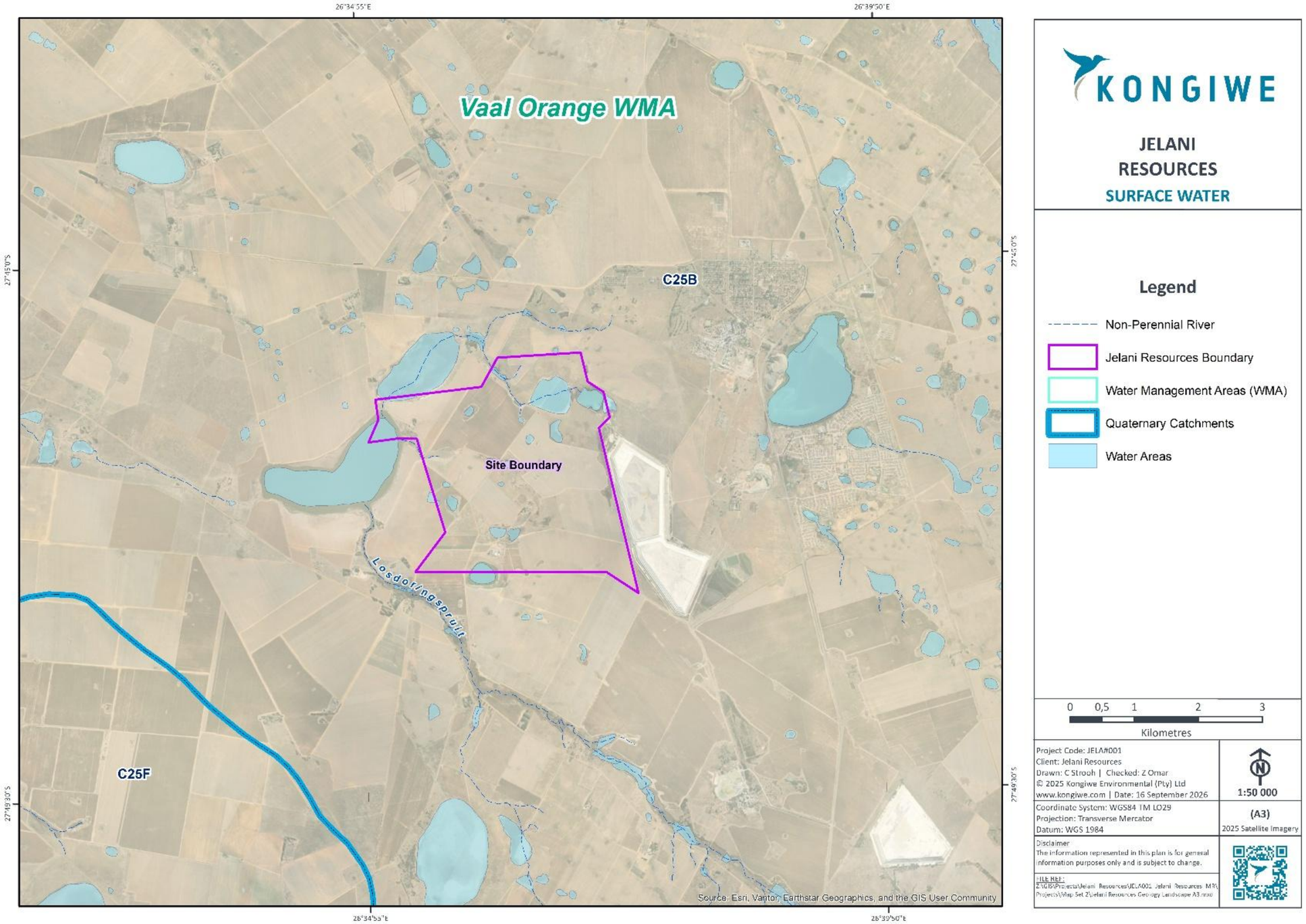

Figure 4-12: Proposed Project Surface Water Map

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4.5.2 Surface Water Hydrology

The surface drainage across the Proposed Project site is predominantly directed from the south-west toward the north-west (AquiSim, 2012). The Sandspruit is located approximately 8 km east of the site. It originates approximately 17 km to the south-east and flows in a south-east to north-west direction, ultimately discharging into the Vaal River.

4.5.3 Surface Water Quality

Harmony, which is responsible for the operational infrastructure associated with the Proposed Project, currently undertakes water quality monitoring and reporting for the Target Operation. Surface water quality monitoring at Harmony began in the 1980s. The site currently does not have any water quality standards that are applicable to it as it does not have a WUL; its IWULA is currently in progress. The site currently makes use of available standards as guidelines and will implement the official applicable standards once the WUL has been approved and the relevant applicable standards have been provided. It must be noted that the water quality of the stream surrounding Target Operation has been impacted by the historic mining activities and other anthropogenic influences. This must be kept in mind when the various limits for monitoring are determined.

4.5.4 Surface Water Monitoring Points

The surface water monitoring points are indicated in

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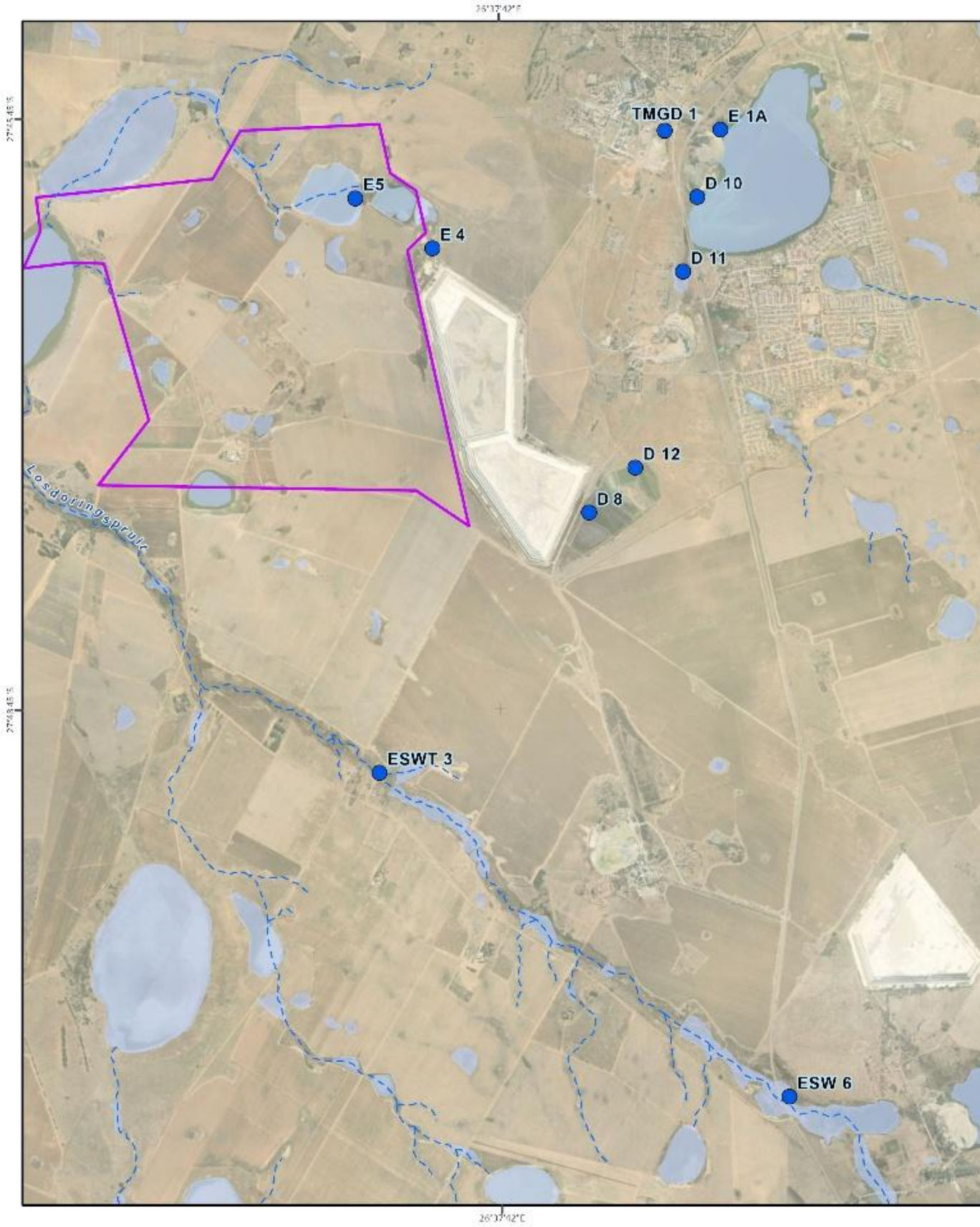

Figure 4-13 and Table 4-7 below:

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Table 4-7: Surface Water Quality Monitoring Points.

Site	Description	Latitude	Longitude	Frequency
Monthly Instream Surface Water Sample Location				
ESWT 3	Losdoringspruit downstream of Target 3 Shaft	S 27° 49' 04.27"	E 26° 37' 00.37"	Monthly
D 10	Voelpan	S 27° 46' 04.16"	E 26° 39' 11.49"	Monthly
ESW5	North vlei (Freddies dam)	S 27° 50' 44.61"	E 26° 40' 30.28"	Monthly
ESW 6*	Odendaalsrus Bothaville Road culvert trench	S 27° 50' 43.11"	E 26° 39' 20.19"	Monthly
E5	Swartpan	S 27° 50' 33.08"	E 26° 40' 35.86"	Monthly
E 1A*	Trench to Voelpan	S 27° 45' 49.06"	E 26° 38' 57.59"	Monthly
D 11*	Uikyk Dam	S 27° 46' 32.23"	E 26° 38' 44.60"	Monthly
Quarterly Process Water Containment (Dirty Water) Dams Water Sample Locations				
D 8	Evaporation dam below Clay RWD	S 27° 47' 45.44"	E 26° 38 12.25"	Quarterly
D 12	Blue Lined RWD	S 27° 47' 31.75"	E 26° 38' 28.11"	Quarterly
E 4*	New Clay RWD	S 27° 46' 24.94"	E 26° 37' 18.94"	Quarterly
TMGD 1	Million Gallon Dam	S 27° 45' 49.35"	E 26° 38' 38.48"	Quarterly

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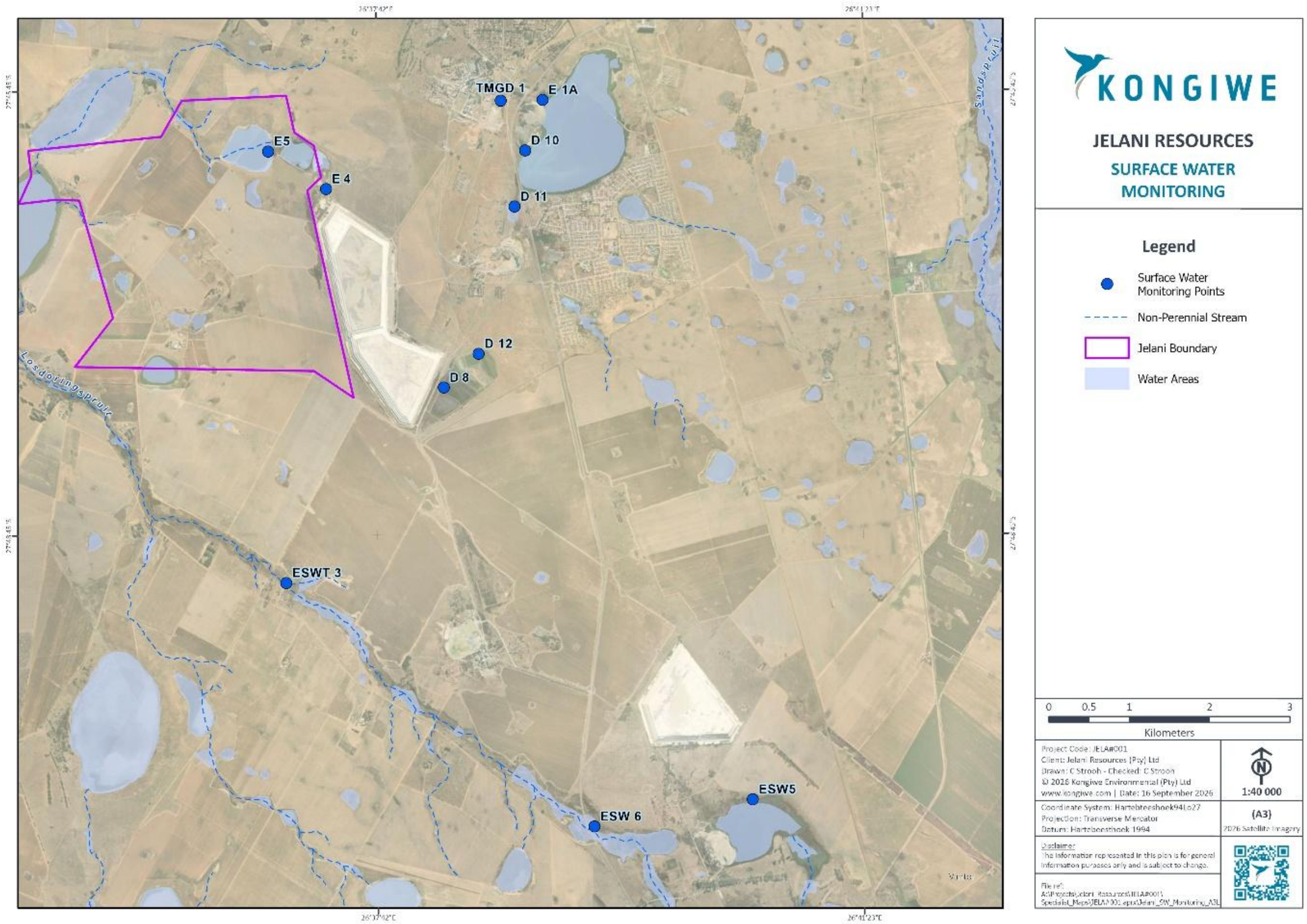

Figure 4-13 - Surface Water Monitoring Points - Target Operation

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4.5.5 Surface Water Parameter Limits

The surface water quality results were compared to the South African Water Quality Guidelines (SAWQG) and Resource Quality Objectives (RQO). These surface water parameter limits are shown in Table 4-8 below:

Table 4-8: Surface Water Parameter Limits

Parameter	Limit	Unit	Source
pH	6.5-8.5	*pH*	RQO 2016
EC	65	*mS/m*	RQO 2016
TDS	1 000	*Mg/L*	SAWQG 1996 – V5 Livestock
NH_3	1.5	*Mg/L*	SANS 241: 2015
Cl	1 500	*Mg/L*	SAWQG 1996 – V5 Livestock
NO_2	100	*Mg/L*	SAWQG 1996 – V5 Livestock
PO_4	0.058	*Mg/L*	RQO 2016
SO_4	1 000	*Mg/L*	SAWQG 1996 – V5 Livestock
U	0.01	*Mg/L*	SAWQG 1996 – V4 Irrigation
TON		*Mg/L*	

The surface water quality rating scale are specified as follows:

Good	Over/Under	Under detection limit	No limit

4.5.6 Surface Water Quality Results

The surface water quality results for the period of March 2024 to November 2024 are shown in Table 4-9 below:

Table 4-9 – Surface Water Quality Results

	D 8		D 12		E 4		E5		ESW T3	
	Mar-24	Nov-24	Mar-24	Nov-24	Mar-24	Nov-24	Apr-24	Nov-24	Mar-24	Nov-24
pH	4.46	4.40	8.56	8.26	3.16	2.94	3.10	3.76	7.76	7.98
EC	1 130	881	786	759	876	867	673	7 255	985	367
TDS	8 858	6 872	5 114	5 688	6 642	6 744	5 382	61 196	6 630	2 374
NH_3	35.60	19.60	12.60	1.19	55.50	49.60	31.70	0.27	21.60	1.06
Cl	2 542	1 814	1 720	1 495	1 624	1 583	1 075	29 200	2 519	807
NO_2	0.232	4.380	14.000	5.650	0.415	2.730	0.390	5.620	0.194	1.320
PO_4	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.472	8.510	0.647

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SO_4	3 450	2 441	2 103	1 896	3 094	2 982	2 599	343	1 235	333
TON	0.23	4.38	14.00	5.65	0.42	2.73	0.39	5.62	0.19	1.32

4.5.7 Results and Discussion

- pH levels at D8, E4 and E5 show acidic conditions (pH<6.5), with E4 and E5 dropping to a pH as low as 2.94 and 3.10, respectively. These sample points show the effect of the TSF and the underground water pumped out and stored in the Emergency Overflow Dam.
- Electrical Conductivity (EC) measures water's ability to conduct electrical current, indicating the concentration of dissolved salts and ions. High EC can indicate pollution, high nutrient levels in irrigation, or excessive salts, which can cause toxicity in plants. All readings are high.
- Total dissolved solids (TDS) are the amount of organic and inorganic materials, such as metals, minerals, salts, and ions, dissolved in a particular volume of water. TDS are essentially a measure of anything dissolved in water that is not an H2O molecule. When water encounters soluble material, particles of the material are absorbed into the water, creating total dissolved solids. Water containing TDS concentrations below 1 000 mg/litre is usually acceptable to consumers, although acceptability may vary according to circumstances. All readings exceed 1 000 mg/litre therefore are unsuitable for human consumption.
- Surface waters which are not contaminated with organic wastes, generally have a low ammonia nitrogen concentration, typically less than 0.2 mg/L. The ammonia nitrate levels tend to be high, indicating contamination with organic wastes.
- Chloride increases the electrical conductivity of water and thus increases its corrosivity. In metal pipes, chloride reacts with metal ions to form soluble salts (8), thus increasing levels of metals in drinking-water. The majority of the Chloride levels are high.
- Nitrite (NO2) measures the concentration of nitrite ions (NO2-) in water, providing valuable insights into nitrogen pollution levels and water quality. Nitrite can originate from various sources such as agricultural runoff, industrial discharges, and wastewater effluents. Elevated nitrite levels in water can pose health risks, particularly to infants, and may indicate pollution from fertilizers, septic systems, or industrial activities. Nitrite levels are acceptable.
- In appropriate quantities, phosphorus (PO4) can be used by vegetation and soil microbes for normal growth. However, in excess quantities, phosphorus can lead to water quality problems such as eutrophication and harmful algal growth. Some aquatic resources, such as wetlands, naturally serve as sinks for phosphorus found in sediments or dissolved in water. However, since phosphorus generally occurs in small quantities in the natural environment, even small increases can negatively affect water quality and biological condition. The phosphorus levels tend to be acceptable, except for ESW T3 (Losdoringspruit - Downstream of Target 3 Shaft).
- Sulphate is a common constituent of water and arises from the dissolution of mineral sulphates in soil and rock, particularly calcium sulphate (gypsum) and other partially soluble sulphate minerals. Since most sulphates are soluble in water, and calcium sulphate relatively soluble, sulphates when added to water tend to accumulate to progressively increasing concentrations. Sulphates are discharged from acid mine wastes and many other industrial processes such as tanneries, textile mills and processes using sulphuric acid or sulphates. The Sulphate values are high.
- It should be noted that it is expected that there will be several exceedances of the parameter limits due to some sampling points being in areas where dirty water is stored or generated. However, where applicable, interventions are needed to mitigate risks to the environment.

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4.5.8 Mean Annual Runoff

According to the Middle Vaal Water Management Area (2013), the mean annual runoff (MAR) of the C25B Catchment in the Sandspruit drainage system is 2.20 million m³/a. The Losdoringspruit, a tributary of the Sandspruit, is located within the catchment. The Middle Vaal WMA forms part of the broader Vaal-Orange water management system (Middle Vaal WMA, 2013).

4.5.9 Resource Class and River Health

This is discussed above in Section 4.5.6.

4.5.10 Reserve

The classes and resource quality objectives of water resources for the catchments of the Middle Vaal inform the surface water reserves for the area and the limits are indicated in Table 4-8.

4.5.11 Biomonitoring and Toxicity Testing

Routine biomonitoring and toxicity testing are currently not undertaken at Target Operation.

4.5.12 Surface Water User Survey

Surface water uses in the catchments includes:

- Industrial (mining);
- Domestic (potable water via the dams after treatment by Vaal Central Water Board); and
- Agricultural (e.g. livestock watering and irrigation).

4.6 Groundwater

Refer to Specialist Study: Appendix B – Groundwater Assessment

The study area is underlain by older strata of the Karoo Supergroup, which are represented by the argillaceous rocks (such as shale, siltstone and mudstone) of the Ecca Group and the arenaceous rocks (such as sandstone) of the Beaufort Group. The hydrogeological environment of the area is presented by a moderately productive resource that comprises mainly of intergranular and fractured aquifers (WRC, 2013).

4.6.1 Aquifer Characterisation

The aquifers identified within the study area consist of a shallow aquifer and a deep aquifer. The hydrogeological setting comprises a shallow perched aquifer that occurs within the weathered zone of sedimentary rocks directly beneath the surface, extending to an average depth of approximately 10 to 20 m below ground level (mbgl). Groundwater strikes are consistently encountered at the interface between the weathered zone and fractured bedrock. Groundwater within this shallow system is predominantly hosted in sandstone horizons and lenses of the younger Beaufort Group, which receive direct recharge from precipitation. In contrast, the older Vryheid and Dwyka Formations possess very low primary porosity, and the associated shales, mudstones, and tillite generally act as aquicludes (AquiSim Consulting, 2025). Any groundwater-bearing capacity within these formations is typically associated with secondary structures such as joints, bedding planes, faults, and contacts between dolerite intrusions or dykes and the surrounding country rock. Depending on the local geological conditions, the shallow Karoo aquifer and the deeper aquifer may be hydraulically connected, although this connection is not always present (Hydro-b, 2026).

A deeper fractured aquifer occurs within the Ventersdorp and Witwatersrand formations at an approximate depth of 300 m below surface. Groundwater within this aquifer is considered to be connate water, representing

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original formation water, or alternatively extremely old fossil groundwater. Water occurrence within the deep aquifer is generally concentrated along major geological structures, including fault zones and igneous intrusions such as dykes. The overlying Karoo sediments, particularly the impermeable Dwyka Formation at the base of the Karoo sequence, effectively isolate and seal the deeper aquifer from surface influences. Although post-Karoo tectonic activity and igneous intrusions created localised pathways that may facilitate leakage between the Karoo aquifer and the deeper Witwatersrand aquifer, recharge from the surface to the deep aquifer is regarded as negligible and, at best, highly localized. This interpretation is supported by more than 40 years of dewatering activities, during which groundwater levels in the Witwatersrand aquifer declined significantly and some underground dewatering boreholes became dry. Groundwater levels within the overlying Karoo aquifer have remained relatively stable over the same period (MvB Consulting, 2026).

Previous studies have concluded that there is no, or only very limited, hydraulic connectivity between the Karoo aquifer and the deeper Ventersdorp/Witwatersrand aquifers. In addition, recharge to the Witwatersrand aquifer is considered negligible (MvB Consulting, 2026). Consequently, once the Witwatersrand aquifer has been dewatered, or its water level significantly lowered, recovery is not expected. The estimated post-mining water level in the Witwatersrand aquifer is therefore anticipated to remain deeper than the pre-mining water level of approximately 200 m below ground surface.

4.6.2 Aquifer Parameters

Available aquifer test data were sourced from AquiSim Consulting (2025), which analysed the results of aquifer testing conducted within and around the study area. Table 4-10 shows the transmissivity and hydraulic conductivity values obtained for the larger Harmony Welkom Area. Based on borehole depths (maximum depth of 100 m) these characteristics are relevant for the shallow Karoo aquifer. AquiSim observed that the heterogeneous nature of the aquifer is evident from the variability in the calculated transmissivity/hydraulic conductivity values and typical for fractured and weathered sedimentary hard rock aquifers. The derived T- and K-values are indicative of a low permeable environment (AquiSim Consulting, 2025). The average hydraulic conductivity for the shallow aquifer is 0.29 m/d, with geometric and harmonic means of 0.1 and 0.042 m/d, respectively (Hydro-B, 2026).

Table 4-10. Hydraulic Parameters Derived from Available Aquifer Test Data.

BH ID	SWL	Collar	Corrected SWL	BH Depth	Corrected BH Depth	Saturated Thickness	T (Drawdown)	T (Recovery)	T (Average)	K
	mbc	magl	mbs	mbc	mbgl	m	m^2/day	m^2/day	m^2/day	m/day
BH129	2.90	0.00	2.90	26.24	26.24	23.34	14.30	14.60	14.45	0.619
BH135	2.88	0.00	2.88	35.95	35.95	33.07	2.50	3.10	2.80	0.085
BH41	6.06	0.28	5.78	26.37	26.09	20.31	27.60	-	27.60	1.359
BH144	19.49	0.71	18.78	39.19	38.48	19.70	0.70	-	0.70	0.036
BH120	0.72	0.27	0.45	20.36	20.09	19.64	1.20	-	1.20	0.061
BH190	2.24	0.14	2.10	28.24	28.10	26.00	0.60	-	0.60	0.023
BH142	8.09	0.56	7.53	35.74	35.18	27.65	0.50	-	0.50	0.018
BH17	2.32	0.00	2.32	35.20	35.20	32.88	1.90	-	1.90	0.058
H3-1	7.49	0.48	7.01	100.00	99.52	92.51	1.70	-	1.70	0.018
BH122	2.36	0.45	1.91	30.35	29.90	27.99	8.00	8.40	8.20	0.293
BH123	1.59	0.43	1.16	26.46	26.03	24.87	2.00	2.90	2.45	0.099
BH185	1.01	0.26	0.75	39.16	38.90	38.15	0.40	-	0.40	0.010
BH27	2.69	0.00	2.69	32.69	32.69	30.00	12.40	-	12.40	0.413
H3-2	5.25	0.26	4.99	35.80	35.54	30.55	2.10	3.20	2.65	0.087

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N32-1	3.37	0.38	2.99	14.33	13.95	10.96	3.80	-	3.80	0.347
BH187	2.84	0.66	2.18	25.42	24.76	22.58	0.50	-	0.50	0.022
SH-1	5.78	0.21	5.57	25.40	25.19	19.62	28.00	-	28.00	1.427

4.6.3 Groundwater Use

4.6.3.1 Small-scale Abstractions

Based on the hydrocensus results, small-scale borehole sources in the study area are mainly used as water sources for domestic purposes for single households. Eight of the 19 boreholes surveyed during the hydrocensus were in use as third party groundwater supplies. The owners of the boreholes in the area reported that boreholes are generally low-yielding, usually ranging between an estimated 400 - 800 l/h. No borehole yields were reported to be strong enough to be used for crop irrigation.

4.6.3.2 Mine Water Abstraction

Active mining operations closest to the study area are the Target Operation (overlapping with the proposed Jelani Mine), Freddies Mine (to the south) and Tshepong Mine (further south), which are interconnected as shown in Figure 6-8. At current, water is actively being pumped at the Tshepong and Target Operationss.

Regarding the current water situation at the Target Operation, reference is made to a hydrogeological investigation that served as input into the Pre-Feasibility Study for the Jelani operations (Hydro-B, 2026). For estimation of abstraction for the Target Operation, the investigation described the following:

- Target Operation is currently in full operation from No.1 Shaft;
    - The average volume of underground water pumped to surface for October and November 2015 was 181.7 Ml or 5.96 Ml/day;
    - Underground water pumped to the Plant for the period January 2013 - January 2016 ranged between 1.8 Ml/day and 4.8 Ml/day, averaging at 3.3 M/l/day;
    - Daily discharge to Vöelpan for the period starting July 2015 and ending March 2016 ranged
    - between zero and ~11 100 m3/day, averaging at 4 823 m3/day or 4.8 Ml/day;

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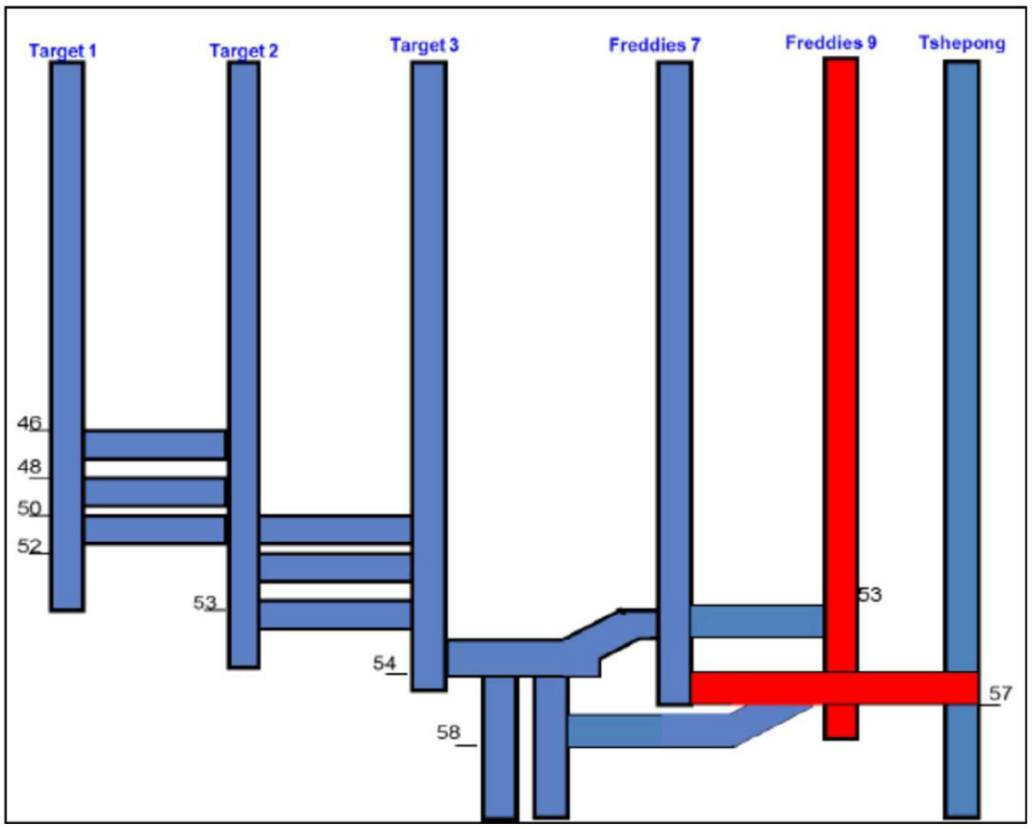

Figure 4-14: Target, Freddies and Tshepong Mine Interconnection (Hydro-B, 2026)

- The No.2 shaft is not operational but is equipped with an emergency winder and used as a second means of egress for the Target Operation;
  - The No.2 Shaft underground water pumped from No.1 Shaft for the period January 2013 - January 2016 averaged at 2 518 m_3/day or 2.5 ML/day;
- The No.3 Shaft has been operating intermittently since the late 1990s and is currently closed on care and maintenance;
  - During October 2015, the refurbished pumping station at 30 Level became operational due to
  - water from Freddies No.9 Shaft, which closed in December 2014, finding its way to No.3 Shaft on 65 Level. Before closure on average some 3.2 Ml/day was pumped at Freddies No.9 Shaft;
  - Pumping from No.3 Shaft currently roughly averages between 3.5 to 3.6 Ml/day. The average
  - for the 5 day prior to the site visit calculates to 2.7 Ml/day;
  - The average volume pumped from Target 3 for the period June 2016 – September 2016 was 3.5 Ml/day.

4.6.4 Groundwater Levels

Harmony has 311 monitoring boreholes strategically distributed across its mining areas and around its TSF to monitor potential groundwater impacts associated with these facilities. Although no geological information is available for these boreholes, it is assumed that they primarily target the shallow Karoo aquifer, as their purpose is to monitor impacts on the shallow groundwater environment. Groundwater level data weas available for 164 of the boreholes. Recorded groundwater levels range from 0 to 33 m below ground level (mbgl), with most water levels occurring within 15 mbgl.

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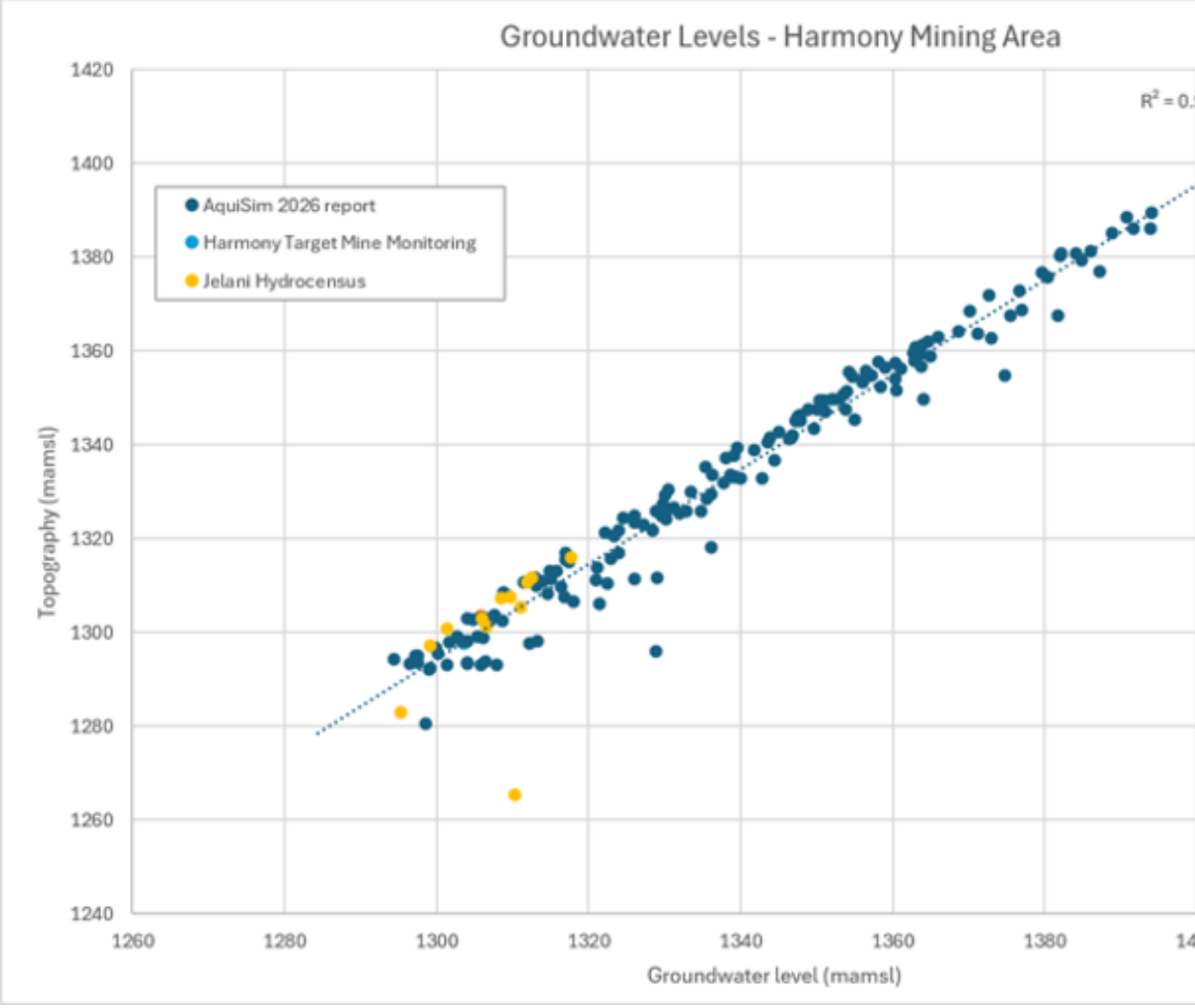
Groundwater monitoring for the Target Operation includes groundwater levels for five boreholes (A1, A3, A5, A6 and BH88) ranging between 0.8 and 5.9 mbgl. During the hydrocensus, groundwater levels were measured in 12 boreholes;

- Static groundwater levels ranged between 0.59 m to 5.62 mbgl;
- Dynamic groundwater levels were measured in boreholes BH01, BH03 and BH87 and ranged
- between 5.3 and 44.9 mbgl.
-



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- Figure 4-15 shows the monitoring boreholes for which data was available showing most recent groundwater level reported for each point (AquiSim Consulting, 2025).

All groundwater levels have been added to

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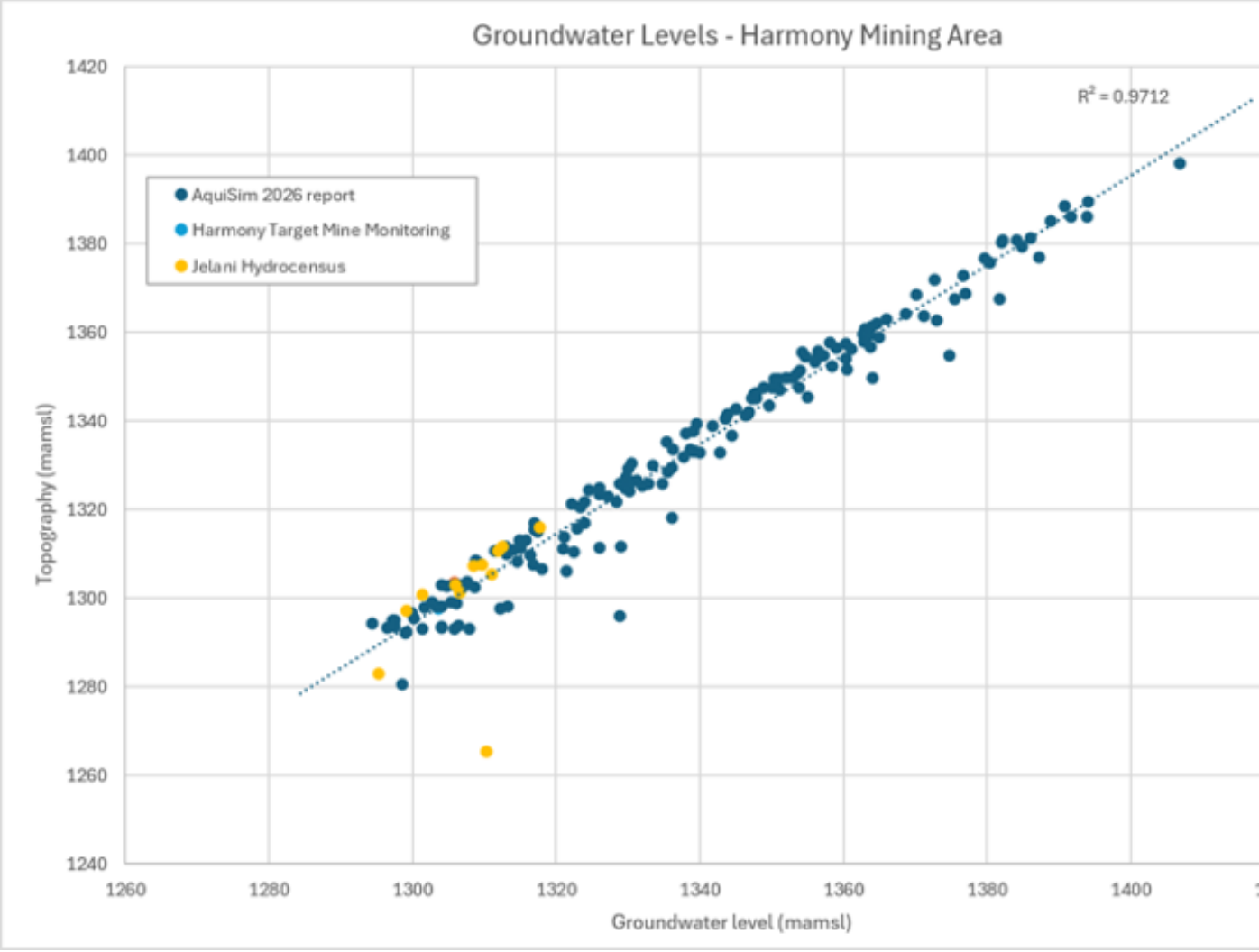

Figure 4-15 and show a strong relationship with surface elevation, indicating groundwater levels in the shallow Karoo aquifer typically mimic topography, showing that overall groundwater flow directions follow topographical gradients and are generally close to surface. Based on groundwater levels from the Target Operation monitoring and hydrocensus boreholes, groundwater levels within in the Proposed Project area are close to surface with deeper groundwater levels associated with borehole abstraction. Based on this it can be concluded that there is no impact from the underground mining activities on groundwater levels in the shallow Karoo aquifers, with only local impacts from single borehole sources.

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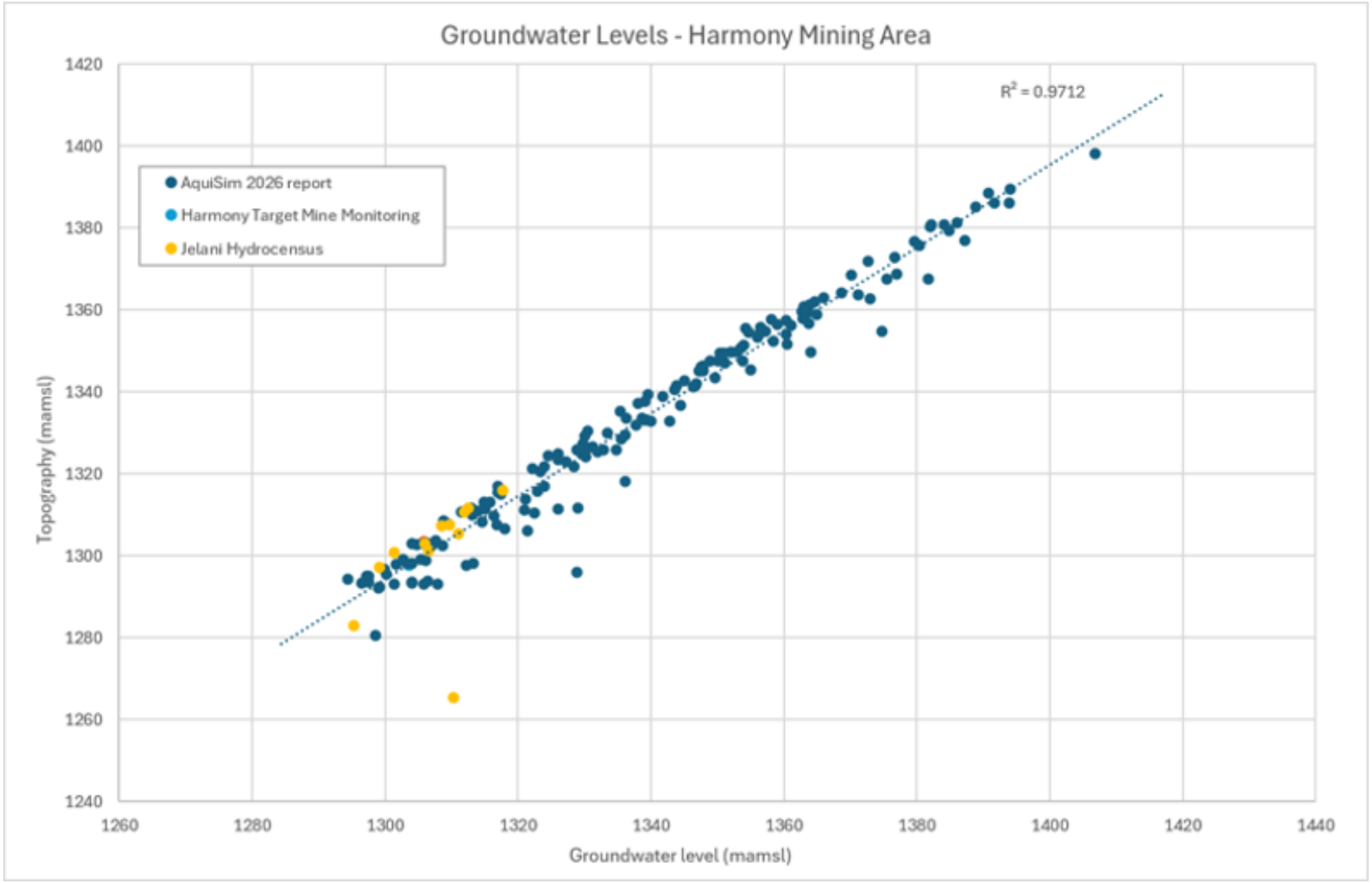

Figure 4-15. Bayesian Correlation for Available Groundwater Levels.

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4.6.5 Hydro-census

4.6.5.1 Hydrocensus Survey

A hydrocensus survey was conducted to identify groundwater users in an approximate 4 km radius surrounding the proposed development. 19 boreholes were assessed and seven boreholes were sampled (see Table 4-11 and Figure 4-16). Seven samples (including a duplicate for borehole BHN) were submitted to SANAS-accredited Yanka Laboratories in Middelburg for analysis against SANS 241:2015 drinking water specifications. The list of parameters included additional parameters, including cyanide and uranium, as the Proposed Project involves development of an underground gold mine (Table 4-12). During the survey, details of source owners and groundwater level measurements (where possible) were also collected.

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Table 4-11: Hydrocensus Details

ID	Coordinates			Survey Date	Owner Information		Bore/Spring Status & Equipment								Hydrogeological Information			Sample Taken	Photo	Comments
							Primary Water Application				Equipment	Estimated Abstraction/Flow Rate [L/hour]	Borehole inner casing diameter (mm)	Borehole Depth (mbgl)	Casing Height (m)	Static Water Level (mbch)	Static Water Level (mbgl)			
	Latitude	Longitude	Elevation (mbgl)		Owner	Farm Name	Type	Primary Use	Other Uses											
									Domestic	Stock Watering										
BHN	27.79009	26.580750	N/A	15/12/2025	Eduard Steyn	Blaauwklip No. 181	Borehole	Domestic	Yes (Single Household)	Yes (Small Scale)	Submersible pump	500	152	Unknown	0.72	2.76	2.04	Yes	Yes	Bailer Sample
B11	27.787924	26.584360	N/A	15/12/2025	Eduard Steyn	Blaauwklip No. 181	Borehole	No Use	None	None	None	None	Unknown	Unknown	Unknown	Unknown	Unknown	No	No	No Access due to wet road. Farmer says the BH is surrounded with water and cannot be accessed during the wet season
BH89	27.792849	26.574685	N/A	15/12/2025	Eduard Steyn	Damleegte No. 441	Borehole	No Use	None	None	None	None	Unknown	Unknown	Unknown	Unknown	Unknown	No	No	BH Destroyed according to the farmer
BH88	27.793880	26.57508	N/A	15/12/2025	Pieter Haasbroek	Goedgesnij No. 376	Borehole	No Use	None	None	None	None	Unknown	Unknown	N/A	Unknown	Unknown	No	Yes	Broken handpump. No access to measure water level or take sample
BH01	27.757485	26.587600	N/A	07/01/2026	Jaco Grobbelaar	Onrust No. 377	Borehole	Domestic	Yes (Main Household and workers houses)	Yes (Small Scale)	Submersible pump	800	152	Approx 70m	0.00	44.87	44.87	Yes	Yes	Grab sample taken from tank. Water level measured while pump was on
BH02	27.753129	26.587748	N/A	07/01/2026	Jaco Grobbelaar	Onrust No. 377	Borehole	Domestic	Yes (Single Household)	None	Submersible pump	800	Unknown	Approx 50m	Unknown	Unknown	Unknown	No	Yes	Bees. No additional info could be collected
BH03	27.784716	26.556810	N/A	07/01/2026	Christo Nel	Modderfontein No. 343	Borehole	Domestic	Yes (Single Household)	Yes (Small Scale)	Submersible pump	400	152	Approx 80	0.19	12.52	12.33	Yes	Yes	Water level measured while pump was on. Farmer uses a 1.1kw pump because a 1.5kw pump is too strong for the low yielding borehole. Grab sample taken
BH04	27.786132	26.560869	N/A	07/01/2026	Christo Nel	Modderfontein No. 343	Borehole	Domestic	Yes (Single Household)	Yes (Small Scale)	Windpump	Unknown	152	Unknown	Unknown	Unknown	Unknown	No	Yes	Windpump sealed, no water level access
BH87	27.802249	26.584288	N/A	07/01/2026	Pieter Haasbroek	Lacuna No. 442	Borehole	Domestic	Yes (Single Household)	Yes (Small Scale)	Submersible pump	Unknown	152	Unknown	0.80	6.13	5.33	No	Yes	Water level measured while pump was on
BH05	27.808042	26.581237	N/A	07/01/2026	Pieter Haasbroek	Lacuna No. 442	Borehole	Stock Watering	None	Yes (Small Scale)	Windpump	Unknown	152	Unknown	0.50	1.63	1.13	No	Yes	
BH86	27.805929	26.596764	N/A	07/01/2026	Pieter Haasbroek	Lacuna No. 442	Borehole	No Use	None	None	Windpump	Unknown	152	Unknown	0.51	1.10	0.59	No	Yes	
BH06	27.741958	26.595715	N/A	12/01/2026	Tertius de Jager	Zuurbron No. 444	Borehole	Domestic	Yes (Single Household)	Yes (Small Scale)	Submersible pump	500	Unknown	Approx 30	Unknown	Unknown	Unknown	No	Yes	No Access, farmer does not have key to open structure built around the BH. Grab sample taken from tank.
BH07	27.743021	26.599114	N/A	12/01/2026	Tertius de Jager	Zuurbron No. 444	Borehole	No Use	None	None	Windpump	None	Unknown	Unknown	Unknown	Unknown	Unknown	No	Yes	Bees. No additional info could be collected
BH08	27.742836	26.592158	N/A	12/01/2026	Tertius de Jager	Zuurbron No. 444	Borehole	No Use	None	None	None	None	152	18	0.21	5.83	5.62	No	Yes	

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ID	Coordinates			Survey Date	Owner Information		Bore/Spring Status & Equipment								Hydrogeological Information			Sample Taken	Photo	Comments
	Latitude	Longitude	Elevation (mbgl)		Owner	Farm Name	Primary Water Application				Equipment	Estimated Abstraction/Flow Rate [L/hour]	Borehole inner casing diameter (mm)	Borehole Depth (mbgl)	Casing Height (m)	Static Water Level (mbch)	Static Water Level (mbgl)			
							Type	Primary Use	Other Uses											
									Domestic	Stock Watering										
A7	27.778172	26.645384	N/A	12/01/2026	Eric Sello Senoge	Uitkyk No. 258	Borehole	Monitoring	None	None	None	None	152	2.92	0.12	2.32	2.20	Yes	Yes	Assumed BH may be blocked at 2,92m. Water looks dirty, may be due to an animal. Bailer sampled.
A6	27.773525	26.645368	N/A	12/01/2026	Eric Sello Senoge	Uitkyk No. 258	Borehole	Monitoring	None	None	None	None	50	8.73	0.36	3.30	2.94	No	Yes	
A5	27.800561	26.633653	N/A	12/01/2026	Eric Sello Senoge	Uitkyk No. 258	Borehole	Monitoring	None	None	None	None	152	3.62	0.04	1.75	1.71	Yes	Yes	Bailer Sampled
A4	27.800690	26.631467	N/A	12/01/2026	Eric Sello Senoge	Uitkyk No. 258	Borehole	Monitoring	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	No	No	Could not be found / located
A3	27.783672	26.621949	N/A	12/01/2026	Willem Taljaard	Graspan No. 40	Borehole	Monitoring	None	None	None	None	152	4.31	0.00	0.87	0.87	Yes	No	Bailer Sampled
A2	27.779486	26.620518	N/A	12/01/2026	Willem Taljaard	Graspan No. 40	Borehole	Monitoring	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	No	No	Could not be found / located
B1	27.782195	26.614362	N/A	12/01/2026	Willem Taljaard	Graspan No. 40	Borehole	None	None	None	None	None	152	Unknown	0.41	1.65	1.24	No	Yes	Assumed to be B1 as it plots close to the provided coordinates for B1
B2N1	27.780207	26.609205	N/A	12/01/2026	Willem Taljaard	Graspan No. 40	Borehole	Domestic	Yes (Single Household)	None	Submersible pump	Unknown	152	Unknown	Unknown	Unknown	Unknown	No	No	Borehole Closed off. No additional data could be collected
B2N2	27.782227	26.606346	N/A	12/01/2026	Willem Taljaard	Graspan No. 40	Borehole	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	No	No	Borehole could not be found. Not currently monitored by Aquatico
BH85	27.792017	26.593248	N/A	12/01/2026	Willem Taljaard	Graspan No. 40	Borehole	Domestic	Yes (Single Household)	None	Submersible pump	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	No	No	Borehole Closed.
B7	27.794087	26.616054	N/A	12/01/2026	Willem Taljaard	Graspan No. 40	Borehole	None	None	None	Windpump	None	152	Unknown	Unknown	Unknown	Unknown	No	Yes	Windpump sealed, no water level access

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Table 4-12: List of Parameters

Parameter	
Conductivity at 25 °C	Zinc as Zn
Total dissolved solids	Antimony as Sb
Turbidity	Arsenic as As
pH at 25 °C	Barium as Ba
Calcium	Boron as B
Magnesium	Cadmium as Cd
Potassium	Total chromium as Cr
Sodium as Na	Copper as Cu
Total Alkalinity CaCO3	Lead as Pb
Bicarbonate as HCO3	Mercury as Hg
Chloride as Cl	Nickel as Ni
Sulphate as SO4	Selenium Se
Nitrate as NO3	Uranium as U
Nitrite as NO2	Aluminium as Al
Ammonia as NH3	Free, Total and WAD Cyanide as CN
Phosphate as PO4	Total coliforms
Fluoride as F	Faecal coliforms
Iron as Fe	E. Coli

4.6.5.2 Groundwater Quality

During the hydrocensus, four samples (including one duplicate) were taken from third-party domestic sources, and three samples were collected from monitoring boreholes.

- Third-party boreholes: BHN, BH01 and BH03;
- Monitoring boreholes: A3, A5 and A7.

The analytical results were compared against the SANS 241:2015 Drinking Water Standards. The third-party boreholes were considered to be representative of background groundwater quality generally exhibited good water quality. However, nitrate concentrations exceeded the SANS241:2015 limits for boreholes BHN and BH01. Magnesium 70 mg/l (at 73.1 mg/l, limit 70 mg/l) and antimony (0.03 mg/l, limit 0.02 mg/l) are slightly elevated. No exceedances of the SANS 241:2015 standards were recorded for any other parameters.

The elevated nitrate concentrations observed in boreholes BHN and BH01 are likely attributable agricultural activities within the study area, including fertilisers and the presence of animal waste. As both boreholes are

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used for potable water supply, nitrate concentrations should continue to be monitored regularly to establish long-term trends and assess potential risks to water users. Prolonged exposure to elevated nitrate concentrations may pose adverse health risks, particularly for vulnerable populations.

If elevated nitrate concentrations persist, the borehole owners may need to investigate appropriate treatment options, such as ion-exchange, to ensure compliance with SANS 241:2015 Drinking Water Standards.

Monitoring boreholes A3 and A5 are situated close to and in downgradient positions of the Target Operation No. 1 and 2 TSF (less than 50 m). Borehole A7 is downgradient of the Target 2 Shaft at a downgradient position roughly 100 m away from the associated waste rock dump. All three monitoring boreholes are therefore representative of groundwater quality in close proximity to these infrastructures.

Groundwater samples collected from A3 and A5 indicate poor water quality, characterised by elevated EC, TDS, chloride, sulphate, sodium, and calcium, magnesium, ammonia, antimony, cobalt and manganese to a lesser extent. The acidic pH in A3 (pH of 4.74) may be indicative of acid mine drainage related to the TSF. Sample A7 shows a similar water quality to A3 and A5 although concentrations are relatively lower compared to concentrations for A3 and A5 of the parameters mentioned above. The similarity in groundwater composition across the sampled locations suggests that groundwater quality has been affected within close proximity to the existing mining infrastructure.

Sample A7 is of the Mg–Ca–SO_4 type; with magnesium (47 %) and calcium (42 %) dominating the cations while sulphate (~69 %) is the main anion. The relatively lower sodium (81 mg/L) and chloride (125 mg/L) may suggest mixing of seepage from the TSF with natural groundwater.

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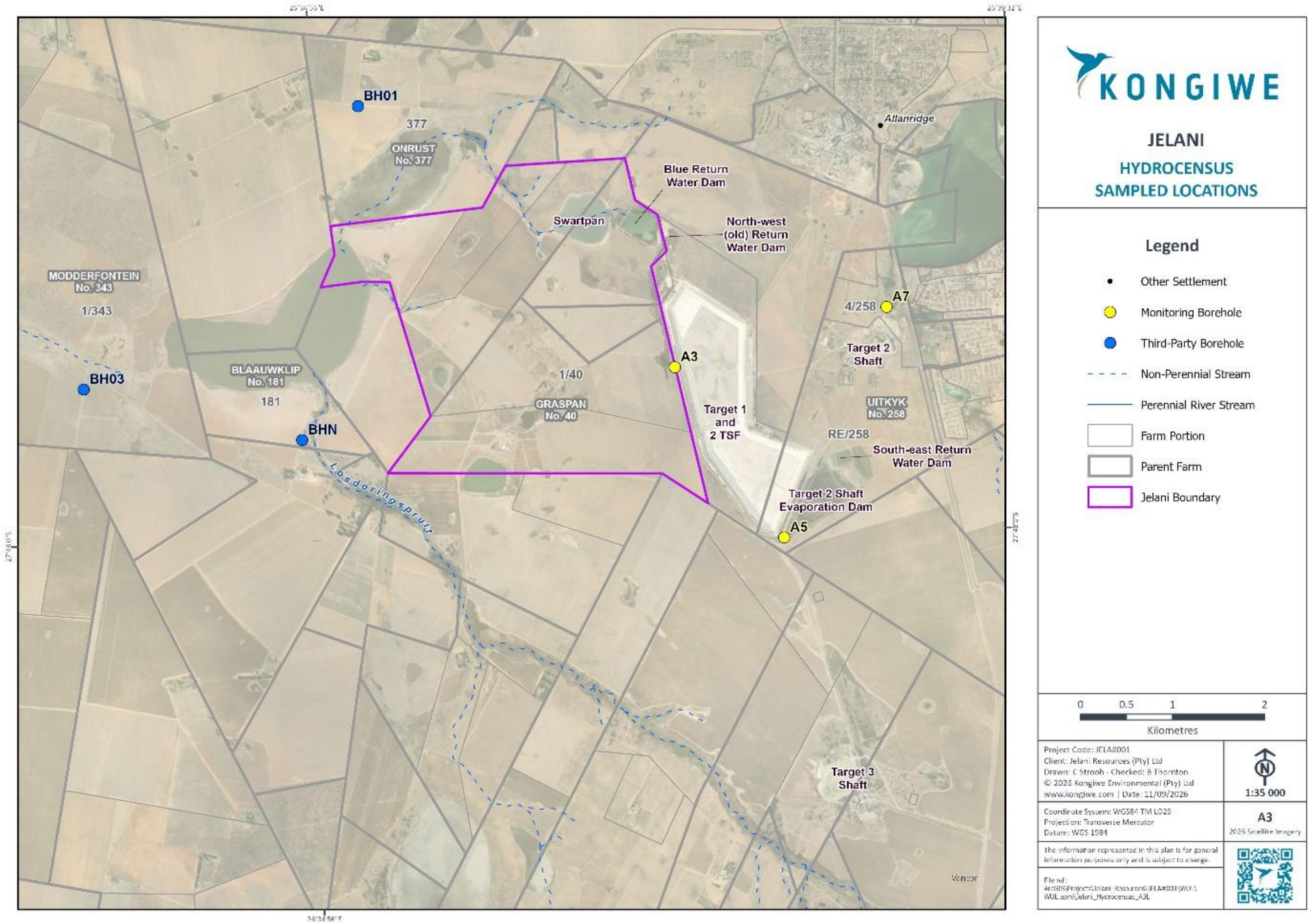

Figure 4-16: Groundwater Sampled Locations.

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The hydrochemical facies identified from the groundwater samples are illustrated in the Piper diagram presented in Figure 4-17:

- BHN-A/B: These samples plot in the central region of the diamond, confirming a mixed Na–HCO_3/Cl water type.
- BH01 and BH03: Both lean toward the Na–HCO_3 corner, reflecting the bicarbonate-rich nature with moderate Na^+.
- A3, A5 and A7: These acidic, saline samples plot toward the upper right of the diamond, showing dominance of SO_4^{2-} and Cl^- with varying cation compositions; A7 is Mg–SO_4, while A3 and A5 trend toward Na/Ca–Cl–SO_4 waters.

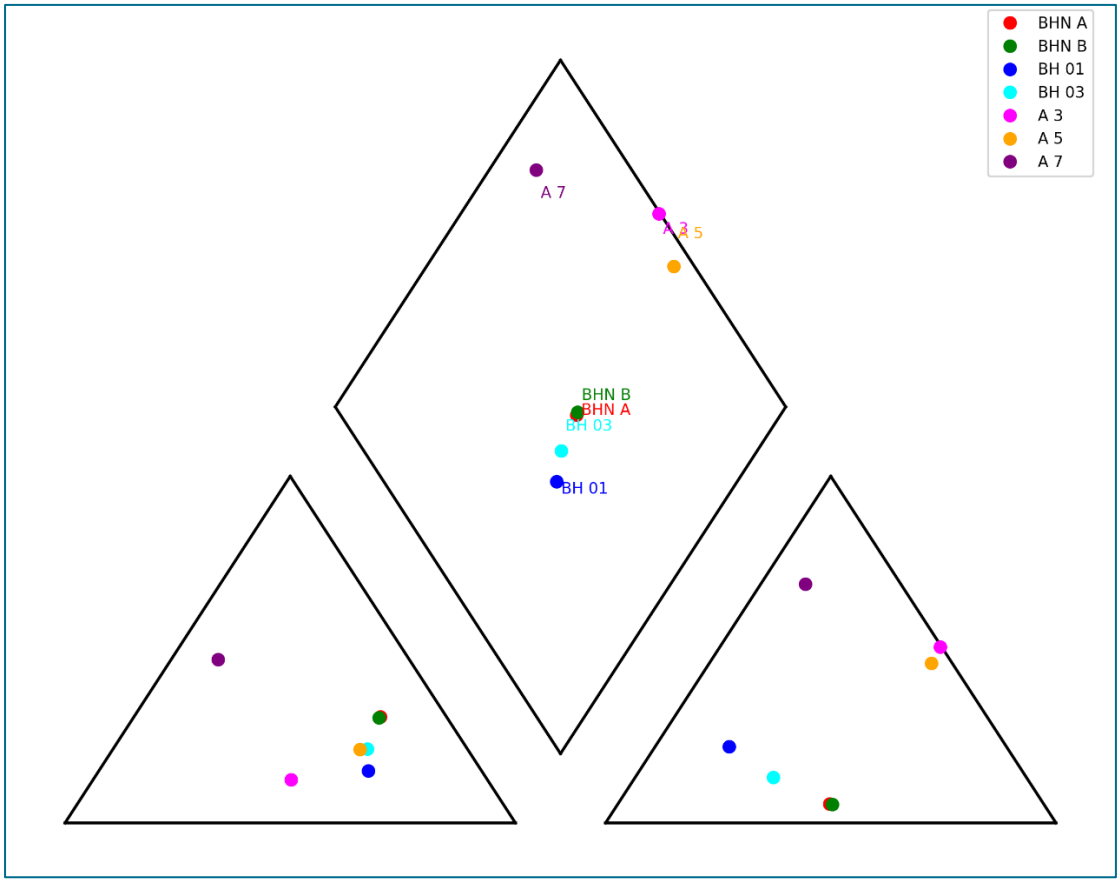

Figure 4-17: Piper Diagram for the Hydrocensus Locations

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Table 4-13: Hydrocensus Sample Analyses Results

SAMPLE ID		BHN	BH 01	BH 03	A 3	A 5	A 7
SAMPLED		2026/01/15	2026/01/07	2026/01/07	2026/01/12	2026/01/12	2026/01/12
Total Alkalinity (pH>4.5)	mg $CaCO_3$/L	369	318	383	11.8	302	379
Bicarbonate Alkalinity	mg $CaCO_3$/L	369	318	383	11.8	302	379
Carbonate Alkalinity	mg $CaCO_3$/L	0.00	0.00	0.00	0.00	0.00	0.00
M Alkalinity (8.3>pH>4.5)	mg $CaCO_3$/L	369	318	383	11.8	302	379
P Alkalinity (pH>8.3)	mg $CaCO_3$/L	0.00	0.00	0.00	0.00	0.00	0.00
Conductivity (Laboratory)	mS/m	183	108	130	576	1065	270
pH (Laboratory)		7.46	7.57	7.54	4.74	6.63	7.11
Total Hardness	mg $CaCO_3$/L	446	254	328	1902	3112	1635
Calcium Hardness	mg $CaCO_3$/L	145	159	167	1478	1651	774
Magnesium Hardness	mg $CaCO_3$/L	301	94.7	161	424	1462	861
Total Dissolved Solids (TDS)	mg/L	1092	724	802	4323	8114	2168
Temperature	°C	21.0	21.0	21.0	21.0	21.0	21.0
Turbidity	NTU	0.67	14.6	<0.28	45.5	8.76	32.6
Ammonia and Ammonium	mg N/L	<0.45	<0.45	<0.45	21.8	<0.45	17.1
Calcium	mg Ca/L	58.0	63.6	66.8	592	661	310
Chloride	mg Cl/L	258	59.9	148	1188	2273	125
Magnesium	mg Mg/L	73.1	23.0	39.2	103	355	209
Nitrate and Nitrite (TON)	mg N/L	40.8	22.7	6.90	3.13	0.35	<0.35
Nitrite	mg N/L	<0.01	<0.01	<0.01	1.13	<0.01	0.01
Ortho Phosphate	mg P/L	0.49	0.19	0.15	0.09	0.10	0.44
Potassium	mg K/L	20.5	4.53	10.7	31.7	38.5	10.0
Sodium	mg Na/L	235	171	189	666	1714	81.1
Silicon	mg Si/L	10.3	12.5	14.0	6.82	10.7	10.8
Sulphate	mg SO_4/L	40.9	109	86.5	1670	2888	1180
Aluminium	mg Al/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Antimony	mg Sb/L	0.03	0.02	0.02	0.02	0.03	0.05
Arsenic	mg As/L	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009
Barium	mg Ba/L	0.36	0.03	0.03	<0.01	<0.01	<0.01
Beryllium	mg Be/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	mg B/L	0.26	0.12	0.18	0.36	0.04	0.23
Cadmium	mg Cd/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Chromium	mg Cr/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	mg Co/L	<0.01	<0.01	<0.01	0.25	0.68	<0.01
Copper	mg Cu/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoride	mg F/L	1.38	0.13	0.42	<0.09	<0.09	0.12
Iron	mg Fe/L	<0.01	<0.01	<0.01	0.29	<0.01	<0.01
Lead	mg Pb/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lithium	mg Li/L	0.03	<0.01	0.02	<0.01	<0.01	<0.01
Manganese	mg Mn/L	<0.01	<0.01	<0.01	20.8	0.52	0.59
Mercury	mg Hg/L	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Molybdenum	mg Mo/L	0.02	<0.01	0.01	0.03	0.06	0.04
Nickel	mg Ni/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	mg Se/L	0.03	0.02	0.03	<0.01	0.02	0.04
Strontium	mg Sr/L	1.92	0.76	0.51	2.81	5.01	1.99
Tin	mg Sn/L	0.04	0.03	0.04	0.02	0.04	0.05
Vanadium	mg V/L	<0.01	<0.01	<0.01	<0.01	<0.01	0.10
Zinc	mg Zn/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cyanide (Free)	mg CN/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cyanide (Total)	mg CN/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
WAD Cyanide	mg CN/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Uranium	mg U/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

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4.6.6 Harmony Target Monitoring Data

Monitoring data was received from Harmony for the Target Operation for the period 2022 – 2025. The database included monitoring points for process, surface and groundwater points as part of the existing monitoring network. As was shown in the hydrocensus results, groundwater in close proximity of surface infrastructures related to the Target Operation mining activities can be impacted. Impact on groundwater quality can come from direct seepage from infrastructure into the underlying aquifers, or discharge of water from infrastructures to surface water, and subsequent impact on groundwater quality through surface water-groundwater interaction. As such the monitoring points were sorted into three categories:

- Potential sources;
- Surface water monitoring points; and
- Groundwater monitoring points.

4.6.6.1 Potential Sources

Sample results were available for the following potential sources:

- South-East RWD (D12);
- Blue RWD (E4);
- Freddies No. 9 Dam (ESW5);
- Target 1 Salvage Yard Evaporation Dam (ESWT2); and
- Target 1 Million Gallon Dam (TMGD1/ESWT1).

As the Target 1 Shaft area does not fall within the catchments related to the Jelani operations these were omitted from this assessment. Sources, surface water and groundwater sampling locations are shown in Figure 4-18.

Concerning pH, the monitoring data provided shows variability in results pre-2024 but relatively stable results from 2024 onwards. Since 2024 pH for all monitored sources have been within (or slightly below/above) the SANS limit range, with exception of the Blue RWD which shows acidic conditions (average pH of around 3). This may indicate efforts from the Target Operation to stabilise the effluent pH.

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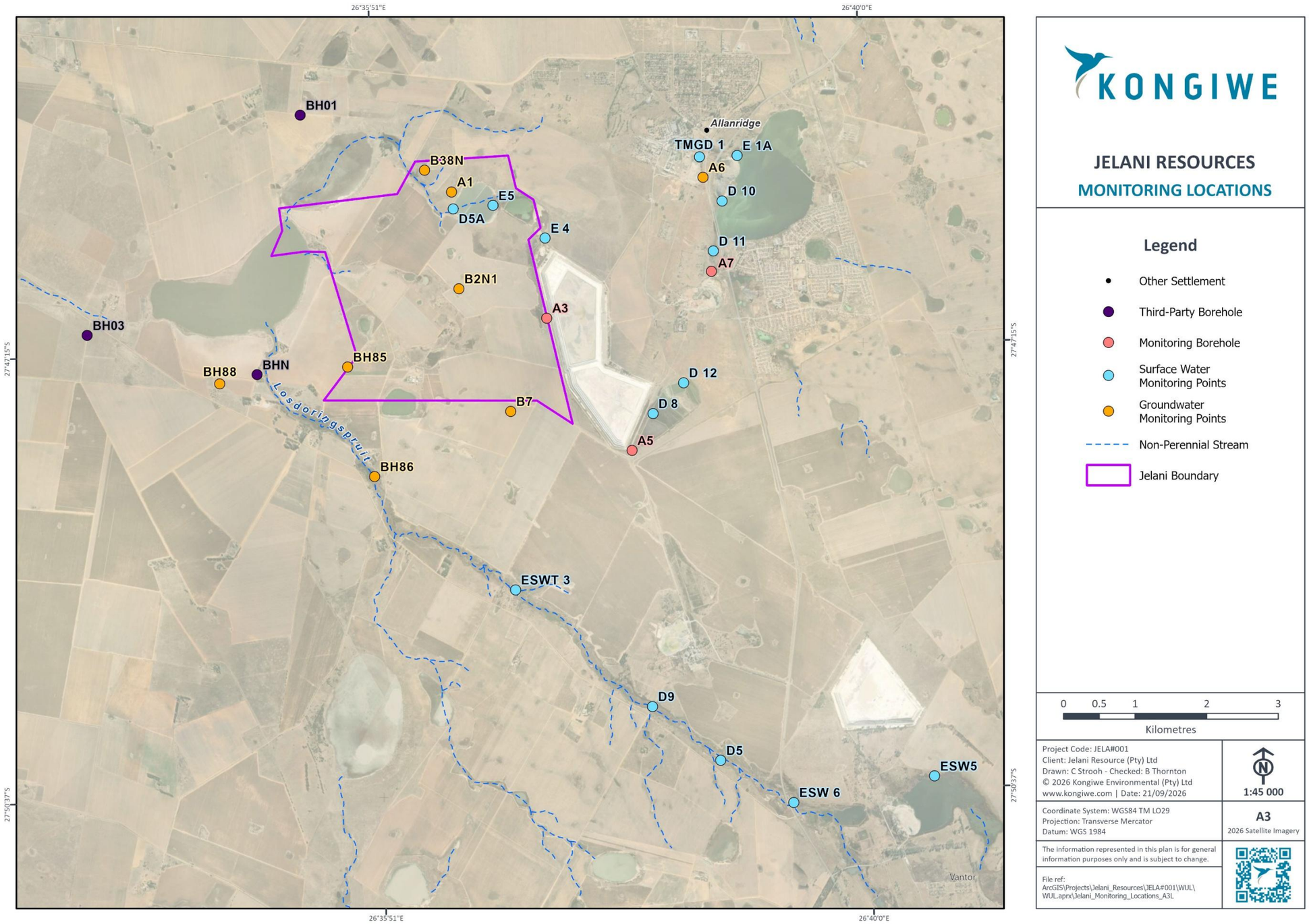

Figure 4-18: Monitoring Locations – Process Water, Surface Water and Groundwater

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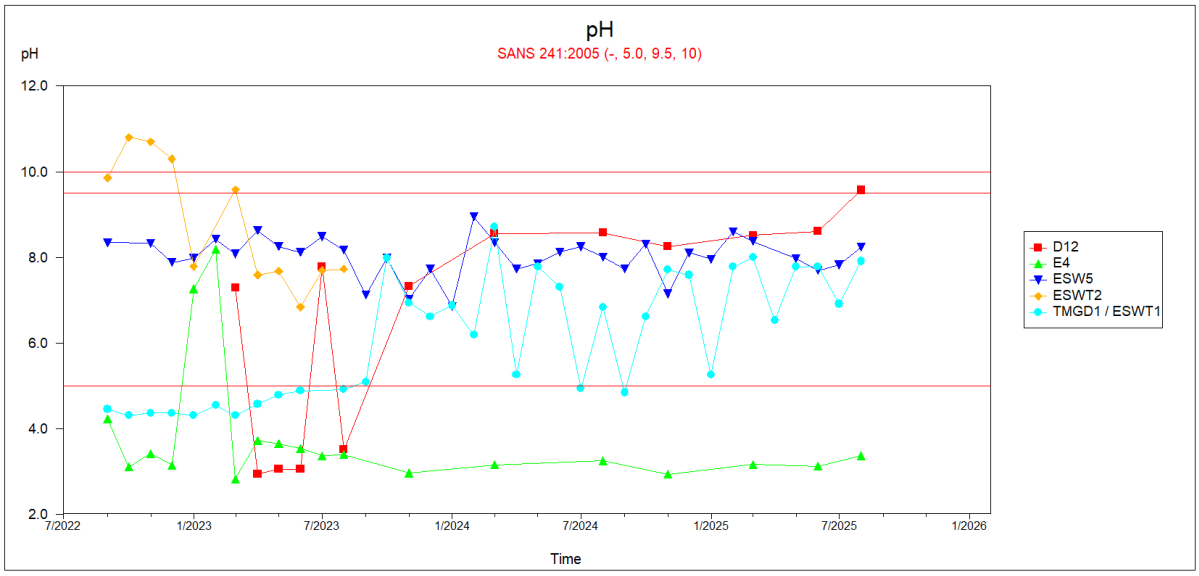

Figure 4-19: Sources – pH

When looking at the EC trends for sources, results for D12 and E4, both RWD related to the target TSF 1 and 2, look similar with average EC of around 900 mS/m. EC values for ESWT1 and ESWT5, downgradient of the Target 1 process water dam and the Freddies No. 9 dam respectively, show similar EC values of around 500 mS/m. ESWT2, downgradient of a process dam at Target 2 shaft, shows a similar average EC, but with higher variability compared to ESW5 and ESWT2. This shows that water in RWDs related to the Target 1 and 2 TSF show elevated EC values up to 1 000 mS/m, with water in process dams related to Target 1, 2 and Freddies No. 9 dam show much lower, but still elevated EC values.

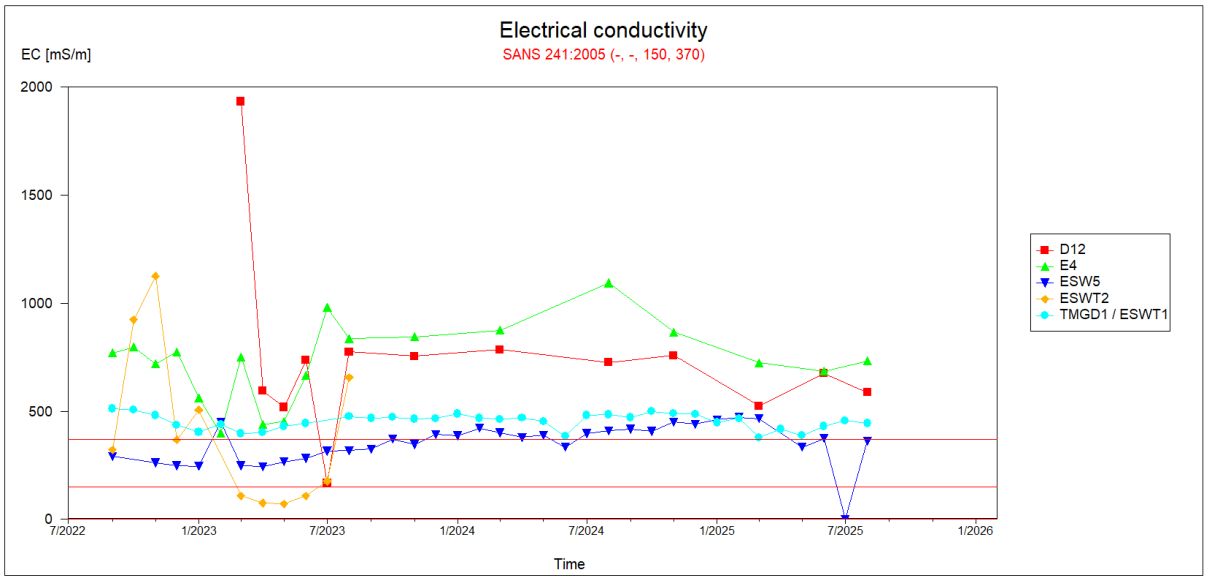

Figure 4-20: Sources – EC

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4.6.6.2 Target TSF and associated infrastructures

For water quality for surface and groundwater points downgradient of sources, the following sources and receptors were linked:

- E4 (Blue RWD) -> E5 (Emergency Overflow Dam) -> D5A (Swartpan) -> A1 (Swartpan outflow) -> B38N monitoring borehole;
- D12 (SE RWD) -> A5 monitoring borehole -> B7 third party borehole;
- Target TSF (no sample point) -> monitoring borehole A3 -> third party borehole B2N1

Regarding pH the following was observed:

- Blue RWD and downgradient:
  - Water in the RWD dam, emergency overflow dam and Swartpan mainly low pH values between approximately 2.5 and 4, indicating return water from the Target TSF exhibits a low pH;
  - In contrast, pH measured at the Swartpan outflow and in monitoring borehole B38N are relatively stable between approximately 7 and 9.

- SE RWD and downgradient:
  - The pH in the RWD and downgradient borehole D5 have mainly been within the SANS range, between 7 and 9, with pH at the RWD higher than at D5;
  - In 2023 low pH values were observed for both monitoring locations but these have since increased.

- Target TSF and downgradient:
  - Although no water quality was provided for the Target TSF itself, downgradient monitoring borehole A3 shows that pH is mostly within the SANS range, with only one value in 2025 slightly below the pH 5 limit;
  - Downgradient third-party borehole B2N1 shows a relatively pH around pH 8.

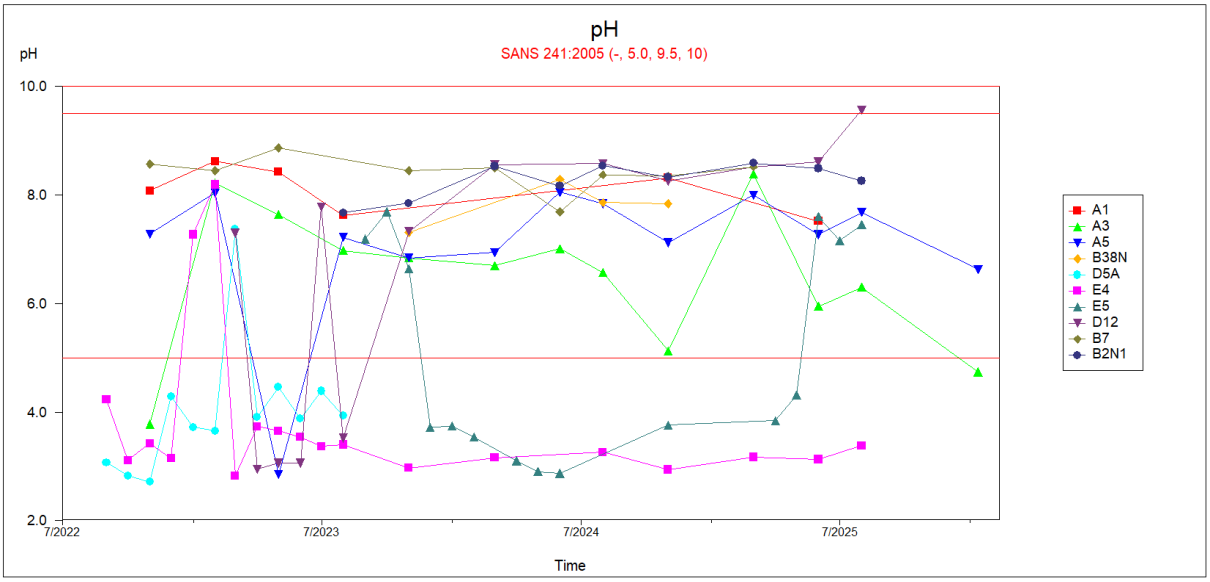

Figure 4-21: Target TSF and Associated Dams and Downgradient – pH

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Regarding the EC the following was observed:

- Blue RWD and downgradient:
  - EC values in the RWD dam and Swartpan are elevated between 1 000 and 1 700 mg/l;
  - EC values in the emergency overflow dam fluctuate between about 300 and 9 000 mS/m and may be related to the periodic usage of this dam. EC values at monitoring borehole A1 are significantly lower, up to about 2 000 mS/m;
  - EC values in the downgradient monitoring borehole B38N are significantly lower and just above the SANS limit of 370 mS/m.

- SE RWD and downgradient:
  - EC in the SE RWD (D12) is elevated but stable at around 750 mS/m with exception of one spike in 2023, with borehole D5 (immediately downgradient of the evaporation dam) showing lower EC values of between 1 00 and 500 mS/m with exception of one spike in 2022;
  - EC values in third-party borehole B2N1 are below the SANS limit.

- Target TSF and downgradient:
  - Although no water quality was provided for the Target TSF itself, downgradient monitoring borehole A3 shows the EC is around 600 mS/m, above the SANS limit of 370 mS/m;
  - Downgradient third-party borehole B7 shows EC values below the SANS limit.

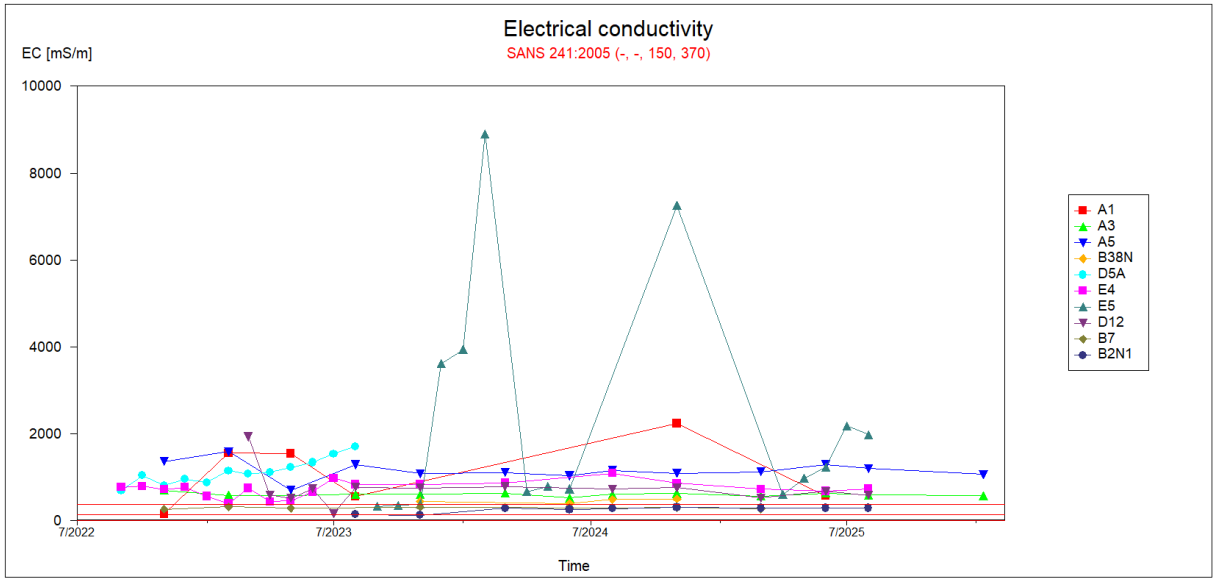

Figure 4-22: Target TSF and Associated Dams and Downgradient – EC

Regarding sulphate the following was observed:

- Blue RWD and downgradient:
  - Sulphate concentrations in the RWD dam and Swartpan are elevated at concentrations around 3 000 mg/l;
  - Concentrations in the emergency overflow dam strongly fluctuate between about 500 and 7 000 mg/l and may be related to the periodic usage of this dam;

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- Sulphate measured at monitoring borehole A1 just downgradient of the Swartpan shows a similar range for water in the Swartpan;
- Sulphate in downgradient monitoring borehole B38N is significantly lower and below the SANS limit of 400 mg/l.

- <u>SE RWD and downgradient:</u>
  - Sulphate in the SE RWD (D12) is elevated between approximately 1 000 and 2 000 mg/l, with borehole D5 (immediately downgradient of the evaporation dam) showing higher concentrations of between 2 000 and 3 500 mg/l. This higher concentration can likely be attributed to the evaporation dam;
  - Sulphate concentrations in third-party borehole B2N1 are below SANS limits.

- <u>Target TSF and downgradient:</u>
  - Although no water quality was provided for the Target TSF itself, downgradient monitoring borehole A3 shows elevated sulphate concentrations in line with these observed at the SE RWD;
  - Downgradient third-party borehole B7 shows sulphate concentrations below SANS limits.

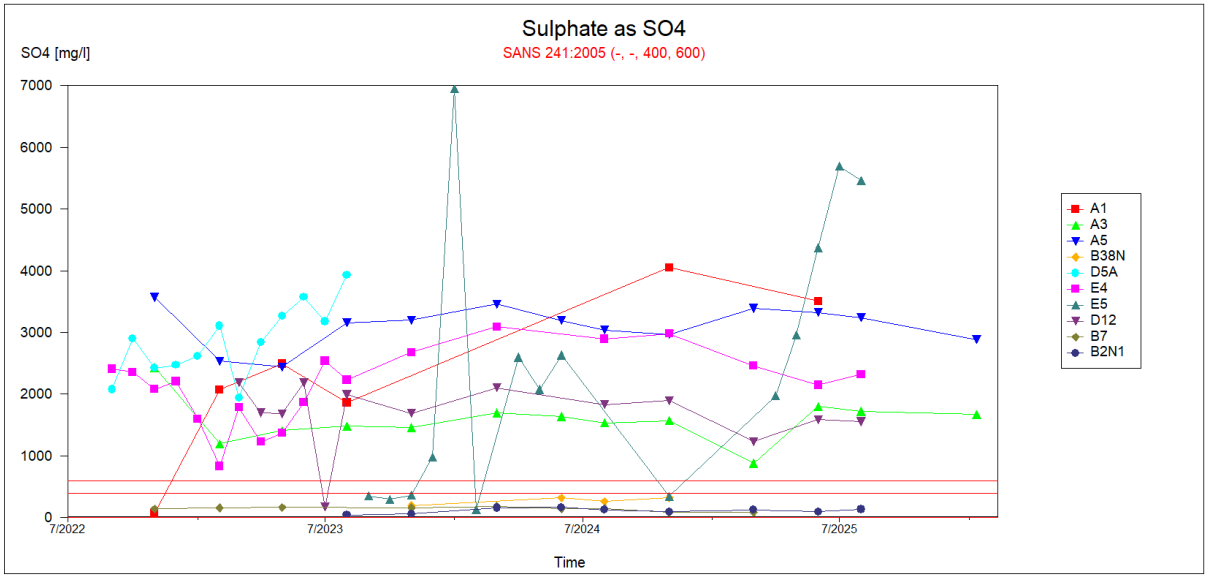

Figure 4-23: Target TSF and Associated Dams and Downgradient – SO_4

From the above, the main sources are the Target TSF and related process dams. This is shown by elevated EC and sulphate concentrations, which seem more elevated for the process water facilities north of the Target TSF when compared to the process water facilities to the south of the Target TSF. In addition, acidic conditions are mainly related to the northern process water dams – this may indicate that return water from Target TSF1 may be more acidic than from Target TSF2.

4.6.6.2.1 Freddies No.9 dam, Target Shaft 3 and the Doringspruit

For the Doringspruit and related sources, the following the following sources and receptors were linked:

- ESW5 (Freddies No. 9 dam) -> ESW6 (Losdoringspruit) -> D5 (Losdoringspruit) -> D9 (Losdoringspruit) -> ESWT3 (Losdoringspruit, downgradient of Target Shaft 3) -> Monitoring borehole BH86.

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Regarding pH the following was observed:

- The pH for all monitoring points is within SANS range and relatively stable between approximately 7 and 9.

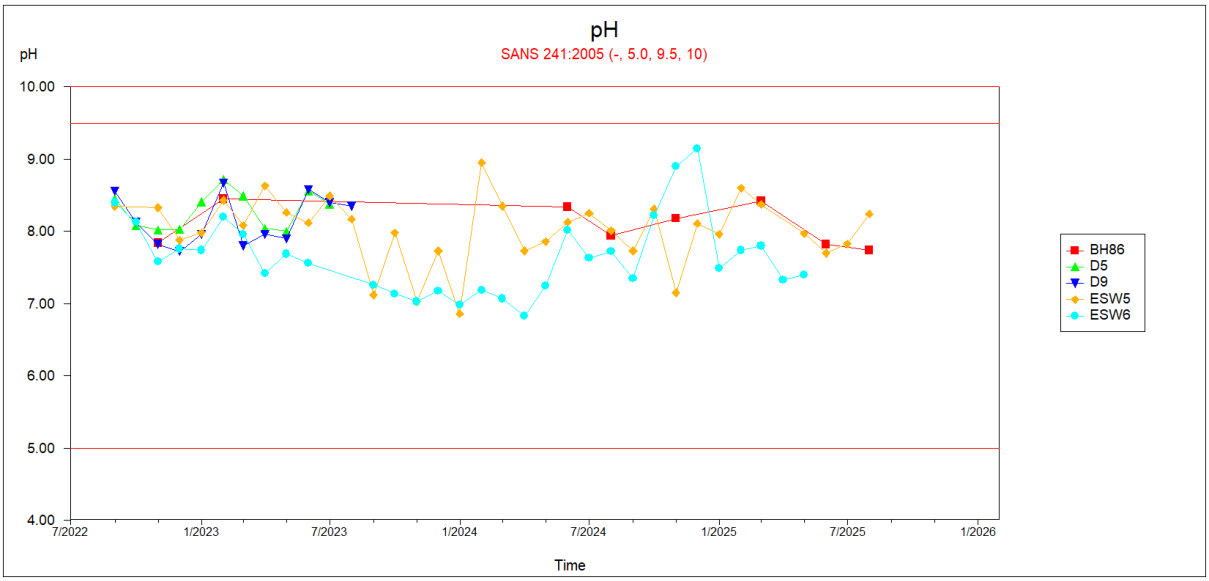

Figure 4-24: Source Freddies Dam and Downgradient Losdoringspruit – pH

Regarding EC the following was observed:

- The EC for Freddies No. 9 dam shows a gradually increasing trend over the period 2022 – 2025, with EC values just exceeding the SANS limit of 350 mS/m. However, values later in 2025 show values just at or below the limit;
- ESWT3, the most downgradient monitoring point on the Doringspruit, shows clear variability in concentrations, with three-to-six-month intervals between peaks. A similarity in fluctuations, although less pronounced, can be seen for ESW6 further upstream and ESW5 (Freddies No. 9 dam); this could possibly indicate dilution effects immediately downgradient of Freddies No. 9 dam, and possible discharge of waters from the Target Shaft 3 area;
- For all other monitoring points EC values are mainly below the SANS limit with some notable spikes, mainly for D5 and ESW6. In 2023 the EC also spiked and exceeded the SANS limit for borehole BH86, but this has not occurred since.

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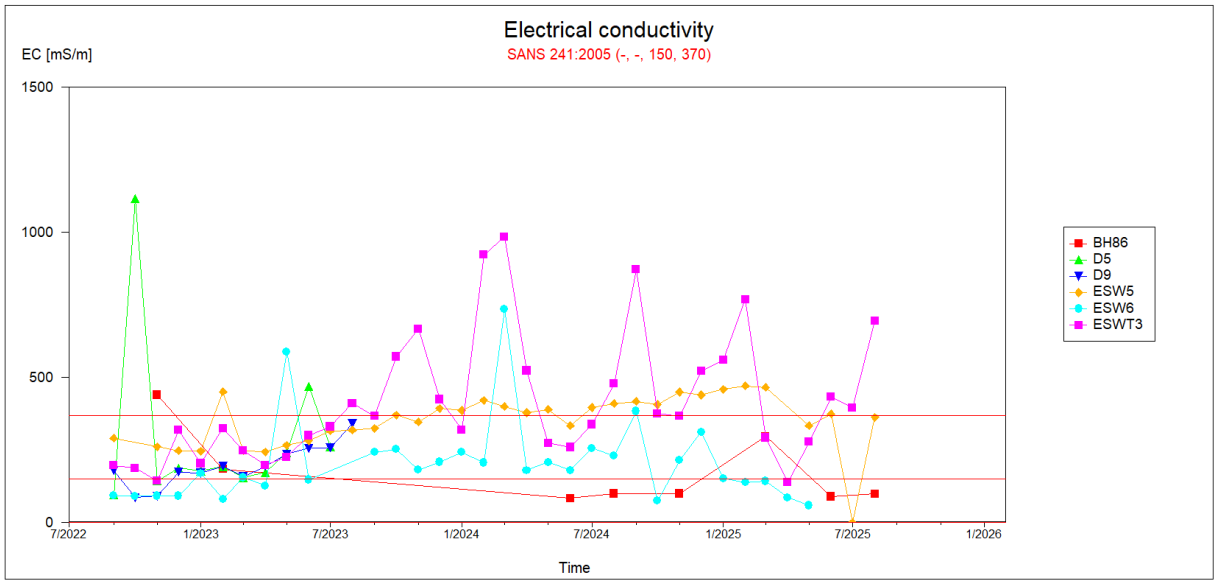

Figure 4-25: Source Freddies Dam and Downgradient Losdoringspruit – EC

Regarding SO4 the following was observed:

- The sulphate concentrations for water in the Freddies No. 9 dam shows a gradually increasing trend over the period 2022 – 2025, with sulphate below or slightly above the SANS limit of 600 mg/l.
- ESWT3 shows peaks in sulphate concentrations with three-to-six-month intervals between peaks, similar as for EC. A similarity in fluctuations can be seen for ESW6 and ESW5; this could possibly indicate dilution effects immediately downgradient of Freddies No. 9 dam, and possible discharge of waters from the Target Shaft 3 area;
- For all other monitoring points sulphate concentrations are mainly below the SANS limit with some notable spikes, mainly for D5 and ESW6. Sulphate concentrations for borehole BH86 have remained below the SANS limit.

Concerning the water quality in the Doringspruit and downgradient groundwater, the following can be concluded:

- Water in Freddies No. 9 Dam shows a slightly increasing trend but generally remains below the SANS limit;
- Water in the Doringspruit downgradient of the Target 3 Shaft area indicates there may be discharges of water from this site, which could explain the peaks in sulphate concentrations;
- Groundwater in close proximity to the spruit does not indicate any impacts- this is shown in BH86 as well as BHN, sampled as part of the hydrocensus.

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4.6.6.3 Overall Conclusions Current Groundwater Quality

The following conclusions can be drawn regarding groundwater quality in the study area:

- The main source of contamination is the Target TSF 1 and 2 and associated process water dams. Other secondary sources are the Target 3 Shaft area and the Freddies No. 9 TSF and dam;
- Sulphate is the main parameter of concern and can be used as an indicator parameter for contamination;
- Highest sulphate concentrations and acidity were observed for the process dams to the north of the TSF; sulphate concentrations for process dams south of the Target TSF were elevated, but lower when compared to the infrastructure north of the TSF;
- Surface waters, such as the Doringspruit and the Swartpan, are impacted by existing mine infrastructure;
- Groundwater immediately downgradient of infrastructure is impacted by seepage from TSFs and unlined process water dams. However, third-party and monitoring boreholes further downgradient of infrastructures do not show elevated sulphate concentrations, and as such there is no evidence of widespread groundwater contamination;
- Uranium was included in this assessment due to elevated concentrations reported in mine process water and some downstream surface water features, indicating that uranium is present within the site water management system. Although uranium is not currently included in the Target Operation monitoring programme uranium was analysed in hydrocensus boreholes. Uranium was not detected in any of the hydrocensus samples and there is therefore no evidence at present to indicate an impact on groundwater quality; and
- However, to confirm this it is recommended that uranium be included as a routine parameter in the groundwater monitoring programme of the Target Operation monitoring boreholes.

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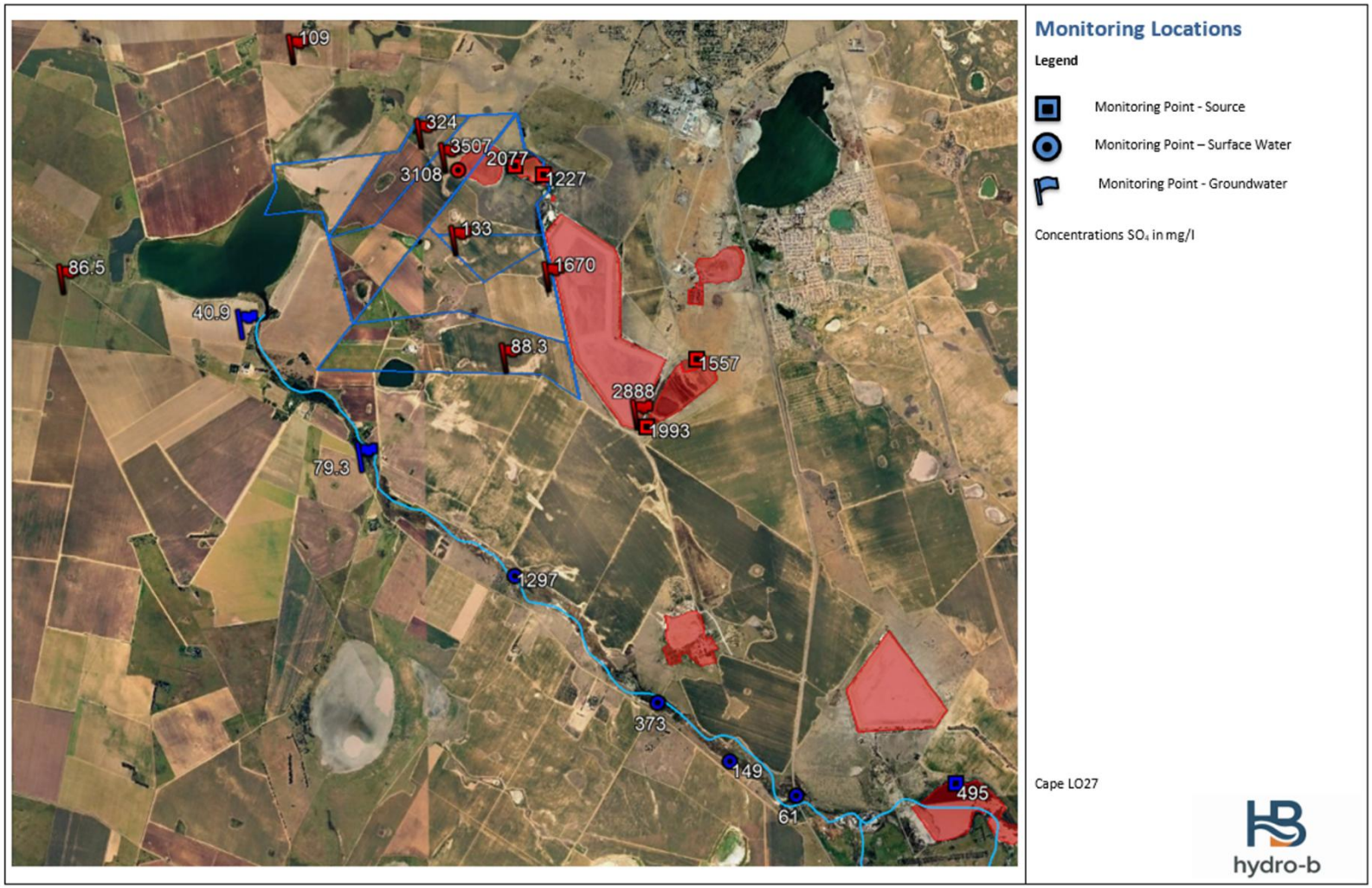

Figure 4-26 Target TSF and Dams and Doringspruit- SO_4 Concentrations (Hydro-b, 2026)

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4.6.7 High-Level Qualitative Impact Assessment

4.6.7.1 Groundwater Abstraction

The anticipated groundwater inflows for the proposed Jelani underground mining are expected to be in line with the volumes currently managed at the Target Operation. Previous hydrogeological investigations indicate that the Target Operation presently pumps approximately 5–6 Ml/day of groundwater to surface, with average pumping rates of 5.96 ML/day recorded during October and November 2015 and long-term pumping from Target No. 1 Shaft averaging approximately 4.7 Ml/day. The estimated total groundwater inflow for the Jelani operation is expected to be approximately 5.4 Ml/day, comprising an estimated 3.4 Ml/day groundwater make and approximately 2 Ml/day of inter-mine flow from Freddies No. 9 Shaft (Groundwater Square, 2016).

The Jelani Mine will utilise the existing Target No. 2 and No. 3 shafts and will primarily extend within an already dewatered and operational underground mining environment to only approximately 170 m below the current Target No. 2 Mine workings. Therefore, while groundwater inflows may locally increase where previously not dewatered geological structures are intersected, no substantial increase in regional groundwater abstraction is expected compared to the current active mining operations, and projected pumping requirements for the Proposed Project are considered to be consistent with that for the Target Operation As this volume will be abstracted from the deep Witwatersrand aquifer, this abstraction is not expected to have a significant impact on the groundwater resource in the shallow aquifer, the impact of the estimated abstraction is expected to be negligible.

4.6.7.2 Groundwater Drawdown

Farms in close proximity of the proposed and existing mining operations are underlain by the shallow Karoo aquifer, which is the main source of groundwater for individual landowner borehole sources. Evidence from previous hydrogeological reports indicates that the shallow Karoo aquifer is not hydraulically connected to the deep Witwatersrand mine workings. This has been shown by groundwater level data for shallow boreholes in the entire Harmony mining area which vary between 0 and 33 mbgl, show an average depth to groundwater of 5.3 mbgl and are mostly between 0-4 mbgl. For the Study Area specifically, static groundwater levels measured in hydrocensus boreholes in December 2025 were observed to be between 0.6 and 5.3 mbgl. Where boreholes were pumped while visiting, dynamic groundwater levels of 12.5 and 44.9 mbgl were observed, indicating drawdown effects due to active abstraction.

This shows natural groundwater levels in the shallow Karoo aquifer are close to surface with no indication of impacts by ongoing mining activities, and as such no regional radius of influence or drawdown effects are currently present in the shallow Karoo aquifer despite decades of mining at the Target 2 and 3 operations. Currently no evidence exists that mining has reduced regional shallow groundwater availability or has had a significant impact on shallow groundwater levels.

The existing mining has been ongoing for decades and has not led to widespread significant dewatering of the shallow aquifer, which is the main source of water for surrounding farms or other third-party groundwater users.

The relatively small addition of the proposed Jelani mining activities within the already impacted Target Operation mining area is not expected to result in significant additional groundwater impacts beyond those already associated with the long-established mining complexes.

4.6.7.3 Groundwater Recovery and Decant Potential

MvB Consulting, (2026) concluded that the Karoo aquifer is a perched aquifer with shallow groundwater levels and limited interaction with the underlying confined Witwatersrand aquifer. Piezometeric levels in the

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Witwatersrand basin show significantly reduced levels due to the ongoing mining. Based on available information, water levels in the Witwatersrand aquifer are not expected to fully recover and to remain about 400 – 500 m below the Karoo aquifer. Therefore, decant of poor quality mine water into the Karoo aquifer or onto surface through the shafts is not expected to occur.

4.6.7.4 Contaminant Plume Migration

A detailed hydrogeological model that includes groundwater pathways and contaminant plume migration for the area including Zuurbron farm and neighbouring farms was completed (AquiSim Consulting, 2025). In this study, the main sources of contamination in terms of size and contamination were determined to be the Target No. 1 and 2 TSF, the Target 2 TSF Evaporation Dam and the Swartpan. The study used sulphate as a conservative tracer and indicator parameter for illustration of the release and dispersion of contaminants in groundwater. The Proposed Project will utilise the existing surface infrastructure with no additional or new infrastructure proposed, and therefore no changes in sources are expected. Figure 4-27 and Figure 4-28 show that:

- The regional groundwater flow direction is in a general westerly flow direction;
- The current extent of the sulphate plume is in line with the analysis based on the available groundwater quality data, with the existing contaminant plume indicating only limited migration from current WRDs and TSFs;
- No major new pollution source infrastructure is proposed for Jelani. Jelani will use existing mining infrastructure.

Based on this the proposed Jelani operation is not expected to materially increase seepage source areas. Forward plume migration will be carried out on this assumption to predict plume migration for the operational phase to the end of Life of Mine (LoM) and for the post-closure phase.

In term of potential contamination from underground mine voids to surface, the following is concluded:

- Previous studies showed evidence of negligible hydraulic connectivity between the shallow and deep aquifer systems, with the shallow aquifer being described as a perched aquifer;
- Therefore, the risk of cross-aquifer contamination is expected to be negligible due to the low connectivity between shallow and deep aquifers;
- In addition, post-closure groundwater levels in the deep Witwatersrand aquifer are expected to remain 100 meters below the Karoo aquifer and surface, and potential migration of deep mine water into the shallow aquifer through potential faults or other geological structures is unlikely.

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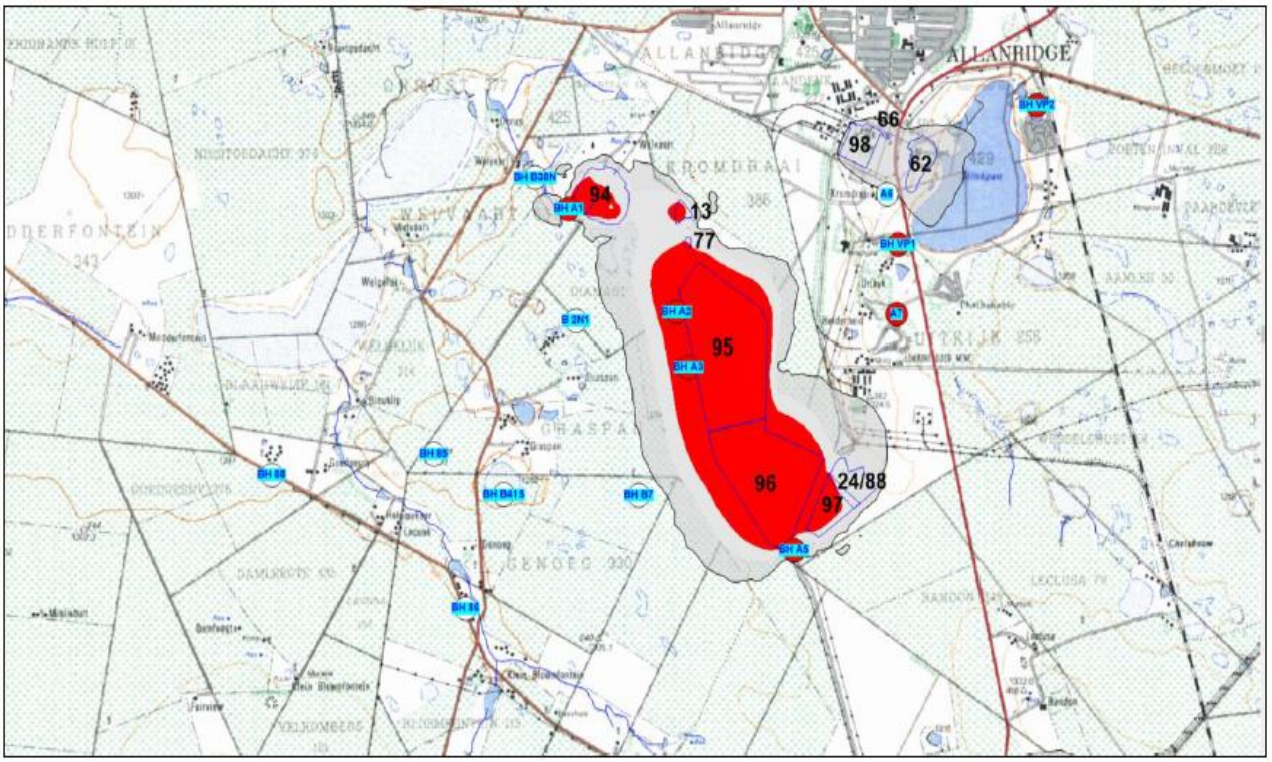

Figure 4-27: Simulated Contaminant Migration from Existing Mine Infrastructure (AquiSim Consulting, 2025).

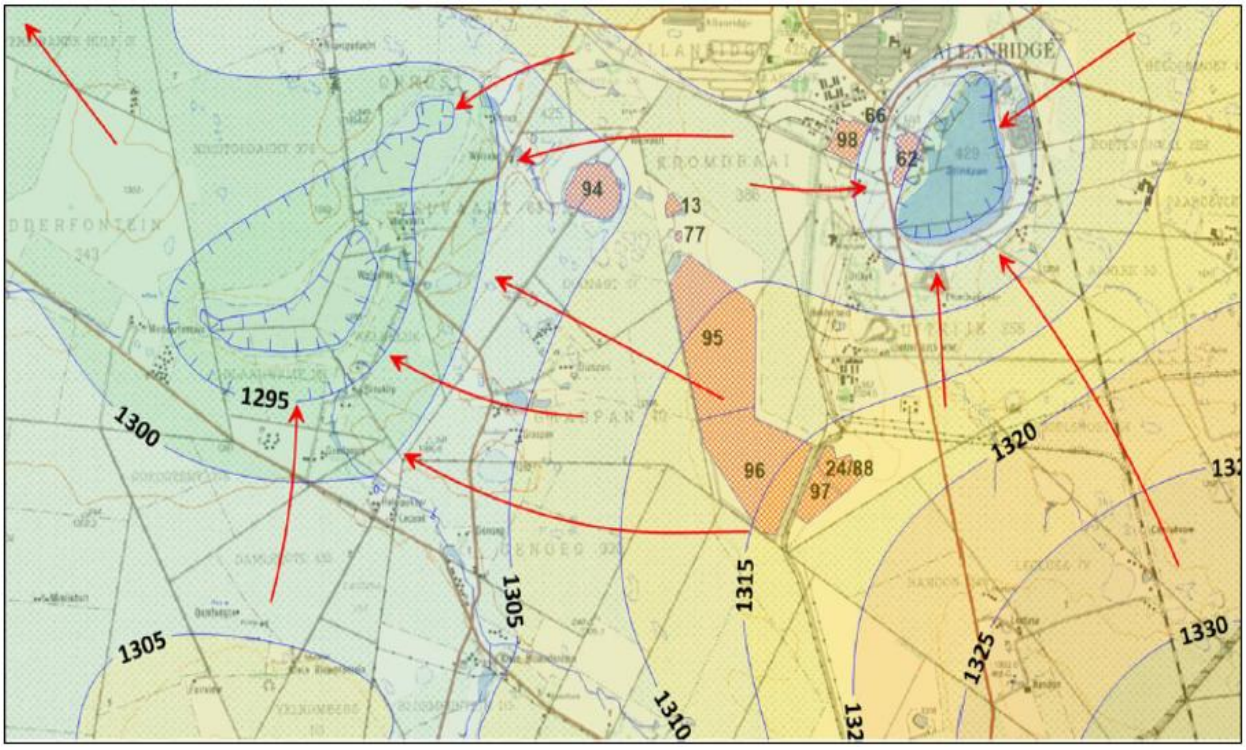

Figure 4-28. Simulated Groundwater Contours (Karoo Aquifer) Indicating Main groundwater Flow Directions (AquiSim Consulting, 2025).

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4.7 Socio-Economic Impact Assessment

The statistics below are derived from Statistics South Africa (StatsSA) in relation to their 2011 Census and 2022 Census.

The population of the MLM makes up approximately 65% of the Lejweleputswa District Municipality (LDM) population. The average annual population growth rate (between the 2011 and 2022) for the MLM was 0.39%, compared to a just 0.18 % at the Provincial level. The population of MLM in 2022 was 439,034, comprising 126,068 households. The proportion of youth (aged 19 years or less) among the MLM population in 2022 was 35%, compared to 33% in 2011. The most populated region in the MLM is Welkom followed by Odendaalsrus and then Virginia.

The extent of informal dwellings among households in the MLM was 20% in 2022, compared to 10% at the Provincial level.

Gender ratio is the proportional relationship between the number of males and females in a population. A ratio greater than 1.0 indicates that the population has more males than females. MLM had a gender ration of 0.92, indicating a greater proportion of females to males.

At the MLM and Provincial levels, Black Africans constituted about 88% of their respective populations in 2011. In 2022, the proportion of the population of Black Africans in the MLM increased to 89%. The proportion of the White population decreased from 10% in 2011 to 9% in 2022.

Approximately 62% of the MLM population spoke Sesotho in 2011, which has since increased to 70% in 2022.

The proportion of the MLM population (aged 20 years and above) with a Matric qualification or higher was 29% in 2022, compared to 20% in 2011.

There has been a general downward trend in the level of access to services in the MLM and the Free State in general. The proportion of households with access to:

- Tap water declined from 95% in 2011 and 88% in 2022;
- Refuse disposal services declined from 87% in 2011 to 56% in 2022; and
- Flush or chemical toilets declined from 82% in 2011 to 80% in 2022.

Although being the largest contributor to the MLM's Gross Value Added (GVA), the mining sector's contribution to total GVA decreased from 36% in 2010 to 30% in 2020. The manufacturing sector contributed 17% of the MLM's GVA in 2020. The finance and trade sectors were also major contributors to the MLM's GVA (13 and 11% respectively). The agricultural sector only contributed 2% of the MLM's GVA in 2020 (Quantec, 2022)

The most critical social issue is the high level of unemployment, a direct result of the closure of the gold mining industry. An estimated 150,000 adults aged between 15 and 64 in the MLM were unemployed in 2021. In 2020, the unemployment rate (i.e., the proportion of the labour force that is unemployed) in the MLM was 27.2%, which was slightly higher than that at the Provincial level of 26.7% (Quantec, 2022). In 2021, approximately 60 per cent of the population lived below the upper-bound poverty line. In 2022, the average monthly household income in the MLM was just R 6725, which was marginally higher compared to that at the Provincial level of R 6441. The mining sector in the area has undergone extensive restructuring, and retrenchment of staff is ongoing.

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The Proposed Project would contribute to the local economy through its employee wages, procurement of local contractors and services, purchasing of water and electricity and by paying taxes to MLM. To achieve the goal of sustainable economic development and job creation through the mining industry, government needs to ensure the development of basic skills; and ensure that service delivery and necessary infrastructure are not compromised or overlooked during the operation of the mine.

5. ANALYSIS AND CHARACTERISATION OF ACTIVITY

5.1 Site Delineation for Characterisation

The Proposed Project area is situated immediately adjacent to and west of the Harmony Gold Target Operation, approximately 11km northwest of Odendaalsrus, 2,5km west of Allanridge, and 22km east of Wesselsbron, in the Free State Province of South Africa. It lies within Ward 36 of the MLM, under the jurisdiction of the LDM. The total surface area assessed for the Proposed Project is 956,76 hectares (ha). A total area required for mining is 80,64 km^2 (8064 ha).

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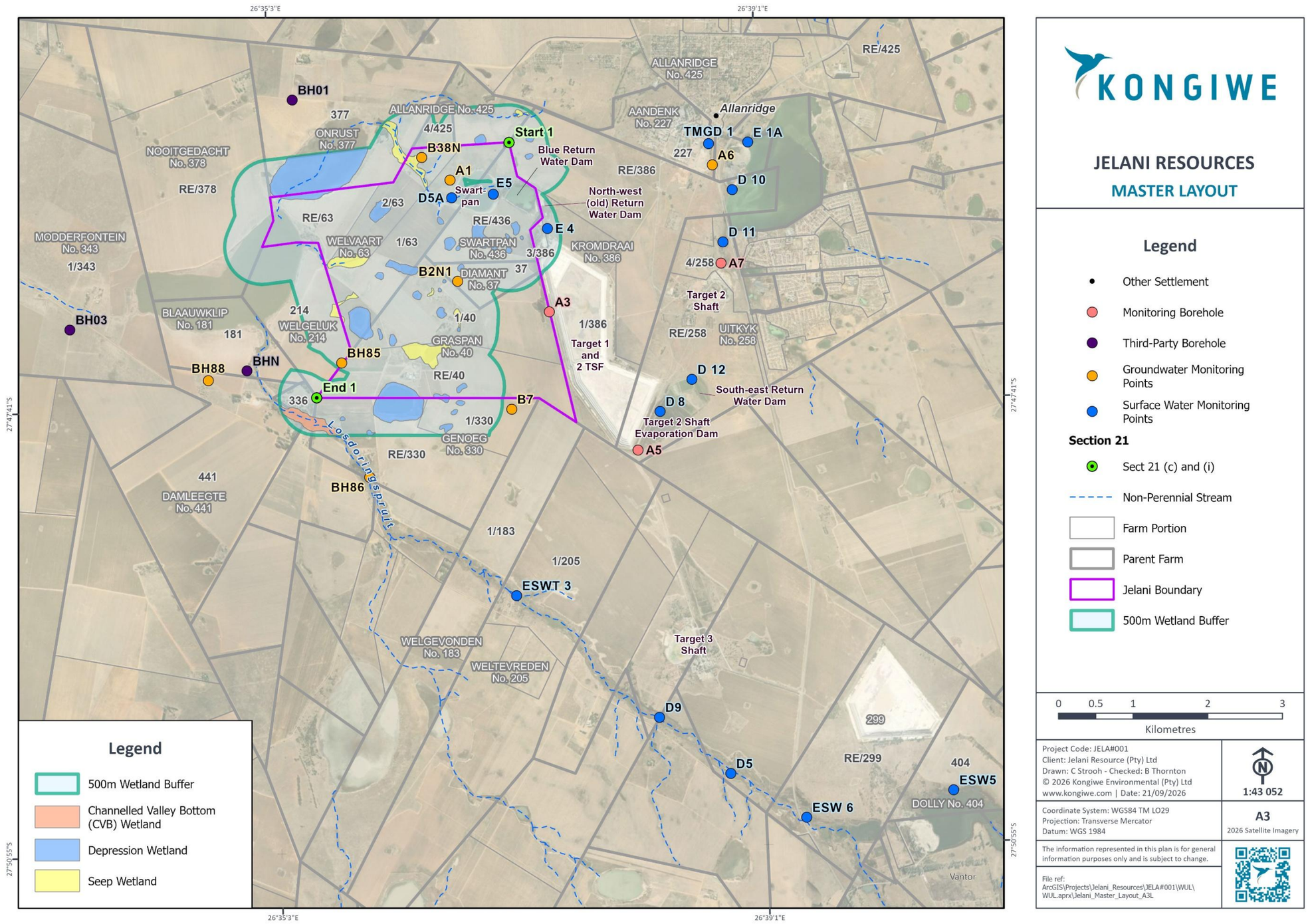

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JELANI RESOURCES
MASTER LAYOUT

Legend

- Other Settlement
- Monitoring Borehole
- Third-Party Borehole
- Groundwater Monitoring Points
- Surface Water Monitoring Points

Section 21

- Sect 21 (c) and (i)
- Non-Perennial Stream
- Farm Portion
- Parent Farm
- Jelani Boundary
- 500m Wetland Buffer

0 0.5 1 2 3
Kilometres

Project Code: JELA#001
Client: Jelani Resource (Pty) Ltd
Drawn: C Strooh - Checked: B Thornton
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www.kongiwe.com | Date: 21/09/2026

1:43 052

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

A3
2026 Satellite Imagery

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

File ref:
ArcGIS\Projects\Jelani_Resources\JELA#001\WUL\WUL.aprx\Jelani_Master_Layout_A3L

Figure 5-1: Jelani Master Layout

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5.2 Water and Waste Management

An overview of the water and waste streams and management systems of the Proposed Project is provided in this Section. Potential impacts of the Proposed Project are also discussed. Management actions regarding water and waste are detailed in Section 6.

5.3 Potable and Process Water

As stated in Section 2.6.2, all infrastructure associated with the Proposed Project will be located within the existing Harmony Target Operation MR area. Potable water will be supplied by the Target Operation, which receives water from Vaal Central Water for both domestic consumption and metallurgical processing requirements.

The total water required in the production of gold includes:

- Potable water to be used per ton of material hoisted; and
- Total water to be used for processing in metallurgical plants.

Water used in the metallurgical plants will comprise both dewatered groundwater from underground workings and potable water. Potable water, supplied by Vaal Central Water, will be used at the shafts for material hoisting operations. In addition, potable water will be used for domestic purposes, including drinking, sanitation, ablution facilities, and general employee welfare requirements.

5.4 Conceptual Stormwater Management Plan

5.4.1 Design Philosophy

The following design philosophy was adopted to guide the development of the Jelani Conceptual Stormwater Management Plan (SWMP), and is based on GN 704 regulations and the DWS 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 and contained and should as far as possible be recycled and reused.
- Clean and dirty water systems must be designed and constructed to prevent cross contamination.
- Clean and dirty water systems must convey or contain runoff from the 1:50 year storm event.
- Appropriate maintenance and management of stormwater related infrastructure should always be ensured.

5.4.2 Surface Water Runoff

5.4.2.1 Jelani Project Area

The Proposed Project area has four catchment areas impacting on the surface water hydrology (See Figure 5-2):

- The Swartpan Catchment Area – the biggest catchment area of size approximately 8.3 km^2 including the area to the east of the Target 1 TSF. There is overland flow to the Swartpan, and a natural watercourse below Swartpan to Pan A.
- Pan B Catchment Area – area of size approximately 1.5 km^2. There is no defined watercourse, just overland flow into the Pan.
- Pan C Catchment Area – area of size approximately 2.5 km^2. There is no defined watercourse, just overland flow into the Pan.
- Balance of Proposed Project Area – flows in a westerly direction into Pan A or the Losdoringspruit.

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5.4.2.2 Topography of Area

Figure 5-3 shows that the Proposed Project area has elevated terrain to the east of the Proposed Project site, immediately west of the R30. Surface runoff from this high-lying area drains in a westerly direction until it encounters the Target 1 and Target 2 TSFs, which act as barriers to flow. As a result, the runoff is diverted northwards, concentrating drainage in the North-west Return Water Dam (RWD) area.

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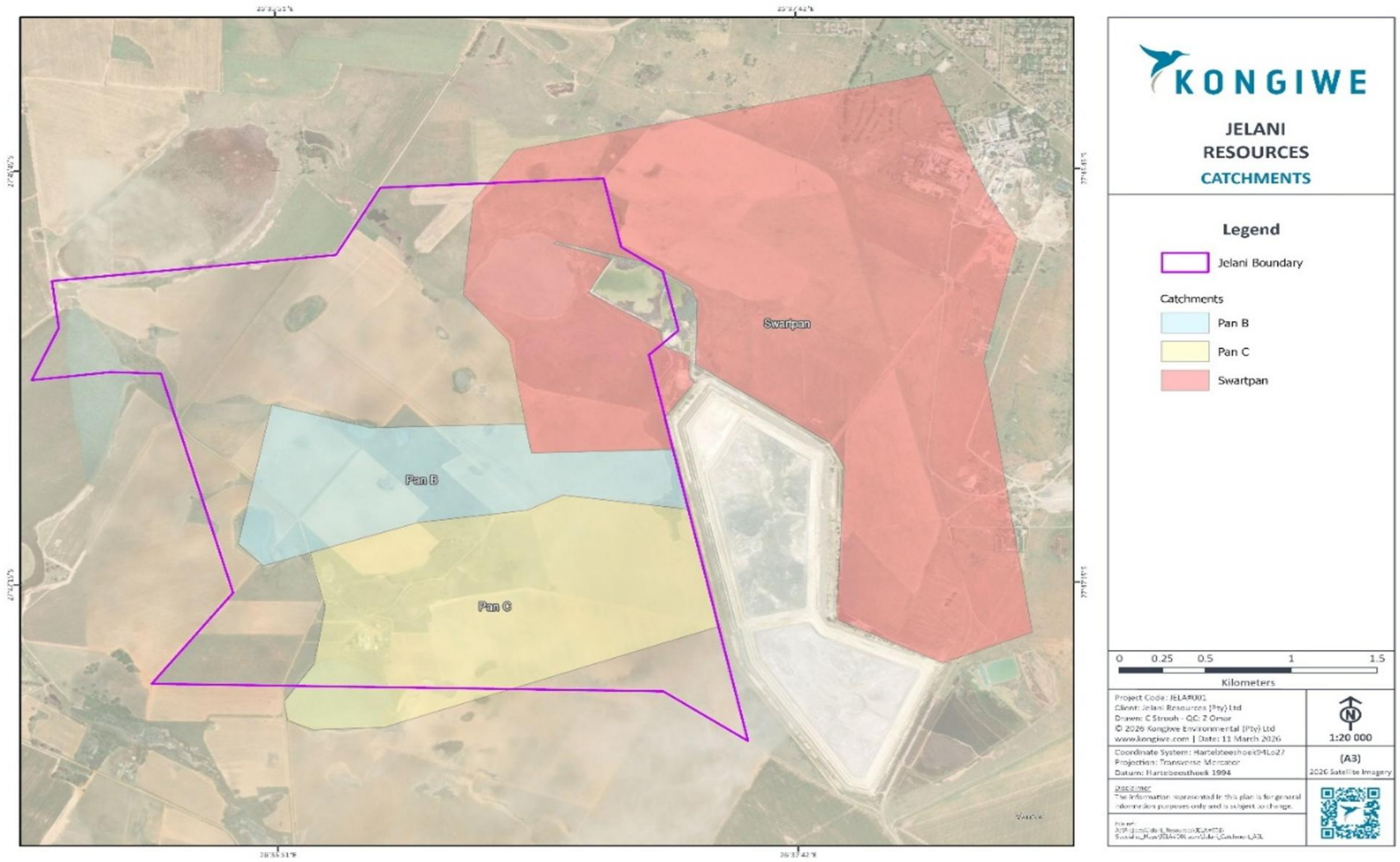

Figure 5-2: Catchment Areas Affecting the Jelani Project

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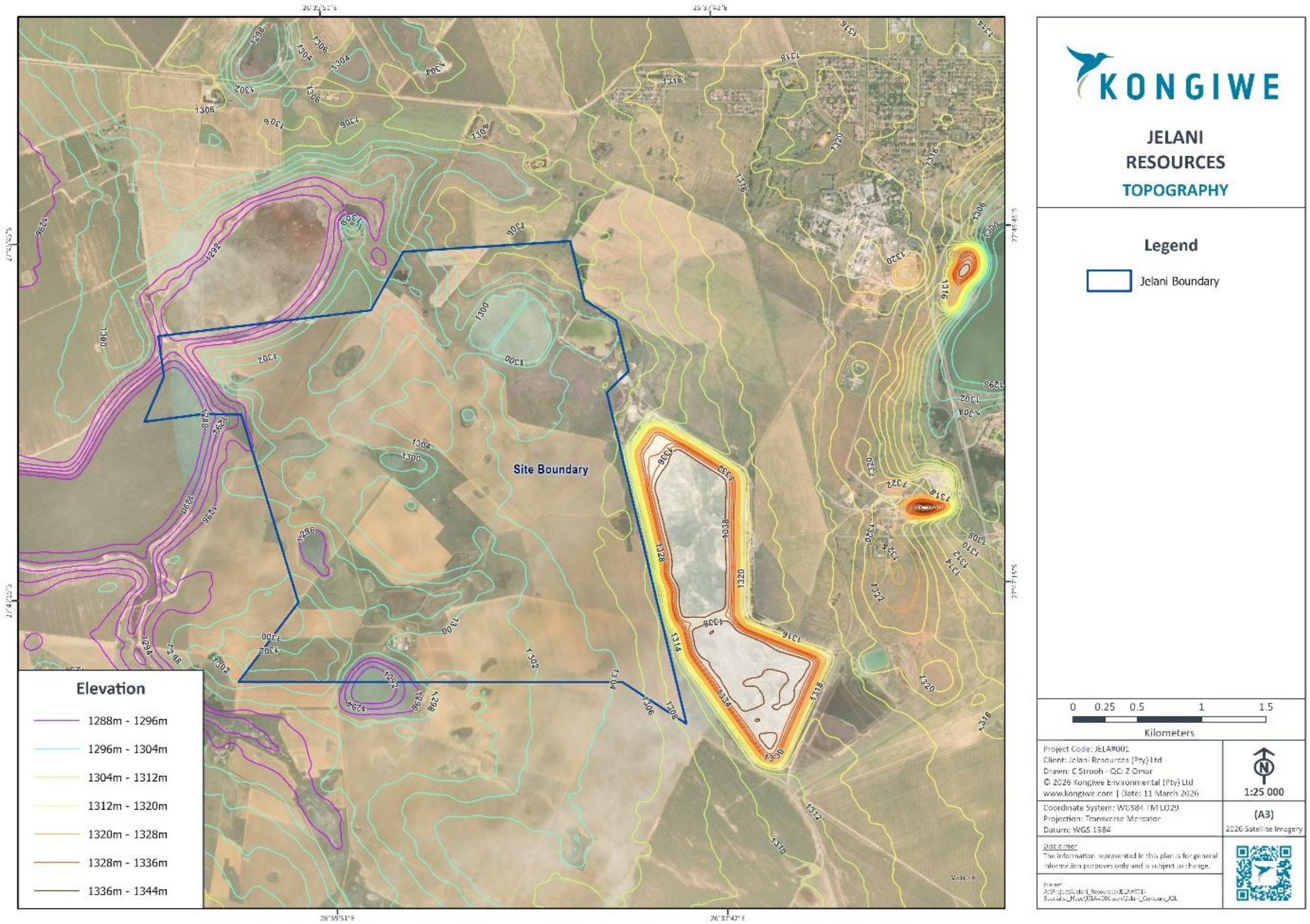

Figure 5-3: Contour Map of Area

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5.4.2.3 Catchment Areas

Swartpan Catchment Area

An open bypass channel has been constructed around the North-west (Old) RWD, the Blue RWD and the Emergency Overflow Ponds, ultimately discharging into Swartpan (See

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Figure 5-4). The purpose of the channel is assumed to be to bypass the “clean” stormwater runoff around the “dirty” mine infrastructure. This open channel is currently completely overgrown (See Figure 5-5).

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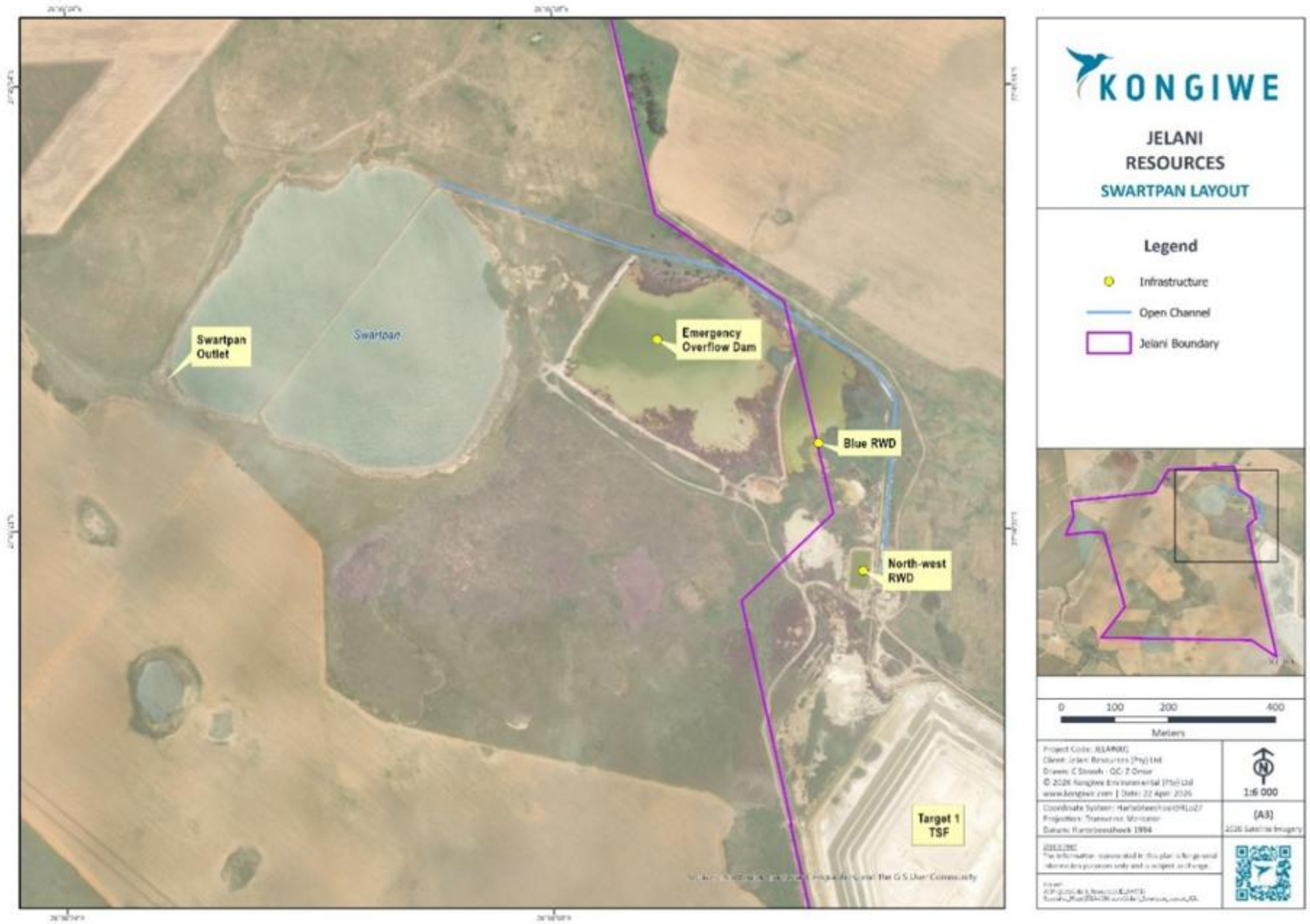

Figure 5-4: Swartpan Area Layout Map

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Figure 5-5: Open Trench to Swartpan, Completely Overgrown

There is an area between the start of the open bypass channel and the end of the earth berm around Target 1 TSF where the stormwater runoff collects in the solution trenches and ends up in the North-west RWD, Blue RWD and the Emergency Overflow Dam (See

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Figure 5-6).

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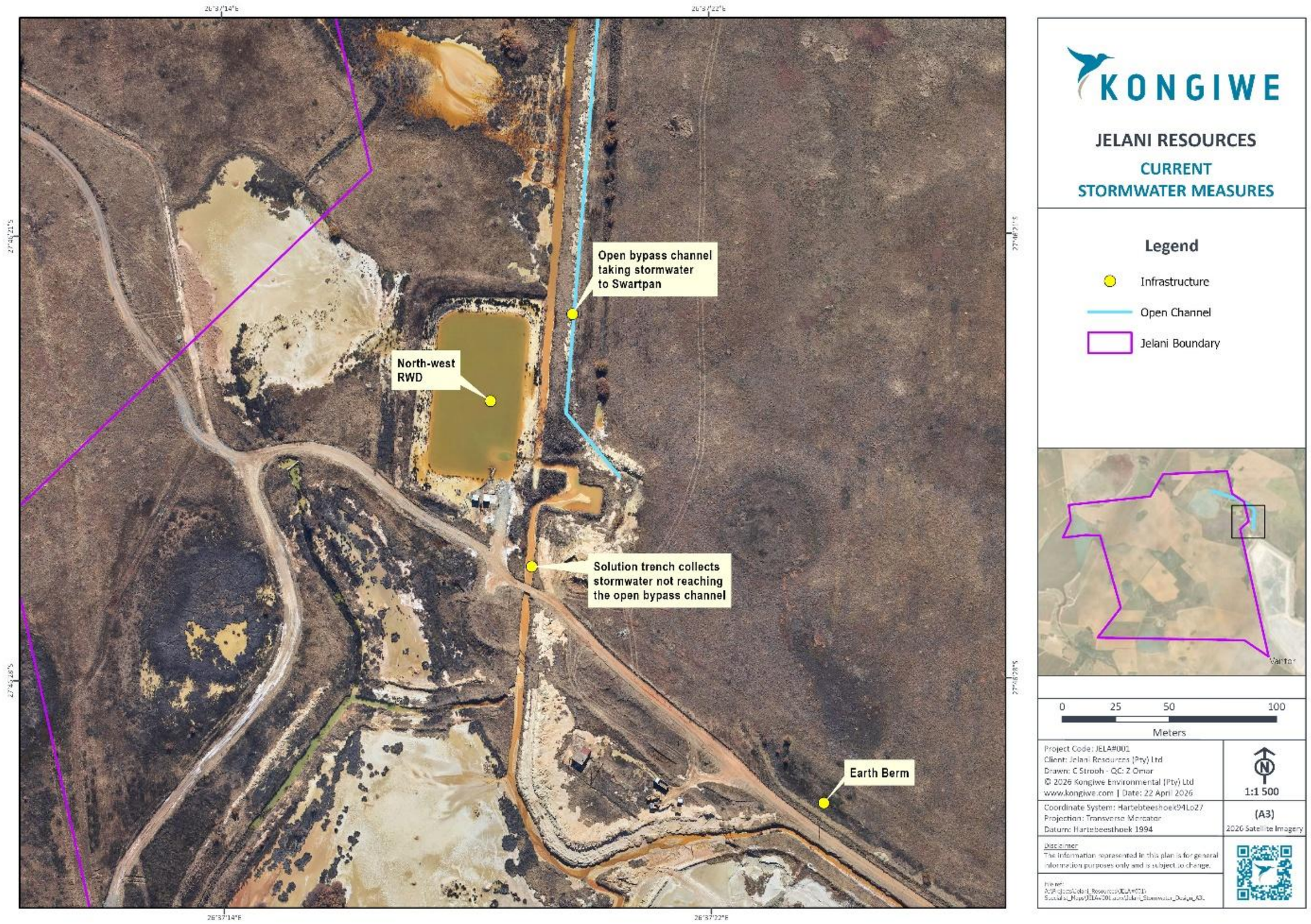

Figure 5-6: Area where Stormwater is Collected in the Solution Trenches

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Swartpan appears to have a wall constructed across it to separate clean and dirty water, however at the site inspection in January 2026 this wall was not visible as the pan was full. Swartpan has no formal outlet structure and drains from its south-west corner down a natural channel which ends up in Pan A. The natural channel is crossed by a farm road however there are no formal stormwater structures under this road to allow any flow to pass. The Losdoringspruit also flows into Pan A, which in turn overflows into the Gelukspan (See Figure 5-7).

Pan B Catchment Area

There is no formal outlet structure from Pan B. When full, the Pan will overflow into the surrounding lands, and ultimately into the Losdoringspruit.

Pan C Catchment Area

There is a formal open trench outlet channel from Pan C, fed by a 600 mm diameter pipe from Pan C under the Farm Road (See Figure 5-7). The outlet channel takes the overflow down to the Losdoringspruit.

5.4.3 Wetland hydrology

The wetland and pan systems within the study area are sustained primarily by direct rainfall, surface-water runoff from their respective upstream catchments and, where applicable, shallow subsurface or groundwater contributions. The existing drainage configuration allows runoff from the contributing catchments to flow along natural drainage lines, overland flow paths and existing channels towards the relevant wetland or pan systems, including Swartpan and Pans A–C. Runoff from areas associated with mining infrastructure may also be intercepted by the existing solution trenches, the North-west RWD, the Blue RWD and the Emergency Overflow Dam before reaching downstream receiving areas.

5.4.3.1 Swartpan

- Existing Scenario

The catchment areas contributing to Swartpan are shown in Figure 5-7 below.

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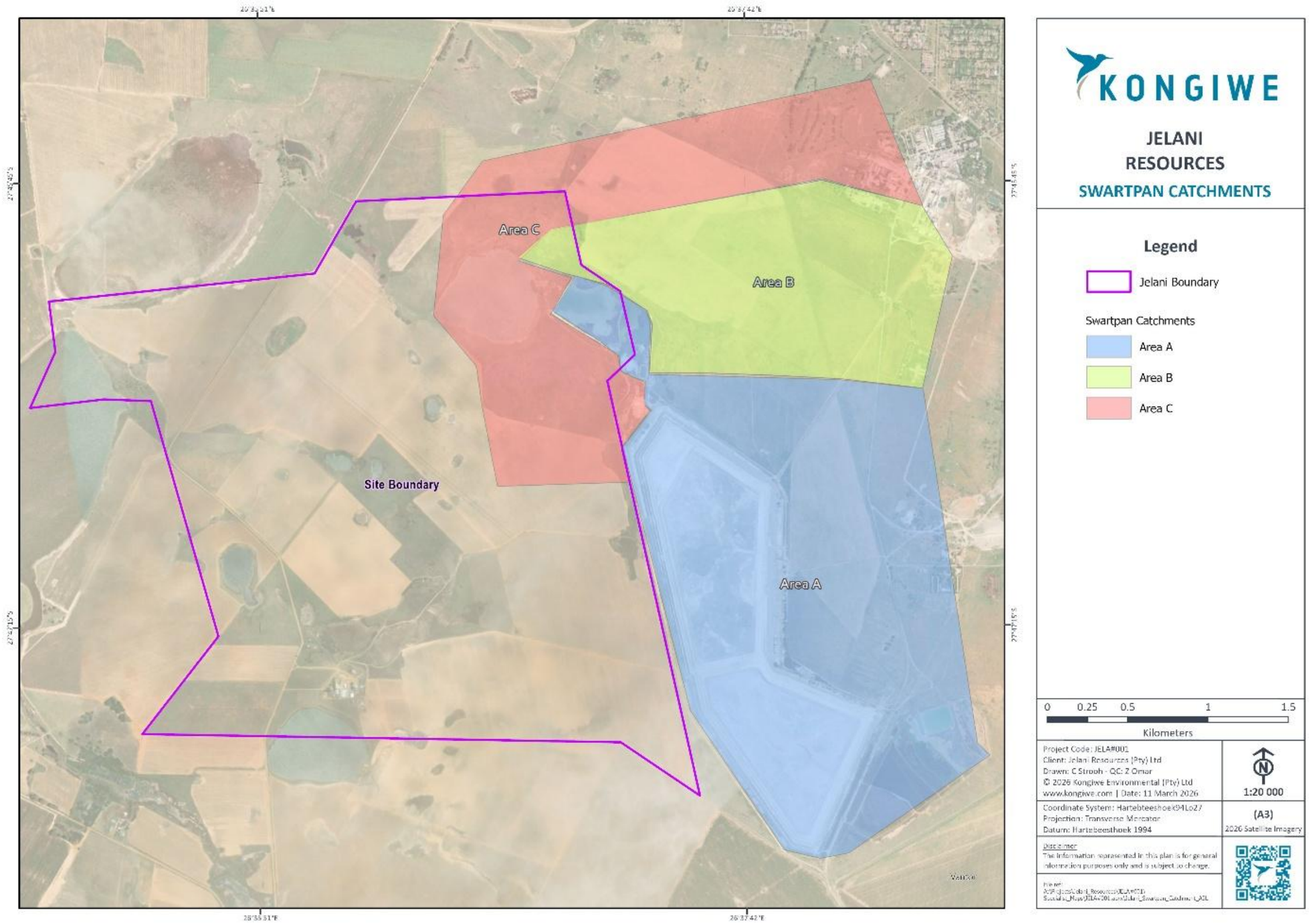

Figure 5-7: Swartpan Catchment Areas

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5.4.3.2 Catchment Area A

Catchment Area A collects in the solution trenches from Target 1 TSF to the North-west RWD, and floods the North-west RWD, the Blue RWD and the Emergency Overflow Dam which are all interconnected. It then overflows from the Emergency Overflow Dam into Swartpan.

Table 5-1: Catchment an Existing Scenario

Description	Value
MAP	502 mm
Size of catchment	3.124 km^2
Time of Concentration	2.11 hours
Run-off coefficient (C) 1:50 recurrence interval	0.335
Run-off coefficient (C) 1:100 recurrence interval	0.373
Point rainfall 1:50 year recurrence interval	74.660 mm
Point Rainfall 1:100 year recurrence interval	83.437 mm
Peak Flow (Rational Formula) 1:50 year recurrence interval	10.182 m^3/s
Peak Flow (Rational Formula) 1:100 year recurrence interval	12.930 m^3/s
Peak Inflow (Brooker) 1:50 year recurrence interval	9.87 m^3/s
Peak Outflow (Brooker) 1:50 year recurrence interval	1.69 m^3/s
Peak Inflow (Brooker) 1:100 year recurrence interval	13.53 m^3/s
Peak Outflow (Brooker) 1:100 year recurrence interval	2.59 m^3/s

The North-west RWD, Blue RWD and Emergency Overflow Dam will have an attenuation effect on the runoff, even if they are full at the time. Assuming that they are full, the hydrograph (Brooker) (Figure 5-8) below shows the normal and attenuated flows for the 1:50 year recurrence interval event over a period of time, with the 1:50 year peak flow reducing from 9.87 m^3/s to 1.69 m^3/s, and the 1:100 year peak flow reducing from 13.53 m^3/s to 2.59 m^3/s.

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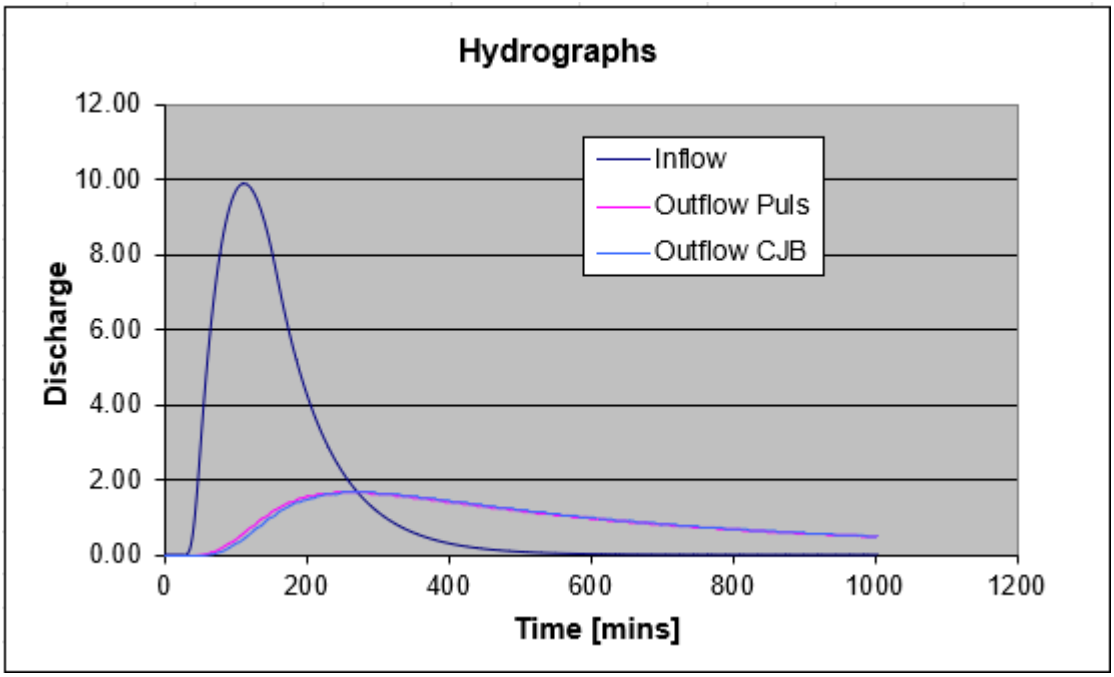

Figure 5-8: Attenuated 1:50 year Hydrograph from Catchment A

This attenuated hydrograph is the inflow of runoff from Catchment A into Swartpan.

5.4.3.3 Catchment Area B

Catchment Area B collects in the open bypass channel around the North-west RWD, the Blue RWD and the Emergency Overflow Dam and flows directly into Swartpan.

Table 5-2: Catchment B Existing Scenario

Description	Value
MAP	502 mm
Size of catchment	2.318 km^2
Time of Concentration	2.38 hours
Run-off coefficient (C) 1:50 year recurrence interval	0.354
Run-off coefficient (C) 1:100 year recurrence interval	0.373
Point rainfall 1:50 year recurrence interval	76.280 mm
Point Rainfall 1:100 year recurrence interval	85.246 mm
Peak Flow (Rational Formula) 1:50 year recurrence interval	7.291 m^3/s
Peak Flow (Rational Formula) 1:100 year recurrence interval	8.395 m^3/s
Peak Flow (Brooker) 1:50 year recurrence interval	6.99 m^3/s
Peak Flow (Brooker) 1:100 year recurrence interval	9.07 m^3/s

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The 1:50 year hydrograph (Brooker) (Figure 5-9) below shows the flow over a period.

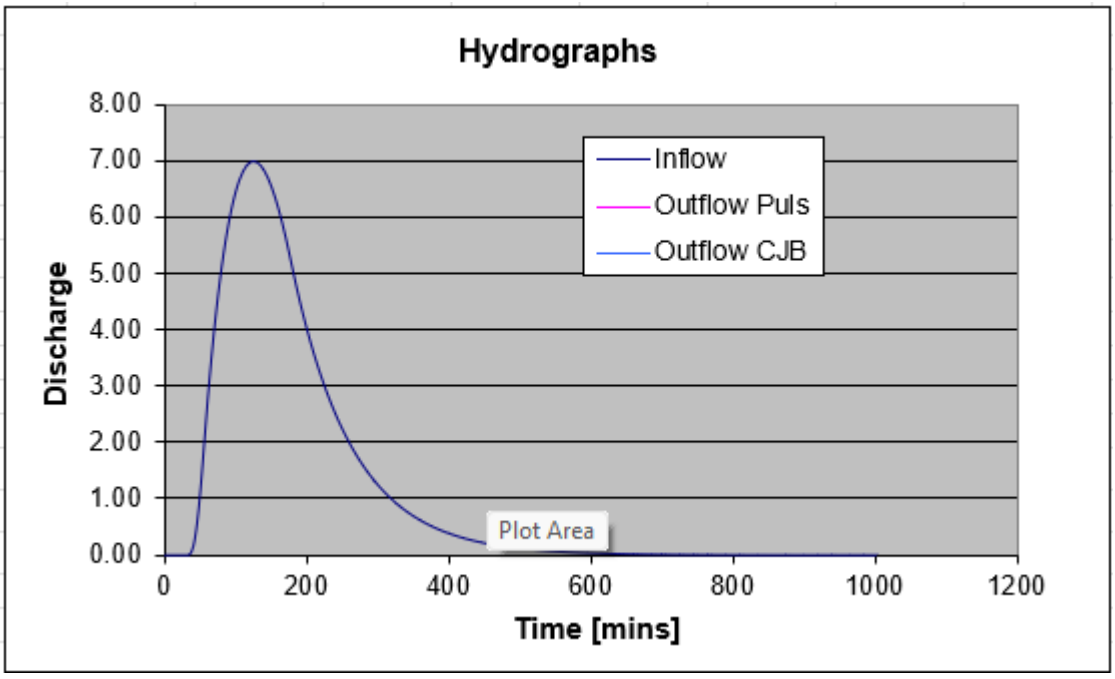

Figure 5-9: 1:50 year Hydrograph from Catchment B

This hydrograph is the inflow of runoff from Catchment B into Swartpan.

5.4.3.4 Catchment Area C

Catchment Area C flows directly into Swartpan, and the inflow hydrograph includes the outflow hydrographs from Catchment Areas A and B.

Table 5-3: Catchment C Existing Scenario

Description	Value
MAP	502 mm
Size of catchment	2.960 km^2
Time of Concentration	2.04 hours
Run-off coefficient (C) 1:50 year recurrence interval	0.214
Run-off coefficient (C) 1:100 year recurrence interval	0.225
Point rainfall 1:50 year recurrence interval	74.240 mm
Point Rainfall 1:100 year recurrence interval	82.968 mm
Peak Flow (Rational Formula) 1:50 year recurrence interval	6.327 m^3/s excluding external hydrographs
Peak Flow (Rational Formula) 1:100 year recurrence interval	7.585 m^3/s excluding external hydrographs
Peak Inflow (Brooker) 1:50 year recurrence interval	13.82 m^3/s – all flows
Peak Outflow (Brooker) 1:50 year recurrence interval	3.11 m^3/s – all flows

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Peak Inflow (Brooker) 1:100 year recurrence interval	17.80 m^3/s – all flows
Peak Outflow (Brooker) 1:100 year recurrence interval	4.15 m^3/s – all flows

Swartpan has an outlet into a natural channel at its southwestern corner. The hydrograph (Brooker) for Catchment Area C plus the output hydrographs from Catchment Areas A and B are routed though Swartpan, which is assumed to be full (the worst-case scenario). The hydrograph (Figure 5-10) below shows the 1:50 year attenuated flow over a period.

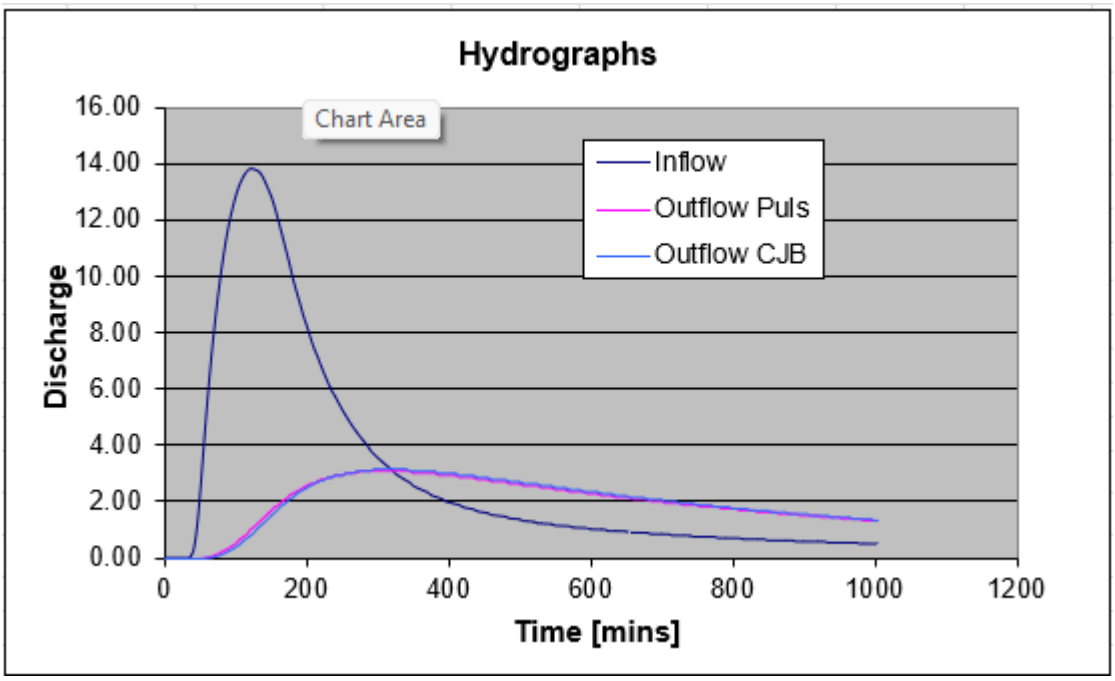

Figure 5-10: Attenuated 1:50 year Hydrograph from Swartpan

This attenuated 1:50 year hydrograph is the outflow from Swartpan.

5.4.3.5 Open Bypass Channel to Swartpan

The open bypass channel was found to be completely overgrown, see Figure 5-5. Where it was visible the channel was measured and found to be 2 m wide at its base, 1 vertical to 2 horizontal side slopes, and 2 m deep, and this cross section has been assumed for the whole length. Table 5-4 gives the results for the Existing Scenario.

Table 5-4: Swartpan Open Bypass Channel Existing Scenario

Description	As designed	Current state
Length	1 315 m	1 315 m
Slope	0.0038 m/m	0.0038 m/m
Channel type	Earth straight and uniform	Channel not maintained
Condition	Clean after weathering	Dense brush high stage

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Design Flow (1:50 year)	7.291 m^3/s	7.291 m^3/s
Manning's n	0.022	0.1
Depth of flow	1.2 m	>2.0 m (channel overflows)
Velocity	1.41 m/s	0.66 m/s

As designed (clean, maintained) the bypass channel has the capacity to handle the 1 in 50 year flow, although the velocity exceeds the allowable velocity of 1.2 m/s and some erosion damage will occur. However, in its present state (overgrown, not maintained) the bypass channel does not have the capacity for the 1 in 50 year flow, and it will overflow.

5.4.3.6 Discussion of Existing Scenario

The biggest problem for the Swartpan Catchment Area is that the clean and dirty water are not adequately separated, due to the open bypass channel around the dirty water facilities not extending far enough and clean water ending up in the "dirty" solution trenches.

At the site visit on 28/29 January 2026, it was noted that the North-west RWD, the Blue RWD and the Emergency Overflow Dam were all full, and there was evidence that the area had been subjected to flooding. At a site visit on 2-4 December 2025 with VOCMA officials for the Harmony Integrated IWULA Project, the area could not be accessed as it was under water.

The wall across Swartpan seems to indicate that at some stage the eastern section of Swartpan was used to contain "dirty" water. The open bypass channel around the infrastructure terminates in the "clean" water area of Swartpan, indicating that at some stage there may have been an attempt to separate the clean and dirty water.

The Emergency Overflow Dam was full, and this indicates that it is not operating as an emergency dam but as part of the normal operating infrastructure of the area.

The open bypass channel around the mine infrastructure has sufficient capacity to handle the 1 in 50-year storm if adequately maintained. However, under its current unmaintained state (completely overgrown), the channel is likely to overflow under the 1 in 50-year event.

5.4.4 Proposed Swartpan Solution

5.4.4.1 Proposal

The following is proposed:

- Extend the open bypass channel /earth berm at the North-west RWD problem area to collect all clean water and bypass the mine infrastructure area to deposit the clean water directly into Swartpan.
- This results in the North-west RWD, Blue RWD and Emergency Overflow Dam handling "dirty" water only.
- Operate the North-west RWD, Blue RWD and Emergency Overflow Dam complex such that there is sufficient capacity to handle the 1 in 50 year "dirty" water flow without overflowing.
- Construct containment berms around potential pollution-generating areas to prevent contamination of nearby water resources throughout the construction and operational phases of the Life of Mine.

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5.4.4.2 Operational Capacity, Responsibility and Implementation

To finalise the proposed solution and demonstrate compliance with GN R704, the following information must be provided:

The North-west Return Water Dam, Blue Return Water Dam and Emergency Overflow Dam are operated by Target Operations. Target Operations should therefore be identified as the current operator responsible for routine inspection, maintenance, water-level management, storm-event preparedness, drawdown procedures, pollution prevention and emergency response, subject to confirmation of legal ownership and the applicable authorisations.

The North-west Return Water Dam and Emergency Overflow Dam are understood to have been constructed before 1998, while the Blue Return Water Dam is understood to be a lined dam constructed after 1998. The respective construction and commissioning dates, design capacities, as-built information and authorisation status must be

Based on the above the revised catchment areas are shown in

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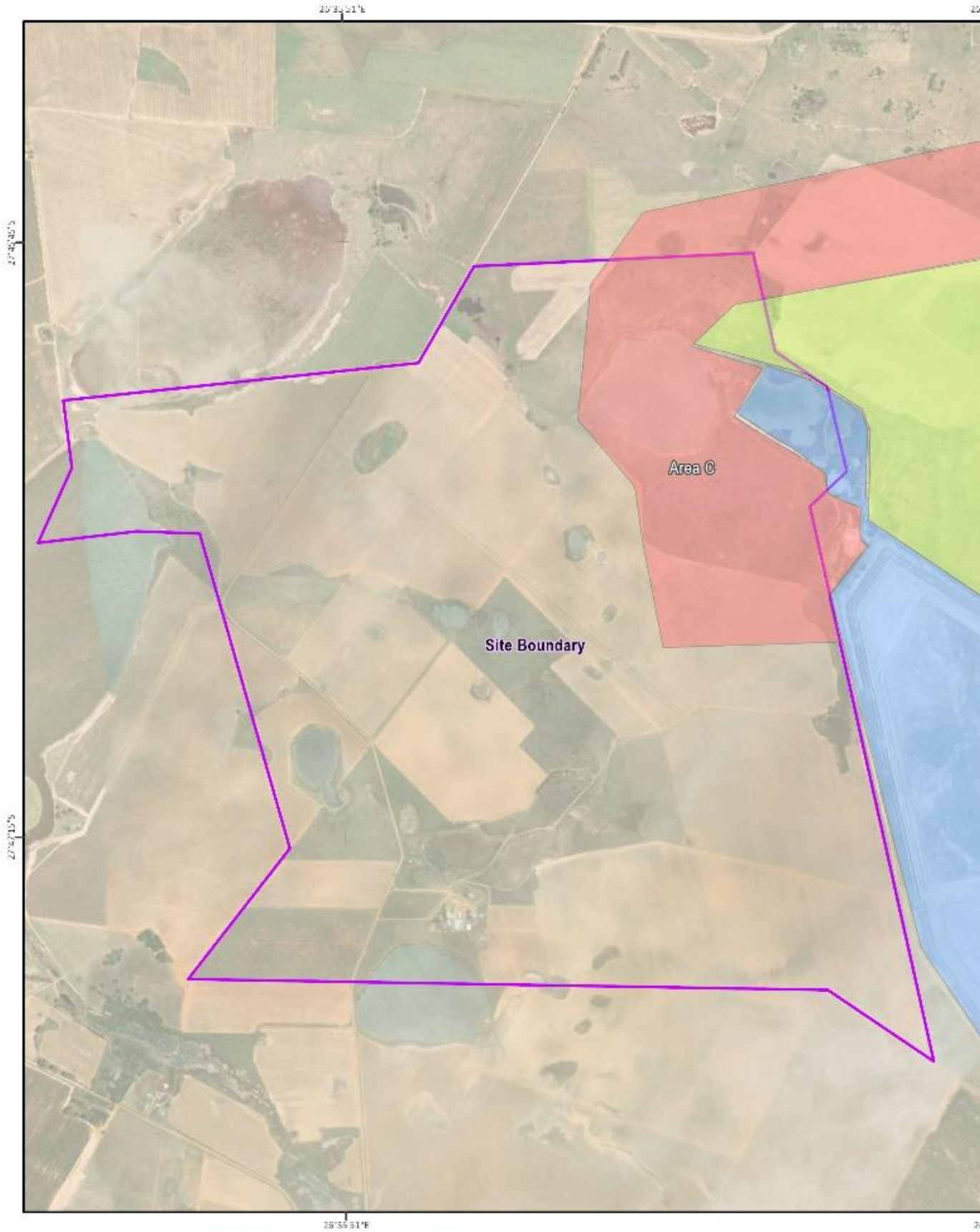

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Figure 5-11.

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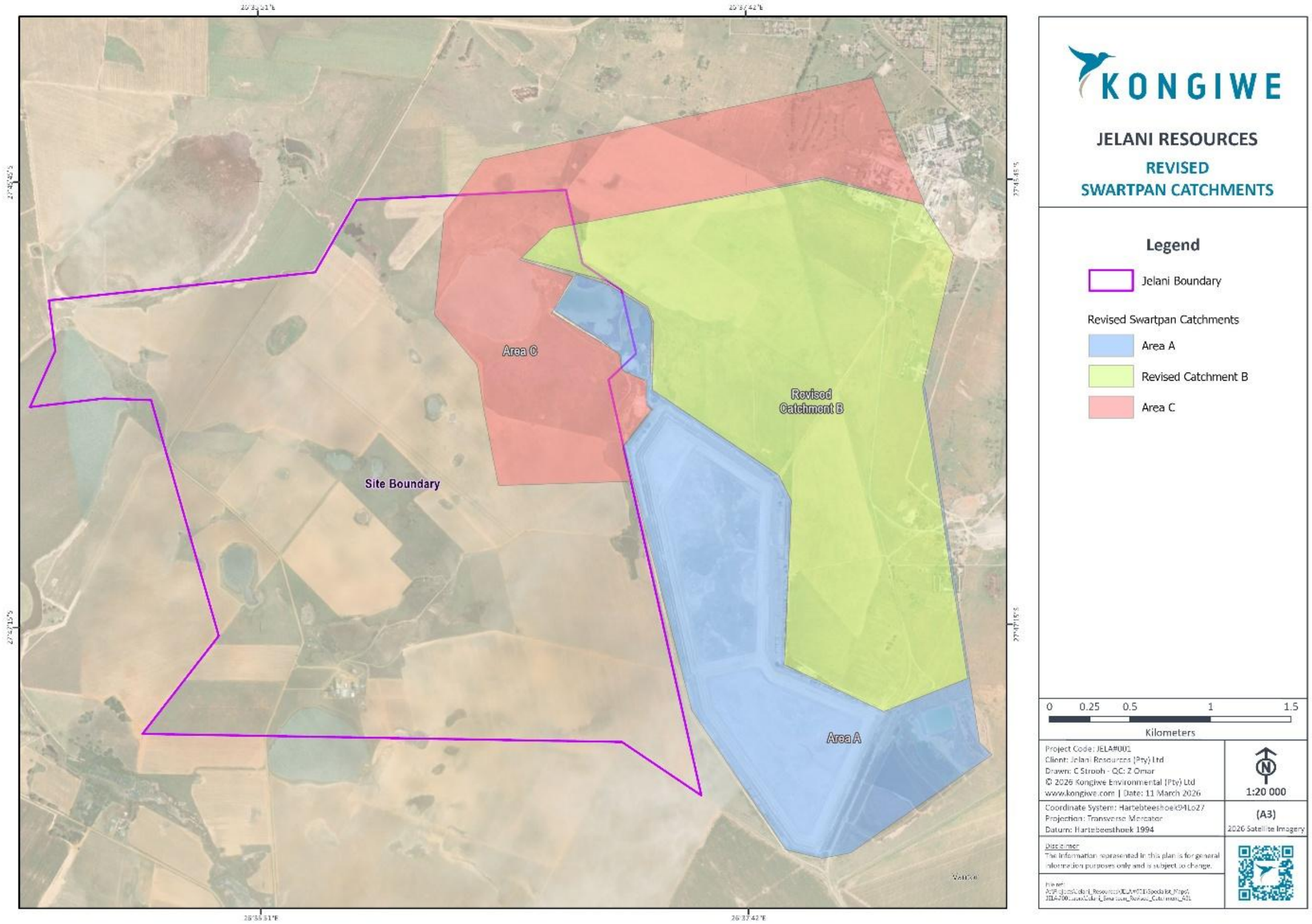

Figure 5-11: Revised Swartpan Catchment Areas

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5.4.4.3 Catchment Area A

TCatchment Area A collects stormwater in the solution trenches around Target 1 and 2 TSFs and flows to the North-west RWD, the Blue RWD and the Emergency Overflow Dam which are all interconnected. It excludes the rainfall falling on top of the TSFs, which will collect on the TSF and either evaporate or infiltrate. The results are given in Table 5-5.

Table 5-5: Catchment A Proposed Scenario

Description	Value
MAP	502 mm
Size of catchment	0.926 km^2
Time of Concentration	3.30 hours
Run-off coefficient (C) 1:50 year recurrence interval	0.335
Run-off coefficient (C) 1:100 year recurrence interval	0.373
Point rainfall 1:50 year recurrence interval	81.800 mm
Point Rainfall 1:100 year recurrence interval	91.410 mm
Peak Flow (Rational Formula) 1:50 year recurrence interval	2.156 m^3/s
Peak Flow (Rational Formula) 1:100 year recurrence interval	2.683 m^3/s
Peak Inflow (Brooker) 1:50 year recurrence interval	2.00 m^3/s
Peak Outflow (Brooker) 1:50 year recurrence interval	0 m^3/s
Peak Inflow (Brooker) 1:100 year recurrence interval	2.74 m^3/s
Peak Outflow (Brooker) 1:100 year recurrence interval	0.702 m^3/s

As-built information for the relevant infrastructure was not available at the time of the assessment; therefore, the storage capacities, dimensions and operating levels presented in Table 5-5 could not be independently verified.

The North-west RWD, Blue RWD and Emergency Overflow Dam must be operated so that under the 1 in 50 year recurrence interval storm, there is sufficient capacity in these dams to contain the inflow. The inflow excludes runoff on top of the TSFs, as this is kept on top of the TSFs and allowed to infiltrate or evaporate. A volume of 27 385 m^3 will have to be stored under the 1 in 50 year condition. Under the 1 in 100 year condition, there is a small overflow into Swartpan with a max flow of 0,702 m^3/s. (See Figure 5-12).

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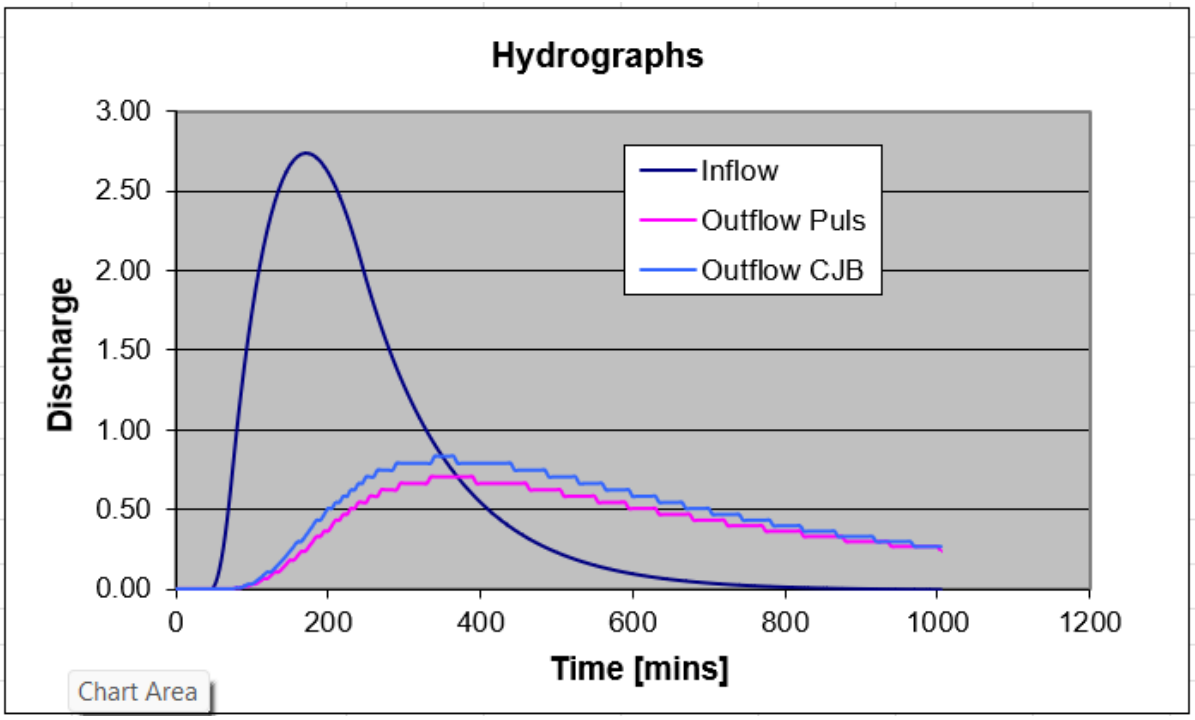

Figure 5-12: Attenuated 1:100 year Hydrograph - Catchment A – Proposed Scenario

This attenuated hydrograph under the 1 in 100 year condition is the inflow of runoff from Catchment A into Swartpan.

5.4.4.4 Catchment Area B

Catchment Area B collects in the open bypass trench around the North-west RWD, the Blue RWD and the Emergency Overflow Dam and flows directly into Swartpan. The results are given in Table 5-6.

Table 5-6: Catchment B Proposed Scenario

Description	Value
MAP	502 mm
Size of catchment	4.516 km^2
Time of Concentration	2.90 hours
Run-off coefficient (C) 1:50 year recurrence interval	0.354
Run-off coefficient (C) 1:100 year recurrence interval	0.373
Point rainfall 1:50 year recurrence interval	79.40 mm
Point Rainfall 1:100 year recurrence interval	88.73 mm
Peak Flow (Rational Formula) 1:50 year recurrence interval	11.986 m^3/s
Peak Flow (Rational Formula) 1:100 year recurrence interval	14.486 m^3/s
Peak Flow (Brooker) 1:50 year recurrence interval	11.512 m^3/s

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Peak Flow (Brooker) 1:100 year recurrence interval	14.923 m^3/s

The 1:50 year hydrograph (Brooker) (Figure 5-13) below shows the flow over a period.

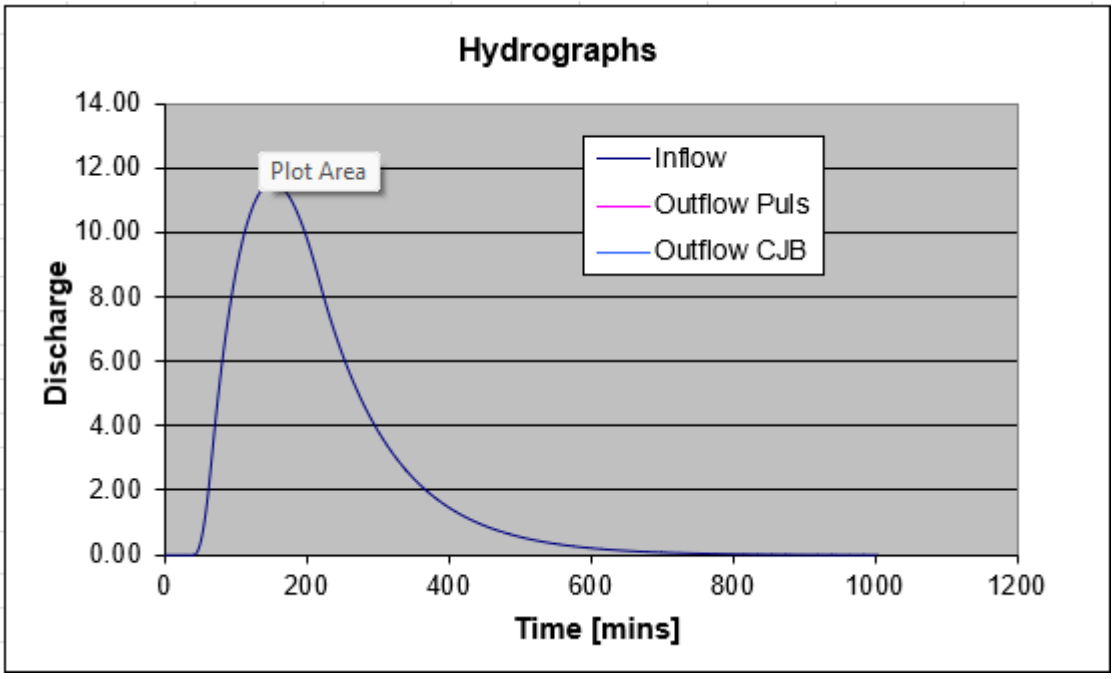

Figure 5-13: 1:50 year hydrograph - Catchment B – Proposed Scenario

This hydrograph is the inflow of runoff from Catchment B into Swartpan.

5.4.4.5 Catchment Area C

Catchment Area C flows directly into Swartpan, and the inflow hydrograph includes the outflow hydrographs from Catchment Areas A and B. (See Table 5-6).

Table 5-7: Catchment C Proposed Scenario

Description	Value
MAP	502 mm
Size of catchment	2.960 km^2
Time of Concentration	2.04 hours
Run-off coefficient (C)	0.214
Point rainfall 1:50 year recurrence interval	74.240 mm
Point Rainfall 1:100 year recurrence interval	82.968 mm
Peak Flow (Rational Formula) 1:50 year recurrence interval	6.327 m^3/s excluding external hydrographs
Peak Flow (Rational Formula) 1:100 year recurrence interval	7.585 m^3/s excluding external hydrographs
Peak Inflow (Brooker) 1:50 year recurrence interval	17.023 m^3/s – all flows

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Peak Outflow (Brooker) 1:50 year recurrence interval	4.41 m^3/s – all flows
Peak Inflow (Brooker) 1:100 year recurrence interval	22.173 m^3/s – all flows
Peak Outflow (Brooker) 1:100 year recurrence interval	6.331 m^3/s – all flows

Swartpan has an outlet into a natural channel at its southwestern corner. The hydrograph (Brooker) for Catchment Area C plus the output hydrographs from Catchment Areas A and B are routed though Swartpan, which is assumed to be full (the worst case scenario). The hydrograph (Figure 5-14) below shows the 1:50 year attenuated flow over a period.

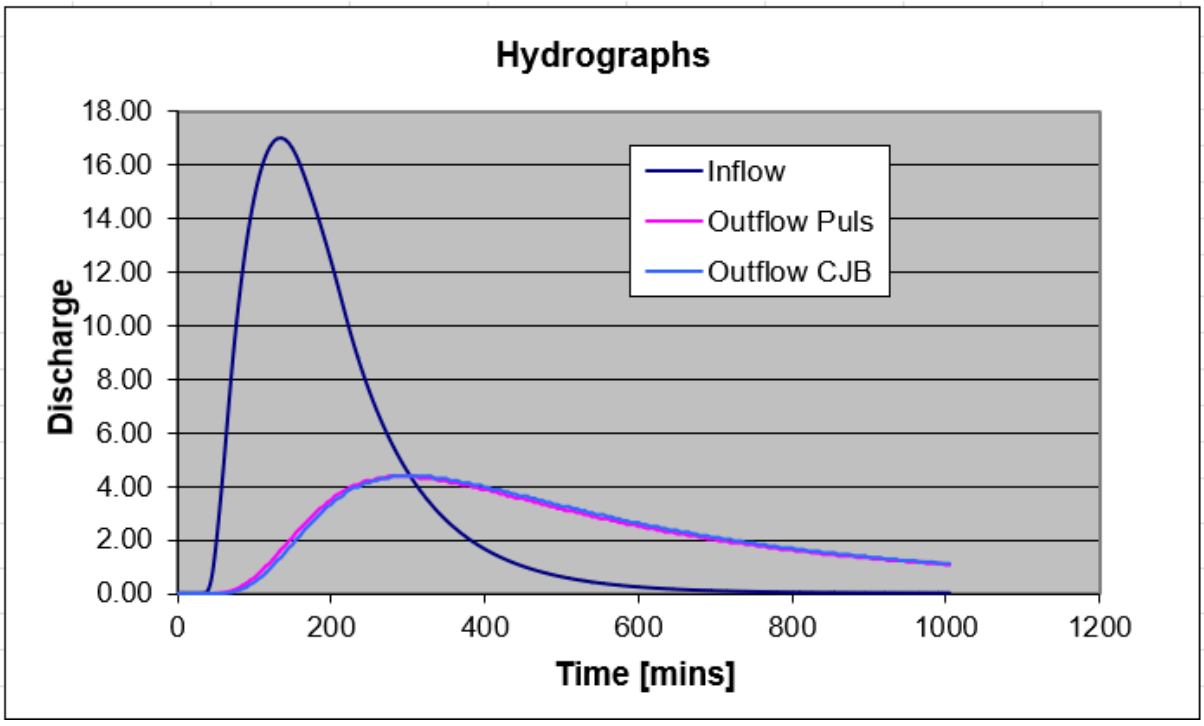

Figure 5-14: 1:50 Year Inflow and Outflow Hydrographs – Swartpan – Proposed Scenario

This attenuated 1:50 year hydrograph is the outflow from Swartpan.

5.4.4.6 Open Bypass Channel around Mine Infrastructure

The open channel was found to be completely overgrown, see Figure 5-5. Where it was visible, the channel was measured and found to be 2 m wide at its base, 1 vertical to 2 horizontal side slopes, and 2 m deep. Table 5-8 presents the results.

Table 5-8: Swartpan Open Channel Proposed Scenario

Description	As proposed 1:50	As proposed 1:100
Length	1 315 m	1 315 m
Slope	0.0038 m/m	0.0038 m/m
Channel type	Earth straight and uniform	Earth straight and uniform
Condition	Clean after weathering	Clean after weathering

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Design Flow (1:50 year)	11.512 m^3/s	14.923 m^3/s
Manning's n	0.022	0.038
Depth of flow (without freeboard)	1.5 m	1.7 m
Velocity	2.24 m/s	2.44 m/s

As designed (clean, maintained) the bypass channel has the capacity to handle the 1:50-year event. However, the velocity exceeds the allowable velocity of 1.2 m/s, which will likely result in erosion damage. The way to overcome this is to line the channel with unreinforced concrete, which can withstand a velocity of up to 2.5 m/s. The channel must be cleaned out to remove accumulated sediment, vegetation and other obstructions before being lined with unreinforced concrete.

5.4.5 Floodlines

The floodlines for the natural watercourse downstream of Swartpan are shown in Figure 5-15. Contours were generated from Google Earth, and the 1 in 50 year and 1 in 100-year flows were taken to be the attenuated outflows from Swartpan. Manning's formula was used to calculate flow widths. The floodlines presented are **indicative only** and should not be regarded as formal or final floodline delineations. They are intended to provide a preliminary indication of potential inundation areas and should be verified through a detailed topographical survey and hydraulic assessment.

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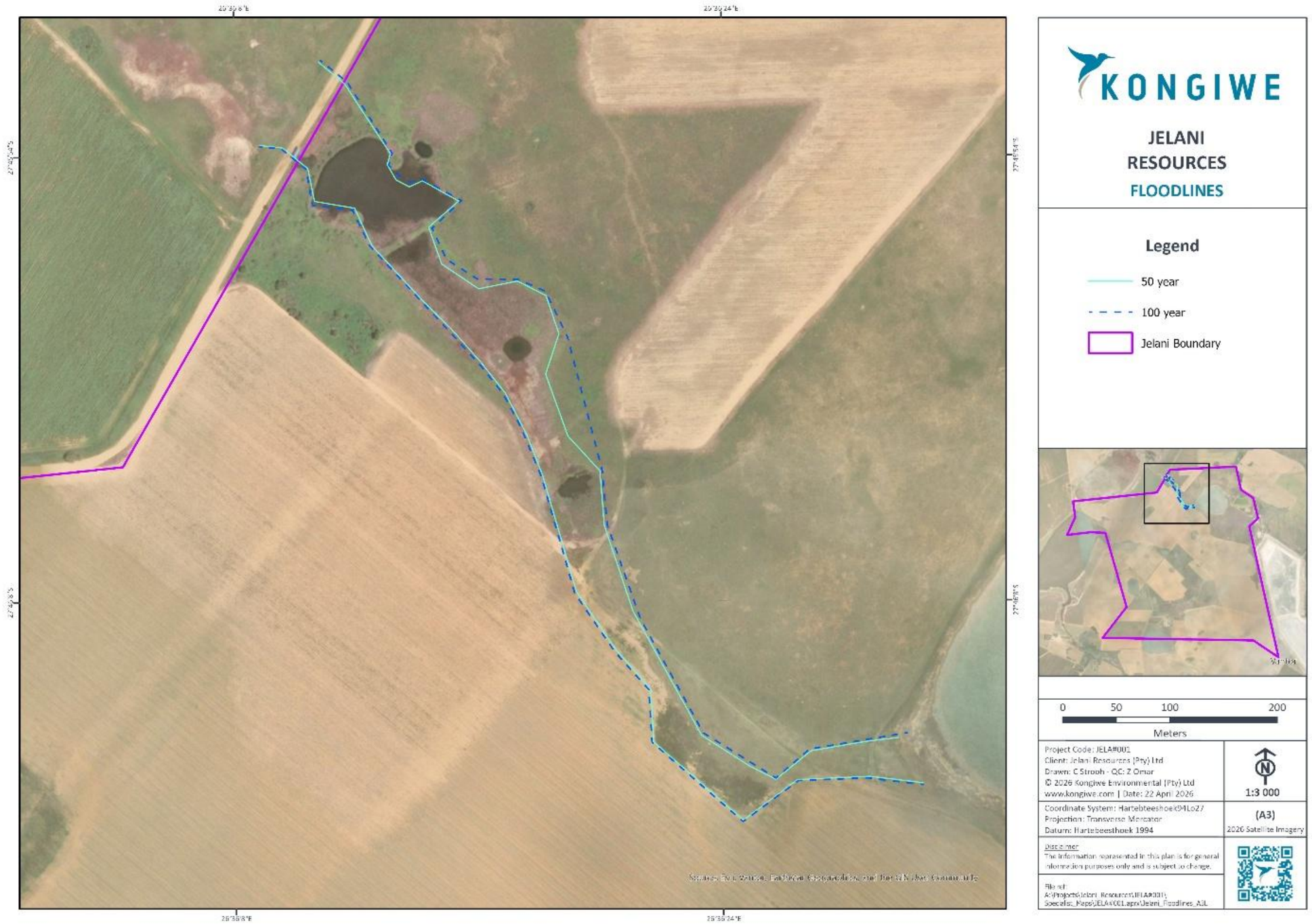

Figure 5-15: 1:50 Year (solid line) and 1:100-year (dashed line) Floodlines Downstream of Swartpan

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5.4.5.1 Discussion of Proposed Scenario

The proposed solution separates the “clean” and “dirty” water impacting the Proposed Project Area. The “clean” water from the catchment area is collected by means of earth berms and the open bypass channel and transferred to Swartpan, which is now a “clean” water pan. Swartpan has an attenuation effect even if it is full, and the resultant outflow hydrographs are routed down the natural watercourse downstream of Swartpan to Pan A. Floodlines are given for this natural watercourse.

The open bypass channel to Swartpan will have to be cleaned out and protected by unreinforced concrete lining to prevent scouring and erosion.

The “dirty” water in now confined to the North-west RWD, Blue RWD and Emergency Overflow Dam, which must be operated at a level to allow sufficient spare capacity to accommodate the 1 in 50-year storm runoff. Containment berms must also be constructed around potential pollution-generating areas to prevent contamination of nearby water resources throughout the construction and operational phases of the Life of Mine.

Under the proposed stormwater-management system, clean runoff will be diverted through the proposed bypass channel towards Swartpan, while dirty or potentially contaminated runoff will be retained within the return-water-dam complex. This will alter the existing runoff routes and may change the volume, timing and quality of water reaching the relevant wetlands and pans. The final drainage layout should therefore clearly show the existing and proposed flow paths, catchment boundaries, diversion structures, discharge points and receiving wetlands or pans.

The proposed diversion is expected to reduce or delay runoff reaching wetlands or pans that currently receive flow from the dirty-water areas. Conversely, Swartpan may receive a greater proportion of clean runoff through the proposed bypass channel. The change in inflow volume and timing may affect the frequency, duration and extent of inundation, particularly during larger rainfall events. Reduced inflows could shorten the hydroperiod or reduce the frequency of wetting in downstream wetland areas, while concentrated discharges could increase flow velocities, erosion or localised sediment deposition at the discharge point.

The likely effects on the relevant wetland and pan systems should be assessed as shown in Table 5-13.

Figure 5-16 : Likely Effects on relevant wetland and pan systems

Wetland or pan	Existing runoff route	Proposed runoff route	Potential hydrological effect
Swartpan	Receives runoff from its natural contributing catchment, together with any existing drainage that reaches the pan.	Receives clean runoff through the proposed bypass channel.	Potential increase in inflow volume during storm events, with possible changes to inundation frequency, peak water levels, erosion and sediment deposition at the discharge point.

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Wetland or pan	Existing runoff route	Proposed runoff route	Potential hydrological effect
Pan A	Receives runoff from its existing upstream catchment and natural overland flow paths.	Runoff route to be confirmed based on the final diversion and channel layout.	Potential reduction, delay or concentration of inflows, which may alter the pan's hydroperiod and seasonal water levels.
Pan B	Receives runoff from its existing upstream catchment and natural drainage features.	Runoff route to be confirmed based on the final diversion and channel layout.	Potential changes in the timing and volume of inflow, with possible effects on the duration and extent of inundation.
Pan C	Receives runoff from its existing upstream catchment and natural drainage features.	Runoff route to be confirmed based on the final diversion and channel layout.	Potential reduction or redistribution of inflows, together with possible localised erosion or sedimentation if flows are concentrated.
Other identified wetland units	Receive runoff from local catchments through natural drainage lines or diffuse overland flow.	Existing and proposed connections must be shown on the final drainage plan.	Effects may include altered wetting frequency, hydroperiod, flow concentration, sediment deposition or reduced diffuse runoff.

The proposed system should be designed to maintain appropriate clean-water inputs to wetlands and pans wherever these inputs are required to sustain their hydrological functioning. The discharge from the bypass channel should be located and designed to prevent erosion, excessive flow concentration and sediment deposition. Energy dissipation, erosion protection and sediment-control measures should be incorporated at the discharge point where required.

A final assessment should quantify the existing and proposed runoff volumes and peak flows reaching each relevant wetland or pan for representative rainfall events, including the 1:2-year, 1:5-year, 1:10-year, 1:50-year and 1:100-year events where relevant. The assessment should also compare the timing of inflows, the duration of inundation and the expected change in peak water levels. The wetland-hydrology assessment must be based on the final surveyed drainage layout and confirmed catchment delineation. Where this information is not available, the potential effects should be identified as [TO CONFIRM] rather than presented as confirmed impacts.

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5.5 Waste

5.5.1 Waste Management

The Proposed Project will be undertaken as underground operation, with all waste and ore extracted and handled within the Harmony Target Operation MR area. All required surface infrastructure will be located within the Target Operation MR area.

The Proposed Project is anticipated to generate significant volumes of waste, primarily in the form of excavated waste rock and general operational waste. Table 5-9 presents the anticipated waste streams associated with the underground mining operation, together with their classification, storage and containment requirements, water-contact risks, disposal routes, and responsible parties.

Table 5-9: Waste Stream Register

Waste Stream	Typical Quantity*	Classification	Storage / Handling Containment Measures	Water Contact Risk	Disposal / Management Route	Responsible Party
Waste Rock	To be quantified during operations	General mining waste (potentially acid-generating where applicable)	Designated waste rock stockpiles	Engineered stockpiles, stormwater controls, runoff diversion	Medium to High	Reuse for construction/backfilling where suitable; long-term storage in approved facilities	Mine Operations Manager
Ore (Low-Grade/Stockpiled)	To be quantified	Mineral-bearing material	Designated ore stockpiles	Bunding, stormwater diversion and drainage controls	Medium	Processing or future recovery	Processing Manager
Tailings	To be quantified	Mining residue	TSF	Engineered TSF with seepage and water management controls	High	Deposition in approved TSF	TSF Manager
Water-Treatment Sludge	To be quantified	Industrial treatment waste	Covered containers or dedicated sludge drying areas	Impermeable floors and bunding	Medium	Disposal at licensed waste facility or approved reuse, subject to characterisation	Environmental Manager

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Sewage Sludge	To be quantified	Domestic wastewater treatment waste	Sludge holding tanks or drying beds	Lined containment and runoff control	Medium	Disposal at licensed facility or approved beneficial use, where authorised	Camp/Facilities Manager
Used Oil	To be quantified	Hazardous waste	Clearly labelled containers in bunded storage area	Impermeable surface and 110% bund capacity	High	Collection by licensed waste oil recycler	Engineering/Maintenance Manager
Hydrocarbon Waste (Fuel, Solvents, Grease)	To be quantified	Hazardous waste	Sealed, labelled containers in hazardous waste area	Bunding and spill containment systems	High	Removal by licensed hazardous waste contractor	Engineering/Maintenance Manager
Contaminated Soil	As generated	Hazardous or general waste depending on contamination	Designated temporary storage area	Lined and covered storage with runoff controls	High	Remediation, treatment, or disposal at licensed facility	Environmental Manager
Chemical and Reagent Containers	As generated	Hazardous or general waste depending on residue	Segregated storage area	Covered, secure storage and spill controls	Medium	Return to supplier, recycling, or disposal through licensed contractor	Processing Manager
General Waste	As generated	General waste	Waste skips and bins	Covered containers to prevent litter and stormwater ingress	Low	Disposal at licensed municipal landfill	Facilities Manager
Recyclable Waste (Paper, Plastic, Metal, Glass)	As generated	Recyclable waste	Segregated recycling bins	Covered storage where required	Low	Recycling through approved service providers	Facilities Manager

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5.5.2 Operational Management

Procedures are in place at Target Operation to deal with potential polluting incidents (ISO 14001:4.1, 7.4.2 – 7.4.3/MHO/00/2018 and Harmony Risk Matrix – October 2019). The incident classification criteria are presented in Table 5-10. Jelani will adopt and implement the applicable Harmony procedures for the Proposed Project to ensure effective incident management and environmental protection.

Table 5-10: Harmony Incident Classification Criteria (Harmony Risk Matrix – October 2019).

Severity Level	Environmental Impact	Reputational Impact	Legal Impact
5	Irreversible damage on habitat or ecosystem.	International condemnation.	Potential director liability.
4	Significant impact on habitat or ecosystem.	National and international concern – NGO involvement.	Very significant fines or prosecutions.
3	Longer-term impacts & ecosystem compromised.	Adverse media attention – locally/nationally.	Breach of legislation and likely consequences from regulator.
2	Moderate short term effects but not affecting the eco-system function.	Unresolved local complaints and possible local media attention.	Minor breach of legislation.
1	Localised affected area of low impact.	Local complaints.	No major breaches of legislation.

Incidents classified as Level 3 and above are reported to VOCMA within 24 hours, initially via telephone, followed by a formal email or letter within five days of occurrence. The notifications sent to VOCMA contain the following information:

- Date and time of the incident;
- Description of the incident;
- Source of pollution;
- Risks/ impact to safety, health, property or environment resulting from the incident; and
- Remedial action taken or to be taken by the person in control, to remedy the effects of the incident and to prevent similar incidents in the future.

Formal incident investigations are undertaken by the relevant manager and the actions based on the investigations are uploaded to the business unit's Action Management System. A follow up action plan is submitted to VOCMA within 14 days of the incident occurring, which indicates the following:

- Measures taken to correct the impact of the incident;
- Measures taken to correct further impacts from the incident; and
- Measures taken to prevent the reoccurrence of a similar incident.

No major or extreme incidents occurred at Target Operation during 2019.

An environmental incident that has been classified as Level 1 or 2 is reported internally. A formal incident investigation is not undertaken for these incidents, unless the same incident has repeatedly occurred three or more times within three months.

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5.5.3 Organisational Structure

The roles, responsibilities and authority of personnel will be assigned to facilitate effective environmental management.

5.5.4 Resources and Competence

The underground mining methods, technologies, and operational management of the Proposed Project will be undertaken by Jelani. The operational mining infrastructure required for the Proposed Project is located within the existing Target Operation Mining MR area, and no new operational mining infrastructure is proposed within the project area. Access to the underground workings will be provided through either the refurbishment of existing facilities at Target Shafts No. 3, 4, and 5, or the development of new infrastructure at the Target No. 2 Shaft site, all of which are situated within the existing MR area.

Jelani will appoint a suitably qualified and competent Environmental Management Coordinator who will be responsible for overseeing environmental management activities, ensuring compliance with applicable environmental requirements, and coordinating the implementation of environmental management measures across all project sites.

5.5.5 Environmental Communication Strategies

Mine management is required to establish procedures for internal communication between the various levels and functions of the organisation. Processes for receiving, documenting, and responding to environmental risks during each phase of the project should be implemented across the management, administrative, and workforce sectors of Jelani, as well as among contractors. The organisation shall conduct processes for external communication on its significant environmental aspects and record its decision in line with Jelani communication policy as well as conditions stated in any EA or License.

5.5.6 Internal and External Communication

5.5.6.1 Internal Communication

Internal communication should be done within the Administrative Sector.

5.5.6.2 External Communication

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

- **Environmental Stakeholder engagement meetings:** An Environmental Stakeholder Engagement Meeting should be established to keep interested and affected parties informed of significant environmental aspects identified through the Environmental Impact Assessments and Environmental Management Plans, and to provide a forum for the discussion of environmental concerns. Records of all discussions, concerns raised, and decisions taken should be maintained. The meeting should be chaired by the Manager or a suitably appointed competent individual.
- **Publications:** Selected publications should be produced and used to communicate environmental issues to outside parties. Examples include newsletters and Annual Reports.
- **Communications from External Parties and Employees:** A clear communication point should be established within the company through the Jelani 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 should be 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 should 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

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or facsimile correspondence received should be forwarded to the relevant department for action. All events or concerns should be captured and actioned on an existing and / or future database.

- **E-mail:** E-mail communication received should 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 should 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 should 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 should 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 mine operation should 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 Jelani 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.

5.5.6.3 Evaluation of the Environmental Awareness Plan

The evaluation of the environmental awareness and training plan should be conducted by Jelani management. This evaluation entails 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 demonstrate Jelani's commitment in the well-being of the environment and empowerment of the local people. Environmental issues should be discussed at monthly meetings scheduled at the mine.

5.5.6.4 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 need to be developed.

5.6 Monitoring and Control

As discussed in Section 4.5.3, Harmony, which is responsible for the operational infrastructure associated with the Proposed Project, currently undertakes water quality monitoring and reporting for the Target Operation. Surface water quality monitoring at Harmony began in the 1980s.

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5.6.1 Surface Water Monitoring

The surface water monitoring points for monitoring undertaken at the Target Operation are presented in Figure 4-18. The Surface Water Specialist has made the following recommendations regarding surface water monitoring:

- Monitoring reports should be compiled monthly, or as otherwise directed by the VOCMA, and should include trend analyses.
- It is also recommended that upstream and downstream monitoring points be compared to assess the potential influence of site activities on surface water quality.

5.6.2 Groundwater Monitoring

The current groundwater quality monitoring points for monitoring undertaken at the Target Operation are presented in Figure 4-16. The Groundwater Specialist has made the following recommendations regarding monitoring:

- Review of the current harmony monitoring network in terms of monitoring locations as well as the range of analysed parameters;
- Retrieve additional samples from third-party boreholes to confirm the understanding of the current groundwater quality situation;
- Consider including additional third-party boreholes as part of the monitoring network;
- Include forward contaminant plume migration modelling for the operational and postclosure phases in the impact assessment; and
- Include monitoring requirements, mine closure mitigations, groundwater management measures and compensation (in case impact is proven).

5.6.3 Waste Monitoring

Waste streams generated at Target Operation are monitored and recorded on a monthly basis. A waste management assessment/ audit to evaluate the characteristics of the mine waste stream are completed at each operation biennially or when a process is changed, or a new process is instituted which may influence waste management.

5.6.4 Biomonitoring and Toxicity Testing

Biomonitoring and toxicity testing are currently not being undertaken at Target Operation.

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5.7 Risk and Impact Assessment / Best Practice Assessment

This Chapter outlines the risk assessment for the Proposed Project. Mitigation and monitoring measures are also presented for reducing the significance of identified risk.

5.7.1 Impact Significance Rating Methodology

The impact significance rating process highlights the impacts requiring consideration in the management and approval process.

Based on the assessment of the magnitude, duration and spatial extent of an impact (summarised in Table 5-11), an impact consequence rating can be determined, using the matrix shown in Table 5-12.

Table 5-13 shows the impact significance rating matrix, which is based on the consequence rating (derived from Table 5-12) and the probability of the impact occurring.

Table 5-11: Assessment of the Magnitude, Duration and Extent of Impact

Impact Characteristic	Level of Impact	Impact Description
Magnitude and nature (negative)	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.
Magnitude and nature (positive)	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.
Duration	Short term	Up to 18 months.
	Medium term	18 months to 5 years
	Long term	Longer than 5 years.
Scale	Site or local	Site specific or confined to the immediate Proposed Project area.
	Regional	May be defined in various ways, e.g. cadastral, catchment, topographic.
	Beyond regional	Nationally or beyond.

Table 5-12: Consequence Rating Matrix

		Scale		
Magnitude	**Duration**	Local	Regional	National
Magnitude				
Minor	Short term	Low	Low	Medium

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	Medium term	Low	Low	Medium
	Long term	Medium	Medium	High
Moderate	Short term	Low	Medium	Medium
	Medium term	Medium	Medium	High
	Long term	Medium	High	High
Major	Short term	Medium	Medium	High
	Medium term	Medium	Medium	High
	Long term	High	High	High

Table 5-13: Significance Rating Matrix

	Consequence Rating					
	Positive			Negative		
Probability of Impact	High	Medium	Low	Low	Medium	High
Definite	High (+)	Medium (+)	Medium (+)	Medium (-)	Medium (-)	High (-)
Possible	High (+)	Medium (+)	Low (+)	Low (-)	Medium (-)	High (-)
Unlikely	Medium (+)	Low (+)	Low (+)	Low (-)	Low (-)	Medium (-)

5.7.2 Impact Assessment

This Subchapter serves to provide insight on the major positive, negative and cumulative impacts associated with the Proposed Project. The potential impacts are discussed per environmental feature/aspect. For more detail, please refer to the specialist study contained in the appendices.

5.7.2.1 Construction Phase

Surface Water

During the construction phase, the earth berm/open bypass channel which will carry "clean" water to Swartpan will be constructed by Harmony. This will involve the removal of all vegetation from the existing open channel and then forming the channel to its correct dimensions before lining the channel with concrete. The activities and impacts that are likely to occur during the construction phase are summarised in Table 5-14.

Table 5-14: Summary of activities and impacts for the construction phase

Activity	Impact Description
Removal of vegetation and alteration to the local topography	**Impact 1**: Erosion and wash off of exposed soils leading to siltation in nearby surface water runoff areas and/or Swartpan.
Site preparation and land rehabilitation before forming and construction of lining to bypass channel	**Impact 2**: Release of pollutants (waste piles) during site preparation and rehabilitation could pose a risk to water quality.

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Use of construction equipment	**Impact 3:** Hydrocarbon (fuel/oil leaks) pollution from construction equipment can impact the soil and nearby surface water.
Forming of bypass channel and construction of concrete lining to bypass channel	**Impact 4**: Contamination of surface water and therefore Swartpan from land disturbance and contaminated soils during construction of concrete lining to bypass channel
Forming of earth berm connecting existing earth berm to bypass channel	**Impact 5**: Contamination of surface water and therefore Swartpan from land disturbance and contaminated soils during construction of earth berm
Major storm event during forming and construction of bypass channel	**Impact 6**: Construction works could be damaged and might have to be replaced, with a potential risk of contamination of Swartpan.

The ratings and proposed mitigation measures for the construction phase are provided in Table 5-15 to

Table 5-20.

Table 5-15: Significance Rating of Construction Impact 1

NATURE OF IMPACT 1: Erosion and wash off of exposed soils leading to siltation in nearby surface water runoff areas and/or Swartpan.		
	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	Unlikely
Calculated Significance Rating *(Low, Medium, High)*	**Low**	**Low**
Reversibility: (Reversible or Irreversible)	Irreversible	
Irreplaceable loss of resource: (Yes or No)	No	
Residual impacts • Siltation of Swartpan		
Cumulative impacts • Siltation of Swartpan		
Mitigation measures • Clearance of vegetation for the new earth berms/open bypass channel must be limited as far as possible. • Temporary erosion measures such as stormwater bypass mechanisms should be employed around exposed working areas.		

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- The SWMP must be implemented as a first step during the construction phase.
- Water quality monitoring must be implemented upstream and downstream of construction sites.

Table 5-16: Significance Rating of Construction Impact 2

NATURE OF IMPACT 2: Release of pollutants (waste piles) during site preparation and rehabilitation could pose a risk to water 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	Unlikely
Calculated Significance Rating *(Low, Medium, High)*	**Low**	**Low**
Reversibility: (Reversible or Irreversible)	Reversible	
Irreplaceable loss of resource: (Yes or No)	No	
Residual impacts • None foreseen		
Cumulative impacts • None foreseen		
Mitigation measures • Waste piles to be bermed off to prevent stormwater erosion. • The SWMP must be implemented as a first step during the construction phase. • Rehabilitation plan to be implemented accurately and monitored closely.		

Table 5-17: Significance Rating of Construction Impact 3

NATURE OF IMPACT 3: Hydrocarbon (fuel/oil leaks) pollution from construction equipment can impact the soil and nearby surface water.		
	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)*	Moderate	Minor
Probability *(Definite, Possible, Unlikely)*	Possible	Unlikely

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NATURE OF IMPACT 3: Hydrocarbon (fuel/oil leaks) pollution from construction equipment can impact the soil and nearby surface water.		
Calculated Significance Rating *(Low, Medium, High)*	**Low**	**Low**
Reversibility: (Reversible or Irreversible)	Irreversible	
Irreplaceable loss of resource: (Yes or No)	No	
Residual impacts • None foreseen, as the impact will cease if rehabilitation is done correctly.		
Cumulative impacts • None foreseen, as the impact will cease if rehabilitation is done correctly.		
Mitigation measures • Water quality monitoring must be implemented upstream and downstream of construction sites. • Maintain all construction equipment. • Maintenance of construction equipment should be prohibited at or near the watercourse. • Train staff in spill response and deploy spill kits at active zones. • Drip trays shall be placed beneath leaking sections of construction equipment.		

Table 5-18: Significance Rating of Construction Impact 4

NATURE OF IMPACT 4: Contamination of surface water and therefore Swartpan from land disturbance and contaminated soils during construction of concrete lining to bypass channel.		
	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	Unlikely
Calculated Significance Rating *(Low, Medium, High)*	**Low**	**Low**
Reversibility: (Reversible or Irreversible)	Irreversible	
Irreplaceable loss of resource: (Yes or No)	No	
Residual impacts • None foreseen, as the impact will cease if rehabilitation is done correctly.		
Cumulative impacts • None foreseen, as the impact will cease if rehabilitation is done correctly.		

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NATURE OF IMPACT 4: Contamination of surface water and therefore Swartpan from land disturbance and contaminated soils during construction of concrete lining to bypass channel.
Mitigation measures • SWMP must be implemented as a first step during the construction phase. • Phase construction to minimise exposed areas

Table 5-19: Significance Rating of Construction Impact 5

NATURE OF IMPACT 5: Contamination of surface water and therefore Swartpan from land disturbance and contaminated soils during construction of earth berm.		
	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	Unlikely
Calculated Significance Rating *(Low, Medium, High)*	**Low**	**Low**
Reversibility: (Reversible or Irreversible)	Irreversible	
Irreplaceable loss of resource: (Yes or No)	No	
Residual impacts None foreseen, as the impact will cease if rehabilitation is done correctly.		
Cumulative impacts None foreseen, as the impact will cease if rehabilitation is done correctly.		
Mitigation measures • The SWMP must be implemented as a first step during the construction phase. • Monitor runoff during and after construction. • Water quality monitoring must be implemented upstream and downstream of construction sites.		

Table 5-20: Significance Rating of Construction Impact 6

NATURE OF IMPACT 6: Construction works could be damaged and might have to be replaced, with a potential risk of contamination of Swartpan.		
	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	Unlikely

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NATURE OF IMPACT 6: Construction works could be damaged and might have to be replaced, with a potential risk of contamination of Swartpan.		
Calculated Significance Rating *(Low, Medium, High)*	**Low**	**Low**
Reversibility: (Reversible or Irreversible)	Irreversible	
Irreplaceable loss of resource: (Yes or No)	No	
Residual impacts • None foreseen, as the impact will cease if rehabilitation is done correctly.		
Cumulative impacts • None foreseen, as the impact will cease if rehabilitation is done correctly.		
Mitigation measures • Temporary erosion measures such as stormwater bypass mechanisms should be employed around exposed working areas. • The SWMP must be implemented as a first step during the construction phase. • Water quality monitoring must be implemented upstream and downstream of construction sites.		

Groundwater

During the construction phase the Shaft 2 and 3 areas will be rehabilitated and refurbished to be used as access to the Jelani mining area. This may include clearance of vegetation and grading of some areas and movement of construction vehicles for site preparation and movement and placement of required equipment. The activities and impacts that are likely to occur during the construction phase are summarised in Table 5-21.

Table 5-21: Summary of Activities and Impacts for the Construction Phase

Activity	Impact Description
Site preparation for refurbishment of the Shaft 2 and 3 areas	Impact1: Release of pollutants during site preparation could pose a risk to groundwater quality.
Use of construction equipment for the refurbishment of the Shaft 2 and 3 areas	Impact 2: Hydrocarbon (fuel/oil leaks) pollution from construction equipment can impact the groundwater.

Table 5-22: Significance Rating of Construction Impact 1

NATURE OF IMPACT 1: Release of pollutants during site preparation could pose a risk to 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	Unlikely

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Calculated Significance Rating (Low, Medium, High)	Low	Low
Reversibility: (Reversible or Irreversible)	Reversable	
Irreplaceable loss of resource: (Yes or No)	No	
Residual impacts Increased recharge in cleared areas		
Cumulative impacts • None expected		
Mitigation measures • Contain clearance activities to required areas as much as practically possible; • Prevent ponding in cleared areas through (temporary) stormwater management; • Prevent erosion within the cleared areas and downgradient areas • Any incidents that could release pollutants to groundwater should be reported and mitigated immediately.		

Table 5-23: Significance Rating of Construction Impact 2

NATURE OF IMPACT 2: Hydrocarbon (fuel/oil leaks) pollution from construction equipment can impact the groundwater.		
	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	Unlikely
Calculated Significance Rating (Low, Medium, High)	Low	Low
Reversibility: (Reversible or Irreversible)	Reversible	
Irreplaceable loss of resource: (Yes or No)	No	
Residual impacts Increased recharge in cleared areas		
Cumulative impacts • None expected		
Mitigation measures • Regular service of vehicles in designated repair bays; • Refuelling of vehicles only in designated areas; • Restrict movement of vehicles to a minimum; • All vehicles to be provided with a spill kit; • Any incidents that could release hydrocarbons to groundwater should be reported and mitigated immediately.		

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5.7.2.2 Operational Phase

Freshwater and Aquatic

This section presents the significance of potential impacts on the freshwater ecology of the wetlands located within the study area associated with the proposed underground mining operation.

Table 5-24: Potential changes to Hydrological Functioning and Water Quality should Subsidence Occur.

NATURE OF THE IMPACT: Changes to hydrological functioning and water quality.		
	Impact Rating without Mitigation	Impact Rating with Mitigation
Impact Status:	**Negative**	**Negative**
Extent	Local	Site
Duration	Long term	Long term
Magnitude	Moderate	Minor
Probability	Definite	Possible
Calculated Significance Rating	**Medium**	**Low**
Reversibility: (Reversible or Irreversible)	Irreversible: Depending on the degree of subsidence, (i.e., sink hole or cracking) physical rehabilitation will need to be implemented (following a Landscape and Rehabilitation plan developed by qualified specialists) to restore any impact to wetland habitat integrity and ecological functionality.	
Irreplaceable loss of resources:	No	
Can impacts be enhanced:	Yes, with rehabilitation measures.	
Potential Residual impacts • Localised but irreversible loss of wetland habitat, particularly where subsidence causes sinkholes or persistent ground deformation. • Altered runoff patterns within the local catchment of the freshwater ecosystems, potentially leading to increased erosion and sedimentation of the receiving freshwater environment. • Potential impacts on the water quality of surface water runoff (when present) which may potentially enter the downgradient freshwater ecosystems and contamination of soils.		
Mitigation measures • Adaptive Subsidence Management: Mitigation measures as stipulated in the specialist studies to mitigate against subsidence must be implemented. As per the Technical Report (Bara Consulting, 2025) to avoid potential surface subsidence, pillars will be designed with a minimum factor of safety to ensure subsidence is avoided. It is advised that the pillar safety factor under the wetlands be increased to further ensure no subsidence takes place. • Planning and mine design: Adequate safety precautions and monitoring protocols be developed to lower the potential of subsidence and effective monitoring (especially of freshwater ecosystems) to allow for immediate management of potential subsidence events. • In areas where subsidence is anticipated a walkdown should take place to observe and mark any signs of erosion and any changes to hydraulic pattern in the landscape.		

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Table 5-25: Potential changes to geomorphological processes should subsidence occur.

NATURE OF THE IMPACT: Changes to the geomorphological processes (sediment balance, erosion and sedimentation).		
	Impact Rating without Mitigation	Impact Rating with Mitigation
Impact Status:	**Negative**	**Negative**
Extent	Local	Site
Duration	Long term	Long term
Magnitude	Moderate	Minor
Probability	Unlikely	Unlikely
Calculated Significance Rating	**Medium**	**Low**
Reversibility: (Reversible or Irreversible)	Irreversible	
Irreplaceable loss of resources:	No	
Can impacts be enhanced:	Yes, with rehabilitation measures.	
Potential Residual impacts • Reduced nutrient cycling and soil water retention. • Exposure of soils, leading to increased runoff and erosion, and thus increased sedimentation of the impacted freshwater ecosystems. • Impact of increased sedimentation, potentially leading to smothering of biota and potentially altering surface water quality (if present). • Soil compaction altering run-off patterns. • Disturbed and fragmented habitats remain susceptible to invasion by AIPs.		
Mitigation measures • Bare areas are more susceptible to erosion, and these areas should be monitored to indicate any initial signs of subsidence. • Adaptive Subsidence Management: Mitigation measures as stipulated in the specialist studies to mitigate against subsidence must be implemented. As per the Technical Report (Bara Consulting, 2025) to avoid potential surface subsidence, pillars will be designed with a minimum factor of safety to ensure subsidence is avoided. It is advised that the pillar safety factor under the wetlands be increased to further ensure no subsidence takes place. • Concurrent rehabilitation should be implemented. At the first signs of soil erosion the surface should be covered with native plant species to prevent further loss of soil (where applicable).		

Table 5-26: Potential Increased Proliferation of AIPs and Potential Habitat Loss.

NATURE OF THE IMPACT: Increased proliferation of AIPs and potential habitat loss.		
	Impact Rating without Mitigation	Impact Rating with Mitigation
Impact Status:	**Negative**	**Negative**
Extent	Local	Site
Duration	Long term	Short term
Magnitude	Minor	Minor

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Probability	Possible	Possible
Calculated Significance Rating	**Medium**	**Low**
Reversibility: (Reversible or Irreversible)	Reversible with proactive AIP management.	
Irreplaceable loss of resources:	No	
Can impacts be enhanced:	Yes, with rehabilitation measures.	

Potential Residual impacts

- Decreased habitat integrity and diversity of biota as a result of unmanaged AIP proliferation.
- Potential inadequate AIP control methods, in turn altering freshwater habitat and runoff patterns, or contamination of surface water (if present) with herbicides.
- Potential inadequate re-vegetation methods, leading to failure of vegetation establishment, resulting in bare soil
- with increased risk of erosion and AIP proliferation.

Mitigation measures

- Adaptive Subsidence Management: Mitigation measures as stipulated in the specialist studies to mitigate against subsidence must be implemented. As per the Technical Report (Bara Consulting, 2025) to avoid potential surface subsidence, pillars will be designed with a minimum factor of safety to ensure subsidence is avoided. It is advised that the pillar safety factor under the wetlands be increased to further ensure no subsidence takes place.
- Concurrent rehabilitation should be implemented. At the first signs of AIP proliferation and establishment within monitoring areas or operation areas AIP management must commence. Following an AIP Management and Control Plan associated with the mine. Any current or existing AIP control plans should be updated to include all additional proposed activities and be updated annually to incorporate any new information.

Risk Assessment Discussion of Anticipated Ecological Impacts

There are four key ecological impacts on the freshwater ecosystems that are anticipated to occur namely:

- Loss of wetland habitat and ecological structure;
- Changes to the sociocultural and ecological service provision;
- Impacts on the hydrology and sediment balance of the wetlands; and
- Impacts on water quality.

Various activities and development aspects may lead to these impacts, however, provided that the mitigation hierarchy is followed, some impacts can be avoided or adequately minimised where avoidance is not feasible. The mitigation measures provided in this report have been developed with the mitigation hierarchy in mind, and the implementation and strict adherence to these measures will assist in minimising the significance of impacts on the receiving environment.

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DWS Risk Assessment Methodology

The methodology used to rank risks/impacts for the freshwater ecosystem involves the identification of environmental activities, aspects and impacts. This is supported by the identification of receptors and resources, which allows for an understanding of the impact pathway and an assessment of the sensitivity to change.

The significance of the impact is then assessed by rating each variable numerically according to the defined criteria (seeTable 5-27 to Table 5-31). The purpose of the rating is to develop a clear understanding of influences and processes associated with each impact. The intensity, spatial scale and duration of the impact together comprise the consequence of the impact and when summed can obtain a maximum value of 75. The likelihood of the impact occurring is determined by assigning a likelihood score of between 20% and 100%. The values for likelihood and consequence of the impact are then read off a significance rating matrix and are used to determine whether control is necessary[1].

The model outcome of the impacts was then assessed in terms of impact certainty and consideration of available information. The Precautionary Principle is applied in line with South Africa's NEMA in instances of uncertainty or lack of information, by increasing assigned ratings or adjusting final model outcomes. In certain instances, where a variable or outcome requires rational adjustment due to model limitations, the model outcomes have been adjusted.

Table 5-27: Intensity (What is the intensity of the impact on the resource quality - hydrology, water quality, geomorphology, biota?)

Negative impacts	
Negligible / non-harmful; no change in PES	0
Very low / potentially harmful; negligible deterioration in PES (<5% change)	+1
Low / slightly harmful; minor deterioration in PES (<10% change)	+2
Medium / moderately harmful; moderate deterioration in PES (>10% change)	+3
High / severely harmful; large deterioration in PES (by one class or more)	+4
Very high / critically harmful; critical deterioration in PES (to E/F or F class)	+5
Positive impacts	
Negligible; no change in PES	0
Very low / potentially beneficial; negligible improvement in PES (<5% change)	-1
Low / slightly beneficial; minor improvement in PES (<10% change)	-2

[1] Some risks/impacts that have low significance will however still require control

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Medium / moderately beneficial; moderate improvement in PES (>10% change)	-3
Highly beneficial; large improvement in PES (by one class or more) and/or increase in protection status	-4
Very highly beneficial; improvement to near-natural state (A or A/B class) and/or major increase in protection status	-5

Table 5-28: Table D2: Spatial Scale (How big is the area that the activity is impacting on, relative to the size of the impacted watercourses?).

Very small portion of watercourse/s impacted (<10% of extent)	1
Moderate portion of watercourse/s impacted (10-60% of extent)	2
Large portion of watercourse/s impacted (60-80%)	3
Most or all of watercourse/s impacted (>80%)	4
Impacts extend into watercourses located well beyond the footprint of the activities	5

Table 5-29: Duration (How long does the aspect impact on the resource quality).

Transient (One day to one month)	1
Short-term (a few months to 5 years) OR repeated infrequently (e.g. annually) for one day to one month	2
Medium-term (5 – 15 years)	3
Long-term (ceases with operational life)	4
Permanent	5

Table 5-30: Likelihood of impact (What is the probability that the activity will impact on the resource quality?).

Improbable / Unlikely	20%
Low probability	40%
Medium probability	60%
Highly probable	80%
Definite / Unknown	100%

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Table 5-31: Rating Classes.

RATING	CLASS	MANAGEMENT DESCRIPTION
1 – 29	(L) Low Risk	Acceptable as is or with proposed mitigation measures. Impact to watercourses and resource quality small and easily mitigated, or positive.
30 – 60	M) Moderate Risk	Risk and impact on watercourses are notable and require mitigation measures on a higher level, which costs more and require specialist input. Licence required.
61 – 100	(H) High Risk	Watercourse(s) impacts by the activity are such that they impose a long-term threat on a large scale and lowering of the Reserve. Licence required.
A low risk class must be obtained for all activities to be considered for a GA		

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Table 5-32: Summary of the Results of the DWS Risk Assessment Matrix Applied to the Freshwater Ecosystems Associated with the Proposed Underground Mining Operation.

Phase	No.	Activity	Impact	Potentially affected watercourses			Severity	Consequence	Likelihood	Significance	Risk Rating	Mitigation Measures to be implemented
				Name/s	PES	Overall Watercourse Importance						
Operational	1	Operation of the underground mining area related to the undermining of the freshwater ecosystems.	Potential creation of a cone of depression, which may drain water from the wetlands, thus resulting in desiccation of the systems.	Seeps	C	Moderate	10	30	40%	12	L	• Mitigation measures as stipulated in the Technical Report compiled by Bara Consulting (2025), to mitigate against subsidence and dewatering, formation of a pollution plume and decant respectively, must be implemented; • The management and mitigation measures recommended by a suitably qualified geohydrologist must be implemented to mitigate the potential impacts arising from the formation of a cone of depression and pollution plume, from the mine into the receiving environment; and • Water levels need to be strictly managed to ensure they are kept below any decant level while ensuring that a significant cone of depression impact does not take place.
				Depressions	D	Moderate	10	30	40%	12	L	
	2		Potential destabilisation of the surrounding environment through the extraction of ore and subsequent potential subsidence of the land.	Seeps	C	Moderate	11	33	60%	19.8	L	• Mitigation measures as stipulated in the specialist studies to mitigate against subsidence must be implemented; • As per the Technical Report (Bara Consulting, 2025) to avoid potential surface subsidence, pillars will be designed with a minimum factor of safety to ensure subsidence is avoided; and • It is advised that the pillar safety factor under the wetlands be increased to further ensure no subsidence takes place.
				Depressions	D	Moderate	11	33	60%	19.8	L	

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Groundwater

The activities and impacts that are likely to occur during the operational phase are summarised in Table 5-33.

Table 5-33: Summary of Activities and Impacts for the Operational Phase

Activity	Impact Description
Groundwater abstraction from the deep Witwatersrand aquifer	Impact 1: Abstraction from the deep aquifer may impact the availability of the shallow groundwater resource.
Groundwater abstraction from the deep Witwatersrand aquifer	Impact 2: Abstraction from the deep aquifer may impact on groundwater levels in the shallow Karoo aquifer.
Mine water and waste containment in existing mine infrastructure	Impact 3: Contaminant plume migration from mine waste and water infrastructure impacting on downgradient groundwater use

The ratings and proposed mitigation measures for the operational phase are provided in Table 5-34 to Table 5-36.

5.7.2.2.1 Groundwater Abstraction

During the operational phase groundwater abstraction will take place to maintain dry, safe working conditions in the Jelani mine voids. This water will need to be discharged at surface at a quality that adheres to discharge standards.

The Jelani Mine will utilise the existing Target No. 2 and No. 3 shafts and will primarily extend within an already dewatered and operational underground mining environment to only approximately 140 m below the current Target No. 2 Mine workings. Therefore, while groundwater inflows may locally increase where previously not dewatered geological structures are intersected, no substantial increase in regional groundwater abstraction is expected compared to the current active mining operations, and projected pumping requirements for the Proposed Project are considered to be consistent with that for the Target Operation.

Therefore, groundwater volumes to be abstracted for the proposed Jelani Mine are expected to be in line with the volumes currently managed at the Target Operation. Previous hydrogeological investigations, including (Groundwater Square, 2016), indicate that the Target Operation presently pumps approximately 5–6 Ml/day of groundwater to surface, with average pumping rates of 5.96 ML/day (as recorded during October and November 2015) and long-term pumping from Target No. 1 Shaft averaging at approximately 4.7 Ml/day.

The estimated total groundwater inflow for the Jelani operation is expected to be approximately 5.4 Ml/day, comprising:

- An estimated 3.4 Ml/day groundwater make for the Jelani Mine; and
- Approximately 2 Ml/day of inter-mine flow from Freddies No. 9 Shaft

As this volume will be abstracted from the deep Witwatersrand aquifer and this abstraction is not expected to have a significant impact on the groundwater resource in the shallow aquifer, the impact significance is expected to be medium.

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Table 5-34: Significance Rating of Operational Impact 1

NATURE OF IMPACT 1: Abstraction from the deep aquifer may impact the availability of the shallow groundwater resource.		
	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)	Minor	Minor
Probability (Definite, Possible, Unlikely)	Possible	Unlikely
Calculated Significance Rating (Low, Medium, High)	Medium	Medium
Reversibility: (Reversible or Irreversible)	Reversible	
Irreplaceable loss of resource: (Yes or No)	No	
Residual impacts None expected		
Cumulative impacts • Abstraction of all mining activities in the Witwatersrand aquifer		
Mitigation measures • Mining should progress as swiftly as possible to reduce the period of active dewatering; • Dewatering of the underground mine should stop as soon as mining activities cease. • Abstraction volumes should be monitored regularly and where these deviate from expected volumes, this should be reported immediately.		

Groundwater Drawdown

Farms in proximity of the proposed Jelani and existing Target Operation are underlain by the shallow Karoo aquifer, which is the main source of groundwater for individual landowner borehole sources.

Previous hydrogeological reports indicated that the shallow Karoo aquifer is not hydraulically connected to the deep Witwatersrand mine workings. This has been shown by groundwater level data for shallow boreholes in the entire Harmony mining area which vary between 0 and 33 mbgl, show an average depth to groundwater of 5.3 mbgl and are mostly between 0-4 mbgl.

For the Study Area specifically, static groundwater levels measured in hydrocensus boreholes in December 2025 were observed to be between 0.6 and 5.3 mbgl. Where boreholes were pumped while visiting, dynamic groundwater levels of 12.5 and 44.9 mbgl were observed, indicating drawdown effects due to active borehole abstraction.

This shows natural groundwater levels in the shallow Karoo aquifer are close to surface with no indication of impacts by ongoing mining activities, and as such no regional radius of influence or drawdown effects are currently present in the shallow Karoo aquifer despite decades of mining at the Target 2 and 3 operations. Currently no evidence exists that mining has reduced regional shallow groundwater availability or has had a significant impact on shallow groundwater levels.

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The existing mining has been ongoing for decades and has not led to widespread significant dewatering of the shallow aquifer, which is the main source of water for surrounding farms or other third-party groundwater users.

The addition of the proposed Jelani mining activities within the already impacted Witwatersrand aquifer is not expected to result in significant additional groundwater impacts beyond those already associated with the long-established mining complexes. As such the significance of this impact is expected to be medium.

Table 5-35: Significance Rating of Operational Impact 2

NATURE OF IMPACT 2: Abstraction from the deep aquifer may impact on groundwater levels in the shallow Karoo aquifer.		
	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)	Minor	Minor
Probability (Definite, Possible, Unlikely)	Possible	Unlikely
Calculated Significance Rating (Low, Medium, High)	Medium	Medium
Reversibility: (Reversible or Irreversible)	Reversible	
Irreplaceable loss of resource: (Yes or No)	No	
Residual impacts None expected		
Cumulative impacts • Abstraction of all mining activities in the Witwatersrand aquifer		
Mitigation measures • Groundwater levels in the shallow Karoo aquifer should be monitored on a regular basis throughout the LoM to verify no impacts on shallow groundwater levels. • Where it is proven that third-party boreholes have reduced yields due to mining activities, an alternative supply needs to be provided.		

Contaminant Plume Migration

Waste rock and ore will be brought to surface using the shafts, with ore processed at the Target Operation processing plant and waste rock deposited on the existing waste rock dumps at the Target Shaft 2 and 3 areas. Partial use of the existing Target surface infrastructure, including RWDs, will be used for containment of process/dirty water. As these facilities are not lined, seepage from these dams into the underlying Karoo aquifer is expected to continue up to the end of LoM. As such, forward plume migration was simulated to predict plume migration for the operational phase to the end of Life of Mine (LoM).

If the RWDs, emergency overflow dam and evaporation dam are all used until 2041, and the Target TSF remains unchanged (no rehabilitation), contamination will migrate downgradient from existing infrastructures. As the migration will follow groundwater gradients, the migration mainly occurs in a westerly direction.

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Figure 5-17 shows that two third-party boreholes (B38N and B8) are located in the plume extending from the RWDs, emergency overflow dam and Swartpan and groundwater quality in these boreholes may be impacted during the LoM. These boreholes should be included in the monitoring programme for the Jelani operations and compared to model results as well as SANS 241 drinking water standards.

As some downgradient groundwater users are likely to be impacted, the significance of this impact is expected to be medium.

Table 5-36: Significance Rating of Operational Impact 3

NATURE OF IMPACT 3: Contaminant plume migration from mine waste and water infrastructure impacting on downgradient groundwater use.		
	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)	Moderate	Moderate
Probability (Definite, Possible, Unlikely)	Definite	Possible
Calculated Significance Rating (Low, Medium, High)	Medium	Medium
Reversibility: (Reversible or Irreversible)	Reversible	
Irreplaceable loss of resource: (Yes or No)	No	
Residual impacts None expected		
Cumulative impacts • Impact on groundwater quality by cumulative impact from the Target TSF and RWDs		
Mitigation measures • Diversion of clean water to Swartpan and prevention of dirty water from the emergency overflow dam; • Geochemical assessment of Target TSF tailings, including source terms and long-term seepage quality modelling; • Continuous monitoring of process water in dams, pans and tailings ponds; • Continuous monitoring of groundwater quality in downgradient monitoring boreholes and third-party boreholes; • Yearly reporting of groundwater quality monitoring and comparison to groundwater model results; • Where it is proven that third-party boreholes show impacted groundwater quality due to mining activities, an alternative supply needs to be provided.		

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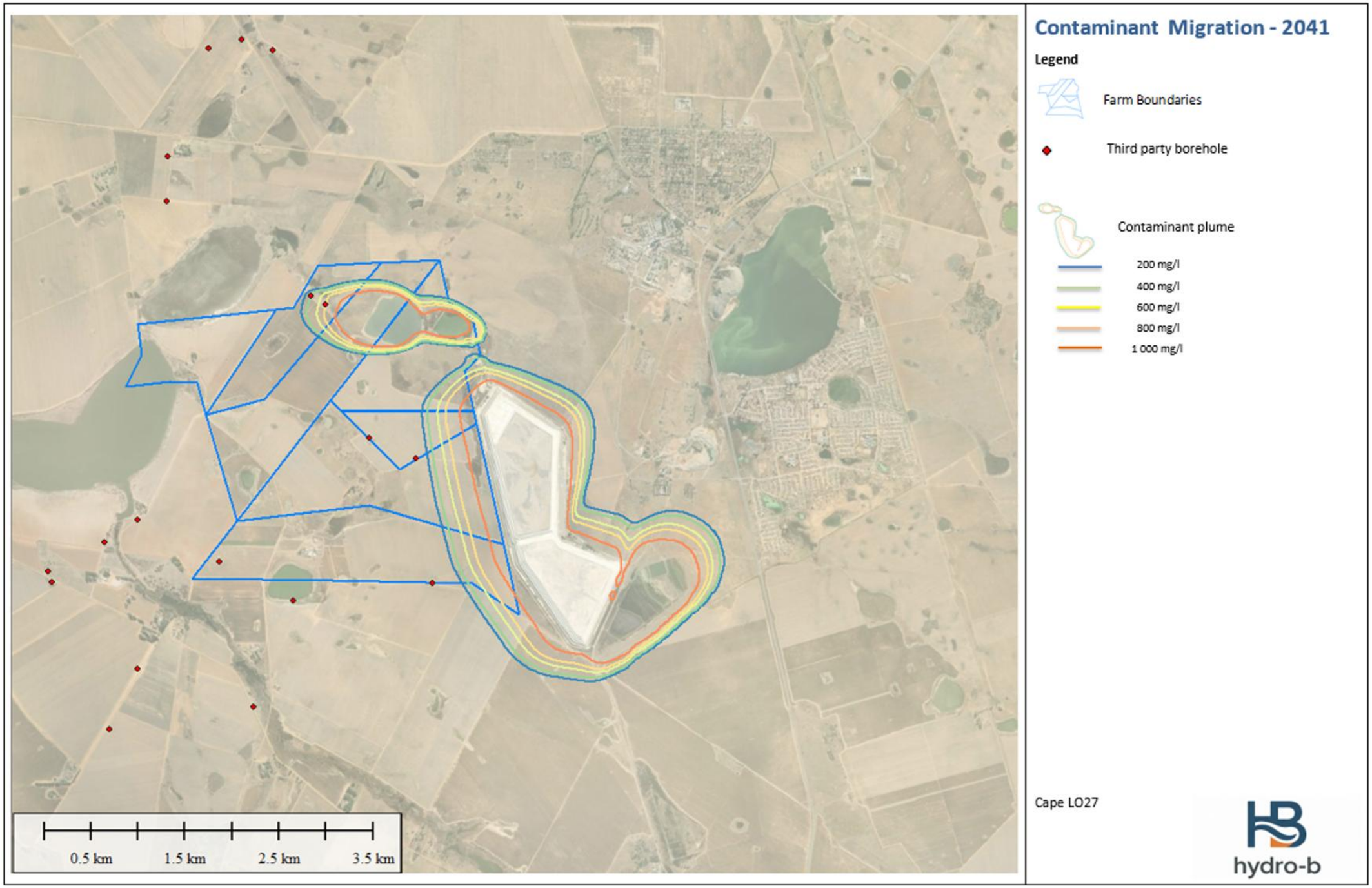

Figure 5-17: Contaminant Plume – 2041 Situation (end of LoM)

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Surface Water

During the operational phase, the proposed "dirty" water and "clean" water system will operate for the LoM of both the Proposed Project and the Target Operation. It is of utmost importance that the "dirty" water system (Emergency Overflow Dam, Blue RWD, and North-west RWD) are operated at the designed "operational" level allowing capacity in the system to accommodate the 1:50 year storm. All stormwater infrastructure must be regularly monitored and maintained.

The activities and impacts that could potentially occur during the operational phase are summarised in Table 5-37.

Table 5-37: Summary of Activities and Impacts for the Operational Phase

Activity	Impact Description
Maintenance of stormwater infrastructure, including berms and channels.	**Impact 1:** Poorly maintained stormwater infrastructure reduces capacity of the infrastructure which could result in escape into other areas and nearby watercourses, degrading water quality.
"Dirty" water infrastructure (Emergency Overflow Dam, Blue RWD and North-west RWD) not operated at optimum level, resulting in insufficient capacity to retain the 1:50 year storm runoff.	**Impact 2:** "Dirty" water infrastructure will overflow during extreme rainfall and contaminate Swartpan and the natural watercourse downstream of Swartpan.

The ratings and proposed mitigation measures for the operational phase are indicated in Table 5-38 to Table 5-39.

Table 5-38: Significance Rating of Operational Impact 1

NATURE OF IMPACT 1: Poorly maintained stormwater infrastructure reduces capacity of the infrastructure which could result in escape into other areas and nearby watercourses, degrading water quality.		
	Impact Rating without Mitigation	Impact Rating with Mitigation
Impact Status *(positive or negative)*	Negative	Positive
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	Unlikely
Calculated Significance Rating *(Low, Medium, High)*	**Medium**	**Low**
Reversibility: (Reversible or Irreversible)	Reversible	
Irreplaceable loss of resource: (Yes or No)	No	
Residual impacts • None foreseen, as the impact will cease if maintenance is done correctly.		
Cumulative impacts • None foreseen, as the impact will cease if maintenance is done correctly.		

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NATURE OF IMPACT 1: Poorly maintained stormwater infrastructure reduces capacity of the infrastructure which could result in escape into other areas and nearby watercourses, degrading water quality.
Mitigation measures • Implementation of the proposed SWMP. It must be ensured that stormwater measures (e.g. Berms) are designed, constructed, operated and maintained, to ensure that stormwater does not spill more than once in 50 years, to be compliant with GN R704 regulations. • Undertake regular inspections and maintenance on the bypass channel and earth berms.

Table 5-39: Significance Rating of Operational Impact 2

NATURE OF IMPACT 2: "Dirty" water infrastructure will overflow during extreme rainfall and contaminate Swartpan and the natural watercourse downstream of Swartpan.		
	Impact Rating without Mitigation	Impact Rating with Mitigation
Impact Status *(positive or negative)*	**Negative**	**Positive**
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	Unlikely
Calculated Significance Rating *(Low, Medium, High)*	**Low**	**Low**
Reversibility: (Reversible or Irreversible)	Reversible	
Irreplaceable loss of resource: (Yes or No)	No	
Residual impacts • None foreseen, as the impact will cease if the "dirty" water infrastructure is operated correctly.		
Cumulative impacts • None foreseen, as the impact will cease if "dirty" water infrastructure is operated correctly.		
Mitigation measures • Regular inspections and maintenance of "dirty" water infrastructure. • Harmony to operate the infrastructure at the designed operating level.		

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As noted from the risk assessment above, the assessed activities and aspects are expected to pose an overall "Low" risk to the wetlands, provided that the mitigation measures as outlined in this report are strictly adhered to. The assessment of potential impacts to groundwater was not part of the scope of this report. As such, the mitigation measures as outlined in the Technical Report (Bara Consulting, 2025) to mitigate against potential subsidence, creation of a pollution plume and possible decant must be implemented and strictly adhered to in order to ensure a low impact significance (as assessed in the previously mentioned reports). It is also recommended that the pillar safety factor under the wetlands be increased with an appropriate margin of safety to ensure that no subsidence of the wetlands take place.

5.7.2.3 Closure/Rehabilitation and Decommissioning Phase

Freshwater

Following the completion of the proposed underground mining operations, the decommissioning, closure, and rehabilitation activities for the Proposed Project will be limited to the removal of underground infrastructure.

Table 5-40: Potential Freshwater Habitat/Functionality Loss and Impacts to Biota Due to Potential Subsidence Post Mine Closure.

NATURE OF THE IMPACT: Potential freshwater habitat loss and impacts to biota		
	Impact Rating Without Mitigation	Impact Rating With Mitigation
Impact Status:	Negative	Negative
Extent	Local	Local
Duration	Long term	Long term
Magnitude	Moderate	Minor
Probability	Unlikely	Unlikely
Calculated Significance Rating	Medium	Low
Reversibility:	Irreversible	
Irreplaceable loss of resources:	No	
Can impacts be enhanced:	Yes, with rehabilitation measures.	

Potential Residual impacts

- Possible localised but irreversible loss of wetland habitat and functionality, particularly where subsidence causes sinkholes or persistent ground deformation.
- Disturbed and fragmented habitats remain susceptible to invasion by AIPs.
- Altered runoff patterns within the local catchment of the freshwater ecosystems, potentially leading to increased erosion and sedimentation of the receiving freshwater environment.
- Exposure of soils, leading to increased runoff and erosion, and thus increased sedimentation of the impacted freshwater ecosystems.
- Impact of increased sedimentation, potentially leading to smothering of biota and potentially altering surface water quality (if present).

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Mitigation measures

- Adaptive Subsidence Management: Mitigation measures as stipulated in the specialist studies to mitigate against subsidence must be implemented. As per the Technical Report (Bara Consulting, 2025) to avoid potential surface subsidence, pillars will be designed with a minimum factor of safety to ensure subsidence is avoided. It is advised that the pillar safety factor under the wetlands be increased to further ensure no subsidence takes place.
- A Rehabilitation and Landscape Plan should be developed as a precautionary measure for subsidence to follow protocols and guidelines provided by qualified experts.
- Monitoring post mine closure and decommission should take place for at least 5 year post closure to ensure no delayed subsidence has occurred.

Groundwater

The activities and impacts that are likely to occur during the post-closure phase are summarised in Table 5-41

Table 5-41: Summary of Activities and Impacts for the Post-Closure Phase

Activity	Impact Description
Cessation of groundwater abstraction from the deep Witwatersrand aquifer	Impact 1: Cessation of groundwater abstraction causes the recovery of deep groundwater levels, allowing for hydraulic connection between the deep and shallow aquifers.
Mine water and waste containment in existing mine infrastructure	Impact 2: Contaminant plume migration from mine waste and water infrastructure impacting on downgradient groundwater use

The ratings and proposed mitigation measures for the post-closure phase are provided in **Table 5-42** and **Table 5-43**.

Groundwater Recovery and Decant Potential

After mining activities at target as well as Jelani have ceased, the mine voids are allowed to flood, causing groundwater levels in the surrounding deep aquifer to recover. Cessation of groundwater abstraction may result in recovery of deep groundwater levels, potentially increasing hydraulic connectivity between the deep and shallow aquifers

Based on available information, groundwater levels in the Witwatersrand aquifer are not expected to fully recover and remain approximately 400–500 m below the groundwater levels in the Karoo aquifer. In addition, it was concluded that the Karoo aquifer is a perched aquifer with shallow groundwater levels and has limited interaction with the underlying confined Witwatersrand aquifer. Therefore, the significance of the impact of decant of poor quality mine water into the shallow Karoo aquifer or onto surface through shafts is expected to be low.

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Table 5-42: Significance Rating of Post-Closure Impact 1

NATURE OF IMPACT 1: Cessation of groundwater abstraction causes the recovery of deep groundwater levels, allowing for hydraulic connection between the deep and shallow aquifers.		
	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)	Minor	Minor
Probability (Definite, Possible, Unlikely)	Possible	Unlikely
Calculated Significance Rating (Low, Medium, High)	Low	Low
Reversibility: (Reversible or Irreversible)	Reversible	
Irreplaceable loss of resource: (Yes or No)	No	
Residual impacts None expected		
Cumulative impacts • Cessation of all mine water abstraction activities in the Witwatersrand aquifer		
Mitigation measures • Groundwater levels in the deep Witwatersrand aquifer should continue to be monitored on a regular basis. • Water level recovery in mine voids should continue to be monitored on a regular basis.		

Contaminant Plume Migration

A previous hydrogeological model that includes groundwater pathways and contaminant plume migration for the Study Area was completed (AquiSim Consulting, 2025). As part of this assessment, the main sources of contamination in terms of size and contaminant load were determined to be the Target No. 1 and 2 Tailings Storage Facilities, the RWDs, the Evaporation Dam, the Emergency Overflow dam and the Swartpan.

After closure of the Jelani operations the RWDs, emergency overflow dam and evaporation dam will be rehabilitated, no storage of process water will continue and natural recharge will be allowed to infiltrate into these areas. However, for the Target TSF it was assumed that source concentrations and infiltration rates remain constant as a conservative assumption.

Scenario modelling for 50 and 100 years post-closure (base case scenario - porosity 4% for the weathered zone and 2% for the fractured zone) show that the simulated contaminant plume migrates mainly in a westerly direction into the Study Area following the regional hydraulic gradient (Figure 5-18).

50 years after closure the simulated plume has migrated 1 050 m away from the Target TSF and associated dams. The simulated plume migrated approximately 1 300 m from the Target TSF and associated dams 100 years after closure.

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A sensitivity analysis was performed on this parameter by varying the porosity values between 3 and 7% for the weathered zone and 1 and 3% for the fractured zone. Results show that plume from the Target TSF would migrate 2 000 m for the lowest porosity values and 650 m using the highest porosity values.

Figure 5-18 shows that:

- For the base-case scenario, third-party boreholes B1, B7, B8 and B38N are located within the plume extents for 50 and 100 years post-closure and groundwater quality in these boreholes may thus be impacted in the post-closure phase. For the conservative scenario (low porosity) borehole B2N1 is also projected to be within the simulated plume extent;
- These boreholes should be included in the monitoring programme for the Jelani operations and compared to model results as well as SANS 241 drinking water standards.

As some downgradient groundwater users are likely to be impacted post-closure, the significance of this impact is expected to be medium.

Table 5-43: Significance Rating of Post-Closure Impact 2

NATURE OF IMPACT 2: Contaminant plume migration from mine waste and water infrastructure impacting on downgradient groundwater use.		
	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)	Moderate	Moderate
Probability (Definite, Possible, Unlikely)	Definite	Possible
Calculated Significance Rating (Low, Medium, High)	Medium	Medium
Reversibility: (Reversible or Irreversible)	Reversible	
Irreplaceable loss of resource: (Yes or No)	No	
Residual impacts None expected		
Cumulative impacts • Impact on groundwater quality by cumulative impact from the Target TSF and RWDs		
Mitigation measures • Rehabilitation of process water storage dams; • Rehabilitation and evaporative cover on the Target TSF; • Geochemical assessment of Target TSF tailings, including source terms and long-term seepage quality modelling; • Continuous monitoring of water quality in dams and pans for a period of at least five years; • Continuous monitoring of groundwater quality in downgradient monitoring and third-party boreholes for a minimum period of five years; • Yearly reporting of groundwater quality monitoring and comparison to groundwater model results		

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NATURE OF IMPACT 2: Contaminant plume migration from mine waste and water infrastructure impacting on downgradient groundwater use.
• Where it is proven that third-party boreholes show impacted groundwater quality due to mining activities, an alternative supply needs to be provided.

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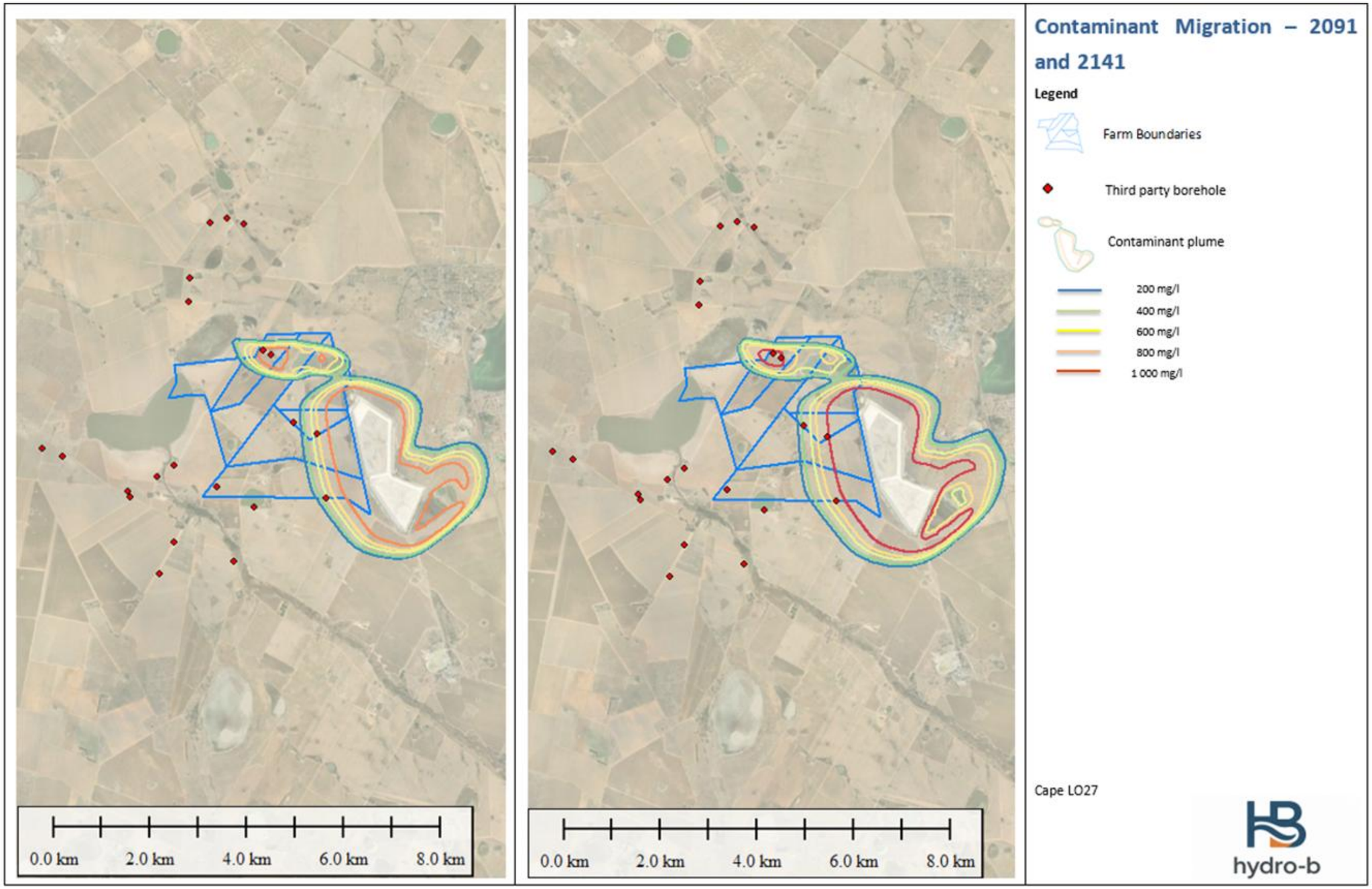

Figure 5-18: Contaminant Plume – 2091 and 2141 Situation (50 and 100 Years Post-Closure)

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Surface Water

Once the ProposedProject is complete, the fate of the "dirty" water infrastructure (Emergency Overflow Dam, Blue RWD and North-west RWD) will depend on if the Target Operation owned by Harmony is still in operation. Assuming that it is, the operation and maintenance of the infrastructure will continue to be the responsibility of Harmony.

The activities and impacts that are likely to occur during the closure and rehabilitation phase are summarised in Table 5-44.

Table 5-44: Summary of Activities and Impacts for the Closure and Rehabilitation Phase

Activity	Impact Description
Demolition of existing "dirty" water infrastructure, and open bypass channel	**Impact 1:** Effluents residues containing alkaline or heavy metals pollutes nearby soil and water resources
Rehabilitation of the existing "dirty" water infrastructure, and open bypass channel	**Impact 2:** Erosion and wash off soils resulting in water quality issues in the surrounding watercourses
Reprofiling of land to restore original topography	**Impact 3:** Land being levelled to its original functioning topography levels will redirect runoff and affect existing drainage patterns

The ratings and proposed mitigation measures for the closure and rehabilitation phase are indicated in Table 5-45 to Table 5 51.

Table 5-45 : Significance Rating of Closure and Rehabilitation Impact 1

NATURE OF IMPACT 1: Effluents residues containing alkaline or heavy metals pollutes nearby soil and water resources		
	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	Unlikely
Calculated Significance Rating (Low, Medium, High)	**Low**	**Low**
Reversibility: (Reversible or Irreversible)	Irreversible	
Irreplaceable loss of resource: (Yes or No)	No	
Residual impacts Possible, unless potential spills are rehabilitated		

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Cumulative impacts • None foreseen, as the impact will cease if rehabilitation is done correctly.
Mitigation measures • Remove and treat effluent before demolition begins. • Neutralise pH to environmentally acceptable limits before discharge or containment. • Stormwater infrastructure to be implemented once end land use has been determined. • Post-Rehabilitation monitoring.

Table 5-46 : Significance Rating of Closure and Rehabilitation Impact 2

NATURE OF IMPACT 2: Erosion and wash off soils resulting in water quality issues in the surrounding watercourses		
	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	Unlikely
Calculated Significance Rating (Low, Medium, High)	**Low**	**Low**
Reversibility: (Reversible or Irreversible)	Irreversible	
Irreplaceable loss of resource: (Yes or No)	No	
Residual impacts • None foreseen, as the impact will cease if rehabilitation is done correctly.		
Cumulative impacts • None foreseen, as the impact will cease if rehabilitation is done correctly.		
Mitigation measures • Stormwater infrastructure to be implemented once end land use has been determined. • Design reprofiled areas with stable drainage patterns. • Post-Rehabilitation monitoring.		

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Table 5-47 : Significance Rating of Closure and Rehabilitation Impact 3

NATURE OF IMPACT 3: Land being levelled to its original functioning topography levels will redirect runoff and affect existing drainage patterns		
	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	Unlikely
Calculated Significance Rating (Low, Medium, High)	**Low**	**Low**
Reversibility: (Reversible or Irreversible)	Irreversible	
Irreplaceable loss of resource: (Yes or No)	No	
Residual impacts • None foreseen, as the impact will cease if rehabilitation is done correctly.		
Cumulative impacts • None foreseen, as the impact will cease if rehabilitation is done correctly.		
Mitigation measures • Stormwater infrastructure to be implemented once end land use has been determined. • Design reprofiled areas with stable drainage patterns. • Post-Rehabilitation monitoring.		

5.7.2.4 Cumulative Impacts

Freshwater

Freshwater ecosystems within the region are under continued threat largely due to ongoing mining and agricultural activities as well as urbanisation. These cumulative impacts lead to increasing impacts on the functioning and service provision by wetlands and rivers.

Table 5-48: Potential Cumulative Effects on Wetland Habitat due to Potential Subsidence Post Mine Closure.

NATURE OF THE CUMULATIVE IMPACT: Potential freshwater habitat loss and impacts to biota		
	Impact Rating without Mitigation	Impact Rating with Mitigation
Impact Status:	Negative	Negative
Extent	Local	Local
Duration	Long term	Long term
Magnitude	Minor	Minor
Probability	Unlikely	Unlikely

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NATURE OF THE CUMULATIVE IMPACT: Potential freshwater habitat loss and impacts to biota		
Calculated Significance Rating	Low	Low
Reversibility:	Irreversible	
Irreplaceable loss of resources:	No	
Can impacts be enhanced: (Yes or No)	Yes, with rehabilitation measures.	

Potential Residual impacts

- Increased risk of AIP proliferation due to disturbances within the delineated extent of the freshwater ecosystems and within the immediate surrounds.
- Increased risk for erosion and sedimentation due to increased stormwater runoff within the catchment of the freshwater ecosystems.
- Increased risk of nutrient inputs from the mining and agricultural activities resulting in changes to the water quality of the freshwater ecosystems.
- Increased dust generation due to mining and agricultural activities and vehicle movement within the freshwater ecosystems and within the immediate surrounds.
- Increased likelihood of deterioration of ecological functioning and ecoservice provisioning potential of the freshwater ecosystems.

Mitigation measures

- Adaptive Subsidence Management: Mitigation measures as stipulated in the specialist studies to mitigate against subsidence must be implemented. As per the Technical Report (Bara Consulting, 2025) to avoid potential surface subsidence, pillars will be designed with a minimum factor of safety to ensure subsidence is avoided. It is advised that the pillar safety factor under the wetlands be increased to further ensure no subsidence takes place.
- A Rehabilitation and Landscape Plan should be developed as a precautionary measure for subsidence to follow protocols and guidelines provided by qualified experts.
- Monitoring post mine closure and decommission should take place for at least 5 year post closure to ensure no delayed subsidence has occurred.

Surface Water

The Proposed Project is located in a catchment that is highly impacted by mining activities. The implementation of a sound SWMP is crucial to separate “clean” and “dirty” water systems in the Proposed Project area. The monitoring and maintenance of the implemented SWMP is of utmost importance, to ensure that spillages into the downslope watercourses do not occur.

The removal of the “dirty” water infrastructure and the open bypass channel and the successful implementation of a rehabilitation plan could enhance the catchment baseline water quality. Should the rehabilitation plan not be followed, then in the long term, the Proposed Project has the potential to cumulatively add to the already deteriorated water quality within the Losdoringspruit catchment.

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Table 5-49: Cumulative Impact Rating for Surface Water Quality

NATURE OF IMPACT: Should dirty water runoff not be contained and an appropriate rehabilitation plan for the area not be undertaken and successfully implemented, 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**
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	Unlikely
Calculated Significance Rating (Low, Medium, High)	**Low**	**Low**
Reversibility: (Reversible or Irreversible)	Irreversible	
Irreplaceable loss of resource: (Yes or No)	No	
Residual impacts • None foreseen, as the impact will cease if rehabilitation is done correctly.		
Cumulative impacts • None foreseen, as the impact will cease if rehabilitation is done correctly.		
Mitigation measures • Effective stormwater management that captures and contains all site runoff as proposed in this report, and in accordance with GN R704. • Effective monitoring of the stormwater management system to ensure it is operational and maintained. • Successful removal of the "dirty" water infrastructure and the open bypass channel and rehabilitation of the areas • Water quality monitoring must be implemented upstream and downstream of site.		

Groundwater

The Proposed Project is located in an area that is already impacted by existing mining activities. As already mentioned, existing Target Operation surface water infrastructure for mine waste and water is present which locally impacts on groundwater quality. As it is proposed that much of the mine water infrastructure will be used for the proposed Jelani operation, this will lead to cumulative impacts that are impossible to divide into historical and future impacts.

As such, the impacts and their significance included in the previous sections are already considered to be cumulative. As such, there will be no additional cumulative impacts expected other than what has already been reported on above

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5.7.3 Impact Summary Table

The impacts and mitigation measures are summarised in Table 5-50 .

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Table 5-50: Summary of the Potential Impacts and Proposed 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 local topography	Erosion and wash off of exposed soils leading to siltation in nearby surface water runoff areas and/or Swartpan.	Minor	Short term	Lobbcal	Possible	**Low**	Clearance of vegetation for the new earth berms/open bypass channel must be limited as far as possible. Temporary erosion measures such as stormwater bypass mechanisms should be employed around exposed working areas. The SWMP must be implemented as a first step during the construction phase. Water quality monitoring must be implemented upstream and downstream of construction sites.	Minor	Short term	Local	Possible	**Low**
2	Site preparation and land rehabilitation before forming and construction of lining to bypass channel	Release of pollutants (waste piles) during site preparation and rehabilitation could pose a risk to water quality.	Minor	Short term	Local	Possible	**Low**	Waste piles to be bermed off to prevent stormwater erosion. The SWMP must be implemented as a first step during the construction phase. Rehabilitation plan to be implemented accurately and monitored closely.	Minor	Short term	Local	Unlikely	**Low**

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Impact No.	Activity	Impact Description	BEFORE MITIGATION					Mitigation measures/ Recommendations	AFTER MITIGATION				
			Magnitude	Duration	Spatial Scale	Probability	SIGNIFICANCE		Magnitude	Duration	Spatial Scale	Probability	SIGNIFICANCE
3	Use of construction equipment	Hydrocarbon (fuel/oil leaks) pollution from construction equipment can impact the soil and nearby surface water.	Minor	Short term	Local	Possible	**Low**	Water quality monitoring must be implemented upstream and downstream of construction sites. Maintain all construction equipment. Maintenance of construction equipment at or near the watercourse. Train staff in spill response and deploy spill kits at active zones. Drip trays shall be placed beneath leaking sections of construction equipment.	Minor	Short term	Local	Unlikely	**Low**
4	Forming of bypass channel and construction of concrete lining to bypass channel	Contamination of surface water and therefore Swartpan from land disturbance and contaminated soils during construction of concrete lining to bypass channel	Minor	Short term	Local	Possible	**Low**	Temporary erosion measures such as stormwater bypass mechanisms should be employed around exposed working areas. The SWMP must be implemented as a first step during the construction phase. Water quality monitoring must be implemented upstream and downstream of construction sites.	Minor	Short term	Local	Unlikely	**Low**
5	Forming of earth berm connecting existing earth berm to bypass channel	Contamination of surface water and therefore Swartpan from land disturbance and contaminated soils during construction of earth berm.	Minor	Short term	Local	Possible	**Low**	The SWMP must be implemented as a first step during the construction phase. Monitor runoff during and after demolition.	Minor	Short term	Local	Unlikely	**Low**

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Impact No.	Activity	Impact Description	BEFORE MITIGATION					Mitigation measures/ Recommendations	AFTER MITIGATION				
			Magnitude	Duration	Spatial Scale	Probability	SIGNIFICANCE		Magnitude	Duration	Spatial Scale	Probability	SIGNIFICANCE
6	Major storm event during forming and construction of bypass channel	Construction works could be damaged and might have to be replaced, with a potential risk of contamination of Swartpan.	Minor	Short term	Local	Possible	**Low**	Temporary erosion measures such as stormwater bypass mechanisms should be employed around exposed working area. The SWMP must be implemented as a first step during the construction phase. Water quality monitoring must be implemented upstream and downstream of construction sites.	Minor	Short term	Local	Unlikely	**Low**
Operational Phase													
1	Maintenance of stormwater infrastructure including berms and channels	Poorly maintained stormwater infrastructure reduces capacity of the infrastructure which could result in escape into other areas and nearby watercourses, degrading water quality	Moderate	Short term	Regional	Possible	**Low**	Implementation of the proposed SWMP. It must be ensured that stormwater measures (e.g. Berms) are designed, constructed, operated and maintained, to ensure that stormwater does not spill more than once in 50 years, to be compliant with GN R704 regulations. Undertake regular inspections and maintenance on the bypass channel and earth berms.	Minor	Short term	Local	Unlikely	**Low**
2	"Dirty" water infrastructure (Emergency Overflow Dam, Blue RWD and North-west RWD) not operated at optimum level, resulting in insufficient capacity to retain the 1:50 year storm runoff	"Dirty" water infrastructure will overflow during extreme rainfall and contaminate Swartpan and the natural watercourse downstream of Swartpan	Minor	Short term	Local	Possible	**Low**	Regular inspections and maintenance of "dirty water" infrastructure. Harmony to operate the infrastructure at the designed operating level.	Minor	Short term	Local	Unlikely	**Low**
Closure & Rehabilitation Phase													
1	Demolition of existing "dirty" water infrastructure and open bypass channel	Effluents residues containing alkaline or heavy metals pollutes nearby soil and water resources	Minor	Short term	Local	Possible	**Low**	Remove and treat effluent before demolition begins. Neutralise pH to environmentally acceptable limits before discharge or containment.	Minor	Short term	Local	Unlikely	**Low**

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Impact No.	Activity	Impact Description	BEFORE MITIGATION					Mitigation measures/ Recommendations	AFTER MITIGATION				
			Magnitude	Duration	Spatial Scale	Probability	SIGNIFICANCE		Magnitude	Duration	Spatial Scale	Probability	SIGNIFICANCE
								• Stormwater infrastructure to be implemented once end land use has been determined. • • Post-rehabilitation monitoring.					
2	Rehabilitation of the existing "dirty" water infrastructure and open bypass channel	Erosion and wash off soils resulting in water quality issues in the surrounding watercourses	Minor	Short term	Local	Possible	**Low**	Stormwater infrastructure to be implemented once end land use has been determined. Design reprofiled areas with stable drainage patterns. • Post-Rehabilitation monitoring	Minor	Short term	Local	Unlikely	**Low**
3	Reprofiling of land to restore original topography	Land being levelled to its original functioning topography levels will redirect runoff and affect existing drainage patterns	Minor	Short term	Local	Possible	**Low**	Stormwater infrastructure to be implemented once end land use has been determined. Design reprofiled areas with stable drainage patterns. Post-Rehabilitation monitoring.	Minor	Short term	Local	Unlikely	**Low**

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5.8 Issues and Responses from Public Consultation Process

The Public Participation Process (PPP) has been developed to ensure compliance with the IWULA process. The PPP 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.

The primary objectives of the PPP include:

- Meaningful and timeous participation of Interested and Affected Parties (I&APs);
- Identification of issues and concerns of key stakeholders and I&APs with regards to the proposed development, i.e. focus on important issues;
- Promotion of transparency and an understanding of the Proposed Project and its potential environmental (social and biophysical) impacts;
- Accountability for information used for decision-making;
- Serving as a structure for liaison and communication with I&APs;
- Assisting in identifying potential environmental (social and biophysical) impacts associated with the
- proposed development; and
- Inclusivity (the needs, interests and values of I&APs must be considered in the decision-making process).

Issues and responses documented during the public consultation process will be included in the Comments and Responses Report (CRR) The Public Participation (PP) report can be found in Appendix C of this report. The full PP report will be submitted in Phase 3 of the IWULA.

5.9 Assessment of level and confidence of information

Detailed specialist studies have been conducted as part of 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 wetland and terrestrial impacts can only be determined once the Proposed Project is operational, with real time data monitoring and information being interpreted.

6. WATER AND WASTE MANAGEMENT

6.1 Water and Waste Management Philosophy

Jelani's approach to water and waste management is through a hierarchy that strives to prevent waste/water pollution as far as practically possible; secondly, to reduce the production and impact of waste/wastewater; and thirdly, to reuse/recycle wastewater after treatment.

Jelani is committed to the following in regard to the Proposed Project:

- To plan, design, construct, operate, decommission and close the Proposed Project 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 Proposed 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 Proposed Project; and
- To implement technically proven and acceptable rehabilitation measures during the operational, decommissioning and closure phases.

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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 (See Figure 4-18).

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 Wetland

- Avoid disturbance of wetlands and maintain buffer zones;
- Prevent pollution through effective erosion and stormwater controls;
- Maintain natural wetland hydrology and flow regimes; and
- Monitor wetland health and rehabilitate disturbed areas where necessary.

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 Potable Water

- Source water from Harmony Target Operation.

6.3 Performance Objectives / Goals

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 regarding the identified mining impacts:

- That appropriate pollution control and other environmental protection measures implemented by the applicant, in accordance with all applicable laws and regulations;
- That the applicant will not degrade the degree of the 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.

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The following specific performance objectives have been identified for the Proposed Project:

- 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 Proposed 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

All management measures will be implemented during construction, operation and rehabilitation/closure phases of the Proposed Project 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 Proposed Project

Performance Objectives	Management Measure
Process Water	
Update water and salt balance	Update water balance annually or implement a water balance model that can be updated as needed
Surface Water	
Contain dirty storm water	Construct and maintain adequate storm water control measures to keep clean and dirty water separate
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
	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
Maintain groundwater levels if possible	Implement dedicated groundwater monitoring to determine water levels compared to baseline water levels

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Sensitive Landscapes	
Minimise impact on the wetlands and sensitive areas in and around the mining area	Conduct regular inspections and monitoring of wetlands and sensitive areas within and surrounding the mining area and compare results with baseline environmental data to dtermine changes and loss of vulnerable wetland types.
	Interpret monitoring results and institute remedial actions as required to prevent, minimise, or rectify impacts on wetlands and sensitive ecological areas.

6.5 Options Analysis and Motivation for Preferred Options

6.5.1 The Property on Which or Location Where it is Proposed to Undertake the Activity

No alternatives have been investigated in terms of location of the Proposed Project. Jelani currently holds the PR to the areas under investigation and will not consider any other properties that are not contained within the PR area. There are therefore no alternative property or location areas.

6.5.2 The Type of Activity to be Undertaken

The only activity proposed by Jelani is the extraction and processing of minerals within the Jelani PR Area. Jelani intends to develop and operate an underground mining project within the Joint Venture area, targeting the extraction of various mineral resources, with primary emphasis on gold ore, as well as silver, uranium, and other associated minerals.

The Proposed Project follows the successful completion of the prospecting phase, which confirmed the technical and economic viability of establishing an underground mining operation. The prospecting programme also identified substantial mineral resources and demonstrated significant potential to support the development and operation of the mine.

Underground extraction of the mineral resources is the ''Preferred Activity'', and therefore no alternative mining methods are being considered. Two underground mining methods have been identified namely conventional breast mining and shrinkage stoping, have been identified as the most practical and technically feasible options for exploiting the mineral resource. The selection of the most appropriate mining method will be based primarily on the dip and geometry of the mineralised reef, as well as other relevant geotechnical and operational considerations.

6.5.3 The Design and Layout of the Activity

The current layout plan for the Proposed Project is considered as the ''Preferred layout''. The layout has been determined by the location and distribution of the mineral resources, as well as the proximity of the adjacent Harmony Target Operation, whose existing infrastructure will be utilised for the operation of the Proposed Project.

All operational mining infrastructure required for the Proposed Project will be located within the existing Harmony Target Operation MRArea. As such, no new operational mining infrastructure is proposed within the Proposed Project area. Underground access will be provided through either the refurbishment and continued use of the existing Target Shafts No. 3, 4, and 5, or through the development of new access infrastructure at No.

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2 Shaft site, all of which are situated within the existing MR area. This approach minimises the need for additional surface disturbance and optimises the use of existing mining infrastructure.

6.5.4 The Technology to be Used in the Activity

No alternatives exist for the Proposed Project. The preferred options, in terms of recycling, water and energy have been described below.

6.5.4.1 Recycling

The Proposed Project will, in its operational phase, implement recycling policies and measures for optimal utilisation of resources and minimisation of waste generation.

6.5.4.2 Water

Water utilisation will be maximised through recycling of dirty water within the process operations.

6.5.4.3 Energy

Fuel types will be investigated as well as energy conserving measures will be implemented. Where solar energy can be utilised, it will be implemented.

6.5.5 The Operational Aspects of the Activity

The Proposed Project will utilise Target No. 2 and Target No. 3 shafts throughout the life of mine for the transportation of personnel, materials, and ore, depending on the phase of mining operations. All ore extracted from the underground mining operations will be conveyed to the existing Target 1 Metallurgical Plant for processing and mineral recovery. The resultant tailings residue will be transported to and deposited at the new TSF, while waste rock generated during mining activities will be disposed of at the Target 2 WRD and the Lorraine 1 WRD. Excess water generated during mining operations will be pumped to and managed through the Target 2 Shaft and the D-Dam facility, where it will be controlled, stored, and reused where in the mine operations.

6.5.5.1 Processing Plant Options

There are no alternatives to the processing plant as all tailings will be processed at the existing Target 1 Metallurgical Plant

6.5.5.2 Transport Options

There are no alternative means of transporting the slurry and process water because all pipelines routes are influenced by the location of the TSF and the processing plant.

6.5.6 The “No-Go” Option

If the Proposed Project were not to proceed, the expected socio-economic benefits, including revenue generation, employment opportunities, skills development, and community upliftment, would not be realised. The gold reserves within the Project area would remain unmined, limiting contributions to local and national gold supply and the broader economy. Existing authorised land uses and activities within the area may continue, subject to applicable approvals and operational requirements.

6.6 IWWMP Action Plan

Operational Action Plans have been developed to address aspects at the operations requiring attention or additional measures. The Action Plans are presented in Table 6-2 and will be reviewed on an annual basis.

Table 6-2: Operational Action Plan for Jelani underground Operation.

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Performance Objectives	Management Measure	Responsible Department	Timeframe
Process Water			
Update water balance	Update water balance annually or implement a water balance model that can be updated as needed	Hydrology	Annually or as instructed by the VOCMA
Surface Water			
Contain dirty storm water	Construct and maintain adequate storm water control measures to keep clean and dirty water separate	Engineering / Environmental	Ongoing after authorisation
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	Ongoing
	Interpret the results and institute remedial action as required	Geology/Hydrology	Ongoing
Groundwater			
Minimise the impact on local groundwater resources	Implement dedicated groundwater quality monitoring as required	Hydrology/Environmental/Management	Ongoing
	Implement the required monitoring to confirm the success of the implemented groundwater protection/mitigation measures		
Maintain groundwater levels if possible	Implement dedicated groundwater monitoring to determine water levels compared to baseline water levels		
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	Ongoing

6.7 Control and Monitoring

6.7.1 Monitoring of Change in Baseline Information

Reports of the updated Baseline information (for the Proposed Project) will be submitted to the appropriate government departments as required and other formal institutions as stipulated by management objectives,

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conformance targets and applicable legislation and other legal requirements. All of these results will be shared with VOCMA.

6.7.2 Audit and Report of 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 IWWMP 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.

7. CONCLUSION

7.1 Regulatory Status of Activity

This is a new development, 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 proposed water uses are set out in Section 3.2.

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

This is a new application, and the water uses requiring authorisation are listed in Table 3-3.

The GN R704 Exemption Motivation will be submitted as part of Phase 3 of the Proposed Project's IWULA.

7.3 Key Commitments

Jelani 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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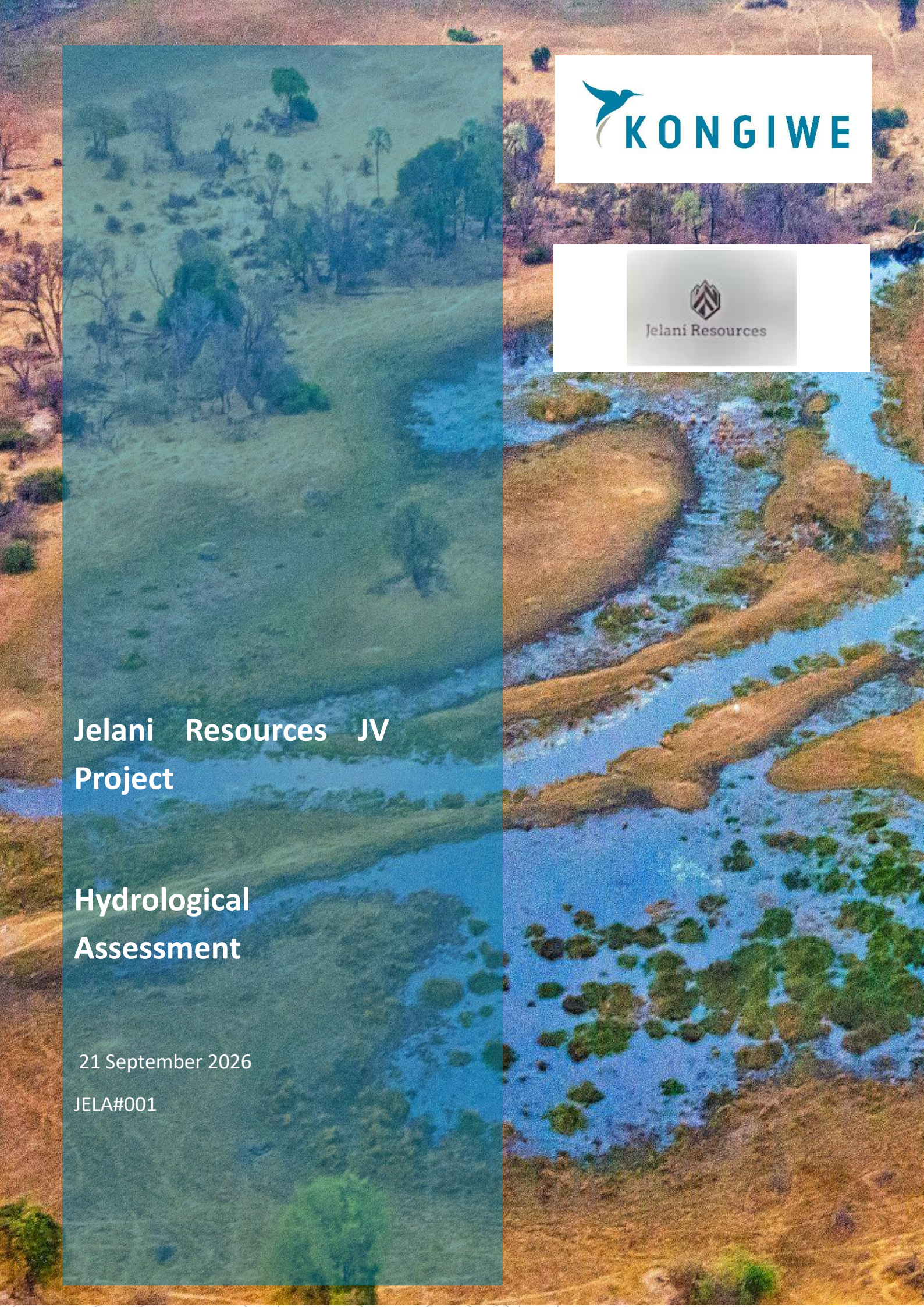
Appendix A: Surface Water Assessment

Can be accessed here: https://kongiwe.com/projects/



Jelani Resources JV Project

Hydrological Assessment

21 September 2026

JELA#001

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Executive Summary

This hydrological study analyses the surface water and flood risks for the Jelani Project, to support environmental and water use licensing initiatives. By modelling 1:50 and 1:100-year events and assessing site-specific features, the study identifies potential impacts and proposes mitigating engineering solutions.

Key Findings:

- Site Context
  - The topography of the Jelani Project is flat, with an average slope of less than 3 %. The only areas where steep slopes occur, are along the sides of the TSFs and WRDs outside the Project area. Several natural occurring pans characterise the landscape, resulting in much of the area of the Jelani Project being endoreic (i.e. not discharging into any of the surrounding river systems).
- Flood Analysis:
  - Modelling indicated that the Swartpan/Emergency Overflow Dam/Blue RWD/North-west RWD are at risk of inundation during peak 1 :50 year and 1:100-year events, requiring mitigation.
- Stormwater Management:
  - The existing capacity of the Swartpan Open Bypass Channel is inadequate for the 1:50 and 1:100-year events, necessitating intervention.

Recommendations:

- The proposed solution separates the “clean” and “dirty” water impacting the Jelani Project Area. The “clean” water from the catchment area is collected by means of earth berms and an open by-pass channel and transferred to Swartpan, which is now a “clean” water pan. Swartpan has an attenuation effect even if it is full, and the resultant outflow hydrographs are routed down the natural watercourse downstream of Swartpan to Pan A. Floodlines are provided for this natural watercourse.
- The open by-pass channel to Swartpan will have to be cleaned out and protected by unreinforced concrete lining to prevent scouring and erosion.
- The “dirty” water in now confined to the North-west RWD, Blue RWD and Emergency Overflow Dam, which must be operated at a level to allow sufficient spare capacity to accommodate the 1:50-year event runoff.
- Construct containment berms around potential pollution-generating areas to prevent contamination of nearby water resources throughout the construction and operational phases of the Life of Mine.

The proposed clean- and dirty-water separation system is considered conceptually feasible, subject to confirmation of the available storage capacity and operating levels of the relevant return-water dams, verification of the channel dimensions and condition, confirmation of infrastructure ownership and authorisation, and completion of detailed design. The floodlines presented in Section 4.4.3 are indicative only and should not be regarded as formal or final floodline delineations.

This report confirms that with the implementation of the recommended design changes and management plans, the project can be developed safely while managing hydrological impacts effectively.

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Appendix C – Rational Formula Calculations Proposed Scenario

Appendix D – Brooker Method Proposed Scenario

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Abbreviations and Units

Abbreviation	Description
DTM	Digital Terrain Model
ELU	Existing Lawful Use
hr	Hour
IWULA	Integrated Water Use Licence Application
km	Kilometers
LoM	Life of Mine
m	Metres
mamsl	metres above mean sea level
MAP	Mean Annual Precipitation
min	Minute
mm	Millimetres
mm/a	Millimetres per annum
NWA	National Water Act (Act No 36 of 1998)
PCD	Pollution Control Dam
Pr CPM	Professional Construction and Project Manager
Pr Eng	Professional Engineer
RWD	Return Water Dam
SANRAL	South African National Roads Agency Limited
SAWS	South African Weather Service
S-Pan	Symons Pan
SWMP	Stormwater Management Plan
Tc	Time of Concentration
TSF	Tailings Storage Facility
WRD	Waste Rock Dump
yr	Year

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1. INTRODUCTION AND BACKGROUND

1.1 Terms of Reference

Kongiwe Environmental (Pty) Ltd (Kongiwe) was appointed by Jelani Resources (Pty) Limited (Jelani) to undertake the required Consultancy Services for Environmental Authorisation and Water Use License for the proposed Jelani Resources JV Project in Free State Province (hereafter referred to as the "Project"). This report provides the Hydrological Assessment of the proposed site.

1.2 Project Description

Jelani Resources (Pty) Ltd ("Jelani") is a joint venture (JV) company established by White Rivers Exploration (WRE) and Harmony Gold. The JV was formed to conduct underground mining operations within the Joint Venture (JV) area, which is made up of areas within the existing Harmony Target mining right (Harmony contribution) and Prospecting Rights (PR) areas to the west of Harmony Gold's existing Target Operations (WRE contribution) in the Free State Province of South Africa. Following the exploration and licensing phases, Jelani intends to initiate **underground mining operations** within the same area (hereafter the Jelani Project).

The Jelani Project entails licensing the underground mining of the following potential mineral resources:

- Gold ore (primary target).
- Silver ore.
- Uranium ore.
- Sulphur.
- Platinum Group Metals.
- Rare earths.
- Diamonds (alluvial).
- Copper ore.
- Cobalt ore.
- Manganese ore.
- Molybdenum ore.
- Nickel ore.
- Lead ore.
- Tungsten ore.
- Zinc ore.
- Iron ore.

Jelani's underground mining operations initially will target shallower mineral resource deposits at the project site (approximately 1,200 mbs). As mine development progresses, new mining areas will be developed which will allow for the production rate to be steadily increased to the targeted full production rate of 60 000 tonnes of mined ore per month.

Two mining methods have been identified as the most practical for exploiting mineral resources: conventional breast mining and shrinkage stoping. The selection of each method is primarily based on the dip of the mineralised reef, with the shrinkage stoping being used for the steeper slopes (3% of the total stope tonnage). Where the orebody dips below 55°, conventional breast mining will be used.

Ore will be transported to the shaft ore pass system using conveyor system loaded by a fleet of 30-tonne dump trucks which are loaded by 10-tonne loaders (LHD). Subsequently, the broken rock will be loaded into hoisting bins and will be hoisted to surface, where the rock will either be sent to the processing plant or to the waste rock dump.

Existing underground access (shafts and level access) will be refurbished and re-equipped. Target No 2 and Target No 3 shafts will, over the course of the mine's life, be used for the movement of men, material and rock depending on which phase the mine is in.

Project Infrastructure Requirements

All operational mining infrastructure required for the Proposed Project will be located within Harmony's existing Target Operations mining right area. No new operational mining infrastructure is planned within the JV project area. Underground access infrastructure will comprise either refurbished facilities at Target Shafts No. 3, 4, and 5 or newly constructed infrastructure at the Target No. 2 Shaft site, all within the existing mining right.

The infrastructure requirements are intended to support the managerial, supervisory and operational functions associated with the respective underground mining operations/targets. Target 3 shaft will be used to access the underground workings during Phase 1 of the project whilst Target 2 shaft is refurbished.

The Target No 2 shaft will be used as the main access to the underground orebody and workings in Phase 2, and Target No 3 shaft will be maintained as a second outlet.

The Target No 2 shaft is currently not utilised for mining production activities. Instead, it acts as the emergency exit for Target No. 1 Shaft with only a limited amount of infrastructure remaining in place. Once the shaft has been refurbished and surface infrastructure is completed and the shaft commissioned, mining operations associated with the Proposed Project will be relocated to this shaft.

To monitor potential mining-induced seismicity and boundary interactions with the adjacent Harmony Gold operations, four seismographic monitoring stations will be installed, spread equally along the shared boundary. Each station will include a small sensor pad/housing (approximately 5–10 m^2), basic power/comms setup, 6 m of perimeter fencing per station (total 24 m), and short gravel access tracks (total approximately 1 km across all stations, 4 m wide). These installations represent the only surface infrastructures on the JV project area.

Additionally, a new Tailings Storage Facility (TSF) will be constructed to the west of the existing Target metallurgical plant and north of the existing Target TSF. The total area required for this new facility is approximately 69 Hectares (Ha). This TSF is a separate project being undertaken by Harmony.

1.2.1 Locality

1.2.1.1 Local Orientation

The Project area is situated immediately adjacent to and west of the Harmony Gold Target Operations, approximately 11km northwest of Odendaalsrus, 2,5km west of Allanridge, and 22km east of Wesselsbron, in the Free State Province of South Africa. It lies within Ward 36 of the Matjhabeng Local Municipality, under the jurisdiction of the Lejweleputswa District Municipality. Please refer to Figure 1 for the Jelani Project local orientation, and Figure 2 for the Project Regional orientation.

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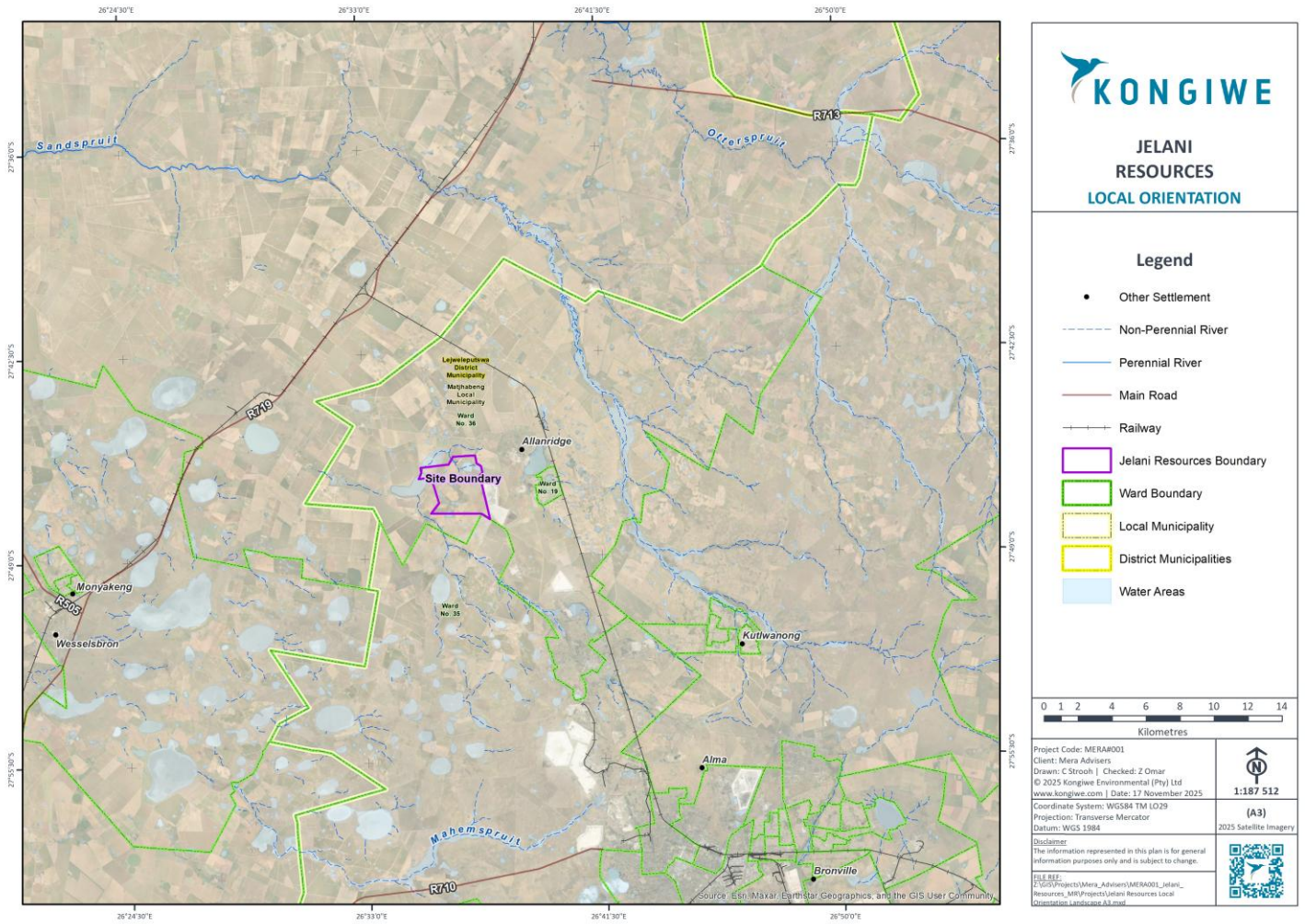

Figure 1 : Local Orientation Map

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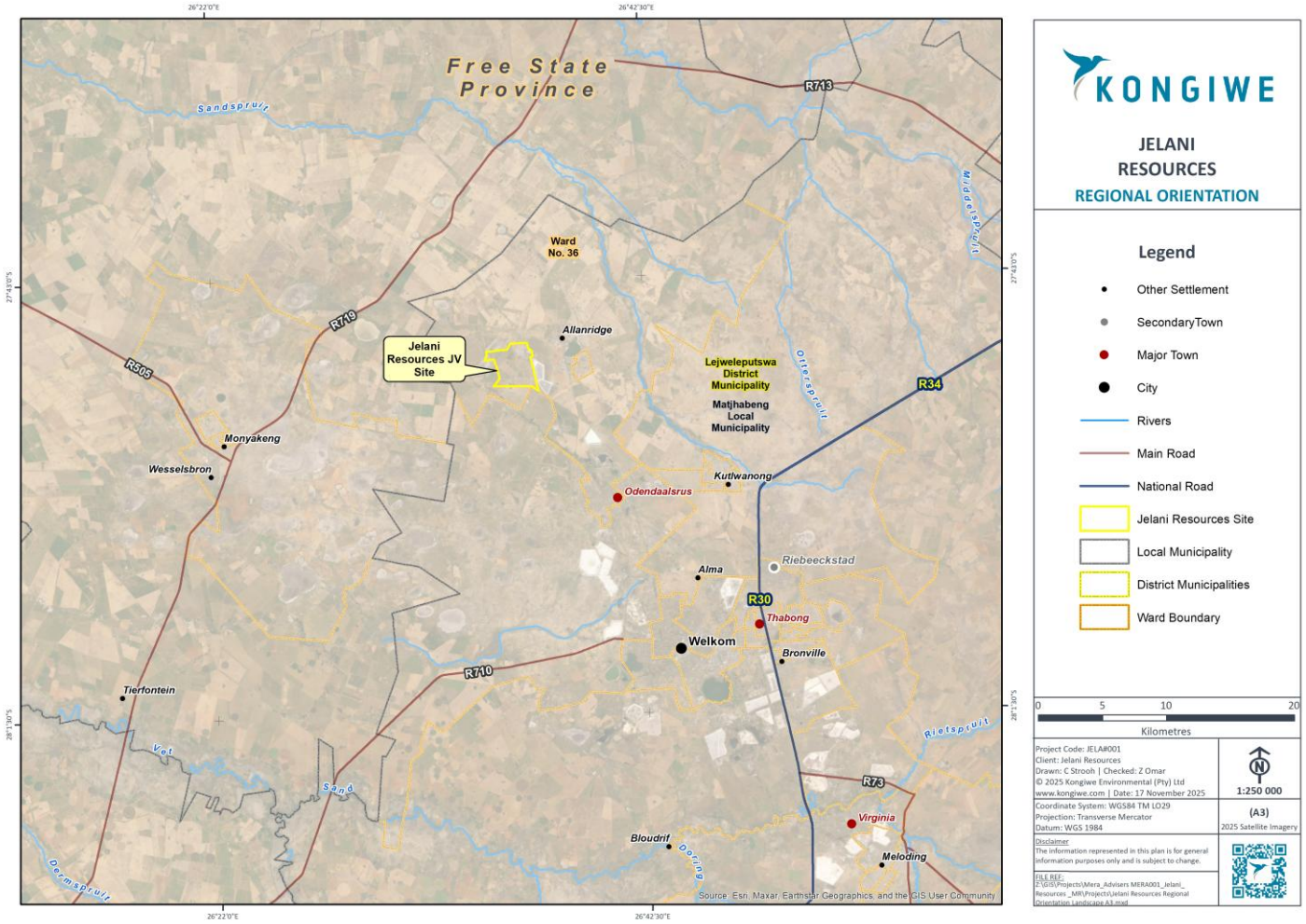

Figure 2 : Regional Orientation Map

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1.3 Mining Activities

1.3.1 Surrounding Resources

The Jelani Project is adjacent to the Target Operation owned by Harmony Gold Mining Company Limited.

Underground mining at the Target Operations was initiated in 1950. Ore is hoisted to surface at the Target 1 Shaft, and the depths of the underground workings are approximately 2 500 m below ground level. Operations at Target 2 Shaft ceased during 2009 and the underground workings have been flooded. Operations at Target 3 Shaft ceased in September 2014 and the shaft is currently under care and maintenance. This shaft continues to pump water from the underground workings to maintain safe operations at Target 1 Shaft, as these two shafts are connected via their underground workings. The Target Plant is situated south of the Target 1 Shaft, where mined ore and waste rock from the WRDs is processed. Tailings from the plant is deposited on the Target 1 and 2 TSF Complex. The approximate Life of Mine for the current operations is until 2027.

Figure 3 shows the surrounding resources, and Figure 4 shows the project area relative to the Target Operations.

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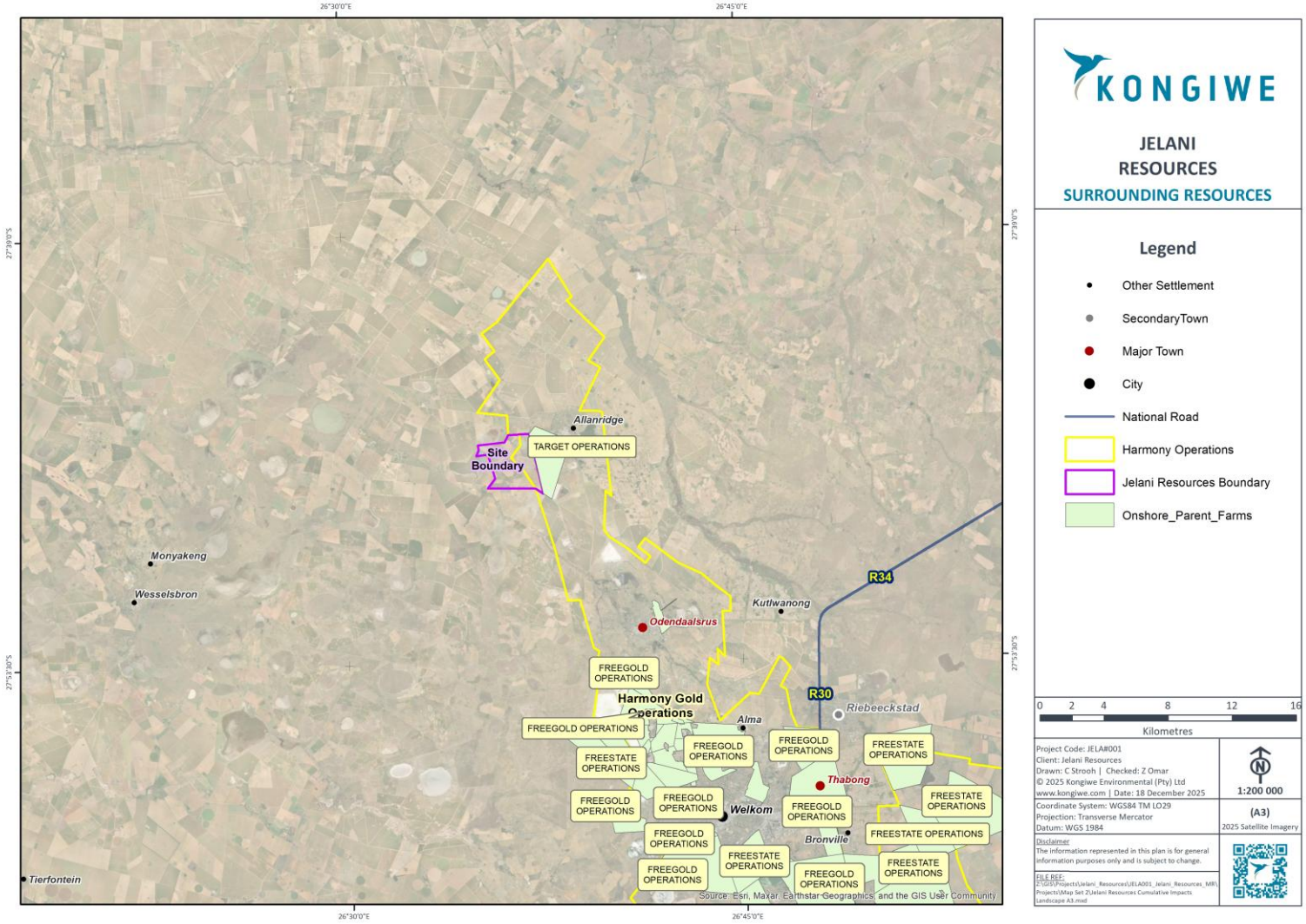

Figure 3: Surrounding Resources

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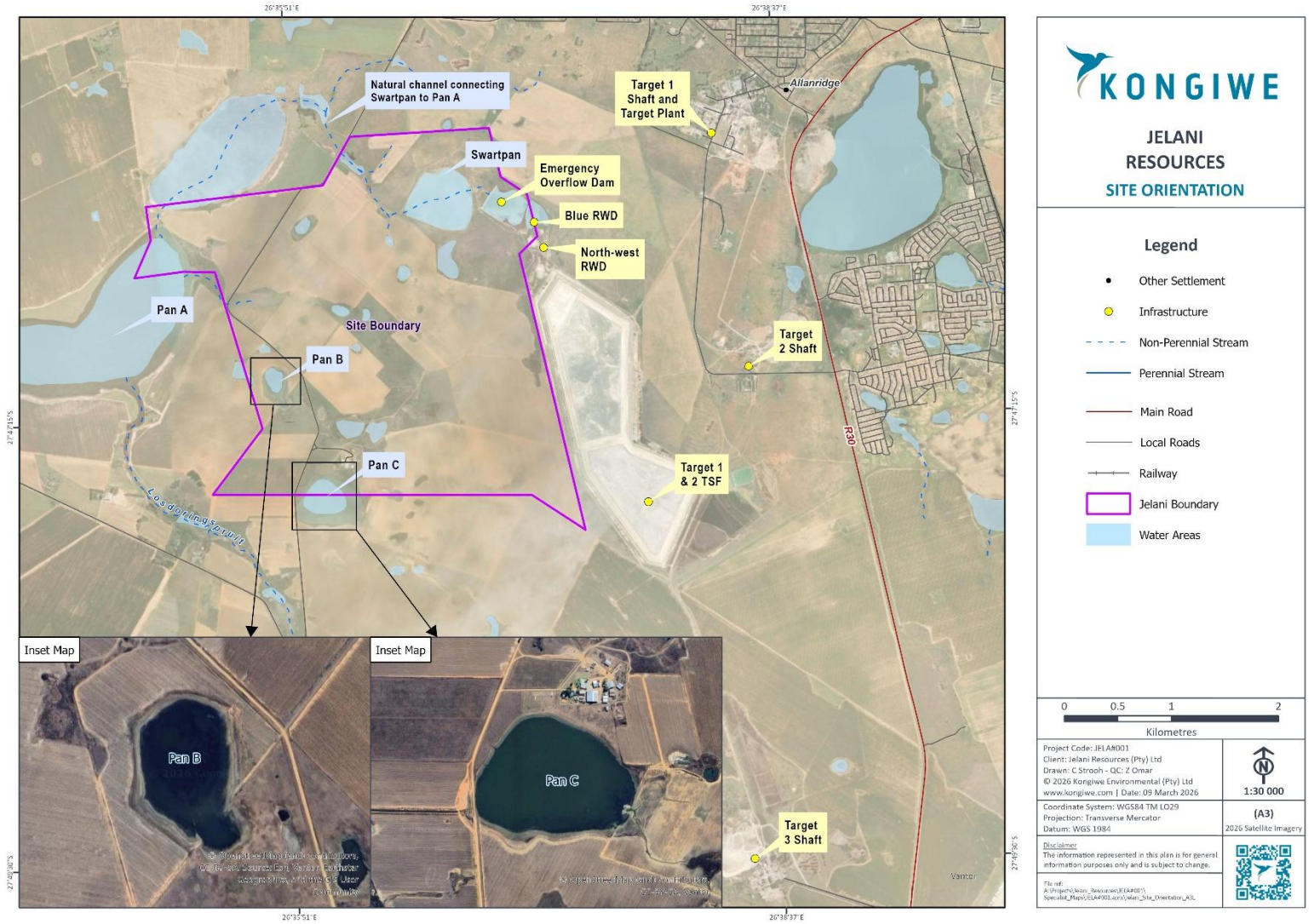

Figure 4: Site Orientation

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1.4 Terminology

The following terminology is relevant to this study and is defined below:

- 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 or transported for use in such process; or
    - out of which process any residue is derived, stored, stockpiled, accumulated, dumped, disposed of or transported.
- Clean area:
  - This refers to any area at or near a mine or activity that is unaffected by mining activities.
- 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.
- 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. areas that generate contaminated water from mining activities).
- 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.
- 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.
    - 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.

1.5 Legal Requirements and Guidelines

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

- National Water Act (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, on 4 June 1999). In particular:
    - Regulation 6: Which describes the capacity requirements of clean and dirty water systems. Clean and dirty water systems must be kept separate and must be designed, constructed, maintained and operated to ensure conveyance and/or containment of

flows of a 1:50-year event. Clean and dirty water systems should not spill into each other more frequently than once in 50 years. Any dirty water dams should have a minimum freeboard of 0.8 m above full supply level.

- Regulation 7: Which refers to measures which must be taken to protect water resources. All dirty water or substances which may cause pollution of a water resource (through spillage, seepage, erosion, etc.), must be prevented from doing so. Additionally, dirty water should be recycled and reused as far as practicable.

- Department of Water and Sanitation (DWS) Best Practice Guideline (BPG) documents, particularly, BPG G1: Storm Water Management.

1.6 Details of the Specialist

The study was undertaken by Hilton David Neville Sparks who is a Professional Engineer at Kongiwe. Hilton graduated with a Bachelor of Science (BSc) in Engineering in 1969. He is registered as a Professional Engineer (Pr Eng) (Registration Number 740604) with the Engineering Council of South Africa (ECSA). Work experience includes rainfall – runoff modelling, floodline determinations, attenuation dam analysis, water network analysis, water and sanitation master plans, and development of stormwater management plans, as well as general engineering work. Hilton has more than 54 years' experience and has worked on projects around South Africa.

2. SCOPE OF WORK

The scope of work includes the following:

- Undertake site investigations to locate and assess the current stormwater measures, as well as to assess areas where stormwater measures may be required.
- Delineate the clean and dirty water areas.
- Provide stormwater measures and recommendations for areas that require interventions.
- Provide conceptual sizing's for the proposed stormwater measures in line with GN 704 regulations.

3. BASELINE HYDROLOGY

3.1 Site Investigation

Site investigations of the Jelani Project were undertaken on 28 -29 January 2026.

The purpose of the site investigations was to locate and assess the current stormwater measures, as well as to assess areas where stormwater measures may be required.

3.2 Climate

3.2.1 Rainfall

The mean monthly rainfall for the Welkom (0364300 W) weather station between October 1920 – March 2022 is shown in Table 1. Rainfall is highest over the summer months of October to April, with December and January generally being the wettest months. Very little rainfall falls over the winter months.

Table 1 : Monthly Rainfall Data for Welkom (0364300 W)

Month	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Rainfall (mm)	45	63	72	84	66	68	42	17	7	6	8	14	492

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3.2.2 Storm Rainfall Depths

The storm rainfall depths, which are required to calculate the peak flows, were extracted using the Design Rainfall Estimation in South Africa software programme. The programme uses the six closest rainfall stations (See Table 2) to the user specified coordinates, to calculate the storm rainfall depths for that site. Storm rainfall depths were extracted at the centre of the project area (27°47' S, 26°37' E). The storm rainfall depths are indicated in Table 3.

Table 2 : Six Closest Rainfall Stations to the Project

Station Name	Station No.	Latitude	Longitude	MAP (mm)	Altitude (mamsl)
Odendaalsrus	0364322_W	27°52'	26°41'	497	1 330
Hanoverspan	0364093_W	27°33'	26°34'	512	1 295
Mahemispruit	0364119_W	27°59'	26°34'	514	1 299
Newlands	0364562_W	27°52'	26°49'	518	1 349
Hoopvlei	0363868_W	27°58'	26°28'	492	1 294
Richmond Noord	0364546_W	27°36'	26°49'	489	1 308

Table 3 : Storm Rainfall Depths for the Project Area

Storm Duration	Return Period/Storm Rainfall Depth (mm)						
min/hr/day	1:2yr	1:5yr	1:10yr	1:20yr	1:50yr	1:100yr	1:200yr
5 min	9.0	12.2	14.4	16.5	19.5	21.8	24.2
10 min	13.4	18.1	21.3	24.6	28.9	32.4	36.9
15 min	16.9	22.8	26.9	31.0	36.5	40.8	45.2
30 min	21.3	28.8	34.0	39.2	46.2	51.6	57.2
45 min	24.5	33.1	39.1	45.0	53.0	59.3	65.7
1 hr	27.0	36.5	43.1	49.6	58.5	65.4	72.4
1.5 hr	31.0	41.9	49.4	57.0	67.1	75.0	83.2
2 hr	34.2	46.2	54.5	62.8	74.0	82.7	91.7
4 hr	39.7	53.7	63.4	73.0	86.0	96.1	106.6
6 hr	43.4	58.6	69.2	79.7	93.9	104.9	116.3
8 hr	46.2	62.4	73.6	84.8	99.9	111.7	123.8
10 hr	48.5	65.5	77.3	89.0	104.9	117.2	129.9
12 hr	50.4	68.1	80.4	92.6	109.1	121.9	135.2
16 hr	53.7	72.5	85.5	98.5	116.1	129.8	143.9
20 hr	56.3	76.1	89.8	103.4	121.8	136.2	151.0
24 hr	58.6	79.1	93.4	107.6	126.7	141.7	157.1
1 day	48.7	65.8	77.7	89.4	105.4	117.8	130.6
2 days	59.9	80.9	95.4	109.9	129.5	144.8	160.5
3 days	67.5	91.2	107.6	124.0	146.1	163.3	181.0

4 days	73.3	99.0	116.9	134.6	158.6	177.3	196.6
5 days	77.6	104.8	123.7	142.5	167.9	187.7	208.1
6 days	81.9	110.7	130.6	150.4	177.2	198.1	219.6
7 days	85.1	114.9	135.6	156.2	184.1	205.8	228.1

3.2.3 Evaporation

Mean monthly S-Pan evaporation data for the study area, was obtained from the DWS weather station C4E002, located at the Erfenis Dam. S-Pan evaporation was converted into open water evaporation, by multiplying by monthly pan factors obtained from the WR90 study. This was done, as the water temperatures in an S-Pan are higher than that of open water bodies (e.g. dams), resulting in higher evaporation rates. Table 4 provides the monthly evaporation adopted for the study area. Evaporation is highest over the warmer months of October to March, and lowest over the cooler months of May to August.

Table 4: Evaporation data for the area

Month	C4E002 S-Pan Evaporation (mm)	Pan Factor	Open Water Evaporation (mm)
October	210	0.84	176
November	233	0.88	205
December	257	0.88	226
January	246	0.88	216
February	191	0.87	166
March	173	0.85	147
April	124	0.83	103
May	98	0.81	79
June	75	0.81	61
July	86	0.81	70
August	122	0.82	100
September	173	0.83	144
Total	**1 988**	**N/A**	**1 694**

3.3 Hydrological Setting

3.3.1 Regional Catchments and Drainage

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 C21 (tertiary catchment 1 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. C21D (quaternary catchment D located within tertiary catchment C21).

Further to the above, the DWS has divided South Africa into 6 Water Management Areas (WMAs), that is, the Breede-Olifants, Inkomati-Usuthu, Limpopo-Olifants, Mzimvubu-Tsitsikamma, Pongola-Mtamvuna and Vaal-Orange WMAs. .

The Project area is predominantly located within the Vaal-Orange WMA and within quaternary catchment C25B.

Several natural occurring pans characterise the landscape. The Losdoringspruit is located to the west of the project area within the C25B quaternary catchment. (See Figure 5).

3.3.2 Topography

The elevation of the Jelani Project varies from a high of 1 310 metres above mean sea level (mamsl) in the north-eastern corner, to a low of 1 298 mamsl at Pan A on the western boundary. The topography of the Jelani Project is flat, with an average slope of less than 3 %. The only areas where steep slopes occur, are along the sides of the TSFs and WRDs outside the Project area. (See Figure 6).

The Jelani Project drain towards the Losdoringspruit and Pan A. Several natural occurring pans characterise the landscape, resulting in much of the area of the Jelani Project being endoreic (i.e. not discharging into any of the surrounding river systems).

3.3.3 Soil Classification

The land type database of South Africa (Land Type Survey Staff, 1972 - 2006), which consists of areas of homogeneous, unique combinations of terrain type, soil pattern and macro climate zone (Paterson et al., 2015), was used to provide an indication of the soils covering the Jelani Project area (See Figure 7). The dominant land types include the following:

- Ae40 – Red yellow Apedal, freely drained soils.
- Dc9 – Soils in which prismacutanic and/or pedocutanic diagnostic horizons are dominant.

3.3.4 Land Cover/Use

Land Use data form an important component in the hydrological assessment undertaken to calculate the peak flows. The South African National Land Cover (SANLC) Dataset (2020) was used to assess the land use characteristics of the catchments.

A review of Google Earth imagery as well as the National Land Cover Dataset, which is shown on Figure 8, indicated that the Jelani Project consist mostly of cultivated land and grasslands.

3.3.5 Wetlands

A total of 12 wetland units were identified within the Jelani Area. Much of the area of the Jelani Projects is endoreic (i.e. not discharging into any of the surrounding river systems). There is one drainage line through Swartpan, down a natural channel to an unnamed Pan (Pan A) (See Figure 9).

3.3.6 Geology

The Jelani area is located adjacent to the Target Operations lease area in the northwestern portion of the Free State Goldfield (locally also referred to as the Welkom Goldfield). The Free State Goldfield is in a northward-striking, synclinal structure which is split near its axis by two major faults that structurally divide the Goldfield into a western (Odendaalsrus) and eastern (Virginia) section around the centrally situated De Bron Horst (Minter et al., 1986).

The pre-dominant geological formations are (See Figure 10):

- Pvo – Volksrust formation.
- N-Qg – Alluvium, Colluvium, Eluvium, Gravel, Scree, Sand, Soil, Debris.
- ANal – Allanridge Formation.

3.3.7 Vegetation

The vegetation within the project area comprises the following vegetation types (See Figure 11):

- Gh10 – Vaal-Vet Sandy Grassland.
- Gh9 – Western Free State Clay Grassland

3.3.8 Roads

The R30 provincial road is located to the east of the Project area. There is a local road that traverses the site. See Figure 12.

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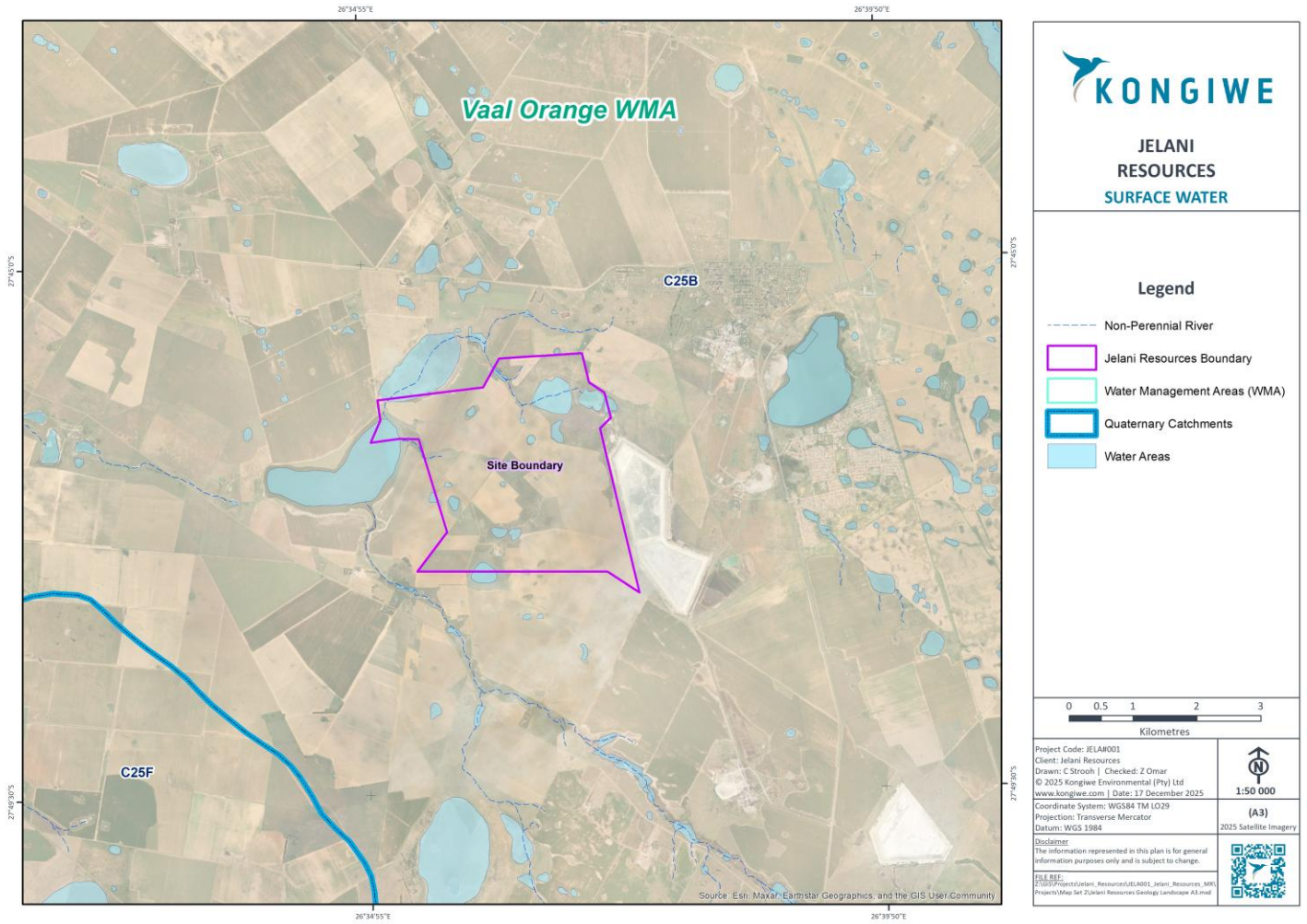

Figure 5: Surface Water

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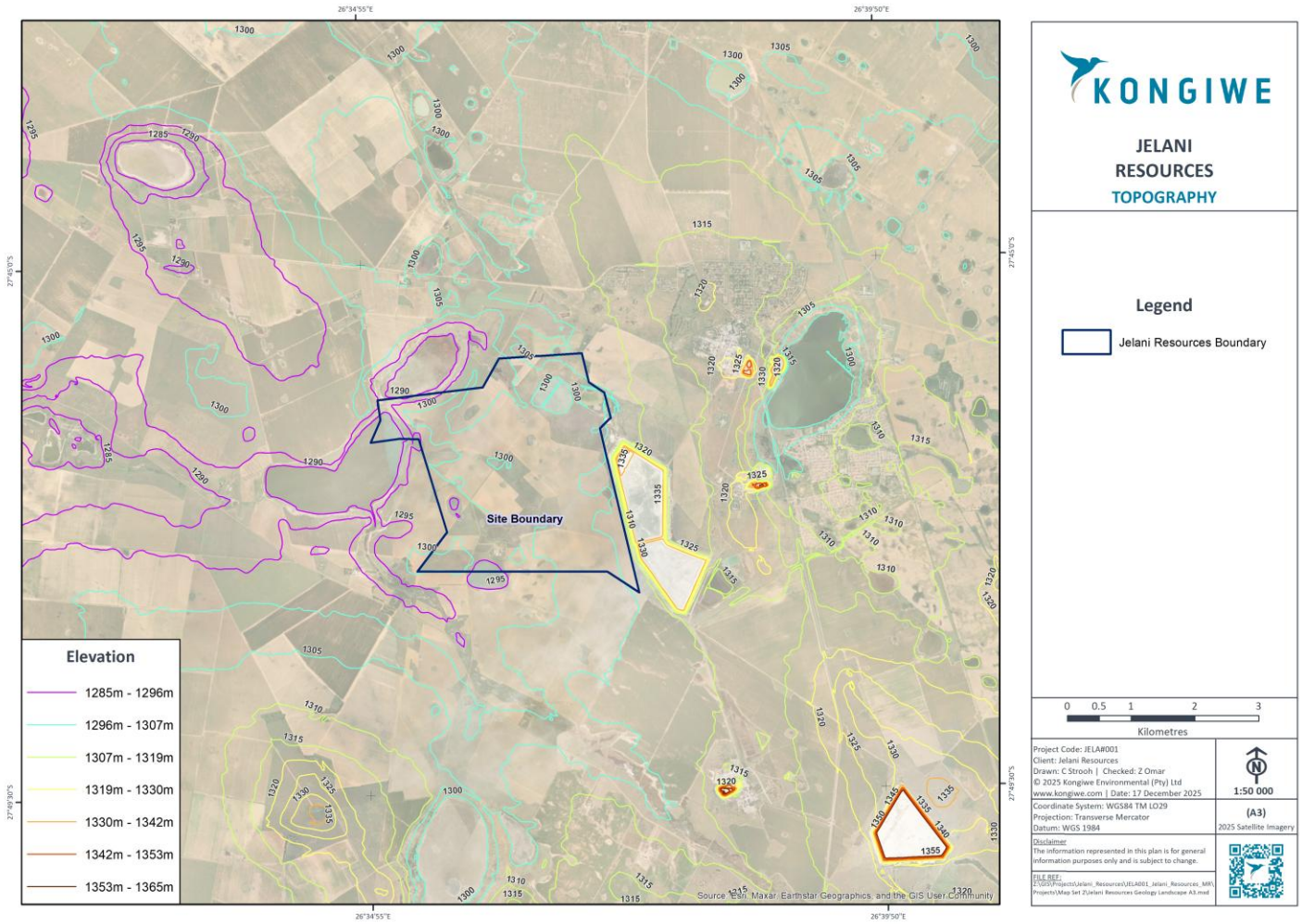

Figure 6: Topography

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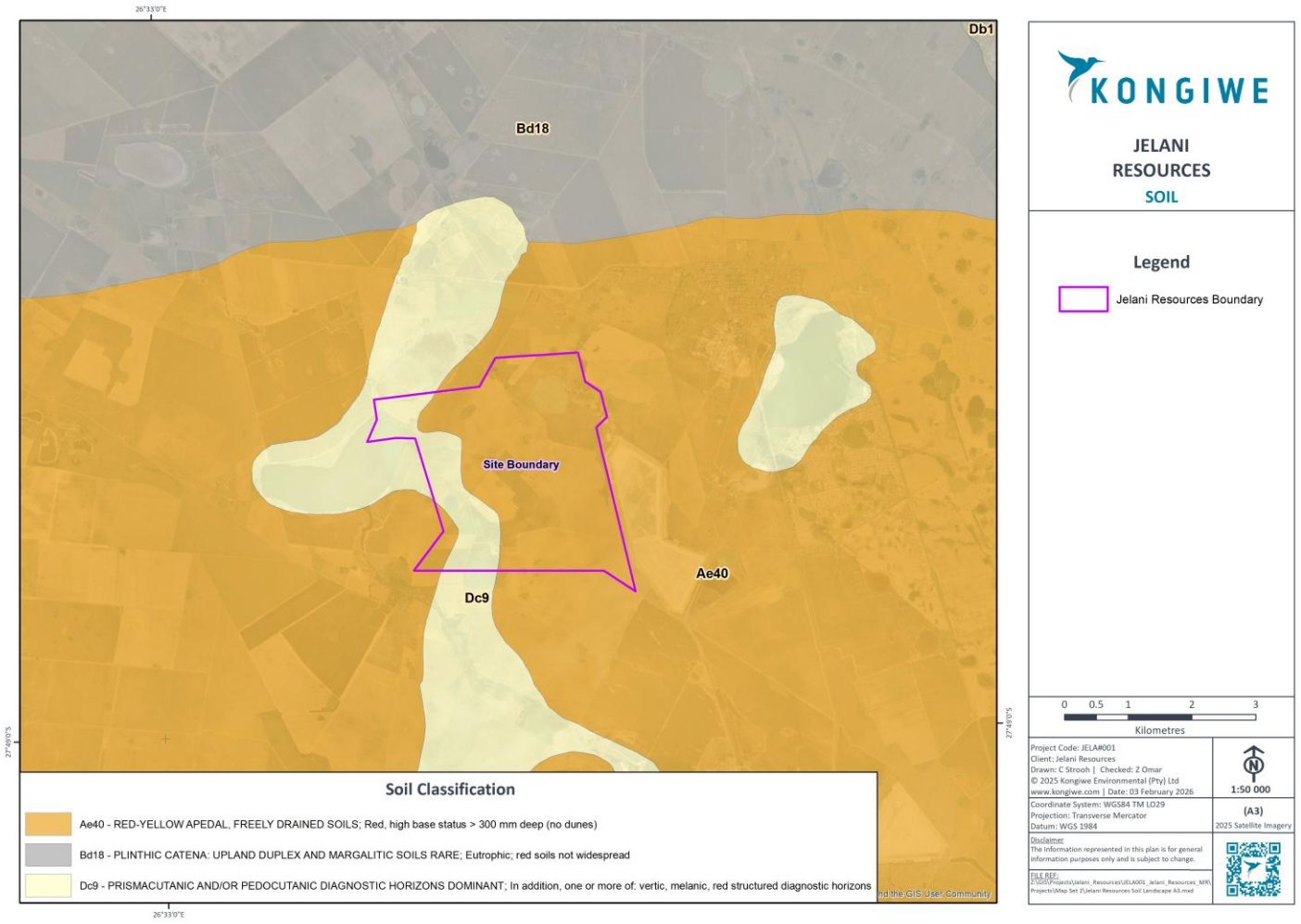

Figure 7: Soils Classification

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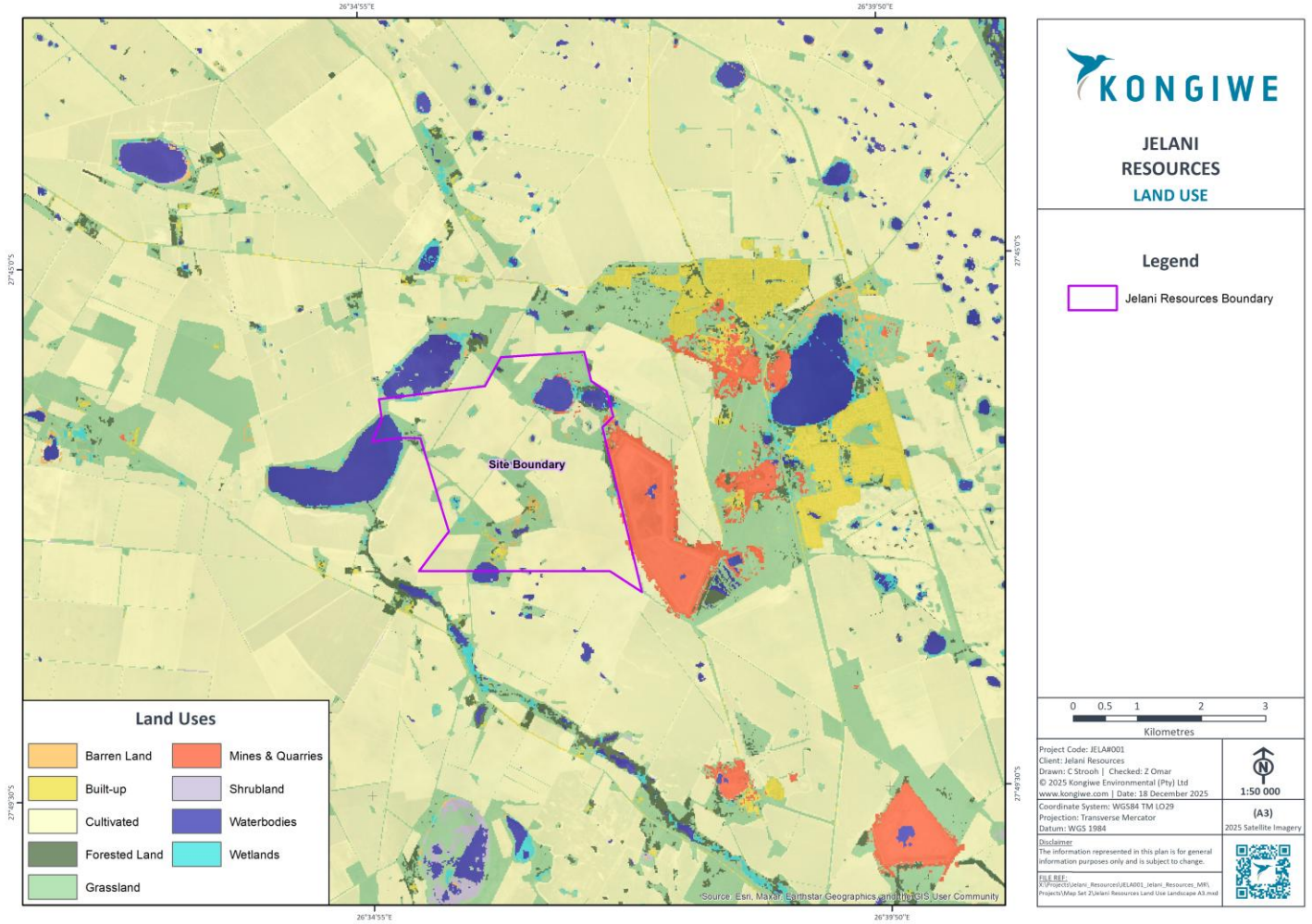

Figure 8: Land Uses

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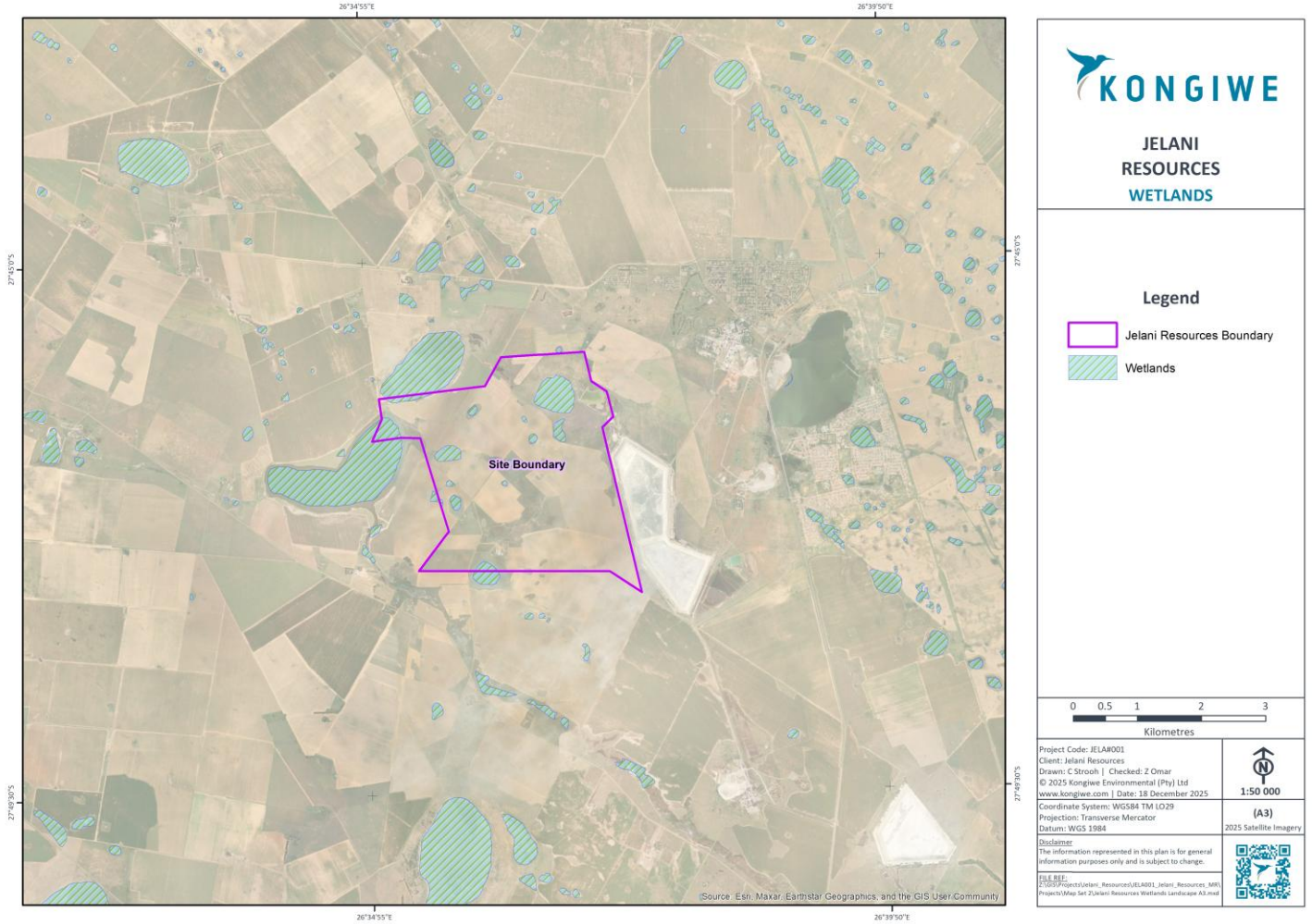

Figure 9: Wetlands

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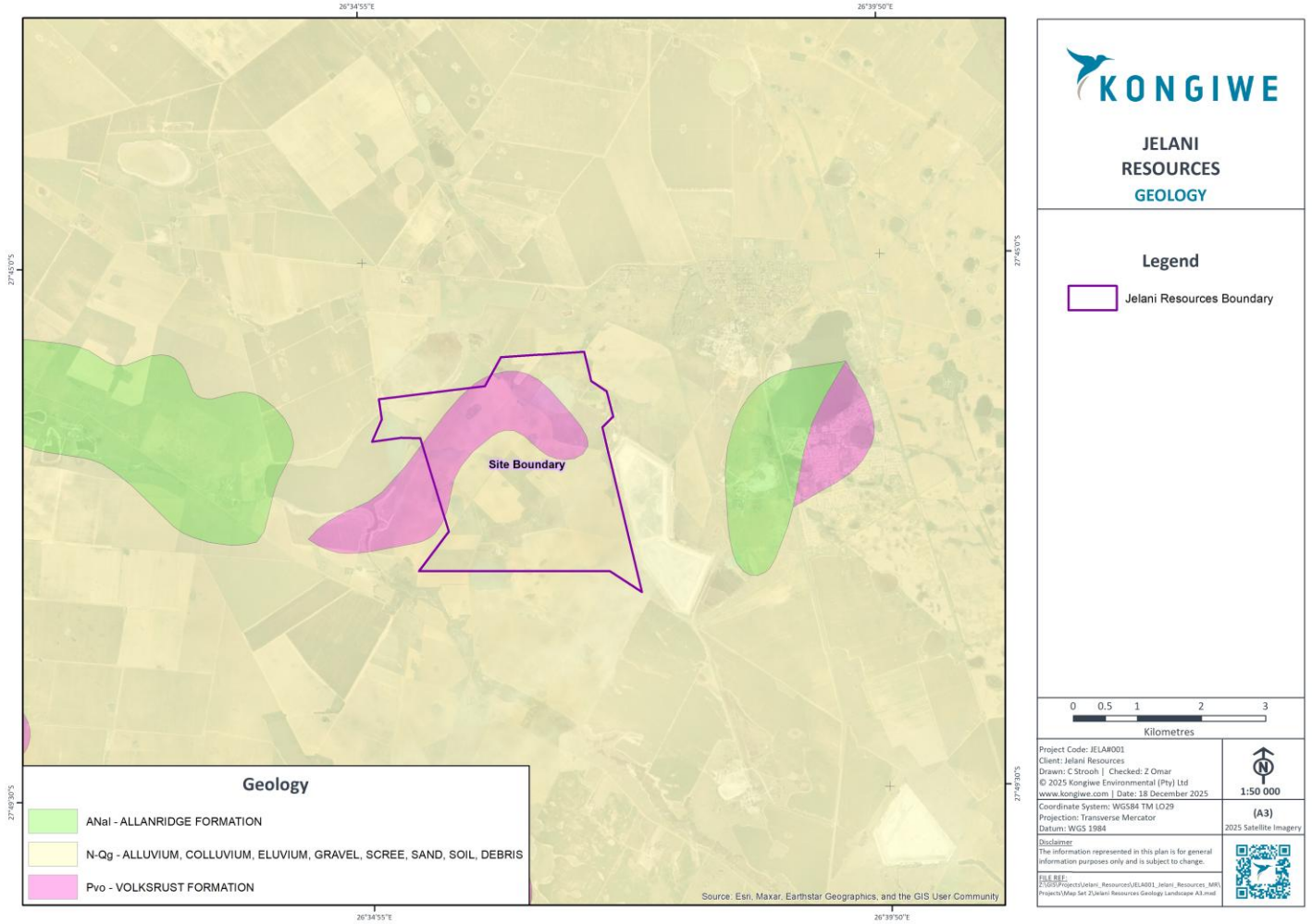

Figure 10: Geology

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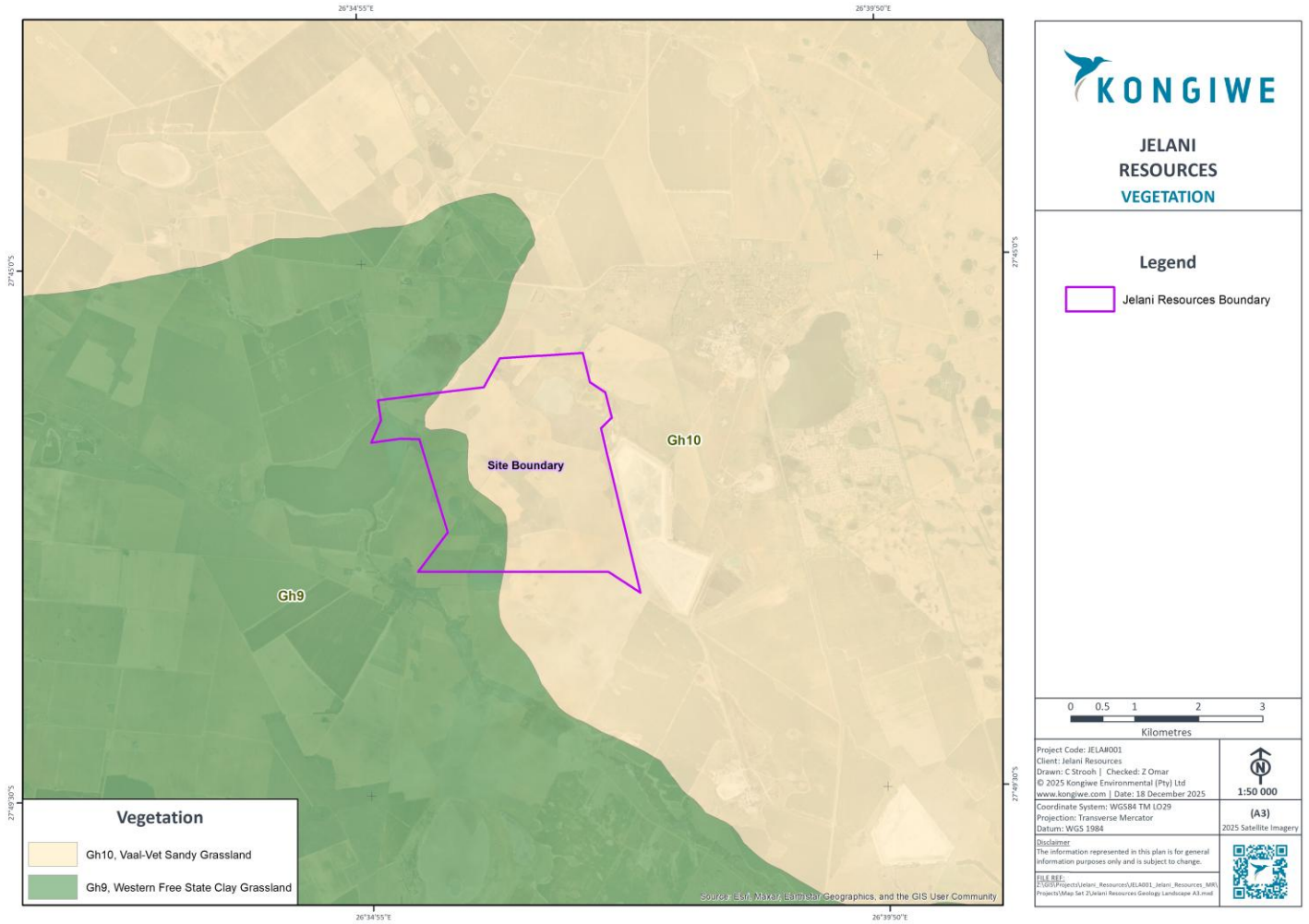

Figure 11: Vegetation

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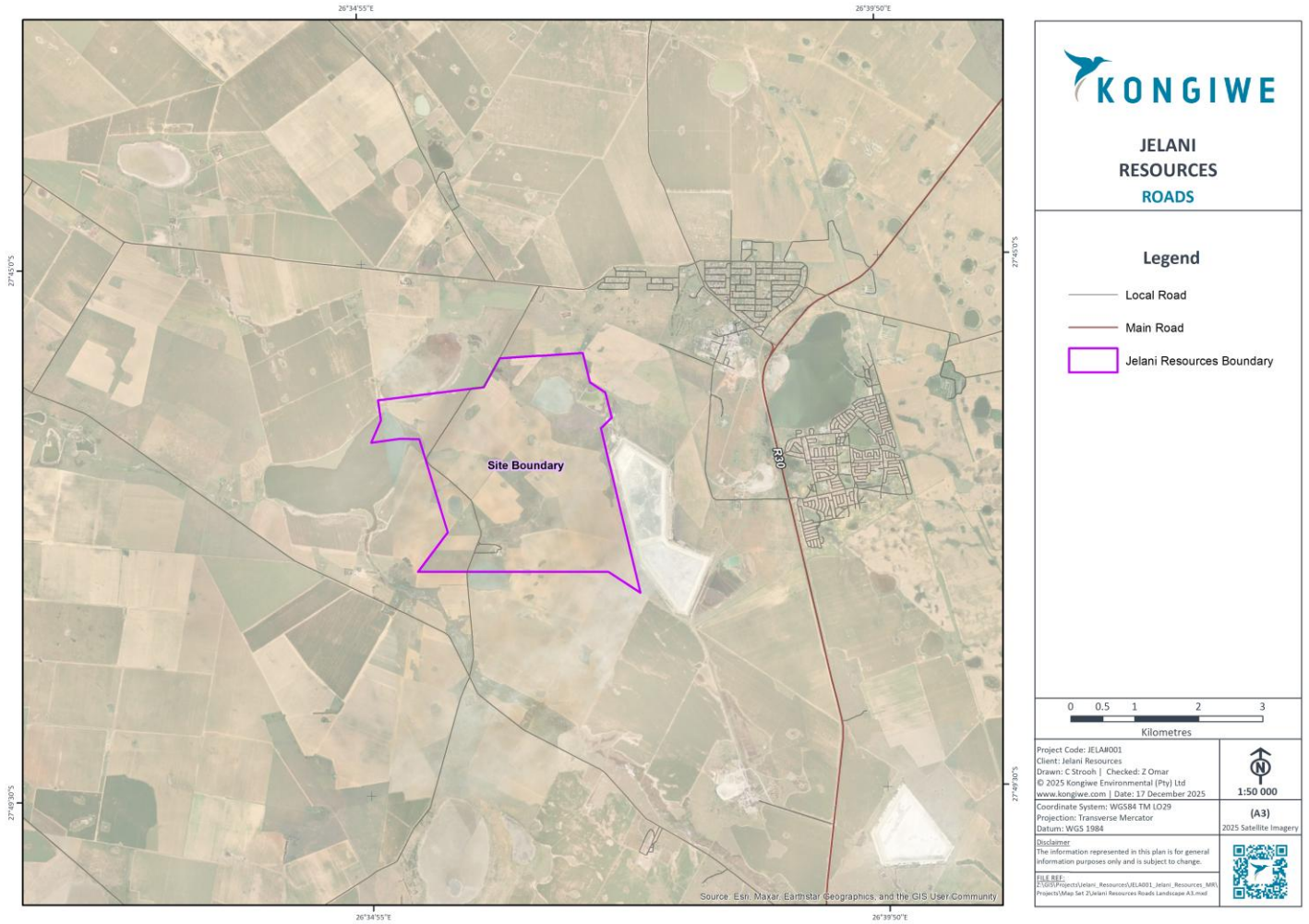

Figure 12: Roads

4. CONCEPTUAL STORMWATER MANAGEMENT PLAN

4.1 Design Philosophy

The following design philosophy was adopted to guide the development of the SWMP, and is based on GN R704 regulations and the DWS 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 and contained and should as far as possible be recycled and reused.
- Clean and dirty water systems must be designed and constructed to prevent cross contamination.
- Clean and dirty water systems must convey or contain runoff from the 1:50-year event.
- Appropriate maintenance and management of stormwater related infrastructure should always be ensured.

4.2 Peak Flows and Volumes

4.2.1 Rational Method

The Rational Method is suitable as a preliminary method for estimating peak runoff from small, reasonably homogeneous catchments where rainfall intensity, catchment response and flow concentration can be represented by a single design storm. It can provide a practical estimate of peak discharge for sizing channels, culverts and diversion structures, particularly where reliable rainfall intensity data and clearly defined catchment boundaries are available.

The selection of the runoff coefficient requires particular care. The adopted values should reflect land cover, soil conditions, slope, antecedent moisture, impervious or compacted areas, mining infrastructure and the presence of disturbed or saturated ground. A single coefficient may not adequately represent a catchment containing natural veld, roads, dams, wetlands and mining-related surfaces. Where catchments contain materially different surfaces, a weighted runoff coefficient should be calculated. Sensitivity testing should also be undertaken because a change in the runoff coefficient produces a directly proportional change in the calculated peak flow.

The time of concentration should be calculated from the longest or hydraulically controlling flow path to the relevant outlet. The report should state the adopted method, flow-path length, slope, surface characteristics and any assumptions used. The selected rainfall intensity is directly dependent on this value. A shorter time of concentration produces a higher design rainfall intensity, which results in a higher calculated peak discharge. In flat terrain, the time of concentration may be uncertain because runoff can move slowly as shallow overland flow, pond in depressions or be temporarily intercepted by wetlands and pans. The assessment should therefore include a sensitivity check using reasonable alternative times of concentration.

The Rational Method are therefore be presented as indicative peak-flow estimates.

The Rational method is used to calculate the peak flows. The Rational method is based on the following equation:

$$Q_T = \frac{C\ I\ A}{3.6}$$

where:

- Q_T = Peak flow for a recurrence interval e.g., a 1:100-year event (m^3/s).
- C = Runoff coefficient (dimensionless).

- I = Average rainfall intensity over the catchment (mm/hour).
- A = Catchment area contributing to the peak flow (km²).
- 3.6 = Conversion factor.

The runoff coefficient "C" is calculated by specifying the percentage area covered by different physical characteristics of the contributing catchment. This includes the vegetation, slope, soil permeability and land use characteristics.

The average rainfall intensity "I" was calculated by dividing the gridded storm rainfall depths obtained from Smithers and Schulze (2002) by the time of concentration (T_c). The T_c is the amount of time it takes for water to travel from the hydraulically most remote point in the contributing catchment to the catchment outlet. It is essentially the amount of time for runoff in the catchment to contribute to the peak flow.

The contributing catchment area "A" was calculated by delineating a catchment from the point where the watercourse exits the Project area.

A Microsoft Excel spreadsheet was used to perform the calculations based on the South African National Roads Agency Limited (SANRAL) procedure (SANRAL, 2013) (Attached as Annexures A and C).

The Rational Method is based on the following assumptions:

- Rainfall has a uniform area distribution across the total contributing catchment.
- Rainfall has a uniform time distribution for at least a duration equal to the Tc.
- The peak discharge occurs when the total catchment contributes to the flow occurring at the end of the critical storm duration, or Tc.
- The runoff coefficient "C" remains constant for the storm duration, or Tc.
- The return period of the peak flow is the same as that of the rainfall intensity.

4.2.2 Stormwater Detention/Attenuation

The Brooker Method is a storage-routing approach used to size attenuation ponds/tanks or route storms through an existing pond/dam (storage facility).

Instead of just using the Rational Method peak directly, Brooker's approach:

- Generates an inflow hydrograph (often from Rational or unit hydrograph).
- Routes it through a storage facility.
- Checks the **attenuated outflow**.

Core concept

The Method balances:

- Inflow hydrograph – Outflow through control structure = Storage required.
- So, the attenuation volume is the temporary storage needed to "flatten" the peak.

Typical steps (Brooker-style detention design)

- **Select storm return period & duration**
  (Critical duration is key — often longer storms control storage, not the peak-intensity short storm.)
- **Generate inflow hydrograph**
  Often triangular or derived from Rational Method:

$$Q_{peak} = CiA$$

- **Apply storage routing (level pool method)**

  Using:

$$\frac{dS}{dt} = I - O$$

  - Where:
  - S= storage
  - I= inflow
  - O= controlled outflow (orifice/weir)

Why is the Brooker approach used

- Works well for detention ponds and underground tanks.
- More realistic than just peak-flow comparison.
- Captures **attenuation of the hydrograph**, not just peak reduction.
- Common in South African and UK stormwater design practice.

A Microsoft Excel spreadsheet was used to perform the calculations for the Brooker Method (Attached as Annexures B and D).

4.2.3 Channel Sizing

The Manning's equation was used to calculate the bypass channel size required to convey the 1:50-year event peak flow. The Manning's equation is provided below:

$$Q = A\frac{1}{n}R^{2/3}S^{1/2}$$

Where:

- Q = Peak flow (m³/s).
- A = Cross sectional area of the channel (m²).
- R = Hydraulic radius (m).
- S = Longitudinal slope of channel (m/m).
- n = Manning's roughness coefficient 'n'.

Calculations were undertaken using a Microsoft Excel spreadsheet. The typical proposed design for clean and dirty water channels is shown in Figure 13: Typical proposed design for clean and dirty water channels.

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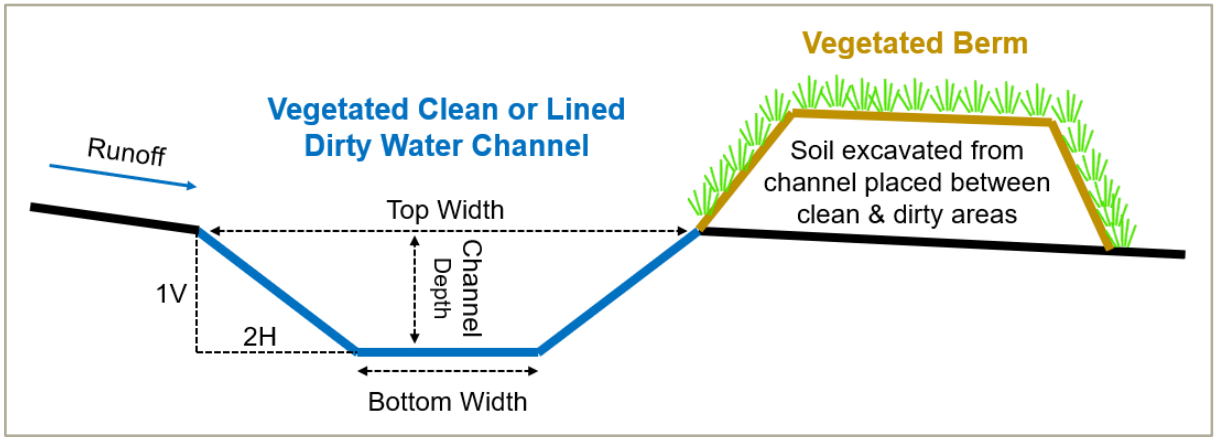

Figure 13: Typical proposed design for clean and dirty water channels

4.3 Surface Water Runoff

4.3.1 General

4.3.1.1 Jelani Project Area

The Jelani Project Area has 3 catchment areas impacting on the surface water hydrology (See Figure 14):

- The Swartpan Catchment Area – the biggest catchment area of size approximately 8.3 km^2 including the area to the east of the Target 1 TSF. There is overland flow to the Swartpan, and a natural watercourse below Swartpan to Pan A.
- Pan B Catchment Area – area of size approximately 1.5 km^2. There is no defined watercourse, just overland flow into the Pan.
- Pan C Catchment Area – area of size approximately 2.5 km^2. There is no defined watercourse, just overland flow into the Pan.
- Balance of Jelani Project Area – flows in a westerly direction into Pan A or the Losdoringspruit.

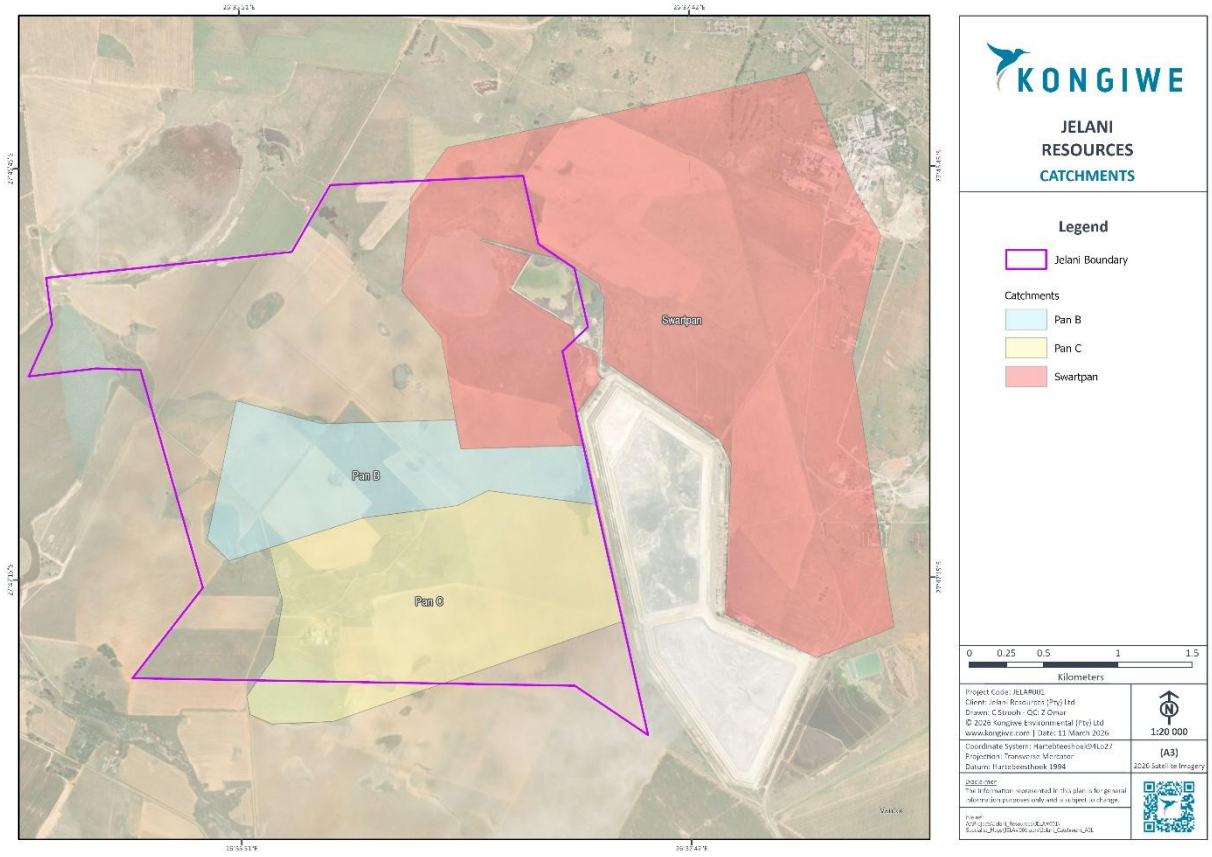

Figure 14: Catchment areas affecting the Jelani Project

4.3.1.2 Topography of area

Figure 15 shows that the project area has a high lying area to the east of the project site and just west of the R30. The area drains in a westerly direction where the Target 1 and 2 TSFs act as a barrier and deflects the runoff in a northerly direction, concentrating the flow in the North-west Return Water Dam area.

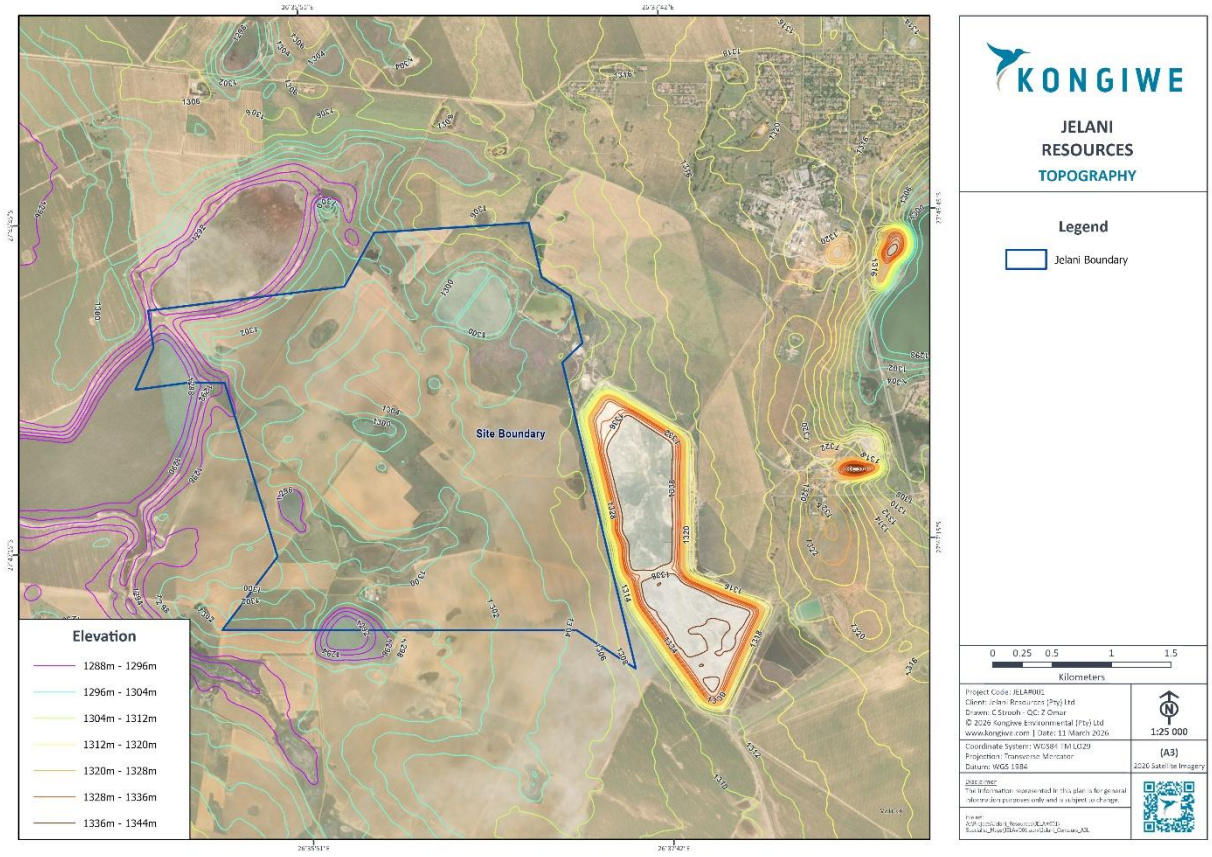

Figure 15: Contour map of area

4.3.1.3 Catchment Areas

Swartpan Catchment Area

An open bypass channel has been constructed around the North-west (Old) Return Water Dam (RWD), the Blue RWD and the Emergency Overflow Ponds, ultimately discharging into Swartpan (See Figure 16). The purpose of the channel is assumed to be to bypass the “clean” stormwater runoff around the “dirty” mine infrastructure. This open channel is currently completely overgrown (See Figure 17).

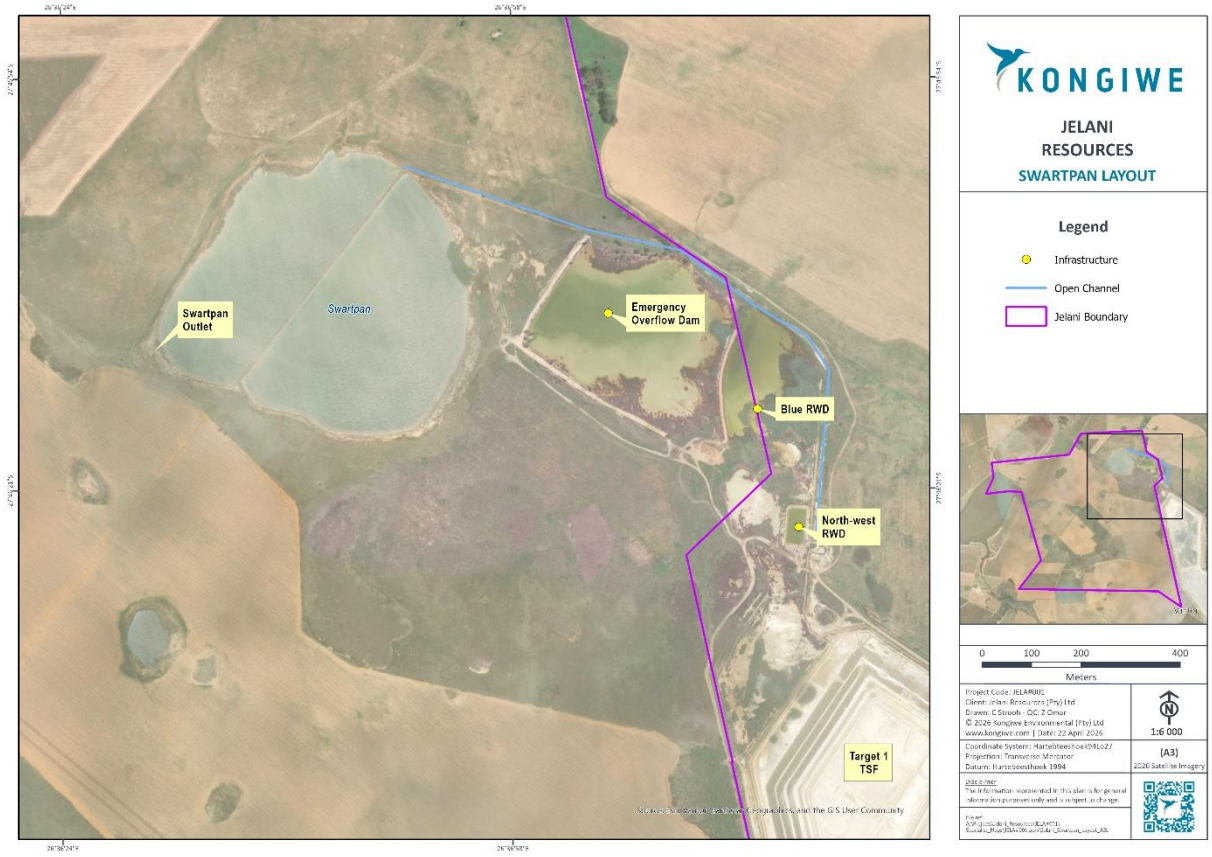

Figure 16: Swartpan area layout

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Figure 17: Open Trench to Swartpan, completely overgrown

There is an area between the start of the open bypass channel and the end of the earth berm around Target 1 TSF where the stormwater runoff collects in the solution trenches and ends up in the North-west RWD, Blue RWD and the Emergency Overflow Dam (See Figure 18).

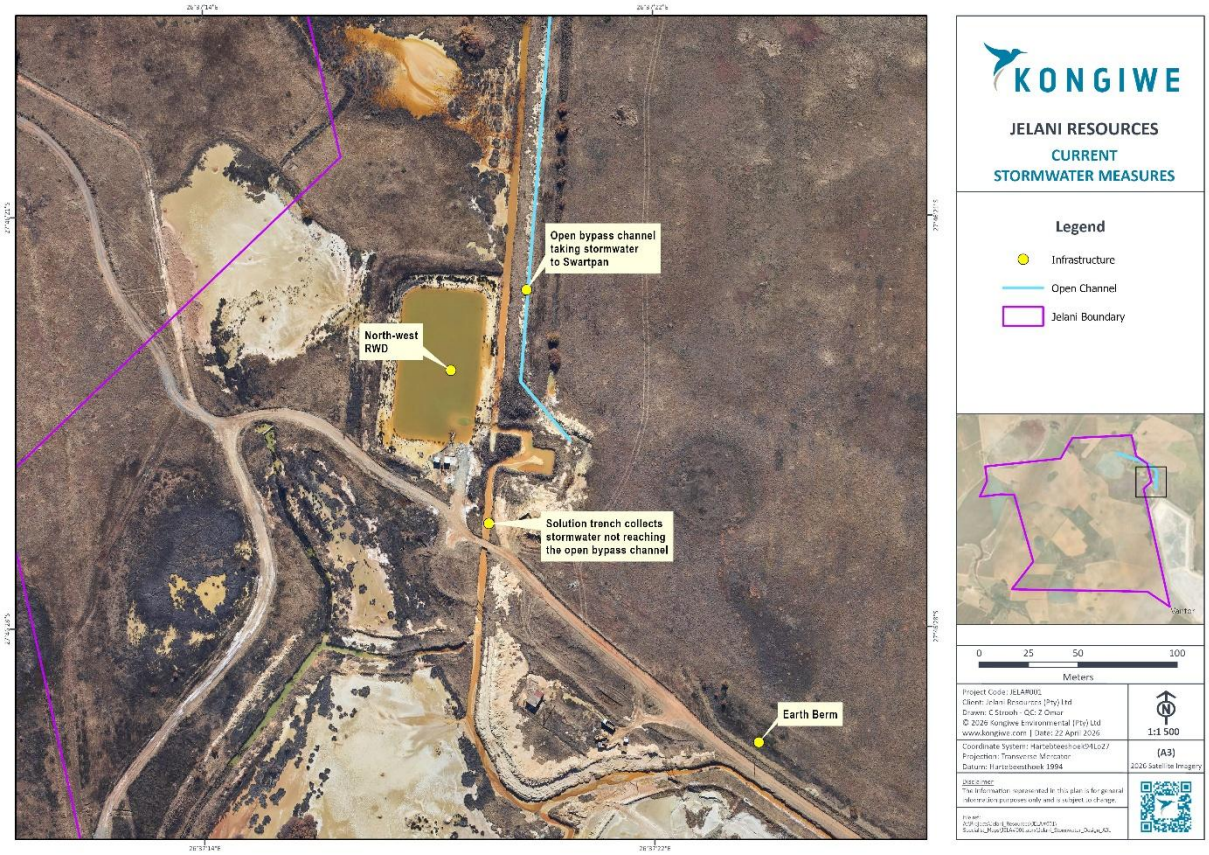

Figure 18: Area where stormwater is collected in the solution trenches

Swartpan appears to have a wall constructed across it to separate clean and dirty water, however at the site inspection in January 2026 this wall was not visible as the pan was full. Swartpan has no formal outlet structure and drains from its south-west corner down a natural channel which ends up in Pan A. The natural channel is crossed by a farm road however there are no formal stormwater structures under this road to allow any flow to pass. The Losdoringspruit also flows into Pan A, which in turn overflows into the Gelukspan (See Figure 4).

Pan B Catchment Area

There is no formal outlet structure from Pan B (See Figure 4). When full, the Pan will overflow into the surrounding lands, and ultimately into the Losdoringspruit.

Pan C Catchment Area

There is a formal open trench outlet channel from Pan C, fed by a 600 mm dia pipe from Pan C under the Farm Road (See Figure 4). The outlet channel takes the overflow down to the Losdoringspruit.

4.3.2 Wetland hydrology

The wetland and pan systems within the study area are sustained primarily by direct rainfall, surface-water runoff from their respective upstream catchments and, where applicable, shallow subsurface or groundwater contributions. The existing drainage configuration allows runoff from the contributing catchments to flow along natural drainage lines, overland flow paths and existing channels towards the relevant wetland or pan systems, including Swartpan and Pans A–C. Runoff from areas associated with mining infrastructure may also be intercepted by the existing solution trenches, the North-west RWD, the Blue RWD and the Emergency Overflow Dam before reaching downstream receiving areas.

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4.4 Swartpan

4.4.1 Existing Scenario

The catchment areas contributing to Swartpan are shown in Figure 19 below.

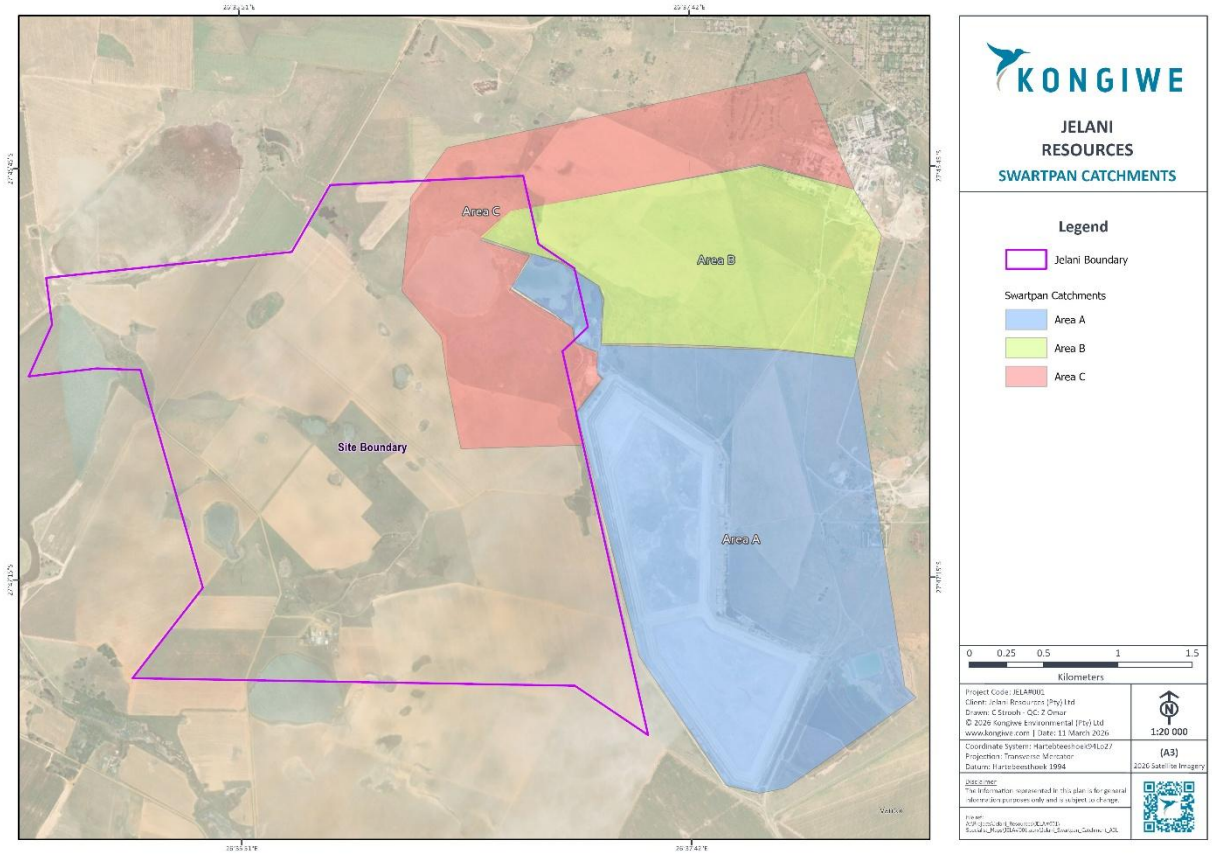

Figure 19: Swartpan Catchment Areas

4.4.1.1 Catchment Area A

Catchment Area A collects the "dirty" water from the solution trenches from Target 1 TSF to the North-west RWD, and floods the North-west RWD, the Blue RWD and the Emergency Overflow Dam which are all interconnected. It then overflows from the Emergency Overflow Dam into Swartpan.

Table 5: Catchment A Existing Scenario

Description	Value
MAP	502 mm
Size of catchment	3.124 km^2
Time of Concentration	2.11 hours
Run-off coefficient (C) 1:50-year event	0.335
Run-off coefficient (C) 1:100-year event	0.373

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Point rainfall 1:50-year event	74.660 mm
Point Rainfall 1: 100-year event	83.437 mm
Peak Flow (Rational Formula) 1:50-year event	10.182 m^3/s
Peak Flow (Rational Formula) 1: 100-year event	12.930 m^3/s
Peak Inflow (Brooker) 1:50-year event	9.87 m^3/s
Peak Outflow (Brooker) 1:50-year event	1.69 m^3/s
Peak Inflow (Brooker) 1: 100-year event	13.53 m^3/s
Peak Outflow (Brooker) 1: 100-year event	2.59 m^3/s

The North-west RWD, Blue RWD and Emergency Overflow Dam will have an attenuation effect on the runoff, even if they are full at the time. Assuming that they are full, the hydrograph (Brooker) (Figure 20) below shows the normal and attenuated flows for the 1:50-year event over a period of time, with the 1:50-year event peak flow reducing from 9.87 m^3/s to 1.69 m^3/s, and the 1:100-event peak flow reducing from 13.53 m^3/s to 2.59 m^3/s.

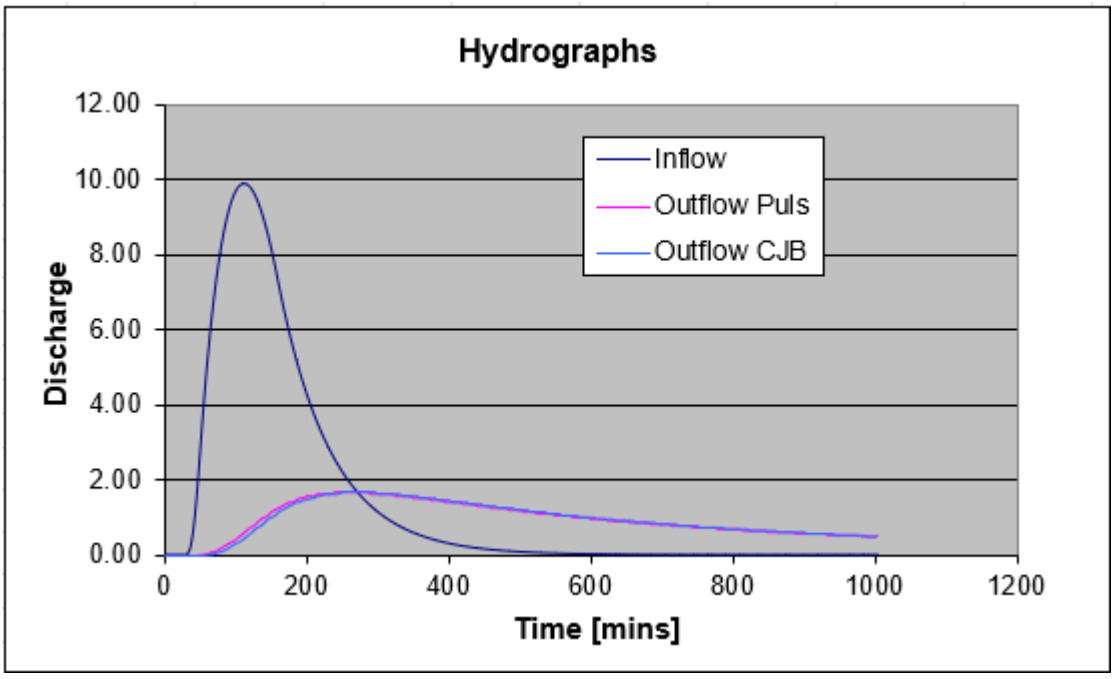

Figure 20: Attenuated 1:50-year event hydrograph from Catchment A

This attenuated hydrograph is the inflow of runoff from Catchment A into Swartpan.

4.4.1.2 Catchment Area B

Catchment Area B collects in the open bypass channel around the North-west RWD, the Blue RWD and the Emergency Overflow Dam and flows directly into Swartpan.

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Table 6: Catchment B Existing Scenario

Description	Value
MAP	502 mm
Size of catchment	2.318 km^2
Time of Concentration	2.38 hours
Run-off coefficient (C) 1: 50-year event	0.354
Run-off coefficient (C) 1: 100-year event	0.373
Point rainfall 1: 50-year event	76.280 mm
Point Rainfall 1: 100-year event	85.246 mm
Peak Flow (Rational Formula) 1: 50-year event	7.291 m^3/s
Peak Flow (Rational Formula) 1: 100-year event	8.395 m^3/s
Peak Flow (Brooker) 1: 50-year event	6.99 m^3/s
Peak Flow (Brooker) 1: 100-year event	9.07 m^3/s

The 1:50-year event hydrograph (Brooker) (Figure 21) below shows the flow over a period.

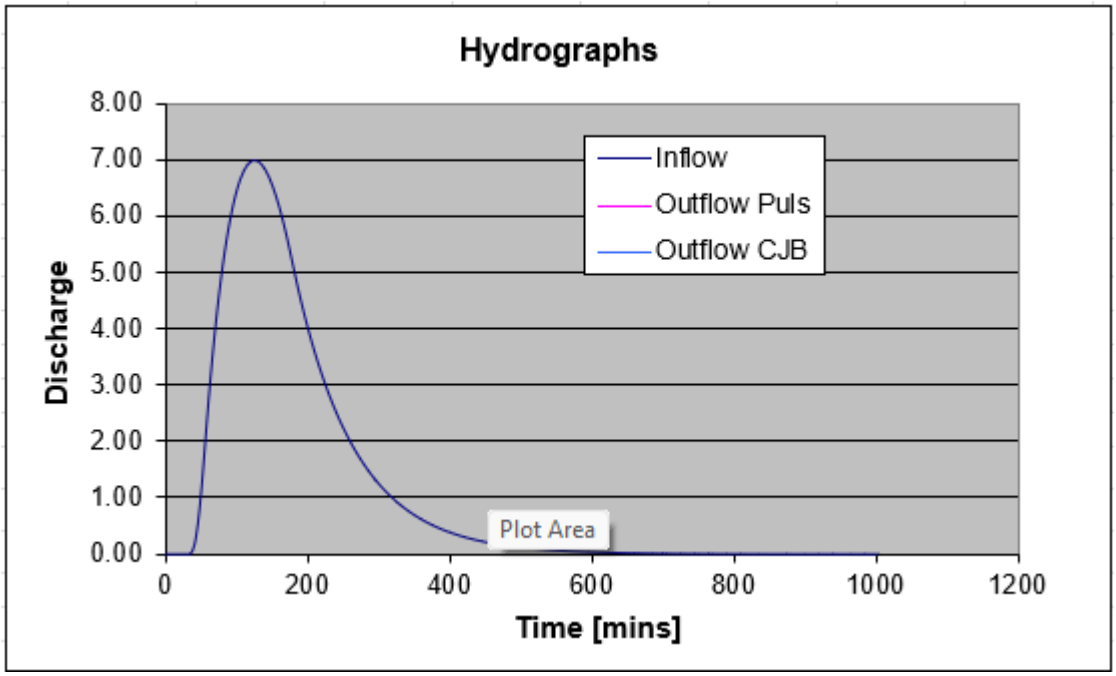

Figure 21: 1:50-year event hydrograph from Catchment B

This hydrograph is the inflow of runoff from Catchment B into Swartpan.

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4.4.1.3 Catchment Area C

Catchment Area C flows directly into Swartpan, and the inflow hydrograph includes the outflow hydrographs from Catchment Areas A and B.

Table 7: Catchment C Existing Scenario

Description	Value
MAP	502 mm
Size of catchment	2.960 km^2
Time of Concentration	2.04 hours
Run-off coefficient (C) 1: 50-year event	0.214
Run-off coefficient (C) 1: 100-year event	0.225
Point rainfall 1: 50-year event	74.240 mm
Point Rainfall 1: 100-year event	82.968 mm
Peak Flow (Rational Formula) 1: 50-year event	6.327 m^3/s excluding external hydrographs
Peak Flow (Rational Formula) 1: 100-year event	7.585 m^3/s excluding external hydrographs
Peak Inflow (Brooker) 1: 50-year event	13.82 m^3/s – all flows
Peak Outflow (Brooker) 1: 50-year event	3.11 m^3/s – all flows
Peak Inflow (Brooker) 1: 100-year event	17.80 m^3/s – all flows
Peak Outflow (Brooker) 1: 100-year event	4.15 m^3/s – all flows

Swartpan has an outlet into a natural channel at its southwestern corner. The hydrograph (Brooker) for Catchment Area C plus the output hydrographs from Catchment Areas A and B are routed though Swartpan, which is assumed to be full (the worst-case scenario). The hydrograph (Figure 22) below shows the 1:50-year event attenuated flow over a period.

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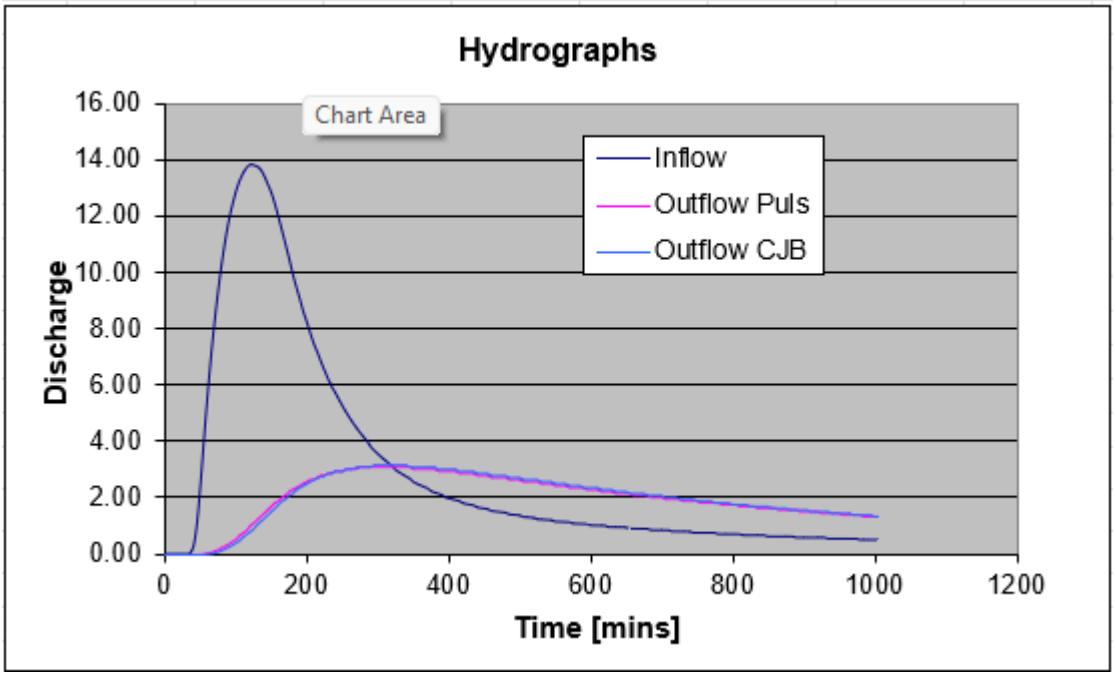

Figure 22: Attenuated 1:50-year event hydrograph from Swartpan

This attenuated 1:50-year event hydrograph is the outflow from Swartpan.

4.4.1.4 Open Bypass Channel to Swartpan

The open bypass channel was found to be completely overgrown, see Figure 17. Where it was visible the channel was measured and found to be 2 m wide at its base, 1 vertical to 2 horizontal side slopes, and 2 m deep, and this cross section has been assumed for the whole length. Table 8 gives the results for the Existing Scenario.

Table 8: Swartpan Open Bypass Channel Existing Scenario

Description	As designed	Current state
Length	1 315 m	1 315 m
Slope	0.0038 m/m	0.0038 m/m
Channel type	Earth straight and uniform	Channel not maintained
Condition	Clean after weathering	Dense brush high stage
Design Flow (1:50-year event)	7.291 m^3/s	7.291 m^3/s
Manning's n	0.022	0.1
Depth of flow	1.2 m	>2.0 m (channel overflows)
Velocity	1.41 m/s	0.66 m/s

As designed (clean, maintained) the bypass channel has the capacity to handle the 1:50-year event, although the velocity exceeds the allowable velocity of 1.2 m/s and some erosion damage will occur. However, in its present state

(overgrown, not maintained) the bypass channel does not have the capacity for the 1:50-year event, and it will overflow.

4.4.1.5 Discussion of Existing Scenario

The biggest problem for the Swartpan Catchment Area is that the clean and dirty water are not adequately separated, due to the open bypass channel around the dirty water facilities not extending far enough and clean water ending up in the "dirty" solution trenches.

At the site visit on 28/29 January 2026, it was noted that the North-west RWD, the Blue RWD and the Emergency Overflow Dam were all full, and there was evidence that the area had been subjected to flooding. At a site visit on 2-4 December 2025 with DWS officials for the Harmony Integrated IWULA Project, the area could not be accessed as it was under water.

The wall across Swartpan seems to indicate that at some stage the eastern section of Swartpan was used to contain "dirty" water. The open bypass channel around the infrastructure terminates in the "clean" water area of Swartpan, indicating that at some stage there may have been an attempt to separate the clean and dirty water.

The Emergency Overflow Dam was full, and this indicates that it is not operating as an emergency dam but as part of the normal operating infrastructure of the area.

The open bypass channel around the mine infrastructure has sufficient capacity to handle the 1:50-year event storm if adequately maintained. However, under its current unmaintained state (completely overgrown), the channel is likely to overflow under the 1:50-year event.

4.4.2 Proposed Swartpan Solution

4.4.2.1 Proposal

The following is proposed:

- Extend the open bypass channel /earth berm at the North-west RWD problem area to collect all clean water and bypass the mine infrastructure area to deposit the clean water directly into Swartpan.
- This results in the North-west RWD, Blue RWD and Emergency Overflow Dam handling "dirty" water only.
- Operate the North-west RWD, Blue RWD and Emergency Overflow Dam complex such that there is sufficient capacity to handle the 1:50-year event "dirty" water flow without overflowing.
- Construct containment berms around potential pollution-generating areas to prevent contamination of nearby water resources throughout the construction and operational phases of the Life of Mine.

4.4.2.2 Operational Capacity, Responsibility and Implementation

To finalise the proposed solution and demonstrate compliance with GN R704, the following information must be provided:

The North-west Return Water Dam, Blue Return Water Dam and Emergency Overflow Dam are operated by Target Operations. Target Operations should therefore be identified as the current operator responsible for routine inspection, maintenance, water-level management, storm-event preparedness, drawdown procedures, pollution prevention and emergency response, subject to confirmation of legal ownership and the applicable authorisations.

The North-west Return Water Dam and Emergency Overflow Dam are understood to have been constructed before 1998, while the Blue Return Water Dam is understood to be a lined dam constructed after 1998. The respective construction and commissioning dates, design capacities, as-built information and authorisation status must be

confirmed from Target Operations's records, historical aerial imagery, dam-safety records and applicable water-use authorisations.

The historical status of the North-west Return Water Dam and Emergency Overflow Dam does not exempt current operation, maintenance, rehabilitation or modification from applicable legal requirements. Similarly, the post-1998 Blue Return Water Dam should be assessed against the environmental, water-use and dam-safety requirements applicable at the time of its construction, as well as current requirements governing its operation and any proposed modification.

The report must further confirm whether the existing dams and proposed works are authorised under Target Operations's existing authorisations, the WU43378 application, the Harmony Integrated IWULA, the Jelani Project or a separate authorisation. It must also identify the party responsible for implementing and funding the proposed works.

Based on the above the revised catchment areas are shown in Figure 23.

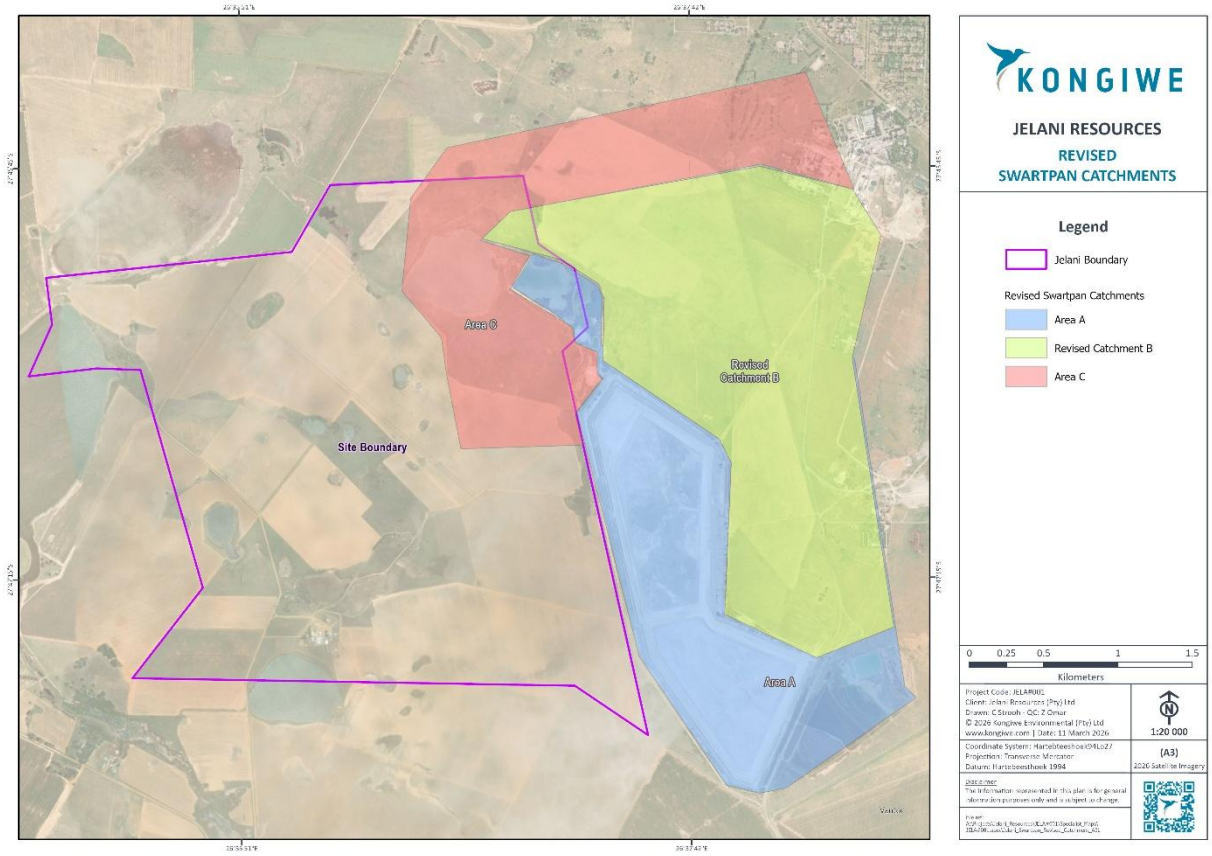

Figure 23: Revised Swartpan Catchment Areas

4.4.2.3 Catchment Area A

Catchment Area A collects stormwater in the solution trenches around Target 1 and 2 TSFs and flows to the North-west RWD, the Blue RWD and the Emergency Overflow Dam which are all interconnected. It excludes the rainfall falling on top of the TSFs, which will collect on the TSF and either evaporate or infiltrate. The results are given in Table 9.

Table 9: Catchment A Proposed Scenario

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Description	Value
MAP	502 mm
Size of catchment	0.926 km^2
Time of Concentration	3.30 hours
Run-off coefficient (C) 1:50-year event	0.335
Run-off coefficient (C) 1: 100-year event	0.373
Point rainfall 1: 50-year event	81.800 mm
Point Rainfall 1: 100-year event	91.410 mm
Peak Flow (Rational Formula) 1: 50-year event	2.156 m^3/s
Peak Flow (Rational Formula) 1: 100-year event	2.683 m^3/s
Peak Inflow (Brooker) 1: 50-year event	2.00 m^3/s
Peak Outflow (Brooker) 1: 50-year event	0 m^3/s (contained in the system)
Peak Inflow (Brooker) 1: 100-year event	2.74 m^3/s
Peak Outflow (Brooker) 1: 100-year event	0.702 m^3/s

As-built information for the relevant infrastructure was not available at the time of the assessment; therefore, the storage capacities, dimensions and operating levels presented in Table 9 could not be independently verified.

The North-west RWD, Blue RWD and Emergency Overflow Dam must be operated so that under the 1:50-year event, there is sufficient capacity in these dams to contain the inflow. The inflow excludes runoff on top of the TSFs, as this is kept on top of the TSFs and allowed to infiltrate or evaporate. A volume of 27 385 m^3 will have to be stored under the 1:50-year event. Under the 1:100-year event, there is a small overflow into Swartpan with a max flow of 0,702 m^3/s. (See Figure 24).

These facilities are currently being operated by Target Operations.

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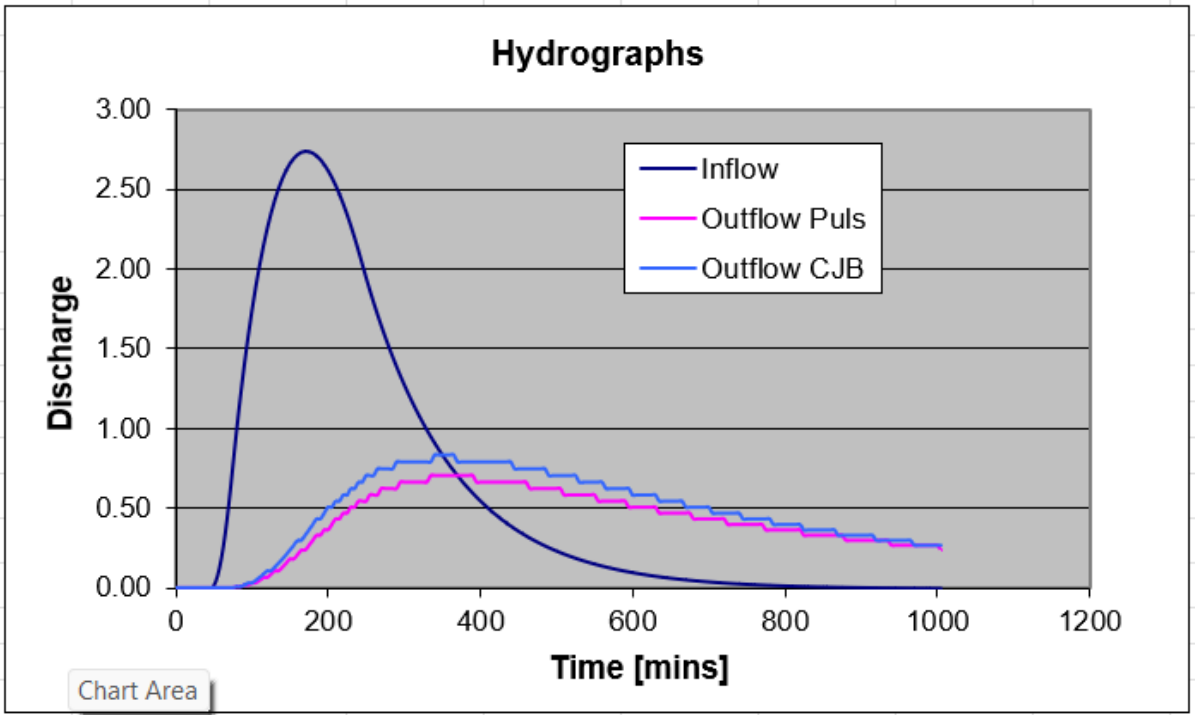

Figure 24: Attenuated 1:100-year event hydrograph - Catchment A – proposed scenario

This attenuated hydrograph under the 1:100-year event is the inflow of runoff from Catchment A into Swartpan.

4.4.2.4 Catchment Area B

Catchment Area B collects in the open bypass trench around the North-west RWD, the Blue RWD and the Emergency Overflow Dam and flows directly into Swartpan. The results are given in Table 10.

Table 10: Catchment B Proposed Scenario

Description	Value
MAP	502 mm
Size of catchment	4.516 km^2
Time of Concentration	2.90 hours
Run-off coefficient (C) 1: 50-year event	0.354
Run-off coefficient (C) 1: 100-year event	0.373
Point rainfall 1: 50-year event	79.40 mm
Point Rainfall 1: 100-year event	88.73 mm
Peak Flow (Rational Formula) 1: 50-year event	11.986 m^3/s
Peak Flow (Rational Formula) 1: 100-year event	14.486 m^3/s

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Peak Flow (Brooker) 1: 50-year event	11.512 m^3/s
Peak Flow (Brooker) 1:100-year event	14.923 m^3/s

The 1:50-year event hydrograph (Brooker) (Figure 25) below shows the flow over a period.

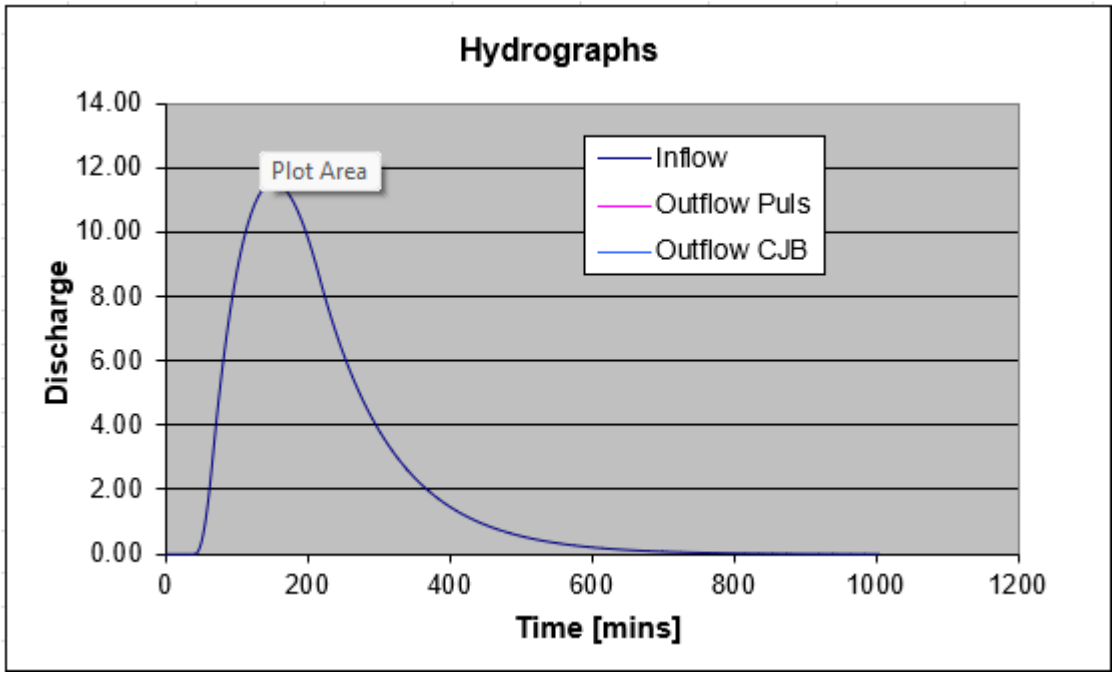

Figure 25: 1:50-year event hydrograph - Catchment B – proposed scenario

This hydrograph is the inflow of runoff from Catchment B into Swartpan.

4.4.2.5 Catchment Area C

Catchment Area C flows directly into Swartpan, and the inflow hydrograph includes the outflow hydrographs from Catchment Areas A and B. (See Table 10).

Table 11: Catchment C Proposed Scenario

Description	Value
MAP	502 mm
Size of catchment	2.960 km^2
Time of Concentration	2.04 hours
Run-off coefficient (C)	0.214
Point rainfall 1: 50-year event	74.240 mm
Point Rainfall 1: 100-year event	82.968 mm
Peak Flow (Rational Formula) 1: 50-year event	6.327 m^3/s excluding external hydrographs

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Peak Flow (Rational Formula) 1: 100-year event	7.585 m^3/s excluding external hydrographs
Peak Inflow (Brooker) 1: 50-year event	17.023 m^3/s – all flows
Peak Outflow (Brooker) 1:50-year event	4.41 m^3/s – all flows
Peak Inflow (Brooker) 1: 100-year event	22.173 m^3/s – all flows
Peak Outflow (Brooker) 1: 100-year event	6.331 m^3/s – all flows

Swartpan has an outlet into a natural channel at its southwestern corner. The hydrograph (Brooker) for Catchment Area C plus the output hydrographs from Catchment Areas A and B are routed though Swartpan, which is assumed to be full (the worst case scenario). The hydrograph (Figure 26) below shows the 1: 50-year event attenuated flow over a period.

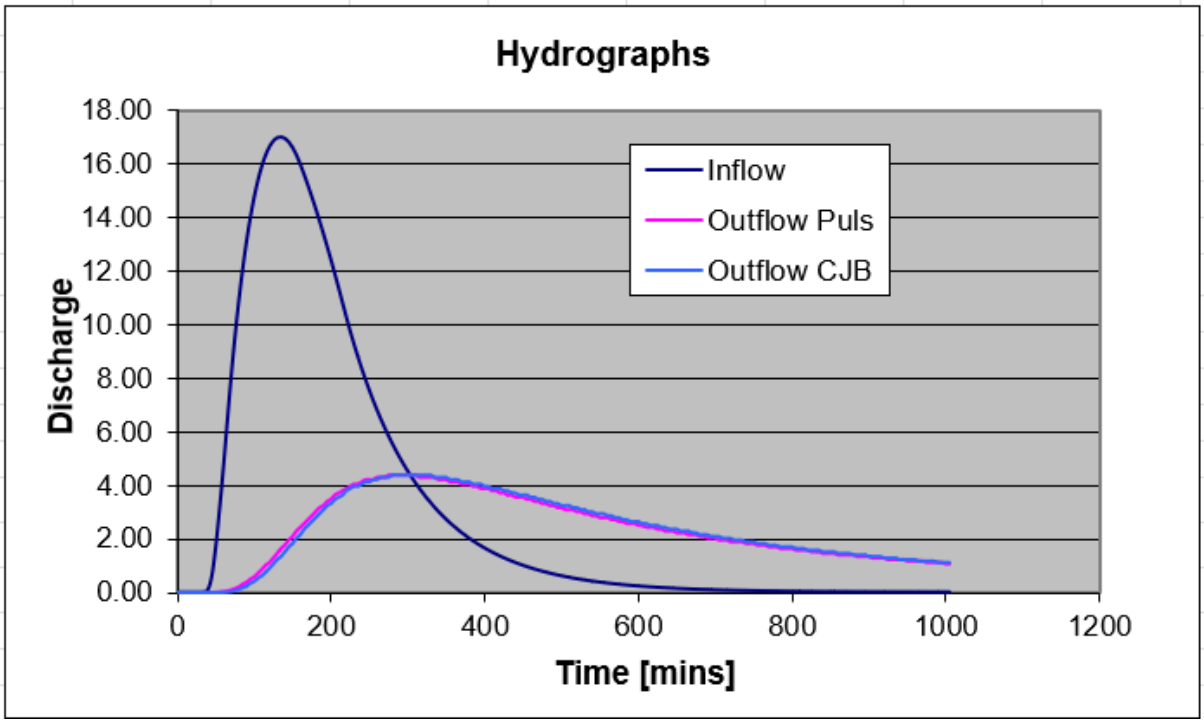

Figure 26: 1: 50-year event inflow and outflow hydrographs – Swartpan – proposed scenario

This attenuated 1:50-year event hydrograph is the outflow from Swartpan.

4.4.2.6 Open Bypass Channel around Mine Infrastructure

The open channel was found to be completely overgrown, see Figure 17. Where it was visible, the channel was measured and found to be 2 m wide at its base, 1 vertical to 2 horizontal side slopes, and 2 m deep. Table 12 presents the results.

Table 12: Swartpan Open Channel Proposed Scenario

Description	As proposed 1:50	As proposed 1:100
Length	1 315 m	1 315 m
Slope	0.0038 m/m	0.0038 m/m

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Channel type	Unreinforced concrete	Unreinforced concrete
Condition	Unreinforced concrete	Unreinforced concrete
Design Flow (1: 50-year event)	11.512 m^3/s	14.923 m^3/s
Manning's n	0.022	0.022
Depth of flow (without freeboard)	1.5 m	1.7 m
Velocity	2.24 m/s	2.44 m/s

As designed (clean, maintained) the bypass channel has the capacity to handle the 1:50-year event. However, the velocity exceeds the allowable velocity of 1.2 m/s, which will likely result in erosion damage. The way to overcome this is to line the channel with unreinforced concrete, which can withstand a velocity of up to 2.5 m/s. The channel must be cleaned out to remove accumulated sediment, vegetation and other obstructions before being lined with unreinforced concrete.

4.4.3 Floodlines

The floodlines for the natural watercourse downstream of Swartpan are shown in Figure 27. Contours were generated from Google Earth, and the 1:50-year and 1:100-year events were taken to be the attenuated outflows from Swartpan. Manning's formula was used to calculate flow widths. The floodlines presented are **indicative only** and should not be regarded as formal or final floodline delineations. They are intended to provide a preliminary indication of potential inundation areas and should be verified through a detailed topographical survey and hydraulic assessment.

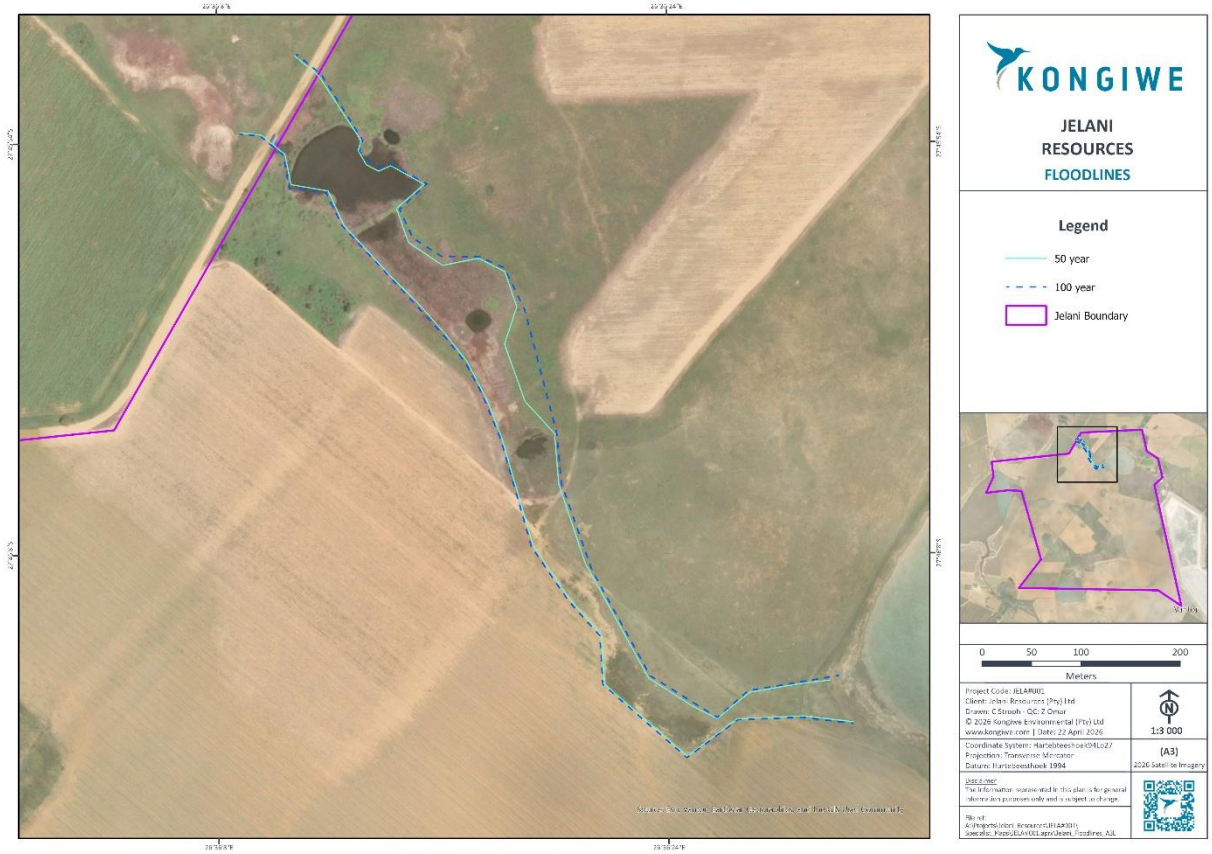

Figure 27: 1:50-year event (solid line) and 1:100-year event (dashed line) floodlines downstream of Swartpan

4.4.4 Discussion of Proposed Scenario

The proposed solution separates the “clean” and “dirty” water impacting the Jelani Project Area. The “clean” water from the catchment area is collected by means of earth berms and the open bypass channel and transferred to Swartpan, which is now a “clean” water pan. Swartpan has an attenuation effect even if it is full, and the resultant outflow hydrographs are routed down the natural watercourse downstream of Swartpan to Pan A. Floodlines are given for this natural watercourse.

The open bypass channel to Swartpan will have to be cleaned out and protected by unreinforced concrete lining to prevent scouring and erosion.

The “dirty” water in now confined to the North-west RWD, Blue RWD and Emergency Overflow Dam, which must be operated at a level to allow sufficient spare capacity to accommodate the 1:50-year event runoff. Containment berms must also be constructed around potential pollution-generating areas to prevent contamination of nearby water resources throughout the construction and operational phases of the Life of Mine.

Under the proposed stormwater-management system, clean runoff will be diverted through the proposed bypass channel towards Swartpan, while dirty or potentially contaminated runoff will be retained within the return-water-dam complex. This will alter the existing runoff routes and may change the volume, timing and quality of water reaching the relevant wetlands and pans. The final drainage layout should therefore clearly show the existing and proposed flow paths, catchment boundaries, diversion structures, discharge points and receiving wetlands or pans.

The proposed diversion is expected to reduce or delay runoff reaching wetlands or pans that currently receive flow from the dirty-water areas. Conversely, Swartpan may receive a greater proportion of clean runoff through the proposed bypass channel. The change in inflow volume and timing may affect the frequency, duration and extent of inundation, particularly during larger rainfall events. Reduced inflows could shorten the hydroperiod or reduce the frequency of wetting in downstream wetland areas, while concentrated discharges could increase flow velocities, erosion or localised sediment deposition at the discharge point.

The likely effects on the relevant wetland and pan systems should be assessed as shown in Table 13:

Table 13 – Likely Effects on relevant wetland and pan systems

Wetland or pan	Existing runoff route	Proposed runoff route	Potential hydrological effect
Swartpan	Receives runoff from its natural contributing catchment, together with any existing drainage that reaches the pan.	Receives clean runoff through the proposed bypass channel.	Potential increase in inflow volume during storm events, with possible changes to inundation frequency, peak water levels, erosion and sediment deposition at the discharge point.
Pan A	Receives runoff from its existing upstream catchment and natural overland flow paths.	Runoff route to be confirmed based on the final diversion and channel layout.	Potential reduction, delay or concentration of inflows, which may alter the pan's hydroperiod and seasonal water levels.
Pan B	Receives runoff from its existing upstream catchment and natural drainage features.	Runoff route to be confirmed based on the final diversion and channel layout.	Potential changes in the timing and volume of inflow, with possible effects on the duration and extent of inundation.
Pan C	Receives runoff from its existing upstream catchment and natural drainage features.	Runoff route to be confirmed based on the final diversion and channel layout.	Potential reduction or redistribution of inflows, together with possible localised erosion or sedimentation if flows are concentrated.
Other identified wetland units	Receive runoff from local catchments through natural drainage lines or diffuse overland flow.	Existing and proposed connections must be shown on the final drainage plan.	Effects may include altered wetting frequency, hydroperiod, flow concentration, sediment deposition or reduced diffuse runoff.

The proposed system should be designed to maintain appropriate clean-water inputs to wetlands and pans wherever these inputs are required to sustain their hydrological functioning. The discharge from the bypass channel should be

located and designed to prevent erosion, excessive flow concentration and sediment deposition. Energy dissipation, erosion protection and sediment-control measures should be incorporated at the discharge point where required.

A final assessment should quantify the existing and proposed runoff volumes and peak flows reaching each relevant wetland or pan for representative rainfall events, including the 1:2-year, 1:5-year, 1:10-year, 1:50-year and 1:100-year events where relevant. The assessment should also compare the timing of inflows, the duration of inundation and the expected change in peak water levels. The wetland-hydrology assessment must be based on the final surveyed drainage layout and confirmed catchment delineation. Where this information is not available, the potential effects should be identified as [TO CONFIRM] rather than presented as confirmed impacts.

5. WATER QUALITY

Harmony Gold Mine currently undertake water quality reporting for the Target Operations. Water-quality sampling is undertaken twice a year, with samples collected from the relevant monitoring points and analysed by an accredited laboratory.

5.1 Surface Water

5.1.1 Surface Water Monitoring Points

The surface water monitoring points are indicated on Figure 28 below:

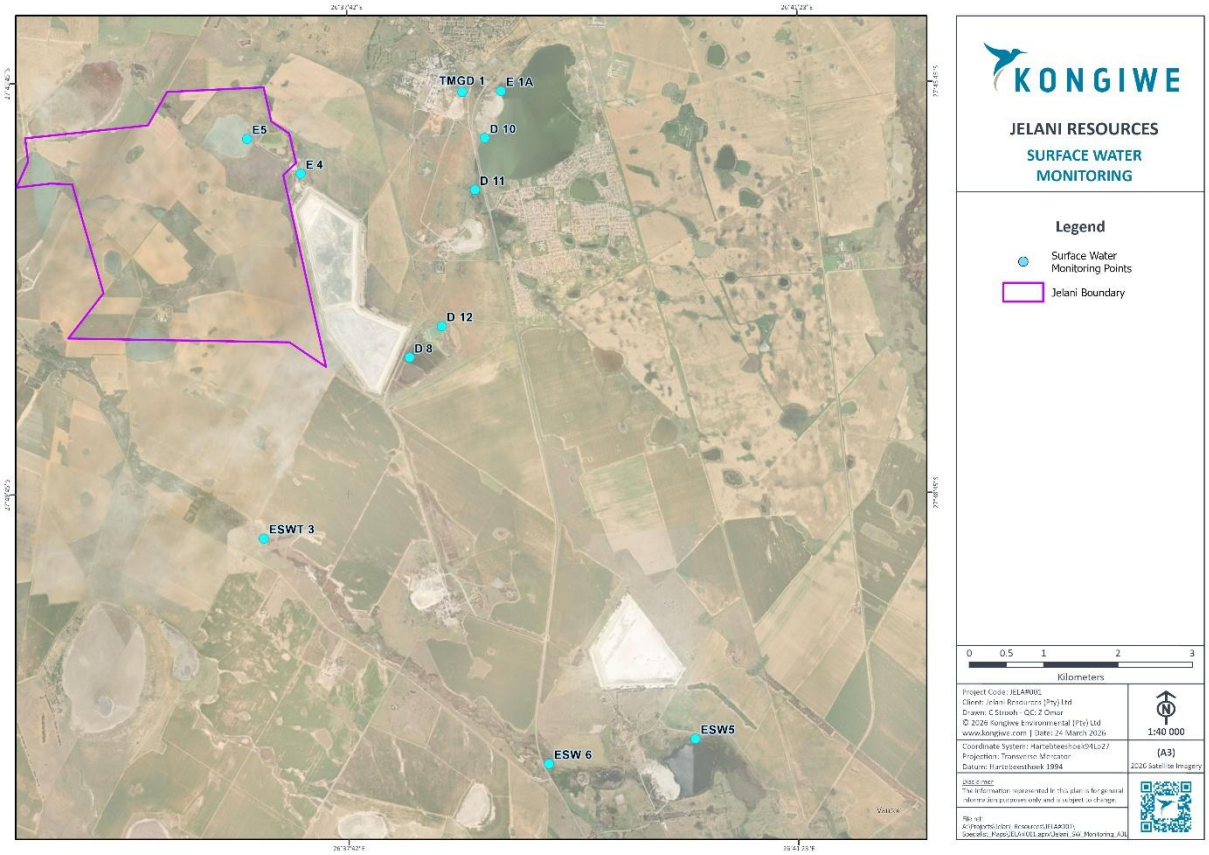

Figure 28: Surface Water Monitoring Points - Target Operations

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5.1.2 Surface Water Parameter Limits

The surface water quality results were compared to the South African Water Quality Guidelines and Resource Quality Objectives. These surface water parameter limits are shown in Table 14 below:

Table 14: Surface Water Parameter Limits

Parameter	Limit	Unit	Source
pH	6.5-8.5	*pH*	RQO 2016
EC	65	*mS/m*	RQO 2016
TDS	1 000	*Mg/L*	SAWQG 1996 – V5 Livestock
NH_3	1.5	*Mg/L*	SANA 241 : 2015
Cl	1 500	*Mg/L*	SAWQG 1996 – V5 Livestock
NO_2	100	*Mg/L*	SAWQG 1996 – V5 Livestock
PO_4	0.058	*Mg/L*	RQO 2016
SO_4	1 000	*Mg/L*	SAWQG 1996 – V5 Livestock
U	0.01	*Mg/L*	SAWQG 1996 – V4 Irrigation
TON		*Mg/L*	
*SAWQG – South African Water Quality Guidelines *RQO – Resource Quality Objectives			

The surface water parameter limits are specified as follows:

Good	Over/Under	Under detection limit	No limit

5.1.3 Surface Water Quality Results

The surface water quality results provided by Harmony are shown in Table 15 below:

Table 15: Surface Water Quality Results

	D 8		D 12		E 4		E5		ESW T3	
	Mar-24	Nov-24	Mar-24	Nov-24	Mar-24	Nov-24	Apr-24	Nov-24	Mar-24	Nov-24
pH	4.46	4.40	8.56	8.26	3.16	2.94	3.10	3.76	7.76	7.98
EC	1 130	881	786	759	876	867	673	7 255	985	367
TDS	8 858	6 872	5 114	5 688	6 642	6 744	5 382	61 196	6 630	2 374
NH_3	35.60	19.60	12.60	1.19	55.50	49.60	31.70	0.27	21.60	1.06
Cl	2 542	1 814	1 720	1 495	1 624	1 583	1 075	29 200	2 519	807
NO_2	0.232	4.380	14.000	5.650	0.415	2.730	0.390	5.620	0.194	1.320
PO_4	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.472	8.510	0.647

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SO_4	3 450	2 441	2 103	1 896	3 094	2 982	2 599	343	1 235	333
TON	0.23	4.38	14.00	5.65	0.42	2.73	0.39	5.62	0.19	1.32

5.1.4 Results and Discussion

- pH levels at D8, E4 and E5 show acidic conditions (pH<6), with E4 and E5 dropping to a pH as low as 2.94 and 3.10, respectively. These sample points show the effect of the TSF and the underground water pumped out and stored in the Emergency Overflow Dam.
- Electrical Conductivity (EC) measures water's ability to conduct electrical current, indicating the concentration of dissolved salts and ions. High EC can indicate pollution, high nutrient levels in irrigation, or excessive salts, which can cause toxicity in plants. All readings are high.
- Total dissolved solids (TDS) are the amount of organic and inorganic materials, such as metals, minerals, salts, and ions, dissolved in a particular volume of water. TDS are essentially a measure of anything dissolved in water that is not an H_2O molecule. When water encounters soluble material, particles of the material are absorbed into the water, creating total dissolved solids. Water containing TDS concentrations below 1 000 mg/litre is usually acceptable to consumers, although acceptability may vary according to circumstances. All readings exceed 1 000 mg/litre therefore are unsuitable for human consumption.
- Surface waters which are not contaminated with organic wastes, generally have a low ammonia nitrogen concentration, typically less than 0.2 mg/L. Ammonia (NH_3) and nitrite (NO_2) are discussed as separate parameters. Surface-water ammonia concentrations ranged from 0.27 mg/L to 55.50 mg/L. Against the stated limit of 1.5 mg/L NH_3, concentrations exceeded the limit at D8 during March 2024 and November 2024; D12, E4, E5 and ESW T3 during March 2024. The highest concentration was recorded at E4 in March 2024 at 55.50 mg/L. Results recorded at D12, E5 and ESW T3 during November 2024 were below the stated limit.
- Surface-water nitrite concentrations ranged from 0.194 mg/L to 14.000 mg/L. All reported concentrations were below the stated limit of 100 mg/L NO_2. The highest surface-water nitrite concentration was recorded at D12 in March 2024 at 14.000 mg/L.
- Groundwater nitrite concentrations ranged from 0.215 mg/L to 5.180 mg/L, which were below the stated groundwater limit of 9.1 mg/L NO_2. Monitoring point BH A1 was recorded as dry in March 2024, and no result was available for that sampling event. The results indicate elevated ammonia at several surface-water monitoring points, while the reported nitrite concentrations remained below the applicable limits. Further interpretation should consider the sampling locations, potential contaminant sources and temporal variation in the results.
- Chloride increases the electrical conductivity of water and thus increases its corrosivity. In metal pipes, chloride reacts with metal ions to form soluble salts (8), thus increasing levels of metals in drinking-water. The majority of the Chloride levels are high.
- Nitrite (NO_2) measures the concentration of nitrite ions (NO_2-) in water, providing valuable insights into nitrogen pollution levels and water quality. Nitrite can originate from various sources such as agricultural runoff, industrial discharges, and wastewater effluents. Elevated nitrite levels in water can pose health risks, particularly to infants, and may indicate pollution from fertilizers, septic systems, or industrial activities. Nitrite levels are acceptable.
- In appropriate quantities, phosphorus (PO_4) can be used by vegetation and soil microbes for normal growth. However, in excess quantities, phosphorus can lead to water quality problems such as eutrophication and harmful algal growth. Some aquatic resources, such as wetlands, naturally serve as sinks for phosphorus found in sediments or dissolved in water. However, since phosphorus generally occurs in small quantities in the natural environment, even small increases can negatively affect water

quality and biological condition. The phosphorus levels tend to be acceptable, except for ESW T3 (Losdoringspruit - Downstream of Target 3 Shaft).

- Sulphate is a common constituent of water and arises from the dissolution of mineral sulphates in soil and rock, particularly calcium sulphate (gypsum) and other partially soluble sulphate minerals. Since most sulphates are soluble in water, and calcium sulphate relatively soluble, sulphates when added to water tend to accumulate to progressively increasing concentrations. Sulphates are discharged from acid mine wastes and many other industrial processes such as tanneries, textile mills and processes using sulphuric acid or sulphates. The Sulphate values are high.
- Total Oxidised Nitrogen (TON) represents the combined concentration of nitrate and nitrite nitrogen in the water sample.
- It should be noted that it is expected that there will be several exceedances of the parameter limits due to some sampling points being in areas where dirty water is stored or generated. However, where applicable, interventions are needed to mitigate risks to the environment.

5.2 Groundwater

5.2.1 Groundwater Monitoring Points

The groundwater monitoring points are indicated on Figure 29 below:

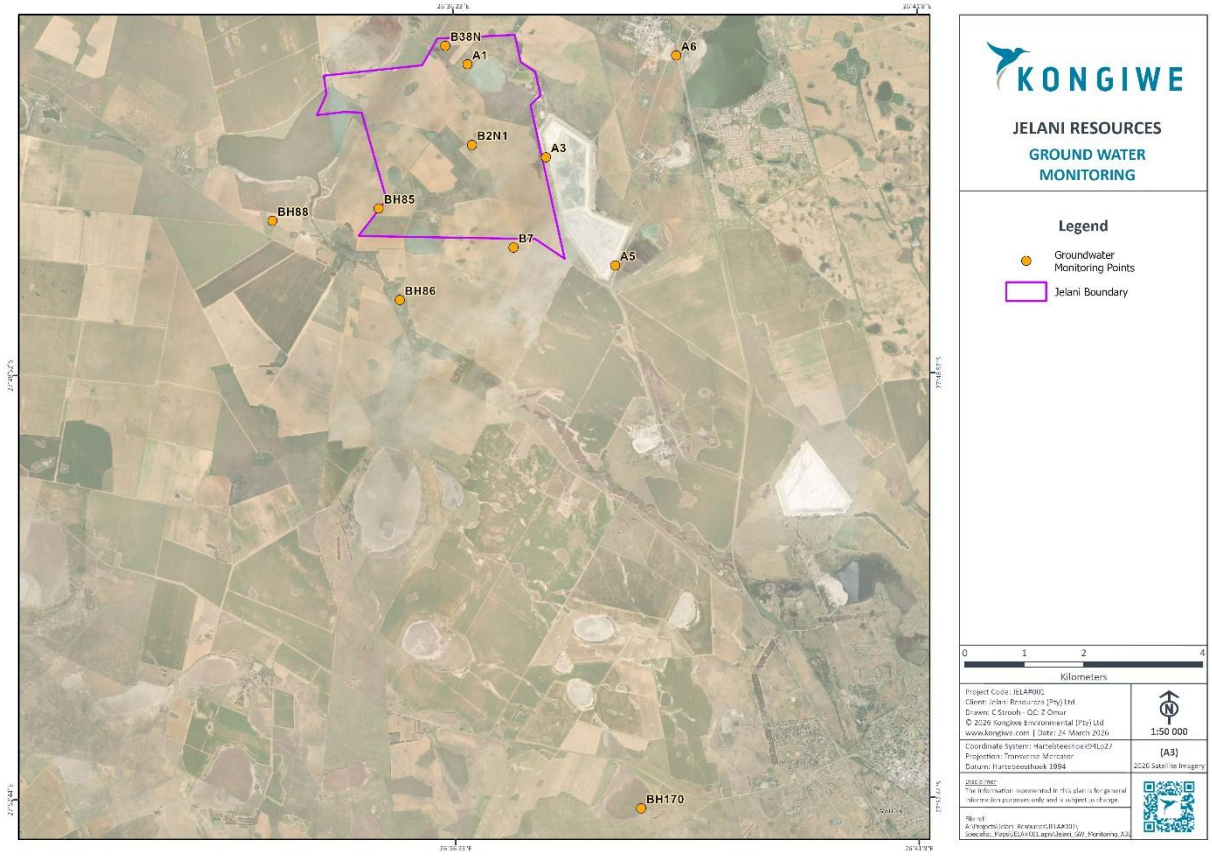

Figure 29: Groundwater Monitoring Points - Target Operations

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5.2.2 Groundwater Parameter Limits

The groundwater quality results were compared to the Preliminary Ground Water Quality Reserve. These groundwater parameter limits are shown in Table 16: Groundwater Parameter Limits below:

Table 16: Groundwater Parameter Limits

Parameter	Limit	Unit	Source
pH	5-9.7	*pH*	PGWQR 2013 (GRU 3a)
EC	141.2	*mS/m*	PGWQR 2013 (GRU 3a)
$CaCO_3$	228.4	*Mg/L*	PGWQR 2013 (GRU 3a)
Cl	1 113.2	*Mg/L*	PGWQR 2013 (GRU 3a)
NO_2	9.1	*Mg/L*	PGWQR 2013 (GRU 3a)
SO_4	486.1	*Mg/L*	PGWQR 2013 (GRU 3a)
Ca	197.5	*Mg/L*	PGWQR 2013 (GRU 3a)
Mg	149.4	*Mg/L*	PGWQR 2013 (GRU 3a)
K	587.6	*Mg/L*	PGWQR 2013 (GRU 3a)
Na	587.6	*Mg/L*	PGWQR 2013 (GRU 3a)
TON		*Mg/L*	PGWQR 2013 (GRU 3a)
*PGWQR – Preliminary Ground Water Quality Reserve			

The groundwater parameter limits are specified as follows:

Good	Over/Under	Under detection limit	No limit

5.2.3 Groundwater Quality Results

The groundwater quality results from Harmony are shown in Table 17 below:

Table 17: Groundwater Quality Results

	BH A1		BH B38N		BH A3		BH A5		BH B7	
	Mar-24	Nov-24	Jun-24	Nov-24	Mar-24	Nov-24	Mar-24	Nov-24	Mar-24	Nov-24
pH	Dry	8.32	8.29	7.84	6.70	5.13	6.94	7.12	8.50	8.35
EC	Dry	2 241	402	505	640	631	1 113	1 094	305	310
$CaCO_3$	Dry	784	416	401	161	29.4	283	334	258	281
Cl	Dry	5 078	1 234	1 178	1 194	1 205	2 356	2 016	714	757
NO_2	Dry	0.945	2.250	2.170	4.450	5.180	0.215	1.410	0.558	1.690
SO_4	Dry	4 053	321	324	1 696	1 572	3 463	2 971	183	83.7
Ca	Dry	243	134	134	634	596	809	622	71.4	79.1
Mg	Dry	344	84.2	90.5	134	124	403	375	84.7	93.1
K	Dry	19	12.9	9.95	38.3	33.7	43.8	40.7	32.6	34.7
Na	Dry	4 675	780	781	794	677	1 841	1 577	478	431

TON	Dry	0.945	2.25	2.17	4.45	5.18	0.215	1.41	0.558	1.69

5.3 Results and Discussion

- pH levels at BH A3 show acidic conditions (pH<6), with BH A3 dropping to a pH as low as 5.13. Generally, the pH levels of the borehole water are acceptable.
- Electrical Conductivity (EC) measures water's ability to conduct electrical current, indicating the concentration of dissolved salts and ions. High EC can indicate pollution, high nutrient levels in irrigation, or excessive salts, which can cause toxicity in plants. All readings are high.
- Borehole water $CaCO_3$ levels (total hardness) vary significantly based on geology, with levels often ranging from 29.4 to 784. While water below is generally acceptable, levels exceeding 120 are considered hard, causing scale in pipes, appliance damage, and potential health risks like kidney stones. The $CaCO_3$ concentration at BH A3 is within the applicable groundwater guideline limit.
- Chloride increases the electrical conductivity of water and thus increases its corrosivity. In metal pipes, chloride reacts with metal ions to form soluble salts (8), thus increasing levels of metals in drinking-water. The majority of the Chloride levels are high.
- Nitrite (NO_2) measures the concentration of nitrite ions (NO_2-) in water, providing valuable insights into nitrogen pollution levels and water quality. Nitrite can originate from various sources such as agricultural runoff, industrial discharges, and wastewater effluents. Elevated nitrite levels in water can pose health risks, particularly to infants, and may indicate pollution from fertilizers, septic systems, or industrial activities. Nitrite levels are acceptable.
- Sulphate is a common constituent of water and arises from the dissolution of mineral sulphates in soil and rock, particularly calcium sulphate (gypsum) and other partially soluble sulphate minerals. Since most sulphates are soluble in water, and calcium sulphate relatively soluble, sulphates when added to water tend to accumulate to progressively increasing concentrations. Sulphates are discharged from acid mine wastes and many other industrial processes such as tanneries, textile mills and processes using sulphuric acid or sulphates. The Sulphate values in proximity to the Target Operations infrastructure are high.
- Magnesium (Mg) levels in borehole water contribute to water hardness without posing significant health risks. Magnesium concentrations were generally within the applicable groundwater guideline limit.
- Potassium (K) levels in borehole water generally are part of the total dissolved solids (TDS) that contribute to overall water hardness, with some areas showing higher, yet rarely hazardous, concentrations. Potassium concentrations were within the applicable groundwater guideline limit.
- Sodium (Na) levels in boreholes vary significantly based on geology and location. High-sodium (Na-Cl type) water is commonly found in deeper boreholes or areas with specific rock-water interactions. Potassium concentrations were within the applicable groundwater guideline limit.

6. HYDROLOGICAL IMPACT ASSESSMENT

The following Hydrological Impact Assessment has been conducted based on the assumption that the proposed conceptual Stormwater Management Plan will be fully implemented. At this stage, the timeline and sequence of Project activities remain preliminary. As a result, the potential for interactions or cumulative effects between different hydrological impacts cannot yet be fully assessed and may evolve as the Project design is refined.

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:

Construction Phase:

- Setting up of mining activities.
- To monitor potential mining-induced seismicity and boundary interactions with the adjacent Harmony Gold operations, four seismographic monitoring stations will be installed, spread equally along the shared boundary. Each station will include a small sensor pad/housing (approximately 5–10 m²), basic power/comms setup, 6 m of perimeter fencing per station (total 24 m), and short gravel access tracks (total approximately 1 km across all stations, 4 m wide). These installations represent the only surface infrastructures on the JV project area

Operational Phase:

- Mining of Jelani JV Project Area using Target 2 and 3 Shafts for access.
- To monitor potential mining-induced seismicity and boundary interactions with the adjacent Harmony Gold operations, four seismographic monitoring stations will be installed, spread equally along the shared boundary. Each station will include a small sensor pad/housing (approximately 5–10 m²), basic power/comms setup, 6 m of perimeter fencing per station (total 24 m), and short gravel access tracks (total approximately 1 km across all stations, 4 m wide). These installations represent the only surface infrastructures on the JV project area

Closure and Rehabilitation Phase:

- Decommissioning of the Jelani Project at the end of life of the project.

6.2 Methodology for Determining the Significance of Impacts

This section of the report focuses on the identification and assessment of potential surface water impacts that may arise from the proposed project activities, processes, and actions. While the broader EIA Report will consolidate all identified environmental impacts, this Hydrological Study provides an evaluation of the project's interaction with surface water resources.

In line with the EIA Regulations of 2014, the significance of direct, indirect, cumulative, and residual impacts on surface water will be systematically assessed using the methodology outlined in Section 6.2. The findings of this assessment will be integrated into the EIA Report through the standardised impact tables (Table 18 and Table 19), ensuring consistency across all specialist studies.

For the purposes of this study, potential Hydrological Impacts associated with the proposed project are presented in Table 37. These impacts will be subject to a comprehensive risk assessment and risk mitigation planning process, as required under NEMA. The recommended mitigation measures will address all phases of the project (Construction, Operational, Closure and Rehabilitation).

Table 18 : Typical tables used to identify and classify the significance of identified impacts

Nature of The Impact: ***Describe the Impact in Respect to The Activity to be Undertaken***		
	Impact Rating Without Mitigation	Impact Rating With Mitigation
Impact Status: (positive or negative)		
Extent *(Local, Regional, International)*		
Duration *(Short term, Medium term, Long term)*		
Magnitude *(Major, Moderate, Minor)*		
Probability *(Definite, Possible, Unlikely)*		

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Nature of The Impact: *Describe the Impact in Respect to The Activity to be Undertaken*		
Calculated Significance Rating *(Low, Medium, High)*		
Reversibility: (Reversible or Irreversible)		
Irreplaceable loss of resources: (Yes or No)		
Residual Impacts • (List these below)		
Cumulative Impacts • (List these below)		
Mitigation measures • (List these below)		

The impact significance rating process serves two purposes: firstly, it helps to highlight the critical impacts requiring consideration in the management and approval process; and secondly, it shows the primary impact characteristics, as defined above, used to evaluate impact significance.

The impact significance rating system is presented in Table 19 and Table 20 and it 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.
- **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.

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

Use these definitions to define the consequences in Part B:

Table 19 : 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;

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Impact Characteristics	Definition	Criteria
		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
Duration	Short term	Up to 18 months.
	Medium term	18 months to 5 years
	Long term	Longer than 5 years

Part B: Determining Consequence Rating

Rate consequence based on definition of magnitude, spatial extent and duration:

Table 20 : 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

Part C: Determining Significance Rating

Rate significance based on consequence and probability:

Table 21 : 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

6.3 Possible Impacts Identified

Table 37 below identifies the impacts associated with each alternative identified for the Proposed Project.

6.4 Impact Assessment and Mitigation

6.4.1 Construction Phase

During the construction phase the earth berm/open bypass channel to carry "clean" water to Swartpan will be constructed by Harmony. This will involve the removal of all vegetation from the existing open channel and then forming the channel to its correct dimensions before lining the channel with concrete. The activities and impacts that are likely to occur during the construction phase are summarised in Table 22.

Table 22 : Summary of activities and impacts for the construction phase

Activity	Impact Description
Removal of vegetation and alteration to the local topography	**Impact 1:** Erosion and wash from exposed soils leading to siltation in nearby surface water runoff areas and/or Swartpan.
Site preparation and land rehabilitation before forming and construction of lining to bypass channel	**Impact 2:** Release of pollutants (waste piles) during site preparation and rehabilitation could pose a risk to water quality.
Use of construction equipment	**Impact 3:** Hydrocarbon (fuel/oil leaks) pollution from construction equipment can impact the soil and nearby surface water.
Forming of bypass channel and construction of concrete lining to bypass channel	**Impact 4:** Contamination of surface water and therefore Swartpan from land disturbance and contaminated soils during construction of concrete lining to bypass channel
Forming of earth berm connecting existing earth berm to bypass channel	**Impact 5:** Contamination of surface water and therefore Swartpan from land disturbance and contaminated soils during construction of earth berm
Major storm event during forming and construction of bypass channel	**Impact 6:** Construction works could be damaged and might have to be replaced, with a potential risk of contamination of Swartpan.

The ratings and proposed mitigation measures for the construction phase are provided in Table 23 to

Table 28.

Table 23 : Significance rating of construction impact 1

NATURE OF IMPACT 1: Erosion and wash from exposed soils leading to siltation in nearby surface water runoff areas and/or Swartpan.		
	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	Unlikely
Calculated Significance Rating *(Low, Medium, High)*	**Low**	**Low**
Reversibility: (Reversible or Irreversible)	Irreversible	
Irreplaceable loss of resource: (Yes or No)	No	

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Residual impacts • Siltation of Swartpan
Cumulative impacts • Siltation of Swartpan
Mitigation measures • Clearance of vegetation for the new earth berms/open bypass channel must be limited as far as possible. • Temporary erosion measures such as stormwater bypass mechanisms should be employed around exposed working areas. • The SWMP must be implemented as a first step during the construction phase. • Water quality monitoring must be implemented upstream and downstream of construction sites.

Table 24: Significance rating of construction impact 2

NATURE OF IMPACT 2: Release of pollutants (waste piles) during site preparation and rehabilitation could pose a risk to water 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	Unlikely
Calculated Significance Rating *(Low, Medium, High)*	**Low**	**Low**
Reversibility: (Reversible or Irreversible)	Reversible	
Irreplaceable loss of resource: (Yes or No)	No	
Residual impacts • None foreseen		
Cumulative impacts • None foreseen		
Mitigation measures • Waste piles to be bermed off to prevent stormwater erosion. • The SWMP must be implemented as a first step during the construction phase. • Rehabilitation plan to be implemented accurately and monitored closely.		

Table 25: Significance rating of construction impact 3

NATURE OF IMPACT 3: Hydrocarbon (fuel/oil leaks) pollution from construction equipment can impact the soil and nearby surface water.		
	Impact Rating without Mitigation	**Impact Rating with Mitigation**
Impact Status *(positive or negative)*	Negative	Negative
Extent *(Local, Regional, International)*	Local	Local

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NATURE OF IMPACT 3: Hydrocarbon (fuel/oil leaks) pollution from construction equipment can impact the soil and nearby surface water.		
Duration *(Short term, Medium term, Long term)*	Short term	Short term
Magnitude *(Major, Moderate, Minor)*	Moderate	Minor
Probability *(Definite, Possible, Unlikely)*	Possible	Unlikely
Calculated Significance Rating *(Low, Medium, High)*	**Low**	**Low**
Reversibility: (Reversible or Irreversible)	Irreversible	
Irreplaceable loss of resource: (Yes or No)	No	
Residual impacts • None foreseen, as the impact will cease if rehabilitation is done correctly.		
Cumulative impacts • None foreseen, as the impact will cease if rehabilitation is done correctly.		
Mitigation measures • Water quality monitoring must be implemented upstream and downstream of construction sites. • Maintain all construction equipment. • Maintenance of construction equipment should be prohibited at or near the watercourse. • Train staff in spill response and deploy spill kits at active zones. • Drip trays shall be placed beneath leaking sections of construction equipment.		

Table 26 : Significance rating of construction impact 4

NATURE OF IMPACT 4: Contamination of surface water and therefore Swartpan from land disturbance and contaminated soils during construction of concrete lining to bypass channel.		
	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	Unlikely
Calculated Significance Rating *(Low, Medium, High)*	**Low**	**Low**
Reversibility: (Reversible or Irreversible)	Irreversible	
Irreplaceable loss of resource: (Yes or No)	No	
Residual impacts • None foreseen, as the impact will cease if rehabilitation is done correctly.		
Cumulative impacts • None foreseen, as the impact will cease if rehabilitation is done correctly.		
Mitigation measures • SWMP must be implemented as a first step during the construction phase. • Phase construction to minimise exposed areas		

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Table 27 : Significance rating of construction impact 5

NATURE OF IMPACT 5: Contamination of surface water and therefore Swartpan from land disturbance and contaminated soils during construction of earth berm.		
	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	Unlikely
Calculated Significance Rating *(Low, Medium, High)*	**Low**	**Low**
Reversibility: (Reversible or Irreversible)	Irreversible	
Irreplaceable loss of resource: (Yes or No)	No	
Residual impacts • None foreseen, as the impact will cease if rehabilitation is done correctly.		
Cumulative impacts • None foreseen, as the impact will cease if rehabilitation is done correctly.		
Mitigation measures • The SWMP must be implemented as a first step during the construction phase. • Monitor runoff during and after construction. • Water quality monitoring must be implemented upstream and downstream of construction sites.		

Table 28: Significance rating of construction impact 6

NATURE OF IMPACT 6: Construction works could be damaged and might have to be replaced, with a potential risk of contamination of Swartpan.		
	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	Unlikely
Calculated Significance Rating *(Low, Medium, High)*	**Low**	**Low**
Reversibility: (Reversible or Irreversible)	Reversible	
Irreplaceable loss of resource: (Yes or No)	No	
Residual impacts • None foreseen, as the impact will cease if rehabilitation is done correctly.		
Cumulative impacts • None foreseen, as the impact will cease if rehabilitation is done correctly.		

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NATURE OF IMPACT 6: Construction works could be damaged and might have to be replaced, with a potential risk of contamination of Swartpan.
Mitigation measures • Temporary erosion measures such as stormwater bypass mechanisms should be employed around exposed working areas. • The SWMP must be implemented as a first step during the construction phase. • Water quality monitoring must be implemented upstream and downstream of construction sites.

6.4.2 Operational Phase

During the operational phase, the proposed "dirty" water and "clean" water system will operate for the LoM of both the Jelani Project and the Target Operation.

It is of utmost importance that the "dirty" water system (Emergency Overflow Dam, Blue RWD, and North-west RWD) are operated at the designed "operational" level allowing capacity in the system to accommodate the 1:50-year event. All stormwater infrastructure must be regularly monitored and maintained.

The activities and impacts that could potentially occur during the operational phase are summarised in Table 29.

Table 29 : Summary of activities and impacts for the operational phase

Activity	Impact Description
Maintenance of stormwater infrastructure, including berms and channels	**Impact 1:** Poorly maintained stormwater infrastructure reduces capacity of the infrastructure which could result in escape into other areas and nearby watercourses, degrading water quality
"Dirty" water infrastructure (Emergency Overflow Dam, Blue RWD and North-west RWD) not operated at optimum level, resulting in insufficient capacity to retain the 1:50-year event runoff	**Impact 2:** "Dirty" water infrastructure will overflow during extreme rainfall and contaminate Swartpan and the natural watercourse downstream of Swartpan.

The ratings and proposed mitigation measures for the operational phase are indicated in Table 30 to

Table 31.

Table 30 : Significance rating of operational impact 1

NATURE OF IMPACT 1: Poorly maintained stormwater infrastructure reduces capacity of the infrastructure which could result in escape into other areas and nearby watercourses, degrading water quality.		
	Impact Rating without Mitigation	**Impact Rating with Mitigation**
Impact Status *(positive or negative)*	Negative	Positive
Extent *(Local, Regional, International)*	Regional	Local
Duration *(Short term, Medium term, Long term)*	Short term	Short term
Magnitude *(Major, Moderate, Minor)*	Moderate	Minor

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NATURE OF IMPACT 1: Poorly maintained stormwater infrastructure reduces capacity of the infrastructure which could result in escape into other areas and nearby watercourses, degrading water quality.		
Probability *(Definite, Possible, Unlikely)*	Possible	Unlikely
Calculated Significance Rating *(Low, Medium, High)*	**Medium**	**Low**
Reversibility: (Reversible or Irreversible)	Reversible	
Irreplaceable loss of resource: (Yes or No)	No	
Residual impacts • None foreseen, as the impact will cease if maintenance is done correctly.		
Cumulative impacts • None foreseen, as the impact will cease if maintenance is done correctly.		
Mitigation measures • Implementation of the proposed SWMP. It must be ensured that stormwater measures (e.g. Berms) are designed, constructed, operated and maintained, to ensure that stormwater does not spill more than once in 50 years, to be compliant with GN R704 regulations. • Undertake regular inspections and maintenance on the bypass channel and earth berms.		

Table 31 : Significance rating of operational impact 2

NATURE OF IMPACT 2: "Dirty" water infrastructure will overflow during extreme rainfall and contaminate Swartpan and the natural watercourse downstream of Swartpan.		
	Impact Rating without Mitigation	**Impact Rating with Mitigation**
Impact Status *(positive or negative)*	Negative	Positive
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	Unlikely
Calculated Significance Rating *(Low, Medium, High)*	**Low**	**Low**
Reversibility: (Reversible or Irreversible)	Reversible	
Irreplaceable loss of resource: (Yes or No)	No	
Residual impacts • None foreseen, as the impact will cease if the "dirty" water infrastructure is operated correctly.		
Cumulative impacts • None foreseen, as the impact will cease if "dirty" water infrastructure is operated correctly.		
Mitigation measures • Regular inspections and maintenance of "dirty" water infrastructure. • Harmony to operate the infrastructure at the designed operating level.		

6.4.3 Closure and Rehabilitation Phase

Once the Jelani Project is complete, the fate of the "dirty" water infrastructure (Emergency Overflow Dam, Blue RWD and North-west RWD) will depend on if the Target Operation owned by Harmony is still in operation. Assuming that it is, the operation and maintenance of the infrastructure will continue to be the responsibility of Harmony.

The activities and impacts that are likely to occur during the closure and rehabilitation phase are summarised in Table 32.

Table 32 : Summary of activities and impacts for the closure and rehabilitation phase

Activity	Impact Description
Demolition of existing "dirty" water infrastructure, and open bypass channel	**Impact 1:** Effluents residues containing alkaline or heavy metals pollutes nearby soil and water resources
Rehabilitation of the existing "dirty" water infrastructure, and open bypass channel	**Impact 2:** Erosion and wash off soils resulting in water quality issues in the surrounding watercourses
Reprofiling of land to restore original topography	**Impact 3:** Land being levelled to its original functioning topography levels will redirect runoff and affect existing drainage patterns

The ratings and proposed mitigation measures for the closure and rehabilitation phase are indicated in Table 33 to Table 35

Table 33 : Significance rating of closure and rehabilitation impact 1

NATURE OF IMPACT 1: Effluents residues containing alkaline or heavy metals pollutes nearby soil and water resources		
	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	Unlikely
Calculated Significance Rating (Low, Medium, High)	**Low**	**Low**
Reversibility: (Reversible or Irreversible)	Irreversible	
Irreplaceable loss of resource: (Yes or No)	No	
Residual impacts • Possible, unless potential spills are rehabilitated		
Cumulative impacts • None foreseen, as the impact will cease if rehabilitation is done correctly.		
Mitigation measures • Remove and treat effluent before demolition begins. • Neutralise pH to environmentally acceptable limits before discharge or containment. • Stormwater infrastructure to be implemented once end land use has been determined.		

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• Post-Rehabilitation monitoring.

Table 34 : Significance rating of closure and rehabilitation impact 2

NATURE OF IMPACT 2: Erosion and wash off soils resulting in water quality issues in the surrounding watercourses		
	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	Unlikely
Calculated Significance Rating (Low, Medium, High)	**Low**	**Low**
Reversibility: (Reversible or Irreversible)	Irreversible	
Irreplaceable loss of resource: (Yes or No)	No	
Residual impacts • None foreseen, as the impact will cease if rehabilitation is done correctly.		
Cumulative impacts • None foreseen, as the impact will cease if rehabilitation is done correctly.		
Mitigation measures • Stormwater infrastructure to be implemented once end land use has been determined. • Design reprofiled areas with stable drainage patterns. • Post-Rehabilitation monitoring.		

Table 35 : Significance rating of closure and rehabilitation impact 3

NATURE OF IMPACT 3: Land being levelled to its original functioning topography levels will redirect runoff and affect existing drainage patterns		
	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	Unlikely
Calculated Significance Rating (Low, Medium, High)	**Low**	**Low**
Reversibility: (Reversible or Irreversible)	Irreversible	
Irreplaceable loss of resource: (Yes or No)	No	
Residual impacts • None foreseen, as the impact will cease if rehabilitation is done correctly.		
Cumulative impacts • None foreseen, as the impact will cease if rehabilitation is done correctly.		

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NATURE OF IMPACT 3: Land being levelled to its original functioning topography levels will redirect runoff and affect existing drainage patterns
Mitigation measures • Stormwater infrastructure to be implemented once end land use has been determined. • Design reprofiled areas with stable drainage patterns. • Post-Rehabilitation monitoring.

6.4.4 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 the "dirty" water infrastructure at the end of life is likely to result in a long-term positive impact on the surrounding watercourses, if rehabilitation is successfully implemented.

6.5 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 and can include both direct and indirect impacts.

The project is in a catchment that is highly impacted by mining activities. The implementation of a sound SWMP is crucial to separate "clean" and "dirty" water systems in the project area. The monitoring and maintenance of the implemented SWMP is of utmost importance, to ensure that spillages into the downslope watercourses do not occur.

The removal of the "dirty" water infrastructure and the open bypass channel and the successful implementation of a rehabilitation plan could enhance the catchment baseline water quality. Should the rehabilitation plan not be followed, then in the long term, the proposed project has the potential to cumulatively add to the already deteriorated water quality within the Losdoringspruit catchment.

The cumulative impact of the proposed project on the surface water quality of the catchment is rated in Table 36.

Table 36 : Cumulative impact rating for surface water quality

NATURE OF IMPACT: Should dirty water runoff not be contained and an appropriate rehabilitation plan for the area not be undertaken and successfully implemented, then the proposed project has the potential to add cumulatively to the already deteriorated surface		
	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	Unlikely
Calculated Significance Rating (Low, Medium, High)	**Low**	**Low**
Reversibility: (Reversible or Irreversible)	Irreversible	
Irreplaceable loss of resource: (Yes or No)	No	
Residual impacts • None foreseen, as the impact will cease if rehabilitation is done correctly.		

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NATURE OF IMPACT: Should dirty water runoff not be contained and an appropriate rehabilitation plan for the area not be undertaken and successfully implemented, then the proposed project has the potential to add cumulatively to the already deteriorated surface
Cumulative impacts • None foreseen, as the impact will cease if rehabilitation is done correctly.
Mitigation measures • Effective stormwater management that captures and contains all site runoff as proposed in this report, and in accordance with GN R704. • Effective monitoring of the stormwater management system to ensure it is operational and maintained. • Successful removal of the “dirty” water infrastructure and the open bypass channel and rehabilitation of the areas • Water quality monitoring must be implemented upstream and downstream of site.

6.6 Impact Summary Table

The impacts and mitigation measures are summarised in Table 37.

Table 37 : Summary of the potential surface water impacts and proposed 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 local topography	Erosion and wash from exposed soils leading to siltation in nearby surface water runoff areas and/or Swartpan.	Minor	Short term	Local	Possible	**Low**	Clearance of vegetation for the new earth berms/open bypass channel must be limited as far as possible. Temporary erosion measures such as stormwater bypass mechanisms should be employed around exposed working areas. The SWMP must be implemented as a first step during the construction phase. Water quality monitoring must be implemented upstream and downstream of construction sites.	Minor	Short term	Local	Possible	**Low**

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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	Site preparation and land rehabilitation before forming and construction of lining to bypass channel	Release of pollutants (waste piles) during site preparation and rehabilitation could pose a risk to water quality.	Minor	Short term	Local	Possible	**Low**	Waste piles to be bermed off to prevent stormwater erosion. The SWMP must be implemented as a first step during the construction phase. Rehabilitation plan to be implemented accurately and monitored closely.	Minor	Short term	Local	Unlikely	**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
3	Use of construction equipment	Hydrocarbon (fuel/oil leaks) pollution from construction equipment can impact the soil and nearby surface water.	Minor	Short term	Local	Possible	**Low**	Water quality monitoring must be implemented upstream and downstream of construction sites. Maintain all construction equipment. Maintenance of construction equipment at or near the watercourse must be prohibited. Train staff in spill response and deploy spill kits at active zones. Drip trays shall be placed beneath leaking sections of construction equipment.	Minor	Short term	Local	Unlikely	**Low**

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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	Forming of bypass channel and construction of concrete lining to bypass channel	Contamination of surface water and therefore Swartpan from land disturbance and contaminated soils during construction of concrete lining to bypass channel	Minor	Short term	Local	Possible	**Low**	Temporary erosion measures such as stormwater bypass mechanisms should be employed around exposed working areas. The SWMP must be implemented as a first step during the construction phase. Water quality monitoring must be implemented upstream and downstream of construction sites.	Minor	Short term	Local	Unlikely	**Low**

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Impact No.	Activity	Impact Description	BEFORE MITIGATION					Mitigation measures/ Recommendations	AFTER MITIGATION				
			Magnitude	Duration	Spatial Scale	Probability	SIGNIFICANCE		Magnitude	Duration	Spatial Scale	Probability	SIGNIFICANCE
5	Forming of earth berm connecting existing earth berm to bypass channel	Contamination of surface water and therefore Swartpan from land disturbance and contaminated soils during construction of earth berm.	Minor	Short term	Local	Possible	**Low**	The SWMP must be implemented as a first step during the construction phase. Monitor runoff during and after demolition.	Minor	Short term	Local	Unlikely	**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
6	Major storm event during forming and construction of bypass channel	Construction works could be damaged and might have to be replaced, with a potential risk of contamination of Swartpan.	Minor	Short term	Local	Possible	**Low**	Temporary erosion measures such as stormwater bypass mechanisms should be employed around exposed working area. The SWMP must be implemented as a first step during the construction phase. Water quality monitoring must be implemented upstream and downstream of construction sites.	Minor	Short term	Local	Unlikely	**Low**
Operational Phase													
1	Maintenance of stormwater infrastructure including berms and channels	Poorly maintained stormwater infrastructure reduces capacity of the infrastructure which could result in escape into other areas and nearby	Moderate	Short term	Regional	Possible	**Medium**	Implementation of the proposed SWMP. It must be ensured that stormwater measures (e.g. Berms) are designed, constructed, operated and maintained, to ensure that stormwater does not spill more than once in 50 years, to be compliant with GN R704 regulations.	Minor	Short term	Local	Unlikely	**Low**

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Impact No.	Activity	Impact Description	BEFORE MITIGATION					Mitigation measures/ Recommendations	AFTER MITIGATION				
			Magnitude	Duration	Spatial Scale	Probability	SIGNIFICANCE		Magnitude	Duration	Spatial Scale	Probability	SIGNIFICANCE
		watercourses, degrading water quality						Undertake regular inspections and maintenance on the bypass channel and earth berms.					
2	"Dirty" water infrastructure (Emergency Overflow Dam, Blue RWD and North-west RWD) not operated at optimum level, resulting in insufficient capacity to retain the 1:50-year event runoff	"Dirty" water infrastructure will overflow during extreme rainfall and contaminate Swartpan and the natural watercourse downstream of Swartpan	Minor	Short term	Local	Possible	**Low**	Regular inspections and maintenance of "dirty water" infrastructure. Harmony to operate the infrastructure at the designed operating level.	Minor	Short term	Local	Unlikely	**Low**
Closure & Rehabilitation Phase													
1	Demolition of existing "dirty" water infrastructure	Effluents residues containing alkaline or heavy metals pollutes nearby	Minor	Short term	Local	Possible	**Low**	Remove and treat effluent before demolition begins.	Minor	Short term	Local	Unlikely	**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
	and open bypass channel	soil and water resources						Neutralise pH to environmentally acceptable limits before discharge or containment. Stormwater infrastructure to be implemented once end land use has been determined. Post-rehabilitation monitoring.					
2	Rehabilitation of the existing "dirty" water infrastructure and open bypass channel	Erosion and wash off soils resulting in water quality issues in the surrounding watercourses	Minor	Short term	Local	Possible	**Low**	Stormwater infrastructure to be implemented once end land use has been determined. Design reprofiled areas with stable drainage patterns. Post-Rehabilitation monitoring	Minor	Short term	Local	Unlikely	**Low**

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Impact No.	Activity	Impact Description	BEFORE MITIGATION					Mitigation measures/ Recommendations	AFTER MITIGATION				
			Magnitude	Duration	Spatial Scale	Probability	SIGNIFICANCE		Magnitude	Duration	Spatial Scale	Probability	SIGNIFICANCE
3	Reprofiling of land to restore original topography	Land being levelled to its original functioning topography levels will redirect runoff and affect existing drainage patterns	Minor	Short term	Local	Possible	**Low**	Stormwater infrastructure to be implemented once end land use has been determined. Design reprofiled areas with stable drainage patterns. Post-Rehabilitation monitoring.	Minor	Short term	Local	Unlikely	**Low**

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7. MONITORING PLANS

The following monitoring plans are recommended:

- It is recommended that stormwater infrastructure be inspected once a month by the operator during the dry season and wet season. They should also be observed right away following any extreme rainfall events. Any identified damage, or maintenance issues should be addressed promptly to ensure the continued functionality of the stormwater infrastructure. The maintenance manager or onsite Environmental Officer should oversee monitoring. The following should be included in inspections that are documented:
  - The date of the examination.
  - Rainfall quantity received before inspection.
  - Photos of any identified damage or maintenance issue observed.
  - The steps taken to resolve problems.
  - Time required to do so.
  - Photos taken after action was performed.
- A surface water quality monitoring programme plays a critical role in managing potential impacts by identifying water quality deterioration early and guiding the implementation of appropriate mitigation measures. Sampling must be conducted in line with the DWS Best Practice Guideline G3: Water Monitoring Systems. All samples should be stored at approximately 4°C, shielded from direct sunlight, and delivered to an accredited laboratory within 24 hours for analysis. Monitoring results must be evaluated against previous sampling data to identify any significant deviations or emerging trends. Should trend analysis reveal a decline in water quality from the established baseline, an immediate investigation is required to determine whether the operation is the source. If found responsible, corrective actions must be promptly implemented to prevent further contamination. Monitoring reports should be compiled monthly, or as otherwise directed by the DWS, and should include trend analyses. It is also recommended that upstream and downstream monitoring points be compared to assess the potential influence of site activities on surface water quality.

8. REFERENCES

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9. APPENDICES (As Indicated on the Next Page/s)

Appendix A

Rational Formula Calculations – Existing Scenario

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Rational Method

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Description of catchment :	Catchment Area A	Road Chainage :	
River detail :			
Calculated by :	Hilton Sparks	Date:	12-Feb-26

Physical characteristics

Size of catchment (A)	3.1240	km^2	Mean annual Rainfall (MAP)	502	mm
Longest watercourse (L)	2.893	km	2-year return period rainfall (M)		mm
$H_{85\%}$	9	MSL	Days of thunder per year (R)		days/year
$H_{10\%}$	0	MSL	Weather Service station	Odendaalsrus	
Average slope (S_{av})	0.00415	m/m	Weather Service number	364322	
Over landflow length	0.59	km	Area distribution factors		
$H_{100\%}$	4	MSL	Rural (α)	Urban (β)	Lakes (γ)
$H_{0\%}$	0	MSL	100%	0%	0%
Average slope (S_{av})	0.00678	m/m	Notes:	Catchment area flowing into North-west RWD, Blue RWD and Emergency Overflow Dam	
Roughness coefficient (r)	0.3				
Dolomite area ($D_{\%}$)	0	%			

Rural

Surface slope	%	Factor	C_s
Vleis and pans (< 3%)	0%	0.01	0
Flat areas (3% - 10%)	100%	0.06	0.06
Hilly (10% - 30%)	0%	0.12	0
Steep areas (> 30%)	0%	0.22	0
Total	**100%**		**0.06**
Permeability	%	Factor	C_p
Very permeable (A)	0%	0.03	0
Very Permeable (A/B)	0%	0.045	0
Permeable (B)	0%	0.06	0
Permeable (B/C)	0%	0.09	0
Semi-permeable (C)	50%	0.12	0.06
Semi-permeable (C/D)	50%	0.165	0.0825
Impermeable (D)	0%	0.21	0
Total	**100%**		**0.1425**
Vegetation	%	Factor	C_v
Thick bush and plantation	0%	0.03	0
Light bush and farm-lands	0%	0.07	0
Grassland	100%	0.17	0.17
Cultivated land, contoured	0%	0.03	0
Cultivated land	0%	0.02	0
No vegetation	0%	0.26	0
Total	**100%**		**0.17**
Total (C_1)			**0.373**

Urban

Description	%	Factor	C_2
Lawns			
Sandy, flat (<2%)	50%	0.05	0.025
Sandy, Steep (>7%)	0%	0.15	0.000
Heavy soil, flat (<2%)	0%	0.13	0.000
Heavy soil, Steep (>7%)	0%	0.25	0.000
Residential areas			
Houses	30%	0.3	0.090
Flats	0%	0.5	0.000
Industry			
Light industry	0%	0.5	0.000
Heavy industry	0%	0.6	0.000
Business			
City centre	0%	0.7	0.000
Suburban	0%	0.5	0.000
Streets	20%	0.7	0.140
Maximum Flood	0%	1	0.000
	100%		
Total (C_2)			**0.255**

Time of Concentration (Tc)

Overland flow

$$T_C = 0{,}604\left(\frac{rL}{\sqrt{S_{av}}}\right)^{0{,}467}$$

0.863 Hours

Defined watercourse

$$T_C = \left(\frac{0{,}87L^2}{1000S_{av}}\right)^{0{,}385}$$

1.242 Hours

Notes:

$T_{C-TOTAL}$ **2.11** Hours V= **0.38** m/s

Run-off Coefficient

Return period (years), T	2	5	10	20	50	100	200
Run-off coefficient C_1 ($C_1=C_s+C_p+C_v$)	0.373	0.373	0.373	0.373	0.373	0.373	0.373
Adjusted for dolomitic areas, C_{1D} ($=C_1(1-D_{\%})+C_1D_{\%}(sum(D_{factor} \times C_{S\%}))$)	0.373	0.373	0.373	0.373	0.373	0.373	0.373
Adjusted factor for initial saturation, F_t	0.513	0.563	0.613	0.683	0.900	1.000	1.000
Adjusted run-off coefficent, C_{1T} ($=C_{1D} \times F_t$)	0.191	0.210	0.228	0.254	0.335	0.373	0.373
Combined run-off coefficient C_T ($=\alpha C_{1T}+\beta C_2+\gamma C_3$)	*0.191*	*0.210*	*0.228*	*0.254*	*0.335*	*0.373*	*0.373*

Rainfall

Return period (years), T	2	5	10	20	50	100	200
Point Rainfall - SCS data (mm) P_T	34.503	46.613	54.990	63.361	74.660	83.437	92.520
Point intensity (mm/h) $P_{iT}=(P_T/T_C)$	16.388	22.140	26.119	30.095	35.461	39.630	43.944
Area reduction factor (%) ARF_T	100	100	100	100	100	100	100
Average intensity (mm/h) $I_T=(P_{iT} \times ARF_T)$	*16.000*	*22.000*	*26.000*	*30.000*	*35.000*	*40.000*	*44.000*
Peak Flow (m^3/s) $Q_T=C_TI_TA/3,6$	***2.651***	***4.000***	***5.148***	***6.618***	***10.182***	***12.930***	***14.223***

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Rational Method

Description of catchment :	Catchment Area B	Road Chainage :	
River detail :			
Calculated by :	Hilton Sparks	Date:	12-Feb-26

Physical characteristics

Size of catchment (A)	2.3180	km^2	Mean annual Rainfall (MAP)	502	mm
Longest watercourse (L)	1.28	km	2-year return period rainfall (M)		mm
$H_{85\%}$	4	MSL	Days of thunder per year (R)		days/year
$H_{10\%}$	0	MSL	Weather Service station	Odendaalsrus	
Average slope (S_{av})	0.00417	m/m	Weather Service number	364322	
Over landflow length	2.601	km	Area distribution factors		
$H_{100\%}$	18	MSL	Rural (α)	Urban (β)	Lakes (γ)
$H_{0\%}$	0	MSL	100%	0%	0%
Average slope (S_{av})	0.00692	m/m	Notes:	Catchment area flowing into North-west RWD, Blue RWD and Emergency Overflow Dam	
Roughness coefficient (r)	0.3				
Dolomite area ($D_{\%}$)	0	%			

Rural				Urban			
Surface slope	%	Factor	C_s	**Description**	%	Factor	C_2
Vleis and pans (< 3%)	0%	0.01	0	**Lawns**			
Flat areas (3% - 10%)	100%	0.06	0.06	Sandy, flat (<2%)	0%	0.05	0.000
Hilly (10% - 30%)	0%	0.12	0	Sandy, Steep (>7%)	0%	0.15	0.000
Steep areas (> 30%)	0%	0.22	0	Heavy soil, flat (<2%)	0%	0.13	0.000
Total	**100%**		**0.06**	Heavy soil, Steep (>7%)	0%	0.25	0.000
Permeability	%	Factor	C_p	**Residential areas**			
Very permeable (A)	0%	0.03	0	Houses	0%	0.3	0.000
Very Permeable (A/B)	0%	0	0	Flats	0%	0.5	0.000
Permeable (B)	0%	0.06	0				
Permeable (B/C)	0%	0.09	0	**Industry**			
Semi-permeable (C)	50%	0.12	0.06	Light industry	0%	0.5	0.000
Semi-permeable (C/D)	50%	0.165	0.0825	Heavy industry	0%	0.6	0.000
Impermeable (D)	0%	0.21	0				
Total	**100%**		**0.1425**				
Vegetation	%	Factor	C_v	**Business**			
Thick bush and plantation	0%	0.03	0	City centre	0%	0.7	0.000
Light bush and farm-lands	0%	0.07	0	Suburban	0%	0.5	0.000
Grassland	100%	0.17	0.17	Streets	0%	0.7	0.000
Cultivated land, contoured	0%	0.03	0	Maximum Flood	0%	1	0.000
Cultivated land	0%	0.02	0				
No vegetation	0%	0.26	0				
Total	**100%**		**0.17**		**0%**		
Total (C_1)			**0.373**	**Total (C_2)**			**0.000**

Time of Concentration (Tc)

Overland flow

$$T_C = 0{,}604\left(\frac{rL}{\sqrt{S_{av}}}\right)^{0{,}467}$$

1.718 Hours

Defined watercourse

$$T_C = \left(\frac{0{,}87L^2}{1000S_{av}}\right)^{0{,}385}$$

0.662 Hours

Notes:

$T_{C\text{ - TOTAL}}$ **2.38** Hours V= **0.15** m/s

Run-off Coefficient

Return period (years), T	**2**	**5**	**10**	**20**	**50**	**100**	**200**
Run-off coefficient C_1 ($C_1=C_s+C_p+C_v$)	0.373	0.373	0.373	0.373	0.373	0.373	0.373
Adjusted for dolomitic areas, C_{1D} ($=C_1(1-D_{\%})+C_1D_{\%}(sum(D_{factor} \times C_{S\%}))$	0.373	0.373	0.373	0.373	0.373	0.373	0.373
Adjusted factor for initial saturation, F_t	0.513	0.563	0.613	0.683	0.950	1.000	1.000
Adjusted run-off coefficent, C_{1T} ($=C_{1D} \times F_t$)	0.191	0.210	0.228	0.254	0.354	0.373	0.373
Combined run-off coefficient C_T ($=\alpha C_{1T}+\beta C_2+\gamma C_3$)	*0.191*	*0.210*	*0.228*	*0.254*	*0.354*	*0.373*	*0.373*

Rainfall

Return period (years), T	**2**	**5**	**10**	**20**	**50**	**100**	**200**
Point Rainfall - SCS data (mm) P_T	35.245	47.625	56.191	64.738	76.280	85.246	94.531
Point intensity (mm/h) $P_{iT}=(P_T/T_C)$	14.810	20.012	23.612	27.203	32.053	35.821	39.722
Area reduction factor (%) ARF_T	100	100	100	100	100	100	100
Average intensity (mm/h) $I_T=(P_{iT} \times ARF_T)$	*15.000*	*20.000*	*24.000*	*27.000*	*32.000*	*36.000*	*40.000*
Peak Flow (m^3/s) $Q_T=C_TI_TA/3,6$	***1.844***	***2.698***	***3.526***	***4.420***	***7.291***	***8.635***	***9.594***

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Rational Method

KONGIWE

Description of catchment :	Catchment C	Road Chainage :	
River detail :			
Calculated by :	Hilton Sparks	Date:	12-Feb-26

Physical characteristics

Size of catchment (A)	2.9600	km^2	Mean annual Rainfall (MAP)	502	mm
Longest watercourse (L)	0	km	2-year return period rainfall (M)		mm
$H_{85\%}$	20	MSL	Days of thunder per year (R)		days/year
$H_{10\%}$	0	MSL	Weather Service station	Odendaalsrus	
Average slope (S_{av})	#DIV/0!	m/m	Weather Service number	364322	
Over landflow length	3.494	km	Area distribution factors		
$H_{100\%}$	21	MSL	Rural (α)	Urban (β)	Lakes (γ)
$H_{0\%}$	0	MSL	100%	0%	0%
Average slope (S_{av})	0.00601	m/m	Notes:	Catchment area flowing directly into Swartpan, excluding Catchments A and B	
Roughness coefficient (r)	0.3				
Dolomite area ($D_{\%}$)	0	%			

Rural

Surface slope	%	Factor	C_s
Vleis and pans (< 3%)	15%	0.01	0.0015
Flat areas (3% - 10%)	85%	0.06	0.051
Hilly (10% - 30%)	0%	0.12	0
Steep areas (> 30%)	0%	0.22	0
Total	**100%**		**0.0525**
Permeability	%	Factor	C_p
Very permeable (A)	0%	0.03	0
Very Permeable (A/B)	0%	0	0
Permeable (B)	0%	0.06	0
Permeable (B/C)	0%	0.09	0
Semi-permeable (C)	50%	0.12	0.06
Semi-permeable (C/D)	50%	0.165	0.0825
Impermeable (D)	0%	0.21	0
Total	**100%**		**0.1425**
Vegetation	%	Factor	C_v
Thick bush and plantation	0%	0.03	0
Light bush and farm-lands	0%	0.07	0
Grassland	0%	0.17	0
Cultivated land, contoured	100%	0.03	0.03
Cultivated land	0%	0.02	0
No vegetation	0%	0.26	0
Total	**100%**		**0.03**
Total (C_1)			**0.225**

Urban

Description	%	Factor	C_2
Lawns			
Sandy, flat (<2%)	0%	0.05	0.000
Sandy, Steep (>7%)	0%	0.15	0.000
Heavy soil, flat (<2%)	0%	0.13	0.000
Heavy soil, Steep (>7%)	0%	0.25	0.000
Residential areas			
Houses	0%	0.3	0.000
Flats	0%	0.5	0.000
Industry			
Light industry	0%	0.5	0.000
Heavy industry	0%	0.6	0.000
Business			
City centre	0%	0.7	0.000
Suburban	0%	0.5	0.000
Streets	0%	0.7	0.000
Maximum Flood	0%	1	0.000
	0%		
Total (C_2)			**0.000**

Time of Concentration (Tc)

Overland flow

$$T_C = 0{,}604\left(\frac{rL}{\sqrt{S_{av}}}\right)^{0{,}467}$$

2.038 Hours

Defined watercourse

$$T_C = \left(\frac{0{,}87L^2}{1000S_{av}}\right)^{0{,}385}$$

0.000 Hours

Notes:

$T_{C-TOTAL}$ **2.04** Hours V= **0.00** m/s

Run-off Coefficient

Return period (years), T	2	5	10	20	50	100	200
Run-off coefficient C_1 ($C_1=C_s+C_p+C_v$)	0.225	0.225	0.225	0.225	0.225	0.225	0.225
Adjusted for dolomitic areas, C_{1D} ($=C_1(1-D_{\%})+C_1D_{\%}(sum(D_{factor} \times C_{S\%}))$)	0.225	0.225	0.225	0.225	0.225	0.225	0.225
Adjusted factor for initial saturation, F_t	0.513	0.563	0.613	0.683	0.950	1.000	1.000
Adjusted run-off coefficent, C_{1T} ($=C_{1D} \times F_t$)	0.115	0.127	0.138	0.154	0.214	0.225	0.225
Combined run-off coefficient C_T ($=\alpha C_{1T}+\beta C_2+\gamma C_3$)	*0.115*	*0.127*	*0.138*	*0.154*	*0.214*	*0.225*	*0.225*

Rainfall

Return period (years), T	2	5	10	20	50	100	200
Point Rainfall - SCS data (mm) P_T	34.310	46.350	54.678	63.004	74.240	82.968	91.998
Point intensity (mm/h) $P_{iT}=(P_T/T_C)$	16.835	22.742	26.829	30.914	36.427	40.710	45.140
Area reduction factor (%) ARF_T	100	100	100	100	100	100	100
Average intensity (mm/h) $I_T=(P_{iT} \times ARF_T)$	*17.000*	*23.000*	*27.000*	*31.000*	*36.000*	*41.000*	*45.000*
Peak Flow (m^3/s) $Q_T=C_TI_TA/3,6$	***1.612***	***2.393***	***3.059***	***3.914***	***6.327***	***7.585***	***8.325***

Appendix B

Brooker Method – Existing Scenario

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Project		**Catchment Area A 1:50 year existin**				**2026/02/12**			
Engineer		Hilton Sparks							
Summary of Results			No data input on this sheet						
	Input		**Computed**						
Region									
MAP	502	mm/year	Storm Td	158.2	min		2.6	hr	
RI	**50**	**year**	= concentration time plus time to start runoff						
Catchment			Average Rainfall Intensity						
Area	312.4	ha	Op ten Noord & Stephenson			Inland			
Conc time Tc	127	min	31.0	mm/h					
Rational C	0.34		Peak Rainfall Intensity		Triangular Hyetograph				
			62.1	mm/h	At time		47	mins	
Storm									
Time to peak	0.3	ratio	Runoff Vol	85592	m^3	= C x P x A			
Time step	5	min							
Reservoir and Outlet Data									
Pipe	**U/S**	**D/S**		**Tower**					
No off	1	1	No	Crest Len	1306	m	$C_{d(unsub)}$	0.75	
Dia	0.100	0.1	m	Crest Lvl	1306	m	$C_{d(sub)}$	0.62	
Invert Lvl	1304	1304	m				C_h	0.85	
Spillway				**Crest**					
Cd	1.60	for Q = Cd x L x $h^{1.5}$		Cd	1.40	for Q = Cd x L x $h^{1.5}$			
Width	3.0			Width	100.0				
Invert Lvl	1304.00			Invert Lvl	1306.00				
Free board	2.00			Free board	0.20				

Reservoir Data

Stage	Depth	Area	Volume
1304.00	0.00	136000	0
1304.50	0.50	136300	68075
1305.00	1.00	136600	136300
1305.50	1.50	136600	204600
1306.00	2.00	136600	272900
1306.50	2.50	136600	341200
1307.00	3.00	136600	409500
1307.50	3.50	136600	477800

Initial Conditions							
Stage	1304.00	m					
Depth	0.00	m					
Vol	0	m^3					
Area	136000	m^2					
Discharge	0.00	m^3/s					
Results Summary	**Peaks**						
	Q_{in}	9.869	m^3/s				
	Q_{out} CJB	1.685	m^3/s	Q_{pipe}	0.014	m^3/s	
	Q_{out} Puls	1.685	m^3/s	Q_{weir}	1.672	m^3/s	
	Stage	1304.498	m	Q_{crest}	0.000	m^3/s	
	Stored Vol	67394	m^3				

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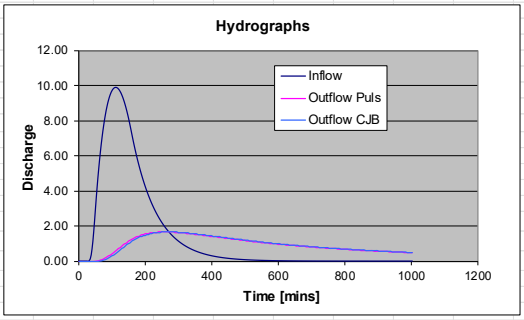

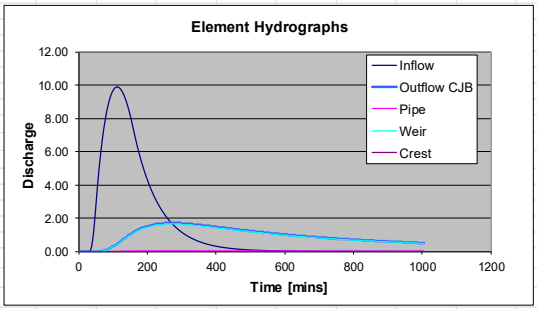

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Project		**Catchment Area A 1:100 year existi**			**2026/02/12**				
Engineer		Hilton Sparks							
Summary of Results			No data input on this sheet						
	Input		**Computed**						
Region									
MAP	502	mm/year	Storm Td	155.9	min		2.6	hr	
RI	**100**	**year**	= concentration time plus time to start runoff						
Catchment			Average Rainfall Intensity						
Area	312.4	ha	Op ten Noord & Stephenson			Inland			
Conc time Tc	127	min	38.6	mm/h					
Rational C	0.37		Peak Rainfall Intensity	Triangular Hyetograph					
			77.3	mm/h	At time		47	mins	
Storm									
Time to peak	0.3	ratio	Runoff Vol	117024	m^3	= C x P x A			
Time step	5	min							
Reservoir and Outlet Data									
Pipe	**U/S**	**D/S**		**Tower**					
No off	1	1	No	Crest Len	1306	m	$C_{d(unsub)}$	0.75	
Dia	0.100	0.1	m	Crest Lvl	1306	m	$C_{d(sub)}$	0.62	
Invert Lvl	1304	1304	m				C_h	0.85	
Spillway				**Crest**					
Cd	1.60	for Q = Cd x L x $h^{1.5}$		Cd	1.40	for Q = Cd x L x $h^{1.5}$			
Width	3.0			Width	100.0				
Invert Lvl	1304.00			Invert Lvl	1306.00				
Free board	2.00			Free board	0.20				

Reservoir Data

Stage	Depth	Area	Volume
1304.00	0.00	136000	0
1304.50	0.50	136300	68075
1305.00	1.00	136600	136300
1305.50	1.50	136600	204600
1306.00	2.00	136600	272900
1306.50	2.50	136600	341200
1307.00	3.00	136600	409500
1307.50	3.50	136600	477800

Initial Conditions							
Stage	1304.00	m					
Depth	0.00	m					
Vol	0	m^3					
Area	136000	m^2					
Discharge	0.00	m^3/s					
Results Summary	**Peaks**						
	Q_{in}	13.528	m^3/s				
	Q_{out} CJB	2.590	m^3/s	Q_{pipe}	0.016	m^3/s	
	Q_{out} Puls	2.590	m^3/s	Q_{weir}	2.574	m^3/s	
	Stage	1304.661	m	Q_{crest}	0.000	m^3/s	
	Stored Vol	89907	m^3				

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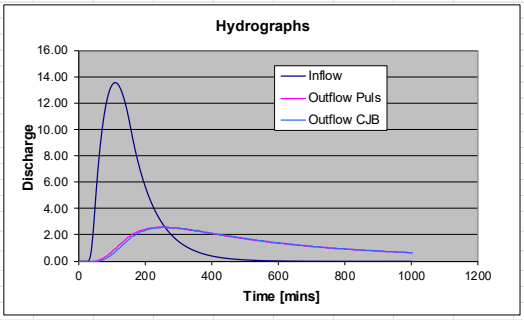

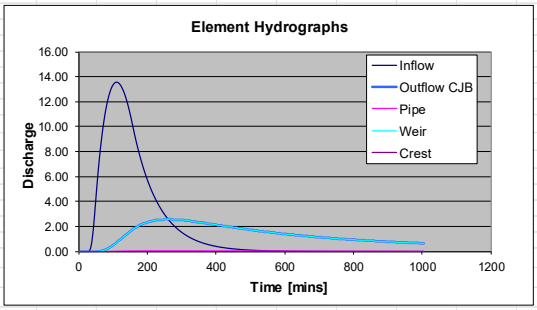

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Project		**Catchment B 1:50 year existing**				**2026/02/12**			
Engineer		Hilton Sparks							
Summary of Results			No data input on this sheet						
	Input		**Computed**						
Region									
MAP	502	mm/year	Storm Td	177.1	min		3.0	hr	
RI	**50**	**year**		= concentration time plus time to start runoff					
Catchment			Average Rainfall Intensity						
Area	231.8	ha	Op ten Noord & Stephenson			Inland			
Conc time Tc	143	min	28.3	mm/h					
Rational C	0.35		Peak Rainfall Intensity		Triangular Hyetograph				
			56.6	mm/h	At time		53	mins	
Storm									
Time to peak	0.3	ratio	Runoff Vol	68498	m^3	= C x P x A			
Time step	5	min							
Reservoir and Outlet Data									
Pipe	**U/S**	**D/S**		**Tower**					
No off	0	0	No	Crest Len	0	m	$C_{d(unsub)}$	0.75	
Dia	0.000	0	m	Crest Lvl	0	m	$C_{d(sub)}$	0.62	
Invert Lvl	0	0.0001	m				C_h	0.85	
Spillway				**Crest**					
Cd	1.60	for Q = Cd x L x $h^{1.5}$		Cd	1.40	for Q = Cd x L x $h^{1.5}$			
Width	0.0			Width	0.0				
Invert Lvl	0.00			Invert Lvl	0.40				
Free board	0.40			Free board	0.20				

Reservoir Data

Stage	Depth	Area	Volume
0.00	0.00	0	0
0.50	0.50	0	0
1.00	1.00	0	0
1.50	1.50	0	0
2.00	2.00	0	0
2.50	2.50	0	0
3.00	3.00	0	0
3.50	3.50	0	0

Initial Conditions		
Stage	0.00	m
Depth	0.00	m
Vol	#N/A	m^3
Area	#N/A	m^2
Discharge	#N/A	m^3/s

Results Summary	**Peaks**					
	Q_{in}	6.985	m^3/s			
	Q_{out} CJB	#N/A	m^3/s	Q_{pipe}	#N/A	m^3/s
	Q_{out} Puls	#N/A	m^3/s	Q_{weir}	#N/A	m^3/s
	Stage	#N/A	m	Q_{crest}	#N/A	m^3/s
	Stored Vol	#N/A	m^3			

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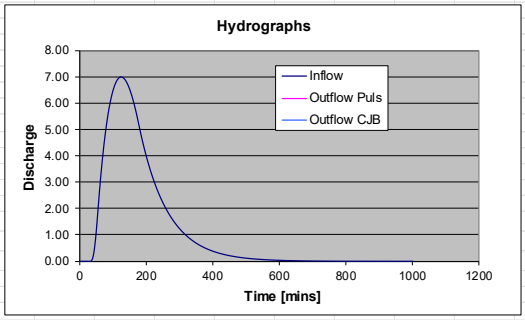

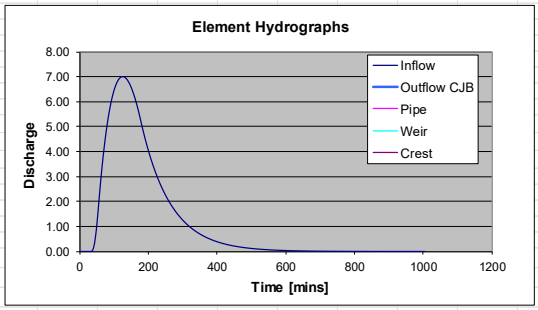

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Project		**Catchment B 1:100 year existing**			**2026/02/12**				
Engineer		Hilton Sparks							
Summary of Results			No data input on this sheet						
	Input		**Computed**						
Region									
MAP	502	mm/year	Storm Td	175.9	min		2.9	hr	
RI	**100**	**year**		= concentration time plus time to start runoff					
Catchment			Average Rainfall Intensity						
Area	231.8	ha	Op ten Noord & Stephenson			Inland			
Conc time Tc	143	min	35.0	mm/h					
Rational C	0.37		Peak Rainfall Intensity		Triangular Hyetograph				
			70.0	mm/h	At time		53	mins	
Storm									
Time to peak	0.3	ratio	Runoff Vol	88747	m^3	= C x P x A			
Time step	5	min							
Reservoir and Outlet Data									
Pipe	**U/S**	**D/S**		**Tower**					
No off	0	0	No	Crest Len	0	m	$C_{d(unsub)}$	0.75	
Dia	0.000	0	m	Crest Lvl	0	m	$C_{d(sub)}$	0.62	
Invert Lvl	0	0.0001	m				C_h	0.85	
Spillway				**Crest**					
Cd	1.60	for Q = Cd x L x $h^{1.5}$		Cd	1.40	for Q = Cd x L x $h^{1.5}$			
Width	0.0			Width	0.0				
Invert Lvl	0.00			Invert Lvl	0.40				
Free board	0.40			Free board	0.20				

Reservoir Data

Stage	Depth	Area	Volume
0.00	0.00	0	0
0.50	0.50	0	0
1.00	1.00	0	0
1.50	1.50	0	0
2.00	2.00	0	0
2.50	2.50	0	0
3.00	3.00	0	0
3.50	3.50	0	0

Initial Conditions		
Stage	0.00	m
Depth	0.00	m
Vol	#N/A	m^3
Area	#N/A	m^2
Discharge	#N/A	m^3/s

Results Summary	**Peaks**					
	Q_{in}	9.067	m^3/s			
	Q_{out} CJB	#N/A	m^3/s	Q_{pipe}	#N/A	m^3/s
	Q_{out} Puls	#N/A	m^3/s	Q_{weir}	#N/A	m^3/s
	Stage	#N/A	m	Q_{crest}	#N/A	m^3/s
	Stored Vol	#N/A	m^3			

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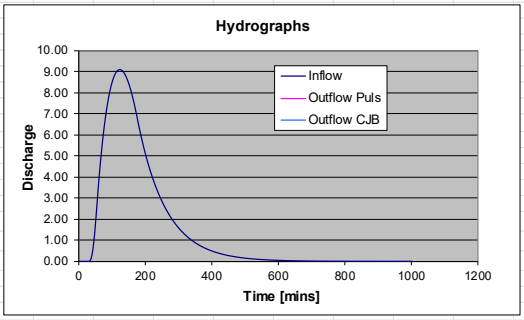

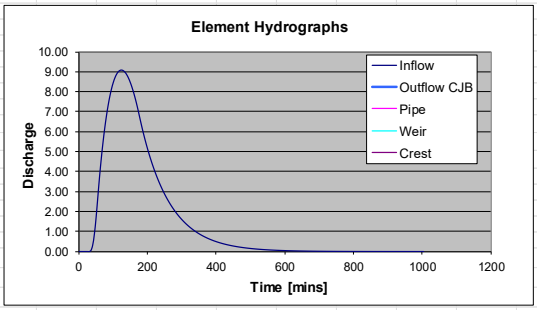

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Project		**Catchment C 1:50 year existing**				**2026/02/12**			
Engineer		Hilton Sparks							
Summary of Results			No data input on this sheet						
	Input		**Computed**						
Region									
MAP	502	mm/year	Storm Td	160.2	min		2.7	hr	
RI	**50**	**year**		= concentration time plus time to start runoff					
Catchment			Average Rainfall Intensity						
Area	296.0	ha	Op ten Noord & Stephenson			Inland			
Conc time Tc	122	min	30.7	mm/h					
Rational C	0.21		Peak Rainfall Intensity		Triangular Hyetograph				
			61.4	mm/h	At time		48	mins	
Storm									
Time to peak	0.3	ratio	Runoff Vol	51927	m^3	= C x P x A			
Time step	5	min							
Reservoir and Outlet Data									
Pipe	**U/S**	**D/S**		**Tower**					
No off	0	0	No	Crest Len	2	m	$C_{d(unsub)}$	0.75	
Dia	0.525	0.525	m	Crest Lvl	2	m	$C_{d(sub)}$	0.62	
Invert Lvl	1301	1301	m				C_h	0.85	
Spillway				**Crest**					
Cd	1.60	for Q = Cd x L x $h^{1.5}$		Cd	1.40	for Q = Cd x L x $h^{1.5}$			
Width	10.0			Width	40.0				
Invert Lvl	1301.00			Invert Lvl	1301.10				
Free board	0.10			Free board	1.00				

Reservoir Data

Stage	Depth	Area	Volume
1301.00	0.00	293756	0
1301.50	0.50	331823	156395
1302.00	1.00	364804	330552
1302.50	1.50	397785	521199
1303.00	2.00	430766	728337
1303.50	2.50	463747	951965
1304.00	3.00	496728	1192084
1304.50	3.50	529709	1448693

Initial Conditions							
Stage	1301.00	m					
Depth	0.00	m					
Vol	0	m^3					
Area	293756	m^2					
Discharge	0.00	m^3/s					
Results Summary	**Peaks**						
	Q_{in}	13.816	m^3/s				
	Q_{out} CJB	3.186	m^3/s	Q_{pipe}	0.000	m^3/s	
	Q_{out} Puls	3.109	m^3/s	Q_{weir}	3.186	m^3/s	
	Stage	1301.342	m	Q_{crest}	0.000	m^3/s	
	Stored Vol	106661	m^3				

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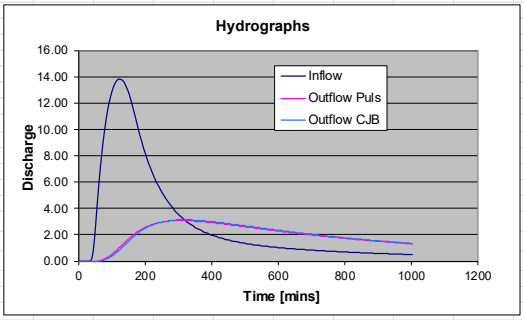

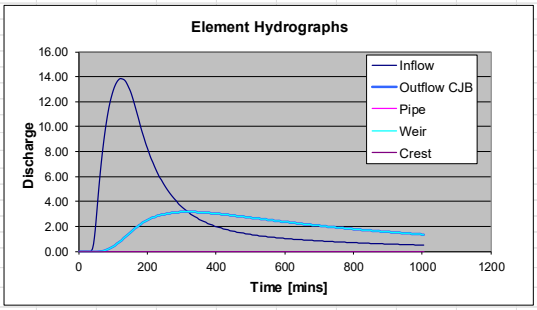

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Project		**Catchment C 1:100 year existing**				**2026/02/12**			
Engineer		Hilton Sparks							
Summary of Results			No data input on this sheet						
	Input		**Computed**						
Region									
MAP	502	mm/year	Storm Td	159.5	min		2.7	hr	
RI	**100**	**year**	= concentration time plus time to start runoff						
Catchment			Average Rainfall Intensity						
Area	296.0	ha	Op ten Noord & Stephenson			Inland			
Conc time Tc	122	min	37.9	mm/h					
Rational C	0.23		Peak Rainfall Intensity		Triangular Hyetograph				
			75.9	mm/h	At time		48	mins	
Storm									
Time to peak	0.3	ratio	Runoff Vol	67163	m^3	= C x P x A			
Time step	5	min							
Reservoir and Outlet Data									
Pipe	**U/S**	**D/S**		**Tower**					
No off	0	0	No	Crest Len	2	m	$C_{d(unsub)}$	0.75	
Dia	0.525	0.525	m	Crest Lvl	2	m	$C_{d(sub)}$	0.62	
Invert Lvl	1301	1301	m				C_h	0.85	
Spillway				**Crest**					
Cd	1.60	for Q = Cd x L x $h^{1.5}$		Cd	1.40	for Q = Cd x L x $h^{1.5}$			
Width	10.0			Width	40.0				
Invert Lvl	1301.00			Invert Lvl	1301.10				
Free board	0.10			Free board	1.00				

Reservoir Data

Stage	Depth	Area	Volume
1301.00	0.00	293756	0
1301.50	0.50	331823	156395
1302.00	1.00	364804	330552
1302.50	1.50	397785	521199
1303.00	2.00	430766	728337
1303.50	2.50	463747	951965
1304.00	3.00	496728	1192084
1304.50	3.50	529709	1448693

Initial Conditions		
Stage	1301.00	m
Depth	0.00	m
Vol	0	m^3
Area	293756	m^2
Discharge	0.00	m^3/s

Results Summary	**Peaks**					
	Q_{in}	17.799	m^3/s			
	Q_{out} CJB	4.154	m^3/s	Q_{pipe}	0.000	m^3/s
	Q_{out} Puls	4.154	m^3/s	Q_{weir}	4.154	m^3/s
	Stage	1301.411	m	Q_{crest}	0.000	m^3/s
	Stored Vol	127305	m^3			

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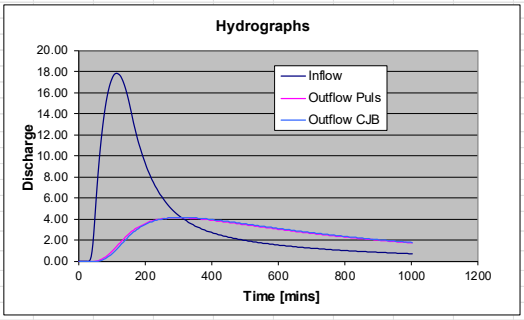

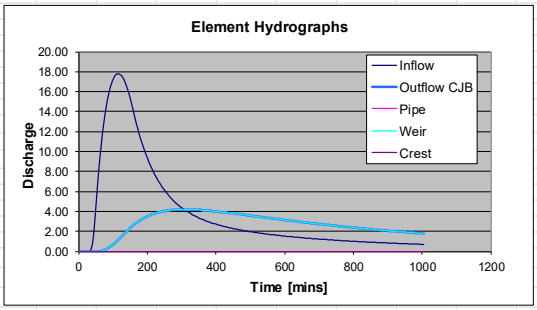

Appendix C

Rational Formula Calculations – Proposed Scenario

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Rational Method

KONGIWE

Description of catchment :	Catchment A proposed	Road Chainage :	
River detail :			
Calculated by :	Hilton Sparks	Date:	12-Feb-26

Physical characteristics

Size of catchment (A)	0.9260	km^2	Mean annual Rainfall (MAP)	502	mm
Longest watercourse (L)	3.451	km	2-year return period rainfall (M)		mm
$H_{85\%}$	5	MSL	Days of thunder per year (R)		days/year
$H_{10\%}$	0	MSL	Weather Service station	Odendaalsrus	
Average slope (S_{av})	0.00193	m/m	Weather Service number	364322	
Over landflow length	1.261	km	Area distribution factors		
$H_{100\%}$	5	MSL	Rural (α)	Urban (β)	Lakes (γ)
$H_{0\%}$	0	MSL	100%	0%	0%
Average slope (S_{av})	0.00397	m/m	Notes:	Area draining to North-west RWD, Blue RWD and Emergency Overflow ponds	
Roughness coefficient (r)	0.3				
Dolomite area ($D_{\%}$)	0	%			

Rural

Surface slope	%	Factor	C_s
Vleis and pans (< 3%)	0%	0.01	0
Flat areas (3% - 10%)	100%	0.06	0.06
Hilly (10% - 30%)	0%	0.12	0
Steep areas (> 30%)	0%	0.22	0
Total	**100%**		**0.06**
Permeability	%	Factor	C_p
Very permeable (A)	0%	0.03	0
Very Permeable (A/B)	0%	0.045	0
Permeable (B)	0%	0.06	0
Permeable (B/C)	0%	0.09	0
Semi-permeable (C)	50%	0.12	0.06
Semi-permeable (C/D)	50%	0.165	0.0825
Impermeable (D)	0%	0.21	0
Total	**100%**		**0.1425**
Vegetation	%	Factor	C_v
Thick bush and plantation	0%	0.03	0
Light bush and farm-lands	0%	0.07	0
Grassland	100%	0.17	0.17
Cultivated land, contoured	0%	0.03	0
Cultivated land	0%	0.02	0
No vegetation	0%	0.26	0
Total	**100%**		**0.17**
Total (C_1)			**0.373**

Urban

Description	%	Factor	C_2
Lawns			
Sandy, flat (<2%)	50%	0.05	0.025
Sandy, Steep (>7%)	0%	0.15	0.000
Heavy soil, flat (<2%)	0%	0.13	0.000
Heavy soil, Steep (>7%)	0%	0.25	0.000
Residential areas			
Houses	30%	0.3	0.090
Flats	0%	0.5	0.000
Industry			
Light industry	0%	0.5	0.000
Heavy industry	0%	0.6	0.000
Business			
City centre	0%	0.7	0.000
Suburban	0%	0.5	0.000
Streets	20%	0.7	0.140
Maximum Flood	0%	1	0.000
	100%		
Total (C_2)			**0.255**

Time of Concentration (Tc)

Overland flow

$$T_C = 0{,}604\left(\frac{rL}{\sqrt{S_{av}}}\right)^{0{,}467}$$

1.395 Hours

Defined watercourse

$$T_C = \left(\frac{0{,}87L^2}{1000S_{av}}\right)^{0{,}385}$$

1.909 Hours

Notes:

$T_{C-TOTAL}$ **3.30** Hours V= **0.29** m/s

Run-off Coefficient

Return period (years), T	**2**	**5**	**10**	**20**	**50**	**100**	**200**
Run-off coefficient C_1 ($C_1=C_s+C_p+C_v$)	0.373	0.373	0.373	0.373	0.373	0.373	0.373
Adjusted for dolomitic areas, C_{1D} ($=C_1(1-D_{\%})+C_1D_{\%}(sum(D_{factor} \times C_{S\%}))$)	0.373	0.373	0.373	0.373	0.373	0.373	0.373
Adjusted factor for initial saturation, F_t	0.513	0.563	0.613	0.683	0.900	1.000	1.000
Adjusted run-off coefficent, C_{1T} ($=C_{1D} \times F_t$)	0.191	0.210	0.228	0.254	0.335	0.373	0.373
Combined run-off coefficient C_T ($=\alpha C_{1T}+\beta C_2+\gamma C_3$)	*0.191*	*0.210*	*0.228*	*0.254*	*0.335*	*0.373*	*0.373*

Rainfall

Return period (years), T	**2**	**5**	**10**	**20**	**50**	**100**	**200**
Point Rainfall - SCS data (mm) P_T	37.775	51.075	60.285	69.430	81.800	91.410	101.385
Point intensity (mm/h) $P_{iT}=(P_T/T_C)$	11.431	15.456	18.243	21.011	24.754	27.662	30.681
Area reduction factor (%) ARF_T	100	100	100	100	100	100	100
Average intensity (mm/h) $I_T=(P_{iT} \times ARF_T)$	*11.000*	*15.000*	*18.000*	*21.000*	*25.000*	*28.000*	*31.000*
Peak Flow (m^3/s) $Q_T=C_TI_TA/3,6$	***0.540***	***0.808***	***1.056***	***1.373***	***2.156***	***2.683***	***2.970***

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Rational Method

KONGIWE

Description of catchment :	Catchment Area B	Road Chainage :	
River detail :			
Calculated by :	Hilton Sparks	Date:	12-Feb-26

Physical characteristics

Size of catchment (A)	4.5160	km^2	Mean annual Rainfall (MAP)	502	mm
Longest watercourse (L)	1.218	km	2-year return period rainfall (M)		mm
$H_{85\%}$	4	MSL	Days of thunder per year (R)		days/year
$H_{10\%}$	0	MSL	Weather Service station	Odendaalsrus	
Average slope (S_{av})	0.00438	m/m	Weather Service number	364322	
Over landflow length	3.396	km	Area distribution factors		
$H_{100\%}$	12	MSL	Rural (α)	Urban (β)	Lakes (γ)
$H_{0\%}$	0	MSL	100%	0%	0%
Average slope (S_{av})	0.00353	m/m	Notes:	Catchment area flowing into North-west RWD, Blue RWD and Emergency Overflow Dam	
Roughness coefficient (r)	0.3				
Dolomite area ($D_{\%}$)	0	%			

Rural

Surface slope	%	Factor	C_s
Vleis and pans (< 3%)	0%	0.01	0
Flat areas (3% - 10%)	100%	0.06	0.06
Hilly (10% - 30%)	0%	0.12	0
Steep areas (> 30%)	0%	0.22	0
Total	**100%**		**0.06**
Permeability	%	Factor	C_p
Very permeable (A)	0%	0.03	0
Very Permeable (A/B)	0%	0	0
Permeable (B)	0%	0.06	0
Permeable (B/C)	0%	0.09	0
Semi-permeable (C)	50%	0.12	0.06
Semi-permeable (C/D)	50%	0.165	0.0825
Impermeable (D)	0%	0.21	0
Total	**100%**		**0.1425**
Vegetation	%	Factor	C_v
Thick bush and plantation	0%	0.03	0
Light bush and farm-lands	0%	0.07	0
Grassland	100%	0.17	0.17
Cultivated land, contoured	0%	0.03	0
Cultivated land	0%	0.02	0
No vegetation	0%	0.26	0
Total	**100%**		**0.17**
Total (C_1)			**0.373**

Urban

Description	%	Factor	C_2
Lawns			
Sandy, flat (<2%)	0%	0.05	0.000
Sandy, Steep (>7%)	0%	0.15	0.000
Heavy soil, flat (<2%)	0%	0.13	0.000
Heavy soil, Steep (>7%)	0%	0.25	0.000
Residential areas			
Houses	0%	0.3	0.000
Flats	0%	0.5	0.000
Industry			
Light industry	0%	0.5	0.000
Heavy industry	0%	0.6	0.000
Business			
City centre	0%	0.7	0.000
Suburban	0%	0.5	0.000
Streets	0%	0.7	0.000
Maximum Flood	0%	1	0.000
	0%		**0.000**

Time of Concentration (Tc)

Overland flow

$$T_C = 0{,}604\left(\frac{rL}{\sqrt{S_{av}}}\right)^{0{,}467}$$

2.277 Hours

Defined watercourse

$$T_C = \left(\frac{0{,}87L^2}{1000S_{av}}\right)^{0{,}385}$$

0.625 Hours

Notes:

$T_{C-TOTAL}$ **2.90** Hours V= **0.12** m/s

Run-off Coefficient

Return period (years), T	2	5	10	20	50	100	200
Run-off coefficient C_1 ($C_1=C_s+C_p+C_v$)	0.373	0.373	0.373	0.373	0.373	0.373	0.373
Adjusted for dolomitic areas, C_{1D} ($=C_1(1-D_{\%})+C_1D_{\%}(sum(D_{factor} \times C_{S\%})$)	0.373	0.373	0.373	0.373	0.373	0.373	0.373
Adjusted factor for initial saturation, F_t	0.513	0.563	0.613	0.683	0.950	1.000	1.000
Adjusted run-off coefficent, C_{1T} ($=C_{1D} \times F_t$)	0.191	0.210	0.228	0.254	0.354	0.373	0.373
Combined run-off coefficient C_T ($=\alpha C_{1T}+\beta C_2+\gamma C_3$)	*0.191*	*0.210*	*0.228*	*0.254*	*0.354*	*0.373*	*0.373*

Rainfall

Return period (years), T	2	5	10	20	50	100	200
Point Rainfall - SCS data (mm) P_T	36.675	49.575	58.505	67.390	79.400	88.730	98.405
Point intensity (mm/h) $P_{iT}=(P_T/T_C)$	12.640	17.086	20.164	23.226	27.365	30.581	33.915
Area reduction factor (%) ARF_T	100	100	100	100	100	100	100
Average intensity (mm/h) $I_T=(P_{iT} \times ARF_T)$	*13.000*	*17.000*	*20.000*	*23.000*	*27.000*	*31.000*	*34.000*
Peak Flow (m^3/s) $Q_T=C_TI_TA/3,6$	***3.113***	***4.468***	***5.724***	***7.335***	***11.986***	***14.486***	***15.888***

Appendix D

Brooker Method - Proposed Scenario

Project		**Catchment Area A 1:50 year propos**				**2026/02/12**		
Engineer		Hilton Sparks						
Summary of Results			No data input on this sheet					
	Input		**Computed**					
Region								
MAP	502	mm/year	Storm Td	247.3	min		4.1	hr
RI	**50**	**year**		= concentration time plus time to start runoff				
Catchment			Average Rainfall Intensity					
Area	92.6	ha	Op ten Noord & Stephenson			Inland		
Conc time Tc	198	min	21.4	mm/h				
Rational C	0.34		Peak Rainfall Intensity		Triangular Hyetograph			
			42.8	mm/h	At time		74	mins
Storm								
Time to peak	0.3	ratio	Runoff Vol	27385	m^3	= C x P x A		
Time step	5	min						
Reservoir and Outlet Data								
Pipe	**U/S**	**D/S**		**Tower**				
No off	0	0	No	Crest Len	0	m	$C_{d(unsub)}$	0.75
Dia	0.100	0.1	m	Crest Lvl	0	m	$C_{d(sub)}$	0.62
Invert Lvl	0	0	m				C_h	0.85
Spillway				**Crest**				
Cd	1.60	for Q = Cd x L x $h^{1.5}$		Cd	1.40	for Q = Cd x L x $h^{1.5}$		
Width	0.0			Width	0.0			
Invert Lvl	0.00			Invert Lvl	2.00			
Free board	2.00			Free board	0.20			

Reservoir Data

Stage	Depth	Area	Volume
1304.00	1304.00	0	0
1304.50	1304.50	0	0
1305.00	1305.00	0	0
1305.50	1305.50	0	0
1306.00	1306.00	0	0
1306.50	1306.50	0	0
1307.00	1307.00	0	0
1307.50	1307.50	0	0

Initial Conditions

Stage	1304.00	m
Depth	1304.00	m
Vol	#N/A	m^3
Area	#N/A	m^2
Discharge	0.00	m^3/s

Results Summary	**Peaks**					
	Q_{in}	1.996	m^3/s			
	Q_{out} CJB	#N/A	m^3/s	Q_{pipe}	#N/A	m^3/s
	Q_{out} Puls	#N/A	m^3/s	Q_{weir}	#N/A	m^3/s
	Stage	#N/A	m	Q_{crest}	#N/A	m^3/s
	Stored Vol	#N/A	m^3			

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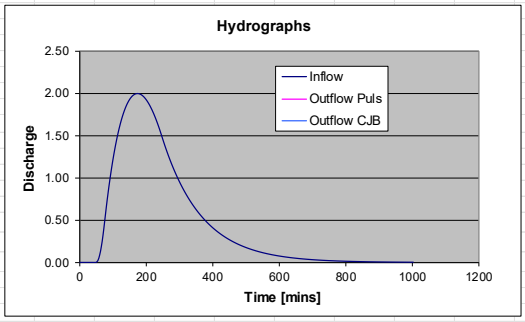

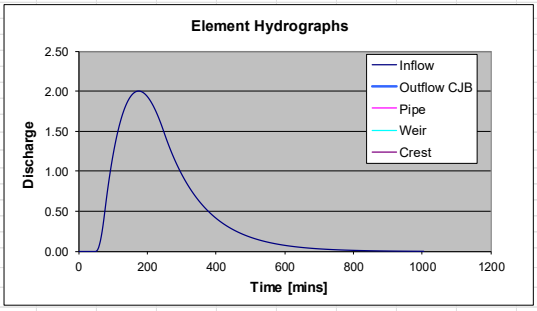

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Project		**Catchment Area A 1:100 year propc**			**2026/02/12**				
Engineer		Hilton Sparks							
Summary of Results			No data input on this sheet						
	Input		**Computed**						
Region									
MAP	502	mm/year	Storm Td	243.9	min		4.1	hr	
RI	**100**	**year**		= concentration time plus time to start runoff					
Catchment			Average Rainfall Intensity						
Area	92.6	ha	Op ten Noord & Stephenson			Inland			
Conc time Tc	198	min	26.7	mm/h					
Rational C	0.37		Peak Rainfall Intensity		Triangular Hyetograph				
			53.4	mm/h	At time		73	mins	
Storm									
Time to peak	0.3	ratio	Runoff Vol	37455	m^3	= C x P x A			
Time step	5	min							
Reservoir and Outlet Data									
Pipe	**U/S**	**D/S**		**Tower**					
No off	1	1	No	Crest Len	1306	m	$C_{d(unsub)}$	0.75	
Dia	0.100	0.1	m	Crest Lvl	1306	m	$C_{d(sub)}$	0.62	
Invert Lvl	1304	1304	m				C_h	0.85	
Spillway				**Crest**					
Cd	1.60	for Q = Cd x L x $h^{1.5}$		Cd	1.40	for Q = Cd x L x $h^{1.5}$			
Width	3.0			Width	100.0				
Invert Lvl	1304.00			Invert Lvl	1306.00				
Free board	2.00			Free board	0.20				

Reservoir Data

Stage	Depth	Area	Volume
1303.00	-1.00	0	0
1304.00	0.00	54770	27385
1304.50	0.50	136300	75153
1305.00	1.00	136600	143378
1305.50	1.50	136600	211678
1306.00	2.00	136600	279978
1306.50	2.50	136600	348278
1307.00	3.00	136600	416578

Initial Conditions		
Stage	1304.00	m
Depth	0.00	m
Vol	27385	m^3
Area	54770	m^2
Discharge	0.00	m^3/s

Results Summary	**Peaks**				
	Q_{in}	2.737	m^3/s		
	Q_{out} CJB	0.831	m^3/s	Q_{pipe}	0.010 m^3/s
	Q_{out} Puls	0.702	m^3/s	Q_{weir}	0.820 m^3/s
	Stage	1304.309	m	Q_{crest}	0.000 m^3/s
	Stored Vol	56810	m^3		

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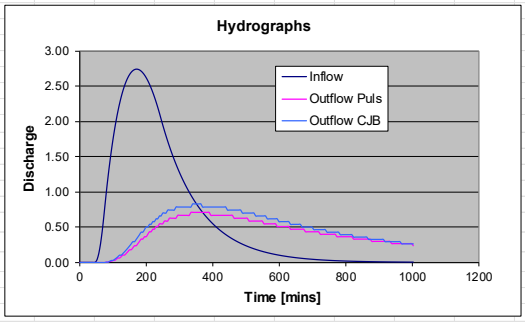

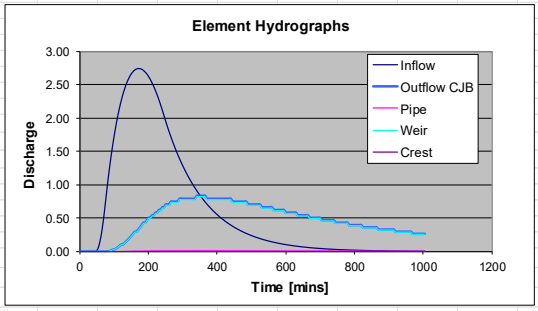

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Project		**Catchment B 1:50 year proposed**			**2026/02/12**				
Engineer		Hilton Sparks							
Summary of Results			No data input on this sheet						
	Input		**Computed**						
Region									
MAP	502	mm/year	Storm Td	215.8	min		3.6	hr	
RI	**50**	**year**		= concentration time plus time to start runoff					
Catchment			Average Rainfall Intensity						
Area	451.6	ha	Op ten Noord & Stephenson			Inland			
Conc time Tc	174	min	24.0	mm/h					
Rational C	0.35		Peak Rainfall Intensity		Triangular Hyetograph				
			48.0	mm/h	At time		65	mins	
Storm									
Time to peak	0.3	ratio	Runoff Vol	138041	m^3	= C x P x A			
Time step	5	min							
Reservoir and Outlet Data									
Pipe	**U/S**	**D/S**		**Tower**					
No off	0	0	No	Crest Len	0	m	$C_{d(unsub)}$	0.75	
Dia	0.000	0	m	Crest Lvl	0	m	$C_{d(sub)}$	0.62	
Invert Lvl	0	0.0001	m				C_h	0.85	
Spillway				**Crest**					
Cd	1.60	for Q = Cd x L x $h^{1.5}$		Cd	1.40	for Q = Cd x L x $h^{1.5}$			
Width	0.0			Width	0.0				
Invert Lvl	0.00			Invert Lvl	0.40				
Free board	0.40			Free board	0.20				

Reservoir Data

Stage	Depth	Area	Volume
0.00	0.00	0	0
0.50	0.50	0	0
1.00	1.00	0	0
1.50	1.50	0	0
2.00	2.00	0	0
2.50	2.50	0	0
3.00	3.00	0	0
3.50	3.50	0	0

Initial Conditions		
Stage	0.00	m
Depth	0.00	m
Vol	#N/A	m^3
Area	#N/A	m^2
Discharge	#N/A	m^3/s

Results Summary	**Peaks**					
	Q_{in}	11.512	m^3/s			
	Q_{out} CJB	#N/A	m^3/s	Q_{pipe}	#N/A	m^3/s
	Q_{out} Puls	#N/A	m^3/s	Q_{weir}	#N/A	m^3/s
	Stage	#N/A	m	Q_{crest}	#N/A	m^3/s
	Stored Vol	#N/A	m^3			

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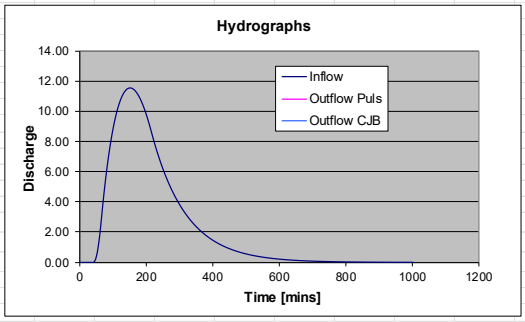

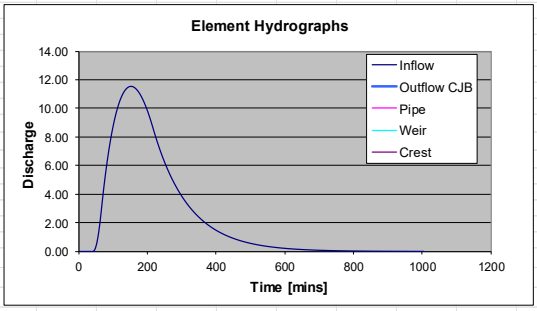

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Project		**Catchment B 1:100 year proposed**			**2026/02/12**				
Engineer		Hilton Sparks							
Summary of Results			No data input on this sheet						
	Input		**Computed**						
Region									
MAP	502	mm/year	Storm Td	214.3	min		3.6	hr	
RI	**100**	**year**		= concentration time plus time to start runoff					
Catchment			Average Rainfall Intensity						
Area	451.6	ha	Op ten Noord & Stephenson			Inland			
Conc time Tc	174	min	29.7	mm/h					
Rational C	0.37		Peak Rainfall Intensity		Triangular Hyetograph				
			59.5	mm/h	At time		64	mins	
Storm									
Time to peak	0.3	ratio	Runoff Vol	178861	m^3	= C x P x A			
Time step	5	min							
Reservoir and Outlet Data									
Pipe	**U/S**	**D/S**		**Tower**					
No off	0	0	No	Crest Len	0	m	$C_{d(unsub)}$	0.75	
Dia	0.000	0	m	Crest Lvl	0	m	$C_{d(sub)}$	0.62	
Invert Lvl	0	0.0001	m				C_h	0.85	
Spillway				**Crest**					
Cd	1.60	for Q = Cd x L x $h^{1.5}$		Cd	1.40	for Q = Cd x L x $h^{1.5}$			
Width	0.0			Width	0.0				
Invert Lvl	0.00			Invert Lvl	0.40				
Free board	0.40			Free board	0.20				

Reservoir Data

Stage	Depth	Area	Volume
0.00	0.00	0	0
0.50	0.50	0	0
1.00	1.00	0	0
1.50	1.50	0	0
2.00	2.00	0	0
2.50	2.50	0	0
3.00	3.00	0	0
3.50	3.50	0	0

Initial Conditions		
Stage	0.00	m
Depth	0.00	m
Vol	#N/A	m^3
Area	#N/A	m^2
Discharge	#N/A	m^3/s

Results Summary	**Peaks**					
	Q_{in}	14.923	m^3/s			
	Q_{out} CJB	#N/A	m^3/s	Q_{pipe}	#N/A	m^3/s
	Q_{out} Puls	#N/A	m^3/s	Q_{weir}	#N/A	m^3/s
	Stage	#N/A	m	Q_{crest}	#N/A	m^3/s
	Stored Vol	#N/A	m^3			

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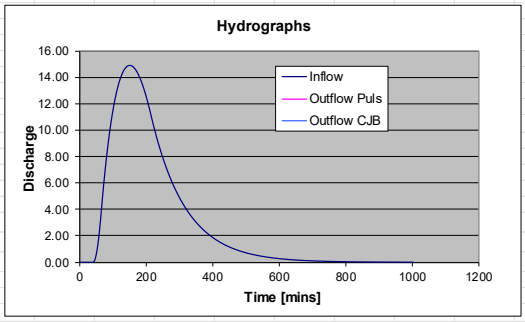

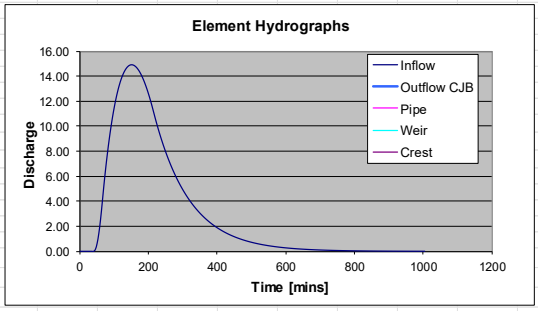

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Catchment C 1:50 year proposed 2026/02/12

Hilton Sparks

No data input on this sheet

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Computed

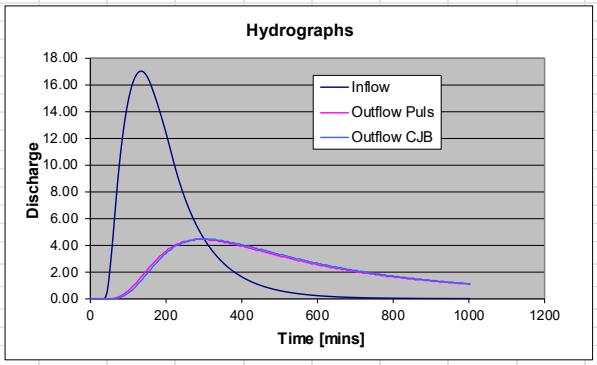
mm/year	Storm Td	160.2	min	2.7	hr	
year		= concentration time plus time to start runoff				
	Average Rainfall Intensity					
ha	Op ten Noord & Stephenson			Inland		
min	30.7	mm/h				
	Peak Rainfall Intensity	Triangular Hyetograph				
	61.4	mm/h	At time	48	mins	
ratio	Runoff Vol	51927	m^3	= C x P x A		
min						
a						

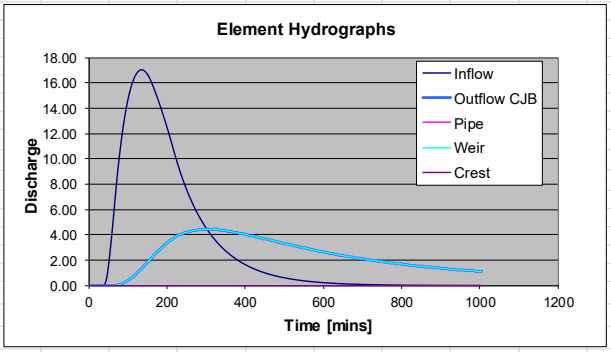
D/S		**Tower**				
0	No	Crest Len	2	m	$C_{d(unsub)}$	0.75
0.525	m	Crest Lvl	2	m	$C_{d(sub)}$	0.62
1301	m				C_h	0.85
		Crest				
for Q = Cd x L x $h^{1.5}$		Cd	1.40	for Q = Cd x L x $h^{1.5}$		
		Width	40.0			
		Invert Lvl	1301.10			
		Free board	1.00			

Area	Volume
293756	0
331823	156395
364804	330552
397785	521199
430766	728337
463747	951965
496728	1192084
529709	1448693

Initial Conditions		
Stage	1301.00	m
Depth	0.00	m
Vol	0	m^3
Area	293756	m^2
Discharge	0.00	m^3/s

Peaks					
Q_{in}	17.023	m^3/s			
Q_{out} CJB	4.410	m^3/s	Q_{pipe}	0.000	m^3/s
Q_{out} Puls	4.410	m^3/s	Q_{weir}	4.410	m^3/s
Stage	1301.427	m	Q_{crest}	0.000	m^3/s
Stored Vol	132466	m^3			





Project		**Catchment C 1:100 year proposed**				**2026/02/12**			
Engineer		Hilton Sparks							
Summary of Results			No data input on this sheet						
	Input		**Computed**						
Region									
MAP	502	mm/year	Storm Td	159.5	min	2.7	hr		
RI	**100**	**year**	= concentration time plus time to start runoff						
Catchment			Average Rainfall Intensity						
Area	296.0	ha	Op ten Noord & Stephenson			Inland			
Conc time Tc	122	min	37.9	mm/h					
Rational C	0.23		Peak Rainfall Intensity	Triangular	Hyetograph				
			75.9	mm/h	At time	48	mins		
Storm									
Time to peak	0.3	ratio	Runoff Vol	67163	m^3	= C x P x A			
Time step	5	min							
Reservoir and Outlet Data									
Pipe	**U/S**	**D/S**		**Tower**					
No off	0	0	No	Crest Len	2	m	$C_{d(unsub)}$	0.75	
Dia	0.525	0.525	m	Crest Lvl	2	m	$C_{d(sub)}$	0.62	
Invert Lvl	1301	1301	m				C_h	0.85	
Spillway				**Crest**					
Cd	1.60	for Q = Cd x L x $h^{1.5}$		Cd	1.40	for Q = Cd x L x $h^{1.5}$			
Width	10.0			Width	40.0				
Invert Lvl	1301.00			Invert Lvl	1301.10				
Free board	0.10			Free board	1.00				

Reservoir Data

Stage	Depth	Area	Volume
1301.00	0.00	293756	0
1301.50	0.50	331823	156395
1302.00	1.00	364804	330552
1302.50	1.50	397785	521199
1303.00	2.00	430766	728337
1303.50	2.50	463747	951965
1304.00	3.00	496728	1192084
1304.50	3.50	529709	1448693

Initial Conditions		
Stage	1301.00	m
Depth	0.00	m
Vol	0	m^3
Area	293756	m^2
Discharge	0.00	m^3/s

Results Summary	**Peaks**				
	Q_{in}	22.173	m^3/s		
	Q_{out} CJB	6.331	m^3/s	Q_{pipe}	0.000 m^3/s
	Q_{out} Puls	6.331	m^3/s	Q_{weir}	6.331 m^3/s
	Stage	1301.541	m	Q_{crest}	0.000 m^3/s
	Stored Vol	169979	m^3		

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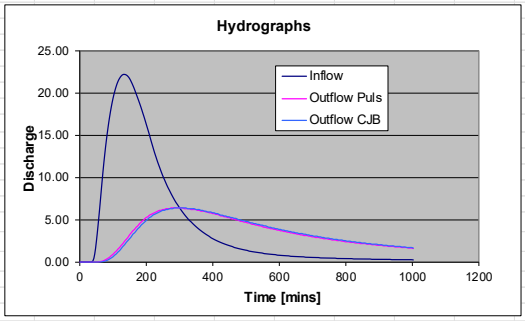

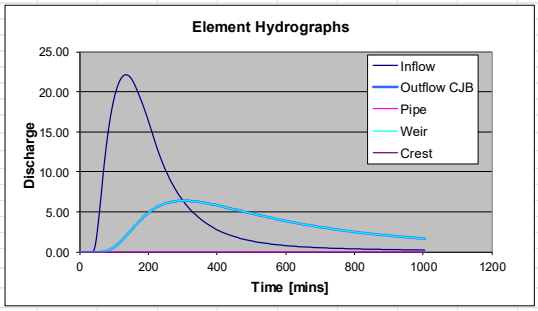

Appendix E

Curriculum Vitae – H D N Sparks

HILTON SPARKS

Professional Engineer
Kongiwe Environmental

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BRYANSTON, SANDTON, 2191
SOUTH AFRICA

PROFESSIONAL REGISTRATIONS

Engineering Council of South Africa
Pr Eng 740604

South African Council for the Project and Construction Management Professions
PrCPM D/202/2004

Member of the South African Institute of Civil Engineers

Member of South African Institute of Municipal Engineers

EDUCATION

1977 - Business Management, Damelin

Year - NQF 7 Advanced Diploma Labour Based Construction, University of Natal

1969 - BSc Civil Engineering, University of Natal

KEY SKILLS

- Civil Engineering
- Project Management
- Risk Assesment
- Mentorship

LANGUAGES

English – Fluent Afrikaans – Fluent

KONGIWE

LEADERSHIP & IMPACT

Hilton is a registered Professional Engineer and Construction Project Manager with over 50 years of experience in the built environment. His career includes a decade at a parastatal water utility, where he was responsible for the design and construction of large-scale water treatment works (up to 800 Ml/d) and bulk pipelines (450 mm to 3500 mm diameter). He has extensive experience in the consulting sector, delivering infrastructure across civil engineering disciplines, including rural and urban water and sanitation, housing, and township development. Hilton applies PMBOK-aligned project management methodologies and has led multidisciplinary teams on projects from planning through to implementation. Throughout his career, he has also played a key role in mentoring young professionals, supporting skills development and knowledge transfer within project teams. His focus on technical quality, regulatory compliance, and efficient delivery has contributed to the successful implementation of a wide range of infrastructure programmes.

AWARDS

Masimanyane Award for innovation and excellence in engineering (1997)
Repairs to Damaged Houses Project, Katorus

Impumelelo Award for innovative dedicated work in the field of poverty reduction and community development (2000)
Repairs to Damaged Houses Project, Katorus

SELECTED PROJECT EXPERIENCE

Environmental Engineering & Infrastructure Projects – South Africa (2024–2025)

Senior Project Manager
Undertook investigation, civil design, and project management of environmental infrastructure, including surface water studies for multiple tailings storage facilities and as-built documentation for Gold operations. Implemented project management systems across environmental portfolios.

National Housing & Urban Upgrading Projects – Various Provinces (1994–2010)

Director & Project Manager
Managed diverse engineering projects from township developments and bulk services to high-profile assignments including Soccer City (2010 FIFA World Cup), SAFA House, Alexandra Renewal, and the award-winning Katorus housing repair programme. Delivered thousands of low-income erven and coordinated national housing subsidies.

Appendix B: Groundwater Assessment

Can be accessed here:
https://kongiwe.com/projects

Jelani JV ESIA – Groundwater Impact Assessment – Scoping Report

Date: 26-08-2026

Prepared For: Kongiwe Environmental (Pty) Ltd.

Prepared By: Hydro-B

Executive Summary

This report presents the groundwater scoping assessment for the proposed Jelani Joint Venture (JV) underground mine, undertaken as part of an Environmental Impact Assessment (EIA) and Water Use Licence Application (WULA). The assessment establishes the hydrogeological baseline for the Study Area, identifies groundwater receptors, and provides a scoping-level assessment of potential groundwater impacts associated with the proposed underground mining activities. The assessment includes a review of available geological, hydrogeological and groundwater quality information, a hydrocensus survey of surrounding groundwater users, and a preliminary assessment of groundwater-related risks.

The proposed Jelani operation will be developed as separate mining operation but will utilise the existing underground mining and surface water management infrastructure of the existing Harmony Target Mine. The proposed underground workings overlap with the current Target 2 mining area and will extend approximately 170 m deeper than the existing workings. The project will therefore be developed within an area that has already been impacted by historical and ongoing underground mining.

The hydrogeological setting comprises a shallow weathered and fractured Karoo aquifer overlying a deep fractured Ventersdorp/Witwatersrand aquifer. Available investigations indicate that hydraulic connectivity between the shallow and deep aquifers is limited. Groundwater inflows to the underground workings are mainly derived from the deep fractured aquifer and inter-mine flow from adjacent underground workings, while groundwater levels within the shallow Karoo aquifer remain close to surface and continue to reflect topography.

The hydrocensus identified third-party groundwater users surrounding the proposed development, with groundwater mainly used for domestic purposes. Groundwater sampled from domestic boreholes contained no detectable cyanide or uranium, while sulphate concentrations remained below the SANS 241 drinking water limit. Existing groundwater quality impacts are associated with the Target Tailings Storage Facilities (TSFs), associated return water dams and the Freddies Dam system, where elevated salinity and sulphate were observed in groundwater in close proximity of these facilities.

The assessment identified potential contaminant migration from mine water management infrastructure, groundwater abstraction and groundwater drawdown and rebound as the principal groundwater-related aspects requiring detailed evaluation during the Environmental Social Impact Assessment (ESIA) phase. Estimated groundwater inflows to the proposed Jelani workings are expected to be similar to those currently abstracted from the Target Mine at approximately 5.4 ML/day, comprising approximately 3.4 ML/day of groundwater make and 2 ML/day of inter-mine flow from the Freddies No. 9 Shaft.

No hydrogeological fatal flaws were identified during the scoping assessment that would prevent development of the proposed Jelani Project. A detailed groundwater impact assessment, supported by numerical groundwater flow and contaminant transport modelling, will be undertaken during the ESIA phase to quantify operational and post-closure groundwater impacts and to develop appropriate groundwater management and monitoring measures.

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1 Introduction

Hydro B (Pty) Ltd. was appointed by Kongiwe Environmental (Pty) Ltd. to carry out a groundwater impact assessment for the proposed Jelani JV underground mine that will be used as input into an Environmental Impact Assessment (EIA) and Water Use License application (WULA).

The proposed underground mine (Figure 3-1) is a Joint Venture project between Harmony and White Rivers Exploration (Jelani Resources (Pty) Ltd.) planning to apply for Mining Rights for a proposed underground mine over an area currently held under a Prospecting Right. The EIA and WULA will support this application. No additional surface infrastructure is planned for the proposed mine, and all mining-related activities will be accessed through the existing infrastructure of Harmony's Target 2 Mine. The application will entail underground mining activities and the use of existing surface infrastructure for site water management.

This report entails the groundwater scoping assessment. The scope of work and methodology for the assessment are detailed below.

2 Scope of Work

The scope of work as part of this assessment was as follows:

- Data Review and Gap Analysis;
- Hydrocensus Survey;
- Baseline Hydrogeology Description; and
- High-level Potential Impact Description

3 Methodology

3.1 Data Review and Gap Analysis

Relevant hydrogeological data was reviewed and collated during a desktop study to establish a hydrogeological baseline for the proposed site. The following data was provided:

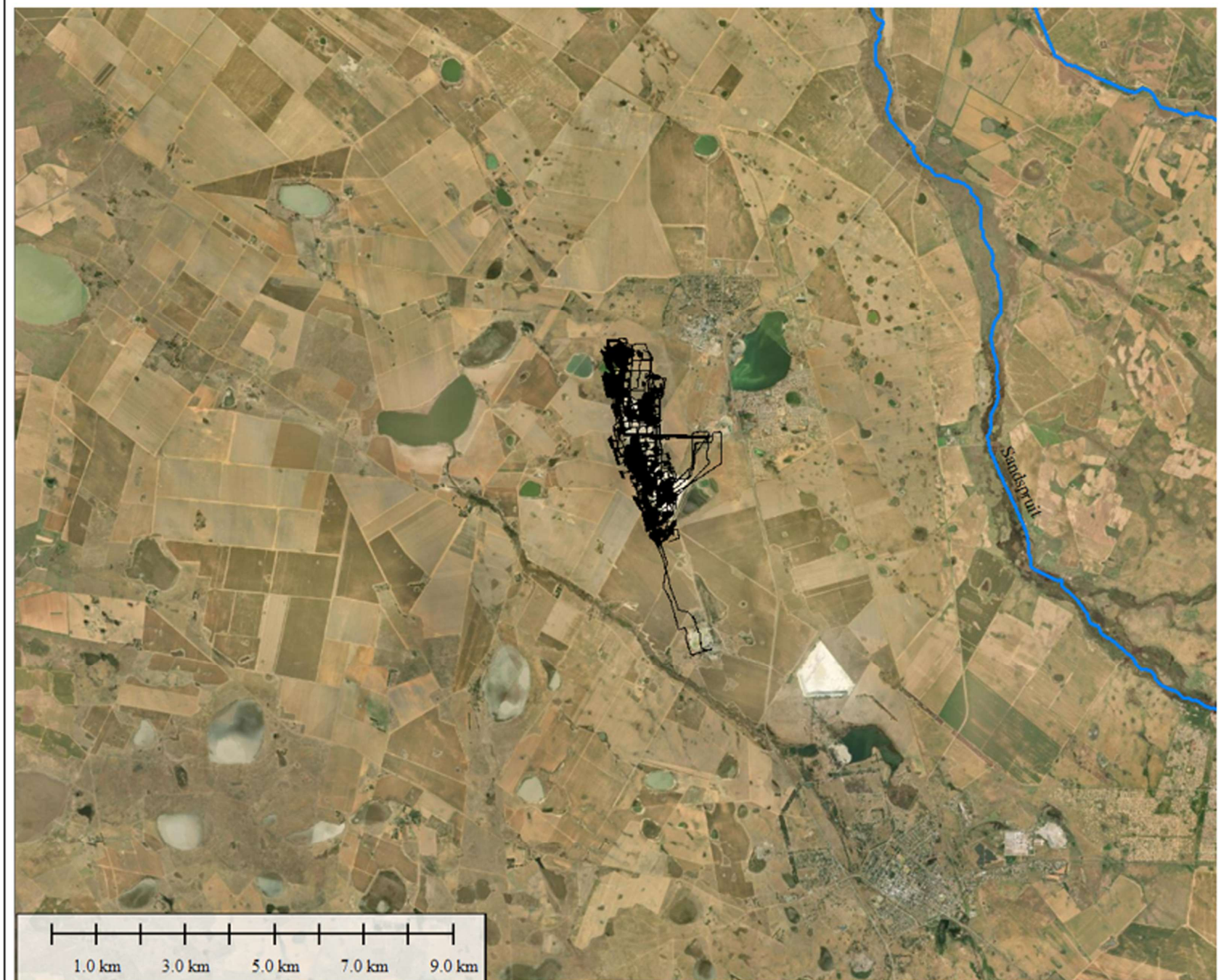
- Existing technical reports – hydrogeological, geological, geophysical and geotechnical;
- Input and background data:
  - site rainfall;
  - geophysical data for the proposed site;
  - geological data;
  - aquifer test data;
  - historical and future mine plans, including current Target Mine abstraction volumes;
  - site water management (for process/mine waters);
  - process/mine water, surface water and groundwater quality monitoring data; and
  - groundwater level data

3.2 Hydrocensus Survey

A hydrocensus survey was carried out over three days in the period 15 December 2025 to 12 January 2026 to identify groundwater users in an approximate 4 km radius surrounding the proposed development. 19 boreholes were assessed and seven boreholes were sampled. Seven samples (including a duplicate for borehole BHN) were submitted to SANAS-accredited Yanka Laboratories in Middelburg for analysis against SANS 241 drinking water specifications. The list of parameters included additional parameters, including cyanide and uranium, as the project involves development of an underground gold mine (Table 3-1). During the survey, details of source owners and groundwater level measurements (where possible) were also collected.

Table 3-1. List of Parameters

Parameter	
Conductivity at 25 °C	Zinc as Zn
Total dissolved solids	Antimony as Sb
Turbidity	Arsenic as As
pH at 25 °C	Barium as Ba
Calcium	Boron as B
Magnesium	Cadmium as Cd
Potassium	Total chromium as Cr
Sodium as Na	Copper as Cu
Total Alkalinity CaCO3	Lead as Pb
Bicarbonate as HCO3	Mercury as Hg
Chloride as Cl	Nickel as Ni
Sulphate as SO4	Selenium Se
Nitrate as NO3	Uranium as U
Nitrite as NO2	Aluminium as Al
Ammonia as NH3	Free, Total and WAD Cyanide as CN
Phosphate as PO4	Total coliforms
Fluoride as F	Faecal coliforms
Iron as Fe	E. Coli



Locality Map

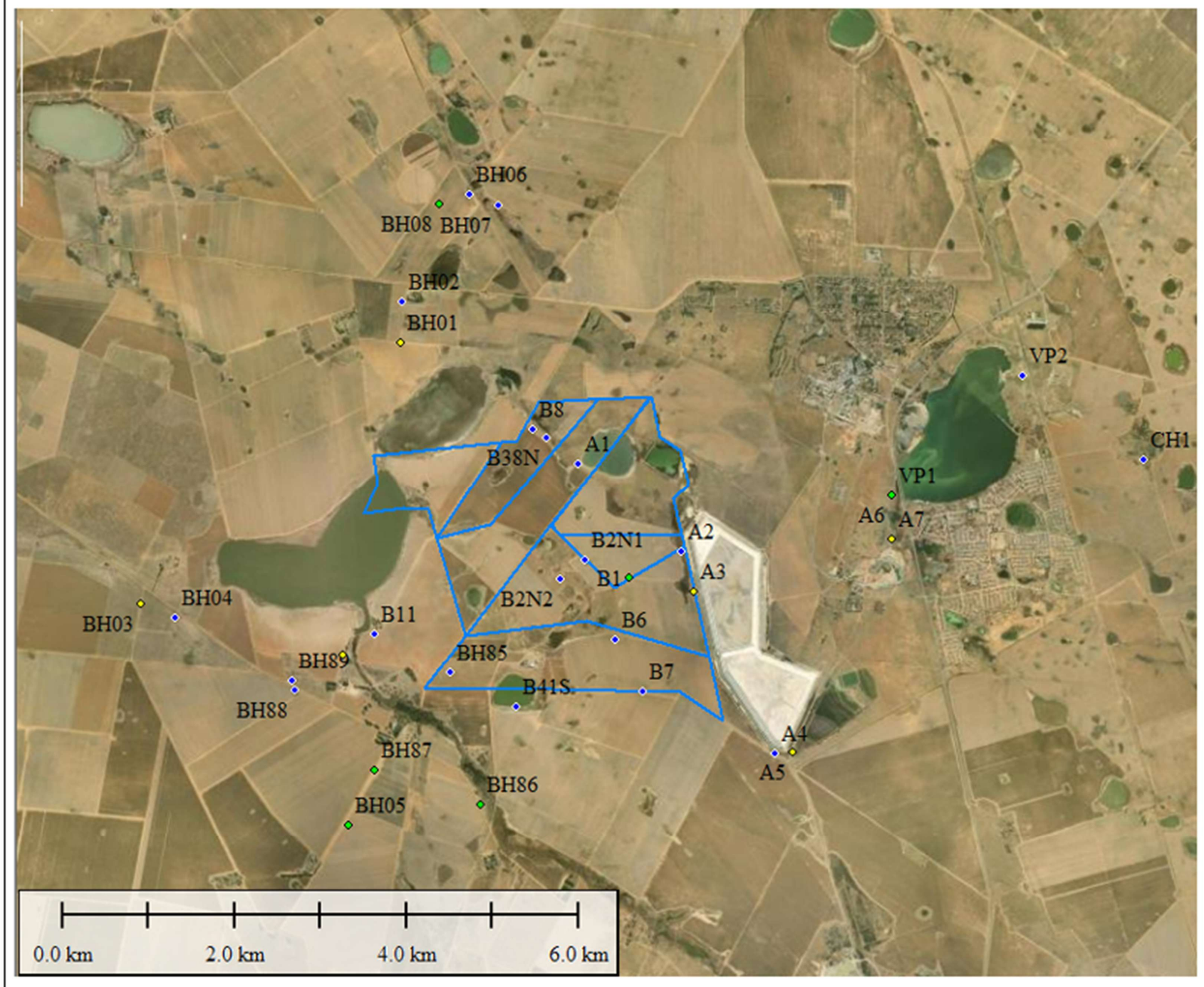
Legend

Jelani JV Underground Operation

Cape LO27

hydro-b

Figure 3-1. Jelani JV Locality Map Showing the Proposed Underground Mine Operation



Hydrocensus Localities

Legend

BH04 Borehole – basic info

VP2 Borehole – basic info, GWL

B41S Borehole – basic info, GWL + sample

Jelani JV Farm Boundaries

Cape LO27

hydro-b

Figure 3-2. Hydrocensus Localities with Collected Data

3.3 Baseline Hydrogeology Description

Based on the available data for the area surrounding the proposed development the baseline hydrogeology was described in detail. Based on all available geological, geotechnical, hydrological and hydrogeological information.

3.4 High-level Impact Description

Based on the hydrogeological baseline description and the proposed development an overview and description of potential impacts and their likelihood of occurrence is provided. These impacts will be described in more detail in the groundwater impact assessment.

4 Proposed Activities

The Jelani Project is a proposed underground mining operation located near Allanridge in the Free State Province of South Africa, approximately 30 km north of Welkom. The project is being developed by Jelani Resources, a joint venture between White Rivers Exploration (WRE) and Harmony Gold Mining Company Ltd. (Harmony). The project area covers approximately 960 hectares and includes portions of both the Beisa Prospecting Right and adjacent Harmony mining rights within the north-western Free State Goldfield.

The project aims to exploit multiple gold-bearing reef horizons within the Witwatersrand Basin, including the Basal, B, A, ED and EA reef packages. Mining will be undertaken using conventional underground mining methods, including breast and shrinkage stoping.

The proposed mine development will make use of existing infrastructure associated with Harmony's Target Mine. Mining activities will initially be supported through the refurbishment and recommissioning of Target No. 3 Shaft, followed by the refurbishment of Target No.2 Shaft. Underground access to deeper mining areas will be provided through the development of a new twin conveyor decline system extending below the existing shaft infrastructure. The decline system will be developed using mechanised trackless mining equipment.

The project includes the development and operation of underground as well as the operation of associated surface infrastructure. Surface facilities will include power supply systems, bulk water supply and distribution networks, workshops, fuel storage and handling facilities, offices, change houses, stores, security facilities, rock handling systems, return-water dams, and associated service infrastructure. Underground infrastructure will include water reticulation systems, return-water handling facilities, settling facilities, compressed air distribution, electrical reticulation, refuge chambers and materials handling systems.

Ore extracted from underground workings will be transported via rail-bound and conveyor systems to existing shaft infrastructure for hoisting to surface. Ore will then be processed through the existing Target processing plant.

The proposed operation is expected to employ approximately 3,156 personnel at full production and will operate on a continuous mining schedule supported by associated ventilation, cooling, water supply, water handling and waste management systems.

The proposed operation overlaps substantially with the existing Harmony Target 2 mine and will be developed within an area already impacted by existing mining. Mining at the Target 2 mine dips to the west with the deepest mining being at a depth of ~2 550 m above mean sea level (mamsl) or 1 250 m below ground level (mbgl). Mining at the Jelani project extends to a maximum depth of ~2 700 mamsl (Figure 4-1, Figure 4-2 and Figure 4-3).

The Target 3 mine to the south extends across an area of approximately 8 km^2, with the Target 2 mine extending across an area of approximately 11 km^2. In comparison, the proposed operation covers about 2.8 km^2 with the majority aligning with the current Target 2 extent. In terms of depth the proposed operation extends ~140 m deeper than existing Target 2 workings.

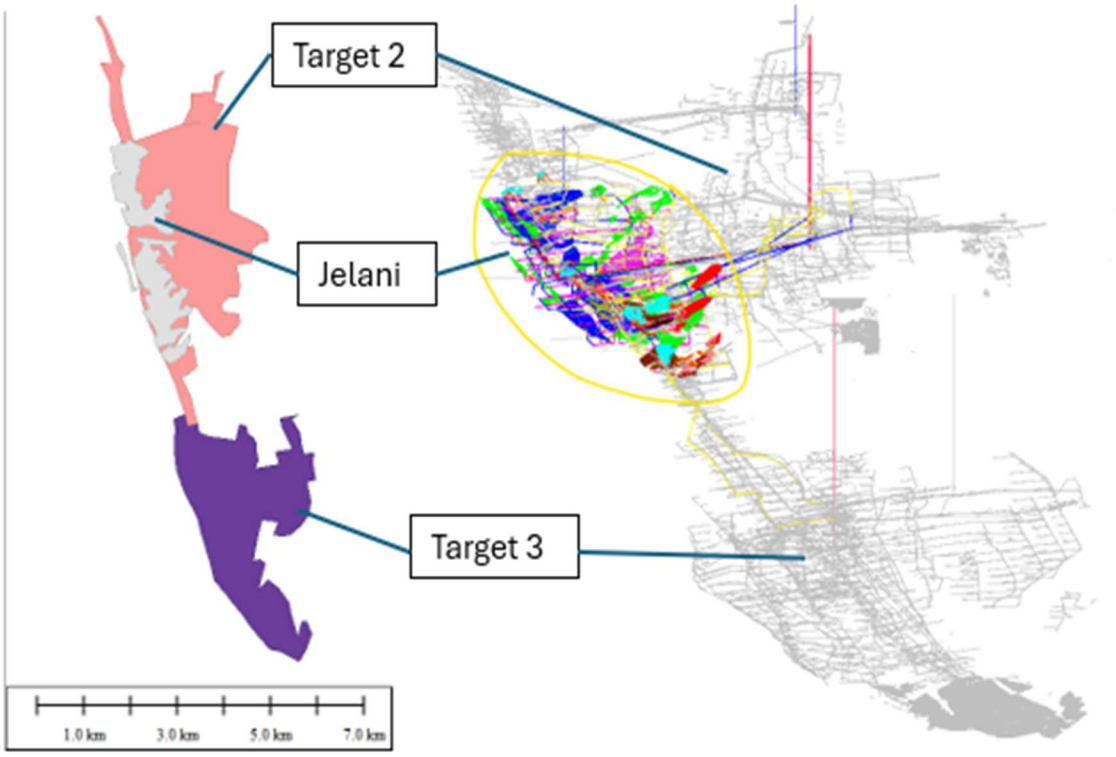


Figure 4-1. Proposed Operation in Relation to Existing Harmony Target 2 and 3 Operations.

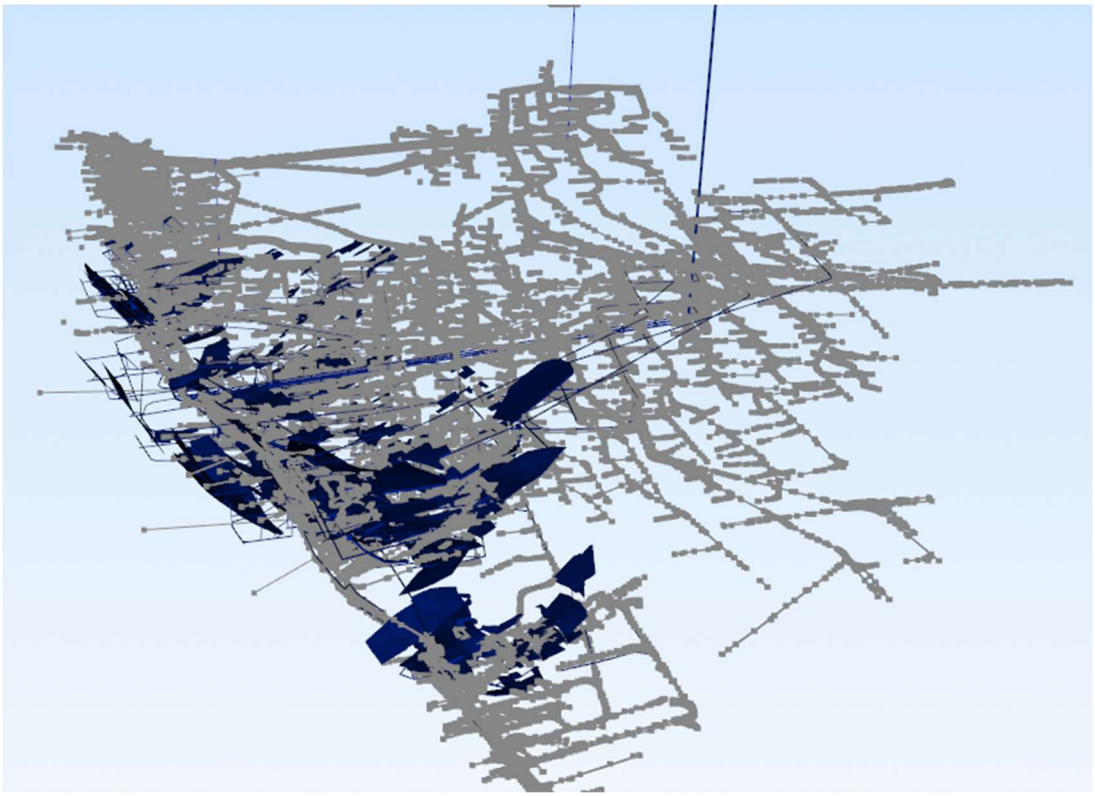


Figure 4-2. Oblique View of the Jelani (in blue) and Harmony Target 2 and 3 Operations (in grey).

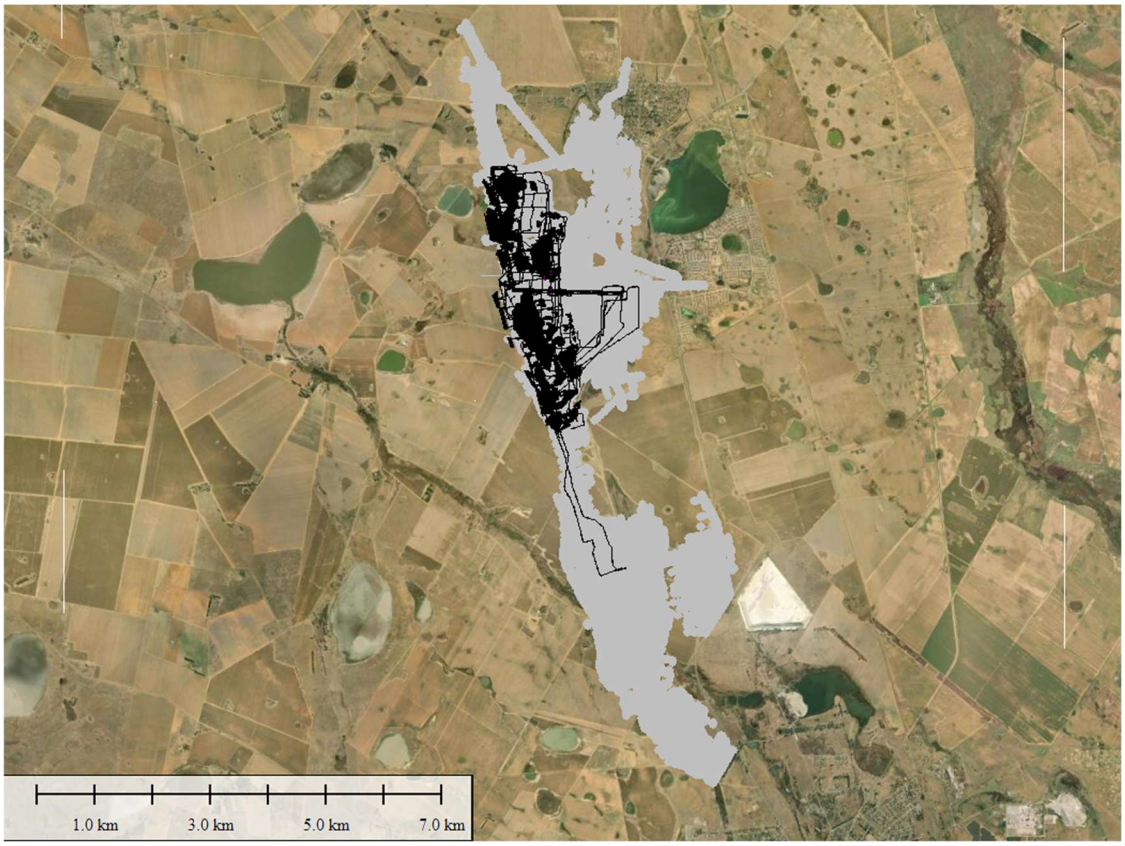


Figure 4-3. Jelani Proposed Operation (in black) and Target 2 and 3 Operations (in grey).

5 Existing Activities

The proposed Jelani Operations are in close proximity to the existing Target Mine operations, and within the Study Area relevant existing infrastructure relating to these operations is present. For the Study Area the most important and closely located infrastructures are Figure 5-1:

- the target No 1 and 2 TSF;
- the North-West Return Water Dam (NW RWD);
- the Blue RWD and
- the emergency overflow ponds.

Other related infrastructures in close proximity of the Study Area are:

- the Target 2 shaft; and
- the South-East (SE) RWD.

Further away to the southeast of the Study Area the following infrastructures are:

- Freddies No. 9 TSF and dam; and
- Target 3 shaft.

Concerning current underground mining activities, the following as described in (Groundwater Square, 2016) is currently still valid:

- The Target Gold Mine is currently in full operation from No.1 Shaft;
- The No.2 shaft is currently not working although it is equipped with an emergency winder and used as a second means of egress for the Target Mine; and
- The No.3 Shaft has been operating intermittently since the late 1990's and is currently closed on care and maintenance.

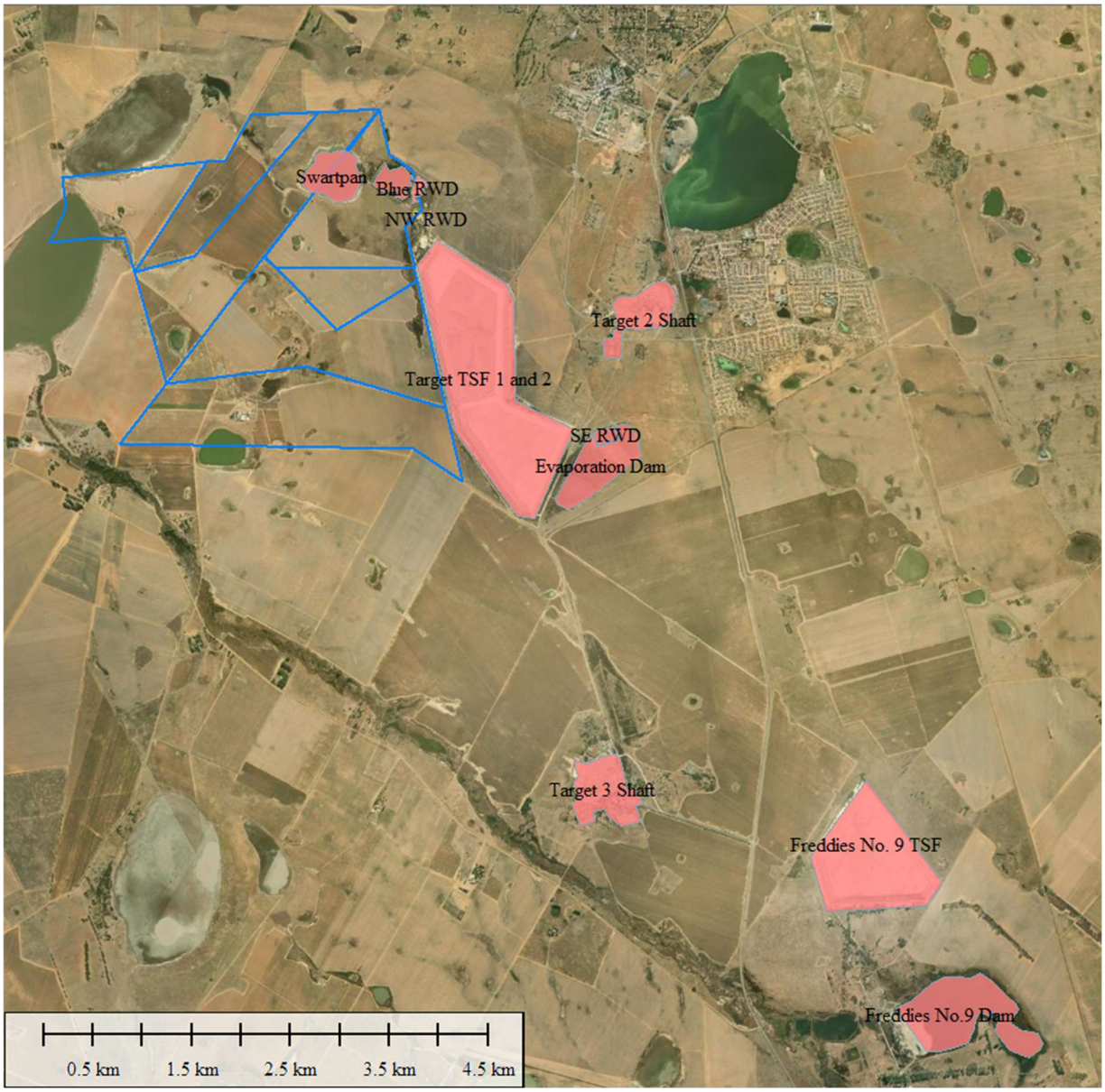


Figure 5-1. Study Area (Farm Boundaries in Blue) with Relevant Target Infrastructure (in Red).

6 Baseline Description

6.1 Rainfall

Mean Annual Rainfall (MAR) for the Welkom (0364300 W) weather station based on data between October 1920 – March 2022 was estimated at 492 mm/a. Rainfall is highest over the summer months of October to April, with December and January generally being the wettest months. Very little rainfall falls over the winter months (Kongiwe Environmental, 2026).

6.2 Topography and Drainage

The area is characterised by small elevation contrasts showing a generally flat, slightly undulating topography (AquiSim Consulting, 2025) with the main topographical gradient being to the northwest (Figure 6-2). Elevations for the Study Area vary between approximately 1 340 and 1 275 mamsl.

The main drainage features in the Study Area are the Sandspruit to the north and the Vet River to the south, both tributaries of the Vaal River. Both rivers follow the main topographical gradient and flow in a southeast-northwesterly orientation. Southwest of the proposed operation multiple pans are spread across the area, with many small non-perennial drainage lines feeding into these features.

According to (Kongiwe Environmental, 2026) The Jelani Project Area has 4 catchment areas impacting on the surface water hydrology (Figure 6-1):

- The Swartpan Catchment Area – the biggest catchment area of size approximately 8.3 km2 including the area to the east of the Target 1 TSF. There is overland flow to the Swartpan, and a natural watercourse below Swartpan to Pan A.
- Pan B Catchment Area – area of size approximately 1.5 km2. There is no defined watercourse, just overland flow into the Pan.
- Pan C Catchment Area – area of size approximately 2.5 km2. There is no defined watercourse, just overland flow into the Pan.
- Balance of Jelani Project Area – flows in a westerly direction into Pan A or the Losdoringspruit.

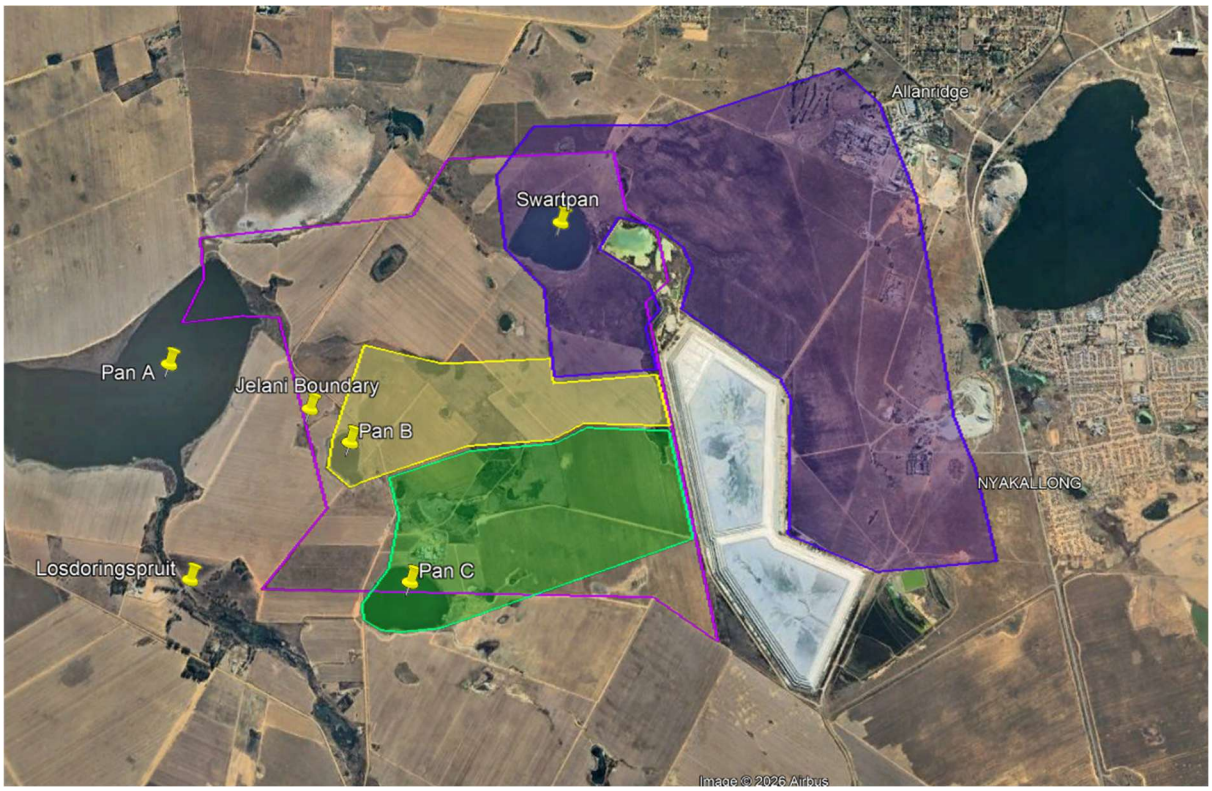


Figure 6-1. Catchment Areas affecting the Jelani Project (Kongiwe Environmental, 2026).

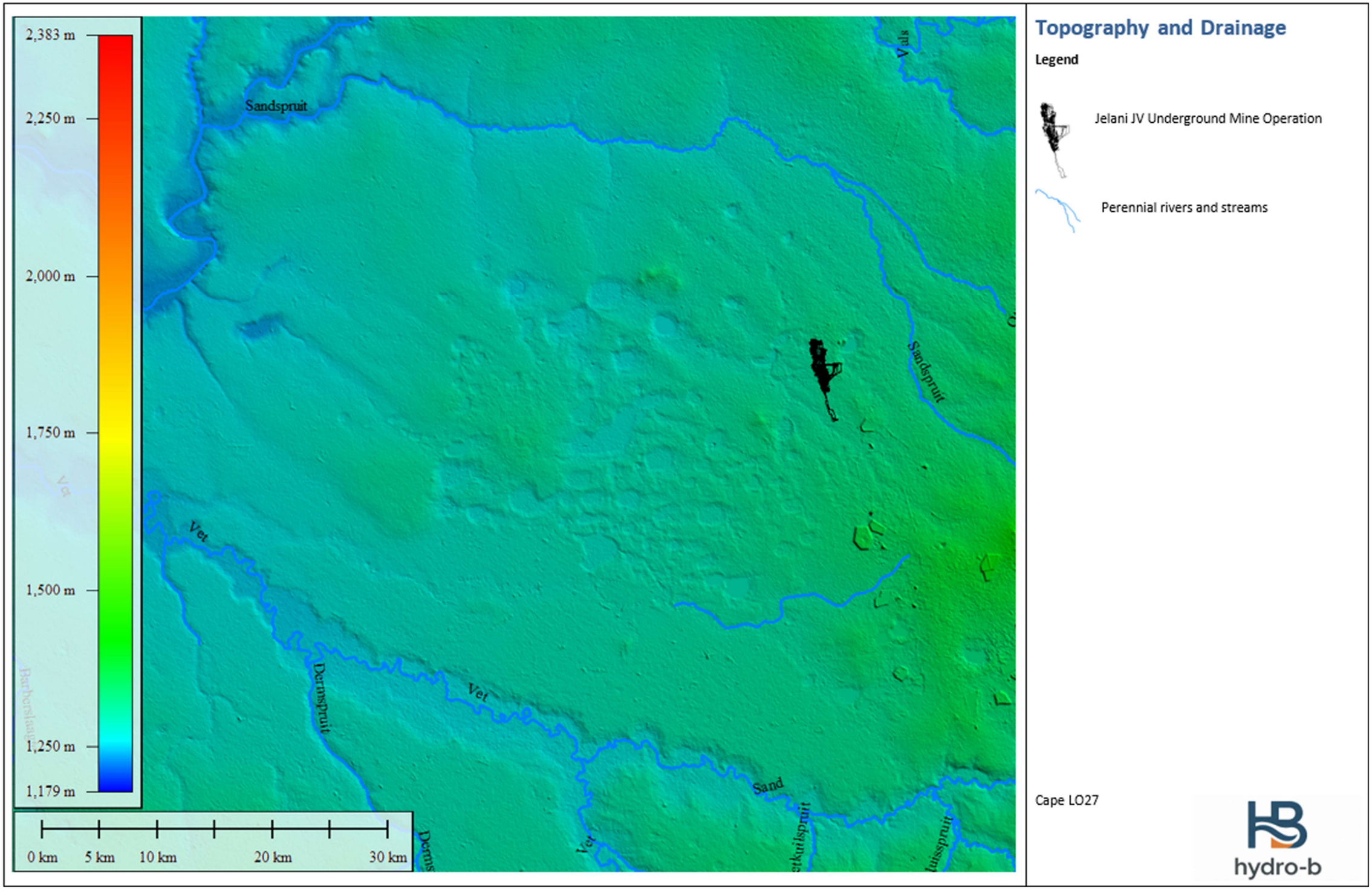


Figure 6-2. Regional Topography and Drainage

6.3 Geology

6.3.1 Regional Geology

The Jelani Project is located within the north-western portion of the Free State Goldfield, situated on the south-western margin of the Witwatersrand Basin. The Witwatersrand Basin comprises a thick sequence of sedimentary rocks that host the world-renowned gold-bearing conglomerate reefs and forms one of the most extensively mined geological provinces in South Africa (Bara Consulting, 2026).

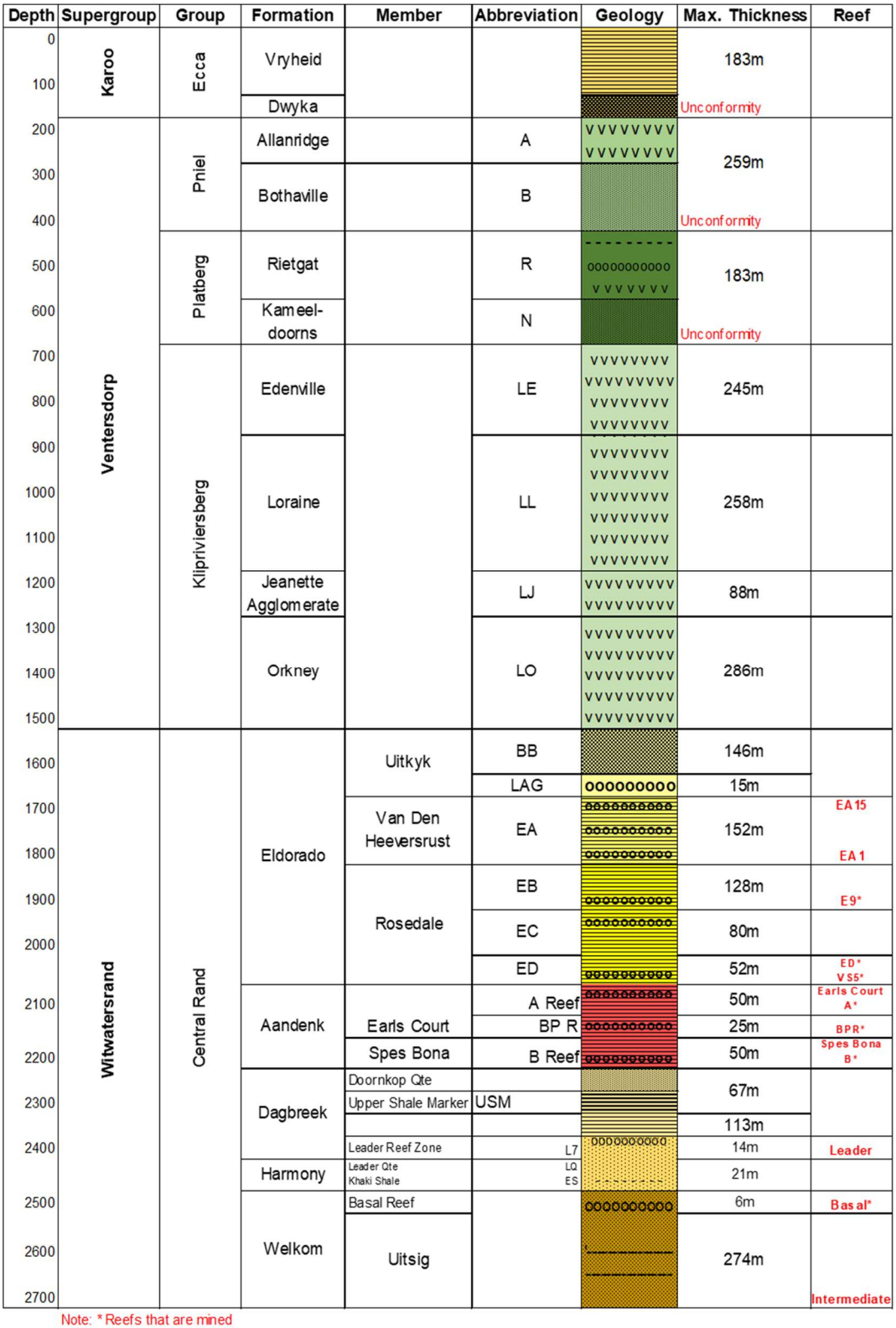
The regional geological succession consists of sedimentary rocks of the Witwatersrand Supergroup, overlain by volcanic rocks of the Ventersdorp Supergroup and, in turn, by sedimentary rocks of the Karoo Supergroup (Figure 6-3). The geological sequence generally youngs upward from the Witwatersrand strata through the Ventersdorp volcanics to the Karoo sediments exposed at surface (Bara Consulting, 2026) and (AquiSim Consulting, 2025).

The Witwatersrand Supergroup comprises quartzites, conglomerates, shales and argillaceous sedimentary units deposited in a fluvial environment. Within the Free State Goldfield, the principal economic units occur within the Central Rand Group and include the Basal Reef, B Reef, A Reef, EA Reef and ED Reef horizons targeted by the proposed mining operation. The Witwatersrand succession exceeds 2 000 m in thickness within parts of the goldfield and forms the principal bedrock sequence underlying the project area (Bara Consulting, 2026).

The Witwatersrand rocks are unconformably overlain by volcanic rocks of the Ventersdorp Supergroup, predominantly consisting of andesitic lavas, pyroclastic units and associated volcanic sediments. The Ventersdorp succession is approximately 1,300 m thick in the central portions of the Free State Goldfield and is associated with significant tectonic activity that resulted in extensive faulting and block movements throughout the basin (MvB Consulting, 2026) (AquiSim Consulting, 2025).

The uppermost geological sequence, occurring below aeolian sands that cover large parts of the Study Area, comprises Karoo Supergroup sediments, which attain an average thickness of approximately 200 m (Figure 6-3 and Figure 6-4). Locally, the Allanridge Formation (part of the Ventersdorp Supergroup) is exposed at surface.

The Karoo succession includes the Beaufort Group (including the Normandien Formation), the Ecca Group (including Volksrust and Vryheid Formations) and the Dwyka Group (Dwyka Formation). The Beaufort Group contains extensive sandstone horizons capable of supporting groundwater occurrences, while the Ecca Group consists predominantly of shale and mudstone with subordinate sandstone units. The Dwyka Formation commonly consists of a low permeability tillite unit separating the shallow Karoo aquifer system from the deeper fractured aquifer systems associated with the Ventersdorp and Witwatersrand rocks. (MvB Consulting, 2026) (AquiSim Consulting, 2025).



Note: * Reefs that are mined

Figure 6-3. Free State Goldfields Stratigraphy (from: Harmony Geology Department)

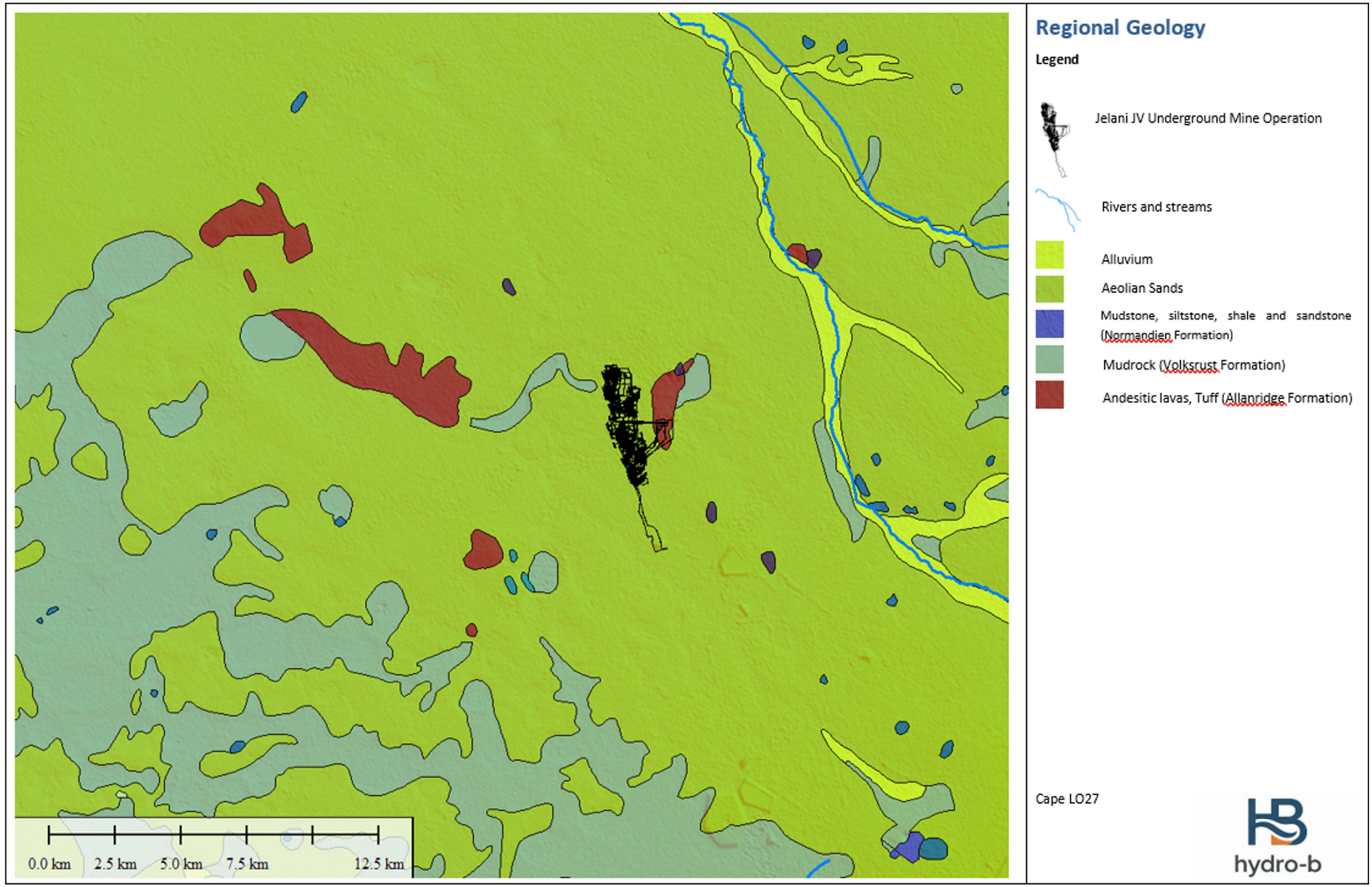


Figure 6-4. Regional Surface Geology

6.3.2 Local Geology

The Jelani Project is situated along the western margin of the Free State Goldfield in close proximity to the historical and current Target Mine Operations. The local geology intersected by the mining operations comprises a thick sequence of Witwatersrand strata affected by faulting, folding and erosional truncation associated with subsequent tectonic events (Bara Consulting, 2026).

The near-surface geology within the project area is dominated by Karoo sediments consisting mainly of weathered shale, mudstone, sandstone and unconsolidated surficial materials. The Karoo sediments are underlain by the Ventersdorp Supergroup which, based on the exploration drilling throughout the gold field, has an average thickness of 1 300 m. The Ventersdorp Supergroup can be divided into the Pniel sequence, the Platberg Group and the basal Kliprivierberg Group consisting of alternating sediments, andesitic lavas, tuffs and agglomerates. The thickness and preservation of these units varies locally due to erosion and fault displacement (AquiSim Consulting, 2025) (MvB Consulting, 2026).

The principal lithostratigraphic units underlying the Ventersdorp Supergroup belong to the Central Rand Group and include the Luipaardsvlei, Harmony, Booysens, Kimberley, Eldorado and Mondeor Formations. These formations comprise interbedded quartzites, conglomerates and shale units. Within these lithostratigraphic units the Jelani underground operations will target the EA reef, A reef, B reef and Basal reef at mining depths ranging between 1 513 m – 2 600 m below surface.

The stratigraphic sequence contains numerous shale horizons that provide important stratigraphic controls and may act as local barriers to vertical groundwater movement where sufficiently continuous (Bara Consulting, 2026).

From a hydrogeological perspective, the geological sequence can be broadly divided into three hydrostratigraphic domains:

- A shallow weathered Karoo aquifer system associated with weathered sandstones, fractured mudstones and surficial deposits.
- An intermediate fractured-rock aquifer system associated with the Ventersdorp volcanic succession;
- A deeper fractured-rock aquifer system associated with the Witwatersrand Supergroup, including fault zones, fracture networks and mining-induced secondary permeability associated with historic and proposed underground workings.

Groundwater occurrence within the Karoo sequence is generally restricted to weathered zones, sandstone horizons, fracture zones and dyke contacts. Groundwater occurrence within the deeper Ventersdorp and Central Rand geological sequences is primarily controlled by faulting, fracturing, dyke contacts and mining-related disturbance of the rock mass (AquiSim Consulting, 2025) (MvB Consulting, 2026).

6.3.3 Structural Geology

Structurally, the Free State Goldfield is dominated by a large north-south trending synclinal basin. The region displays complex structural geology because of faulting and folding associated with this syncline (MvB Consulting, 2026) with numerous north-striking faults and significant vertical displacement. The De Bron Horst forms a major regional structural feature that divides the goldfield into eastern and western

sectors (Figure 6-5). Additional thrust faulting associated with Ventersdorp-age tectonism has further modified the basin (Bara Consulting, 2026) (MvB Consulting, 2026). The local structural setting is characterised by a series of north-striking normal faults associated with the western margin of the goldfield. These faults subdivide the geological succession into discrete structural blocks and influence the continuity in stratigraphy (Bara Consulting, 2026).

These structures significantly control the regional, deep groundwater flow. Major faults can act either as preferential groundwater flow pathways where intensely fractured, or as hydraulic barriers where fault mineralisation reduces permeability. Numerous dykes of Ventersdorp, Bushveld, Pilanesberg and Karoo age intrude the Witwatersrand succession, commonly following pre-existing fault structures. Dyke contacts and associated fracture zones are locally important groundwater-bearing features and may influence hydraulic connectivity between geological units (AquiSim Consulting, 2025) (MvB Consulting, 2026).

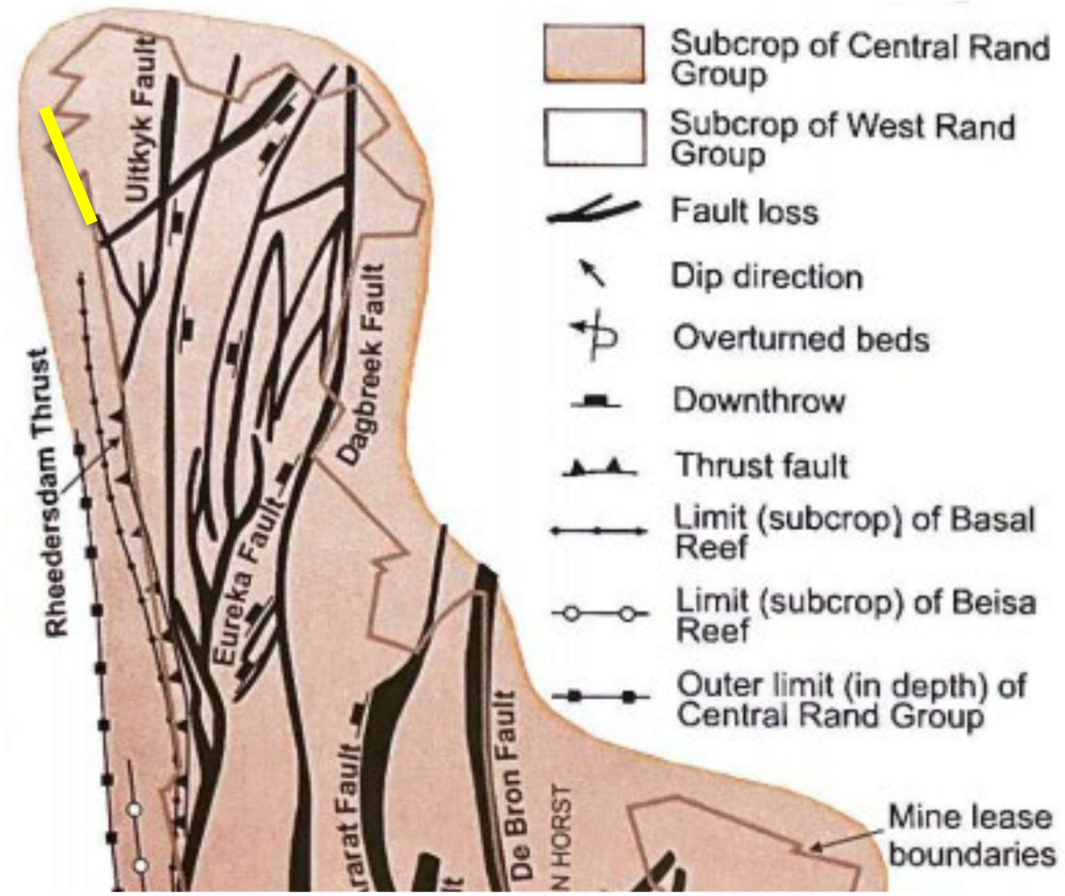


Figure 6-5. Structure of the Welkom Goldfields. Location of the Proposed Operation indicated by the Yellow Bar (Bara Consulting, 2026).

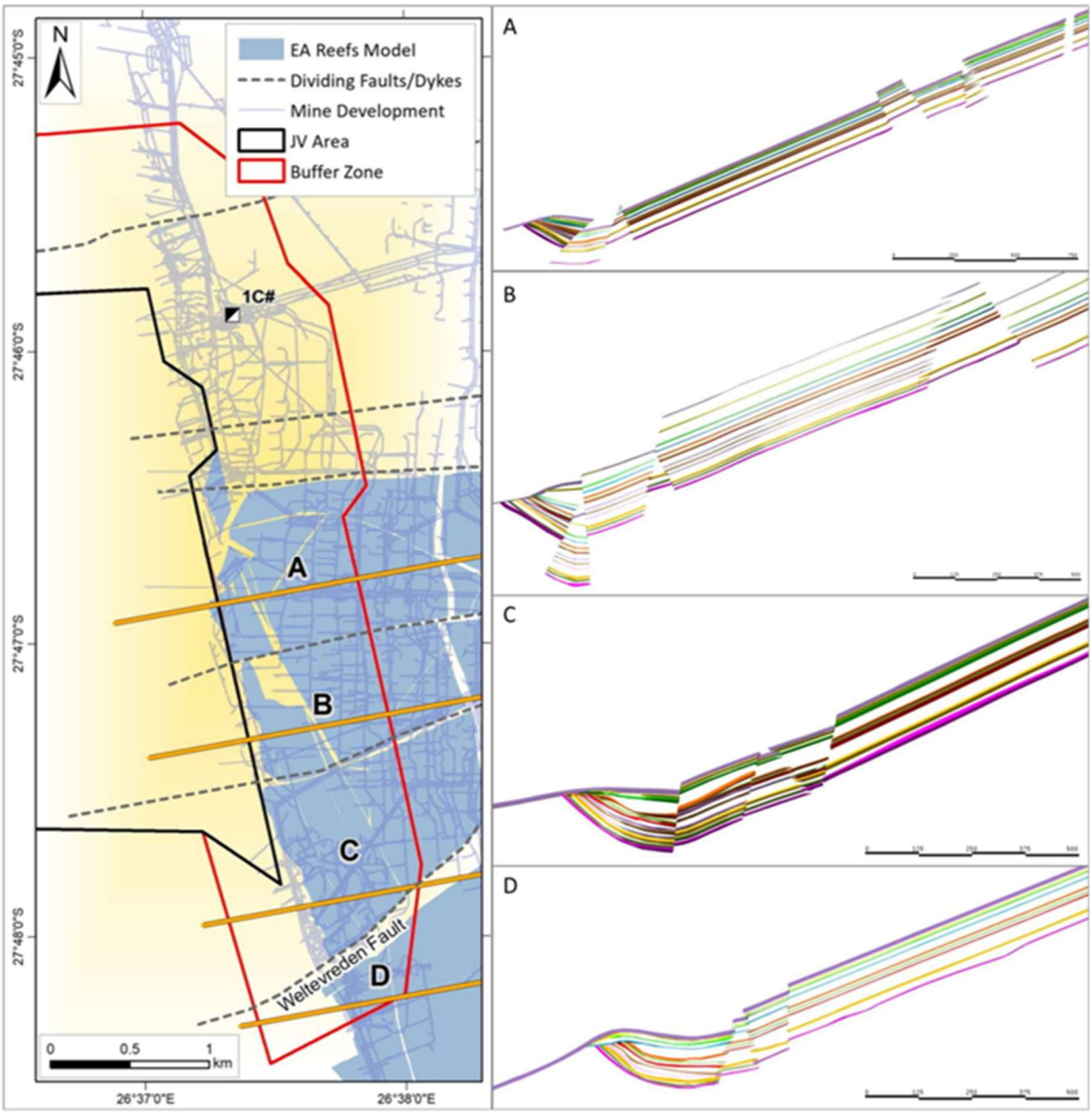


Figure 6-6. West-East Cross Sections Through The Jelani Operation showing the Targeted Reefs (Bara Consulting, 2026).

6.4 Hydrogeology

6.4.1 Aquifer Description

To understand the hydrogeological setting a description of the groundwater occurrence in the region is summarised below. It is important to note that groundwater interacting with the underground mining operations is largely derived from the deep Witwatersrand aquifer rather than from the shallow Karoo aquifer. Over the years of mining and groundwater abstraction from the underground mines the deep aquifer has been dewatered significantly (MvB Consulting, 2026).

The Study Area is characterised by two main aquifers (Figure 6-7):

- A shallow weathered and fractured Karoo aquifer:
  - A shallow, perched aquifer exists in the weathered zone of sedimentary rocks directly beneath the surface to an average depth of 10 – 20 meters below ground level (mbgl), with most water strikes consistently located at the interface between weathered and fractured bedrock. Groundwater mainly occurs within sandstone horizons and lenses of the younger Beaufort Group which are directly recharged by precipitation;
  - The primary porosity of the older Vryheid and Dwyka Formations is very low, and the shales, mudstones and tillite generally function as aquicludes (AquiSim Consulting, 2025). Any water bearing capacity is associated with secondary joints, bedding planes and faults and at contacts between dolerite intrusions/dykes and country rock;
  - The two aquifers may or may not be hydraulically connected, dependent on the local geology.
- A deep, fractured Ventersdorp/Witwatersrand aquifer:
  - The deep Ventersdorp/ Witwatersrand aquifer is situated approximately 300 m below surface (Figure 6-7) and thought to be connate (i.e. original formation water) or extremely old (fossil) water and is usually concentrated on geological structures such as fault zones or igneous intrusions (e.g. dykes).

The impermeable nature of the overlying Karoo sediments, particularly the Dwyka Formation at the base of the Karoo, effectively seals off the deeper aquifer. Post-Karoo movement and intrusions provided conduits for leakage between the Karoo aquifer and the deep Witwatersrand aquifer. However, the deep aquifer recharge from surface is regarded as negligible, and at best localised. This is concluded based on the dewatering of this aquifer over the past 40 years during which the water levels in the Witwatersrand aquifer dropped significantly, with some underground dewatering boreholes having dried up in some instances. In contrast, groundwater levels in the Karoo aquifer have remained constant (MvB Consulting, 2026).

Previous studies concluded the following:

- There is no or very limited hydraulic connectivity between the Karoo aquifer and the deeper Ventersdorp/Witwatersrand aquifers;
- Recharge to the Witwatersrand aquifer is negligible (MvB Consulting, 2026);
- Once the Witwatersrand aquifer is dewatered (or the water level lowered) it will not recover. The estimated post-mining water level in the Witwatersrand aquifer will therefore be deeper than the pre-mining water level of ~200m below surface.

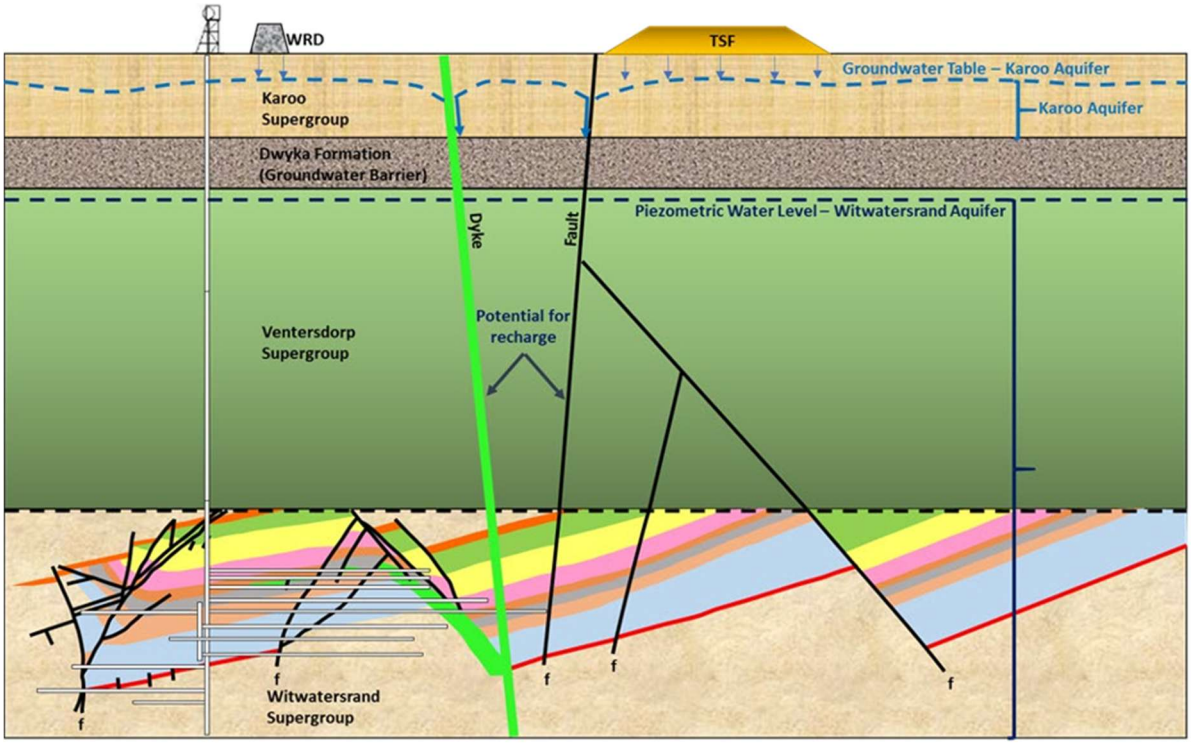


Figure 6-7. Graphical Representation of the Regional Aquifers (MvB Consulting, 2026).

6.4.2 Aquifer Parameters

Available aquifer test data was provided in (AquiSim Consulting, 2025) where AquiSim analysed data from (Golder Associates, 2008). Table 6-1 shows the transmissivity and hydraulic conductivity values obtained for the larger Harmony Welkom Area. Based on borehole depths (maximum depth of 100 m) these characteristics are relevant for the shallow Karoo aquifer. AquiSim observed that the heterogeneous nature of the aquifer is evident from the variability in the calculated transmissivity/hydraulic conductivity values and typical for fractured and weathered sedimentary hard rock aquifers. The derived T- and K-values are indicative of a low permeable environment (AquiSim Consulting, 2025). The average hydraulic conductivity for the shallow aquifer is 0.29 m/d, with geometric and harmonic means of 0.1 and 0.042 m/d, respectively.

Table 6-1. Hydraulic Parameters Derived from Available Aquifer Test Data.

BH ID	SWL	Collar	Corrected SWL	BH Depth	Corrected BH Depth	Saturated Thickness	T (Drawdown)	T (Recovery)	T (Average)	K
	mbc	magl	mbs	mbc	mbgl	m	m2/day	m2/day	m2/day	m/day
BH129	2.9	0	2.90	26.24	26.24	23.34	14.30	14.60	14.45	0.619
BH135	2.88	0	2.88	35.95	35.95	33.07	2.50	3.10	2.80	0.085
BH41	6.06	0.28	5.78	26.37	26.09	20.31	27.60	-	27.60	1.359
BH144	19.49	0.71	18.78	39.19	38.48	19.70	0.70	-	0.70	0.036
BH120	0.72	0.27	0.45	20.36	20.09	19.64	1.20	-	1.20	0.061
BH190	2.24	0.14	2.10	28.24	28.10	26.00	0.60	-	0.60	0.023
BH142	8.09	0.56	7.53	35.74	35.18	27.65	0.50	-	0.50	0.018
BH17	2.32	0	2.32	35.20	35.20	32.88	1.90	-	1.90	0.058
H3-1	7.49	0.48	7.01	100.00	99.52	92.51	1.70	-	1.70	0.018
BH122	2.36	0.45	1.91	30.35	29.90	27.99	8.00	8.40	8.20	0.293
BH123	1.59	0.43	1.16	26.46	26.03	24.87	2.00	2.90	2.45	0.099
BH185	1.01	0.26	0.75	39.16	38.90	38.15	0.40	-	0.40	0.010
BH27	2.69	0	2.69	32.69	32.69	30.00	12.40	-	12.40	0.413
H3-2	5.25	0.26	4.99	35.80	35.54	30.55	2.10	3.20	2.65	0.087
N32-1	3.37	0.38	2.99	14.33	13.95	10.96	3.80	-	3.80	0.347
BH187	2.84	0.66	2.18	25.42	24.76	22.58	0.50	-	0.50	0.022
SH-1	5.78	0.21	5.57	25.40	25.19	19.62	28.00	-	28.00	1.427

6.4.3 Groundwater Use

6.4.3.1 Small-scale Abstractions

Based on the hydrocensus results, small-scale borehole sources in the Study Area are mainly used as water sources for domestic purposes for single households. Eight of the 19 boreholes surveyed during the hydrocensus were in use as third party groundwater supplies. The owners of the boreholes in the area reported that boreholes are generally low-yielding, usually ranging between an estimated 400 - 800 l/h. No borehole yields were reported to be strong enough to be used for crop irrigation.

6.4.3.2 Mine Water Abstraction

Active mining operations closest to the Study Area are the Target Mine (overlapping with the proposed Jelani Mine), Freddies Mine (to the south) and Tshepong Mine (further south), which are interconnected as shown in Figure 6-8. At current, water is actively being pumped at the Tshepong and Target Mines.

Regarding the current water situation at the Target Gold Mine reference is made to a hydrogeological investigation that served as input into the Pre-Feasibility Study for the Jelani operations (Groundwater Square, 2016). For estimation of abstraction for Target Mine operations the investigation described the following:

- Target Gold Mine is currently in full operation from No.1 Shaft;
  - The average volume of underground water pumped to surface for October and November 2015 was 181.7 Ml or 5.96 Ml/day;
  - Underground water pumped to the Plant for the period January 2013 - January 2016 ranged between 1.8 Ml/day and 4.8 Ml/day, averaging at 3.3 M/l/day;
  - Daily discharge to Vöelpan for the period starting July 2015 and ending March 2016 ranged between zero and ~11 100 m^3/day, averaging at 4 823 m^3/day or 4.8 Ml/day;

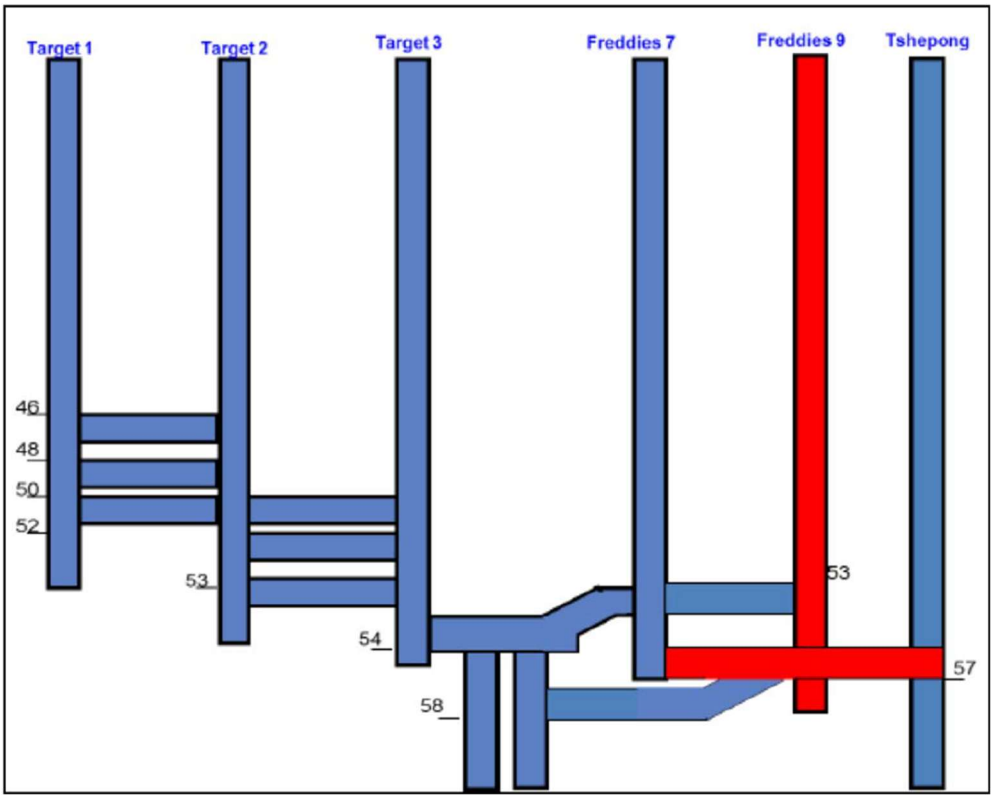


Figure 6-8. Target, Freddies and Tshepong Mine Interconnection (Digby Wells Environmental, 2015)

- The No.2 shaft is not operational but is equipped with an emergency winder and used as a second means of egress for the Target Mine;
  - The No.2 Shaft underground water pumped from No.1 Shaft for the period January 2013 - January 2016 averaged at 2 518 m^3/day or 2.5 ML/day;
- The No.3 Shaft has been operating intermittently since the late 1990s and is currently closed on care and maintenance;
  - During October 2015 the refurbished pumping station at 30 Level became operational due to water from Freddies No.9 Shaft, which closed in December 2014, finding its way to No.3 Shaft on 65 Level. Before closure on average some 3.2 Ml/day was pumped at Freddies No.9 Shaft;
  - Pumping from No.3 Shaft currently roughly averages between 3.5 to 3.6 Ml/day. The average for the 5 day prior to the site visit calculates to 2.7 Ml/day;
  - The average volume pumped from Target 3 for the period June 2016 – September 2016 was 3.5 Ml/day.

6.4.4 Groundwater Levels

There are 311 monitoring boreholes across the Harmony Gold mining areas, distributed around Tailings Storage Facilities (TSFs) to monitor possible impacts emanating from these TSFs. Although no geological information is available for these boreholes, it is assumed they mainly target the shallow Karoo aquifer as they are meant to monitor impacts on the shallow groundwater environment. Groundwater levels were available for 164 of these boreholes, ranging between 0 and 33 mbgl, with most groundwater levels within 15 mbgl.

Groundwater monitoring for the Target Mine Operations included groundwater levels for five boreholes (A1, A3, A5, A6 and BH88) ranging between 0.8 and 5.9 mbgl. During the hydrocensus, groundwater levels were measured in 12 boreholes;

- Static groundwater levels ranged between 0.59 m to 5.62 mbgl;
- Dynamic groundwater levels were measured in boreholes BH01, BH03 and BH87 and ranged between 5.3 and 44.9 mbgl.
- Figure 6-9 shows the monitoring boreholes for which data was available showing most recent groundwater level reported for each point (AquiSim Consulting, 2025).

All groundwater levels were added to Figure 6-9 and show a strong relationship with surface elevation, indicating groundwater levels in the shallow Karoo aquifer typically mimic topography, showing that overall groundwater flow directions follow topographical gradients and are generally close to surface. Based on groundwater levels from the Target Mine Operations monitoring and hydrocensus boreholes, groundwater levels within in the Jelani project area are close to surface with deeper groundwater levels associated with borehole abstraction. Based on this it can be concluded that there is no impact from the underground mining activities on groundwater levels in the shallow Karoo aquifers, with only local impacts from single borehole sources.

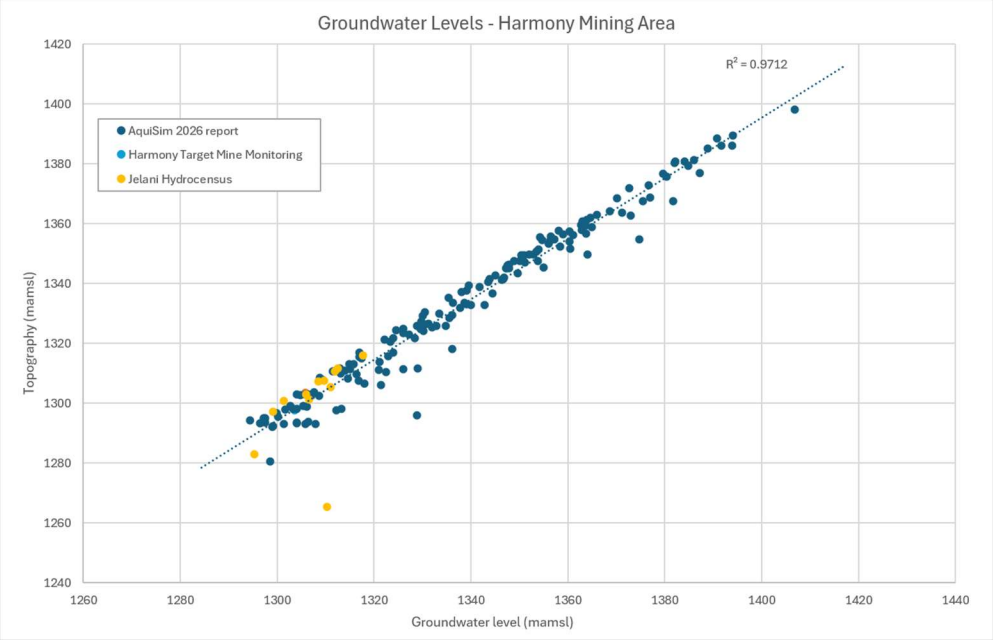


Figure 6-9. Bayesian Correlation for Available Groundwater Levels.

Table 6-2. Hydrocensus Details

ID	Coordinates			Survey Date	Owner Information		Bore/Spring Status & Equipment							Hydrogeological Information			Sample Taken	Photo	Comments
							Primary Water Application				Equipment	Estimated Abstraction/Flow Rate [L/hour]	Borehole inner casing diameter (mm)	Borehole Depth (mbgl)	Casing Height (m)	Static Water Level (mbch)	Static Water Level (mbgl)			
	Latitude	Longitude	Elevation (mbgl)		Owner	Farm Name	Type	Primary Use	Other Uses											
									Domestic	Stock Watering										
BHN	27.79009	26.580750	N/A	15/12/2025	Eduard Steyn	Blaauwklip No. 181	Borehole	Domestic	Yes (Single Household)	Yes (Small Scale)	Submersible pump	500	152	Unknown	0.72	2.76	2.04	Yes	Yes	Bailer Sample
B11	27.787924	26.584360	N/A	15/12/2025	Eduard Steyn	Blaauwklip No. 181	Borehole	No Use	None	None	None	None	Unkown	Unknown	Unknown	Unknown	Unknown	No	No	No Access due to wet road. Farmer says the BH is surrounded with water and can not be accessed during the wet season
BH89	27.792849	26.574685	N/A	15/12/2025	Eduard Steyn	Damleegte No. 441	Borehole	No Use	None	None	None	None	Unkown	Unknown	Unknown	Unknown	Unknown	No	No	BH Destroyd according to the farmer
BH88	27.793880	26.57508	N/A	15/12/2025	Pieter Haasbroek	Goedgesnij No. 376	Borehole	No Use	None	None	None	None	Unkown	Unknown	N/A	Unknown	Unknown	No	Yes	Broken handpump. No access to measure water level or take sample
BH01	27.757485	26.587600	N/A	07/01/2026	Jaco Grobbelaar	Onrust No. 377	Borehole	Domestic	Yes (Main Household and workers houses)	Yes (Small Scale)	Submersible pump	800	152	Approx 70m	0.00	44.87	44.87	Yes	Yes	Grab sample taken from tank. Water level measured while pump was on
BH02	27.753129	26.587748	N/A	07/01/2026	Jaco Grobbelaar	Onrust No. 377	Borehole	Domestic	Yes (Single Household)	None	Submersible pump	800	Unkown	Approx 50m	Unknown	Unknown	Unknown	No	Yes	Bees. No additional info could be collected
BH03	27.784716	26.556810	N/A	07/01/2026	Christo Nel	Modderfontein No. 343	Borehole	Domestic	Yes (Single Household)	Yes (Small Scale)	Submersible pump	400	152	Approx 80	0.19	12.52	12.33	Yes	Yes	Water level measured while pump was on. Farmer uses a 1.1kw pump because a 1.5kw pump is too strong for the low yielding borehole. Grab sample taken
BH04	27.786132	26.560869	N/A	07/01/2026	Christo Nel	Modderfontein No. 343	Borehole	Domestic	Yes (Single Household)	Yes (Small Scale)	Windpump	Unknown	152	Unknown	Unknown	Unknown	Unknown	No	Yes	Windpump sealed, no water level access
BH87	27.802249	26.584288	N/A	07/01/2026	Pieter Haasbroek	Lacuna No. 442	Borehole	Domestic	Yes (Single Household)	Yes (Small Scale)	Submersible pump	Unknown	152	Unknown	0.80	6.13	5.33	No	Yes	Water level measured while pump was on
BH05	27.808042	26.581237	N/A	07/01/2026	Pieter Haasbroek	Lacuna No. 442	Borehole	Stock Watering	None	Yes (Small Scale)	Windpump	Unknown	152	Unknown	0.50	1.63	1.13	No	Yes	
BH86	27.805929	26.596764	N/A	07/01/2026	Pieter Haasbroek	Lacuna No. 442	Borehole	No Use	None	None	Windpump	Unknown	152	Unknown	0.51	1.10	0.59	No	Yes	
BH06	27.741958	26.595715	N/A	12/01/2026	Tertius de Jager	Zuurbron No. 444	Borehole	Domestic	Yes (Single Household)	Yes (Small Scale)	Submersible pump	500	Unkown	Approx 30	Unknown	Unknown	Unknown	No	Yes	No Access, farmer does not have key to open structure built around the BH. Grab sample taken from tank.
BH07	27.743021	26.599114	N/A	12/01/2026	Tertius de Jager	Zuurbron No. 444	Borehole	No Use	None	None	Windpump	None	Unkown	Unknown	Unknown	Unknown	Unknown	No	Yes	Bees. No additional info could be collected
BH08	27.742836	26.592158	N/A	12/01/2026	Tertius de Jager	Zuurbron No. 444	Borehole	No Use	None	None	None	None	152	18	0.21	5.83	5.62	No	Yes	
A7	27.778172	26.645384	N/A	12/01/2026	Eric Sello Senoge	Uitkyk No. 258	Borehole	Monitoring	None	None	None	None	152	2.92	0.12	2.32	2.20	Yes	Yes	Assumed BH may be blocked at 2,92m. Water looks dirty, may be due to an animal. Bailer sampled.
A6	27.773525	26.645368	N/A	12/01/2026	Eric Sello Senoge	Uitkyk No. 258	Borehole	Monitoring	None	None	None	None	50	8.73	0.36	3.30	2.94	No	Yes	
A5	27.800561	26.633653	N/A	12/01/2026	Eric Sello Senoge	Uitkyk No. 258	Borehole	Monitoring	None	None	None	None	152	3.62	0.04	1.75	1.71	Yes	Yes	Bailer Sampled
A4	27.800690	26.631467	N/A	12/01/2026	Eric Sello Senoge	Uitkyk No. 258	Borehole	Monitoring	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	No	No	Could not be found / located
A3	27.783672	26.621949	N/A	12/01/2026	Willem Taljaard	Graspan No. 40	Borehole	Monitoring	None	None	None	None	152	4.31	0.00	0.87	0.87	Yes	No	Bailer Sampled
A2	27.779486	26.620518	N/A	12/01/2026	Willem Taljaard	Graspan No. 40	Borehole	Monitoring	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	No	No	Could not be found / located

ID	Coordinates			Survey Date	Owner Information		Bore/Spring Status & Equipment								Hydrogeological Information			Sample Taken	Photo	Comments
	Latitude	Longitude	Elevation (mbgl)		Owner	Farm Name	Primary Water Application				Equipment	Estimated Abstraction/Flow Rate [L/hour]	Borehole inner casing diameter (mm)	Borehole Depth (mbgl)	Casing Height (m)	Static Water Level (mbch)	Static Water Level (mbgl)			
							Type	Primary Use	Other Uses											
									Domestic	Stock Watering										
B1	27.782195	26.614362	N/A	12/01/2026	Willem Taljaard	Graspan No. 40	Borehole	None	None	None	None	None	152	Unknown	0.41	1.65	1.24	No	Yes	Assumed to be B1 as it plots close to the provided coordinates for B1
B2N1	27.780207	26.609205	N/A	12/01/2026	Willem Taljaard	Graspan No. 40	Borehole	Domestic	Yes (Single Household)	None	Submersible pump	Unknown	152	Unknown	Unknown	Unknown	Unknown	No	No	Borehole Closed off. No additional data could be collected
B2N2	27.782227	26.606346	N/A	12/01/2026	Willem Taljaard	Graspan No. 40	Borehole	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	No	No	Borehole could not be found. Not currently monitored by Aquatico
BH85	27.792017	26.593248	N/A	12/01/2026	Willem Taljaard	Graspan No. 40	Borehole	Domestic	Yes (Single Household)	None	Submersible pump	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	No	No	Borehole Closed.
B7	27.794087	26.616054	N/A	12/01/2026	Willem Taljaard	Graspan No. 40	Borehole	None	None	None	Windpump	None	152	Unknown	Unknown	Unknown	Unknown	No	Yes	Windpump sealed, no water level access

6.4.4.1 Karoo Aquifer

The connectivity between the Witwatersrand and Karoo aquifers can best be investigated through an assessment of the regional groundwater levels. If the Karoo aquifer and the underlying Witwatersrand aquifers in which the mine workings are situated have a strong hydraulic connection this will lead to zones of dewatering in the shallow Karoo aquifer. Regional groundwater levels in the shallow Karoo aquifer would indicate areas where groundwater drawdown occurred. (MvB Consulting, 2026).

Harmony has an extensive groundwater monitoring network, and this information was made available. However, only the groundwater quality is measured, and the groundwater levels are not recorded. (Aquisim Consulting, 2018).

6.4.4.2 Witwatersrand Aquifer

Groundwater level records in the Witwatersrand aquifer are scarce. Some data is available for Joel mine (Van Biljon, 1995). Although this is at some distance from the Study Area it does provide some information that is applicable throughout the basin. Joel mine is located in the southern extremity of the Witwatersrand basin and started operating in 1986. At the time when mining started the water level was at 775 mamsl, some 600 m below surface.

The Witwatersrand aquifer is a confined aquifer, and the water level is represented by a piezometric or pressure level, which is expected to be consistent throughout the basin. This piezometric level of 775 mamsl that was measured at Joel prior to any dewatering from the mine is thought to represent the original water level in the entire Witwatersrand aquifer.

What was also noticeable at Joel was that between January 1986 and December 1992 the water level in the aquifer dropped 198 m due to dewatering from Joel mine. Many of the dewatering boreholes drilled at Joel mine dried up during this time as sections of the mine became dewatered. This shows that abstracting from the Witwatersrand aquifer dewaters the aquifer and that there is very little or no recharge to this aquifer.

6.4.5 Groundwater Quality

6.4.5.1 Hydrocensus

6.4.5.1.1 Groundwater Quality

During the hydrocensus four samples (including one duplicate) were taken from third-party domestic sources and three samples were taken from monitoring boreholes (Figure 6-10):

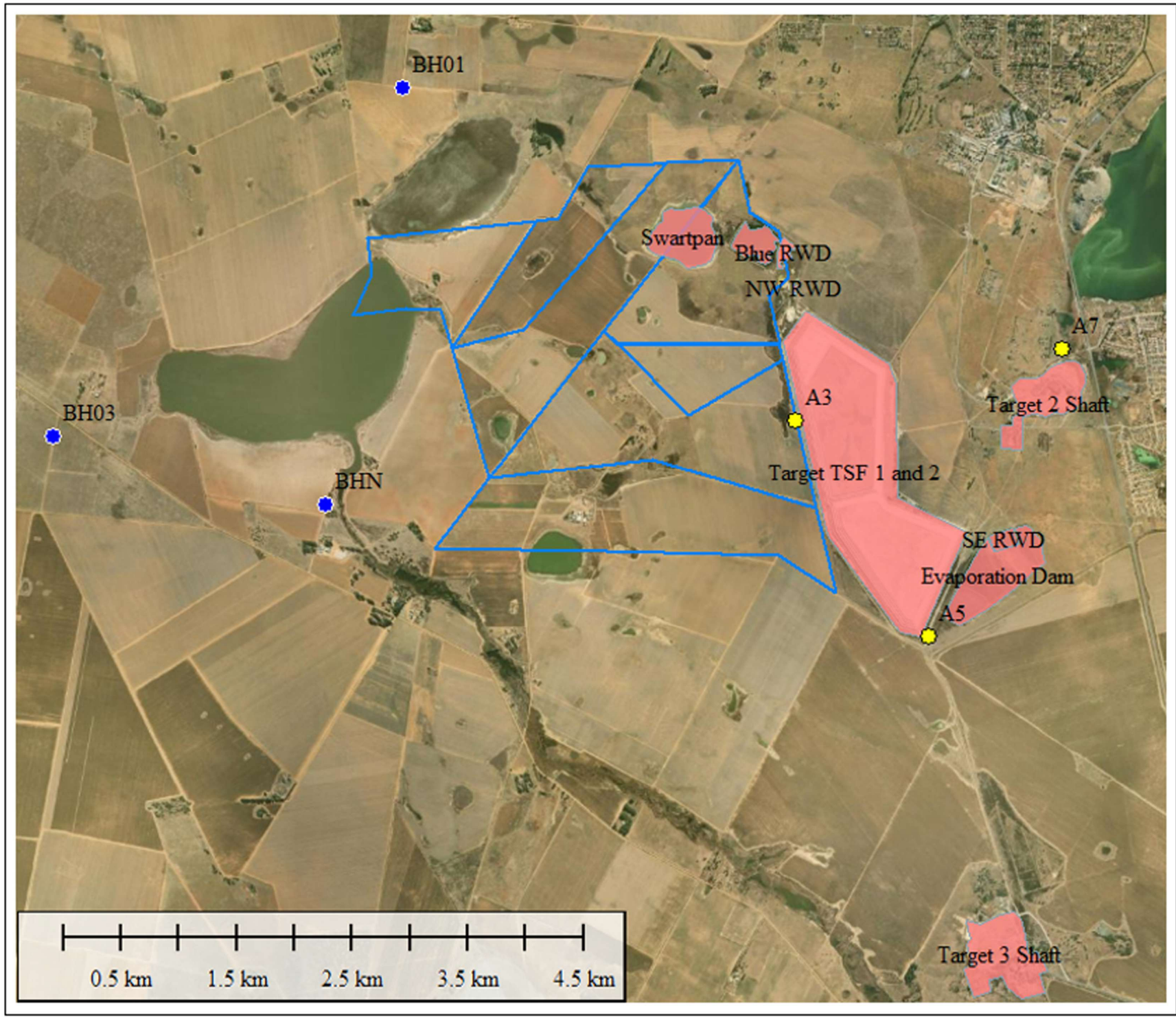
- Third-party boreholes: BHN, BH01 and BH03;
- Monitoring boreholes: A3, A5 and A7

Sample results were compared to SANS 241:2015 standards. The samples from the third-party boreholes were considered to be representative of background groundwater quality, and these boreholes show generally good groundwater quality with the exception of nitrate concentrations over the SANS limit for BHN and BH01. Magnesium 70 mg/l (at 73.1 mg/l, limit 70 mg/l) and antimony (0.03 mg/l, limit 0.02 mg/l) are slightly elevated. No other parameters exceeded SANS limits.

The elevated nitrate concentrations in BHN and BH01 suggest that this may be a result of the use of agricultural fertilisers or animal waste related to the agricultural nature of the Study Area. Boreholes BHN and BH01 are both used for potable water supply and nitrate concentrations should continue to be monitored frequently to establish long-term trends, as long-term exposure to elevated nitrate can be harmful to human health. If elevated nitrate concentrations persist the owners may need to investigate treatment options such as ion-exchange to meet SANS water quality standards.

Monitoring boreholes A3 and A5 are situated close to and in downgradient positions of the Target Mine No. 1 and 2 TSF (less than 50 m). Borehole A7 is downgradient of the Target 2 Shaft at a downgradient position roughly 100 m away from the associated waste rock dump. All three monitoring boreholes are therefore representative of groundwater quality in close proximity to these infrastructures.

Samples A3 and A5 show poor groundwater quality with elevated EC, TDS, chloride, sulphate, sodium, and calcium, magnesium, ammonia, antimony, cobalt and manganese to a lesser extent. The acidic pH in A3 (pH of 4.74) may be indicative of acid mine drainage related to the TSF. Sample A7 shows a similar water quality to A3 and A5 although concentrations are relatively lower compared to concentrations for A3 and A5 of the parameters mentioned above. The similarity in groundwater composition indicates that groundwater quality has been impacted at very short distances from existing mine infrastructures.



Hydrocensus Sampled Locations

Legend

- Farm Boundaries
- Target Mine Surface Infrastructure
- BH01 — Third-Party Borehole
- A3 — Monitoring Borehole

Cape LO27

hydro-b

Figure 6-10. Hydrocensus – Sampled Locations.

- A7: Mg–Ca–SO_4 type; magnesium (47 %) and calcium (42 %) dominate the cations, and sulphate (~69 %) is the main anion. The relatively lower sodium (81 mg/L) and chloride (125 mg/L) may suggest mixing of seepage from the TSF with natural groundwater.

A Piper Diagram shows the hydrochemical facies in Figure 6-11:

- BHN-A/B: These samples plot in the central region of the diamond, confirming a mixed Na–HCO_3/Cl water type.
- BH01 and BH03: Both lean toward the Na–HCO_3 corner, reflecting the bicarbonate-rich nature with moderate Na^+.
- A3, A5 and A7: These acidic, saline samples plot toward the upper right of the diamond, showing dominance of SO_4^{2-} and Cl^- with varying cation compositions; A7 is Mg–SO_4, while A3 and A5 trend toward Na/Ca–Cl–SO_4 waters.

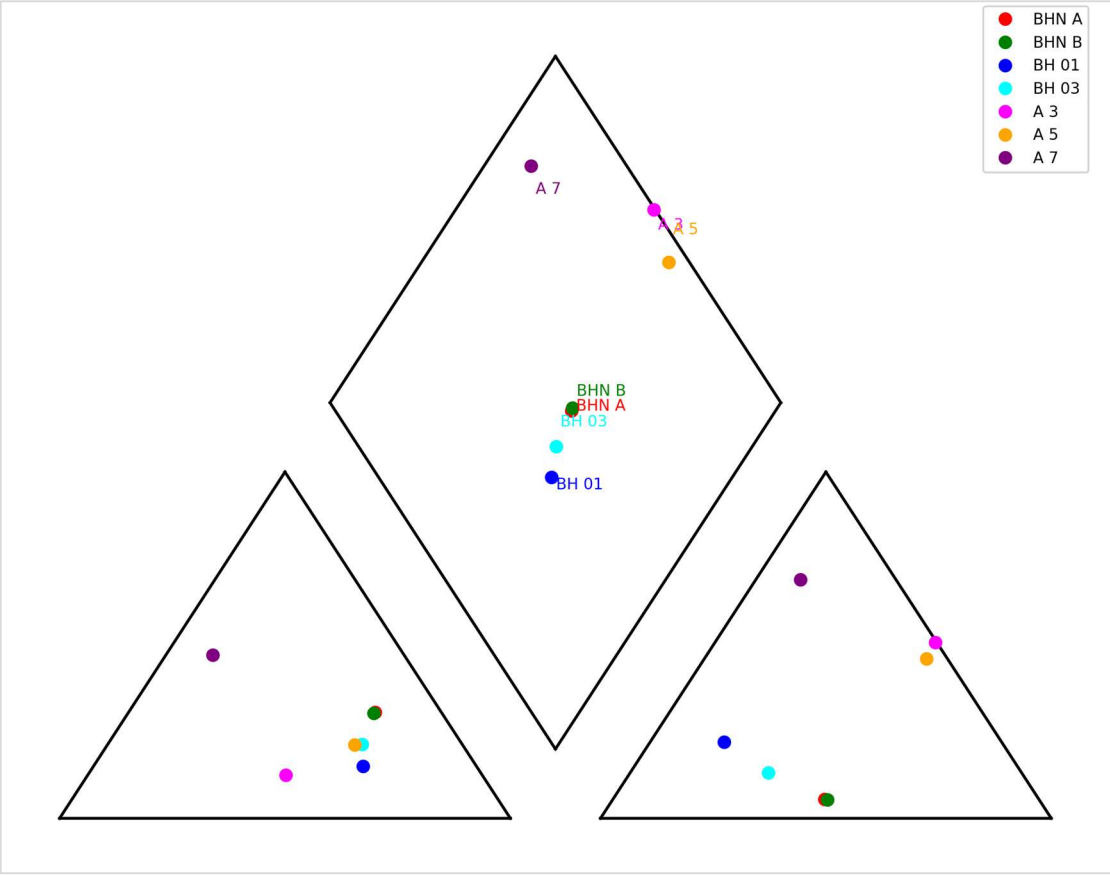


Figure 6-11. Piper Diagram for the Hydrocensus Locations

Table 6-3. Hydrocensus Sample Analyses Results.

SAMPLE ID		BHN	BH 01	BH 03	A 3	A 5	A 7
SAMPLED		2026/01/15	2026/01/07	2026/01/07	2026/01/12	2026/01/12	2026/01/12
Total Alkalinity (pH>4.5)	mg $CaCO_3$/L	369	318	383	11.8	302	379
Bicarbonate Alkalinity	mg $CaCO_3$/L	369	318	383	11.8	302	379
Carbonate Alkalinity	mg $CaCO_3$/L	0.00	0.00	0.00	0.00	0.00	0.00
M Alkalinity (8.3>pH>4.5)	mg $CaCO_3$/L	369	318	383	11.8	302	379
P Alkalinity (pH>8.3)	mg $CaCO_3$/L	0.00	0.00	0.00	0.00	0.00	0.00
Conductivity (Laboratory)	mS/m	183	108	130	576	1065	270
pH (Laboratory)		7.46	7.57	7.54	4.74	6.63	7.11
Total Hardness	mg $CaCO_3$/L	446	254	328	1902	3112	1635
Calcium Hardness	mg $CaCO_3$/L	145	159	167	1478	1651	774
Magnesium Hardness	mg $CaCO_3$/L	301	94.7	161	424	1462	861
Total Dissolved Solids (TDS)	mg/L	1092	724	802	4323	8114	2168
Temperature	℃	21.0	21.0	21.0	21.0	21.0	21.0
Turbidity	NTU	0.67	14.6	<0.28	45.5	8.76	32.6
Ammonia and Ammonium	mg N/L	<0.45	<0.45	<0.45	21.8	<0.45	17.1
Calcium	mg Ca/L	58.0	63.6	66.8	592	661	310
Chloride	mg Cl/L	258	59.9	148	1188	2273	125
Magnesium	mg Mg/L	73.1	23.0	39.2	103	355	209
Nitrate and Nitrite (TON)	mg N/L	40.8	22.7	6.90	3.13	0.35	<0.35
Nitrite	mg N/L	<0.01	<0.01	<0.01	1.13	<0.01	0.01
Ortho Phosphate	mg P/L	0.49	0.19	0.15	0.09	0.10	0.44
Potassium	mg K/L	20.5	4.53	10.7	31.7	38.5	10.0
Sodium	mg Na/L	235	171	189	666	1714	81.1
Silicon	mg Si/L	10.3	12.5	14.0	6.82	10.7	10.8
Sulphate	mg SO_4/L	40.9	109	86.5	1670	2888	1180
Aluminium	mg Al/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Antimony	mg Sb/L	0.03	0.02	0.02	0.02	0.03	0.05
Arsenic	mg As/L	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009
Barium	mg Ba/L	0.36	0.03	0.03	<0.01	<0.01	<0.01
Beryllium	mg Be/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	mg B/L	0.26	0.12	0.18	0.36	0.04	0.23
Cadmium	mg Cd/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Chromium	mg Cr/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	mg Co/L	<0.01	<0.01	<0.01	0.25	0.68	<0.01
Copper	mg Cu/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoride	mg F/L	1.38	0.13	0.42	<0.09	<0.09	0.12
Iron	mg Fe/L	<0.01	<0.01	<0.01	0.29	<0.01	<0.01
Lead	mg Pb/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lithium	mg Li/L	0.03	<0.01	0.02	<0.01	<0.01	<0.01
Manganese	mg Mn/L	<0.01	<0.01	<0.01	20.8	0.52	0.59
Mercury	mg Hg/L	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Molybdenum	mg Mo/L	0.02	<0.01	0.01	0.03	0.06	0.04
Nickel	mg Ni/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	mg Se/L	0.03	0.02	0.03	<0.01	0.02	0.04
Strontium	mg Sr/L	1.92	0.76	0.51	2.81	5.01	1.99
Tin	mg Sn/L	0.04	0.03	0.04	0.02	0.04	0.05
Vanadium	mg V/L	<0.01	<0.01	<0.01	<0.01	<0.01	0.10
Zinc	mg Zn/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cyanide (Free)	mg CN/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cyanide (Total)	mg CN/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
WAD Cyanide	mg CN/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Uranium	mg U/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

6.4.5.2 Harmony Target Monitoring Data

Monitoring data was received from Harmony for the Target Mine Operations for the period 2022 – 2025. The database included monitoring points for process, surface and groundwater points as part of the existing monitoring network. As was shown in the hydrocensus results, groundwater in close proximity of surface infrastructures related to the Target mining activities can be impacted. Impact on groundwater quality can come from direct seepage from infrastructure into the underlying aquifers, or discharge of water from infrastructures to surface water, and subsequent impact on groundwater quality through surface water-groundwater interaction. As such the monitoring points were sorted into three categories:

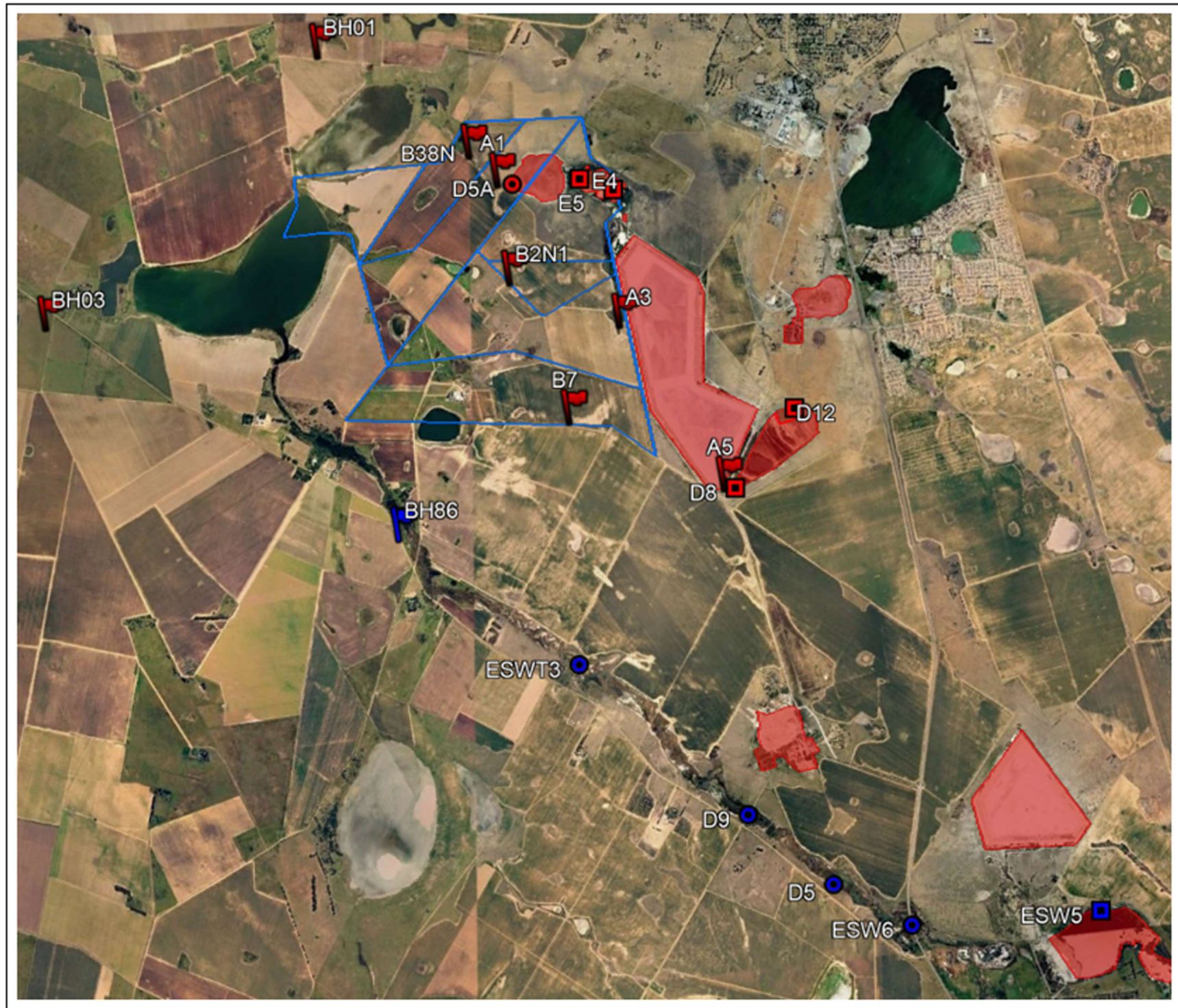
- Potential sources;
- Surface water monitoring points; and
- Groundwater monitoring points.

6.4.5.2.1 Sources

Sample results were available for the following potential sources:

- South-East RWD (D12);
- Blue RWD (E4);
- Freddies No. 9 Dam (ESW5);
- Target 1 Salvage Yard Evaporation Dam (ESWT2); and
- Target 1 Million Gallon Dam (TMGD1/ESWT1).

As the Target 1 Shaft area does not fall within the catchments related to the Jelani operations these were omitted from this assessment. Sources, surface water and groundwater sampling locations are shown in Figure 6-12. Concerning pH, the monitoring data provided shows variability in results pre-2024 but relatively stable results from 2024 onwards. Since 2024 pH for all monitored sources have been within (or slightly below/above) the SANS limit range, with exception of the Blue RWD which shows acidic conditions (average pH of around 3). This may indicate efforts from the Target Mine to stabilise the effluent pH.



Monitoring Locations

Legend

- Monitoring Point - Source
- Monitoring Point – Surface Water
- Monitoring Point - Groundwater

Cape LO27

hydro-b

Figure 6-12. Monitoring Locations – Process Water, Surface Water and Groundwater (Source: Google Earth Pro)

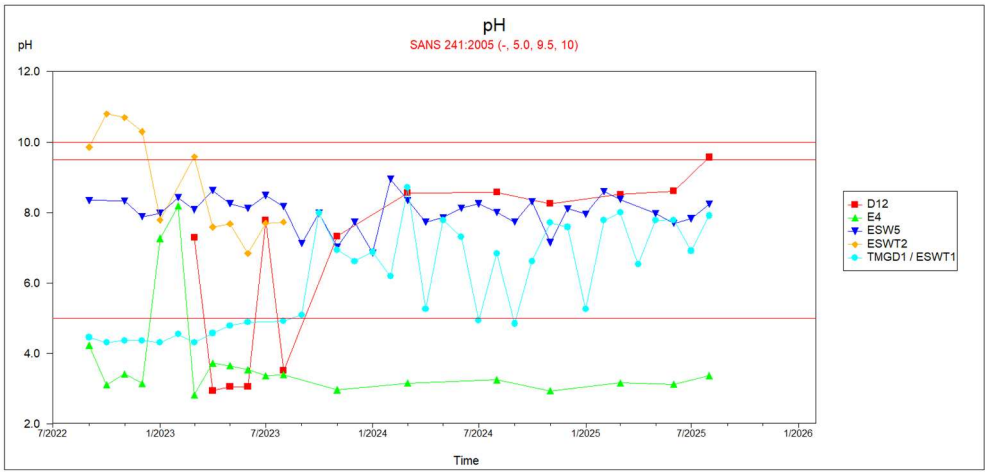


Figure 6-13. Sources – pH

When looking at the EC trends for sources, results for D12 and E4, both RWD related to the target TSF 1 and 2, look similar with average EC of around 900 mS/m. EC values for ESWT1 and ESWT5, downgradient of the Target 1 process water dam and the Freddies No. 9 dam respectively, show similar EC values of around 500 mS/m. ESWT2, downgradient of a process dam at Target 2 shaft, shows a similar average EC, but with higher variability compared to ESW5 and ESWT2. This shows that water in RWDs related to the Target 1 and 2 TSF show elevated EC values up to 1 000 mS/m, with water in process dams related to Target 1, 2 and Freddies No. 9 dam show much lower, but still elevated EC values.

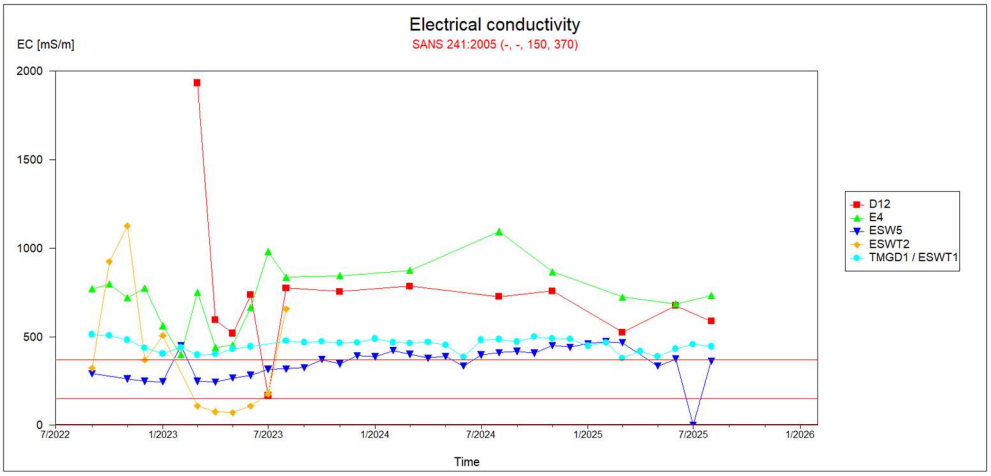


Figure 6-14. Sources – EC

6.4.5.2.2 Target TSF and Associated Infrastructure

For water quality for surface and groundwater points downgradient of sources, the following sources and receptors were linked:

- E4 (Blue RWD) -> E5 (Emergency Overflow Dam) -> D5A (Swartpan) -> A1 (Swartpan outflow) -> B38N monitoring borehole
- D12 (SE RWD) -> A5 monitoring borehole -> B7 third party borehole
- Target TSF (no sample point) -> monitoring borehole A3 -> third party borehole B2N1

Regarding pH the following was observed:

- Blue RWD and downgradient:
  - water in the RWD dam, emergency overflow dam and Swartpan mainly low pH values between approximately 2.5 and 4, indicating return water from the Target TSF exhibits a low pH;
  - in contrast, pH measured at the Swartpan outflow and in monitoring borehole B38N are relatively stable between approximately 7 and 9.
- SE RWD and downgradient:
  - the pH in the RWD and downgradient borehole D5 have mainly been within the SANS range, between 7 and 9, with pH at the RWD higher than at D5;
  - in 2023 low pH values were observed for both monitoring locations but these have since increased.
- Target TSF and downgradient:
  - Although no water quality was provided for the Target TSF itself, downgradient monitoring borehole A3 shows that pH is mostly within the SANS range, with only one value in 2025 slightly below the pH 5 limit;
  - Downgradient third-party borehole B2N1 shows a relatively pH around pH 8.

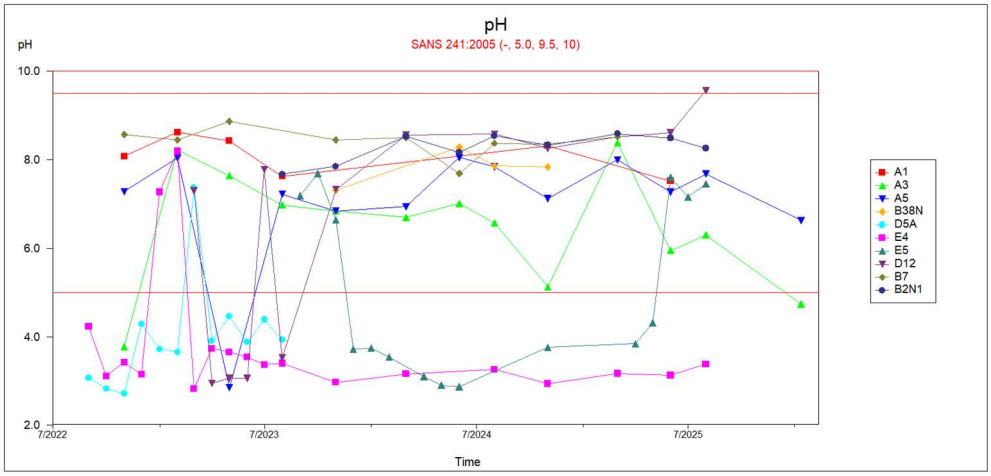


Figure 6-15. Target TSF and Associated Dams and Downgradient – pH

Regarding the EC the following was observed:

- Blue RWD and downgradient:
  - EC values in the RWD dam and Swartpan are elevated between 1 000 and 1 700 mg/l;
  - EC values in the emergency overflow dam fluctuate between about 300 and 9 000 mS/m and may be related to the periodic usage of this dam. EC values at monitoring borehole A1 are significantly lower, up to about 2 000 mS/m;
  - EC values in the downgradient monitoring borehole B38N are significantly lower and just above the SANS limit of 370 mS/m.
- SE RWD and downgradient:
  - EC in the SE RWD (D12) is elevated but stable at around 750 mS/m with exception of one spike in 2023, with borehole D5 (immediately downgradient of the evaporation dam) showing lower EC values of between 1 00 and 500 mS/m with exception of one spike in 2022;
  - EC values in third-party borehole B2N1 are below the SANS limit.

- Target TSF and downgradient:
  - although no water quality was provided for the Target TSF itself, downgradient monitoring borehole A3 shows the EC is around 600 mS/m, above the SANS limit of 370 mS/m;
  - downgradient third-party borehole B7 shows EC values below the SANS limit.

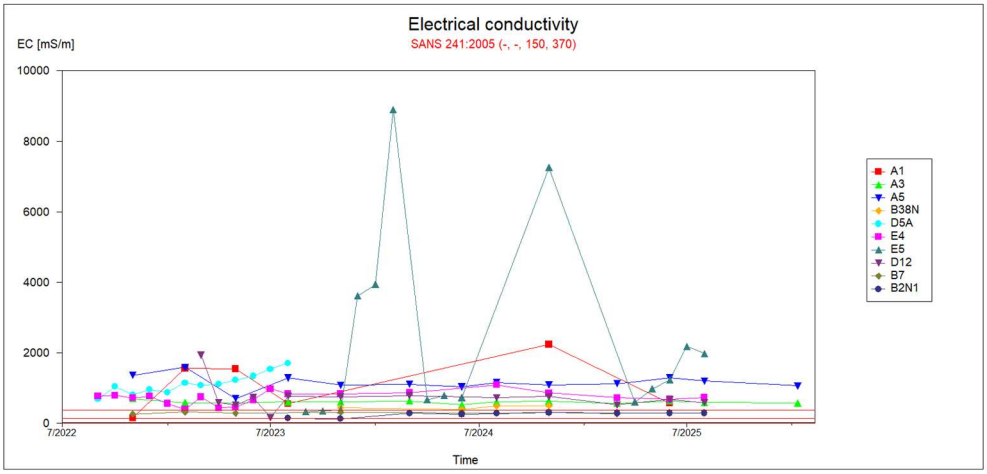


Figure 6-16. Target TSF and Associated Dams and Downgradient – EC

Regarding sulphate the following was observed:

- Blue RWD and downgradient:
  - sulphate concentrations in the RWD dam and Swartpan are elevated at concentrations around 3 000 mg/l;

- concentrations in the emergency overflow dam strongly fluctuate between about 500 and 7 000 mg/l and may be related to the periodic usage of this dam;
- sulphate measured at monitoring borehole A1 just downgradient of the Swartpan shows a similar range for water in the Swartpan;
- sulphate in downgradient monitoring borehole B38N is significantly lower and below the SANS limit of 400 mg/l.

- SE RWD and downgradient:
  - sulphate in the SE RWD (D12) is elevated between approximately 1 000 and 2 000 mg/l, with borehole D5 (immediately downgradient of the evaporation dam) showing higher concentrations of between 2 000 and 3 500 mg/l. This higher concentration can likely be attributed to the evaporation dam;
  - sulphate concentrations in third-party borehole B2N1 are below SANS limits.
- Target TSF and downgradient:
  - although no water quality was provided for the Target TSF itself, downgradient monitoring borehole A3 shows elevated sulphate concentrations in line with these observed at the SE RWD;
  - downgradient third-party borehole B7 shows sulphate concentrations below SANS limits.

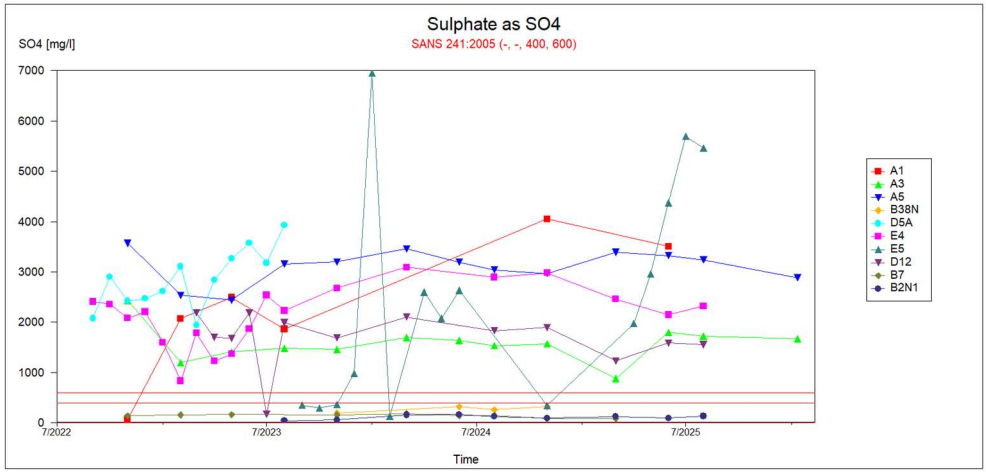


Figure 6-17. Target TSF and Associated Dams and Downgradient – SO4

From the above, the main sources are the Target TSF and related process dams. This is shown by elevated EC and sulphate concentrations, which seem more elevated for the process water facilities north of the Target TSF when compared to the process water facilities to the south of the Target TSF. In addition, acidic conditions are mainly related to the northern process water dams – this may indicate that return water from Target TSF1 may be more acidic than from Target TSF2.

6.4.5.2.3 Freddies No. 9 dam, Target Shaft 3 and the Doringspruit

For the Doringspruit and related sources, the following the following sources and receptors were linked:

- ESW5 (Freddies No. 9 dam) -> ESW6 (Losdoringspruit) -> D5 (Losdoringspruit) -> D9 (Losdoringspruit) -> ESWT3 (Losdoringspruit, downgradient of Target Shaft 3) -> Monitoring borehole BH86

Regarding pH the following was observed:

- The pH for all monitoring points is within SANS range and relatively stable between approximately 7 and 9.

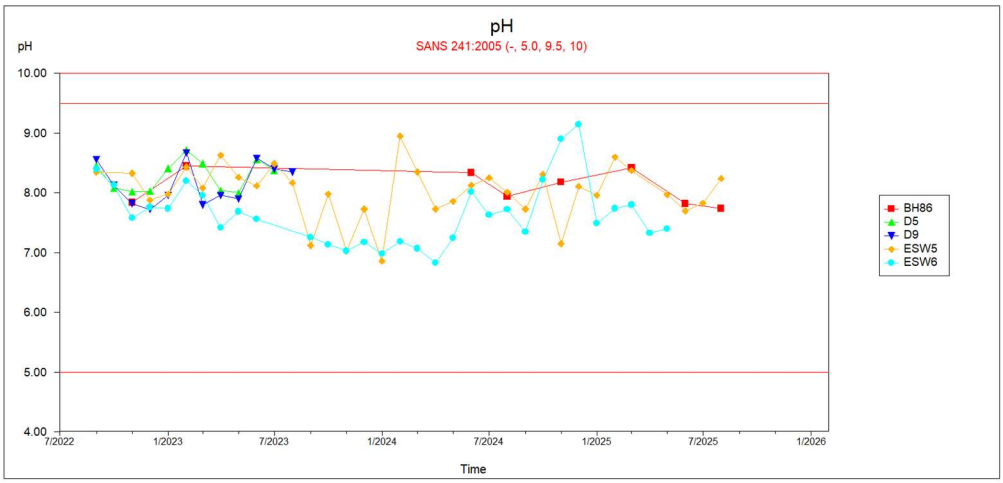


Figure 6-18. Source Freddies Dam and Downgradient Losdoringspruit – pH

Regarding EC the following was observed:

- The EC for Freddies No. 9 dam shows a gradually increasing trend over the period 2022 – 2025, with EC values just exceeding the SANS limit of 350 mS/m. However, values later in 2025 show values just at or below the limit;
- ESWT3, the most downgradient monitoring point on the Doringspruit, shows clear variability in concentrations, with three-to-six-month intervals between peaks. A similarity in fluctuations, although less pronounced, can be seen for ESW6 further upstream and ESW5 (Freddies No. 9 dam); this could possibly indicate dilution effects immediately downgradient of Freddies No. 9 dam, and possible discharge of waters from the Target Shaft 3 area;
- For all other monitoring points EC values are mainly below the SANS limit with some notable spikes, mainly for D5 and ESW6. In 2023 the EC also spiked and exceeded the SANS limit for borehole BH86, but this has not occurred since.

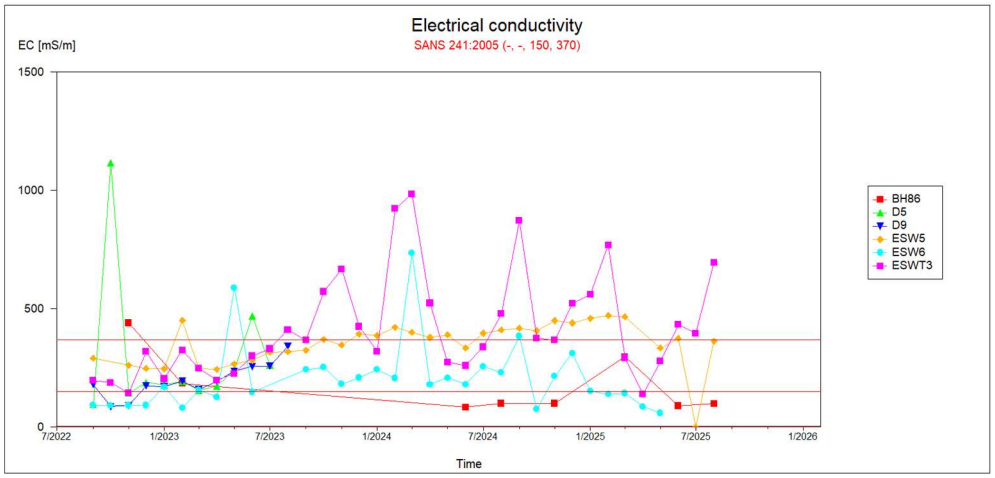


Figure 6-19. Source Freddies Dam and Downgradient Losdoringspruit – EC

Regarding SO_4 the following was observed:

- The sulphate concentrations for water in the Freddies No. 9 dam shows a gradually increasing trend over the period 2022 – 2025, with sulphate below or slightly above the SANS limit of 600 mg/l.
- ESWT3 shows peaks in sulphate concentrations with three-to-six-month intervals between peaks, similar as for EC. A similarity in fluctuations can be seen for ESW6 and ESW5; this could possibly indicate dilution effects immediately downgradient of Freddies No. 9 dam, and possible discharge of waters from the Target Shaft 3 area;
- For all other monitoring points sulphate concentrations are mainly below the SANS limit with some notable spikes, mainly for D5 and ESW6. Sulphate concentrations for borehole BH86 have remained below the SANS limit.

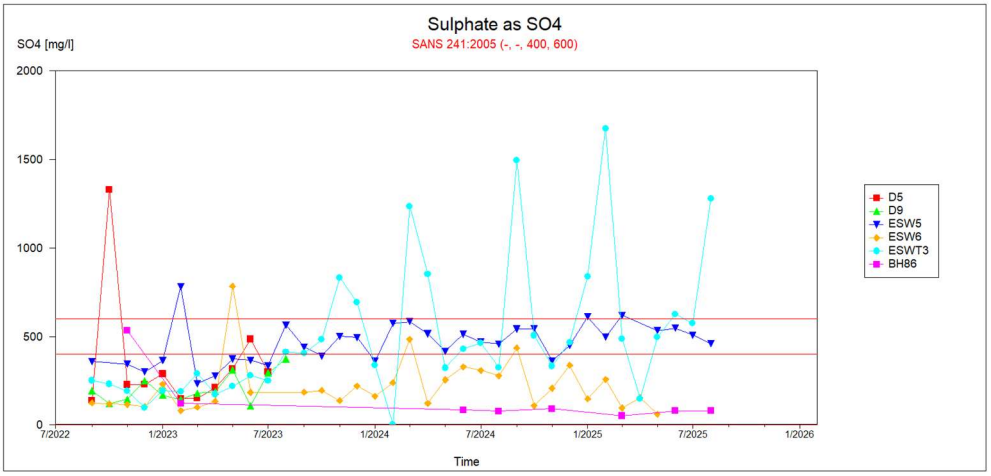


Figure 6-20. Source Freddies Dam and Downgradient Losdoringspruit – SO4

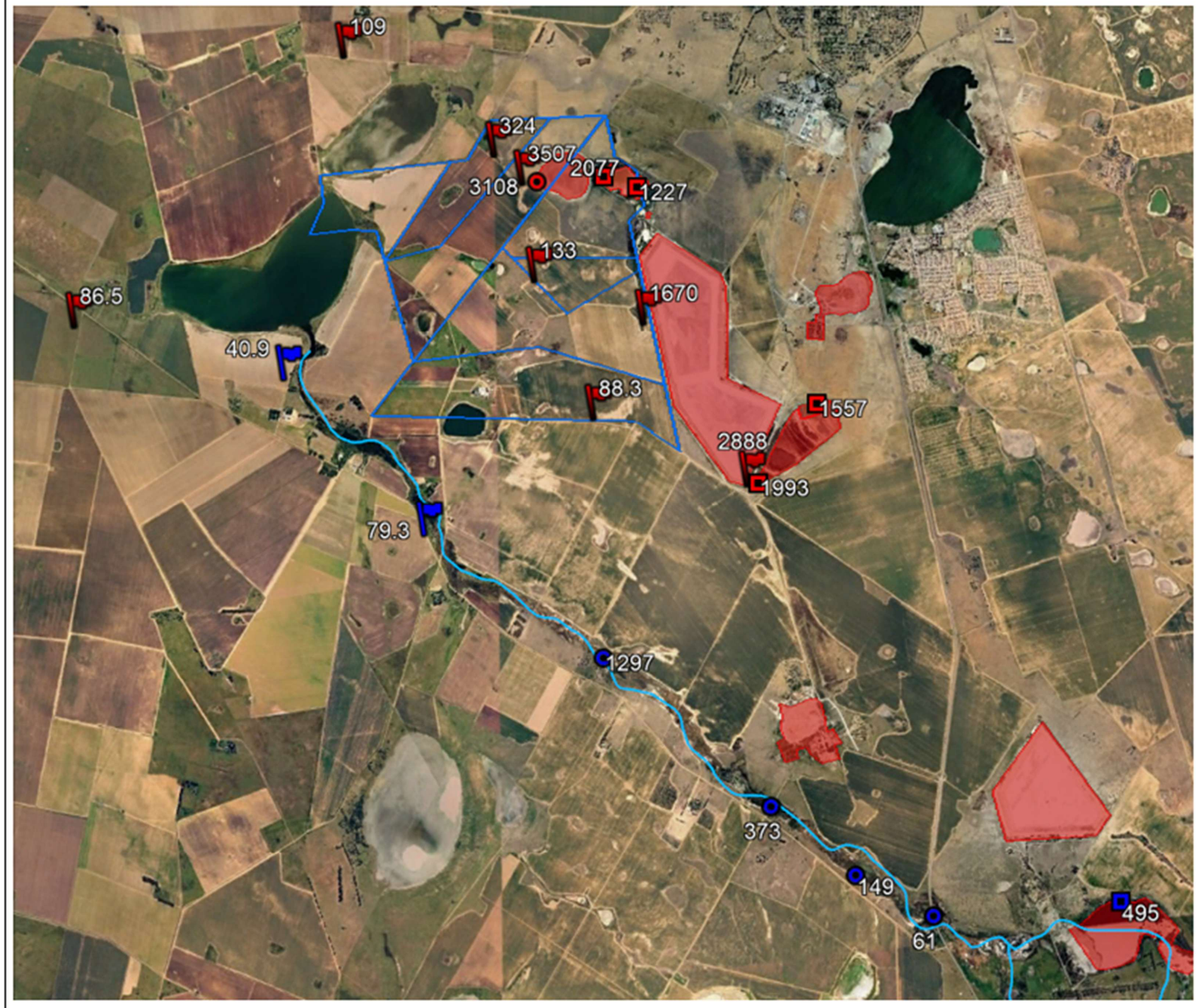
Concerning the water quality in the Doringspruit and downgradient groundwater, the following can be concluded:

- Water in Freddies No. 9 Dam shows a slightly increasing trend but generally remains below the SANS limit;
- Water in the Doringspruit downgradient of the Target 3 Shaft area indicates there may be discharges of water from this site, which could explain the peaks in sulphate concentrations;
- Groundwater in close proximity to the spruit does not indicate any impacts- this is shown in BH86 as well as BHN, sampled as part of the hydrocensus.

6.4.5.3 Overall Conclusions Current Groundwater Quality

Pertaining the groundwater quality in the Study Area, the following can be concluded:

- the main source of contamination is the Target TSF 1 and 2 and associated process water dams. Other secondary sources are the Target 3 Shaft area and the Freddies No. 9 TSF and dam;
- sulphate is the main parameter of concern and can be used as an indicator parameter for contamination (Figure 6-21);
- highest sulphate concentrations and acidity were observed for the process dams to the north of the TSF; sulphate concentrations for process dams south of the target TSF were elevated, but lower when compared to the infrastructure north of the TSF;
- surface waters, such as the Doringspruit and the Swartpan, are impacted by existing mine infrastructure;
- groundwater immediately downgradient of infrastructure is impacted by seepage from TSFs and unlined process water dams. However, third-party and monitoring boreholes further downgradient of infrastructures do not show elevated sulphate concentrations, and as such there is no evidence of widespread groundwater contamination;
- uranium was included in this assessment due to elevated concentrations reported in mine process water and some downstream surface water features, indicating that uranium is present within the site water management system. Although uranium is not currently included in the Target Mine monitoring programme uranium was analysed in hydrocensus boreholes. Uranium was not detected in any of the hydrocensus samples and there is therefore no evidence at present to indicate an impact on groundwater quality;
- However, to confirm this it is recommended that uranium be included as a routine parameter in the groundwater monitoring programme of the Target Mine monitoring boreholes.



Monitoring Locations

Legend

Monitoring Point - Source

Monitoring Point – Surface Water

Monitoring Point - Groundwater

Concentrations SO_4 in mg/l

Cape LO27

hydro-b

Figure 6-21. Target TSF and Dams and Doringspruit- SO_4 Concentrations (Source: Google Earth Pro)

7 High-Level Qualitative Impact Assessment

As part of this scoping report potential impacts related to the proposed Jelani operations are discussed below. This is a qualitative impact assessment that will be quantified during the EIA phase of the project. The main potential impacts that are expected to be associated with the project are described below.

7.1 Groundwater Abstraction

The anticipated groundwater inflows for the proposed Jelani Mine are expected to be in line with the volumes currently managed at the Target Mine. Previous hydrogeological investigations indicate that the Target Mine presently pumps approximately 5–6 Ml/day of groundwater to surface, with average pumping rates of 5.96 ML/day recorded during October and November 2015 and long-term pumping from Target No. 1 Shaft averaging approximately 4.7 Ml/day. The estimated total groundwater inflow for the Jelani operation is expected to be approximately 5.4 Ml/day, comprising an estimated 3.4 Ml/day groundwater make and approximately 2 Ml/day of inter-mine flow from Freddies No. 9 Shaft (Groundwater Square, 2016).

The Jelani Mine will utilise the existing Target No. 2 and No. 3 shafts and will primarily extend within an already dewatered and operational underground mining environment to only approximately 170 m below the current Target No. 2 Mine workings.

Therefore, while groundwater inflows may locally increase where previously not dewatered geological structures are intersected, no substantial increase in regional groundwater abstraction is expected compared to the current active mining operations, and projected pumping requirements for the Jelani project are considered to be consistent with that for the Target Mine operation.

As this volume will be abstracted from the deep Witwatersrand aquifer and this abstraction is not expected to have a significant impact on the groundwater resource in the shallow aquifer, the impact of the estimated abstraction is expected to be negligible.

7.2 Groundwater Drawdown

Farms in close proximity of the proposed and existing mining operations are underlain by the shallow Karoo aquifer, which is the main source of groundwater for individual landowner borehole sources. Evidence from previous hydrogeological reports indicates that the shallow Karoo aquifer is not hydraulically connected to the deep Witwatersrand mine workings. This has been shown by groundwater level data for shallow boreholes in the entire Harmony mining area which vary between 0 and 33 mbgl, show an average depth to groundwater of 5.3 mbgl and are mostly between 0-4 mbgl.

For the Study Area specifically, static groundwater levels measured in hydrocensus boreholes in December 2025 were observed to be between 0.6 and 5.3 mbgl. Where boreholes were pumped while visiting, dynamic groundwater levels of 12.5 and 44.9 mbgl were observed, indicating drawdown effects due to active abstraction.

This shows natural groundwater levels in the shallow Karoo aquifer are close to surface with no indication of impacts by ongoing mining activities, and as such no regional radius of influence or drawdown effects are currently present in the shallow Karoo aquifer despite decades of mining at the Target 2 and 3 operations. Currently no evidence exists that mining has reduced regional shallow groundwater availability or has had a significant impact on shallow groundwater levels.

The existing mining has been ongoing for decades and has not lead to widespread significant dewatering of the shallow aquifer, which is the main source of water for surrounding farms or other third-party groundwater users.

The addition of the proposed Jelani mining activities within the already impacted Target mining area is not expected to result in significant additional groundwater impacts beyond those already associated with the long-established mining complexes.

7.3 Groundwater Recovery and Decant Potential

In (MvB Consulting, 2026) it was concluded that the Karoo aquifer is a perched aquifer with shallow groundwater levels and limited interaction with the underlying confined Witwatersrand aquifer. Piezometric levels in the Witwatersrand basin show significantly reduced levels due to the ongoing mining. Based on available information, water levels in the Witwatersrand aquifer are not expected to fully recover and to remain about 400 – 500 m below the Karoo aquifer. Therefore, decant of poor quality mine water into the Karoo aquifer or onto surface through the shafts is not expected to occur.

7.4 Contaminant Plume Migration

A detailed hydrogeological model that includes groundwater pathways and contaminant plume migration for the area including Zuurbron farm and neighbouring farms was completed (AquiSim Consulting, 2025). In this study, the main sources of contamination in terms of size and contamination were determined to be the Target No. 1 and 2 Tailings Storage Facilities, the Target 2 TSF Evaporation Dam and the Swartpan (Figure 7-1). The study used sulphate as a conservative tracer and indicator parameter for illustration of the release and dispersion of contaminants in groundwater. The proposed Jelani project will utilise the existing surface infrastructure with no additional or new infrastructure proposed, and therefore no changes in sources are expected. Figure 7-1 and Figure 7-2 show that:

- The regional groundwater flow direction is in a general westerly flow direction;
- The current extent of the sulphate plume is in line with the analysis based on the available groundwater quality data, with the existing contaminant plume indicating only limited migration from current WRDs and TSFs;
- No major new pollution source infrastructure is proposed for Jelani. Jelani will use existing mining infrastructure.

Based on this the proposed Jelani operation is not expected to materially increase seepage source areas. Forward plume migration will be carried out on this assumption to predict plume migration for the operational phase to the end of Life of Mine (LoM) and for the post-closure phase.

In term of potential contamination from underground mine voids to surface the following is concluded:

- Previous studies showed evidence of negligible hydraulic connectivity between the shallow and deep aquifer systems, with the shallow aquifer being described as a perched aquifer;
- Therefore, the risk of cross-aquifer contamination is expected to be negligible due to the low connectivity between shallow and deep aquifers;
- In addition, post-closure groundwater levels in the deep Witwatersrand aquifer are expected to remain several hundred meters below the Karoo aquifer and surface, and potential migration of deep mine water into the shallow aquifer through potential faults or other geological structures is unlikely.

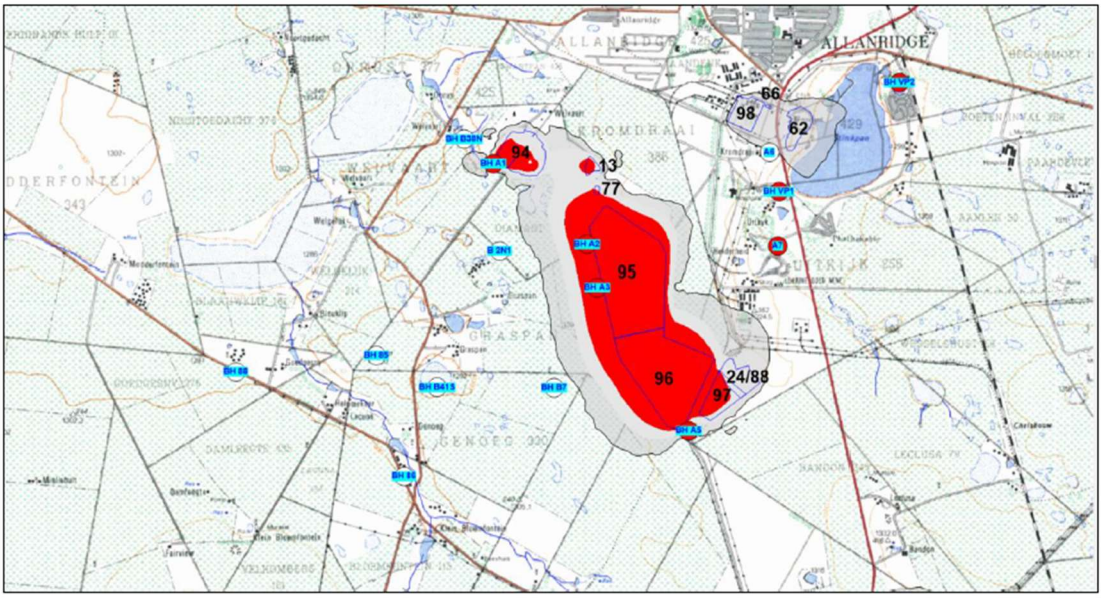


Figure 7-1. Simulated Contaminant Migration from Existing Mine Infrastructure (AquiSim Consulting, 2025).

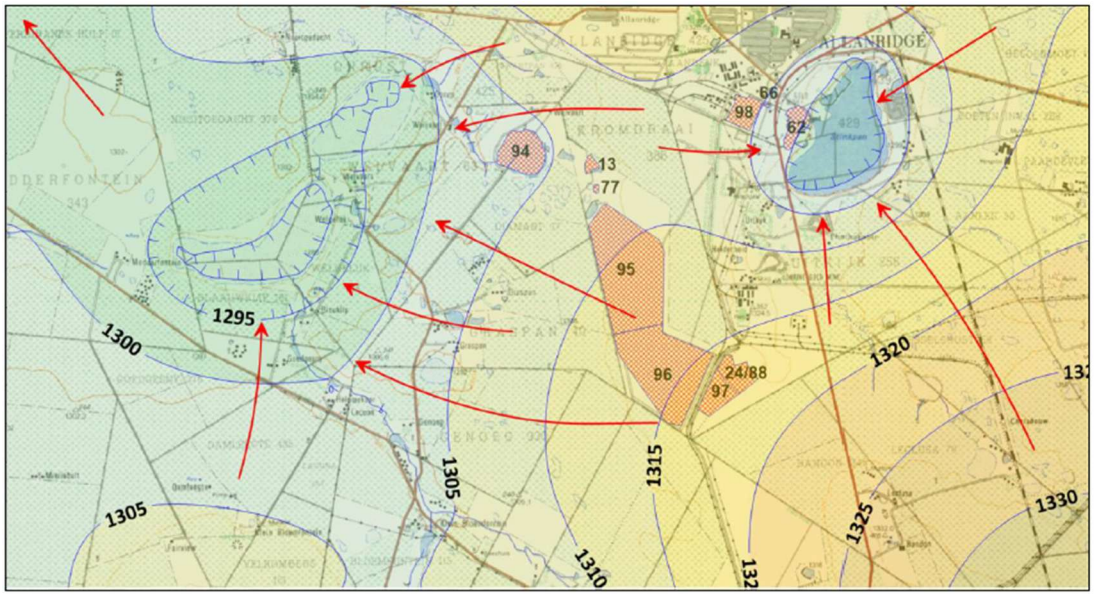


Figure 7-2. Simulated Groundwater Contours (Karoo Aquifer) Indicating Main groundwater Flow Directions (AquiSim Consulting, 2025).

8 Conclusions

Based on this Scoping Assessment, the following can be concluded:

- The proposed Jelani operation will be developed in an area already impacted by existing mining activities. It will overlap in extent with the Target mine and partially utilise existing Target mining and water management infrastructure, especially those related to the Target Shaft No. 2 and 3;
- The Jelani mine extent is significantly smaller in extent than the existing Target Mine with mining only extending 170 m deeper than current mining at 1 250 mbgl;
- The Hydrogeology of the Study Area can be described as a shallow, perched, weathered and fractured Karoo aquifer overlying a deep, confined, fractured Ventersdorp/Witwatersrand aquifer;
- Hydraulic connectivity between the shallow Karoo aquifer and the deep aquifer is considered limited;
- Current groundwater use is mainly for existing gold mining operations which abstract considerable volumes of water from the deep fractured aquifer. Small-scale third-party use, mainly for domestic purposes, is the main use of groundwater in the shallow aquifer;
- Groundwater levels in the shallow Karoo aquifer indicate good correlation with topography, showing groundwater levels remain close to surface;
- For sampled domestic groundwater sources, no cyanide or uranium was detected and sulphate only detected at concentrations below the SANS drinking water limit, showing no indication of current impacts of mining on groundwater sources;
- Existing groundwater impacts are largely associated with current mining infrastructure, particularly the Target Mine TSFs and associated return water dams, locally impacting on groundwater quality in close proximity of surface infrastructure;
- Volumes of underground water to be pumped to surface for the proposed underground workings are expected to be in line with those for the Target Mine, with an estimated volume of approximately 5.4 Ml/day (3.4 Ml/day of groundwater make and 2 Ml/day of inter-mine flow from Freddies No. 9 Shaft);
- Currently no drawdown effects have been observed in the shallow aquifer due to mine dewatering;
- Post-closure groundwater rebound in the deep aquifer and potential cross-contamination is not expected as piezometric levels will remain below the shallow Karoo aquifer;
- No hydrogeological fatal flaws were identified during the scoping assessment that would prevent development of the proposed Jelani project;
- A detailed groundwater impact assessment, supported by numerical groundwater flow and contaminant transport modelling, will be part of the impact Assessment to quantify potential operational and post-closure groundwater impacts and confirm appropriate

groundwater management measures.

9 Recommendations for Further Work

The following recommendations are made:

- Review of the current harmony monitoring network in terms of monitoring locations as well as the range of analysed parameters;
- Retrieve additional samples from third-party boreholes to confirm the understanding of the current groundwater quality situation;
- Consider including additional third-party boreholes as part of the monitoring network;
- Include forward contaminant plume migration modelling for the operational and post-closure phases in the impact assessment;
- Include monitoring requirements, mine closure mitigations, groundwater management measures and compensation (in case impact is proven).

10 References

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Bara Consulting. (2026). *Joint Venture Project – Study Update.*

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MvB Consulting. (2026). *Modelling Of The Underground Mine Rewatering Rates And Flooding Sequence After Closure, Free State Mining Operations.*

APPENDIX A HYDROCENSUS PHOTOS

Table 10-1: Hydrocensus Photos

BH ID	Photo
A3	

BH ID	Photo
A5	

BH ID	Photo
A6	

BH ID	Photo
A7	

BH ID	Photo
B1	

BH ID	Photo
B7	

BH ID	Photo
BH01	

BH ID	Photo
BH02	

BH ID	Photo
BH03	

BH ID	Photo
BH04	

BH ID	Photo
BH05	

BH06	

BH ID	Photo
BH07	

BH ID	Photo
BH08	

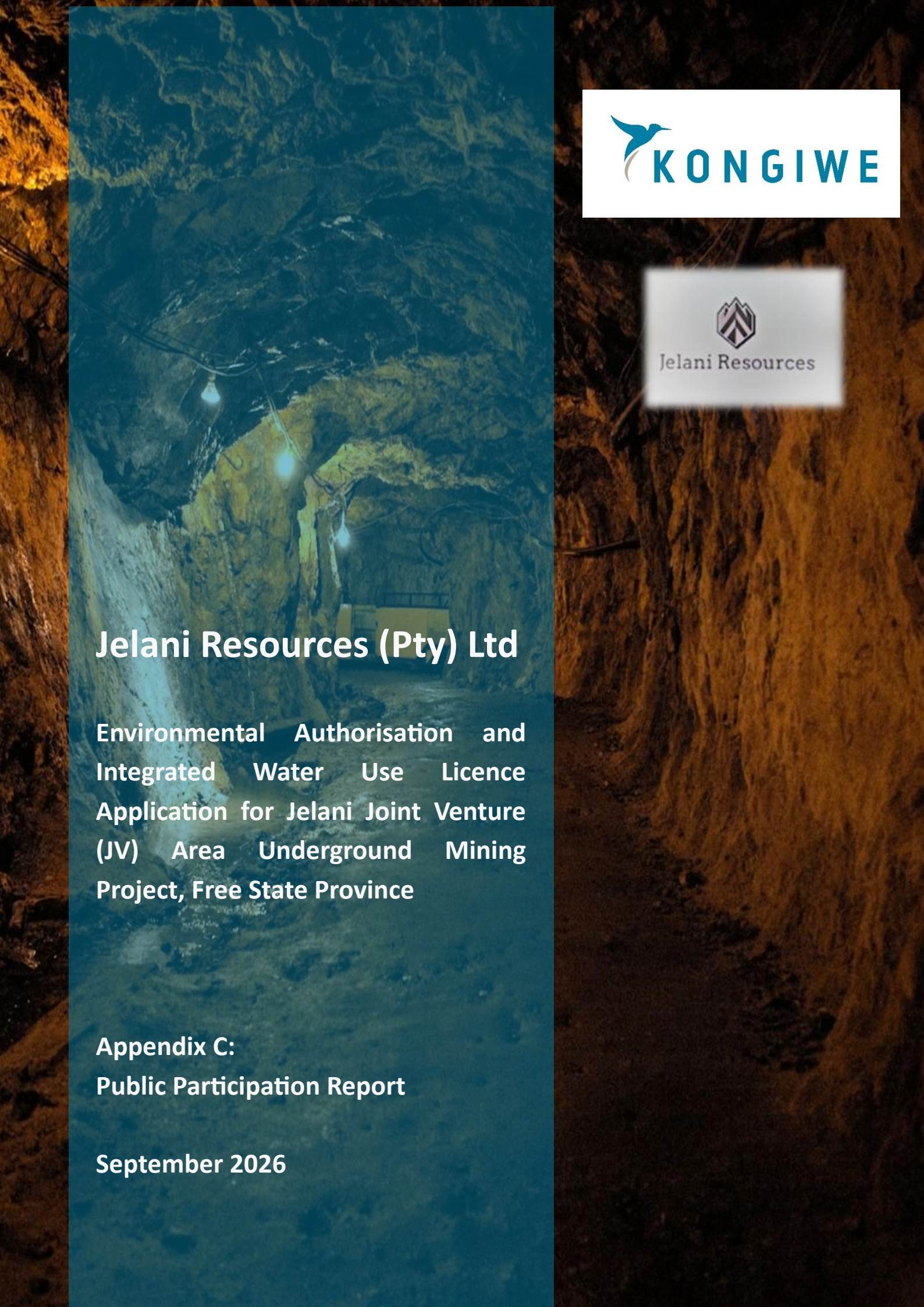
BH ID	Photo
BH86	

BH ID	Photo
BH87	

BH ID	Photo
BH88	

BH ID	Photo
BHN	

Appendix C: Public Participatio Report



Jelani Resources (Pty) Ltd

Environmental Authorisation and Integrated Water Use Licence Application for Jelani Joint Venture (JV) Area Underground Mining Project, Free State Province

Appendix C:
Public Participation Report

September 2026

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Report Information

Client	Jelani Resources (Pty) Ltd
Project	Jelani Joint Venture (JV) Area Underground Mining Project
Report Title	Public Participation Report
DMPR Reference No.	FS30/5/1/2/3/2/1(10098) MR
DWS Reference No.	WU50090
Project No.	JELA#001
Compilation Date	September 2026
Status of Report	Public Participation Report for the Draft EIA/EMPr Reports and the Draft IWWMP
Actions	Application for Environmental Authorisation (EA)

Approval

Verification	Name	Capacity	Signature	Date
Compiled by	Vanessa Viljoen	Principal Stakeholder Consultant		2 September 2026
Reviewed by	Ripfumelo Macevele	Environmental Consultant		4 September 2026
Approved by	Bradly Thornton	CEO		9 September 2026

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Abbreviations

Abbreviation	Description
BID	Background Information Document
CA	Competent Authority
CBO	Community-Based Organisation
CRR	Comments and Response Report
DALRRD	Department of Agriculture, Land Reform and Rural Development
DMPR	Department of Mineral and Petroleum Resources
DSR	Draft Scoping Report
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme Report
FSR	Final Scoping Report
ha	Hectare
I&AP	Interested and Affected Party
IAP2	International Association for Public Participation
IFC	International Finance Corporation
JV	Joint Venture
km	Kilometre
m	Metre
MLM	Matjhabeng Local Municipality
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEM:WA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
NGO	Non-Governmental Organisation
PAIA	Promotion of Access to Information Act, 2000 (Act No. 2 of 2000)
POPIA	Protection of Personal Information Act, 2013 (Act No. 4 of 2013)
PPP	Public Participation Process
PR	Prospecting Right
PS	Performance Standard
S&EIA	Scoping and Environmental Impact Assessment
SMME	Small, Medium and Micro Enterprise
SMS	Short Message Service
t/month	Tonnes per month (production rate)
TSF	Tailings Storage Facility

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Reference Documents

References	Description
National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA)	Framework environmental law for South Africa
Environmental Impact Assessment Regulations, 2014 (as amended) (EIA 2014 Regulations)	Regulations under NEMA governing EIAs
Public Participation guideline in terms of NEMA Act No. 107 of 1998	Guideline on public participation under NEMA
National Environmental Management: Waste Act, 2008 (Act 59 of 2008)	Waste management legislation
National Water Act, 1998 (Act 36 of 1998)	Water resource management legislation
Promotion of Access to Information Act, 2000 (Act No. 2 of 2000) (PAIA)	Law promoting access to information
Protection of Personal Information Act, 2013 (Act No. 4 of 2013) (POPIA)	Law safeguarding personal information

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1. Project Background and Motivation

Kongiwe Environmental ('Kongiwe') was appointed by Jelani Resources (Pty) Ltd ('Jelani') to compile this Public Participation Report for their proposed mining Project ('the Proposed Project'), which is located adjacent to Harmony Gold Limited's Target Operation (Target). The Proposed Project's centre point is approximately 3 kilometres (km) south-west of the small mining town of Allanridge, and 32 km north of Welkom in the Matjhabeng Local Municipality (MLM), Free State Province.

Jelani is a joint venture (JV) company established by White Rivers Exploration and Harmony Gold. The JV was formed to conduct underground mining operations within the Joint Venture (JV) area, which is made up of areas within the existing Harmony Target mining right (Harmony contribution) and Prospecting Rights (PR) areas to the west of Harmony Gold's existing Target Mine (WRE contribution). Following the exploration, Jelani intends to initiate underground mining operations within the same area.

The Proposed Project entails the licensing of underground mining activities for various minerals, with a primary focus on gold ore, as well as silver, uranium and other associated minerals.

The project's development includes utilising the available spare capacity within Harmony's existing infrastructure at the Target Mine. This includes the Target No. 3 and No. 2 shafts, the Target No. 1 Processing Plant and associated surface infrastructure. All operational mining infrastructure required for the Proposed Project will be located within the existing Harmony Target Mine mining right area. No new operational mining infrastructure is planned within the project area.

Project operations will focus on the main horizons within the Central Rand Group of the Witwatersrand Supergroup, which sub-crops against the Ventersdorp Supergroup. It is anticipated that the extensions of these two reefs, together with other reefs, will be economically viable at a depth of between 1,500 and 2,600 metres (m) below surface. As mine development progresses, new mining areas will be developed which will allow for the production rate to be steadily increased to the targeted full production rate of 60 000 tonnes of mined ore per month.

Two mining methods have been identified as the most practical for exploiting the mineral resources: conventional breast mining and shrinkage stoping. The selection of each method is primarily based on the dip of the mineralised reef, with the shrinkage stoping being used for the steeper slopes (3% of the total stope tonnage). Where the orebody dips below 55°, conventional breast mining will be used.

To monitor potential mining-induced seismicity and boundary interactions with the adjacent Harmony Gold operations, four seismographic monitoring stations will be installed, spread equally along the shared boundary, withshort gravel access tracks provided for each station . These installations represent the only surface infrastructures on the JV project area.

Additionally, a new Tailings Storage Facility (TSF) will be constructed to the west of the existing Target metallurgical plant and north of the existing Target TSF. The total area required for this new facility is approximately 69 Hectares (Ha). This TSF is a separate project being undertaken by Harmony Gold.

2. Public Participation Process (PPP)

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.

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2.1 Applicable Legislation and International Best Practice

The Public Participation Process (PPP), as required by the environmental law and regulations specified therein, is being 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 (EIA) Regulations, 2014 (as amended) (EIA 2014 Regulations).
- Public Participation guideline in terms of NEMA.
- National Environmental Management: Waste Act, 2008 (Act No 59 of 2008) (NEM:WA) and the List of Waste Management Activities (GN R921 of 29 November 2013, as amended).
- National Water Act (Act No. 36 of 1998).
- 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).

NEMA mandates public participation for environmental decision-making, ensuring affected communities have a voice in development projects through the EIA Regulations, 2014. The NEMA Public Participation Guideline (in terms of the EIA Regulations) is a mandatory part of the EA process, aiming for transparent, informed decisions that promote sustainable development by integrating social, economic, and environmental factors.

The NWA is the primary law for the protection, management, and equitable use of the water resources. The NWA establishes the government's role in allocating water resources, promoting sustainable use of water resources, and preventing pollution.

The POPIA regulates the processing of personal information by both public and private bodies, aiming to protect individuals' constitutional right to privacy.

The PAIA gives effect to the constitutional right to access information held by both the state and private bodies. The Act establishes procedures for individuals to request information for the protection or exercise of their rights.

POPIA: Safeguarding Registered Person's Personal Information
In terms of Section 19 of 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 or parties to whom the information is supplied.

2.2 International Standards

In addition to the above legislation, the PPP is to be aligned to International good-practice guidelines for public participation, particularly in regard to the following Core Values of the International Association for Public Participation (IAP2):

- To be based on the belief that those who are affected by a decision have a right to be involved in the decision-making process.
- To include the promise that the public's contribution will influence the decision.
- To promote sustainable decisions by recognising and communicating the needs and interests of all participants, including decision makers.
- To seek out and facilitate the involvement of those potentially affected by or interested in a decision.

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- To seek input from participants in designing how they participate.
- To provide participants with the information they need to participate in a meaningful way.
- To communicate to participants how their input affected the decision.

2.3 Objectives of the Public Participation Process

The PPP is designed to build and maintain constructive relationships. It is an ongoing process between the applicant and the project stakeholders that extends throughout the life of a project. The PPP for the Proposed Project ensures that adequate and timely information is provide to all potentially project affected people and other stakeholders, that stakeholders are given sufficient opportunity to raise comments, and that these comments are taken into consideration during the project decisions.

The PPP objectives for this Proposed Project are to:

- Ensure that stakeholders are informed about the Proposed 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 was 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 **Completed**	• Pre-Application meeting with the Department of Mineral and Petroleum Resources (DMPR). • Consultation meeting with DMPR, regarding the Social and Labour Plan (SLP). • Stakeholder identification (WinDeed searches, compilation of stakeholder database). • Consultation with communities (within the nearby surroundings of the Proposed Project). • Consultation with the relevant Authorities (including ward councillors/ward committees) (Microsoft Teams/ One-on-one consultation meetings). • Compilation of announcement documents, such as Background Information Documents (BIDs), Registration and Comment Forum, adverts, site notices and Draft Scoping Report (DSR) notification letter. • Obtaining initial comments, suggestions from stakeholders. • Land Claims enquiry.
Scoping Phase **Completed**	• Consultations with Directly and Indirectly Affected Landowners (Consultation meetings). • Distribution and placement of Project announcement materials (site notices, and newspaper advertisements). • Updating of the stakeholder database. • Making available the DSR for public review and comment. • Providing stakeholders with further details of the Proposed Project and associated specialist studies. • Consultations with stakeholders (Online meetings and Open Day meetings). • Obtaining comments from stakeholders on the SLP at the Open Day. • Obtaining further comments or suggestions from stakeholders.

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Project Phase	Activities to be Undertaken
	• Development of Comments and Response Report (CRR), capturing all comments/questions and responses. • Informing specialists and the applicant about comments received from stakeholders. • Making available the Final Scoping Report.
EIA Phase	• Pre-Consultation meeting will be undertaken with the Department of Water and Sanitation (DWS), Free State Province. • Site visit will be undertaken with DWS. • 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 stakeholders (Open Day and Online Meeting). • Verify that comments raised by stakeholder have been accurately recorded • Update CRR with new comments, questions and responses. • Inform specialists and the proponent of stakeholders' comments. • Making available the Final EIA / EMPr.
Decision Making Phase EIA	• Once the Competent Authority which is DMPR had come to a decision regarding the authorisation of the Proposed Project, all registered stakeholders will be notified of the decision made and the appeal process will be explained with associated timeframes.
Decision Making Phase WUL	• The IWULA has been submitted to DWS in terms of the NWA. Once DWS has come to a decision regarding the WULA, the DWS will notify the applicant and any person who has objected to the application. Written reasons for the decision will be given.

2.4 Summary of Issues Raised by Stakeholders

Comments raised by stakeholders during the Scoping Phase was included in the CRR, a template of which is presented in **Appendix C10**.

2.5 Public Participation Approach

2.5.1 Submission of the Environmental Authorisation Application

The application for the EA was submitted to the DMPR, which is the Competent Authority (CA) for the Proposed Project on **Tuesday, 21 April 2026**. A pre-application meeting was held with DMPR**.**

2.5.2 Pre-Application Meeting with Department of Mineral and Petroleum Resources (DMPR)

An online meeting was arranged and attended with DMPR officials on **Friday, 6 February 2026 from 08:00 – 09:00**.

The purpose of the meeting was to:

- Present and discuss the Proposed Project details.
- Provide an overview of the Environmental Process and Procedure.
- Provide an overview of the specialist studies.
- Provide an overview of the PPP.
- Present and discuss the Proposed Project Timeframes.

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Information was presented by means of a PowerPoint presentation. Minutes of the meeting were compiled and distributed to Mr Tuwani Monyai, Assistant Director: Mine Environmental Management and to Mr Cedrick Fhedzisani, Deputy Director: Mine Environmental Management. **(Appendix C8)**.

2.6 Submission of the Integrated Water Use Licence Application

The IWULAs process started when the Proposed Project was registered on the DWS' electronic Water Use Licence Application and Authorisation System (e-WULAAS). A pre-application meeting will be held with DWS for the application.

2.7 Stakeholder Mapping and Identification

Stakeholder mapping is a process of identifying stakeholders before a project commences. Identified stakeholders are grouped according to their levels of participation, interest, and influence in a project. These groupings assist in determining how best to involve and communicate to each group throughout the PPP. Project stakeholders are defined as individuals / groups / entities that have an interest in the Proposed Project. Such stakeholders are referred to as Interested & Affected Parties (I&APs).

To ensure a proper representation of all stakeholders, the following identification methods were used as part of the stakeholder identification and analysis process for the Proposed Project:

- Desktop and online research and WinDeed search for the directly affected and adjacent farms.
- Identify and consult with relevant communities (within the nearby surroundings of the Proposed Project).
- Identify and consult with relevant Authorities (DMPR/ DWS).
- Identify and consult with the Matjhabeng Local Municipality (MLM) and the Lejweleputswa District Municipality.
- Identify and consult relevant ward councillors and ward committees for affected wards:
  - Mr Clement Hanisi, Ward Councillor: Ward 36.
  - Mr Paseka Thomas Ramatisa, Ward Councillor: Ward 19. (SLP)
- Consult with adjacent landowners and land occupiers (directly and adjacent affected landowners).
- Consult with the Department of Land Reform and Rural Development (DLRRD), Office of the Regional Land Claims Commissioner: Free State Province.
- Consulting government departments on a National, Provincial and Local level relevant to the Proposed Project.
- Consult with stakeholders who respond to the publication of newspaper advertisements.
- Consult with stakeholders who respond to the distribution of project documentation.

I&APs have been grouped into the following broad categories:

- Landowners and occupiers:
  - With assets within the Project footprint (i.e., directly affected by the Project).
  - With assets adjacent to the Project footprint (i.e., adjacent affected by the Project).
  - Vulnerable persons, including female-headed household heads, children/ youth, the elderly, ethnic minorities, and disabled persons.
- Government: National, Provincial, and Local Municipality Authorities (including ward councillors and ward committee members).
- Parastatals: Various semi-government entities, organs of State.
- 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 (CBOs): Community forums.

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- Business and Industry: Small, Medium and Micro Enterprises (SMMEs), mines, as well as industrial and large business organisations.

Updating the stakeholder database from attendance registers from a broad range of stakeholder meetings that were held throughout the process, as detailed in **Appendix C1**.

2.7.1 Land Claims Enquiry

A formal letter of enquiry was compiled and sent to the DLRRD, Free State to **Mr Khomotso Mahlatji**, Office of the Regional Land Claims Commissioner on **Thursday, 14 May 2026**. The letter includes a list of all directly affected properties, which was evaluated to determine if there are land claims, as presented in **Appendix C2**.

Feedback was received from DLRRD by means of a letter dated **Wednesday, 10 June 2026**, indicating that there are **no land claims,** as detailed in **Appendix C2.**

3. Communication and Engagement

3.1 Public Participation Materials: Scoping Phase

Considering the legislative requirements and good practice guidelines, the following documents were developed and distributed to stakeholders. The PPP information materials which were used as part of the Scoping and Environmental Impact Assessment (S&EIA) process.

Background Information Document (BID): The BID, as detailed in **Appendix C3,** were emailed on **Thursday, 14 May 2026**, to I&APs listed on the stakeholder database as illustrated in **Appendix C6.** The BID was made available on the Kongiwe website: (https://kongiwe.com/projects/).

The BID provides the following details:

- An overview of the Proposed Project.
- The PPP to be undertaken in support of the Scoping and EIA process.
- Details about how stakeholders can register as an I&AP and be kept informed about the Proposed Project.
- Invitation to attend an online meeting via Microsoft Teams.
- Invitation to attend an Open Day.
- Contact details of the stakeholder engagement consultants.

Notification Letter with a Registration and Comment Form: An email was sent to stakeholders on **Thursday, 14 May 2026**, to inform them about the Proposed Project. The email also 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 as an I&AP and to submit their comments as detailed in **Appendix C3.**

A reminder notification was emailed to further notify stakeholders of the availability of the DSR for public review and comment. The reminder emails served the purpose of reminding stakeholders to attend the Open Day and is presented in **Appendix C6.**

Short Message Service (SMS): An SMS was sent to stakeholders with no access to the internet. Arrangements were made to ensure that these stakeholders had full access to Project documentation. Stakeholders were also notified on when the online meeting and Open Day were held.

Newspaper Advertisements: A newspaper advert was placed in the **Vista,** a local newspaper within the Proposed Project area, on **Thursday, 21 May 2026,** as detailed in **Appendix C4.** The advert included the following details:

- An overview of the Proposed Project.
- Legal framework and details of the competent authorities.

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- How stakeholders can access the Draft Scoping Report for public review and comment.
- Registration as I&APs.
- Invitation to attend an online meeting via Microsoft Teams.
- Invitation to attend an Open Day.
- Contact details of the stakeholder engagement consultants.

Site Notice: The site notice, presented in **Appendix C5**, included the following:

- An overview of the Proposed Project, including a locality map.
- Legal framework and details of the competent authorities.
- PPP to be followed and where relevant information could be obtained.
- Invitation to attend an online meeting via Microsoft Teams.
- Invitation to attend an Open Day and where stakeholders can register to attend.

Photographs and co-ordinates of where the site notices were placed was recorded into in the site notice report, and a site notice map was developed, and is presented in **Appendix C5.**

Telephonic Discussions: Stakeholders were also consulted by means of telephonic discussions where required. These discussions facilitate the process of inviting stakeholders to stakeholder meetings and provide stakeholders with a platform to raise comments and suggestions regarding the Project. Comments raised through telephonic discussions were recorded and addressed by the project team (including the Environmental Assessment Practitioner (EAP) and relevant specialists).

4. Consultation undertaken for the Social and Labour Plan (SLP)

This Section outlines the consultation approach as well as details of consultations in relation to the Social and Labour Plan (SLP).

4.1 Consultation Approach

The consultation approach in regard to identifying a suitable Local Economic Development (LED) project included the following:

- Online Meeting with DMPR.
- Correspondence with the Matjhabeng Local Municipality.
- Broader Public Consultation Meeting: An Open Day was held with the broader public during the public review period.

4.1.1 Online Meeting with DMPR

Kongiwe arranged an online meeting with the DMPR, which was held on Tuesday, 25 November 2025.

The invitation for the meeting was sent to the following DMPR representatives:

- Ms Cecelia Sedutla (DMPR Officer for the Promotion of Access to Information Act (PAIA)).
- Mr Mphatheleni Khomola (DMPR SLP Officer).

The meeting, which took place from 10H00-10H30 on Tuesday, 25 November 2025, comprised the following participants:

- Ms Sedutla.
- Mr. Khomola.
- Mr Neels Hoek (Applicant, Jelani).
- Mr Bradly Thornton (Project Director, Kongiwe).
- Mr Andrew Hamlet (Principal Social Consultant, Kongiwe).

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- Ms Thuli Phakathi (Stakeholder Engagement Consultant, Kongiwe).

The PowerPoint presentation, presented by Mr Thornton, is shown in **Appendix C11**. Minutes of the meeting are included in **Appendix C11**.

In the meeting, Kongiwe was advised that a stand-alone LED project should be identified by the Matjhabeng Local Municipality's LED Department. Ms Sedutla confirmed that discussions with the municipality were necessary to identify suitable projects. She further emphasised that, since the Matjhabeng Local Municipality is responsible for the Integrated Development Plan (IDP), any proposed projects must be aligned with their Integrated Development Plan (IDP).

4.1.2 Correspondence with the Matjhabeng Local Municipality

Kongiwe contacted Matjhabeng Local Municipality's Executive Director of LED (Dr. Sefako Ramphoma) in January 2026 regarding Jelani's proposed funding for a LED project. On Wednesday, 21 January 2026, Kongiwe sent a Background Information Document (BID) to Dr. Ramphoma. This BID is presented in **Appendix C11**.

Following numerous delays to meet, a telephonic meeting was arranged on Monday, 26 January 2026 between Mr Hamlet and Dr. Ramphoma. The email confirming the meeting time is shown in **Appendix C11**. Between 13H00-13H30, Mr Hamlet and Dr Ramphoma discussed the Project and potential LED projects aligned to the Matjhabeng Local Municipality IDP (2024/2025). The discussion was based on the information presented in the BID. Dr. Ramphoma advised that he would liaise with the Ward Councillor for Ward 19 (Cllr Pasaka Ramatisa), in regard to identifying a suitable LED project. Ward 19 is a key labour sending area for the Target Mine.

Following consultation with the Ward Councillor of Ward 19, Dr Ramphoma advised Kongiwe (on Wednesday, 4 February 2026) that a priority LED project was the refurbishment of Nyakallong Community Hall (refer to email from Dr Ramphoma in **Appendix C11**).

On Wednesday, 11 February 2026, Dr Ramphoma confirmed that he presented the LED proposal to the Matjhabeng Local Municipality Executive Committee (refer to email from Dr Ramphoma in **Appendix C11)**.

On Thursday, 19 March 2026, the MLM issued a letter of approval (signed by Dr Vuyo Adonis, Acting Municipal Manager) for Jelani to allocate R1,000,000 to the refurbishment of Nyakallong Community Hall. The letter of approval is shown in **Appendix C11**.

4.1.3 Open Day Notification to Ward Councillors

An Open Day notification letter, presented in **Appendix C11,** was emailed to Cllr Clement Hanisi on Friday, 29 May 2026. Cllr Hanisi shared the Open Day notification via a WhatsApp group that encompassed the communities of **Ward 36 and Ward 19**. Cllr Hanisi also notified Cllr Ramatisa of Ward 19. The Open Day notification letter invited the communities of the two wards to an Open Day facilitated by Kongiwe on **Saturday, 30 May 2026.** The Open Day notification letter presented details of the Project and disclosed the availability of the Draft Scoping Report (DSR) for public review and comment.

4.1.4 Broader Stakeholder Meetings (Open Day)

The SLP was discussed during the broader stakeholder meeting (Open Day), which was held at the **S.A. Mokhothu Primary School, 3073 Nyakallong, Allanridge** on **Saturday, 30 May 2026 from 11H00 – 13H00**. Photos of the meeting are shown in Figure 5-1. Information was presented by means of a Poster presentation in English and translated into Sesotho where needed. Details of the SLP (as well as Project description and proposed infrastructure) were presented and discussed.

Copies of the non-technical summary of the DSR were also distributed to stakeholders who attended, presented in **Appendix C3.**

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The purpose of the Broader Stakeholder Meetings (Open Day) was to:

- Present and discuss the Proposed Project.
- Present and discuss the SLP.
- Provide an overview of the specialist studies to be undertaken.
- Present the Public Participation Process.
- Provide an opportunity to raise comments/seek clarity as well as provide input.
- Address comments raised by Stakeholders.

Figure 4-1: Photo of the Stakeholder Meeting held at S.A. Mokhothu Primary School on Saturday, 30 May 2026 where the SLP was presented.

5. Consultation undertaken for the Scoping Phase

This Section outlines the consultation approach as well as details of consultations in relation to the Draft and Final Scoping Report.

5.1 Consultation Approach

Consultation during the Scoping phase aimed at providing stakeholders with an overview of the Proposed Project and to obtain comments to inform 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, provide stakeholders with an opportunity to raise their comments and to interact with the Project team members. Locality, infrastructure and land tenure maps were displayed and distributed as part of these meetings.

The following meetings were held:

- **Authority Meetings:** Meetings were held with the relevant Authorities.
- **Landowner Meetings:** Consultation meetings were held with directly and indirectly affected landowners.
- **Online Meeting:** Online meeting was held with stakeholders who prefer online engagements.
- **Broader Public Consultation Meeting:** An Open Day was held with the broader public during the public review period (Note: This meeting was the same public meeting discussed in Section 4 for the SLP consultations).

Refer to Table 5-1 below for the schedule of stakeholder meetings.

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Table 5-1: Stakeholder Meetings

Meeting Dates	Stakeholders	Time Slots
In-Person Meetings		
Saturday, 30 May 2026	Broader Stakeholder Meeting (Open Day) held with all sectors of society at S.A. Mokhothu Primary School, 3073 Nyakallong, Allanridge, 9490.	11H00 – 13H00
Online Meetings		
Monday, 15 December 2025	Microsoft Teams - Online meeting was held with Adjacent Affected Landowners within a 2km radius to ask landowner consent for the hydrocensus specialist to access properties.	10H00 – 11H00
Friday, 6 February 2026	Microsoft Teams - Online pre-application meeting was held with Competent Authority, Department of Mineral and Petroleum Resources (DMPR) officials.	08H00 – 09H00
Tuesday, 26 May 2026	Microsoft Teams - Online meeting was held with Lejweleputswa District Municipality, Free State.	14H00 – 15H00
Wednesday, 27 May 2026	Microsoft Teams – Online Meeting with indirectly affected landowners and the broader stakeholders.	10H00 – 11H00
Thursday, 28 May 2026	Microsoft Teams - Online meeting was held with Matjhabeng Local Municipality, Free State.	10H00 – 11H00

Focused efforts were made to engage with directly impacted stakeholders (those residents in the 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 opinions openly. Stakeholders were given the option to raise issues in the language of their choice and where translation is required, it was provided.

Authorities, NGOs, landowners / land occupiers and community members were engaged to promote attendance, by means of telephonic consultation and distribution of emails and SMS.

A list of meetings and consultations undertaken during the process is detailed in **Appendix C8.**

Minutes of these meetings, along with the presentation materials, were compiled and distributed to all stakeholders who attended, and is detailed in **Appendix C8.**

All comments raised by stakeholders during these meetings were recorded in the CRR, with responses prepared in accordance with the Proposed Project scope and available information, as detailed in **Appendix C10.**

5.2 Stakeholder Meetings Held

5.2.1 Online Meeting with Adjacent Affected Landowners

An Online meeting was arranged and attended by Adjacent Affected Landowners within a 2km radius on **Monday, 15 December 2025 from 10:00 - 11:00.** Information was presented by means of a PowerPoint presentation.

The purpose of the meeting was to:

- Present and discuss the Proposed Project.

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- Provide an overview of the Scoping and Environmental Impact Assessment (S&EIA) process in support of the Environmental Authorisation Application.
- Provide an opportunity to raise comments/seek clarity as well as provide input.
- Record comments raised and included them in the Comments and Responses Report (CRR)
- Landowner consent for specialist to access properties.

5.2.2 Online Meeting with Lejweleputswa District Municipality: Free State

An Online meeting was arranged and attended by Lejweleputswa District Municipality on **Tuesday, 26 May 2026 from 14:00 - 15:00.** Information was presented by means of a PowerPoint presentation.

The purpose of the meeting was to:

- Present and discuss the Proposed Project.
- Provide an overview of the Scoping and Environmental Impact Assessment (S&EIA) process in support of the Environmental Authorisation Application.
- Provide you with an opportunity to raise comments/seek clarity and provide input.
- Record comments raised and included in the Comments and Responses Report.

5.2.3 Online Meeting with Matjhabeng Local Municipality

An Online meeting was arranged and attended with Matjhabeng Local Municipality on **Thursday 28 May 2026 from 10:00 - 11:00.** Information was presented by means of a PowerPoint presentation.

The purpose of the meeting was to:

- Present and discuss the Proposed Project.
- Provide an overview of the Scoping and Environmental Impact Assessment (S&EIA) process in support of the Environmental Authorisation Application.
- Content of the Social and Labour Plan.
- Provide you with an opportunity to raise comments/seek clarity and provide input.
- Record comments raised and included in the Comments and Responses Report.

5.2.4 Online Meeting with Broader Stakeholders

Formal consultation meeting was held online via Microsoft Teams during the public review period for all stakeholders on the database. This meeting was held on **Wednesday 27 May 2026 from 10H00 - 11H00**. Information was presented by means of a PowerPoint presentation.

The purpose of the meeting was to:

- Present and discuss the Proposed Project.
- Provide an overview of the Scoping and Environmental Impact Assessment (S&EIA) process in support of the Environmental Authorisation Application.
- Provide you with an opportunity to raise comments/seek clarity and provide input.
- Record comments raised and included in the Comments and Responses Report.

5.2.5 Broader Stakeholder Meetings (Open Day)

Broader Stakeholder Meeting (Open Day) was held at the **S.A. Mokhothu Primary School, 3073 Nyakallong, Allanridge** on **Saturday, 30 May 2026 from 11H00 – 13H00**, as shown in Figure 5-1. Information was presented by means of a Poster presentation in English and translated into Sesotho where needed.

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Posters with information regarding the Proposed Project Description and information on the SLP, Locality, Infrastructure and the Land Tenure maps were displayed. Copies of the non-technical summary of the DSR were also distributed to stakeholders who attended, presented in **Appendix C3.**

The purpose of the Broader Stakeholder Meetings (Open Day) was to:

- Present and discuss the Proposed Project.
- Present and discuss the SLP.
- Provide an overview of the specialist studies to be undertaken.
- Present the Public Participation Process.
- Provide an opportunity to raise comments/seek clarity as well as provide input.
- Address comments raised by Stakeholders

Figure 5-1: Photo of the Stakeholder Meeting held at S.A. Mokhothu Primary School on Saturday, 30 May 2026 where the Draft Scoping Report was presented.

5.2.6 Availability of the Draft Scoping Report for Public Review and Comment

As part of the Scoping Process, the applicant is required to compile a Draft Scoping Report (DSR) for mining-related activities. The DSR was available for public review and comment from **Thursday, 21 May 2026 to Monday, 22 June 2026.**

A notification of the availability of the DSR for public review and comment was distributed on **Thursday, 14 May 2026** to all stakeholders on the database.

The DSR was available as follows:

- An electronic copy on Kongiwe's website: https://kongiwe.com/projects/.
- A hard copy at the Allanridge Public Library. Contact details are shown in Table 5-2

Non-technical summaries of the DSR were available electronically to all stakeholders on the stakeholder database and distributed in hard copy at the Open Day.

Relevant Authorities received an email with a website link of the DSR as part of the announcement of the Proposed Project.

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Table 5-2: Place where the DSR Report was circulated

Location	Physical Address	Contact Person / Times
Allanridge Public Library	53 Caledon St, Allanridge	Ms Anna Matjelo, Librarian (078) 713 2063 Monday – Friday Open: 08H00 - Close: 15H30

5.3 Summary of Consultations

Table 5-3 below provides a summary of the stakeholder engagement activities that formed part of the Draft Scoping Phase.

Table 5-3: Summary of activities undertaken as part of the Scoping Phase

Activity	Details	Appendices
Stakeholder Mapping and Identification	• Landowners were identified by means of WinDeed searches and a stakeholder database was compiled. • Stakeholders were identified through research and stakeholder networking. • The database was updated with new I&APs who have formally registered and attended stakeholder meetings or submitted comments throughout the process.	**Appendix C1** Stakeholder Database
Identification of Land Claims	• A formal letter of enquiry was compiled and submitted to the Land Claims Commission, DLRRD – Free State. • The letter includes a list of all directly affected properties, which was evaluated to determine if there are land claims on the affected properties.	**Appendix C2** Land Claims Enquiry Letter and Correspondence from the DLRRD
Compilation of BID	• The BID was developed and emailed to all stakeholders on the database. • The BID was available on Kongiwe's website (under public documents).	**Appendix C3** BID
Placement of Newspaper Advertisements	• A newspaper advert was placed in the Vista.	**Appendix C4** Newspaper Advertisements
Placement of Site Notices	• Site notices were placed at publicly accessible places within proximity of the Proposed Project area. Site notices were placed at the Allanridge Public Library. • A site notice report and site notice map was developed, indicating the exact locations of where the site notices were placed, with photos and GPS coordinates.	**Appendix C5** Site Notice Report and Placement Map

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Activity	Details	Appendices
Announcement of the Project and the Availability of the Draft Scoping Report	• The announcement letter was distributed to stakeholders to: - Announce availability of the DSR. - Invite stakeholders to the Online Meeting and Open Day; and - Indicate where the DSR is available for public review and comment.	**Appendix C6** Announcement Correspondence **Appendix C3** BID
Stakeholder Consultation Meetings	• Consultation during the Scoping phase was aimed at providing key 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. One-on-one consultation meetings with authorities, directly and indirectly affected landowners were held via on-line forums such as Microsoft Teams or in-person depending on preference. • The Project team presented a formal presentation of the Proposed Project the Locality, Infrastructure and Land Tenure maps were displayed as part of the meetings. • Minutes of these meetings were compiled and distributed to everyone who attended these meetings. • Comments raised from the meeting were included into the CRR.	**Appendix C8** List of Meetings and Meeting Minutes **Appendix C10** CRR
Broader Stakeholder Meetings: Scoping Phase	• Stakeholders were invited to participate through online and in-person engagements. The purpose of these meetings 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. • Minutes of these meetings were compiled and distributed to everyone who attended these meetings. • Comments raised from the meeting were included into the CRR.	**Appendix C8** List of Meetings and Meeting Minutes **Appendix C10** CRR

5.3.1 Consultation Undertaken as part of the Final Scoping Phase

The Final Scoping Report (FSR) was submitted to the DMPR on **Wednesday, 1 July 2026.**

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Stakeholders were notified by email of the availability of the FSR for review. Stakeholders were provided with the opportunity to verify that their comments were captured during the Draft Scoping Phase and to review responses provided by the Project team. All comments received on the FSR were incorporated into the CRR.

Table 5-4 below is a summary of the activities during the Final Scoping Phase.

Table 5-4: Summary of 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 Report	• The FSR is available on the Kongiwe's website.
Submission to the Authorities	• The FSR was submitted to DMPR.
Announcement of the submission of the Final Scoping Report	• A notification letter notifying stakeholders that the FSR has been submitted to DMPR was emailed to the full stakeholder database. • An SMS was sent to stakeholders who have no access to the internet.

6. Consultation undertaken for 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 were included as part of the Draft Environmental Impact Assessment Report (EIA) including the Environmental Management Programmes (EMPr) and the Draft Integrated Water and Waste Management Plan, in support of the EA application. Stakeholders will be invited to participate in both online and in-person engagements depending on their preference. The purpose of these meetings will be held to present the findings of the specialist studies and to get comments from stakeholders.

6.1.1 Public Participation Materials: Impact Assessment Phase

Notification Letter: An email notification was sent to stakeholders on **Tuesday, 22 September 2026**, informing them of the availability of the Draft EIA/EMPr Reports and the Draft IWWMP for public review and comment. The notification also provided details of the Public Meeting and invited stakeholders of the broader public to formally register as Interested and Affected Parties (I&APs), as presented in **Appendix C6.**

A reminder notification will subsequently be emailed to stakeholders to remind them of the availability of the Draft EIA/EMPr Reports and the Draft IWWMP for public review and comment. The reminder notification will also serve to encourage stakeholders to attend the Public Meeting, as presented in **Appendix C6**.

SMS: An SMS was sent to stakeholders with no access to the internet. Stakeholders were notified on the availability of the Draft EIA/EMPr Reports and the Draft IWWMP for public review and comment and when the Public Meeting will be held.

Newspaper Advertisements: A newspaper advert was placed in the **Vista** local newspaper within the Project area, on **Thursday 24 September 2026**. The advertisement provided details about the public review period for the Draft EIA/EMPr Reports and the Draft IWWMP and how the public can access the Reports for their review and comment. The advert provided information about the online and in-person engagements sessions.

Telephonic Discussions: Stakeholders will be consulted, where required, through telephonic discussions. These discussions facilitate the process of inviting stakeholders to stakeholder meetings and provide stakeholders with an opportunity to raise comments, concerns and suggestions regarding the Project. Comments and concerns raised during telephonic discussions are recorded and addressed by the Project team.

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Maps: Various maps which are part of the Draft EIA/EMPr Reports and the Draft IWWMP will be on display during online and the in-person engagements.

6.1.2 Availability of the Draft EIA/EMPr Reports and the Draft IWWMP for Public Review and Comment

The Draft EIA/EMPr Reports has been compiled and will be made available for a 30-day public review and comment period from **Tuesday, 29 September 2026 until Wednesday, 28 October 2026**.

The Draft IWWMP will be made available for a 60-day public review and comment period from **Tuesday, 29 September 2026 until Friday, 27 November 2026**.

The Draft EIA Report and the Draft IWWMP will be made available as follows:

- Electronic copies on Kongiwe's website: https://kongiwe.com/projects/.
- The non-technical summary of the Draft EIA/EMPr Reports will be emailed to all stakeholders on the database.
- Hard copies of the non-technical summary will be distributed to the Stakeholder Meeting attendees (English and Sesotho).
- Hard copies of the Draft EIA/EMPr Reports and the Draft IWWMP will be available at the Allenridge Public Library and Nyakallong Public Library (shown in table below)

Table 6-1: Places where the Draft EIA/EMPr Reports and the Draft IWWMP will be circulated

Location	Physical Address	Contact Person / Times
Allanridge Public Library	53 Caledon St, Allanridge	Ms Anna Matjelo, Librarian (078) 713 2063 Monday – Friday Open: 08H00 - Close: 15H30
Nyakallong Public Library	Nyakallong, Allanridge, 9492	Ms Vivian Dasheka (081) 761 1620 Monday – Friday Open: 08H00 - Close: 16H00

6.1.3 Submission of the Draft EIA/EMPr Reports to DMPR

The Draft EIA/EMPr Reports and appendices was submitted to the DMPR which is the Competent Authority (CA) for the Proposed Project on **Tuesday, 29 September 2026**.

Subsequently to above the Draft IWWMP will be made available for public review at the listed public places.

6.2 Stakeholder Meetings

Stakeholders are invited to participate through both online and in-person engagements. Online consultations will be conducted using platforms such as Microsoft Teams, while in-person consultations will be conducted through Broader Stakeholder Meetings.

The purpose of these Stakeholder Meetings is to discuss the Draft EIA Report and the Draft IWWMP, present the findings of the specialist studies, provide stakeholders with an opportunity to raise comments and concerns regarding the Reports, and facilitate interaction with the Project team. Information regarding the Proposed Project description, specialist study findings, potential impacts, and proposed mitigation measures will be presented. The presentation will include relevant maps illustrating the affected areas.

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Copies of the non-technical summary will be made available to stakeholders attending the meetings. The non-technical summary will be available in both English and Sesotho.

6.2.1 The following meetings will be held:

- **Online Meeting with Broader Stakeholders:** An online meeting will be held during the public review period, providing stakeholders with an opportunity to engage with the Project team and discuss the Draft EIA/EMPr Reports and the Draft IWWMP.
- **In-Person Meeting with Broader Stakeholders:** An in-person Public Meeting will be held during the public review period, providing stakeholders with an opportunity to engage directly with the Project team and discuss the Draft EIA/EMPr Reports and the Draft IWWMP.
- **Landowner Meeting:** Consultation meetings will be held with directly and adjacent affected landowners, where applicable or requested.

Table 6-2 provides a summary of the Stakeholder Meetings scheduled.

Table 6-2: Stakeholder Meetings

Meeting Dates	Stakeholders	Time Slots
In-Person Meetings		
Saturday, 10 October 2026	Broader Stakeholder Meeting (Public Meeting) held at S.A. Mokhothu Primary School 3073 Nyakallong, Allanridge, 9490	10H00 – 12:00
Online Meetings		
Tuesday, 6 October 2026	Microsoft Teams – Online Meeting was held with Broader Stakeholder including directly and indirectly affected landowner's / land occupiers /community members / authorities /NGOs and other.	10H00 – 11H00

Focused efforts will be made to engage with directly impacted stakeholders, including residents within the Proposed Project area and vulnerable groups at the local level. These stakeholders will be consulted directly and, where appropriate, through their representatives and other influential members of the community. Meetings will be conducted in a culturally appropriate manner, providing stakeholders with an opportunity to openly express their views and concerns. Stakeholders will be given the opportunity to raise issues in the language of their choice, and translation services will be provided where required.

Authorities, NGOs, landowners, land occupiers and community members will be engaged to promote participation and attendance at stakeholder meetings through telephonic consultations and the distribution of emails and SMS notifications.

A list of meetings and consultations undertaken during the process will be provided in the Final EIA Report and the Final IWWMP and presented in **Appendix C8**.

Minutes of the meetings, together with the presentation materials, will be compiled and made available to stakeholders who attended the meetings. These will be included in **Appendix C8** of the Final EIA/EMPr Reports and the Final IWWMP.

All comments and concerns raised by stakeholders during the meetings will be recorded in the Comment and Response Report (CRR). Responses will be prepared by the Project team in accordance with the Project scope and available information and will be included in **Appendix C10** of the Final EIA/EMPr Reports and the Final IWWMP.

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6.3 Summary of Consultations

Table 6-3 below provides a summary of the stakeholder engagement activities that formed part of the Impact Assessment Phase.

Table 6-3: Summary of activities to be undertaken as part of the Impact Assessment Phase

Activity	Details	Appendices
Announcement of the Availability of the Draft EIA Report and the Draft IWWMP	• The announcement letter was distributed to stakeholders on **Tuesday, 22 September 2026** to: - Announce availability of the Draft EIA/EMPr Reports and the Draft IWWMP. - Invite stakeholders to the Online Meeting and Public Meeting; and - Indicate where the Draft EIA/EMPr Reports and the Draft IWWMP will be available for public review and comment. - The non-technical summary will be emailed to the full stakeholder database and will be made available at the Public Meeting in English and Sesotho.	**Appendix C6** Announcement Letter
Placement of Newspaper Advertisements	• Newspaper advert was placed on **Thursday, 24 September 2026** in **Vista Local Newspaper.**	**Appendix C4** Advertisement
Placement of the DEIA Report and the DIWWMP	• The Draft EIA/EMPr Reports has been compiled and will be made available for 30-day public review and comment period. • The Draft IWWMP will be made available for a 60-day public review and comment period. • The Draft EIA/EMPr Reports and the Draft IWWMP will be available on Kongiwe's website. • Copies of the Draft EIA/EMPr Reports and the Draft IWWMP will be placed in the following public place: - Allenridge Public Library; and - Nyakallong Public Library.	
Broader Stakeholder Meetings (Online and Public Meeting)	• Stakeholders will be invited to participate through online and in-person engagements. • The purpose of these Stakeholder Meetings is to discuss the Draft EIA/EMPr Reports and the Draft IWWMP, present findings from the specialist studies, provide stakeholders with a platform to raise comments on the Reports and interact with the project team. • Minutes of these meetings will be compiled and distributed to everyone who attended these meetings. • Comments raised from the meeting will be included into the Comment and Response Report (CRR).	**Appendix C8** List of Meetings and Meeting Minutes **Appendix C10** (CRR)

6.3.1 Consultation activities undertaken as part of the Final EIA/EMPr Reports Phase

The Final Environmental Impact Assessment Report will be submitted to DMPR.

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The Final IWWMP will be submitted to DWS, uploaded onto the DWS' electronic Water Use Licence Application and Authorisation System (e-WULAAS).

Table 6-4 below is a summary of the consultation activities during the Final EIA/EMPr Reports Phase.

Table 6-4: Summary of activities to be undertaken during the Final EIA/EMPr Reports 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 EIA/EMPr Reports	The Final EIA/EMPr Reports will be available on the Kongiwe's website.
Submission to DMPR	The Final EIA/EMPr Reports will be submitted to DMPR.
Submission to DWS	The Final IWWMP will be submitted to DWS.
Announcement of the submission of the Final EIA/EMPr Reports	• A notification letter notifying stakeholders that the Final EIA/EMPr Reports has been submitted to DMPR will be emailed to the full stakeholder database. • An SMS was sent to stakeholders who have no access to the internet.

7. Consultation with Stakeholders during the Decision-Making Phase

Once the Competent Authority which is **DMPR** has come to a decision regarding the EA authorisation of the Proposed Project, all 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.

The IWULA will be submitted to the **DWS** in terms of the NWA. Once the competent authority, which is DWS, has come to a decision regarding the IWULA, the DWS will notify the applicant and any person who has objected to the application, written reasons for decision will be given.

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Appendix C1: Stakeholder Database

Environmental Authorisation for the Jelani Joint Venture (JV) Area Underground Mining Project, in the Matjhabeng Local Municipality, Free State Province

Stakeholder Database

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Agricultural Union	Afgri South Africa: National	Mr	Ernest	Botha	Afgri-Attorney	Free State
Agricultural Union	Afgri South Africa: National	Ms	Nadia	Hetzel	Legal Representative (Afgri)	Free State
Agricultural Union	Agri South Africa: National	Mr	Janse	Rabie	Head of Natural Resources	Free State
Agricultural Union	Free State Agriculture	Dr	Jack	Armour	Commercial Manager	Free State
Agricultural Union	Free State Agriculture	Dr	Jane	Buys	Safety and Risk Analyst	Free State
Agricultural Union	Free State Agriculture	Mr	Christo	Doman	Mangaung Representative	Free State
Agricultural Union	Free State Agriculture	Mr	Francois	Wilken	President	Free State
Agricultural Union	Free State Agriculture	Mr	Gernie	Botha	Chief Executive Officer	Free State
Agricultural Union	Free State Agriculture	Mr	Stefan	Hanekom	Region 10 - Matjhabeng	Free State
Agricultural Union	Grain SA	Mr	MJ	Swart	Regional Contact	Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Agricultural Union	Grain SA	Mr	Werner	Vos	Regional Contact	Free State
Agricultural Union	TLU SA Central Region	Ms	Lynette	Du Plessis	Manager TAU SA Central Region	Free State
Agricultural Union	TLU SA Free State Region	Mr.	Jannie	Raath	Manager TAU SA Free State Region	Free State
Agricultural Union	Transvaal Agricultural Union of South Africa (TAUSA)	Mr	Henry	Geldenhuys	President	Free State
Community Member	Allanridge Community (Ward 36)	Mr	M	Dhlamini	Community Member	Free State
Community Member	Allanridge Community (Ward 36)	Mr	Malefu	Kesa	Community Member	Free State
Community Member	Allanridge Community (Ward 36)	Mr	Malofe	Mohlolo	Community Member	Free State
Community Member	Allanridge Community (Ward 36)	Mr	Molefi	Mthuthi	Community Member	Free State
Community Member	Allanridge Community (Ward 36)	Ms	Anna	Kabane	Community Member	Free State
Community Member	Allanridge Community (Ward 36)	Ms	M.S	Qaliuge	Community Member	Free State
Community Member	Allanridge Community (Ward 36)	Ms	Mfuthi	Maluka	Community Member	Free State
Community Member	Allanridge Community (Ward 36)	Ms	Pulane Gloria	Molefe	Community Member	Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Community Member	Nyakallong Community	Mr	A	Malako	Community Member	Free State
Community Member	Nyakallong Community	Mr	Arnold	Tshware	Community Member	Free State
Community Member	Nyakallong Community	Mr	Balen	Ravebe	Community Member	Free State
Community Member	Nyakallong Community	Mr	Barney	Mjebekoa	Community Member	Free State
Community Member	Nyakallong Community	Mr	Ben	Vikilanle	Community Member	Free State
Community Member	Nyakallong Community	Mr	Ben	Themba	Community Member	Free State
Community Member	Nyakallong Community	Mr	Bokang	Rathelzane	Community Member	Free State
Community Member	Nyakallong Community	Mr	Bongani	Mashiya	Community Member	Free State
Community Member	Nyakallong Community	Mr	Bongani	Mantjie	Community Member	Free State
Community Member	Nyakallong Community	Mr	Booi	Peacemaker	Community Member	Free State
Community Member	Nyakallong Community	Mr	Charles	Vuyisile	Community Member	Free State
Community Member	Nyakallong Community	Mr	Daniel	Potlako	Community Member	Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Community Member	Nyakallong Community	Mr	David	Mokati	Community Member	Free State
Community Member	Nyakallong Community	Mr	David	Fumelo	Community Member	Free State
Community Member	Nyakallong Community	Mr	David	Shabangu	Community Member	Free State
Community Member	Nyakallong Community	Mr	Desmond	Seboholi	Community Member	Free State
Community Member	Nyakallong Community	Mr	Dimakatso	Khamadi	Community Member	Free State
Community Member	Nyakallong Community	Mr	Disemelo	Mabele	Community Member	Free State
Community Member	Nyakallong Community	Mr	Ditaba	Hlalele	Community Member	Free State
Community Member	Nyakallong Community	Mr	Dumisani	Koni	Community Member	Free State
Community Member	Nyakallong Community	Mr	Elias	Makhooe	Community Member	Free State
Community Member	Nyakallong Community	Mr	Ephraim	Bonakele	Community Member	Free State
Community Member	Nyakallong Community	Mr	Fanie	Matlala	Community Member	Free State
Community Member	Nyakallong Community	Mr	Frans	Letube	Community Member	Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Community Member	Nyakallong Community	Mr	Harmans	Keketso	Community Member	Free State
Community Member	Nyakallong Community	Mr	Hendrik	Molholotsi	Community Member	Free State
Community Member	Nyakallong Community	Mr	Jimmy	Mokoena	Community Member	Free State
Community Member	Nyakallong Community	Mr	Joseph	Maboara	Community Member	Free State
Community Member	Nyakallong Community	Mr	Justice	Lepele	Community Member	Free State
Community Member	Nyakallong Community	Mr	Kedibone	Toons	Community Member	Free State
Community Member	Nyakallong Community	Mr	Kekeletso	Rakometsi	Community Member	Free State
Community Member	Nyakallong Community	Mr	Kenny	Mpato	Community Member	Free State
Community Member	Nyakallong Community	Mr	Kholong	Seipati	Community Member	Free State
Community Member	Nyakallong Community	Mr	Koos	Letaba	Community Member	Free State
Community Member	Nyakallong Community	Mr	L	Mkhonto	Community Member	Free State
Community Member	Nyakallong Community	Mr	L.G	Molelekop	Community Member	Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Community Member	Nyakallong Community	Mr	Latu	Monoametsi	Community Member	Free State
Community Member	Nyakallong Community	Mr	Laukazi	Mamkeli	Community Member	Free State
Community Member	Nyakallong Community	Mr	Lucky	Nale	Community Member	Free State
Community Member	Nyakallong Community	Mr	M	Setsosa	Community Member	Free State
Community Member	Nyakallong Community	Mr	M.J	Motembe	Community Member	Free State
Community Member	Nyakallong Community	Mr	M.S	Molotsane	Community Member	Free State
Community Member	Nyakallong Community	Mr	MacDonald	Sootho	Community Member	Free State
Community Member	Nyakallong Community	Mr	Macione	Sekege	Community Member	Free State
Community Member	Nyakallong Community	Mr	Makwera	Vele	Community Member	Free State
Community Member	Nyakallong Community	Mr	Malefu	Mokoena	Community Member	Free State
Community Member	Nyakallong Community	Mr	Malefu	Matela	Community Member	Free State
Community Member	Nyakallong Community	Mr	Malefu	Mabitsi	Community Member	Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Community Member	Nyakallong Community	Mr	Malethola	Seeteng	Community Member	Free State
Community Member	Nyakallong Community	Mr	Malgas	Moleleki	Community Member	Free State
Community Member	Nyakallong Community	Mr	Martin	Sekhalo	Community Member	Free State
Community Member	Nyakallong Community	Mr	Maserane	Khatlane	Community Member	Free State
Community Member	Nyakallong Community	Mr	Matlakeng	Molefi	Community Member	Free State
Community Member	Nyakallong Community	Mr	Meli	Nalashiya	Community Member	Free State
Community Member	Nyakallong Community	Mr	Mfunyiswa	Mamelle	Community Member	Free State
Community Member	Nyakallong Community	Mr	Michael	Setsosa	Community Member	Free State
Community Member	Nyakallong Community	Mr	Mohau	Rakometsi	Community Member	Free State
Community Member	Nyakallong Community	Mr	Mojalefa	Mabaso	Community Member	Free State
Community Member	Nyakallong Community	Mr	Molelekeng	Khoabane	Community Member	Free State
Community Member	Nyakallong Community	Mr	Moselantja	Stasie	Community Member	Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Community Member	Nyakallong Community	Mr	Motshidisi	Motholo	Community Member	Free State
Community Member	Nyakallong Community	Mr	N.I	Mei	Community Member	Free State
Community Member	Nyakallong Community	Mr	Nelson	Ntate	Community Member	Free State
Community Member	Nyakallong Community	Mr	Nolubabalo	Mvakwendlu	Community Member	Free State
Community Member	Nyakallong Community	Mr	Nondlela	Mantjie	Community Member	Free State
Community Member	Nyakallong Community	Mr	Ntsala	Kgotso	Community Member	Free State
Community Member	Nyakallong Community	Mr	Ntswaki	Kunehe	Community Member	Free State
Community Member	Nyakallong Community	Mr	Orlando	Skosana	Community Member	Free State
Community Member	Nyakallong Community	Mr	Palesa	Malqas	Community Member	Free State
Community Member	Nyakallong Community	Mr	Paulus	Seboholi	Community Member	Free State
Community Member	Nyakallong Community	Mr	Petrus	Xaba	Community Member	Free State
Community Member	Nyakallong Community	Mr	Petrus	Pitsi	Community Member	Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Community Member	Nyakallong Community	Mr	Phindani	Nomfundo	Community Member	Free State
Community Member	Nyakallong Community	Mr	Phiwe	Zungu	Community Member	Free State
Community Member	Nyakallong Community	Mr	Potso	Mokgoamme	Community Member	Free State
Community Member	Nyakallong Community	Mr	Pule	Nche	Community Member	Free State
Community Member	Nyakallong Community	Mr	Pule	Sakaja	Community Member	Free State
Community Member	Nyakallong Community	Mr	Puseletso	Mthombeni	Community Member	Free State
Community Member	Nyakallong Community	Mr	Qithiwe	Mabohlokwa	Community Member	Free State
Community Member	Nyakallong Community	Mr	Samuel	Maleme	Community Member	Free State
Community Member	Nyakallong Community	Mr	Seipati	Khamadi	Community Member	Free State
Community Member	Nyakallong Community	Mr	Sello	Gogoane	Community Member	Free State
Community Member	Nyakallong Community	Mr	Smous	Moleti	Community Member	Free State
Community Member	Nyakallong Community	Mr	Stephen	Motosi	Community Member	Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Community Member	Nyakallong Community	Mr	Stephen	Leshoro	Community Member	Free State
Community Member	Nyakallong Community	Mr	T	Tshokeko	Community Member	Free State
Community Member	Nyakallong Community	Mr	T	Mahlomola	Community Member	Free State
Community Member	Nyakallong Community	Mr	Tau	Sentimile	Community Member	Free State
Community Member	Nyakallong Community	Mr	Tau	Thakane	Community Member	Free State
Community Member	Nyakallong Community	Mr	Teboho	Thelingoane	Community Member	Free State
Community Member	Nyakallong Community	Mr	Teboho	Letsaba	Community Member	Free State
Community Member	Nyakallong Community	Mr	Thabang	Sephiri	Community Member	Free State
Community Member	Nyakallong Community	Mr	Thabo	Soonezi	Community Member	Free State
Community Member	Nyakallong Community	Mr	Thabo	Moikabi	Community Member	Free State
Community Member	Nyakallong Community	Mr	Thabo	Maseme	Community Member	Free State
Community Member	Nyakallong Community	Mr	Thamsanga	Tsibane	Community Member	Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Community Member	Nyakallong Community	Mr	Thanks	Maditjane	Community Member	Free State
Community Member	Nyakallong Community	Mr	Thapelo	Magana	Community Member	Free State
Community Member	Nyakallong Community	Mr	Tsatsi	Leshoro	Community Member	Free State
Community Member	Nyakallong Community	Mr	Victor	Chauke	Community Member	Free State
Community Member	Nyakallong Community	Mr	Willem	Nonyque	Community Member	Free State
Community Member	Nyakallong Community	Mr	William	Kene	Community Member	Free State
Community Member	Nyakallong Community	Ms	Aletta	Latha	Community Member	Free State
Community Member	Nyakallong Community	Ms	Aletta	Lesekele	Community Member	Free State
Community Member	Nyakallong Community	Ms	Anita	Lietsiso	Community Member	Free State
Community Member	Nyakallong Community	Ms	Anna	Kiolea	Community Member	Free State
Community Member	Nyakallong Community	Ms	Anna	Matase	Community Member	Free State
Community Member	Nyakallong Community	Ms	Anna	Mabaso	Community Member	Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Community Member	Nyakallong Community	Ms	Bernett	Moorosi	Community Member	Free State
Community Member	Nyakallong Community	Ms	Betty	Mosia	Community Member	Free State
Community Member	Nyakallong Community	Ms	Bohlokwane	Mokhele	Community Member	Free State
Community Member	Nyakallong Community	Ms	Bonang Evodia	Selanda	Community Member	Free State
Community Member	Nyakallong Community	Ms	Dikeledi	Moabi	Community Member	Free State
Community Member	Nyakallong Community	Ms	Dikeledi	Mazibako	Community Member	Free State
Community Member	Nyakallong Community	Ms	Dipuo	Motabele	Community Member	Free State
Community Member	Nyakallong Community	Ms	E	Khashane	Community Member	Free State
Community Member	Nyakallong Community	Ms	Elsie	Tlhone	Community Member	Free State
Community Member	Nyakallong Community	Ms	Emily	Xaba	Community Member	Free State
Community Member	Nyakallong Community	Ms	Emily	Leteane	Community Member	Free State
Community Member	Nyakallong Community	Ms	Emily	Mazibuko	Community Member	Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Community Member	Nyakallong Community	Ms	Francinah	Kumalo	Community Member	Free State
Community Member	Nyakallong Community	Ms	Gladys	Makwaji	Community Member	Free State
Community Member	Nyakallong Community	Ms	Gladys	Leshoro	Community Member	Free State
Community Member	Nyakallong Community	Ms	Innouentia	Mokhethu	Community Member	Free State
Community Member	Nyakallong Community	Ms	Jhabana	Mapo	Community Member	Free State
Community Member	Nyakallong Community	Ms	Judith	Matata	Community Member	Free State
Community Member	Nyakallong Community	Ms	Kabane	Malefu	Community Member	Free State
Community Member	Nyakallong Community	Ms	Karabo	Sehloho	Community Member	Free State
Community Member	Nyakallong Community	Ms	Kgauhe	Radebe	Community Member	Free State
Community Member	Nyakallong Community	Ms	Kgotso	Thamae	Community Member	Free State
Community Member	Nyakallong Community	Ms	Khanyisile	Matsaba	Community Member	Free State
Community Member	Nyakallong Community	Ms	Kheswa	Morena	Community Member	Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Community Member	Nyakallong Community	Ms	L	Mogotsola	Community Member	Free State
Community Member	Nyakallong Community	Ms	L.P	Mathapo	Community Member	Free State
Community Member	Nyakallong Community	Ms	Leah	Goliath	Community Member	Free State
Community Member	Nyakallong Community	Ms	Lenkie	Malete	Community Member	Free State
Community Member	Nyakallong Community	Ms	Lerato	Thibakgoana	Community Member	Free State
Community Member	Nyakallong Community	Ms	Lerato	Monyake	Community Member	Free State
Community Member	Nyakallong Community	Ms	Lerato	Ramakaba	Community Member	Free State
Community Member	Nyakallong Community	Ms	Lerato	Mofolo	Community Member	Free State
Community Member	Nyakallong Community	Ms	Lethusang	Tshabalala	Community Member	Free State
Community Member	Nyakallong Community	Ms	Lettia	Matshepo	Community Member	Free State
Community Member	Nyakallong Community	Ms	Lindy	Keumile	Community Member	Free State
Community Member	Nyakallong Community	Ms	Lindy	Kehemile	Community Member	Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Community Member	Nyakallong Community	Ms	M	Phelane	Community Member	Free State
Community Member	Nyakallong Community	Ms	Madillo	Mory	Community Member	Free State
Community Member	Nyakallong Community	Ms	Maki	Moloke	Community Member	Free State
Community Member	Nyakallong Community	Ms	Malesedi	Tlale	Community Member	Free State
Community Member	Nyakallong Community	Ms	Malte	Mahoa	Community Member	Free State
Community Member	Nyakallong Community	Ms	Mampho	Potsane	Community Member	Free State
Community Member	Nyakallong Community	Ms	Manana	Majola	Community Member	Free State
Community Member	Nyakallong Community	Ms	Mangali	Happiness	Community Member	Free State
Community Member	Nyakallong Community	Ms	Maria	Makhobeng	Community Member	Free State
Community Member	Nyakallong Community	Ms	Masorame	Maotzane	Community Member	Free State
Community Member	Nyakallong Community	Ms	Mathabo	Moloke	Community Member	Free State
Community Member	Nyakallong Community	Ms	Matshediso	Motlie	Community Member	Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Community Member	Nyakallong Community	Ms	Matsietsi	Challa	Community Member	Free State
Community Member	Nyakallong Community	Ms	Meriam	Koloti	Community Member	Free State
Community Member	Nyakallong Community	Ms	Merriam	Busakwe	Community Member	Free State
Community Member	Nyakallong Community	Ms	Mhlapo	Malefu	Community Member	Free State
Community Member	Nyakallong Community	Ms	Mianeeni	Mabaso	Community Member	Free State
Community Member	Nyakallong Community	Ms	Mlindeni	Mose	Community Member	Free State
Community Member	Nyakallong Community	Ms	Mmami	Khotle	Community Member	Free State
Community Member	Nyakallong Community	Ms	Modiehi	Tsilo	Community Member	Free State
Community Member	Nyakallong Community	Ms	Moeketsi	Thelingone	Community Member	Free State
Community Member	Nyakallong Community	Ms	Mohloho	Thibakhoane	Community Member	Free State
Community Member	Nyakallong Community	Ms	Mokgorwane	Pholo	Community Member	Free State
Community Member	Nyakallong Community	Ms	Moretlo	Kodisany	Community Member	Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Community Member	Nyakallong Community	Ms	Moshoeshoe	Mokhele	Community Member	Free State
Community Member	Nyakallong Community	Ms	Motsamai	Kgiba	Community Member	Free State
Community Member	Nyakallong Community	Ms	Motshewa	Radebe	Community Member	Free State
Community Member	Nyakallong Community	Ms	Mpho	Motlhabe	Community Member	Free State
Community Member	Nyakallong Community	Ms	Mpho	Mokoaledi	Community Member	Free State
Community Member	Nyakallong Community	Ms	Mpho	Maeneli	Community Member	Free State
Community Member	Nyakallong Community	Ms	Mpnaka	Mafantiri	Community Member	Free State
Community Member	Nyakallong Community	Ms	Naangane	Molefi	Community Member	Free State
Community Member	Nyakallong Community	Ms	Naledi	Msebeni	Community Member	Free State
Community Member	Nyakallong Community	Ms	Nkhopea	Moqaseng	Community Member	Free State
Community Member	Nyakallong Community	Ms	Nomakholwa	Koni	Community Member	Free State
Community Member	Nyakallong Community	Ms	Nomthanelazo	van Wyk	Community Member	Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Community Member	Nyakallong Community	Ms	Nomvula	Mabaso	Community Member	Free State
Community Member	Nyakallong Community	Ms	Ntshiwa Dina	Khiba	Community Member	Free State
Community Member	Nyakallong Community	Ms	Ntsoaki	Mphatsi	Community Member	Free State
Community Member	Nyakallong Community	Ms	Nundu	Nosabelo	Community Member	Free State
Community Member	Nyakallong Community	Ms	Nunu	Rasile	Community Member	Free State
Community Member	Nyakallong Community	Ms	Paballo	Hlwempu	Community Member	Free State
Community Member	Nyakallong Community	Ms	Palesa	Moloi	Community Member	Free State
Community Member	Nyakallong Community	Ms	Patricia	Yoso	Community Member	Free State
Community Member	Nyakallong Community	Ms	Phindile	Solomone	Community Member	Free State
Community Member	Nyakallong Community	Ms	Pleasure	Magagula	Community Member	Free State
Community Member	Nyakallong Community	Ms	Portia	Vuka	Community Member	Free State
Community Member	Nyakallong Community	Ms	Princess	Santaoana	Community Member	Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Community Member	Nyakallong Community	Ms	Pulane	Moloke	Community Member	Free State
Community Member	Nyakallong Community	Ms	Puleng	Nyalela	Community Member	Free State
Community Member	Nyakallong Community	Ms	Rosita	Nuvelo	Community Member	Free State
Community Member	Nyakallong Community	Ms	Rutu	Motsokolo	Community Member	Free State
Community Member	Nyakallong Community	Ms	Sandiswa	Kokwana	Community Member	Free State
Community Member	Nyakallong Community	Ms	Selina	Thibakhoana	Community Member	Free State
Community Member	Nyakallong Community	Ms	Selina	Jinkela	Community Member	Free State
Community Member	Nyakallong Community	Ms	Selinah	Montwedi	Community Member	Free State
Community Member	Nyakallong Community	Ms	Selinah	Booi	Community Member	Free State
Community Member	Nyakallong Community	Ms	Susan	Utloa	Community Member	Free State
Community Member	Nyakallong Community	Ms	Taeli	Thelma	Community Member	Free State
Community Member	Nyakallong Community	Ms	Teboho	Matome	Community Member	Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Community Member	Nyakallong Community	Ms	Thabiso	Maretele	Community Member	Free State
Community Member	Nyakallong Community	Ms	Thapelo	Shasha	Community Member	Free State
Community Member	Nyakallong Community	Ms	Thapelo	Mothabe	Community Member	Free State
Community Member	Nyakallong Community	Ms	Thato	Mokoena	Community Member	Free State
Community Member	Nyakallong Community	Ms	Thelinqoune	Kobedi	Community Member	Free State
Community Member	Nyakallong Community	Ms	Thobeka	Komanisi	Community Member	Free State
Community Member	Nyakallong Community	Ms	Thulani	Gumede	Community Member	Free State
Community Member	Nyakallong Community	Ms	Tlale	Kuape	Community Member	Free State
Community Member	Nyakallong Community	Ms	Tlaleng	Mantsheane	Community Member	Free State
Community Member	Nyakallong Community	Ms	Tlhone	Pahah	Community Member	Free State
Community Member	Nyakallong Community	Ms	Tshepang	Mazibako	Community Member	Free State
Community Member	Nyakallong Community	Ms	Tshepo	Mpitsi	Community Member	Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Community Member	Nyakallong Community	Ms	Valashiya	Malao	Community Member	Free State
Community Member	Nyakallong Community	Ms	Vanessa	Nkhatnom	Community Member	Free State
Community Member	Nyakallong Community	Ms	Zanele	May	Community Member	Free State
Community Member	Nyakallong Community	Ms	Zenande	Mahlanza	Community Member	Free State
Community Member	Nyakallong Community	Ms	Zeth	Mothabe	Community Member	Free State
Community Member	Nyakallong Community	Ms	Zikhona	Mahlumba	Community Member	Free State
Community Member	Nyakallong Community	Ms	Zizipho	Mahlanza	Community Member	Free State
Community Member	Odendaalsrus Community	Mr	Macdonald	Kgobe	Community Member	Free State
Directly Affected Landowner, Farmers Association, Indirectly Affected Landowner	Private Landowner	Mr	Willem	Taljaard	Landowner	Free State
Directly Affected Landowner, Indirectly Affected Landowner	Blaauwklip Trust	Mr	Eduard	Steyn	Owner	Free State
District Municipality	Lejweleputswa District Municipality (LDM)	Cllr	Veronica	Ntakumbana	Executive Mayor	Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
District Municipality	Lejweleputswa District Municipality (LDM)	Mr		Silone	LED Manager	Free State
District Municipality	Lejweleputswa District Municipality (LDM)	Mr	AT	Jonas	LED, Agriculture	Free State
District Municipality	Lejweleputswa District Municipality (LDM)	Mr	Dewald	Kirsten	Manager Environmental Health Services	Free State
District Municipality	Lejweleputswa District Municipality (LDM)	Mr	Fannie	Zim	Environmental Management Practitioner	Free State
District Municipality	Lejweleputswa District Municipality (LDM)	Mr	Motlatsi	Makhetha	Municipal Manager	Free State
District Municipality	Lejweleputswa District Municipality (LDM)	Mr	Orapeleng	Manake	Environmental Manager	Free State
District Municipality	Lejweleputswa District Municipality (LDM)	Ms	Bogolo	Mapota	Air Pollution District Manager	Free State
District Municipality	Lejweleputswa District Municipality (LDM)	Ms	Michelle	Sello	Executive Manager of Environmental Health Services and Disaster Management	Free State
Environmental NGO's	African Wattle Crane Programme	Ms	Kerryn	Morrison	Manager	Free State
Environmental NGO's	Agricultural Research Council	Dr	Litha	Magingxa	President and CEO	Free State
Environmental NGO's	Benchmarks Foundation (BMF)	Mr	David	van Wyk	Environmental	Free State
Environmental NGO's	Benchmarks Foundation (BMF)	Mr	Moses	Cloete	Director	Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Environmental NGO's	Benchmarks Foundation (BMF)	Mr	Simo	Gumede	Logistics and Administration Lead	Free State
Environmental NGO's	Benchmarks Foundation (BMF)	Ms	Busi	Thabane	General Manager	Free State
Environmental NGO's	Birdlife South Africa (BLSA)	Dr	Kirsten	Day	Policy & Advocacy Manager	Free State
Environmental NGO's	Birdlife South Africa (BLSA)	Mr	Sam Ralston	Paton	Birds & Renewable Energy Project Manager	Free State
Environmental NGO's	Centre for Environmental Rights (CER)	Mr	Brandon	Abdinor	Programme Head: Pollution & Climate Change	Free State
Environmental NGO's	Council of Geoscience: National	Dr	Thakane	Ntholi	Specialist Scientist	Free State
Environmental NGO's	Endangered Wildlife Trust (EWT)	Mr	Bradley	Gibbons	Free State Representative	Free State
Environmental NGO's	Endangered Wildlife Trust (EWT): National	Mr	Kishaylin	Chetty	Executive: Head of Sustainability	Free State
Environmental NGO's	Endangered Wildlife Trust (EWT): National	Ms	Samista	Rooplal	Biodiversity and Business Officer	Free State
Environmental NGO's	Federation for Sustainable Environment (FSE)	Ms	Mariette	Liefferink	Chief Executive Officer	Free State
Environmental NGO's	Groundwork	Mr	Bobby	Peek	Director	Free State
Environmental NGO's	Save the Vaal Environment	Mr	Malcolm	Plant	Chairman	Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Environmental NGO's	Save the Vaal Environment	Mr	Michael	Gaade	Committee Member	Free State
Environmental NGO's	South African National Biodiversity Institute (SANBI)	Ms	A	Mohai	Free State Representative	Free State
Environmental NGO's	Vaal Environmental Justice Alliance	Mr	Samson	Mokoena	Coordinator	Free State
Environmental NGO's	Wildlife & Environmental Society of South Africa (WESSA)	Mr	John	Wesson	Manager: Conservation Specialist	Free State
Environmental NGO's	Wildlife & Environmental Society of South Africa (WESSA)	Mr	Morgan	Griffiths	Senior Manager: Advocacy, Membership and Governance	Free State
Indirectly Affected Landowner, Local Municipality	Matjhabeng Local Municipality	Mr	Eric Sello	Senoge	Property Department	Free State
Indirectly Affected Landowner	Avgold Limited	Mr	Assan	Ralebona	Specialist	Free State
Indirectly Affected Landowner	Dirk Botha Trust	Mr	Christo	Nel	Landowner	Free State
Indirectly Affected Landowner	Jaco Grobbelaar Trust	Mr	Jaco	Grobbelaar	Landowner	Free State
Interested & Affected Party	All Groups Grow Foundation	Mr	M	Buyisi	Member	Free State
Interested & Affected Party	KB Salman Civil Construction and General Projects	Mr	Molefi Abel	Thebeeahae	Director	Free State
Interested & Affected Party	Lekalake Attorneys INC	Mr	Kabelo	Lekalake	Director	Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Interested & Affected Party	Lexington Gold	Mr	Bernard	Olivier	Member	Free State
Interested & Affected Party	Mathumbi Enterprise	Mr	Sepati	Mathumbi	Member	Free State
Interested & Affected Party	Sisu Community Social Organization	Mr	Ditsietsi	Makhobeni	Representative	Free State
Interested & Affected Party	Sisu Community Social Organization	Mr	Qondane	Tembani	Chairperson	Free State
Interested & Affected Party	Tetra4	Mr	David	Pule	Environmental Department	Free State
Interested & Affected Party	Tetra4	Mr	Tinashe	Maramba	Environmental Manager	Free State
Interested & Affected Party	Titan TP Tradings Pty Ltd	Mr	Pule	Sekaja	Director	Free State
Interested & Affected Party	Umkhonto Womnotho	Ms	Lerato	Mokonyane	Executive Secretary	Free State
Local Municipality	Matjhabeng Local Municipality	Adv	Lauretta	van Wyk-Williams	Municipal Manager	Free State
Local Municipality	Matjhabeng Local Municipality	Dr	Sefako	Ramphoma	Executive Director: Local Economic Development (LED)	Free State
Local Municipality	Matjhabeng Local Municipality	Mr	Adam	Pobe	Acting Executive Director	Free State
Local Municipality	Matjhabeng Local Municipality	Mr	Boipelo	Molelekoa	Area Manager: City Planning - Welkom / Virginia / Odendaalsrus / Allanridge	Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Local Municipality	Matjhabeng Local Municipality	Mr	Johannes	Theunissen	Waste Manager	Free State
Local Municipality	Matjhabeng Local Municipality	Mr	Johannes S.J.	Griesel	Acting Manager: Development Planning	Free State
Local Municipality	Matjhabeng Local Municipality	Mr	Kabelo	Masekoa	Manager: Water	Free State
Local Municipality	Matjhabeng Local Municipality	Mr	Lennox	Rubulana	Speaker	Free State
Local Municipality	Matjhabeng Local Municipality	Mr	Lunga	Ncapai	Waste Officer	Free State
Local Municipality	Matjhabeng Local Municipality	Mr	Nico	Vorster	Manager	Free State
Local Municipality	Matjhabeng Local Municipality	Mr	Peter	Mathebula	Official	Free State
Local Municipality	Matjhabeng Local Municipality	Mr	Sello	Naniso	Manager at the Speakers Office	Free State
Local Municipality	Matjhabeng Local Municipality	Mr	Serake	Leeuw	Special Advisor to the Office of the Executive Mayor	Free State
Local Municipality	Matjhabeng Local Municipality	Mr	Thabo	Mthombeni	Senior Manager Civil Engineering	Free State
Local Municipality	Matjhabeng Local Municipality	Mr	Thanduxolo	Khalipha	Executive Mayor	Free State
Local Municipality	Matjhabeng Local Municipality	Mr	Tsekiso	Majake	IDP Manager	Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Local Municipality	Matjhabeng Local Municipality	Mrs	Matshidiso	Seekoei	Legal Counsel	Free State
Local Municipality	Matjhabeng Local Municipality	Mrs	Yolette	Fransman		Free State
Local Municipality	Matjhabeng Local Municipality	Ms	Akhona	Noholoza	Secretary to Municipal Manager	Free State
Local Municipality	Matjhabeng Local Municipality	Ms	Charlene	Smith	Official	Free State
Local Municipality	Matjhabeng Local Municipality	Ms	Malehloa	Leballo	Acting Director: Local Economic Development (LED)	Free State
Local Municipality	Matjhabeng Local Municipality	Ms	Mapitso	Mohapi	Office of the Speaker	Free State
Local Municipality	Matjhabeng Local Municipality	Ms	Mmase	January	Snr.Manager Planning	Free State
Local Municipality	Matjhabeng Local Municipality	Ms	Mmase	Moletsane	Spatial Planning and City Planning	Free State
Local Municipality	Matjhabeng Local Municipality	Ms	Morakane	Mothekhe	Planning and Human Settlement	Free State
Local Municipality	Matjhabeng Local Municipality	Ms	Nelia	Rust	Manager Water and Effluent Water - West	Free State
Local Municipality	Matjhabeng Local Municipality	Ms	Rosy	Ramalitswe	PA (Mr Mthombeni's PA)	Free State
Local Municipality	Matjhabeng Local Municipality	Ms	Suna	Swanepoel	PA to Mr Pope	Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
National Government	Department of Forestry Fisheries and the Environment (DFFE)			DFFE	Forestry Branch	Free State
National Government	Department of Forestry, Fisheries and the Environment (DFFE)			DFFE - Biodiversity		Free State
National Government	Department of Forestry, Fisheries and the Environment (DFFE)	Mr	Ronald	Nenungwi	Acting Chief Directorate	Free State
National Government	Department of Forestry, Fisheries and the Environment (DFFE)	Mr	Seoka	Lekota	Biodiversity Conservation	Free State
National Government	Department of Forestry, Fisheries and the Environment (DFFE)	Mr	Stanley	Tshitwamulomoni	Strategic Water Source Area	Free State
National Government	Department of Forestry, Fisheries and the Environment (DFFE)	Ms	Lydia	Kutu	Integrated Environmental Authorisations:Priority Infrastructure Developments	Free State
National Government	Department of Forestry, Fisheries and the Environment (DFFE)	Ms	Makhosi	Yeni	Environmental Officer	Free State
National Government	Department of Forestry, Fisheries and the Environment (DFFE)	Ms	Mashudu	Mudau	Protected Areas Planning and Management Effectiveness	Free State
National Government	Department of Forestry, Fisheries and the Environment (DFFE)	Ms	Mmatlala	Rabothata	Biodiversity Conservation	Free State
National Government	Department of Forestry, Fisheries and the Environment (DFFE)	Ms	Mulalo	Sundani	National Office: Directorate: Forestry Regulation and Oversight: Environmental	Free State
National Government	Department of Forestry, Fisheries and the Environment (DFFE)	Ms	Portia	Makitla	Biodiversity and Conservation	Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
National Government	Department of Health (DOH): National	Ms	Belinda	Makhafola	Directorate: Environmental Health Services	Free State
National Government	Department of Land Reform and Rural Development (DLRRD)	Mr	Bushy	Ngamole	Commision on Restitution of Land Rights- Free State Supervisor	Free State
National Government	Department of Land Reform and Rural Development (DLRRD)	Mr	Clement	Modise	Commision on Restitution of Land Rights- Free State Officer	Free State
National Government	Department of Land Reform and Rural Development (DLRRD)	Mr	Khomotso	Mahlatji	Commission on Restitution of Land Rights (CRLR)- Free State Officer	Free State
National Government	Department of Land Reform and Rural Development (DLRRD)	Ms	Nozipho	Dlamini	Commission on Restitution of Land Rights (CRLR)- Free State Officer	Free State
National Government	Department of Mineral and Petroleum Resources (DMPR)	Adv	Mmadikeledi	Moloto	DDG: Mineral Regulation	Free State
National Government	Department of Mineral and Petroleum Resources (DMPR)	Mr	David	Msiza	Mine Health and Safety Inspectorate	Free State
National Government	Department of Mineral and Petroleum Resources (DMPR)	Mr	Rudzani	Mabogo	Head of Environment: Director for Compliance and Enforcement	Free State
National Government	Department of Mineral and Petroleum Resources (DMPR)	Mr	Siyabonga	Vezi	Acting Gauteng Regional Director	Free State
National Government	Department of Public Works and Infrastructure (DPWI)	Mr	Khumbulani	Thobani	Town Planning Services	Free State
National Government	Department of Public Works and Infrastructure (DPWI)	Mr	Lutendo	Neduvhuledza	Town Planning Services (HO)	Free State
National Government	Department of Public Works and Infrastructure (DPWI)	Mr	Zakhele	Ndebele	Real Estate Management Services	Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
National Government	Department of Public Works and Infrastructure (DPWI)	Ms	Jabulile	Mabaso	Acting Regional Manager	Free State
National Government	Department of Public Works and Infrastructure (DPWI)	Ms	Thobile	Zulu	Official	Free State
National Government	Department of Water and Sanitation (DWS)	Mr	Luvuyo	Nqelenga	Compliance Monitoring &Enforcement (BloemWater)	Free State
National Government	Department of Water and Sanitation (DWS)	Mr	Pieter	Ackerman	Chief Landscape Architect	Free State
National Government	Department of Water and Sanitation (DWS)	Mr	Roets	Wietsche	Specialist Scientist	Free State
National Government	Departmentof Water and Sanitation (DWS)	Mr	C	Schrader	Dam Safety: Free State Region Representative	Free State
National Government	Departmentof Water and Sanitation (DWS)	Ms	Vernon	Blair		Free State
National Government	Minerals Council South Africa: National	Mr	Babalwa	Matiwane	Environment Department: National	Free State
National Government	Minerals Council South Africa: National	Mr	Matome	Makwela	Environmental Advisor	Free State
National Government	Minerals Council South Africa: National	Ms	Jeannette	Hofsajer	Environment Department: National Administration	Free State
National Government	Minerals Council South Africa: National	Ms	Mpho	Thobye	Health	Free State
National Government	Minerals Council South Africa: National	Ms	Stephinah	Mudau	Head: Environmental Advisor	Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
National Government	National Nuclear Regulator (NNR)	Mr	Patle	Mohajane	Programme Manager: NORM	Free State
National Government (Provincial Office)	Department of Agriculture and Rural Development (DARD): Free State	Mr	Hennie	Grobler	Acting Director: Rural Infrastructure Development	Free State
National Government (Provincial Office)	Department of Community Safety, Roads and Transport (DCSRT): Free State	Mr	Bennit	Ramotseoa	Road Superintendent (Lejweleputswa)	Free State
National Government (Provincial Office)	Department of Community Safety, Roads and Transport (DCSRT): Free State	Mr	Theuns	Shields	Chief Road Superintendent (Lejweleputswa)	Free State
National Government (Provincial Office)	Department of Forestry, Fisheries and the Environment (DFFE)	Mr	Mthokozese	Nsizwane	Environmental Office	Free State
National Government (Provincial Office)	Department of Forestry, Fisheries and the Environment (DFFE)	Mr	Qaphela	Ndabankulu	Forestry Regulation	Free State
National Government (Provincial Office)	Department of Forestry, Fisheries and the Environment (DFFE)	Mr	Shumani	Dzivhani	Deputy Director: Forestry Regulation	Free State
National Government (Provincial Office)	Department of Forestry, Fisheries and the Environment (DFFE)	Ms	Khuliso	Khomari	Environmental Officer	Free State
National Government (Provincial Office)	Department of Forestry, Fisheries and the Environment (DFFE)	Ms	Nompumelelo	Lekalakala	Biodiversity	Free State
National Government (Provincial Office)	Department of Health (DOH): Free State	Mr	Johannes	Mokgatle	Director	Free State
National Government (Provincial Office)	Department of Health (DOH): Free State	Mr	Lucky	Leshabane	Environmental Health Manager	Free State
National Government (Provincial Office)	Department of Land Reform and Rural Development (DLRRD)	Mr	Rowan	Harris	Senior Data Capture	Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
National Government (Provincial Office)	Department of Land Reform and Rural Development (DLRRD)	Ms	Estelle	Sello	Official	Free State
National Government (Provincial Office)	Department of Mineral and Petroleum Recourses (DMPR): Free State	Ms	Matodzi	Ramboho	Regional Manager: Case Officer	Free State
National Government (Provincial Office)	Department of Mineral and Petroleum Resources (DMPR): Free State	Mr	Cedrick	Fhedzisani	Deputy Director: Mine Environmental Management	Free State
National Government (Provincial Office)	Department of Mineral and Petroleum Resources (DMPR): Free State	Mr	Tuwani	Monyai	Assistant Director: Mine Environmental Management	Free State
National Government (Provincial Office)	Department of Mineral and Petroleum Resources (DMPR): Free State	Ms	Tshifhiwa	Makhokha	Mine Environmental Management	Free State
National Government (Provincial Office)	Department of Minerals and Petroleum Resources (DMPR): Free State	Mr	Matodzi	Ramoho		Free State
National Government (Provincial Office)	Department of Minerals and Petroleum Resources (DMPR): Free State	Ms	Cecelia	Sedutla		Free State
National Government (Provincial Office)	Department of Minerals and Petroleum Resources (DMPR): Free State	Ms	Kalipa	Kewuti	Regional Manager: Free State	Free State
National Government (Provincial Office)	Department of Public Works and Infrastructure (DPWI): Free State	Mr	SP	Menye	Acting Chief Director: Property Management	Free State
National Government (Provincial Office)	Department of Public Works and Infrastructure (DPWI): Free State	Ms	A	Ntilane	Director: Strategic Immovable Asset Management	Free State
National Government (Provincial Office)	Department of Public Works and Infrastructure (DPWI): Free State	Ms	Anneke	Barnard	Infrastructure Services	Free State
National Government (Provincial Office)	Department of Public Works and Infrastructure (DPWI): Free State	Ms	Lebohang	Khumalo	Chief Director: Property Management	Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
National Government (Provincial Office)	Department of Rural Development and Land Reform (DRDLR): Free State	Dr	Wayne	Alexandra	Acting Chief Director	Free State
National Government (Provincial Office)	Department of Rural Development and Land Reform (DRDLR): Free State	Ms	Cynthia	Wessels	Chief Director	Free State
National Government (Provincial Office)	Department of Water and Sanitation (DWS)	Mr	Mzukisi	Maneli	Case Officer	Free State
National Government (Provincial Office)	Department of Water and Sanitation (DWS)	Mr	Terrence	Ngilande	Case Officer	Free State
National Government (Provincial Office)	Department of Water and Sanitation (DWS)	Ms	Phuti	Mabotja	Environmental Officer	Free State
National Government (Provincial Office)	Department of Water and Sanitation (DWS): Free State	Dr	Tseliso	Ntili	Provincial Manager	Free State
National Government (Provincial Office)	Department of Water and Sanitation (DWS): Free State	Mr	Kereemang	Maseloane	Director: Water Services Infrastructure, Development, and Refurbishment Program	Free State
National Government (Provincial Office)	Department of Water and Sanitation (DWS): Free State	Mr	Mfundi	Biyela	Bloemfontein Representative	Free State
National Government (Provincial Office)	Department of Water and Sanitation (DWS): Free State	Mr	Pule	Liatile	Assessor	Free State
National Government (Provincial Office)	Department of Water and Sanitation (DWS): Free State	Mr	Pule	Lenong	Secretary	Free State
National Government (Provincial Office)	Department of Water and Sanitation (DWS): Free State	Ms	Barbara	Kalembo	(c) and (i) Water Use Specialist	Free State
National Government (Provincial Office)	Department of Water and Sanitation (DWS): Free State	Ms	Maureen	Letloenyane	Deputy Director and Office Manager for the Provincial Head	Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
National Government (Provincial Office)	Department of Water and Sanitation (DWS): Free State	Ms	Thembekile	Dlamini	Assessor	Free State
National Government (Provincial Office)	Department of Water and Sanitation: Free State Region	Mr	Dywili Sam	Velile		Free State
National Government (Provincial Office)	Department of Water and Sanitation: Free State Region	Mr	Lahliwe	Mahlae		Free State
National Government (Provincial Office)	Department of Water and Sanitation: Free State Region	Mr	Werner	Du Preez	(BFN)	Free State
National Government (Provincial Office)	Department of Water and Sanitation: Free State Region	Ms	Lerato	Morake		Free State
Other Landowner	De Jager Boerdery	Mr	Frans	De Jager	Chairman	Free State
Other Landowner	De Jager Boerdery	Mr	Johan	De Jager	Landowner	Free State
Other Landowner	Grootspruit Familie Trust (De Jager Boerdery)	Mr	Tertius	De Jager	Landowner	Free State
Other Landowner	Private Landowner	Mr	Pieter	Haasbroek	Landowner	Free State
Parastatal	Eskom	Mr	Jason	Kasper	Land and Rights Manager	Free State
Parastatal	Eskom	Ms	Charmaine	Mare	Environmental Manager	Free State
Parastatal	Eskom (National Transmission Company South Africa)	Mr	Khululwa	Matshoba	Senior Environmental Advisor	Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Parastatal	Eskom Transmission Land and Rights: Free State	Mr	Gerrie	van Schalkwyk	Senior Environmental Advisor	Free State
Parastatal	National Transmission Company South Africa (NTCSA)	Mr	Khululwa	Matshoba	Senior Environmental Advisor	Free State
Parastatal	South African National Roads Agency Limited (SANRAL)	Mr	Dudley	Mbambo	ER	Free State
Parastatal	South African National Roads Agency Limited (SANRAL)	Mr	Naashif	Mowzer		Free State
Parastatal	South African National Roads Agency Limited (SANRAL)	Mr	Sefako	Ngoasheng		Free State
Parastatal	South African National Roads Agency Limited (SANRAL)	Ms	Karabo	Mabyana	Statutory Control Officer	Free State
Parastatal	South African National Roads Agency Limited (SANRAL)	Ms	Khuliso	Nenguda	Statutory Controller Officer	Free State
Parastatal	South African National Roads Agency Limited (SANRAL)	Ms	Lungile	Sibanyoni	Environmental Assistant - (KZNP)	Free State
Parastatal	South African National Roads Agency Limited (SANRAL)	Ms	Nqobile	Mabaso	Statutory Control Administrator	Free State
Parastatal	South African National Roads Agency Limited (SANRAL)	Ms	Ntsepo	Mkhize	Environmental Co-ordinator	Free State
Parastatal	Transnet Freight Rail Ltd	Mr	Johannes	Jonkers	Infrastructure Worker	Free State
Parastatal	Transnet Freight Rail Ltd	Mr	Samuel	Fiff	Free State Environmental Manager	Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Parastatal	Transnet Freight Rail Ltd	Ms	Keneuwe	Mabe	Geo-Spatial, Transnet Property	Free State
Parastatal	Transnet Freight Rail Ltd	Ms	Yolanda	Potgieter		Free State
Parastatal	Transnet Freight Rail Ltd	Ms	Zanele	Manyathi	Environmental Manager	Free State
Parastatal	Transnet Freight Rail Ltd: Gauteng	Ms	Annalize	Harmse	Chief Admin Official	Free State
Provincial Government	Department of Agriculture and Rural Development (DARD): Free State	Dr	Nhlonipho	Nhlabatsi	Manager: Agricultural Support and Livelihoods	Free State
Provincial Government	Department of Economic (DESTEA): Free State	Dr	Sandile	Fuku	Environmental Affairs and Conservation	Free State
Provincial Government	Department of Economic (DESTEA): Free State	Mr	DJ	Hagen	Director: Strategic	Free State
Provincial Government	Department of Economic (DESTEA): Free State	Mr	Pule	Motsoetla	Biodiversity Manager	Free State
Provincial Government	Department of Economic (DESTEA): Free State	Mr	T	Makhele	Integrated Economic Development	Free State
Provincial Government	Department of Economic (DESTEA): Free State	Ms	BJ	Molefe	Environmental Officer	Free State
Provincial Government	Department of Economic (DESTEA): Free State	Ms	Gontse	Sebetlele		Free State
Provincial Government	Department of Economic (DESTEA): Free State	Ms	Grace	Mkhosana		Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Provincial Government	Department of Economic (DESTEA): Free State	Ms	Lerato	Kelly	Olievenkloof Private Nature Reserve	Free State
Provincial Government	Department of Economic (DESTEA): Free State	Ms	Nomasomi	Tshingo		Free State
Provincial Government	Department of Economic (DESTEA): Free State	Ms	Nozi	Nkwe	Environmental Manager	Free State
Provincial Government	Department of Economic (DESTEA): Free State	Ms	RP	Likholele	Control Environmental	Free State
Provincial Government	Free State Provincial Heritage Resources Authority (FSPHRA)	Ms	Ntando PZ	Mbatha	Heritage Coordinator	Free State
Ward Committee Member	Matjhabeng Local Municipality	Mr	Isaac	Velebayi	Ward 36	Free State
Ward Committee Member	Matjhabeng Local Municipality	Mr	Mildred	Faro	Ward 35	Free State
Ward Councillor	Matjhabeng Local Municipality	Mr	Clement	Hanisi	Ward 36	Free State
Ward Councillor	Matjhabeng Local Municipality	Mr	Paseka Thomas	Ramatisa	Ward 19	Free State
Ward Councillor	Matjhabeng Local Municipality	Ms	Estelle	Dansey	Ward 35	Free State
Water Bodies -Institution	Sand-Vet Water Users Association	Mr	Andries	Labuscagne	CEO	Free State
Water Bodies -Institution	Sand-Vet Water Users Association	Ms	Moipone	Maoba	P.A to the CEO	Free State

I&AP Sector	Organisation	Mr/Ms	First Name	Last Name	Position	Province
Water Bodies -Institution	Vaal Central Water (formerly Bloem Water)	Mr	Aphumle	Mnyaka	Executive & Project	Free State
Water Bodies -Institution	Vaal Central Water (formerly Bloem Water)	Mr	Maruping	Rapudungoane	Operations and Maintenance	Free State
Water Bodies -Institution	Vaal Central Water (formerly Bloem Water)	Ms	Charmaine	Dladla	Project Coordinator	Free State
Water Bodies -Institution	Vaal Central Water (formerly Bloem Water)	Ms	NP	Silevu	Secretary	Free State
Water Bodies -Institution	Vaal-Orange Catchment Management Agency (VOCMA)	Mrs	Nametso	Sithole	Scientist Production	Free State
Water Bodies -Institution	Water Research Commission	Dr	Shafick	Adams	Senior Research Manager	Free State
Water Bodies -Institution	Water Research Commission	Mr	Bennie	Mokgonyana	Water Use & Waste Management	Free State
Water Bodies -Institution	Water Research Commission	Mr	Jay	Bhagwan	Research Manager	Free State
Water Bodies -Institution	Water Research Commission	Ms	Penny	Jaca	Water Resource Management	Free State
Water Bodies -Institution	Water Research Commission	Ms	Shirley	Machelisi	Water Use & Waste Management	Free State

Environmental Authorisation for the Jelani Joint Venture (JV) Area Underground Mining Project, in the Matjhabeng Local Municipality, Free State Province

Landowners Database

Directly Affected Landowners

Farm Name & Number	Farm ID	Farm Portion	Owner-Windeed	Farm owner	Contact Person
Welvaart 63	RD	0(RE)	Blaauwklip Trust	Blaauwklip Trust	Mr Eduard Steyn
Welvaart 63	RD	1	Willem Hendrik Taljaard	Willem Hendrik Taljaard	Mr Willem Taljaard
Welvaart 63	RD	2	Willem Hendrik Taljaard	Willem Hendrik Taljaard	Mr Willem Taljaard
Diamant 37	RD	0	Willem Hendrik Taljaard	Willem Hendrik Taljaard	Mr Willem Taljaard
Graspan 40	RD	0(RE)	Willem Hendrik Taljaard	Willem Hendrik Taljaard	Mr Willem Taljaard
Graspan 40	RD	1	Willem Hendrik Taljaard	Willem Hendrik Taljaard	Mr Willem Taljaard
Swartpan 436	RD	0(RE)	Willem Hendrik Taljaard	Willem Hendrik Taljaard	Mr Willem Taljaard

Indirectly Affected Landowners

Farm Name & Number	Farm ID	Farm Portion	Owner-Windeed	Farm owner	Contact Person
Onrust 377	RD	0	Jaco Grobbelaar Trust	Jaco Grobbelaar Trust	Mr Jaco Grobbelaar
Nooitgedacht 378	RD	0(RE)	EDU-HAN Trust	EDU-HAN Trust	Mr Eduard Steyn
Kromdraai 386	RD	0(RE)	Avgold Limited	Avgold Limited (Harmony Gold)	Mr Assan Ralebona
Kromdraai 386	RD	1	Matjhabeng Local Municipality	Matjhabeng Local Municipality	Mr Eric Sello Senoge
Kromdraai 386	RD	3	Free State Provincial Government	Department of Public Works and Infrastructure (DPWI)	Ms Thobile Zulu
Allanridge 425	RD	4	Matjhabeng Local Municipality	Matjhabeng Local Municipality	Mr Eric Sello Senoge
Welgeluk 214	RD	0	Blaauwklip Trust	Blaauwklip Trust	Mr Eduard Steyn
Swartpan 436	RD	0(RE)	Willem Hendrik Taljaard	Willem Hendrik Taljaard	Mr Willem Taljaard
Elim 336	RD	0	Goldstein Samuel Trustees	Goldstein Samuel Trustees	Mr Christo Nel
Genoeg 330	RD	0(RE)	Willem Hendrik Taljaard	Willem Hendrik Taljaard	Mr Willem Taljaard
Genoeg 330	RD	1	Willem Hendrik Taljaard	Willem Hendrik Taljaard	Mr Willem Taljaard

Farm Name & Number	Farm ID	Farm Portion	Owner-Windeed	Farm owner	Contact Person
Welgevonden 183	RD	1	Willem Hendrik Taljaard	Willem Hendrik Taljaard	Mr Willem Taljaard

Appendix C2: Land Claims

Vanessa Viljoen

From: Vanessa Viljoen
Sent: Thursday, 14 May 2026 09:50
To: nozipho.dlamini@dalrrd.gov.za; khomotso.mahlatji@dlrrd.gov.za
Cc: Jean-Mari Williams
Subject: Land Claims Enquiry: EA and IWUL Application for the Jelani Joint Venture (JV) Area Underground Mining Project, Free State Province
Attachments: JELA#001_LC_Final_2.pdf

Dear Mr Khomotso Mahlatji

Kongiwe Environmental (Pty) Ltd ("Kongiwe") has been appointed to undertake the Environmental Authorisation and Integrated Water Use Licence for the Jelani Joint Venture (JV) Area Underground Mining Project, Free State Province.

The project area is situated immediately adjacent to and west of the Harmony Gold Target Mine, approximately 11km northwest of Odendaalsrus, 2,5km west of Allanridge, and 22km east of Wesselsbron, in the Free State Province of South Africa. It lies within Ward 36 of the Matjhabeng Local Municipality, under the jurisdiction of the Lejweleputswa District Municipality.

We would appreciate it, if you could assist us with the attached Land Claims enquiry.

Much appreciated.

Kind Regards,

Vanessa Viljoen | Principal 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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Environmental Authorisation and Integrated Water Use Licence Application for Jelani Joint Venture (JV) Area Underground Mining Project, Free State Province

DMPR reference number: FS30/5/1/2/3/2/1(10098) EM
DWS reference number: WU50090

Date	Thursday, 14 May 2026
Attention	Mr Khomotso Mahlatji
Government Body	Free State Department of Land Reform and Rural Development (DLRRD) Office of the Regional Land Claims Commissioner
Email	nozipho.dlamini@dalrrd.gov.za; khomotso.mahlatji@dlrrd.gov.za

Notice is hereby given that Jelani Resources (Pty) Ltd ("Jelani"), a joint venture (JV) between White Rivers Exploration (WRE) and Harmony Gold, proposes to develop and commence underground mining activities within the joint venture (JV) area. This area is made up of areas within the existing Harmony Target mining right (Harmony contribution) and Prospecting Rights (PR) areas to the west of Harmony Gold's existing Target Mine (WRE contribution).

The primary mineral resource targeted is gold, with additional potential resources including silver, uranium, sulphur, platinum group metals, rare earth elements, diamonds (alluvial), and a range of base and ferrous metals such as copper, cobalt, manganese, molybdenum, nickel, lead, tungsten, zinc, and iron.

Kongiwe Environmental (Kongiwe) has been tasked with conducting the Scoping and Environmental Impact Assessment (S& EIA) and the Integrated Water Use Licence application (IWULA) process which is aimed at critically evaluating the potential environmental and social impacts of the Project.

The project area is situated immediately adjacent to and west of the Harmony Gold Target Mine, approximately 11km northwest of Odendaalsrus, 2,5km west of Allanridge, and 22km east of Wesselsbron, in the Free State Province of South Africa. It lies within Ward 36 of the Matjhabeng Local Municipality, under the jurisdiction of the Lejweleputswa District Municipality.

The Project area impacts the farm portions listed in the table below:

Farm Name and Number	Farm ID	Farm Portion	Landowner
Welvaart No. 63	RD	0 (RE)	Blaauwklip Trust
Welvaart No. 63	RD	1	Willem Hendrik Taljaard
Welvaart No. 63	RD	2	Willem Hendrik Taljaard
Diamant No. 37	RD	0	Willem Hendrik Taljaard
Graspan No. 40	RD	0 (RE)	Willem Hendrik Taljaard

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

Farm Name and Number	Farm ID	Farm Portion	Landowner
Graspan No. 40	RD	1	Willem Hendrik Taljaard
Swartpan No. 436	RD	0 (RE)	Willem Hendrik Taljaard

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.

Yours faithfully,

Vanessa Viljoen
Stakeholder Engagement Consultant

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COMMISSION ON RESTITUTION OF LAND RIGHTS

OFFICE OF THE REGIONAL LAND CLAIMS COMMISSIONER: FREE STATE
Ground floor, Post Bank Building, cnr Selbourne and East Burger Street, Bloemfontein, 9300
Tel: (051) 430 0423/25/29

Enquiries: Rowan Harris 10 June 2026

You Ref: FS30/5/1/2/3/2/1(10098) EM

KONGIWE ENVIRONMENTAL (PTY) LTD
150 BRYANSTON DRIVE,
BRYANSTON
SANDTON
2191

Tel : +27 (10) 140 6508

Email: info@kongiwe.com

Dear Sir/Madam

We refer to your letter dated 14 May 2026.

LAND CLAIMS ENQUIRY:

1. **THE FARM WELVAART NO.63, LEJWELEPUTSWA DISTRICT, MATJHABENG LOCAL MUNICIPALITY IN THE FREE STATE PROVINCE.**

2. **PORTION 1 OF THE FARM WELVAART NO.63, LEJWELEPUTSWA DISTRICT, MATJHABENG LOCAL MUNICIPALITY IN THE FREE STATE PROVINCE.**

3. **PORTION 2 OF THE FARM WELVAART NO.63, LEJWELEPUTSWA DISTRICT, MATJHABENG LOCAL MUNICIPALITY IN THE FREE STATE PROVINCE.**

4. **THE FARM DIAMANT NO. 37, LEJWELEPUTSWA DISTRICT, MATJHABENG LOCAL MUNICIPALITY IN THE FREE STATE PROVINCE.**

5. **THE FARM GRASPAN NO. 40, LEJWELEPUTSWA DISTRICT, MATJHABENG LOCAL MUNICIPALITY IN THE FREE STATE PROVINCE.**

6. **PORTION 1 OF THE FARM GRASPAN NO. 40, LEJWELEPUTSWA DISTRICT, MATJHABENG LOCAL MUNICIPALITY IN THE FREE STATE PROVINCE.**

We confirm that as at the date of this letter no land claims appear on our database in respect of the Property(ies). 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.

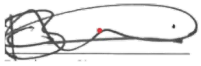
Whilst the Commission takes reasonable care to ensure the accuracy of the information it provides, there are various factors that are beyond the Commission's control, particularly relating to claims that have lodged but not yet been gazetted such as:

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.

Yours faithfully

pp. 

DR WAYNE ALEXANDER
ACTING CHIEF DIRECTOR: LAND RESTITUTION SUPPORT
OFFICE OF THE REGIONAL LAND CLAIMS COMMISSIONER: FREE STATE
DATE:10/06/2026

Appendix C3: Consultation Materials

Environmental Authorisation and Integrated Water Use Licence Application for Jelani Joint Venture (JV) Area Underground Mining Project, Free State Province

Background Information Document

DMPR reference number: FS30/5/1/2/3/2/1(10098) EM
DWS reference number: WU50090

Purpose of the Document

This Background Information Document aims to provide you with important information regarding:

- Project background of the Jelani Joint Venture (JV) Underground Mining Project ("Project"), located in the Matjhabeng Local Municipality, under the jurisdiction of the Lejweleputswa District Municipality, Free State Province.
- The independent Environmental Impact Assessment (EIA) and the Public Participation Process (PPP) to be undertaken as part of the Environmental Authorisation process.
- Integrated Water Use Licence (IWUL) approval requirements.
- The Public Participation Process (PPP) that will be undertaken as part of the IWULA process.
- How can you register as an Interested and Affected Party (I&AP) and be kept informed about the Project's developments?
- Public review and comment period for the Draft Scoping Report.

Project Background

Jelani Resources (Pty) Ltd is a joint venture (JV) company established by White Rivers Exploration (WRE) and Harmony Gold. The JV was formed to conduct underground mining operations within the Joint Venture (JV) area, which is made up of areas within the existing Harmony Target mining right (Harmony contribution) and Prospecting Rights (PR) areas to the west of Harmony Gold's existing Target Mine (WRE contribution) in the Free State Province of South Africa. Following the exploration and licensing phases, Jelani intends to initiate underground mining operations within the same area.

The Proposed Project entails licensing the underground mining of the following potential mineral resources:

- Gold ore (primary target),
- Silver ore,
- Uranium ore,
- Sulphur,
- Platinum Group Metals,
- Rare earths,
- Diamonds (alluvial),
- Copper ore,
- Cobalt ore,
- Manganese ore,
- Molybdenum ore,
- Nickel ore,
- Lead ore,
- Tungsten ore,
- Zinc ore, and
- Iron ore.

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Jelani's underground mining operations initially will target shallower mineral resource deposits at the project site (approximately 1 200 mbs). As mine development progresses, new mining areas will be developed which will allow for the production rate to be steadily increased to the targeted full production rate of 60 000 tonnes of mined ore per month.

Two mining methods have been identified as the most practical for exploiting the mineral resources: conventional breast mining and shrinkage stoping. The selection of each method is primarily based on the dip of the mineralised reef, with the shrinkage stoping being used for the steeper slopes (3% of the total stope tonnage). Where the orebody dips below 55°, conventional breast mining will be used.

Conventional Breast Mining

Where the orebody dips below 55°, conventional breast mining will be used. Footwall drives will be developed in the strike direction, between 40 to 48m below the mining horizon. Crosscuts will subsequently be developed perpendicularly to the footwall drives, towards the reef horizon. Access to the reef horizon will be by travelling way, developed from the crosscut. Ore passes will be developed between the reef horizon and the crosscut for the removal of blasted ore from the stope. On the stope horizon, a raise or centre gully will be developed between levels up the centre of the mining block. Breast mining panels will be established off the centre gully. The panels will be mined approximately in the strike direction away from the centre gully to the stope block limit. An advanced strike gully (ASG) will be carried on the down dip side of each mining panel for access to the stope face and for clearing of blasted ore from the face. Typically, two stope ore passes will be situated in the centre gully which will connect the stoping areas to the footwall infrastructure. All ore produced in the stopes will be scraped into the ore passes for loading in the crosscut. Figure 1 shows a plan of a typical stope block.

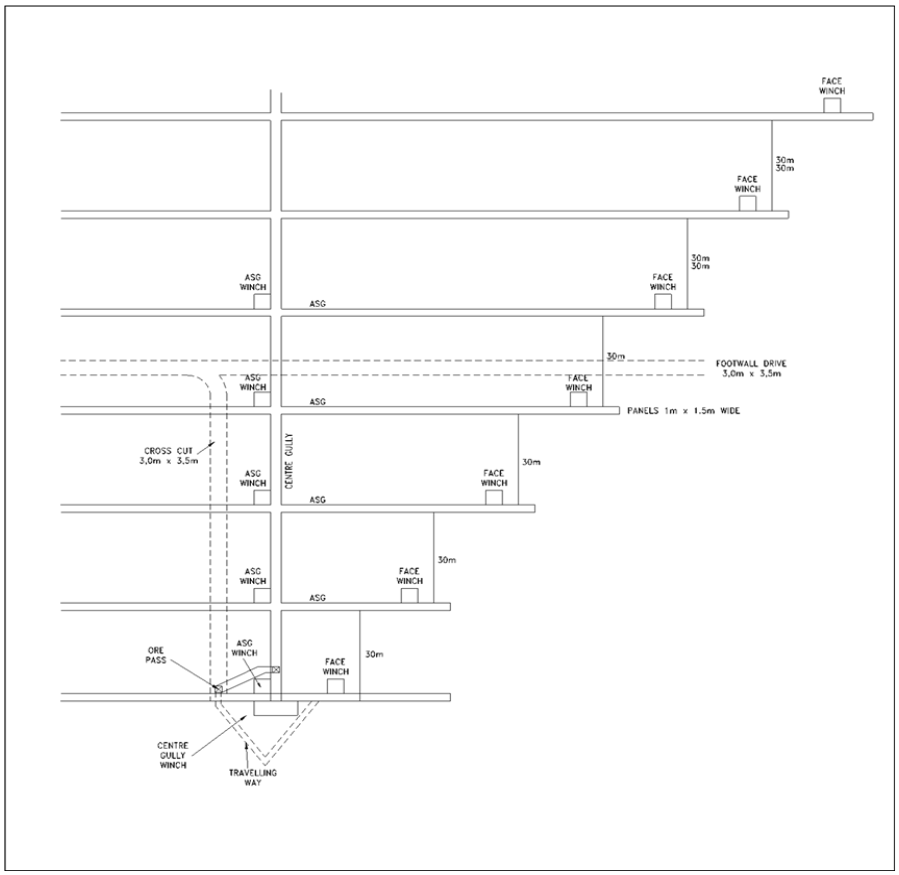

Figure 1: Schematic plan view of a conventional stope block

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The breast faces will be drilled using hand-held, hydro-powered rock drills and airlegs. Blast holes will be charged with packaged emulsion explosives. Scraper cleaning will be used in the stope horizon. Ore will be scraped from the face, into the ASG and then into the centre gully. From the centre gully the rock is scraped over a stope grizzly into the ore pass. The bottom of the ore pass is equipped with a boxfront with a hydraulically operated gate.

Where multiple reefs occur, and both are payable and are planned to be mined, the order of mining will be to extract the uppermost reef first, working downwards.

Shrinkage Stoping

Shrinkage stoping is an overhand mining method that relies on broken material being left in the stope to be used as the "working floor" and to support the walls. The shrinkage stope is accessed via a travelling way. The stope is established and accessed by the development of two raises, one on each end of the stope panel.

Two drives, separated by a sill pillar, are established at the bottom of the stope. Draw points are developed between the two drives for loading ore from the stope. Once the stope preparation development and equipping has been completed stoping commences by advancing the stope face up-dip from the sill drive. After each blast sufficient ore is drawn out to allow access between the new stope face and the top of the muckpile. Once the stope face reaches the upper limit, which is normally defined by a crown pillar, all men and equipment are withdrawn from the stope and the remaining ore is drawn from the stope. Ore is drawn out of the stope by operating the scraper winch in the reef drive. This clears rock from the draw points and allows the ore to continue to flow.

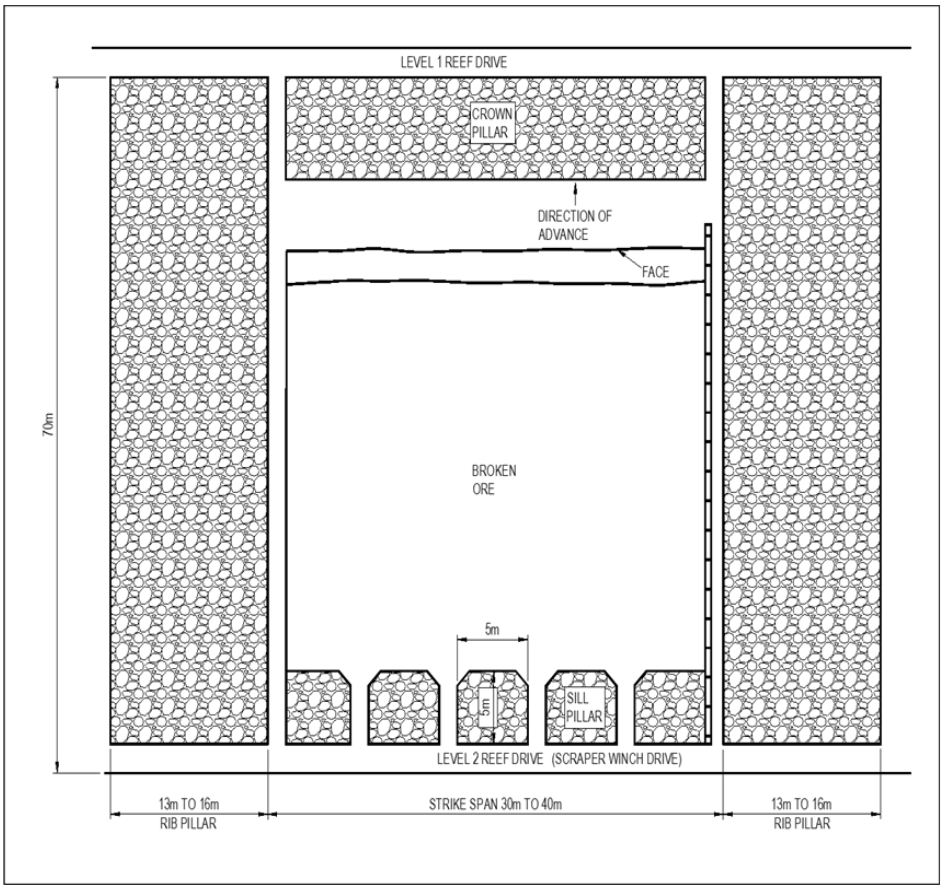

Figure 2: Schematic long section illustrating a typical shrinkage stope

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Ore will be transported to the shaft ore pass system using a conveyor system loaded by a fleet of 30-tonne dump trucks which are loaded by 10-tonne loaders (LHD). Subsequently, the broken rock will be loaded into hoisting bins and will be hoisted to surface, where the rock will either be sent to the processing plant or to the waste rock dump.

Existing underground access (shafts and level access) will be refurbished and re-equipped. Target No 2 and Target No 3 shafts will, over the course of the mine's life, be used for the movement of men, material and rock depending on which phase the mine is in.

Infrastructure Requirements

All operational mining infrastructure required for the Proposed Project will be located within the existing Harmony Target Mine mining right area. No new operational mining infrastructure is planned within the project area. Underground access infrastructure will either consist of refurbished facilities at Target Shafts No. 3, 4 and 5 or newly constructed infrastructure at the Target No. 2 Shaft site, all within the existing mining right.

The infrastructure requirements are intended to support the managerial, supervisory, and operational functions associated with the respective underground mining operations/targets. A layout of the proposed Target 3 shaft surface infrastructure which either needs to be refurbished or constructed is presented in Figure 3. Target 3 shaft will be used to access the underground workings during Phase 1 of the project whilst Target 2 shaft is refurbished. Mining activities during this phase will take place between 57 Level and 48 Level (Figure 4).

Figure 3: Target No 3 shaft surface infrastructure layout

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The No 3 shaft surface infrastructure will compromise of the following (as numbered):

1. No 3 shaft
2. Shaft facilities
   (a) Lamp repair
   (b) Proto room
   (c) Lamp room
3. Change house facilities
   (a) Main laundry
   (b) Main change house
4. Compressor house
5. Waste rock dump
6. Surface rock handling
7. Main substation
8. Parking area
9. Offices
   (a) Management, administration and technical services
   (b) Mining
   (c) Engineering
10. Man winder
11. Barlow winder
12. Rock winder
13. Fridge plant
14. Store building
15. Services/fitting workshops
16. Dirty water dam & pump station
17. Sewerage plant
18. Evaporation plant
19. Change house
20. No 4 shaft ventilation fans
21. Security office
22. Explosives store
23. Conveyors
24. Laydown area and salvage yard
25. Walkway
26. Marshalling yard
27. Drop off area
28. Ablution block
29. Laundry
30. Change houses
31. Offices
32. Lapa
33. Parking
34. Parking
35. Turnstiles
36. Waiting area
37. Lean to roof
38. Underground store
39. Pump house
40. Service boiler shop
41. Services boiler store
42. Rail line
43. Pipeline
44. Security
45. Timber yard
46. Electrical workshop
47. Flammable store
48. Old oil store

An overview of the Target 3 Shaft with level elevations, is shown in Figure 4.

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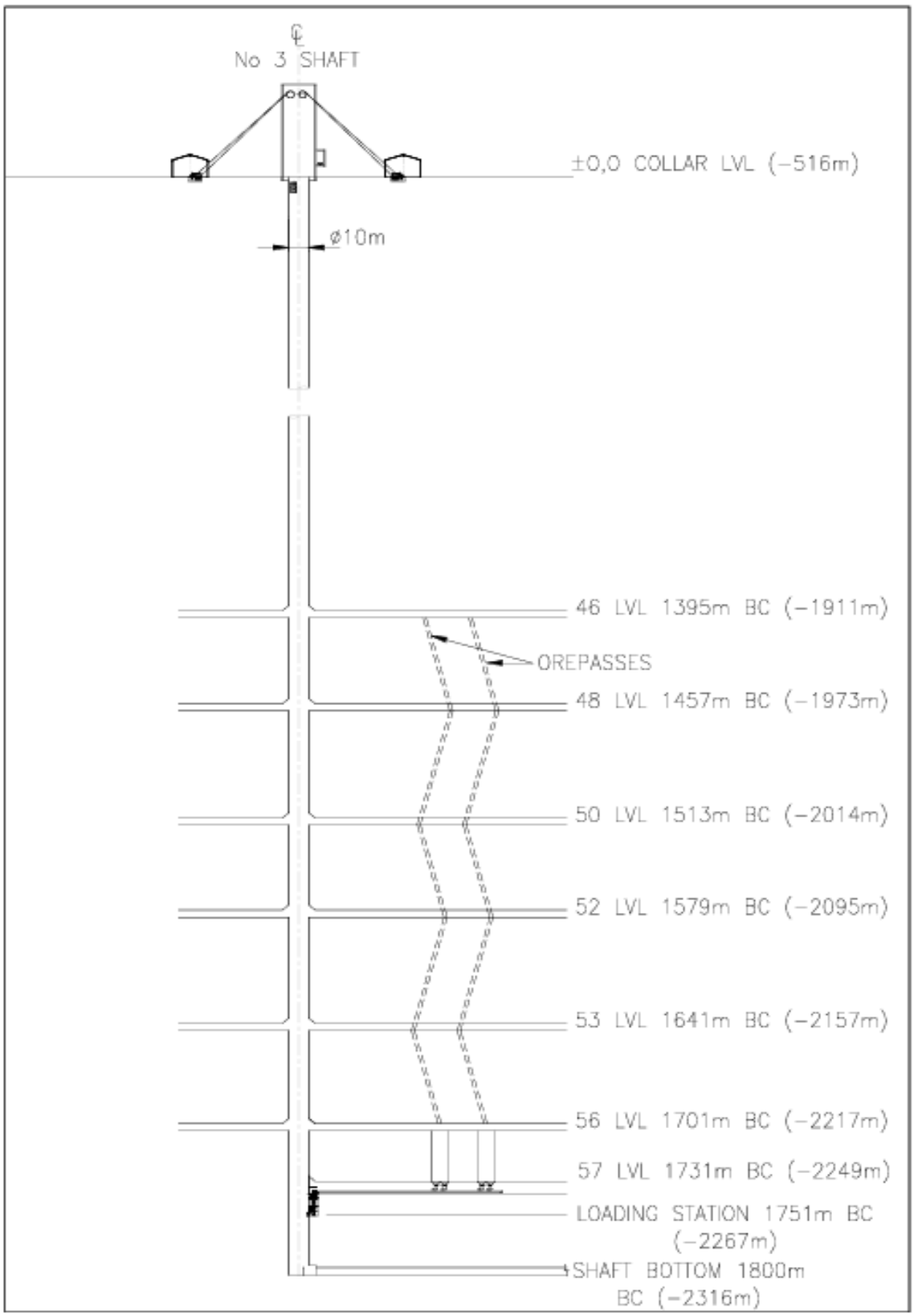

Figure 4: Target 3 shaft longitudinal arrangement

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Figure 5: Harmony Target No 3 Shaft

The Target No 2 shaft will be used as the main access to the underground orebody and workings in Phase 2, and Target No 3 shaft will be maintained as a second outlet. Mining activities in this phase are planned to occur above 48 Level and below 57 Level.

The Target No 2 shaft is currently not utilised for mining production activities. Instead, it acts as the emergency exit for Target No. 1 Shaft with only a limited amount of infrastructure remaining in place. Once the shaft has been refurbished and surface infrastructure is completed and the shaft commissioned, mining operations associated with the Proposed Project will be relocated to this shaft.

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Figure 6: Harmony Target No 2 Shaft

A layout of the current Target No 2 Shaft surface infrastructure as well as the proposed new infrastructures which are required to be constructed are presented in Figure 7.

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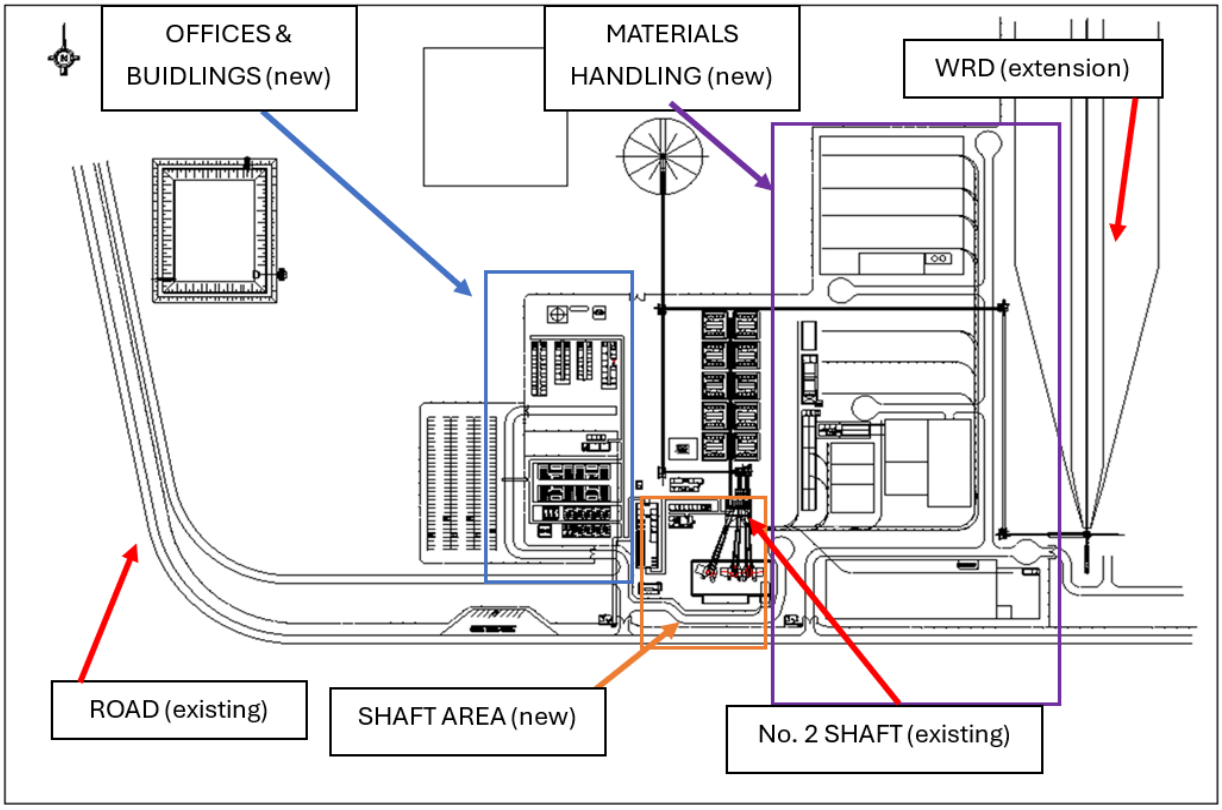

Figure 7: Target No 2 Shaft new and existing infrastructure

To monitor potential mining-induced seismicity and boundary interactions with the adjacent Harmony Gold operations, four seismographic monitoring stations will be installed, spread equally along the shared boundary, with short gravel access tracks provided for each station. These installations represent the only surface infrastructures on the JV project area.

Additionally, a new Tailings Storage Facility (TSF) will be constructed to the west of the existing Target metallurgical plant and north of the existing Target TSF. The total area required for this new facility is approximately 69 Hectares (Ha). This TSF is a separate project being undertaken by Harmony Gold.

Project Location

The Proposed Project area is situated immediately adjacent to and west of the Harmony Gold Target Mine, approximately 11km northwest of Odendaalsrus, 1,5km west of Allanridge town, and 22km east of Wesselsbron, in the Free State Province of South Africa. It lies within Ward 36 of the Matjhabeng Local Municipality, under the jurisdiction of the Lejweleputswa District Municipality. Refer to Figure 8 for the Proposed Project local orientation. Below is a summary of the location of the Project Site (Table 1).

Table 1: Summary of the Location of the Project Site

Province	Free State Province
Municipality	Matjhabeng Local Municipality
Ward Number	36
Nearest Town	Allanridge

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Table 2 below shows the properties that are directly affected by the Proposed Project.

Table 2: Description of Directly Affected Properties

Farm Name	Farm ID	Farm Portion	SG Code
Welvaart No. 63	RD	0 (RE)	F02400000000006300000
Welvaart No. 63	RD	1	F02400000000006300001
Welvaart No. 63	RD	2	F02400000000006300002
Diamant No. 37	RD	0	F02400000000003700000
Graspan No. 40	RD	0 (RE)	F02400000000004000000
Graspan No. 40	RD	1	F02400000000004000001
Swartpan No. 436	RD	0 (RE)	F02400000000043600000

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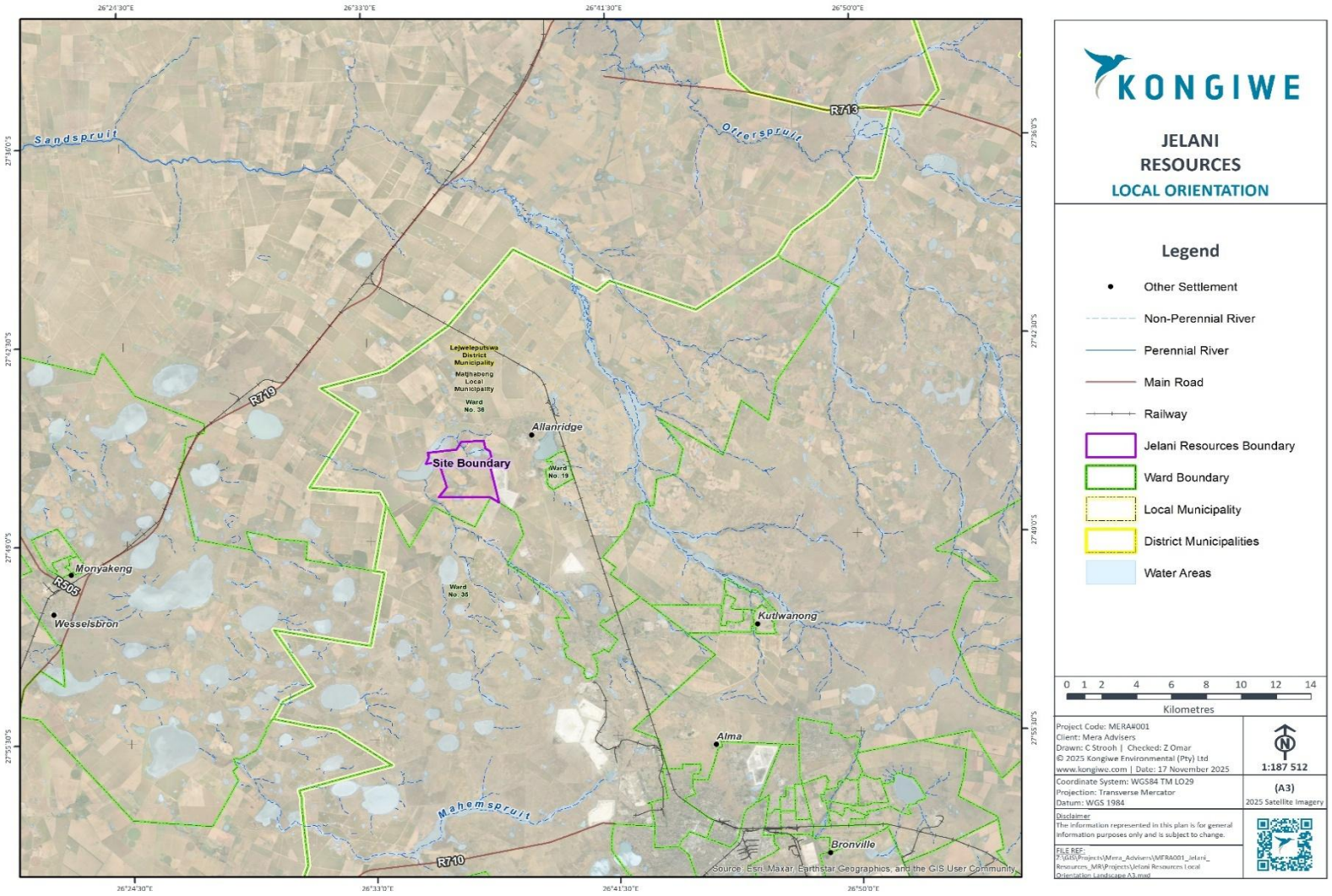

Figure 8: Local Orientation of the proposed JV Area Underground Mining Project

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Area Extent

The total extent of the application area is 956.76 hectares (ha).

Depth of Mineral below Surface

The orebodies extend between 1 500m and 2 600m below surface.

Proposed Beneficiation Process

All ore produced from the underground mining operations will be transported to the existing Target 1 metallurgical plant for processing.

Life of Operation

10 340 Mt of ore is expected to be mined over the Life of Mine (LOM), which is 14 years.

Project Schedule

Prior to the initiation of mine implementation and construction activities, various stages of design work will be required to be undertaken. It is expected that these activities will take approximately four years before implementation can be initiated. Active mining can commence during year 7. The key timelines are listed in Table below:

Table 3: Project timelines

Period	Description
Year 1 - 3	Site data gathering and feasibility studies
Year 4	Detailed engineering design
Year 5 - 8	Implementation and construction activities
Year 7	Hiring of employees
Year 7	Initiation of mining activities underground

The production build-up is planned to occur in two phases:

In Phase 1, which is planned to last for four years starting in Year 5, with construction and refurbishment with mining starting in Year 7. The first two years are required for level access and refurbishment, after which Target No 3 shaft will be used for hoisting of men, material and rock.

Phase 2 commences in Year 9, whereby access to the underground workings is via Target No 2 shaft, with Target No 3 shaft being reserved as a second outlet.

As mine development progresses over the first four years, new mining areas will be developed which will allow for the production rate to be steadily increased to the targeted full production rate of 60 000 tonnes of ore per month, which is achieved in Year 10.

10 340 Mt of ore is expected to be mined over the Life of Mine (LOM), which is 14 years.

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Access, Access Control and Security

The Proposed Project is located within an area served by an established road network. Public routes in close proximity to the site include existing roads currently used for Harmony Target Mine operations as well as gravel roads used by the local farmers.

Only the development of gravel access tracks to facilitate the monitoring of potential mining-induced seismicity and boundary interactions is anticipated at the project site.

Vehicle access to the shaft site is via the R30 public road, connecting to the existing mine access roads, that will continue to be used. No additional refurbishments are required on these roads other than possibly cutting back the overhanging branches of the two rows of trees that run along the entire length of the road.

The shaft site perimeter is already fenced and assumed to be according to the Harmony Standard, as no other security measures or devices were observed. Access to the shaft complex is controlled through the main access security gate. Provision has been made to refurbish the system.

Legislative Requirements and Good-Practice Guidelines

Applicable Legislation and International Best Practice

The Public Participation Process (PPP), as required by the environmental law and regulations specified therein, is being 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 (EIA) 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, 2008 (Act No 59 of 2008) (NEM:WA) and the List of Waste Management Activities (GN R921 of 29 November 2013, as amended).
- 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).

NEMA mandates public participation for environmental decision-making, ensuring affected communities have a voice in development projects through the EIA Regulations, 2014. The NEMA Public Participation Guideline (in terms of the EIA Regulations) is a mandatory part of the (EA process, aiming for transparent, informed decisions that promote sustainable development by integrating social, economic, and environmental factors.

The POPIA regulates the processing of personal information by both public and private bodies, aiming to protect individuals' constitutional right to privacy.

The PAIA gives effect to the constitutional right to access information held by both the state and private bodies. The Act establishes procedures for individuals to request information for the protection or exercise of their rights

In addition to the above legislation, the PPP needs to be aligned to International good-practice guidelines for public participation, particularly in regard to the following Core Values of the International Association for Public Participation (IAP2):

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- Public participation is based on the belief that those who are affected by a decision have a right to be involved in the decision-making process.
- Public participation includes the promise that the public's contribution will influence the decision.
- Public participation promotes sustainable decisions by recognizing and communicating the needs and interests of all participants, including decision makers.
- Public participation seeks out and facilitates the involvement of those potentially affected by or interested in a decision.
- Public participation seeks input from participants in designing how they participate.
- Public participation provides participants with the information they need to participate in a meaningful way.
- Public participation communicates to participants how their input affected the decision.

POPIA: Safeguarding Registered Person's Personal Information
In terms of section 19 of the Protection of Personal Information Act, 2013 (Act No. 4 of 2013) (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 or parties to whom the information is supplied.

SCOPING AND ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

Kongiwe Environmental (Kongiwe) has been 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 Project.

The steps involved in the EIA process are outlined in Figure 9.

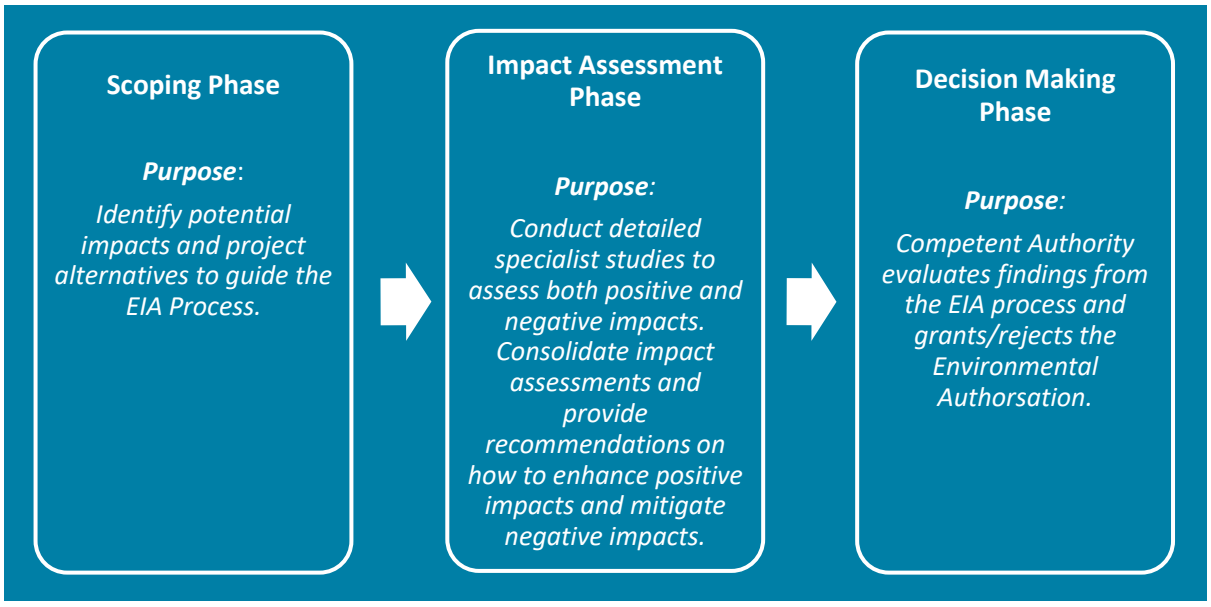

Figure 9: S&EIA Process

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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). Section 21 (c) and (i) activities are activities that impede or divert the flow of water in a watercourse; or which alter the bed, banks, course or characteristics of a watercourse.

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:

- Social Impact Assessment
- Desktop Heritage/Cultural and Palaeontology Assessments
- Biodiversity, Freshwater, including a Risk Assessment Matrix (RAM,) Soils and Agricultural Potential
- Air Quality Impact Assessment
- Climate Change Impact Assessment
- Financial Provision Calculation, Environmental Risk and Final Rehabilitation and Closure Plan
- Hydrological Assessment
- Hydrogeological Assessment
- Blasting and Vibrations

The findings of the specialist studies will be incorporated into the EIA/EMPr and the IWWMP.

Public Participation Process

The Public Participation Process (PPP) will form part of the EIA/EMPr and IWULA process. The PPP offers stakeholders an opportunity to be informed about the Project, to raise issues and to make suggestions for enhanced Project benefits. It also outlines the ways in which the Project team will communicate with stakeholders.

The PPP has been developed to ensure compliance with the relevant legislation and facilitate meaningful stakeholder engagement for the EIA/EMPr and IWULA process.

Availability of the Draft Scoping Report for Public Review and Comment

As part of the Scoping Process, the applicant is required to compile a **Draft Scoping Report (DSR)** for mining-related activities. The DSR will be available for public review and comment for a period of 30 days from **Thursday, 21 May 2026 to Monday, 22 June 2026.**

A notification of the availability of the DSR for public review and comment was distributed on **Thursday, 14 May 2026,** to all stakeholders on the database.

The DSR will be made available as follows:

- An electronic copy on Kongiwe's website: https://kongiwe.com/projects/.
- A hard copy at the **Allanridge Public Library**. Contact details are shown in Table 4.

The non-technical summaries of the **DSR** will be available electronically to all stakeholders on the stakeholder database and distributed in hard copy at the Open Day (discussed below).

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Table 4: Libraries with Hard Copies of the Draft Scoping Report

Location	Physical Address	Contact Person
Allanridge Public Library	53 Caledon St, Allanridge	Ms Anna Matjelo, Librarian (078) 713 2063) Monday - Friday Open: 08:00 Close: 15:30

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 Engagement Meetings

Stakeholders are invited to participate through online and in-person engagements. Consultation meetings will be held using platforms like Microsoft Teams, and Open Days. The purpose of these meetings is to discuss the Project and the contents of the Draft Scoping Report, and to provide Interested and Affected Parties (I&APs) with the opportunity to raise their comments and to interact with the project team.

Table 5 provides details of the proposed stakeholder meetings. Please confirm your attendance for the meeting *(Confirmation of attendance may be submitted via the stakeholder's email address or telephonically*).

Table 5: Schedule of Stakeholder Meeting

Proposed Dates	Available Time Slots	Method of Engagement
Online Meeting		
Wednesday, 27 May 2026	10H00 – 11H00	Microsoft Teams
In-Person Meetings: Open Day		
Saturday, 30 May 2026	11H00 – 13H00	S.A. Mokhothu Primary School 3073 Nyakallong, Allanridge, 9490

Invitation to be Involved as a Stakeholder

Kongiwe has put measures in place to ensure that all stakeholders are meaningfully consulted by using a wide range of media, documents and online tools. The proposed methods of engagement for the Project are as follows:

- Telephonic consultations.
- Short Message Services (SMSes).

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- Email correspondence:
  - Stakeholders with access to emails are requested to send their comments/queries via email.
  - Stakeholders can email their Registration and Comment Forms.
- Online engagements:
  - Project information will be timeously uploaded on Kongiwe's website.
  - Microsoft Teams meetings.
- In-person Engagements:
  - One-on-one consultation meetings.
  - Open Day.

The purpose of the above-mentioned methods of engagement is to encourage dialogue with stakeholders and provide stakeholders with opportunities to raise their comments. Minutes of all meetings with stakeholders will be compiled and recorded in the Comments and Responses Report (CRR). Stakeholders are encouraged to indicate their preferred method of engagement on the Registration Form below the BID.

For consultation to be Inclusive, it is the Responsibility of Stakeholders to

- Register or ensure you are registered as an I&AP.
- Inform others whom you think may be interested and/or affected by the Project.
- Provide comments on the Project.
- Ensure comments are submitted within the allowed timeframes and received by the Stakeholder Engagement office.
- Contribute information and/or knowledge of the Project area's environment.
- Attend meetings that are scheduled throughout the process to participate and access information.

Comments and Queries

Any person affected by or who may be interested in the Project are encouraged to complete the Registration and Comments Form provided below this document (BID) should they have any comments / queries.

Contact Details		
Ms Jean-Mari Williams	+27 (10) 140 1726	stakeholders@kongiwe.com
Ms Vanessa Viljoen	+27 (10) 140 1725	stakeholders@kongiwe.com

Our team welcomes your participation and looks forward to your involvement throughout this process

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Environmental Authorisation and Integrated Water Use Licence Application for Jelani Joint Venture (JV) Area Underground Mining Project, Free State Province

DMPR reference number: FS30/5/1/2/3/2/1(10098) EM

DWS reference number: WU50090

Stakeholder Registration and Comment Form

Please return a completed registration form to the Stakeholder Engagement Team:

Ms Jean-Mari Williams / Phone: (010) 140 1726 / Ms Vanessa Viljoen / Phone: (010) 140 1725 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			Tel			
Email Address							
Postal Address							
Please indicate your preferred method of communication	Email	☐	SMS	☐	Post	☐	

I intend attending the stakeholders' meeting (Please indicate your preference)

Meeting Dates	Available Time Slots	Method of Engagement	Yes	No
Online Meeting:				
Wednesday, 27 May 2026	10H00 – 11H00	Microsoft Teams	Yes	No
In-Person Meeting: Open Day				
Saturday, 30 May 2026	11H00 – 13H00	S.A. Mokhothu Primary School 3073 Nyakallong, Allanridge, 9490	Yes	No

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 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**	

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Appendix C4: Newspaper Advertisement

Time trials

The runners Thapelo Khanali and Raboroko Mojalefa recorded the fastest times in the 8 km Harmony Striders time trials on 13 May. Khanali clocked 33:22, while Mojalefa finished in 33:50. Junior Tholobi completed the trials in a time of 40:30.

8 KM RESULTS

Thapelo Khanali 33:22, Raboroko Mojalefa 33:50, Junior Tholobi 40:30, Kananelo 41:44, Johan Rheeder 45:04, Daemane Makhate 49:31, Amelia du Plessis 54:24, Arthur Penny 56:45, Nico Dicks 64:01, Johan Pretorius 65:19, Deleen van Rooyen 67:00 and Yvonne Visagie 67:00.

4 KM RESULTS

Monyane Raliengoane 14:36, Kananelo Sejentu 14:51, Makhaya Mzwakie 15:27, Jacob Tseko 15:30, Kamohelo Nyamane 16:03, Skosana 18:20, Andre van Niekerk 19:22, Reggie Mokhosi 20:21, Thoriso Mokhanedi 21:15, Jaco Potgieter 21:01, Ramongalo Ntsoari 21:51, Morne Nel 22:58, Deon Lodder 23:07, Rudolph Rabie 24:14, Rina Nel 24:32, Kershney Noortman 26:01, Lientjie Blom 30:55, Zama Fixane 31:58, Clayton Anderson 32:35, Twane Anderson 33:25, Manyeza B 41:30 and Ishmael Dhlamini 49:50.

• The Engen Toy Run of 30 May has been cancelled due to the withdrawal of the sponsor.

Ingesluit in rugbyspanne

Agt leerders van die Welkom-Volkskool is in die onderskeie o.12- en o.13-Griffon-rugbyspanne ingesluit. Van links is, voor: Neymar Swartz, Marnus Haasbroek en Ben Swart; agter: George Ferreira, Oratile Thomas, Nicolas Goosen, Quillan Kleinkie en Renier Taute.
FOTO: Verskaf

TSEBISO MABAPI LE MONYETLA OA HO NKA KAROLO TS'EBETSONG EA TUMELLO EA TIKOLOHO BAKENG SA PROJEKE E RERILOENG EA HARMONY NOOITGEDACHT TAILINGS STORAGE FACILITY, ASSOCIATED PIPELINES AND LOW PRESSURE WATER SYSTEM, MASEPALENG OA LEHAE OA MATJHABENG, PROFINSENG EA FREE STATE, AFRIKA BOROA.

Joaloka motho ea ngolisitsoeng ea nang le thahasello le ea amehang (I&AP) bakeng sa projeke e boletsoeng kaholimo, o tsebisoa ka monyetla o latelang oa ho nka karolo sechabeng:

Tlhaloso ea ketsahalo:
Ho fumaneha ha Tlaleho ea Tlhahlobo ea Tšusumetso ea Tikoloho bakeng sa Tlhahlobo ea Sechaba le Maikutlo

Hokae:
Kopi e thata ea tlaleho e ka bonoa ho:
Laeborari ea Sechaba ea Welkom (Cnr Reinet le Seterata sa Tulbagh, Welkom Central, Free State)
Kopi ea elektroniki e ka kopitsoa webosaeteng ea EIMS:
https://www.eims.co.za/public-participation/

Neng:
Nako ea ho fana ka maikutlo le tlhahlobo ea Tlaleho e tla nka matsatsi a **30 ho tloha** ka la **22 Motsheanong 2026 ho isa ho la 22 Phupjane 2026**

Ntle le moo, o tla tsebisoa ka monyetla o ka tlase:

Tlhaloso ea ketsahalo:
Seboka sa Sechaba sa Karolo ea EIA

Hokae:
Welkom Inn (Corner Stateway le, Tempest Rd, Welkom, Free State)

Neng:
La 11 Phupjane 2026, ho tloha ka 12:00 ho isa ho 14:00

Ditlatsetso tsohle tse fumanoeng ke EIMS di tla kenyelletsoa ditlhahisong tse latelang ho ba boholong ba amehang ba nang le bokhoni bakeng sa ho hlahlojwa ts'ebetsong ya bona ya ho etsa diqeto.

Ngoliso ea I&AP, kapa lipotso leha e le life, litlhaloso, kapa matšoenyeho mabapi le kopo ena, li ka lebisoa ho EIMS ho:
Motho yo go ka Buisanwang le ene ke: Mbali Tshabalala
Nomoro ea Tshupiso ea EIMS: 1565
Aterese ea poso: PO Box 2083; Pinegowrie; 2123
Mohala: (011) 789 7170
Fekse: (086) 571 9047
Emeile: nooitgedacht@eims.co.za
Ka kopo kenyelletsa nomoro ea referense ea projeke ea **1565** mangolo ohle.

EIMS ENVIRONMENTAL IMPACT MANAGEMENT SERVICES

NM10059014-VI210526

NOTIFICATION REGARDING OPPORTUNITY TO PARTICIPATE IN THE ENVIRONMENTAL APPROVAL PROCESS FOR THE PROPOSED HARMONY NOOITGEDACHT TAILINGS STORAGE FACILITY PROJECT, ASSOCIATED PIPELINES AND LOW PRESSURE WATER SYSTEM, IN THE MATJHABENG LOCAL MUNICIPALITY, FREE STATE PROVINCE, SOUTH AFRICA.

As a registered Interested and Affected Party (I&AP) for the above mentioned project, you are hereby notified of the following opportunity for public participation:

Description of event:
Availability of the Environmental Impact Assessment Report for public Review and Comment

Where:
A **hard copy** of the report can be viewed at:
Welkom Public Library (Cnr Reinet and Tulbagh Street, Welkom Central, Free State)
An electronic **copy** can be downloaded from the EIMS website:
https://www.eims.co.za/public-participation/

When:
The comment and review period for the Report will last for **30 days** from **22 May 2026 to 22 June 2026**
Additionally, you are also notified of the opportunity below:

Description of event:
EIA Phase Public Meeting

Where:
Welkom Inn (Corner Stateway and, Tempest Rd, Welkom, Free State)

When:
11 June 2026, from 12:00 to 14:00

All inputs received by EIMS will be included in subsequent submissions to the relevant competent authorities for consideration in their decision making process.

I&AP registrations, or any queries, comments, or concerns with regards to this application, can be directed to EIMS at:
Contact Person: Mbali Tshabalala
EIMS Reference Number: 1565
Postal Address: P.O. Box 2083; Pinegowrie; 2123
Telephone: (011) 789 7170
Fax: (086) 571 9047
E-mail: nooitgedacht@eims.co.za
Please include the project reference number **1565** in all correspondence.

EIMS ENVIRONMENTAL IMPACT MANAGEMENT SERVICES

NM10059016-VI210526

Environmental Authorisation and Integrated Water Use Licence Application for the Jelani Joint Venture (JV) Underground Mining Project, Free State Province

DMPR reference number: FS30/5/1/2/3/2/1(10098) EM • DWS reference number: WU50090

Applicant: **Jelani Resources (Pty) Ltd**
Project Name: **Jelani Joint Venture (JV) Underground Mining Project), Free State Province**

Jelani Resources (Pty) Ltd ("Jelani") is a joint venture (JV) between White Rivers Exploration (WRE) and Harmony Gold, formed to conduct underground mining operations within the JV area in the Free State Province of South Africa. The joint venture area includes portions of Harmony Gold's existing Target Mine mining right area (Harmony contribution) and prospecting right areas located west of the Target Mine (WRE contribution).

Jelani is proposing to develop and to commence with underground mining within the same area (the Proposed Project). The primary mineral resource targeted is gold, with additional potential resources including silver, uranium, sulphur, platinum group metals, rare earth elements, diamonds (alluvial), and a range of base and ferrous metals such as copper, cobalt, manganese, molybdenum, nickel, lead, tungsten, zinc, and iron.

Mining will initially focus on shallower ore bodies at approximately 1,200 metres below surface. As mine development progresses, further mining areas will be opened, allowing production to gradually increase to a planned steady-state rate of 60,000 tonnes of ore per month.

Two underground mining methods have been identified as most suitable: conventional breast mining and shrinkage stoping. The selection of method is primarily determined by the dip of the mineralised reef, with shrinkage stoping applied to steeper reef sections, representing approximately 3% of the total stope tonnage. Where the orebody dips below 55°, conventional breast mining will be used.

All operational mining infrastructure required for the Proposed Project will be located within Harmony's existing Target Mine mining right area. No new operational mining infrastructure planned within the JV project area. Underground access infrastructure will comprise either refurbished facilities at Target Shafts No. 3, 4, and 5 or newly constructed infrastructure at the Target No. 2 Shaft site, all within the existing mining right.

To monitor potential mining-induced seismicity and boundary interactions with the adjacent Harmony Gold operations, four seismographic monitoring stations will be installed, spread equally along the shared boundary, with short gravel access tracks provided for each station. These installations represent the only surface infrastructures on the JV project area.

Additionally, a new Tailings Storage Facility (TSF) will be constructed to the west of the existing Target metallurgical plant and north of the existing Target TSF. The total area required for this new facility is approximately 69 Hectares (Ha). This TSF is a separate project being undertaken by Harmony Gold.

The project area is situated immediately adjacent to and west of the Harmony Gold Target Mine, approximately 11km northwest of Odendaalsrus, 2,5km west of Allanridge, and 22km east of Wesselsbron, in the Free State Province of South Africa. It lies within Ward 36 of the Matjhabeng Local Municipality, under the jurisdiction of the Lejweleputswa District Municipality.

Availability of the Draft Scoping Report (DSR) for Public Review and Comment: The DSR for the Project will be made available for public review and comment for **30 days**, from **Thursday, 21 May 2026 to Monday, 22 June 2026.**

The **DSR** will be made available on Kongiwe's website **https://kongiwe.com/projects/**, and an electronic copy will be made available upon request. In addition, non-technical summaries of the **DSR** will also be available electronically.

A hard copy of the **DSR** will be made available at the following public place: **Allanridge Public Library** (53 Caledon St, Allanridge),
Contact: Ms Anna Matjelo, Librarian - (078) 713 2063.

Stakeholder Meetings: Consultation meetings will be held using platforms like Microsoft Teams (Online Meeting) and an Open Day. The purpose of these meetings is to discuss the Project and the contents of the **DSR**, and to provide Interested and Affected Parties (I&APs) with the opportunity to raise their comments and interact with the Project team. Please see below the proposed stakeholder meeting details:

Proposed dates	Available time slots	Method of Engagement/Venue
Online Meeting		
Wednesday, 27 May 2026	10H00 – 11H00	Microsoft Teams
In-Person Meeting: Open Day		
Saturday, 30 May 2026	11H00 – 13H00	S.A. Mokhothu Primary School, 3073 Nyakallong, Allanridge, 9490

To register as an I&AP please contact: Kongiwe Environmental Stakeholder Engagement Team
Ms Jean-Mari Williams - Phone: (010) 140 1726 / Ms Vanessa Viljoen - Phone: (010) 140 1725 or
E-mail: stakeholders@kongiwe.com
Our team welcomes your participation and looks forward to your involvement throughout this process.

KONGIWE

KENNISGEWING OOR GELEENTHEID OM DEEL TE NEEM AAN DIE OMGEWINGSGOEDKEURINGSPROSES VIR DIE VOORGESTELDE HARMONY NOOITGEDACHT AFVALBERGINGSFASILITEITPROJEK, GEASSOSIEERDE PYPLEIDINGS EN LAEDRUKWATERSTELSEL, IN DIE MATJHABENG PLAASLIKE MUNISIPALITEIT, VRYSTAATPROVINSIE, SUID-AFRIKA.

As 'n geregistreerde Belangstellende en Geraakte Party (BI&AP) vir bogenoemde projek, word jy hiermee in kennis gestel van die volgende geleentheid vir openbare deelname:

Beskrywing van die geleentheidgebeurtenis:
Beskikbaarheid van die Omgewingsimpakbepalingsverslag vir publieke openbare hersiening en kommentaar

Waar:
'n **Hardekopie** van die verslag kan besigtig word by:
Welkom Openbare Biblioteek (Cnr Reinet en Tulbaghstraat, Welkom Sentraal, Vrystaat)
'n Elektroniese **kopie** kan van die EIMS-webwerf afgelaai word:
https://www.eims.co.za/public-participation/

Wanneer:
Die kommentaar- en hersieningsperiode vir die verslag duur **30 dae van 22 Mei 2026 tot 22 Junie 2026**

Daarbenewens word jy ook van die geleentheid hieronder in kennis gestel:

Beskrywing van die gebeurtenis:
OIBEIA-fase Publieke Openbare Vergadering

Waar:
Welkom Inn (Hoek van Stateway en, Tempest Rd, Welkom, Vrystaat)

Wanneer:
11 Junie 2026, van 12:00 tot 14:00

Alle insette wat deur EIMS ontvang word, sal ingesluit word in daaropvolgende voorleggings aan die relevante bevoegde owerhede vir oorweging in hul besluitnemingsproses.

I&AP-registrasies, of enige navrae, kommentaar of bekommernisse rakende hierdie aansoek, kan aan EIMS gerig word by:
Kontakpersoon: Mbali Tshabalala
EIMS Verwysingsnommer: 1565
Posadres: Posbus 2083; Pinegowrie; 2123
Telefoon: (011) 789 7170
Faks: (086) 571 9047
E-pos: nooitgedacht@eims.co.za
Sluit asseblief die projekverwysingsnommer **1565** in alle korrespondensie in.

EIMS ENVIRONMENTAL IMPACT MANAGEMENT SERVICES

NM10059013-VI210526

Appendix C5: Site Notice

Environmental Authorisation and Integrated Water Use Licence Application for the Jelani Joint Venture (JV) Underground Mining Project, Free State Province

DMPR reference number: FS30/5/1/2/3/2/1(10098) EM

DWS reference number: WU50090

Jelani Resources (Pty) Ltd ("Jelani") is a joint venture between White Rivers Exploration (WRE) and Harmony Gold, formed to conduct underground mining operations in the Free State Province of South Africa. The joint venture area includes portions of Harmony Gold's existing Target Mine mining right area (Harmony contribution) and prospecting right areas located west of the Target Mine (WRE contribution).

Jelani is proposing to develop and to commence underground mining within the same area (the Project). The primary mineral resource targeted is gold, with additional potential resources including silver, uranium, sulphur, platinum group metals, rare earth elements, diamonds (alluvial), and a range of base and ferrous metals such as copper, cobalt, manganese, molybdenum, nickel, lead, tungsten, zinc, and iron.

Mining will initially focus on shallower ore bodies at approximately 1,200 metres below surface. As mine development progresses, further mining areas will be opened, allowing production to gradually increase to a planned steady-state rate of 60,000 tonnes of ore per month.

Two underground mining methods have been identified as most suitable: conventional breast mining and shrinkage stoping. The selection of method is primarily determined by the dip of the mineralised reef, with shrinkage stoping applied to steeper reef sections, representing approximately 3% of the total stope tonnage. Where the orebody dips below 55°, conventional breast mining will be used.

All operational mining infrastructure required for the Proposed Project will be located within Harmony's existing Target Mine mining right area. No new operational mining infrastructure planned within the JV project area. Underground access infrastructure will comprise either refurbished facilities at Target Shafts No. 3, 4, and 5 or newly constructed infrastructure at the Target No. 2 Shaft site, all within the existing mining right.

To monitor potential mining-induced seismicity and boundary interactions with the adjacent Harmony Gold operations, four seismographic monitoring stations will be installed, spread equally along the shared boundary, with short gravel access tracks provided for each station. These installations represent the only surface infrastructures on the JV project area.

Additionally, a new Tailings Storage Facility (TSF) will be constructed to the west of the existing Target metallurgical plant and north of the existing Target TSF. The total area required for this new facility is approximately 69 Hectares (Ha). This TSF is a separate project being undertaken by Harmony Gold.

The project area is situated immediately adjacent to and west of the Harmony Gold Target Mine, approximately 11km northwest of Odendaalsrus, 2,5km west of Allanridge, and 22km east of Wesselsbron, in the Free State Province of South Africa. It lies within Ward 36 of the Matjhabeng Local Municipality, under the jurisdiction of the Lejweleputswa District Municipality.

Availability of the Draft Scoping Report (DSR) for Public Review and Comment:

The **DSR** for the Project will be made available for public review and comment for 30 days, from **Thursday, 21 May 2026 to Monday, 22 June 2026.**

The **DSR** will be made available on Kongiwe's website https://kongiwe.com/projects/, and an electronic copy will be made available upon request. In addition, non-technical summaries of the **DSR** will also be available electronically.

A hard copy of the **DSR** will be made available at the following public place: **Allanridge Public Library** (53 Caledon St, Allanridge, Contact: Ms Anna Matjelo, Librarian - (078) 713 2063).

Stakeholder Meetings:

Consultation meetings will be held using platforms like Microsoft Teams (online meetings) and Open Days. The purpose of these meetings is to discuss the Project and the contents of the **DSR,** and to provide Interested and Affected Parties (I&APs) with the opportunity to raise their comments and to interact with the Project team. Please see below the proposed stakeholder meeting details:

Proposed Dates	Available Time Slots	Method of Engagement / Venue
Online Meeting		
Wednesday, 27 May 2026	10H00 – 11H00	Microsoft Teams
In-Person Meeting: Open Day		
Saturday, 30 May 2026	11H00 – 13H00	S.A. Mokhothu Primary School, 3073 Nyakallong, Allanridge, 9490

To register as an I&AP, contact:
Kongiwe Environmental Stakeholder Engagement Team
Ms Jean-Mari Williams - Phone: (010) 140 1726
Ms Vanessa Viljoen - Phone: (010) 140 1725
E-mail: stakeholders@kongiwe.com

Our team welcomes your participation and looks forward to your involvement throughout this process.

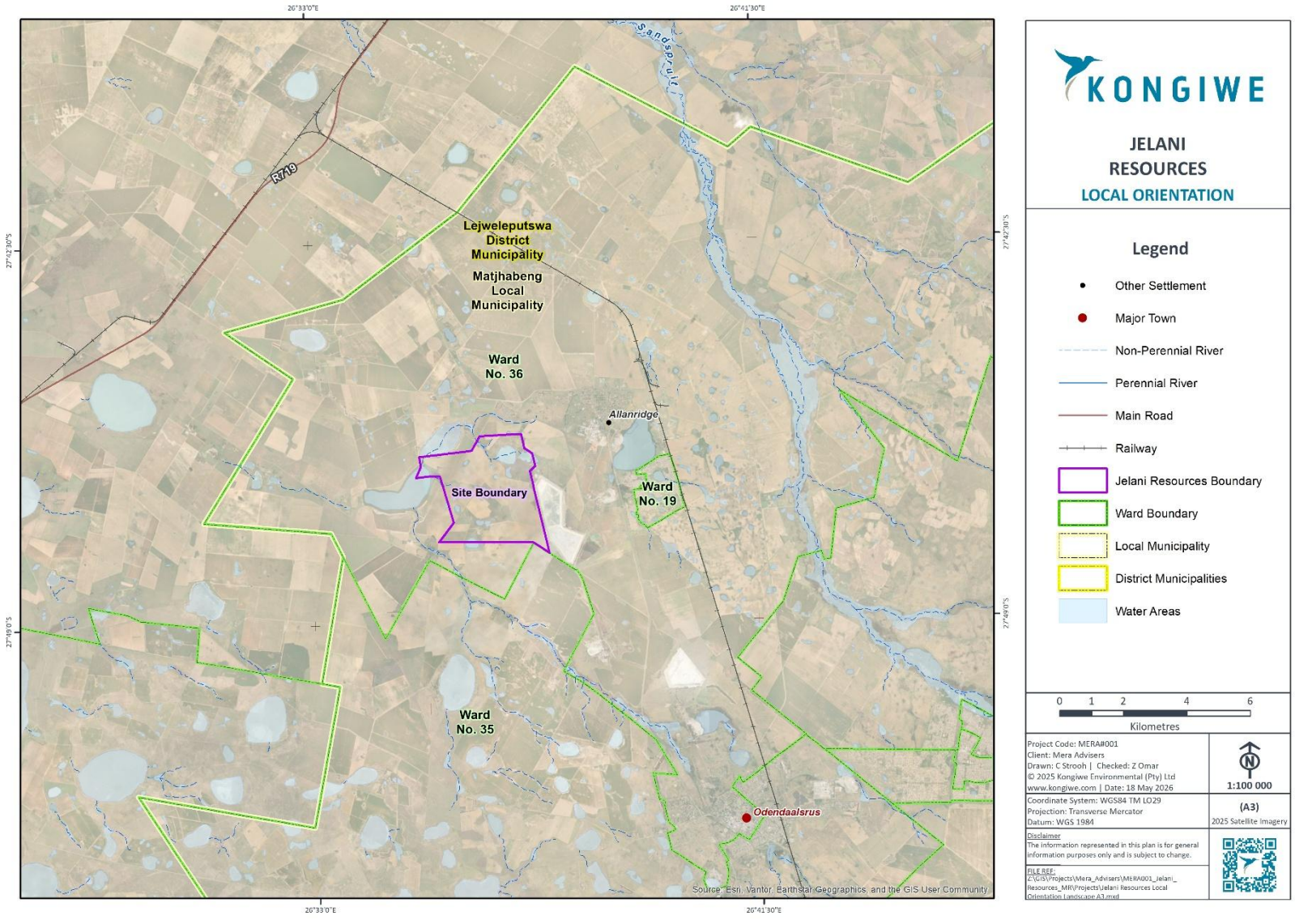

Figure 1: Locality Map

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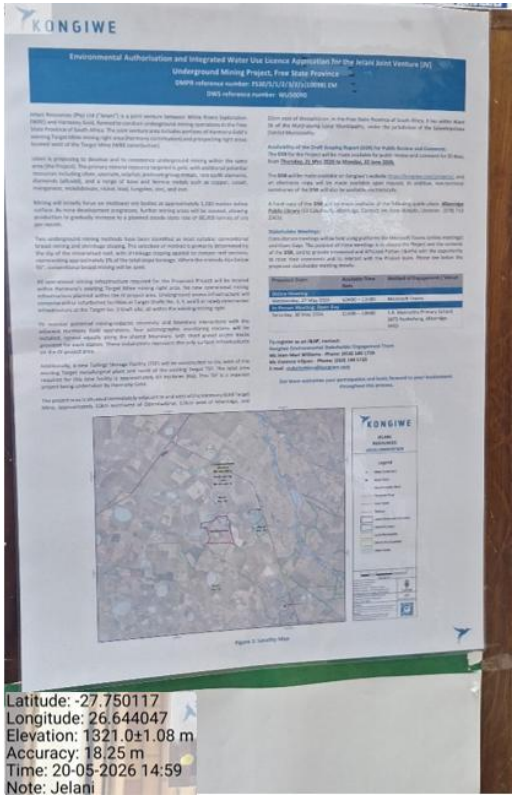
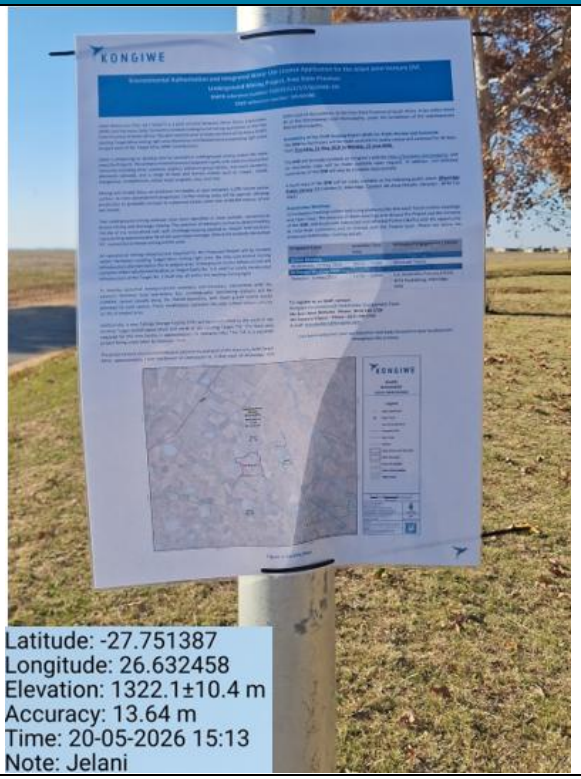
Environmental Authorisation and Integrated Water Use Licence Application for Jelani Joint Venture (JV) Area Underground Mining Project, Free State Province.

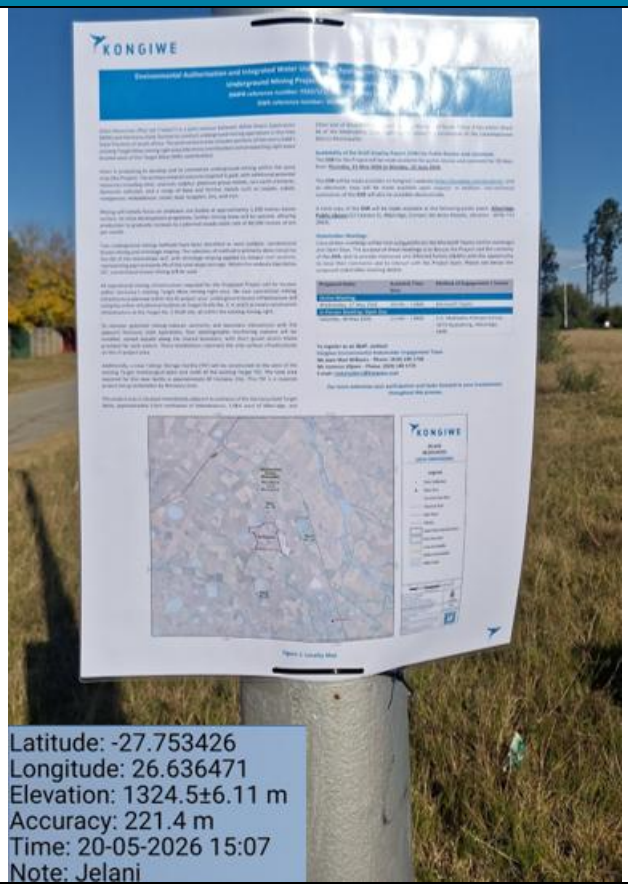
Site Notice Placement Report on Wednesday, 20 May 2026

Site Notice Number	Location	Co-ordinates	Photo
1.	Inside the Allanridge Public Library.	27°45' 00.42" S 26°38' 38.57" E	

© 2026 Kongiwe Environmental (Pty) Ltd

Site Notice Number	Location	Co-ordinates	Photo
2.	Lamppost on the corner of Kildare Street and Caledon Street.	27°45' 04.99" S 26°37' 56.85" E	

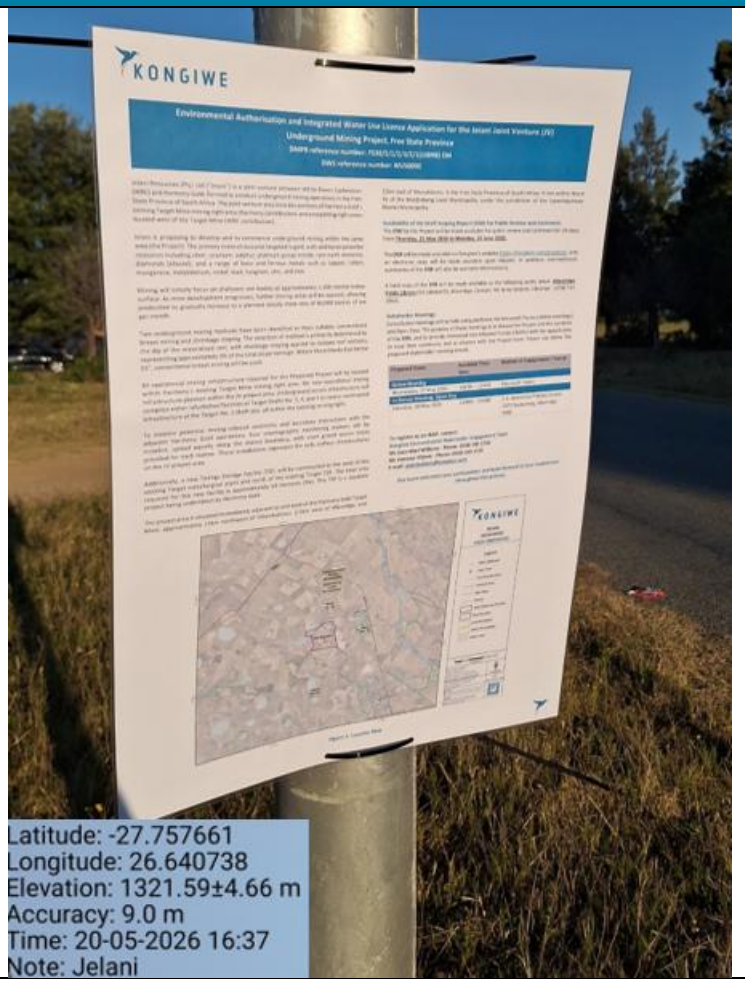
© 2026 Kongiwe Environmental (Pty) Ltd

Site Notice Number	Location	Co-ordinates	Photo
3.	Lamppost on the corner of Assegaai Street and Mazeppa Street.	27°45' 12.33" S 26°38' 11.30" E	

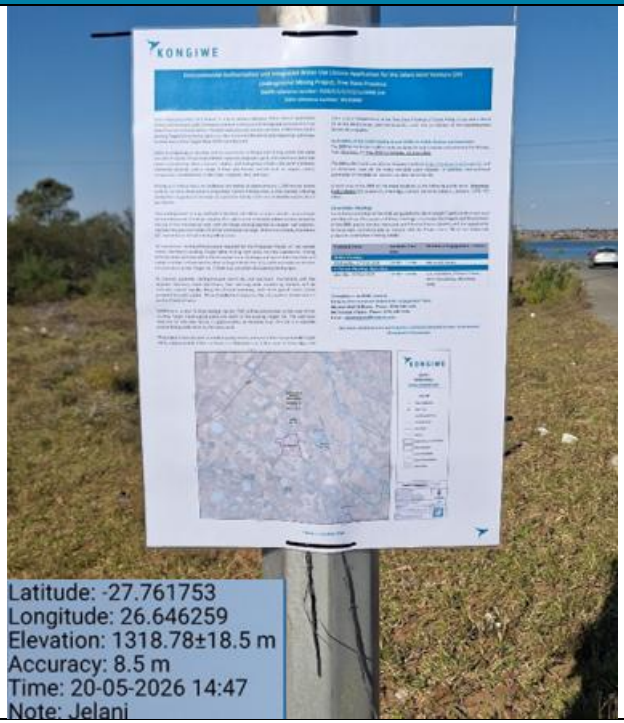
© 2026 Kongiwe Environmental (Pty) Ltd

Site Notice Number	Location	Co-ordinates	Photo
4.	Lamppost across from Target Gold Mine – 1 Shaft on Buffalo Road.	27°45' 34.47" S 26°38' 35.52" E	

© 2026 Kongiwe Environmental (Pty) Ltd

Site Notice Number	Location	Co-ordinates	Photo
5.	Lamppost across from Target Gold Mine – 1 Shaft on Buffalo Road.	27°45' 27.58" S 26°38' 26.66" E	

© 2026 Kongiwe Environmental (Pty) Ltd

Site Notice Number	Location	Co-ordinates	Photo
6.	Lamppost across from Target Gold Mine – 1 Shaft on Buffalo Road, just off the R30.	27°45' 42.31" S 26°38' 46.53" E	

© 2026 Kongiwe Environmental (Pty) Ltd

Site Notice Number	Location	Co-ordinates	Photo
7.	Lamppost off the R30, at the entrance of the Nyakallong community.	27°46' 40.43" S 26°38' 53.08" E	

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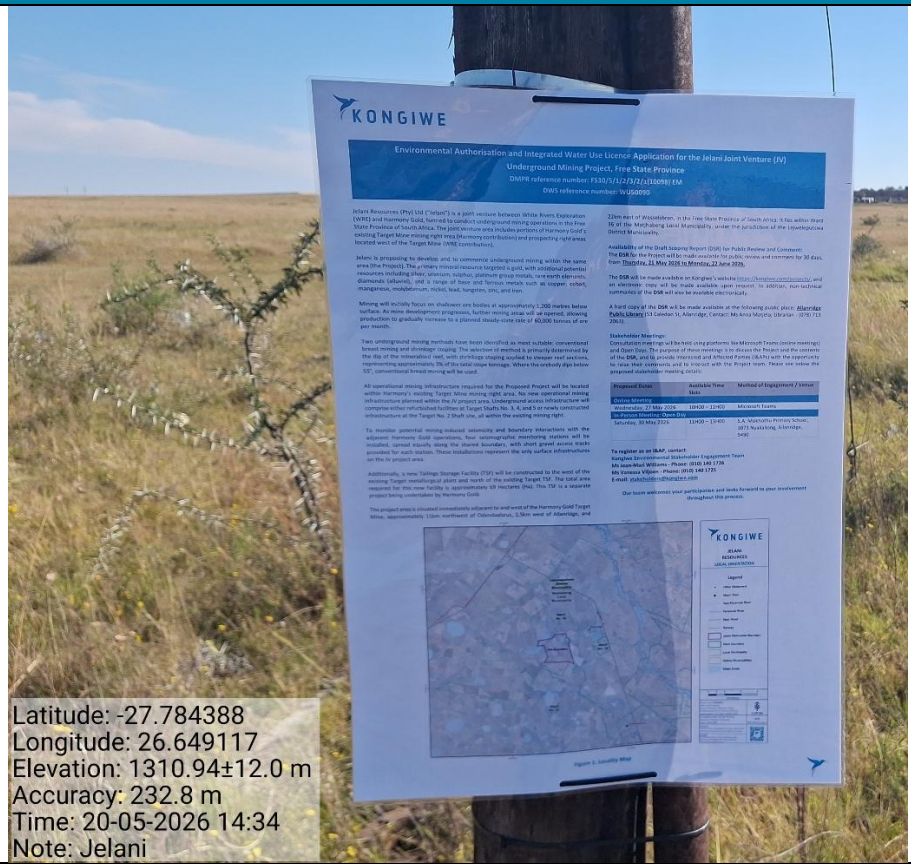
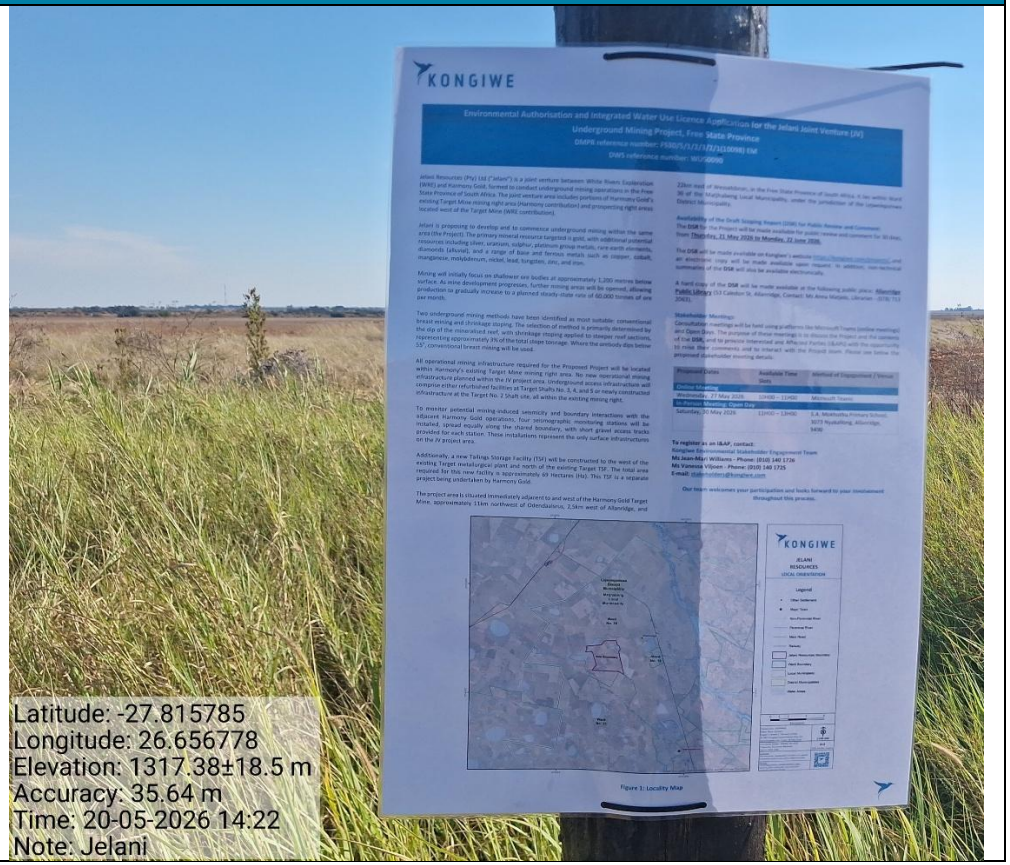
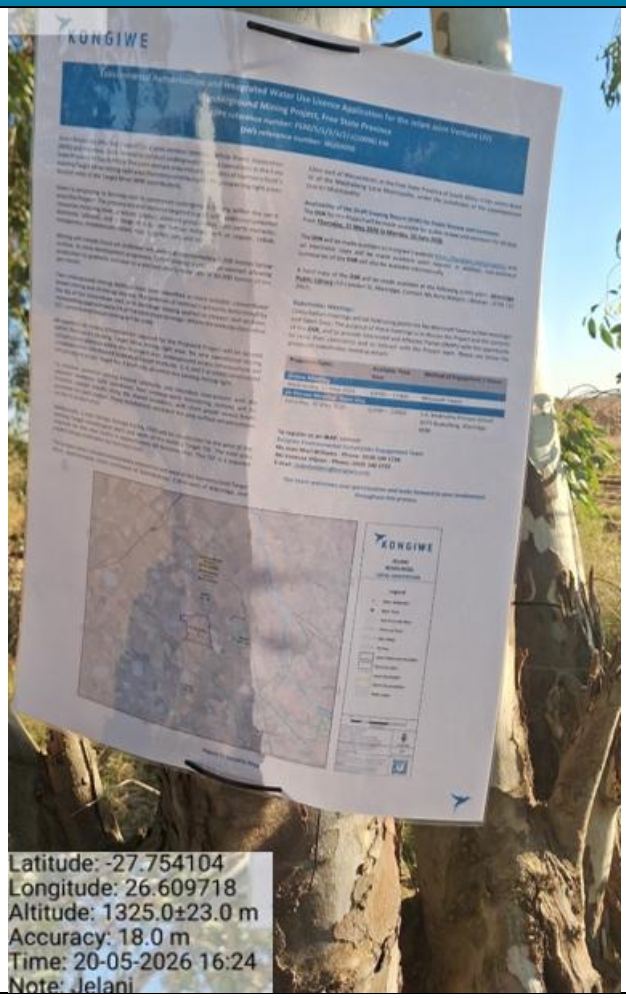
Site Notice Number	Location	Co-ordinates	Photo
8.	Telephone pole along the R30, next to Target Mine 2 entrance sign.	27°47' 03.80" S 26°38' 56.82" E	

© 2026 Kongiwe Environmental (Pty) Ltd

Site Notice Number	Location	Co-ordinates	Photo
9.	Telephone pole along the R30, across from Target 3 Shaft.	27°48' 56.83" S 26°39' 24.40" E	

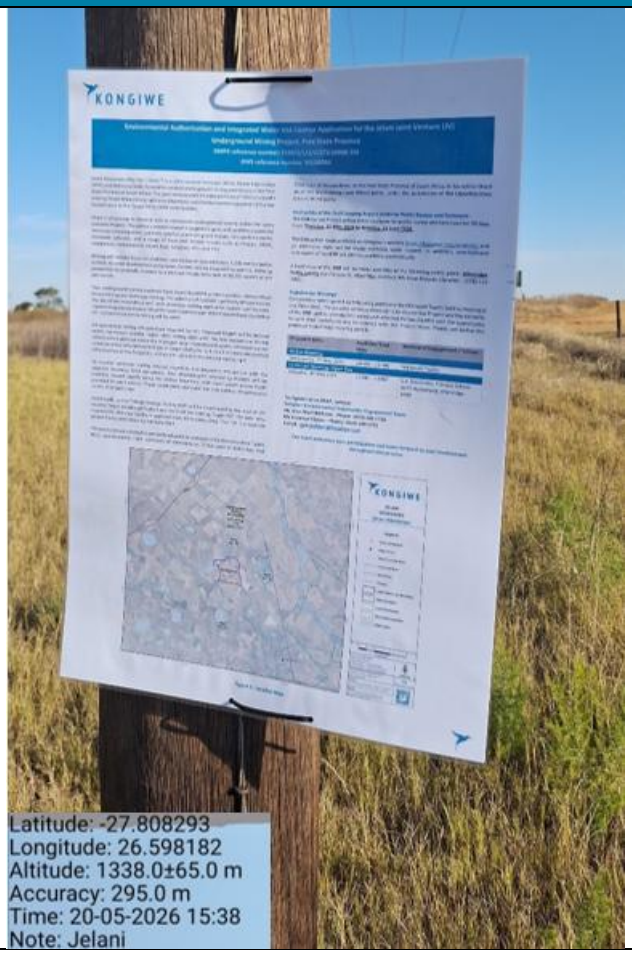
© 2026 Kongiwe Environmental (Pty) Ltd

Site Notice Number	Location	Co-ordinates	Photo
10.	On a tree at the T-Junction along Caledon Street.	27°45' 14.77" S 26°36' 34.98" E	

© 2026 Kongiwe Environmental (Pty) Ltd

Site Notice Number	Location	Co-ordinates	Photo
11.	Lamppost on the corner of Blarney Street.	27°45' 08.54" S 26°37' 14.64" E	

© 2026 Kongiwe Environmental (Pty) Ltd

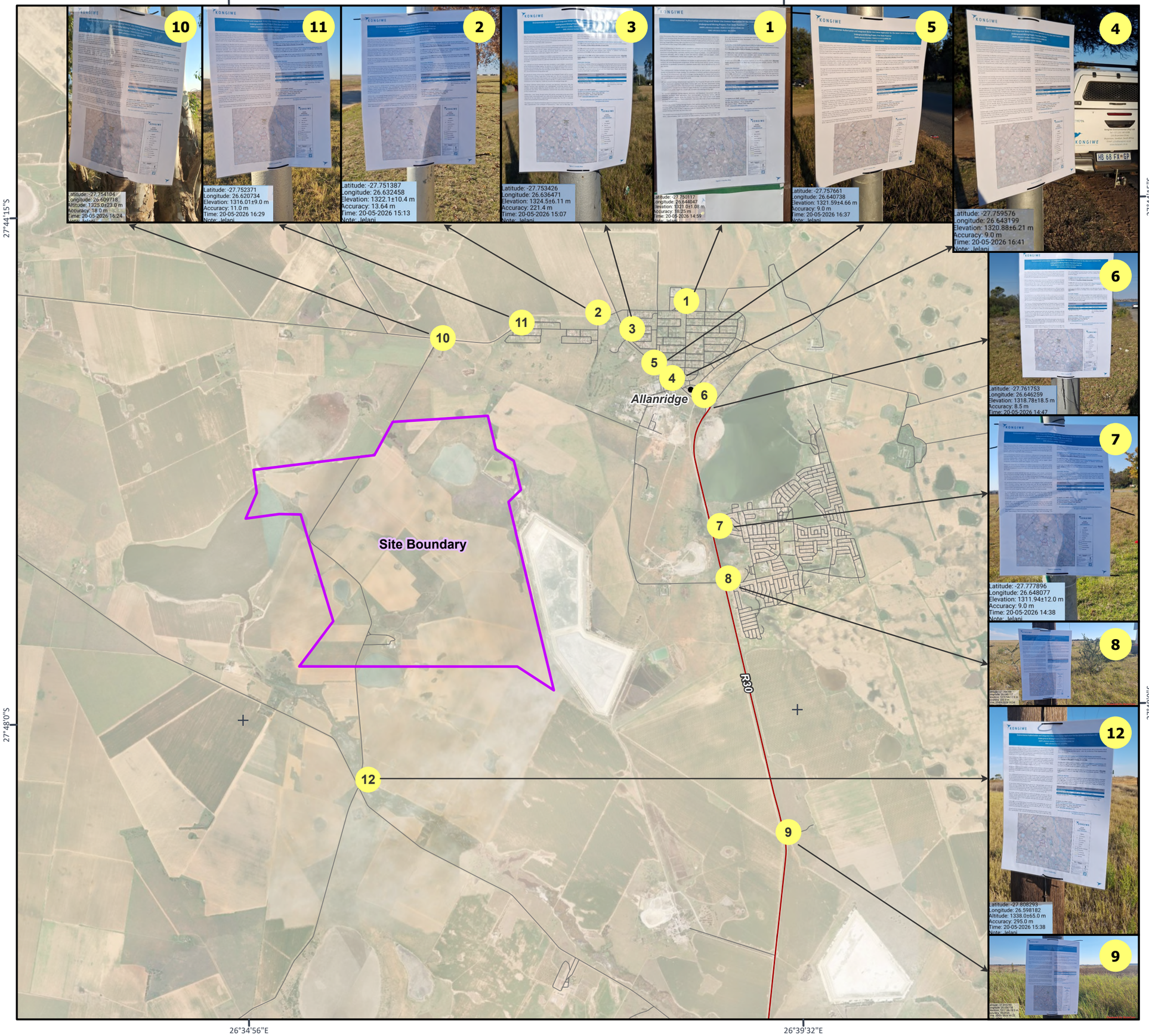
Site Notice Number	Location	Co-ordinates	Photo
12.	Telephone pole at the crossroad of two main farm roads.	27°48' 29.85" S 26°35' 53.46" E	

26°34'56"E

26°39'32"E

27°44'15"S

27°48'0"S



JELANI RESOURCES

SITE NOTICES

Legend

- Other Settlement
- Local Roads
- Main Road
- Jelani Resources Boundary

0 0.5 1 2 3

Kilometres

Project Code: JELA#001
Client: Jelani Resources (Pty) Ltd
Drawn: C Strooh - Checked: B Thornton
© 2026 Kongiwe Environmental (Pty) Ltd
www.kongiwe.com | Date: 25/05/2026

1:50 000

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

A3

2026 Satellite Imagery

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

File ref:
ArcGIS\Projects\Jelani_Resources\JELA#001\PPP\PPP.aprx\Project_Site_Notices_A3L

Appendix C6: Correspondence

Vanessa Viljoen

From: Kongiwe Stakeholder Engagement
Sent: Thursday, 14 May 2026 09:12
To: Vanessa Viljoen
Subject: Environmental Authorisation and Integrated Water Use Licence Application for Jelani Joint Venture (JV) Area Underground Mining Project, Free State Province
Attachments: JELA_001_BID_13052026.pdf; JELA_001_REG_FRM_V1.pdf

Dear Stakeholder

Kongiwe Environmental (Pty) Ltd ("Kongiwe") hereby gives notice that the **Draft Scoping Report (DSR)** for the Environmental Authorisation and Integrated Water Use Licence (IWULA) of the Jelani Joint Venture (JV) Underground Mining Project ("Proposed Project"), located in the Matjhabeng Local Municipality, under the jurisdiction of the Lejweleputswa District Municipality, Free State Province, is available for public review and comment.

Availability of the Draft DSR for Public Review and Comment
The **DSR** for the Proposed Project will be made available for public review and comment for **30 days**, from **Thursday, 21 May 2026 to Monday, 22 June 2026**.

The DSR will be made available as follows:

- An electronic copy on Kongiwe's website: https://kongiwe.com/projects/.
- A hard copy at the **Allenridge Public Library (please see details in table below).**

Location	Physical Address	Contact Person
Allanridge Public Library	53 Caledon St, Allanridge	Ms Anna Matjelo, Librarian (078) 713 2063) Monday - Friday Open: 08:00 Close: 15:30

Invitation to Online Meeting and Open Day:
Interested and Affected Parties (I&APS) are invited to attend an **Online Meeting and Open Day** as per indicated in the table below:

Proposed Dates	Available Time Slot	Method of Engagement
Online Meeting		
Wednesday, 27 May 2026	10H00 – 11H00	Microsoft Teams (once stakeholders have registered a Microsoft Teams link will be sent)
Open Day		
Saterday, 30 May 2026	11H00 -13H00	S.A. Mokhothu Primary School 3073 Nyakallong, Allanridge, 9490

The purpose of the meeting is to discuss the Proposed Project and the contents of the **DSR** and to provide I&APs with the opportunity to raise their comments and to 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.
www.kongiwe.com

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Jean-Mari Williams

From: Jean-Mari Williams
Sent: 2026/05/25 10:07:03
To: Kongiwe Stakeholder Engagement; Umeshree Naicker; Vanessa Viljoen; Ripfumelo Macevele
Subject: REMINDER: Environmental Authorisation and Integrated Water Use Licence Application for Jelani Joint Venture (JV) Area Underground Mining Project, Free State Province

---

Dear Stakeholder

Kongiwe Environmental (Pty) Ltd ("Kongiwe") hereby gives notice to **remind** you that the **Draft Scoping Report (DSR)** for the Environmental Authorisation and Integrated Water Use Licence (IWULA) of the Jelani Joint Venture (JV) Underground Mining Project ("Proposed Project"), located in the Matjhabeng Local Municipality, under the jurisdiction of the Lejweleputswa District Municipality, Free State Province, is available for public review and comment.

Availability of the Draft DSR for Public Review and Comment
The **DSR** for the Proposed Project is available for public review and comment for **30 days**, from **Thursday, 21 May 2026 to Monday, 22 June 2026**.

Attached please find the summary of the Draft Scoping Report (DSR) for your perusal.

The DSR is available as follows:

- An electronic copy on Kongiwe's website: https://kongiwe.com/projects/.
- A hard copy at the **Allenridge Public Library (please see details in table below).**

Location	Physical Address	Contact Person
Allanridge Public Library	53 Caledon St, Allanridge	Ms Anna Matjelo, Librarian (078) 713 2063) Monday - Friday Open: 08:00 Close: 15:30

Invitation to Online Meeting and Open Day:
Interested and Affected Parties (I&APS) are invited to attend an **Online Meeting and Open Day** as per indicated in the table below:

Proposed Dates	Available Time Slot	Method of Engagement
Online Meeting		
Wednesday, 27 May 2026	10H00 – 11H00	Microsoft Teams (once stakeholders have registered a Microsoft Teams link will be sent)
Open Day		
Saterday, 30 May 2026	11H00 -13H00	S.A. Mokhothu Primary School 3073 Nyakallong, Allanridge, 9490

The purpose of the meeting is to discuss the Proposed Project and the contents of the **DSR** and to provide I&APs with the opportunity to raise their comments and to interact with the Project Team.

Please do not hesitate to contact us if you have any queries.

Kind Regards,

Jean-Mari Williams| Project Co-ordinator | Kongiwe Environmental (Pty) Ltd
Tel: +27 (10) 140 6508 | Cell: +27 (74) 877 3436 |Fax: +27 (86) 476 6438 | Email: jwilliams@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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Vanessa Viljoen

From: Kongiwe Stakeholder Engagement
Sent: Tuesday, 22 September 2026 09:53
To: Vanessa Viljoen; Ripfumelo Macevele
Subject: EA and IWULA for Jelani Joint Venture (JV) Area Underground Mining Project, Free State Province
Attachments: JELA#001_DEIR_Not_Let.pdf

Dear Stakeholder

Kongiwe Environmental (Pty) Ltd (Kongiwe) hereby gives notice that the **Draft Environmental Impact Assessment (EIA) including the Draft Environmental Management Programme Report (EMPr)** and the **Draft Integrated Water and Waste Management Plan (IWWMP)** for Jelani Joint Venture (JV) Area Underground Mining Project, Free State Province, will be available for review and comment.

Availability of the Draft EIA/EMPr Reports and the Draft IWWMP:
The Draft EIA/EMPr Reports has been compiled and will be made available for a **30-day** public review and comment period from **Tuesday, 29 September 2026** until **Wednesday, 28 October 2026**.

The Draft IWWMP will be made available for a **60-day** public review and comment period from **Tuesday, 29 September 2026** until **Friday, 27 November 2026**.

INVITATION TO STAKEHOLDER CONSULTATION MEETINGS:
The purpose of these Stakeholder Meetings is to discuss the Draft EIA/EMPr Reports and the Draft IWWMP, present findings from the specialist studies, provide stakeholders with a platform to raise comments and interact with the project team.

Meeting Dates	Stakeholders	Time Slots
In-Person Meeting		
Saturday, 10 October 2026	Broader stakeholder meeting (public meeting) will be held at S.A. Mokhothu Primary School 3073 Nyakallong, Allanridge.	10H00 – 12H00
Online Meeting		
Tuesday, 6 October 2026	Microsoft Teams – Online Meeting	10H00 – 11H00

Please confirm your attendance by contacting the stakeholder engagement team below:

Contact Details:		
Ms Vanessa Viljoen	+27 (10) 140 1725	stakeholders@kongiwe.com
Ms Jean-Mari Williams	+27 (10) 140 1726	

Please see attached letter for more details.

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.
www.kongiwe.com

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Tuesday, 22 September 2026

Environmental Authorisation and Integrated Water Use Licence Application for Jelani Joint Venture (JV) Area Underground Mining Project, Free State Province

DMPR reference number: FS30/5/1/2/3/2/1(10098) MR

DWS reference number: WU50090

Engagement on the Availability of the Draft Environmental Impact Assessment Report, Environmental Management Programme and the Draft Integrated Water and Waste Management Plan

Kongiwe Environmental (Pty) Ltd (Kongiwe) hereby gives notice that the Draft Environmental Impact Assessment (EIA) including the Draft Environmental Management Programme (EMPr) and the Draft Integrated Water and Waste Management Plan (IWWMP) for the Jelani Joint Venture (JV) Area Underground Mining Project, Free State Province (the Project), will be available for review and comment.

The purpose of this notification is to provide you with important information regarding the following:

- The availability of the Draft EIA/EMPr Reports;
- The availability of the Draft IWWMP
- How you can provide comments on the Draft EIA/EMPr Reports and the Draft IWWMP; and
- Invitation to stakeholders to participate through online and in-person engagements.

Availability of the Draft EIA/EMPr Reports and the Draft IWWMP:

The **Draft EIA/EMPr Reports** has been compiled and will be made available for a 30-day public review and comment period from **Tuesday, 29 September 2026 until Wednesday, 28 October 2026**.

The **Draft IWWMP** will be made available for a 60-day public review and comment period from **Tuesday, 29 September 2026 until Friday, 27 November 2026.**

Copies of the reports will be made available as follows:

- Electronic copies on Kongiwe's website: https://kongiwe.com/projects/.
- The non-technical summary of the Draft EIA / EMPr Reports will be emailed to all stakeholders on the database.
- Hard copies of the non-technical summary will be distributed to the stakeholder meeting attendees.
- Hard copies of the Draft EIA/EMPr Reports and the Draft IWWMP will be available at the Allanridge Public Library and Nyakallong Public Library (shown in table below):

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

Location	Physical Address	Contact Person / Times
Allanridge Public Library	53 Caledon St, Allanridge	Ms Anna Matjelo, Librarian (078) 713 2063) Monday - Friday Open: 08:00 Close: 15:30
Nyakallong Public Library	Nyakallong, Allanridge, 9492	Ms Vivian Dasheka (081) 761 1620 Monday - Friday Open: 08:00 Close: 16:00

You can comment on the Draft EIA/EMPr Reports 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 ; and
- By contacting our stakeholder engagement team - please see details below.

Invitation to Stakeholder Consultation Meetings:

Stakeholders are invited to participate through online and in-person engagements. The purpose of these stakeholder meetings is to discuss the **Draft EIA/EMPr Reports** and the **Draft IWWMP**, present findings from the specialist studies, provide stakeholders with a platform to raise comments on the Draft EIA/EMPr Reports and the Draft IWWMP and interact with the project team.

Refer to table below for the schedule of stakeholder meetings.

Meeting Dates	Stakeholders	Time Slots
In-Person Meeting		
Saturday, 10 October 2026	Broader stakeholder meeting (public meeting) will be held at S.A. Mokhothu Primary School 3073 Nyakallong, Allanridge, 9490	10H00 – 12H00
Online Meeting		
Tuesday, 6 October 2026	Microsoft Teams – online meeting	10H00 – 11H00

Protection of Personal Information Act, 2013 (Act No. 4 of 2013) (POPIA) is taken into consideration.

Should you have any comments/queries, please contact the stakeholder engagement team below.

Contact Details:		
Ms Vanessa Viljoen	+27 (10) 140 1725	stakeholders@kongiwe.com
Ms Jean-Mari Williams	+27 (10) 140 1726	stakeholders@kongiwe.com

Our team welcomes your participation and looks forward to your involvement throughout this process.

Yours faithfully

Wiljoen

Ms Vanessa Viljoen

Stakeholder Engagement Consultant

Appendix C7: Authority Correspondence

mineral &
petroleum resources
Department:
Mineral and Petroleum Resources
REPUBLIC OF SOUTH AFRICA

Private Bag X33, Welkom, 9460 | Tel: 057 391 1300 | Fax: 057 357 6003
The Strip Building, 314 Stateway Street, First & Second Floor, Welkom, 9459

Enquiries: Ms. M. Ramboho
Ref No: FS 30/5/1/2/3/2/1 (10098) EM
Email: Matodzi.Ramboho@dmpr.gov.za
Sub-Directorate: Mine Environmental Management
EAPASA Reg. No.: 2022/5386

The Directors

Jelani Resources (Pty) Ltd

HHK House North Corner Ruth Crescent

Northcliff (Johannesburg)

Gauteng

2115

Attention: Mr. Neels Hoek
Cell No: 076 254 2506
E-Mail: nhoek@mera.co.za

Cc: Umeshree Naicker
Cell No: 081 773 2625
E-Mail: unaicker@kongiwe.com

EVALUATION OF AN APPLICATION FOR AN ENVIRONMENTAL AUTHORISATION FOR a mining RIGHT LODGED IN TERMS OF REGULATION 16 OF THE ENVIRONMENTAL IMPACT ASSESMENT REGULATIONS, 2014 (HEREIN REFERRED TO AS THE "EIA REGULATIONS") FOR VARIOUS MINERALS, ON PORTION 0 OF THE FARM WELVAART 63, PORTION 1 AND 2 OF THE FARM WELVAART 63, PORTION 0 OF THE FARM DIAMANT 37, PORTION 0 AND PORTION 1 OF THE FARM GRASPAN 40 AND PORTION 0 OF THE FARM SWARTPAM 436, SITUATED IN THE MAGISTERIAL DISTRICT OF WELKOM, FREE STATE REGION.

The application received on **21 April 2026** and acknowledged on **30 April 2026** refers.

1. Only the listed activities contained in the application will be considered. The applicant must ensure that the application is complete and complies with the requirements of Regulation 15(1)– (3) of the Environmental Impact Assessment Regulations, 2014 (as amended).

2. The application has been reviewed in terms of Regulation 17 and is found to comply with the requirements of Regulation 16 of the EIA Regulations, 2014 (as amended).

3. The application will be subjected to a Scoping and Environmental Impact Assessment (S&EIR) process in terms of the EIA Regulations, 2014 (as amended).

4. The acceptance of the Mining Right application was signed on **07 May 2026** and issued to the applicant on **18 May 2026.** For purposes of calculating the prescribed timeframe, the Scoping Phase commenced on **18 May 2026** in terms of Section 16(1) of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA). You are therefore required to submit the Scoping Report on or before **01 July 2026** as follows:
   - Three (3) hard copies and one (1) electronic copy (via SAMRAD) of the Scoping Report.
   - The Scoping Report must:
     - Comply with Regulation 21 and Appendix 2 of the EIA Regulations, 2014 (as amended).
     - Be subjected to a minimum thirty (30) day public participation process.
     - Include all comments received from Interested and Affected Parties (I&APs) and responses thereto
     - Include a Plan of Study for Environmental Impact Assessment.
   - Upon acceptance of the Scoping Report, the Environmental Impact Assessment Report (EIAR) must be submitted together with the following:
     - Specialist reports (where applicable).
     - Environmental Management Programme (EMPr).
     - Closure Plan (where applicable).
     - Financial Provisioning documentation (where required).
   - The EIAR must comply with Regulation 23 and Appendix 3 of the EIA Regulations, 2014 (as amended) and must include all comments received during the public participation process and responses thereto.

5. The Scoping Report, Environmental Impact Assessment Report and all supporting documentation must comply with the requirements of **Appendices 2, 3, 4 and 6** of the EIA Regulations, 2014 (as amended), as well as the relevant provisions of the **Financial Provisioning Regulations, 2015 (as amended).**

6. Public participation must comply with the requirements of Chapter 6 (Regulations 40–44) of the EIA Regulations, 2014 (as amended). Proof of consultation with all Interested and Affected Parties (I&APs), including relevant organs of state, must be included in the reports submitted to the Department.

7. The EAP must ensure that all required reports, including financial provisioning (Regulations 6 and 11 of the Financial Provisioning Regulations), are:

- Included in the public participation process.
- Submitted as part of the final application.

8. Financial provision must be determined in accordance with the **Financial Provisioning Regulations, 2015 (as amended)**.
9. Required specialist studies must be informed by the **Environmental Screening Tool Report** and site verification. These may include:
   - Heritage Impact Assessment (**SAHRA consultation with proof of payment required**).
   - Biodiversity/Ecological Assessment.
   - Wetland Delineation.

10. All reports must be subjected to a **30-day public participation process**, including consultation with all relevant state departments and including this Department.
11. Where applicable, consult:
    - Department of Land Affairs (state land), or
    - Commission on Restitution of Land Rights Proof must be included.
12. Please note that submission and evaluation of this application do not grant approval to commence with any listed activities. A recommendation will be submitted to the Minister or delegated authority, and the decision will be communicated in accordance with Regulation 4(1).
13. Commencement of listed activities without Environmental Authorisation constitutes an offence in terms of Section 24F (1) of NEMA and is punishable under Section 49A(1)(a) of the same Act.
14. Failure to meet prescribed timeframes will result in the application being **deemed lapsed** in terms of **Regulation 45**.
15. Provisions of **Regulation 19(1)(b)** and **Regulation 3(7)** may be invoked where necessary; however, no documentation submitted after lapsing will be considered.

Yours faithfully

pp.....

REGIONAL MANAGER: MINERAL REGULATION

FREE STATE REGION

DEPARTMENT OF MINERAL AND PETROLEUM RESOURCES

DATE 02/06/2026

mineral &
petroleum resources
Department:
Mineral and Petroleum Resources
REPUBLIC OF SOUTH AFRICA
Private Bag X 33, Welkom, 9460, **Tel:** 057 391 1300, **Fax:** 057 357 6003
The Strip Building, 314 Stateway Street, First & Second Floor, Welkom, 9459

Enquiries: Mr. M. Ramboho **Ref No:** FS 30/5/1/2/3/2/1 (10098) EM
E-Mail Address: Matodzi.Ramboho@dmpr.gov.za **Sub-Directorate:** Mine Environmental Management
Registered Environmental Assessment Practitioner: Number 2022/5386

The Directors

Jelani Resources (Pty) Ltd

HHK House North Corner Ruth Crescent

Northcliff (Johannesburg)

Gauteng

2115

Attention: Mr. Neels Hoek
Cell No: 076 254 2506
E-Mail: nhoek@mera.co.za

Cc: Umeshree Naicker
Cell No: 081 773 2625
E-Mail: unaicker@kongiwe.com

ACCEPTANCE OF THE SCOPING REPORT IN TERMS OF REGULATION 22(A) OF THE ENVIRONMENTAL IMPACT ASSESMENT REGULATIONS, 2014 AS AMENDED (HEREIN REFERRED TO AS THE "EIA REGULATIONS") IN RESPECT OF PORTION 0 OF THE FARM WELVAART 63, PORTION 1 AND 2 OF THE FARM WELVAART 63, PORTION 0 OF THE FARM DIAMANT 37, PORTION 0 AND PORTION 1 OF THE FARM GRASPAN 40 AND PORTION 0 OF THE FARM SWARTPAM 436, SITUATED IN THE MAGISTERIAL DISTRICT OF WELKOM, FREE STATE REGION.

The Scoping Report (SR) and Plan of Study for Environmental Impact Assessment physically received by the Department on **01 July 2026** refer.

1. The Department has evaluated the submitted SR and Plan of Study for Environmental Impact Assessment submitted to the Department on the afore mentioned date and is satisfied that the documents comply with the minimum requirements of Appendix 2(2) of National Environmental Management Act, 1998 (as amended) (NEMA) Environmental Impact Assessment (EIA) Regulations, 2014. The SR is hereby accepted by the Department in terms of regulation 22(a) of the NEMA EIA Regulations, 2014.

2. You may proceed with the environmental impact assessment process in accordance with the tasks contemplated in the Plan of Study for undertaking Environmental Impact Assessment as required in terms of the NEMA EIA Regulations, 2014.

3. The environmental impact assessment process must consider the screening tool report generated for the proposed project to ensure that relevant specialist studies are conducted.

4. Section 23(1) (a) and (b) of the 2014 EIA Regulations as amended states that "*the applicant must within 106 days of the acceptance of the scoping report, or where regulation 21(2) applies within 106 days of receipt of an application by the competent authority, submit to the competent authority –*

   (a) An environmental impact assessment report inclusive of any specialist reports, an EMPr, a closure plan in case of a closure activity and where the application is a mining application, the plans, report and calculations contemplated in the Financial Provisioning Regulations, which must have been subjected to a public participation process of at least 30 days and which reflect incorporation of comments received, including any comments of the competent authority; or

   (b) *A notification in writing that the documents contemplated in subregulation 1(a) will be submitted within 156 days of acceptance of the scoping report by the competent authority or where regulation 21(2) applies, within 156 days of receipt of the application by the competent authority, as significant changes has been made or significant new information new information has been added to the documents, which changes or information was not contained in the original documents consulted on during the initial public participation process contemplated in subregulation (1)(a), and the revised documents contemplated in subregulation 1(a) will be subjected to another public participation process".*

5. Based on paragraph 3 above, you are hereby kindly requested to submit to the competent authority documents stipulated on section 23(1)(a) of the 2014 EIA Regulations as amended within 106 days of the acceptance of the scoping report. The applicant / EAP must ensure that these documents comply or conform with the annexures attached on the 2014 EIA Regulations as amended and the 2015 Financial Provisioning Regulations as amended. It is the responsibility of the applicant / EAP to familiarize themselves and ensure compliance with the Financial Provisioning Regulations as amended and the 2014 EIA Regulations as amended.

6. All comments raised by interested and affected parties during scoping phase must be addressed in the EIAR phase and proof of addressing such comments must be incorporated onto the EIAR.

[redacted]

7. Public participation process must be conducted in line with chapter 6 of the 2014 EIA Regulations as amended. The applicant and the EAP must ensure full compliance with Regulation 41 of the 2014 EIA Regulations as amended. Please ensure that comments from all relevant stakeholders are submitted to the Department with the Environmental Impact Assessment Report (EIAR). This includes but is not limited to the Provincial Heritage Resources Authority, the South African Heritage Resources Agency, Provincial Environmental Department, Department of Agriculture, Forestry and Fisheries (DAFF), Department of Water and Sanitation (DWS) and the local municipality. Proof of correspondence with the various stakeholders must be included in the EIAR. Should you be unable to obtain comments, proof of the attempts that were made to obtain comments should be submitted to the Department.

8. In addition, the following information are required for the EIR and EMPr:
   a) The total footprint of the proposed development should be indicated.
   b) Should a Water Use License be required, proof of application for a license needs to be submitted.
   c) Possible impacts and effects of the development on the vegetation ecology with regard to lowland-highland interface in the locality should be indicated.
   d) The impacts of the proposed facility on avifauna and bats must be assessed in the EIA phase.
   e) The impacts of the proposed activities on climate change must be investigated, and the results of such investigation must be incorporated onto the EIR&EMPr to be submitted for decision making.
   f) Information on services required on the site, e.g., sewage, refuse removal, water, and electricity. Who will supply these services and has an agreement and confirmation of capacity been obtained?
   g) A construction and operational phase EMPr to include mitigation and monitoring measures.
   h) Should blasting be required, appropriate mitigation measures should be provided.

9. The applicant is hereby reminded to comply with the requirements of regulation 3 of the EIA Regulations, 2014 with regards to the time frames allowed for complying with the requirements of the Regulations.

10. Please ensure that the EIAR includes the A3 size locality maps of the area and illustrates the exact location of the proposed development. The maps must be of acceptable quality and as a minimum, have the following attributes:
    - Maps are relatable to one another.
    - Co-ordinates.
    - Legible legends.
    - Indicate alternatives.
    - Scale and Vegetation types of the study area.

11. Further, it must be reiterated that, should an application for an Environmental Authorisation be subjected to any permits or authorisations in terms of the provisions of any Specific Environmental Management Acts (SEMAs), proof of such application will be required.

12. You are requested to submit three (3) hard copies of the documents stipulated on regulation 23(1) EIAR and EMPr and at least one electronic copy to this Regional Office as stipulated above.

13. You are also instructed to determine the financial provision for the proposed project in line with the 2015 Financial Provisioning Regulations read together with section 24P of the NEMA. Regulation 14(1) of the Financial Provisioning Regulations, 2015 stipulates that "the Minister responsible for Mineral Resources may only grant environmental authorisation in terms of the Act after compliance by the applicant with regulation 10".

14. Regulation 10 of the 2015 Financial provisioning Regulations stipulates that "*An applicant must – (a) ensure that a determination is made of the financial provision and the plans contemplated in regulation 6 are submitted as part of the information submitted for consideration by the Minister responsible for mineral resources of an application for environmental authorisation, the associated environmental management programme and the associated right or permit in terms of the Mineral and Petroleum Resources Development Act, 2002".*

15. The provisions of the 2015 Financial Provisioning Regulations must be met in all applications for an EA relating to prospecting, exploration, mining, or productions operations.

16. Your attention is brought to Section 24F of the NEMA which stipulates "that no activity may commence prior to an environmental authorisation being granted by the competent authority".

Yours faithfully

.....

K. KEWUTI
REGIONAL MANAGER: MINERAL REGULATION
FREE STATE REGION
DEPARTMENT OF MINERAL AND PETROLEUM RESOURCES
DATE: 30/07/2026

Please quote this office file number as reference for any correspondence regarding this application.

Appendix C8: Meeting Minutes

Environmental Authorisation Application for Jelani Joint Venture (JV) Underground Mining in Matjhabeng Local Municipality, Free State Province

Stakeholder Meeting Schedule – Draft Impact Assessment Phase

Date of the meeting	Time	Meeting Type / Format	Organisation / Address	Invited / Attended / Apologies	Resources Used	Who Presented (EAP / Jelani)	Project Team Attendance (Jelani and Kongiwe)
Tuesday, 25 November 2025	**10H00 – 11H00**	**Pre – Application Meeting: Social and Labour Plan (SLP)** **Online Meeting (Microsoft Teams)**	**Competent Authority Free State:** ❖ Department of Mineral and Petroleum Resources (DMPR)	**Invited:** ❖ Ms Cecelia Sedutla, Officer for Promotion of Access to Information Act (PAIA), DMPR ❖ Mr Mphatheleni Khomola, Social and Labour Plan Officer, DMPR **Attended:** ❖ Ms Cecelia Sedutla, Officer for Promotion of Access to Information Act (PAIA), DMPR ❖ Mr Mphatheleni Khomola, Social and Labour Plan Officer, DMPR **Apologies:** None	❖ Presentation ❖ Attendance Register	Mr Bradly Thornton, Kongiwe	Mr Neels Hoek, Jelani Mr Andrew Hamlet, Kongiwe Ms Thuli Phakathi, Kongiwe
Monday, 15 December 2025	**10H00 – 11H00**	**Landowner Consent Meeting** **Online Meeting (Microsoft Teams)**	**Indirectly Affected Landowners**	**Invited:** ❖ Mr Tertius De Jager, Landowner ❖ Mr Christo Nel, Landowner ❖ Mr Trompie Fouche, Landowner ❖ Mr Jaco Grobbelaar, Landowner **Attended:** ❖ Mr Tertius De Jager, Landowner	❖ Presentation ❖ Attendance Register	Mr Ripfumelo Macevele, Kongiwe	Ms Vanessa Viljoen, Kongiwe Ms Umeshree Naicker, Kongiwe Ms Jean-Mari Williams, Kongiwe

Date of the meeting	Time	Meeting Type / Format	Organisation / Address	Invited / Attended / Apologies	Resources Used	Who Presented (EAP / Jelani)	Project Team Attendance (Jelani and Kongiwe)
				❖ Mr Johan De Jager, Landowner **Apologies:** ❖ Mr Christo Nel, Landowner ❖ Mr Trompie Fouche, Landowner ❖ Mr Jaco Grobbelaar, Landowner			
Monday, 26 January 2026	**13H00 – 13H30**	**Local Municipality Meeting: Social and Labour Plan (SLP)** **telephonic meeting**	**Local Municipality: Free State** ❖ Matjhabeng Local Municipality	**Invited:** ❖ Mr Sefako Ramphoma, Executive Director LED, MLM **Attended:** ❖ Mr Sefako Ramphoma, Executive Director LED, MLM **Apologies:** None	❖ Background Information Document & Memo	Mr Andrew Hamlet, Kongiwe	-
Friday, 6 February 2026	**08H00 – 09H00**	**Pre – Application Meeting** **Online Meeting (Microsoft Teams)**	**Competent Authority Free State:** ❖ Department of Mineral and Petroleum Resources (DMPR)	**Invited:** ❖ Mr Tuwani Monyai, Assistant Director: Mine Environmental Management (DMPR) ❖ Mr Cedrick Fhedzisani, Deputy Director: Mine Environmental Management (DMPR) **Attended:** ❖ Mr Tuwani Monyai, Assistant Director: Mine Environmental Management (DMPR) ❖ Mr Cedrick Fhedzisani, Deputy Director: Mine Environmental Management (DMPR) **Apologies:** None	❖ Presentation ❖ Attendance Register	Ms Umeshree Naicker, Kongiwe	Mr Neels Hoek, Jelani Mr Ripfumelo Macevele, Kongiwe Ms Thuli Phakathi, Kongiwe

Date of the meeting	Time	Meeting Type / Format	Organisation / Address	Invited / Attended / Apologies	Resources Used	Who Presented (EAP / Jelani)	Project Team Attendance (Jelani and Kongiwe)
Tuesday, 26 May 2026	**14H00 – 15H00**	**District Municipality Meeting** **Online Meeting (Microsoft Teams)**	**District Municipality: Free State** ❖ Lejweleputswa District Municipality	**Invited:** ❖ Mr Dewald Kirsten, District Manager ❖ Mr Fannie Zim, Environmental Manager ❖ Mr Motlatsi Makhetha, Municipal Manager ❖ Ms Michelle Sello, Executive Manager of Environmental Health Services **Attended:** ❖ Mr Dewald Kirsten, District Manager **Apologies:** ❖ Mr Fannie Zim, Environmental Manager ❖ Mr Motlatsi Makhetha, Municipal Manager ❖ Ms Michelle Sello, Executive Manager of Environmental Health Services	❖ Presentation ❖ Attendance Register	Ms Umeshree Naicker, Kongiwe	Mr Neels Hoek, Jelani Mr Ripfumelo Macevele, Kongiwe
Wednesday, 27 May 2026	**10H00 – 11H00**	**Online Meeting** **Microsoft Teams**	**Broader Stakeholders:** ❖ All sectors of society / Broader Public	**Invited:** All sectors of society / Broader Public Ward Committee members, community leaders and relevant departments **Attended:** ❖ Mr Eduard Steyn, Directly Affected Landowner ❖ Mr Willem Taljaard, Directly Affected Landowner ❖ Mr Frans De Jager, Indirectly Affected Landowner ❖ Ms Nozipho Dlamini, Assistant Manager, DLRRD	❖ Presentation ❖ Attendance Register	Ms Umeshree Naicker, Kongiwe	Mr Neels Hoek, Jelani Mr Ripfumelo Macevale, Kongiwe

Date of the meeting	Time	Meeting Type / Format	Organisation / Address	Invited / Attended / Apologies	Resources Used	Who Presented (EAP / Jelani)	Project Team Attendance (Jelani and Kongiwe)
				❖ Ms Mariette Liefferink, CEO, FSE ❖ Ms Karabo Mabyana, Statutory Control Officer, SANRAL ❖ Ms Khuliso Nenguda, Statutory Control Officer, SANRAL ❖ Mr Andries Labuscagne, Chief Executive, Sand-Vet WUA **Apologies:** ❖ Mr Tshepo Moloto, Harmony			
Thursday, 28 May 2026	**10H00 – 11H00**	**Local Municipality Meeting** **Online Meeting (Microsoft Teams)**	**Local Municipality: Free State** ❖ Matjhabeng Local Municipality	**Invited:** ❖ Mr Clement Hanisi, Ward Councillor. ❖ Mr Lunga Ncapai, Solid Waste Manager ❖ Mr Sefako Ramphoma, LED ❖ Mr Eric Sello Senoge, Property Department ❖ Mr Sello Naniso, Manager of the Speakers Office ❖ Mr Johannes Griesel, Acting Manager: Development Planning **Attended:** ❖ Mr Serake Leeuw, Special Advisor to the Office of the Executive Mayor ❖ Mr Lunga Ncapai, Solid Waste Manager ❖ Mr Johannes Theunissen, Manager: Waste Department **Apologies:** ❖ Mr Neels Hoek, Jelani	❖ Presentation ❖ Attendance Register	Ms Umeshree Naicker, Kongiwe	Mr Ripfumelo Macevale, Kongiwe
Saturday, 30 May 2026	**11H00 – 13H00**	**Open Day** **In-Person**	**Open Day (Consultation)**	**Invited:**	❖ Non-Technical Summary ❖ Posters	Mr Ripfumelo Macevale, Kongiwe	Mr Neels Hoek, Jelani Ms Umeshree Naicker, Kongiwe

Date of the meeting	Time	Meeting Type / Format	Organisation / Address	Invited / Attended / Apologies	Resources Used	Who Presented (EAP / Jelani)	Project Team Attendance (Jelani and Kongiwe)
			❖ <u>All sectors of society / Broader Public</u> **<u>S.A. Mokhothu Primary School</u>** **<u>Physical address</u>**: 3073 Nyakallong, Allanridge, 9490	<u>All sectors of society / Broader Public</u> Ward Councillors, Committee members, community leaders and members **Attended:** ❖ Refer to the attendance register. (Appendix C) **Apologies:** None	❖ Maps ❖ Attendance Register ❖ Comments Register		Ms Jean-Mari Williams, Kongiwe Mr Lubabalo Zongolo

MINUTES OF MEETING			
Date	Monday, 15 December 2025	**Time**	10:00 – 11:00
Venue	Online Meeting (Microsoft Teams)		
Subject	**Meeting with Indirectly Affected Landowners**		

List of Attendees		
Organisation	**Name of Attendee**	**Designation**
Zuurbron No. 444 Portion 1	Mr Tertius De Jager	Indirectly Affected Landowner
Zuurbron No. 444 Portion 1	Mr Johan De Jager	Indirectly Affected Landowner
Kongiwe Environmental (Pty) Ltd	Mr Ripfumelo Macevele	Environmental Consultant
Kongiwe Environmental (Pty) Ltd	Ms Vanessa Viljoen	Principal Stakeholder Engagement Consultant
Kongiwe Environmental (Pty) Ltd	Ms Jean-Mari Williams	Project Co-Ordinator
Kongiwe Environmental (Pty) Ltd	Ms Umeshree Naicker	Principal Environmental Consultant

Apologies		
Organisation	**Name of Attendee**	**Designation**
Modderfontein N0. 343 Portion 1	Mr Christo Nel	Indirectly Affected Landowner
Uitkyk N0. 258 Portion 4	Mr Trompie Fouche	Indirectly Affected Landowner
Onrust No. 377 Portion 0	Mr Jaco Grobbelaar	Indirectly Affected Landowner

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

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No	Item	Responsible Person
1	**Welcome and Introductions**	
1.1	Ms Vanessa Viljoen (Ms Viljoen) welcomed all attendees to the meeting.	Ms Viljoen
2	**Meeting Purpose**	
2.1	Present and discuss the proposed Jelani Joint Venture (JV) Underground Mining Operations.	Mr Ripfumelo Macevele (Mr Macevele)
2.2	Provide an overview of the Proposed Project.	
2.3	Provide an opportunity to raise comments/seek clarity as well as provide input.	
2.4	Record comments raised and included them in the Comments and Responses Report (CRR)	
2.5	Landowner consent for specialist to access properties	
3	**Meeting Agenda**	
3.1	Introductions	(Mr Macevele)
3.2	Project Background	
3.3	Project Location	
3.4	Project Description	
3.5	Infrastructure Requirements	
3.6	Proposed Mining Methods	
3.7	Environmental Permitting Processes	
3.8	Landowner consent for specialist to access properties	
3.9	Comments and Discussion	

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4	Discussion		
STAKEHOLDERS		**COMMENT**	**RESPONSE**
4.1	Mr Tertius De Jager (Mr De Jager)	Mr De Jager thanked (Mr Macevele)for his presentation. He stated that he did not understand why this was being presented as a new project, as he was under the impression that Harmony had owned the land for approximately 20 years and that exploration had already been conducted to depths of about 3,000 metres. The tunnels must be present throughout the area.	Mr Macevele explained that the blue area indicated on the map presented is the proposed project site. He clarified that the land does not belong to Harmony and that WRE has only acquired prospecting rights to search for minerals in the area.
4.2	Mr De Jager	Mr De Jager requested that Mr Macevele indicate the location of the existing operational underground tunnels. He noted that, to his knowledge, the underground tunnels are significantly wider than had been explained.	Mr Macevele indicated that they do not have drawings of the underground tunnels and only have information relating to the surface area. He further noted that the existing operational area is Target, which is currently operational. Ms Umeshree Naicker (Ms Naicker) added that the details relating to the underground activities, design, shaft usage, and the condition of the underground facilities are still under consultation. The appointed consultants are in the process of finalising the designs. She further acknowledged that Kongiwe understands the information Mr De Jager is requesting and confirmed that Kongiwe also requires the same information. The information will be shared with all relevant parties once it has been received.
4.3	Mr De Jager	Mr De Jager stated that, from a farming perspective, their primary concern relates to the potential impact of the proposed mining operation on their existing water supply. He noted that an irrigation stream runs along the outer boundary of the property and is used for crop production and pecan trees. He asked what would happen to the water supply should the mining operation proceed as indicated.	Ms Naicker informed the meeting that, as part of the process, several specialist studies have been identified and will be undertaken. These include a groundwater assessment, which incorporates a hydro census component. Information will be obtained from existing boreholes and will form part of the groundwater impact assessment. She added that additional specialist studies such as surface water assessment, biodiversity assessment and others will also be conducted and that more detailed information will be available at a later stage once the studies have progressed.

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4	Discussion		
STAKEHOLDERS		**COMMENT**	**RESPONSE**
			Ms Vanessa Viljoen (Ms Viljoen) informed Mr De Jager that the project is still in its initial stages and that a Scoping Report and an Environmental Impact Assessment (EIA) Report will be made available at a later stage. She explained that the purpose of the current meeting was to inform stakeholders of what is planned for the proposed project and to request permission/access for specialists to conduct their studies on the identified properties, she further added that detailed responses would be provided once additional information is received from the specialist studies.
4.4	Mr De Jager	Mr De Jager enquired about the scope of the specialists' work in relation to the boreholes, specifically what information they require and what activities will be undertaken.	Ms Naicker explained that a letter had been sent to all landowners outlining the scope of the specialist's site activities. She indicated that these activities include the identification and recording of the location of borehole(s), documenting their usage, measuring water levels within the borehole(s), and taking a preliminary water quality sample, should landowner agree.
4.5	Mr De Jager	Mr De Jager asked how the groundwater specialist would take water samples if a pump were already installed. He further indicated that, for the specialist to conduct a proper study, they would need assistance from the farmer (landowner), noting that the specialist should visit the site when the landowner is available.	Ms Naicker responded by stating that Kongiwe would engage with the specialist regarding the method for taking the samples, and that the specialist could provide a procedure to address this specific request. Ms Viljoen acknowledged the comment and indicated that she would request Jean, the Hydro Senses specialist, to contact the stakeholders directly to explain the scope of his work in more detail and what is required from the study. Post note: Jean contacted Mr De Jager to inform him that site access has been arranged for 12 January 2026. He also provided further details regarding the study he intends to conduct.

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4	Discussion			
STAKEHOLDERS		**COMMENT**	**RESPONSE**	
4.6	Mr De Jager	Mr De Jager expressed concern that not all relevant information had been presented and that the meeting seemed rushed, appearing to prioritise the commencement of the specialist study. He stated that he felt more preparation was needed from Kongiwe to adequately address questions regarding the scope and objectives of the study.	Ms Viljoen acknowledged the comment and explained that the project is still in its initial phase of the Scoping and Environmental Impact Assessment process. She further clarified that the purpose of the meeting was to provide an overview of the proposed Project, to provide an opportunity to raise initial comments and to inform landowners about the planned upcoming activities for the proposed project and to request permission or access for specialists to conduct their studies on the identified properties.	
5	**Closing**			
5.1	Ms Vanessa Viljoen thanked everyone for their time and the meeting was adjourned at 10:50AM.		ALL	-

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Jelani Resources (Pty) Ltd

Exploration Joint Venture (EJV) Underground Mining Operations

Indirectly Affected Landowner Meeting

Monday, 15 December 2025

Agenda

1. Introductions
2. Project Background
3. Project Location
4. Project Description
5. Infrastructure Requirements
6. Proposed Mining Methods
7. Environmental Permitting Processes
8. Comments & Discussion

Introductions

- Indirectly affected landowner(s)
- Kongiwe Environmental (Pty) Ltd (Kongiwe):
  - Ms Umeshree Naicker: Environmental Consultant
  - Mr Ripfumelo Macevele: Environmental Consultant
  - Ms Vanessa Viljoen: Stakeholder Engagement Consultant
  - Ms Jean-Mari Williams: Stakeholder Engagement Consultant

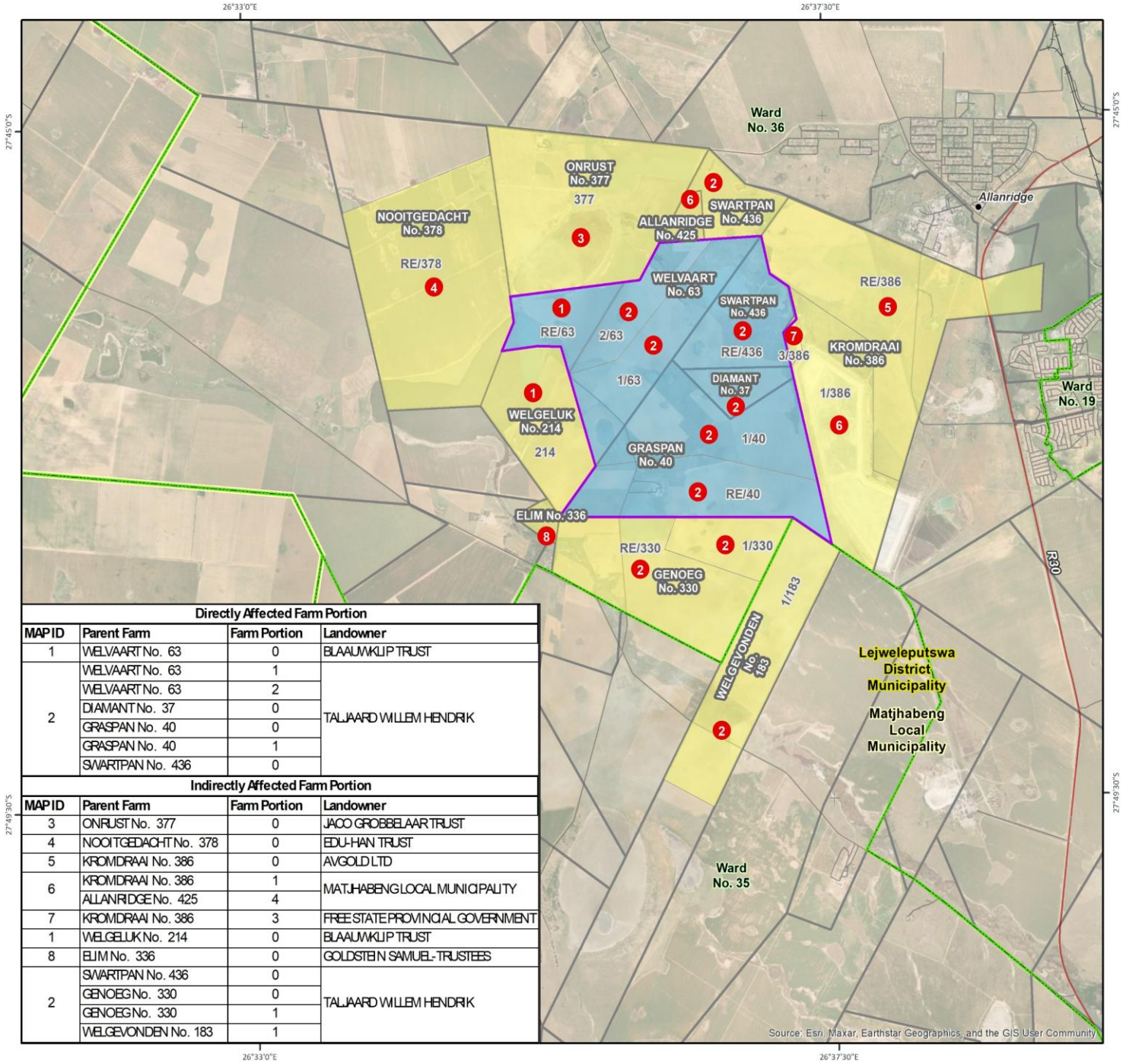
Project Background

- **Proponent**: Jelani Resources (Pty) Ltd
- **Activity**: EJV Underground Mining Operations
- **Life of Operation**: 23 years
- **Location**: The project area is situated immediately adjacent to and west of the Harmony Gold Target Mine, approximately 11km northwest of Odendaalsrus, 2,5km west of Allanridge, and 22km east of Wesselsbron. It lies within Ward 36 of the Matjhabeng Local Municipality, under the jurisdiction of the Lejweleputswa District Municipality.
- Jelani Resources (Pty) Ltd ("Jelani") is a joint venture (JV) company established by White Rivers Exploration and Harmony Gold.
- The JV was formed to conduct underground mining operations within the Exploration Joint Venture (EJV) area, situated adjacent to and west of Harmony Gold's existing Target Mine.

Project Background

- Jelani initially secured a Prospecting Right (PR) for various minerals within the EJV area. Following the exploration and licensing phases, Jelani intends to initiate underground mining operations within the same area.

Project Background



Directly Affected Farm Portion			
MAP ID	Parent Farm	Farm Portion	Landowner
1	WELVAART No. 63	0	BLAAUWKLIP TRUST
2	WELVAART No. 63	1	TALJAARD WILLEM HENDRIK
	WELVAART No. 63	2	
	DIAMANT No. 37	0	
	GRASPAN No. 40	0	
	GRASPAN No. 40	1	
	SWARTPAN No. 436	0	

Indirectly Affected Farm Portion			
MAP ID	Parent Farm	Farm Portion	Landowner
3	ONRUST No. 377	0	JACO GROBBELAAR TRUST
4	NOOITGEDACHT No. 378	0	EDU-HAN TRUST
5	KROMDRAAI No. 386	0	AVGOLD LTD
6	KROMDRAAI No. 386	1	MATJHABENG LOCAL MUNICIPALITY
	ALLANRIDGE No. 425	4	
7	KROMDRAAI No. 386	3	FREE STATE PROVINCIAL GOVERNMENT
1	WELGELUK No. 214	0	BLAAUWKLIP TRUST
8	ELIM No. 336	0	GOLDSTEIN SAMUEL - TRUSTEES
2	SWARTPAN No. 436	0	TALJAARD WILLEM HENDRIK
	GENOEG No. 330	0	
	GENOEG No. 330	1	
	WELGEVONDEN No. 183	1	

KONGIWE

JELANI RESOURCES
LAND TENURE

Legend

- Other Settlement
- Local Roads
- Main Road
- Railway
- Jelani Resources Boundary
- Parent Farm
- Ward Boundary
- Local Municipality
- District Municipalities
- Directly Affected
- Indirectly Affected

0 0.5 1 2 3
Kilometres

Project Code: JELA#001
Client: Jelani Resources
Drawn: C Strooh | Checked: Z Omar
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www.kongiwe.com | Date: 04 December 2025

1:45 000

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

(A3)
2025 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\Jelani_Resources\JELA001_Jelani_Resources_MR\Projects\Jelani Resources Land Tenure Landscape A3.mxd

Project Description

Jelani intends to initiate underground mining operations to extract the following potential mineral resources:

- Gold ore (primary target),
- Silver ore,
- Uranium ore,
- Sulphur,
- Platinum Group Metals,
- Rare earths,
- Diamonds (alluvial),
- Copper ore,
- Cobalt ore,
- Manganese ore,
- Molybdenum ore,
- Nickel ore,
- Lead ore,
- Tungsten ore,
- Zinc ore, and
- Iron ore.

Project Description

- The proposed underground mining operations initially will target shallower mineral resource deposits at the project site.
- As mine development progresses, new mining areas will be developed which will allow for the production rate to be steadily increased.

Infrastructure Requirements

- All infrastructure required for the Proposed Project will be located within the existing Harmony Target Mine mining right area.
- Underground access infrastructure will either consist of refurbished facilities at Target Shafts No. 3, 4, and 5 or newly constructed infrastructure at the Target No. 2 Shaft site, all within the existing Harmony Target mining right.
- No new infrastructure is planned within the project area.
- New Tailings Storage Facility (TSF) will be constructed to the west of the existing Target metallurgical plant and north of the existing Target TSF. The total area required for this new facility is approximately 69 Hectares (Ha). **TSF is a separate project being undertaken by Harmony Gold.**
- The infrastructure requirements are intended to support the managerial, supervisory, and operational functions associated with the respective underground mining operations.

Proposed Mining Methods

- The proposed underground mining operations initially will target shallower mineral resource deposits at the project site.
- As mine development progresses, new mining areas will be developed which will allow for the production rate to be steadily increased.
- Two mining methods have been identified as the most practical for exploiting the mineral resources: **conventional drill-and-blast breast mining** and **shrinkage stoping**.
- The selection of each method is primarily based on the dip of the mineralised reef, with the shrinkage stoping being used for the steeper slopes (3% of the total stope tonnage). Where the orebody dips below 55°, conventional breast mining will be used.
- Ore will be transported to the shaft ore pass system using a fleet of 30-tonne dump trucks which are loaded by 10-tonne loaders (LHD). Subsequently, the broken rock will be loaded into hoisting bins and will be hoisted to surface, where the rock will either be sent to the processing plant or to the waste rock dump.

Environmental Permitting Processes

- The Proposed Project requires authorisation (Environmental Authorisation and Water Use Licence) for full scale mining and associated activities.
- **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);
- **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).
- **Integrated Water Use Licence Application (IWULA)** in terms of the National Water Act, 1998 (Act No. 36 of 1998) (NWA).

Comment & Discussion

- Discussion
- Closing

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Contact

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MINUTES OF MEETING			
Date	Friday, 6 February 2026	**Time**	08:00 – 09:00
Venue	Microsoft Teams		
Subject	**Online Meeting Minutes: Pre-Application Meeting** **Department of Mineral and Petroleum Resources (DMPR)**		

List of Attendees **Organisation**	**Name of Attendee**	**Designation**
Department of Mineral and Petroleum Resources (DMPR)	Mr Tuwani Monyai	Assistant Director: Mine Environmental Management
DMPR	Mr Cedrick Fhedzisani	Deputy Director: Mine Environmental Management
Jelani Resources (Pty) Ltd	Mr Neels Hoek	Project Manager
Kongiwe Environmental (Pty) Ltd	Ms Umeshree Naicker	Principal Environmental Consultant
Kongiwe Environmental (Pty) Ltd	Mr Ripfumelo Macevele	Environmental Consultant
Kongiwe Environmental (Pty) Ltd	Ms Thuli Phakathi	Stakeholder Engagement Consultant
Apologies **Organisation**	**Name of Attendee**	**Designation**
None		

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

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No	Item
1	**Welcome and Introductions**
1.1	Ms Naicker welcomed all online meeting attendees.
2	**Meeting Purpose**
2.1	Present and discuss the Project details.
2.2	Provide an overview of the Environmental Process and Procedure.
2.3	Provide an overview of the Specialist studies.
2.4	Provide an overview of the Public Participation Process.
2.5	Present and discuss the Project Timeframes.
3	**Meeting Agenda**
3.1	Introductions
3.2	Purpose of the Meeting
3.3	Kongiwe's Role as an independent EAP
3.4	Project Background
3.5	Project Description
3.6	Infrastructure Requirements
3.7	Baseline Environment
3.8	Specialist Studies
3.9	Legislative Framework
3.10	Listed and Specified Activity
3.11	Public Participation Process
3.12	The Project to Date
3.13	The Way Forward
3.14	Comments and Discussion
4	**Discussion**
4.1	Refer to the table below

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STAKEHOLDERS		COMMENT	RESPONSE
4.1	Mr Tuwani Monyai (Mr Monyai)	Mr Monyai enquired as to whether Harmony Target Shafts 2 and 3 form part of an existing Mining Right. Mr Monyai advised that a Memorandum of Understanding would be required between Harmany Gold and Jelani Recourses, given that all infrastructure required for the Proposed Project will be located within the existing Harmony Target Mine mining right area and Jelani would be utilising Harmony Gold's shafts to access its underground mining area. This was noted as necessary to address operational and coordination challenges associated with multiple parties using the same infrastructure.	Ms Naicker explained that all existing infrastructure proposed to be included in the application falls under Harmony's Mining Right. No new operational mining infrastructure is planned within the project area. Mr Hoek clarified that Harmony Gold is a shareholder in the project through a joint venture arrangement. He further noted that, in terms of the joint venture agreement, no new infrastructure is required for the proposed project.
4.2	Mr Ripfumelo Macevele (Mr Macevele)	Mr Macevele sought clarification regarding the requirement for a Memorandum of Understanding between Jelani Resources and Harmony Gold. It was queried whether such an agreement would be necessary, given that Harmony Gold is a shareholder in Jelani Resources and that the parties have entered into a joint venture agreement.	Mr Fhedzisani advised that a Memorandum of Understanding (MoU) would be required to clearly set out how the two parties would work together as well as to address the project's development plan which includes utilising the available spare capacity within Harmony's existing infrastructure at the Target Mine. He noted that this information should be sufficiently detailed and accessible for inclusion in the public participation process and is therefore not only relevant to the competent authority or the proponent. Mr Hoek reiterated that a Joint Venture Agreement is in place, which would be reviewed to determine whether it adequately

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STAKEHOLDERS		COMMENT	RESPONSE
			addresses matters relating to shared infrastructure. It was further noted that, should the agreement not provide sufficient detail, a memorandum of agreement would be prepared for submission as part of the application
4.3	Mr Monyai	Mr Monyai stated that the specialist studies to be undertaken should not be informed solely by the screening tool. He further noted that, should any additional aspects be identified that require specialist input, these should also be included in the scope of studies.	Ms Naicker noted that any additional aspects identified that require specialist assessment will be undertaken as required.
4.4	Mr Monyai	Mr Monyai stated that EAPASA registration is a prerequisite for conducting the EIA. He further emphasised the importance of undertaking a robust cumulative impact assessment as part of the EIA process. It was noted that this is necessary to avoid situations where responsibility for cumulative impacts may be disputed, particularly where Harmony and Jelani could potentially attribute impacts to one another.	Ms Naicker confirmed that both herself and Mr Macevele are registered EAPs under EAPASA. She further confirmed that the relevant certificates would be included in the application. Ms Naicker also noted that, with regard to cumulative impacts, the S&EIA process will be conducted in accordance with NEMA, which includes the assessment of cumulative impacts. Mr Hoek acknowledged Mr Monyai's point and advised that Bara Engineering, who are responsible for the Mining Plans and associated engineering designs, are also involved in Harmony's operations. He noted that cumulative impacts are being considered within the engineering design process, including an assessment of whether the existing infrastructure is capable of accommodating the anticipated additional load associated with the Jelani project.
4.5	Mr Fhedzisani	Mr Fhedzisani enquired if a new Tailings Storage Facility would be constructed or if they would make use of existing Tailing Storage Facilities.	Ms Naicker stated that the application does not include a Tailings Storage Facility and that an existing facility would be utilised for deposition which falls under Harmony's Target Mining right infrastructure.

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STAKEHOLDERS		COMMENT	RESPONSE
4.6	Mr Fhedzisani	Mr Fhedzisani emphasised the importance of the Memorandum of Understanding, noting that it should include clear information regarding Tailings storage, specifically confirming that Jelani would be depositing onto Harmony's infrastructure. He referred to a precedent at Jagersfontein, where a storage facility failure was attributed to infrastructure not having been designed to accommodate increased deposition from a second operation. In this context, he stated that the Memorandum of Understanding would need to explicitly confirm that the Tailings Storage Facility is suitably designed and capable of receiving the additional load associated with the proposed Jelani operation.	Ms Naicker acknowledged this point and confirmed that the Memorandum of Understanding will be submitted as part of the application form.
4.7	Mr Fhedzisani	Mr Fhedzisani advised that the DWS should be consulted so that the DMPR and DWS can run the application process in parallel.	Ms Naicker acknowledged this point and added that a Water Use Licence Application (WULA) for the proposed underground mining project will be submitted to DWS.
4.8	Mr Monyai	Mr Monyai expressed support for Mr Fhedzisani's comments, with the view that, in order to streamline the licensing process, the applications should be undertaken concurrently. This would allow the proponent to obtain the Environmental Authorisation and Water Use Licence simultaneously. He further emphasised the importance of engagement with SAHRA, noting that formal comments should be actively sought from SAHRA rather than merely informing them of the project, which he observed to be common industry practice.	Ms Naicker stated that Kongiwe has included engagement with SAHRA within the project timeline and that the Water Use Licencing process would be aligned with the EIA application.
4.9	Ms Naicker	Ms Naicker enquired whether the department is happy to receive one hard copy and one soft copy for both the scoping and EIA reports?	Mr Monyai stated that they would provide confirmation after the application has been received as they do not know who the project manager for the DMPR will be. He stated that once the application

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STAKEHOLDERS		COMMENT	RESPONSE
			has been submitted, details relating to submission requirements would be communicated. Mr Hoek Stated that he would submit all the soft copies on to SAMRAD system and should any hard copies be required, Kongiwe would submit those.
4.10	Mr Monyai	Mr Monyai highlighted an issue with regard to climate change impacts, advicing that the proposed project would be required to consider how it may contribute to or impact climate change. He further noted that the Department has observed EIAs being challenged and appealed where insufficient consideration has been given to the potential climate change impacts of proposed developments.	Ms Naicker stated that a climate change impact assessment has been included as a specialist study for the project.
4.11	Mr Monyai	Mr Monyai stated that the EAP must consider the Financial Provision Regulations 2015 as they relate to mining project as well as relevant Environmental Regulations. He emphasised the importance of complying with these regulations and requested that the EAP take these requirements into account and ensure that they are included in the documentation.	Ms Naicker thanked Mr Moyai for his input and stated that this would be considered in the EIA process and will also be included in the submissions.
4.12	Mr Fhedzisani	Mr Fhedzisani stated that once an application has been lodged for the Water and waste use licences, that information can be forwarded to the relevant person from the DMPR.	Ms Naicker confirmed that they would forward this information once it is available.
4.13	Mr Monyai	Mr Monyai stated that the application would be subjected to the regulations of the MPRDA and therefore the application would need to be lodged simultaneously with the application in terms of NEMA. He stated that the timeline would only begin counting for the NEMA process once the application has been submitted in terms of the MPRDA.	Ms Naicker noted this comment.

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STAKEHOLDERS		COMMENT	RESPONSE		
4.14	Mr Fhedzisani	Mr Fhedzisani stated that any further information requirements would be communicated in writing once the application has been lodged. Mr Fhedzisani further advice that in future the team should include all the relevant mining right reference numbers (specifically Harmony Target Mining Right), particularly where an application may require or involve infrastructure already authorised under other Mining Rights so that the department can include all the relevant project managers in the meetings.	Ms Naicker acknowledged that in future the team would include those reference numbers.		
5	**Closing**				
5.1	Ms Naicker thanked everyone for their time and the meeting was adjourned at 09:00 AM.			ALL	-

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Jelani Resources (Pty) Ltd

Environmental Authorisation for the Proposed Jelani Underground Mining Project

Pre-Application Meeting – Department of Mineral and Petroleum Resources (DMPR)

DMPR reference number: To be Assigned

06 February 2026

Agenda

1. Introductions
2. Purpose of the Meeting
3. Kongiwe's Role as an independent EAP
4. Project Background
5. Project Description
6. Infrastructure Requirements
7. Baseline Environment
8. Specialist Studies
9. Legislative Framework
10. Listed and Specified Activity
11. Public Participation Process
12. The Project to Date
13. The Way Forward
14. Comments and Discussion

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Introductions

- Competent Authority : Department of Mineral and Petroleum Resources
- Proponent : Jelani Resources (Pty) Ltd
- EAP : Kongiwe Environmental (Pty) Ltd

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Purpose of the Meeting

- Project Details
- Environmental Process and Procedure
- Specialist Studies
- Public Participation Process
- Project Timeframes
- Way forward

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Kongiwe's Role as an EAP

As an independent Environmental Assessment Practitioner, it is our role to perform an objective assessment of what the positive and negative environmental impacts of the Proposed Project may be, to quantify these, describe possible mitigations, collect public comment and supply DMPR with the documentation so that it can determine if the project should proceed or not.

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Project Background

- **Proponent**: Jelani Resources (Pty) Ltd
- **Activity**: Underground Mining Operation
- **Life of Operation**: 14 years
- **Location**: The project area is situated immediately adjacent to and west of the Harmony Gold Target Mine, approximately 11km northwest of Odendaalsrus, 2,5km west of Allanridge, and 22km east of Wesselsbron. It lies within Ward 36 of the Matjhabeng Local Municipality, under the jurisdiction of the Lejweleputswa District Municipality.
- Jelani Resources (Pty) Ltd ("Jelani") is a joint venture (JV) company established by White Rivers Exploration and Harmony Gold.
- The JV was formed to conduct underground mining operations within the joint venture (JV) area, which is made up of areas within the existing Harmony Target mining right (Harmony contribution) and Prospecting Rights (PR) areas to the west of Harmony Gold's existing Target Mine (WRE contribution).
- Following the exploration and licensing phases, Jelani intends to initiate underground mining operations within the same area.

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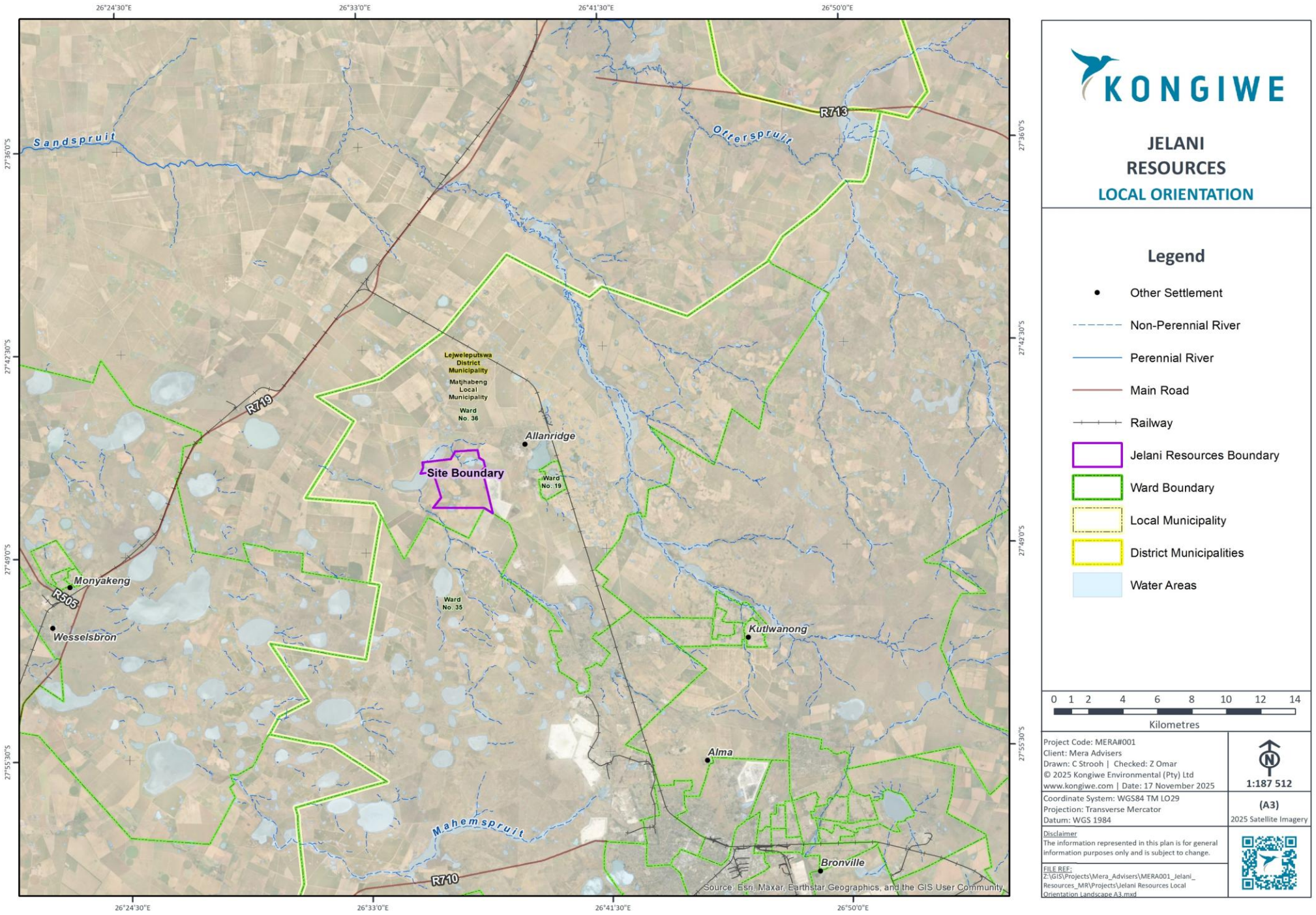
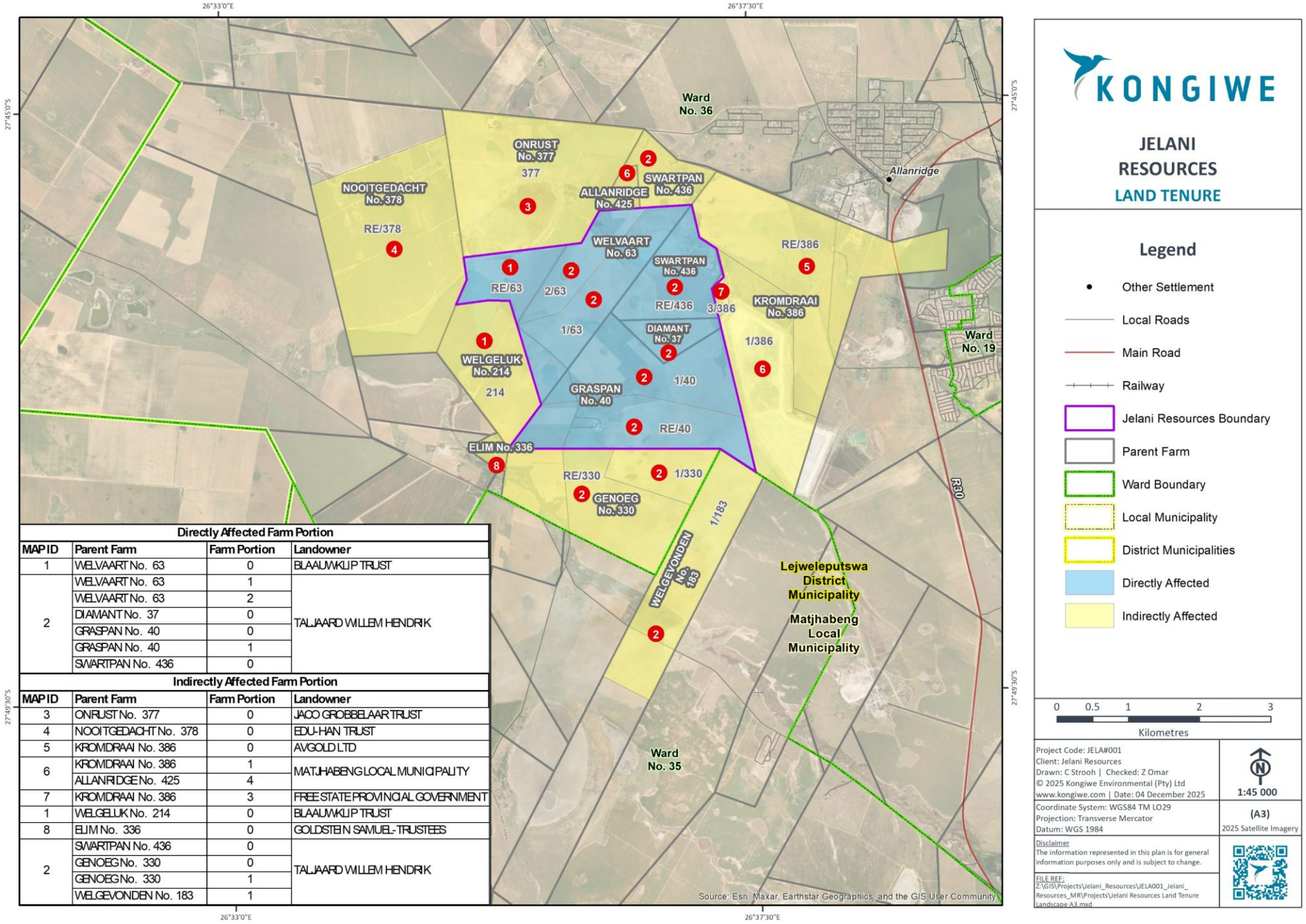
Project Location



Property Map



Directly Affected Farm Portion			
MAP ID	Parent Farm	Farm Portion	Landowner
1	WELVAART No. 63	0	BLAAUWKLIP TRUST
2	WELVAART No. 63	1	TALJAARD WILLEM HENDRIK
	WELVAART No. 63	2	
	DIAMANT No. 37	0	
	GRASPAN No. 40	0	
	GRASPAN No. 40	1	
	SWARTPAN No. 436	0	

Indirectly Affected Farm Portion			
MAP ID	Parent Farm	Farm Portion	Landowner
3	ONRUST No. 377	0	JACO GROBBELAAR TRUST
4	NOOITGEDACHT No. 378	0	EDU-HAN TRUST
5	KROMDRAAI No. 386	0	AVGOLD LTD
6	KROMDRAAI No. 386	1	MATJHABENG LOCAL MUNICIPALITY
	ALLANRIDGE No. 425	4	
7	KROMDRAAI No. 386	3	FREE STATE PROVINCIAL GOVERNMENT
1	WELGELUK No. 214	0	BLAAUWKLIP TRUST
8	ELIM No. 336	0	GOLDSTEIN SAMUEL - TRUSTEES
2	SWARTPAN No. 436	0	TALJAARD WILLEM HENDRIK
	GENOEG No. 330	0	
	GENOEG No. 330	1	
	WELGEVONDEN No. 183	1	

KONGIWE

JELANI RESOURCES

LAND TENURE

Legend

- Other Settlement
- Local Roads
- Main Road
- Railway
- Jelani Resources Boundary
- Parent Farm
- Ward Boundary
- Local Municipality
- District Municipalities
- Directly Affected
- Indirectly Affected

0 0.5 1 2 3

Kilometres

Project Code: JELA#001
Client: Jelani Resources
Drawn: C Strooh | Checked: Z Omar
© 2025 Kongiwe Environmental (Pty) Ltd
www.kongiwe.com | Date: 04 December 2025

1:45 000

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

(A3)

2025 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\Jelani_Resources\JELA001_Jelani_Resources_MR\Projects\Jelani Resources Land Tenure Landscape A3.mxd

Project Description

Jelani intends to initiate underground mining operations to extract the following potential mineral resources:

- Gold ore (primary target),
- Silver ore,
- Uranium ore,
- Sulphur,
- Platinum Group Metals,
- Rare earths,
- Diamonds (alluvial),
- Copper ore,
- Cobalt ore,
- Manganese ore,
- Molybdenum ore,
- Nickel ore,
- Lead ore,
- Tungsten ore,
- Zinc ore, and
- Iron ore.

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Project Description

- Jelani's underground mining operations initially will target shallower mineral resource deposits at the project site (approximately 1 200 mbs).
- As mine development progresses, new mining areas will be developed which will allow for the production rate to be steadily increased to the targeted full production rate of 60 000 tonnes of mined ore per month.
- Two mining methods have been identified as the most practical for exploiting the mineral resources: **conventional drill-and-blast breast mining** and **shrinkage stoping**.
- The selection of each method is primarily based on the dip of the mineralised reef, with the shrinkage stoping being used for the steeper slopes (3% of the total stope tonnage). Where the orebody dips below 55°, conventional breast mining will be used.

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Project Description

- Ore will be transported to the shaft ore pass system using a fleet of 30-tonne dump trucks which are loaded by 10-tonne loaders (LHD). Subsequently, the broken rock will be loaded into hoisting bins and will be hoisted to surface, where the rock will either be sent to the processing plant or to the waste rock dump.
- The total surface area assessed is 956,76 hectares (ha). A total area required for mining is 80.64 km2 (8064 ha).
- The orebodies extend between 1 500m and 2 600m below surface.
- All ore produced from the underground mining operations will be transported to the existing Target 1 metallurgical plant for processing.

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Infrastructure Requirements

- All infrastructure required for the Proposed Project will be located within Harmony's existing Target Mine mining right area. No new infrastructure planned within the JV project area.
- Underground access infrastructure will comprise either refurbished facilities at Target Shafts No. 3, 4, and 5 or newly constructed infrastructure at the Target No. 2 Shaft site, all within the existing mining right.
- The infrastructure requirements are intended to support the managerial, supervisory, and operational functions associated with the respective underground mining operations.

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Underground Access Infrastructure Photos

Photo 1: Harmony Target No 3 Shaft

Photo 2: Harmony Target No 2 Shaft

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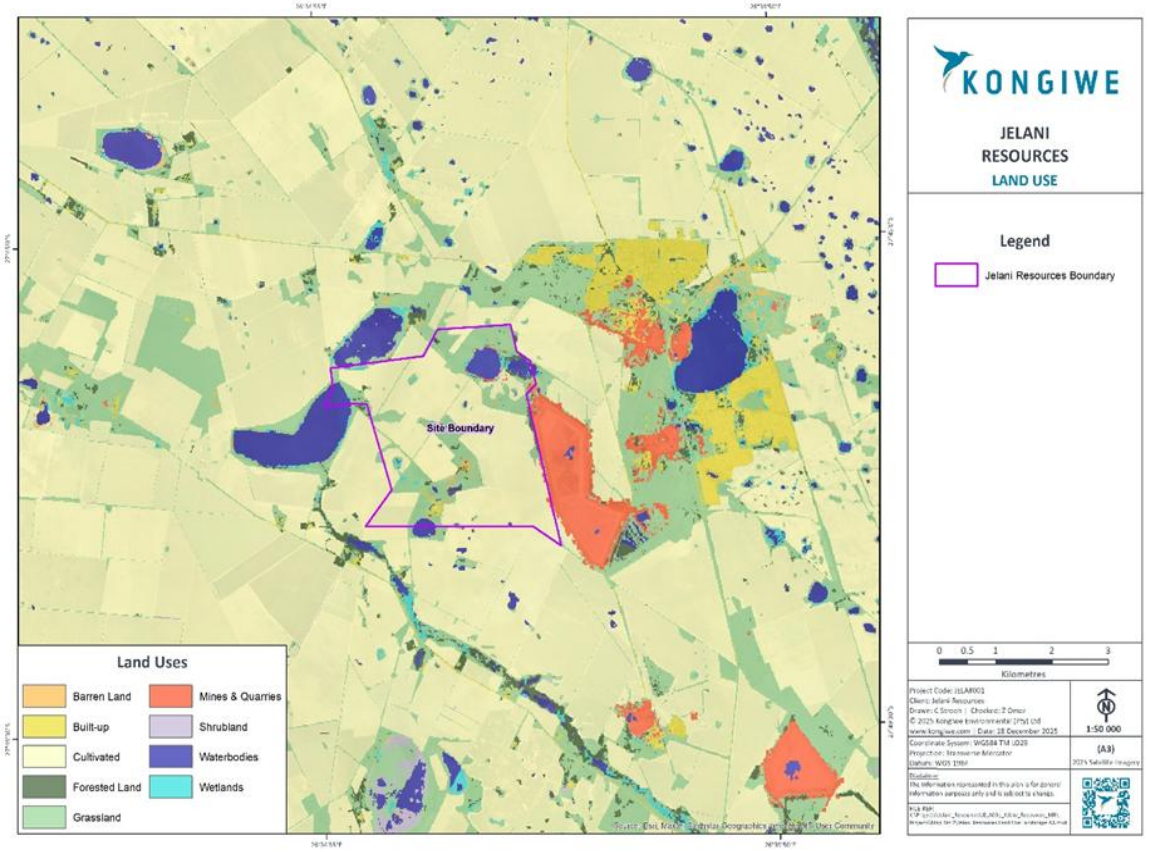
Current Land Use

- The project boundary is currently utilised for agricultural purposes.
- Land uses within the immediate project boundary consist predominantly of cultivated fields, grassland, forested areas, waterbodies, and wetlands.
- The immediate surrounding landscape also includes existing mines and tailings storage facilities (TSFs), as well as transport infrastructure, electricity infrastructure, water supply infrastructure and various farming operations.
- Furthermore, the Proposed Project area is situated immediately adjacent to, and west of, the Harmony Gold Target Mine.



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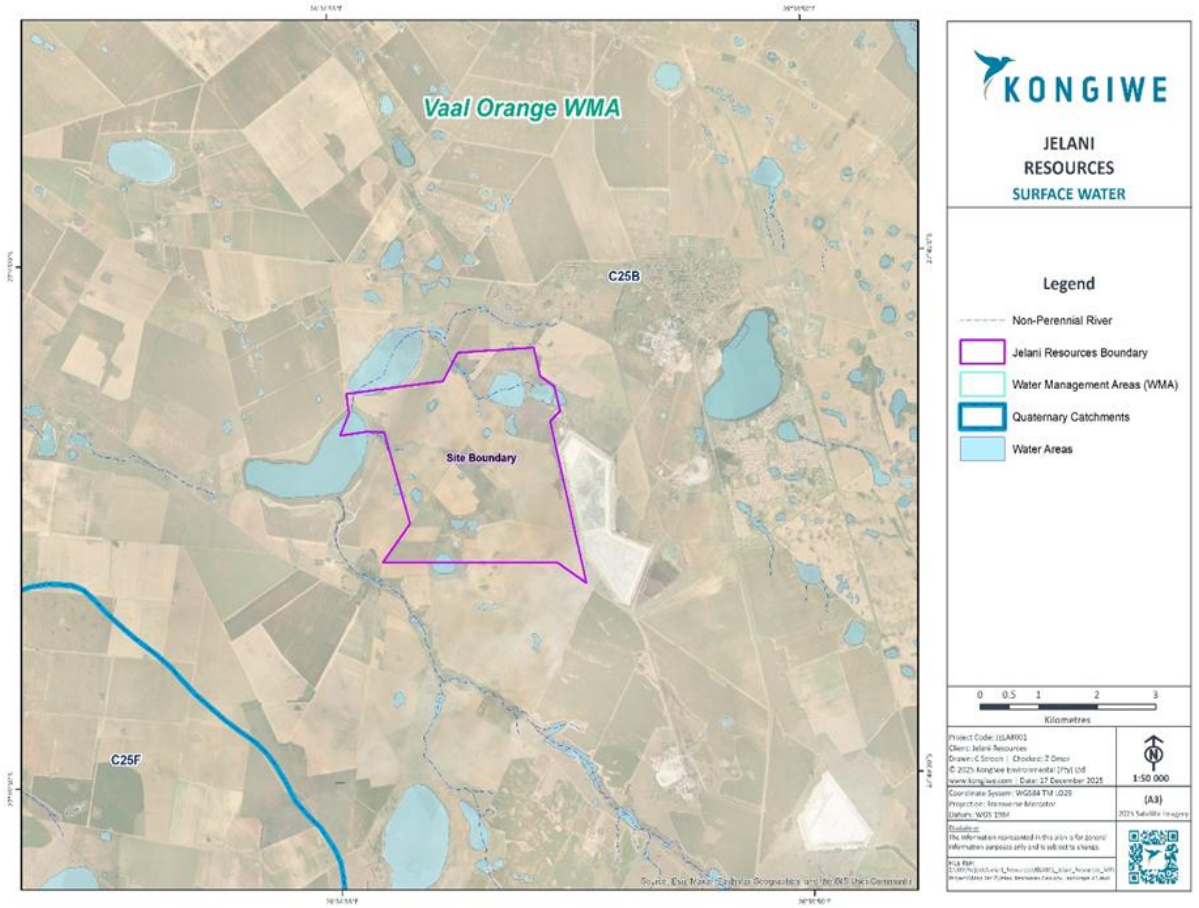
Surface Water

- The project is located within the Vaal Orange Water Management Area (WMA), specifically in quaternary catchment C25B.
- The surface water resource within the site boundary include a non-perennial river located to the north of the project area. Another non-perennial river is situated to the west of the site boundary.
- The surface water map indicates that the project area contains surface water areas, including wetlands.



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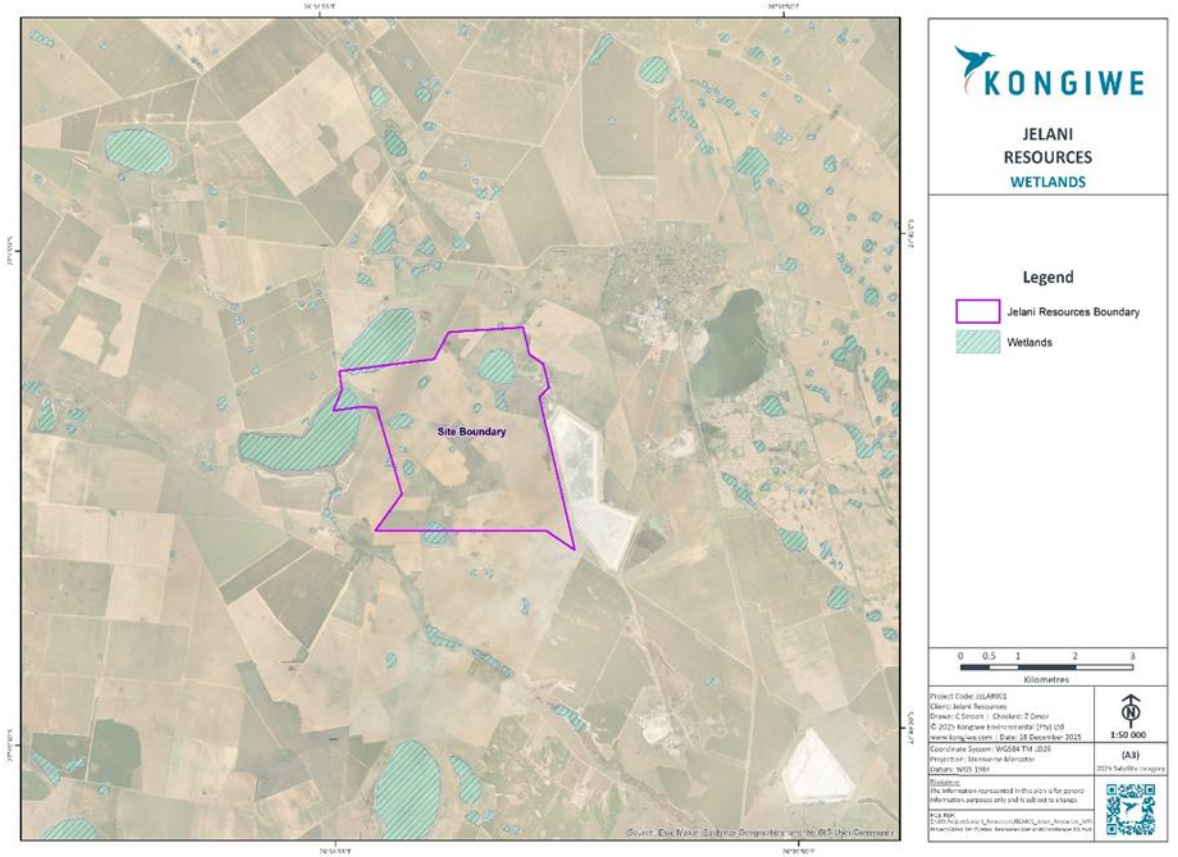
Wetland

- Several wetlands (wetlands depression and unchannelled valley-bottom (UVB) were identified and delineated occurring inside the project footprint with additional wetlands to the west, north, and south-central parts of the site.



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Biodiversity

- The Free State Conservation Plan (2024) classified areas on the basis of their 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’.
- Proposed Project falls within a CBA 1 and an ESA 2.

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Specialist Studies

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

Specialist Studies	
Biodiversity, Freshwater, including a Risk Assessment Matrix (RAM,) Soils and Agricultural Potential.	Mine Closure Plan
Desktop Heritage and Palaeontology	Hydrogeological Assessment
Hydrological Assessment	Climate Change Impact Assessment
Air Quality Impact Quality Assessment	Blasting and Vibrations
Noise Impact Assessment	Socio-Economic Impact Assessment

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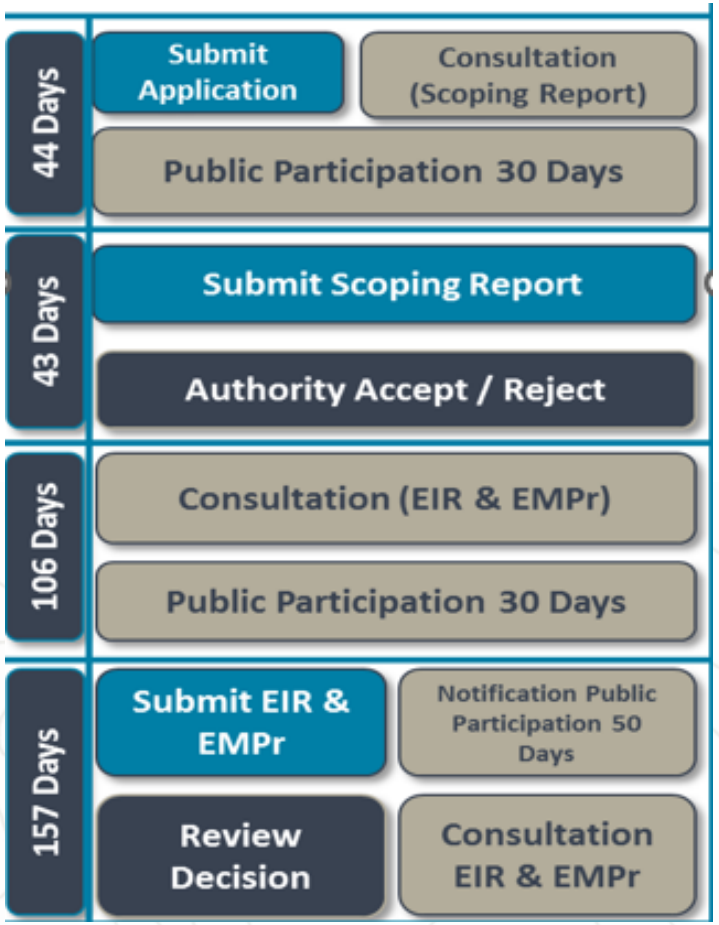
Legislative Framework

- An Environmental Authorisation (EA) application will be submitted to DMPR as the Competent Authority.
  - EA application 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).
- 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.



Listed and Specified Activities

Name of Activity	Aerial Extent of the Activity (ha) 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
Underground Mining Operation	956,76 Hectares	GNR 325 - Activity 17	Any activity including the operation of that activity which requires a mining right in terms of section 22 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity as contained in this Listing Notice, in Listing Notice 1 of 2014 or Listing Notice 3 of 2014, required to exercise the mining right	No Waste Management License (WML) activities are triggered by the proposed underground mining operation

Submission to DMPR

- Application form
  - DFFE Screening Tool
  - Regulation 2(2) Plan
  - Mining Work Programme
  - Company Registration Documents
  - Certified ID Copies of Directors
  - Financial and Technical Ability
- Draft Scoping Report
- Social Labour Plan

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Public Participation Process

- Announcement of the Proposed Project: Advertisement, distribution of the Background Information Document (BID) and placement of site notices.
- The Application Form and Draft Scoping Report (DSR) will be submitted to DMPR (one hardcopy and one soft copy).
- The draft reports (Scoping Report and EIA Report) will be made available to various stakeholders and placed for public review at public venues and on the Kongiwe website for a period of 30 days.
- An Online meeting (via Teams) and an Open Day.
- Indirectly affected landowner and stakeholder meetings are ongoing.
- Comments will be recorded in a Comments and Response Report and submitted as part of the Final Scoping Report and Final EIA Report.

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Project to Date

- Conducting specialist studies that will contribute to the Water Use Licence Application and EIA Report.
- Engaging with landowners.
- Concluding the Social Labour Plan.
- Compiling the Application Form and Draft Scoping Report.

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The Way Forward

Timeframes	
Conclude SLP	Estimated to be complete by end of March 2026
Project Announcement	27 March 2026
Application Form and Draft Scoping Report	31 March 2026
Draft Scoping Report – 30 days comment period	1 April 2026 to 05 May 2026
Final Scoping Report to CA	29 May 2026
Acceptance of Scoping Report	13 July 2026
Draft EIA Report – 30 days comment period	12 August 2026 to 11 September 2026
Final EIA Report to CA	27 October 2026
CA Decision	January 2027

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Comment & Discussion

- Discussion
- Action Points
- Closing

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Contact

- **Name: Umeshree Naicker**
- **Tel: 010 140 1725/26**
- **Email: unaicker@kongiwe.com**

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PostNet Suite no 163, Private Bag X21, Bryanston, 2021, South Africa.

info@kongiwe.com
www.kongiwe.com

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MINUTES OF MEETING			
Date	Tuesday, 26 May 2026	**Time**	14:00 – 14:30
Venue	Microsoft Teams		
Subject	**Lejweleputswa District Municipality**		
List of Attendees			
Organisation		**Name of Attendee**	**Designation**
Lejweleputswa District Municipality		Mr Dewald Kirsten	Manager of Municipal Services
Jelani Resources (Pty) Ltd		Mr Neels Hoek	Project Manager
Kongiwe Environmental (Pty) Ltd		Ms Umeshree Naicker	Principal Environmental Consultant
Kongiwe Environmental (Pty) Ltd		Mr Ripfumelo Macevale	Environmental Consultant
Apologies			
Organisation		**Name of Attendee**	**Designation**
None			

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

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No	Item
1	**Welcome and Introductions**
1.1	Ms Umeshree Naicker (Ms Naicker) welcomed all online meeting attendees.
2	**Meeting Purpose**
2.1	Discuss the proposed Underground Mining Project.
2.2	Provide an overview of the Scoping and Environmental Impact Assessment (S&EIA) process in support of the Environmental Authorisation Application.
2.3	Provide you with an opportunity to raise comments/seek clarity and provide input.
2.4	Record comments raised and include in the Comments and Responses Report.
3	**Meeting Agenda**
3.1	Purpose of the Meeting.
3.2	Kongiwe's Role as an independent EAP.
3.3	Project Background.
3.4	Project Description.
3.5	Infrastructure Requirements.
3.6	Baseline Environment.
3.7	Specialist Studies.
3.8	Legislative Framework.
3.9	Listed and Specified Activity.
3.10	Public Participation Process.
3.11	The Way Forward.
3.12	Comments and Discussion.
4	**Discussion**
4.1	Refer to the table below

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STAKEHOLDERS		COMMENT	RESPONSE
4.1.1	Mr Dewald Kirsten (Mr Kirsten)	Mr Kirsten sought clarification regarding the baseline information that was considered and included in the Draft Scoping Report.	Ms Naicker responded that, the Department of Forestry, Fisheries and the Environment (DFFE) National Web-Based Environmental Screening Tool was used to identify environmental sensitivities and specialist study requirements associated with the proposed development footprint. The tool assigns sensitivity ratings (Very High, High, Medium or Low) across a range of environmental themes, including biodiversity, terrestrial animal species, terrestrial plant species, aquatic biodiversity, agriculture, heritage, palaeontology, civil aviation and defence. Based on the identified sensitivities, the Screening Report indicates the specialist studies and assessment protocols that may be required for the application. She mentioned that the Scoping Report considered all baseline information in terms of vegetation, aquatic biodiversity, groundwater, heritage, palaeontology, as well as wetlands. She further added that for the Scoping phase, a desktop assessment of the baseline area is undertaken, and in the EIA phase, appointed specialist studies assess the impacts associated with the project. Refer to Section 7 of the Draft Scoping Report (DSR) for the baseline environment and Section 9, Table 9-1 of the DSR for the Plan of Study for specialist studies that is proposed for the EIA Phase.
4.1.2	Mr Kirsten	Mr Kirsten enquired whether the specialist studies would be undertaken as desktop assessments rather than field-based investigations.	Ms Naicker responded that, at the Scoping phase stage, a desktop assessment was conducted to identify potential impacts for the Proposed Project. However, detailed specialist assessments will take place in the EIA phase (see Section 9, Table 9-1 of the DSR for the Plan of Study for specialist studies that is proposed for the EIA Phase).

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STAKEHOLDERS		COMMENT	RESPONSE
			She mentioned that the specialist studies to be conducted consists of the following: Biodiversity and Freshwater Impact Assessment, Air Quality Impact Assessment, Hydrogeological, Hydrological Assessment and Climate Change Assessment. A desktop Heritage and Palaeontology Assessment will be conducted. She added that a Blasting and Vibration Assessment, Socio-Economic Impact Assessment, and a Mine Closure Plan will also be considered.
4.1.3	Mr Kirsten	Mr Kirsten mentioned that he will send the questions to Kongiwe team for written responses. However, he requested that the specialist assessments also consider that, due to the presence of uranium-bearing material, a radioactive exposure assessment should be conducted. He added that, although the site is not currently in operation, it had been operational for many years in the surrounding area. He suggested that the question should be raised regarding the cumulative impacts of the existing Harmony Target operations together with the new Jelani JV project, and that these should also be evaluated. He noted that he believes most of the specialist studies may include this aspect; however, from his perspective, there are currently many desktop studies being undertaken for project similar to Jelani. Given that the area is already a mining-disturbed environment, he emphasised the need to consider the cumulative impacts involved.	Ms Naicker noted that the existing Radioactivity Study for the Harmony Target Mine will be used for the Proposed Project. The geology of the Proposed Project area is a direct extension of the geological formations occurring within the Harmony Target Mine mining right area (Section 7.3 of the DSR), which has already been subject to detailed radiological assessment and regulatory approval (2024 Free State Radiological Public Safety Assessment: System Description, undertaken by AquiSim Consulting (Pty) Ltd for Harmony Gold Mining Company Limited - Free State Operations). Ms Naicker also noted that the specialist studies conducted in the EIA phase will consider cumulative impacts.

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STAKEHOLDERS		COMMENT	RESPONSE
		He pointed out that some specialist studies do not always take these into account, instead focusing on the specific operation in isolation. He clarified that his questions are not intended as an open critique of the entire development, but rather to highlight that, particularly from an environmental health perspective, it is important to assess impacts beyond the isolated environment in which the operation will take place.	
4.1.4	Mr Kirsten	Mr Kirsten mentioned that, based on his observations from similar operations, very little attention is often given to mine closure and post-closure environmental risks, particularly with regard to rehabilitation and closure planning processes. He added that, upfront, he would like to request that the necessary attention be given to these aspects. He further noted that, in line with this, there is sometimes a breakdown in communication once operations have commenced or after closure, particularly regarding the financial aspects between the relevant authorities and the operating companies. Specifically, he referred to continuous monitoring data on water quality, air quality, radiation, waste management, and related aspects.	Mine Closure Risk Assessment will be conducted for the Proposed Project, including the estimated financial rehabilitation quantum calculation will be undertaken. The financial quantum for rehabilitation is required to be paid in full prior to the issuance of the Environmental Authorisation as per the Mineral and Petroleum Resources Development Act (MPRDA). This information will be included the EIA phase.
4.1.5	Mr Kirsten	Mr Kirsten mentioned that, going forward, he will submit all his questions and inputs so that a good working relationship can be established with the Jelani Project, extending beyond the Scoping and EIA reporting processes.	Ms Naicker responded that Mr Kirsten is welcome to submit his comments, via the stakeholder email address.
4.1.6	Mr Neels Hoek (Mr Hoek)	Mr Hoek mentioned that an open day will be held on Saturday, 30 May 2026, between 11:00 and 13:00, and that municipal personnel are welcome to attend.	Mr Kirsten responded that he appreciates and has noted the invitation. However, based on his past experience, he does not prefer attending such meetings, as he would be seated with the community and, at times, questions raised may create

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STAKEHOLDERS		COMMENT	RESPONSE	
			misunderstandings among community members, which could place the project in a difficult position.	
4.1.7	Mr Hoek	Mr Hoek mentioned that he believes it would be beneficial, once the project reaches the EIA phase, to arrange an in-person meeting. He noted that the EIA will also be available for public comment, and suggested that the team consider holding a separate, dedicated meeting with the municipality at that stage, distinct from the open days. He added that such a meeting could be arranged with the municipality at that time, should there be a requirement from the municipal representatives.	Mr Kirsten responded that he would support this approach. He noted that he will be raising some questions with the team, and while responses will be provided, there may still be a need for further clarification. He therefore suggested that an open discussion on some of the questions, to ensure mutual understanding, would be beneficial, and that such a meeting could be arranged. Ms Naicker agreed that this was a good suggestion and added that, in the next phase, the team will present all the identified impacts and the outcomes of the specialist studies. She further indicated that the municipality will be provided with a copy of the report, and by the time engagement takes place in the next phase, the municipality will have significantly more information available.	
5	**Closing**			
5.1	Ms Naicker thanked everyone for their time and the meeting was adjourned at 14:30 PM.		ALL	-

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Jelani Resources (Pty) Ltd

Environmental Authorisation and Integrated Water Use License Application for the Proposed Jelani Underground Mining Project

Stakeholder Engagement Meeting – Lejweleputswa District Municipality

DMPR Reference Number: FS30/5/1/2/3/2/1(10098)MR

DWS Reference Number: WU38176

26 May 2026

Introductions

- **Jelani Resources (Pty) Ltd (Applicant)**
  - Neels Hoek

- **Kongiwe Environmental (Pty) Ltd (EAP)**
  - Umeshree Naicker
  - Ripfumelo Macevele
  - Vanessa Viljoen

- **Lejweleputswa District Municipality**

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Agenda

1. Purpose of the Meeting
2. Kongiwe's Role as an independent EAP
3. Project Background
4. Project Description
5. Infrastructure Requirements
6. Baseline Environment
7. Specialist Studies
8. Legislative Framework
9. Listed and Specified Activity
10. Public Participation Process
11. The Way Forward
12. Comments and Discussion

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Purpose of the Meeting

- Discuss the proposed Underground Mining Project.
- Provide an overview of the Scoping and Environmental Impact Assessment (S&EIA) process in support of the Environmental Authorisation application.
- 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 and Petroleum Resources (DMPR)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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Kongiwe's Role

As an independent Environmental Assessment Practitioner, it is our role to perform an objective assessment of what the positive and negative environmental impacts of the Proposed Project may be, to quantify these, describe possible mitigations, collect public comment and supply the Competent Authority with the documentation so that it can determine if the project should proceed or not.

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- Following the exploration and licensing phases, Jelani intends to initiate underground mining operations within the same area.

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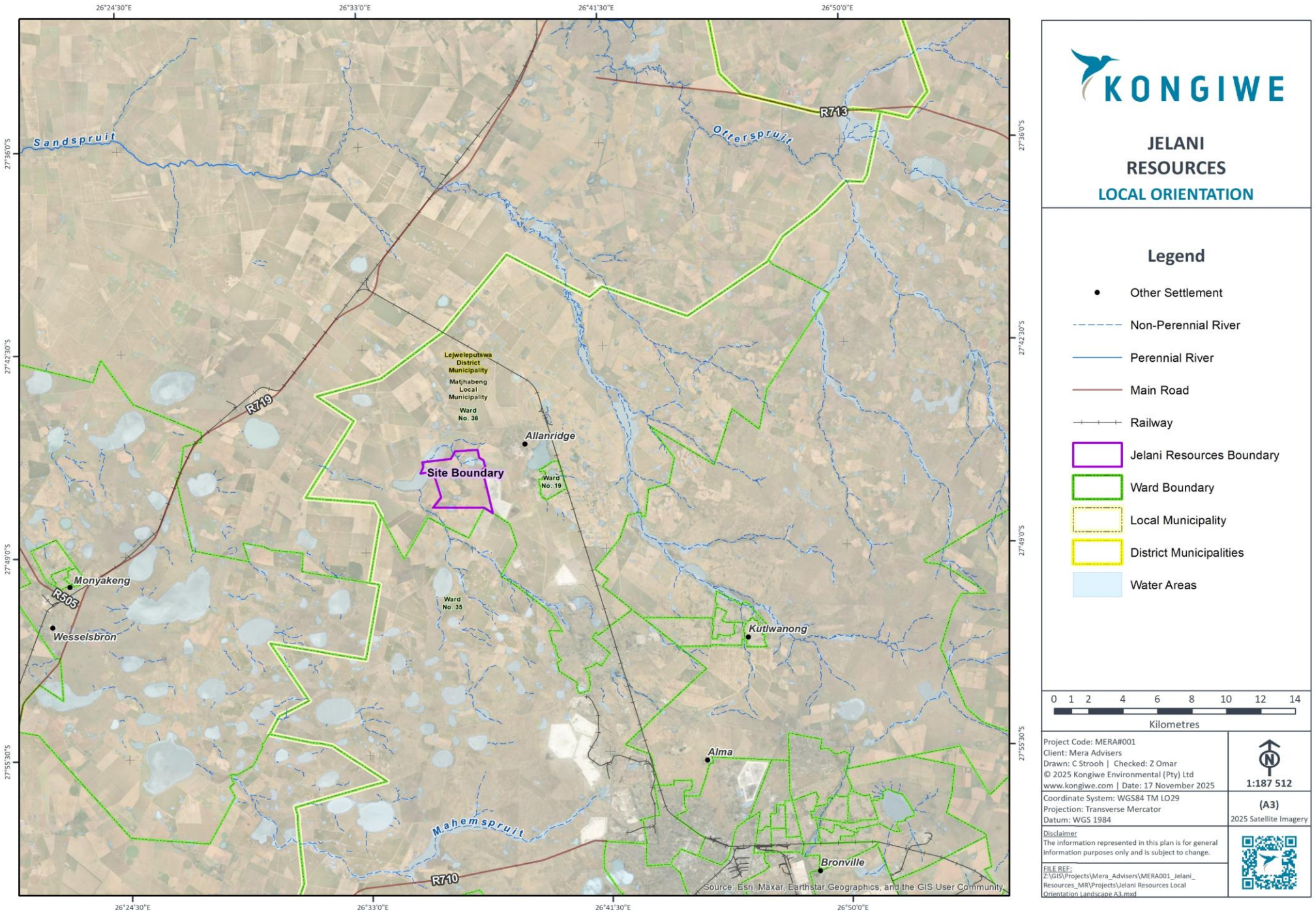
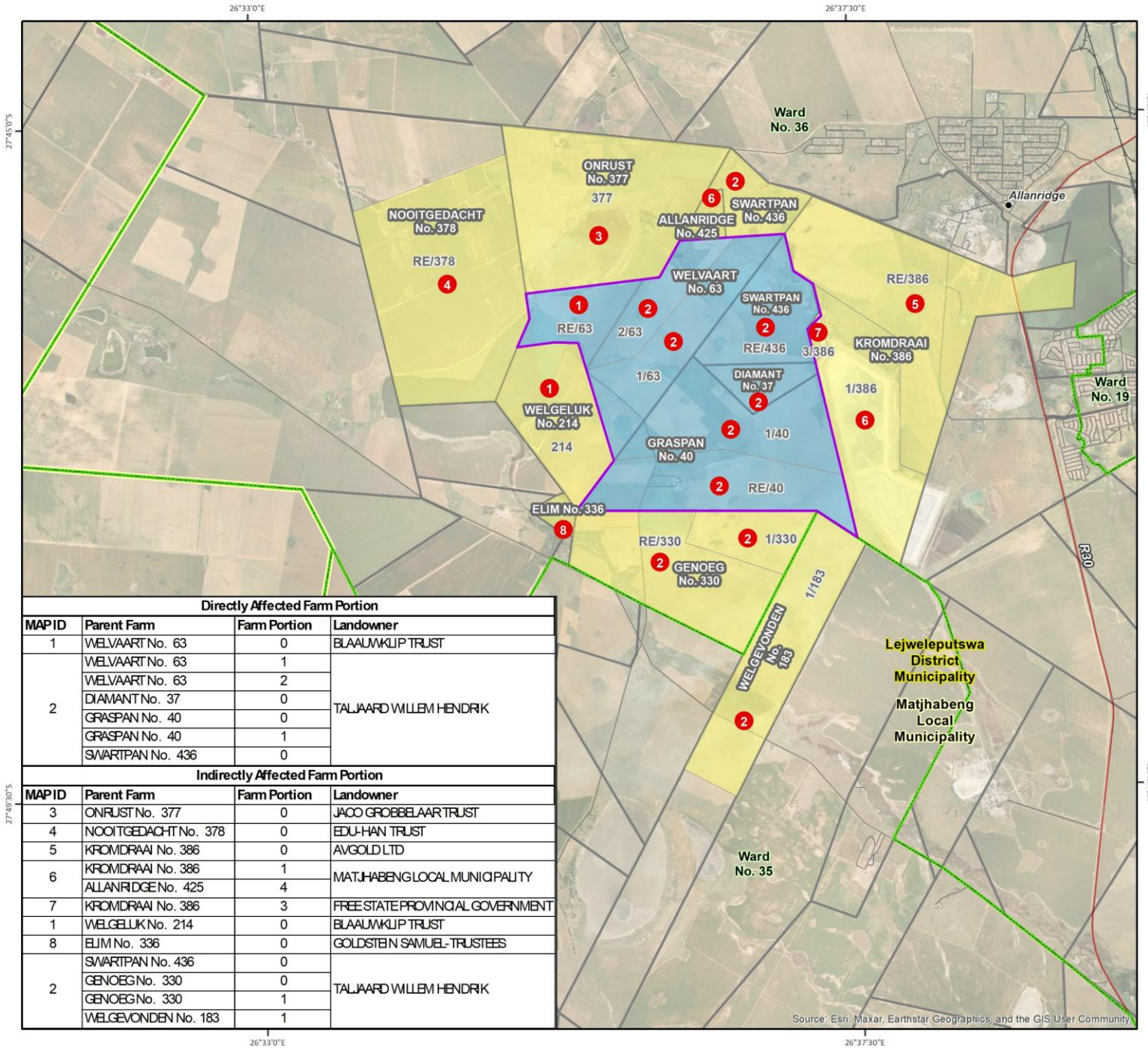


Property Map



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5	KROMDRAAI No. 386	0	AVGOLD LTD
6	KROMDRAAI No. 386	1	MATJHABENG LOCAL MUNICIPALITY
	ALLANRIDGE No. 425	4	
7	KROMDRAAI No. 386	3	FREE STATE PROVINCIAL GOVERNMENT
1	WELGELUK No. 214	0	BLAAUWKLIP TRUST
8	ELIM No. 336	0	GOLDSTEIN SAMUEL - TRUSTEES
2	SWARTPAN No. 436	0	TALJAARD WILLEM HENDRIK
	GENOEG No. 330	0	
	GENOEG No. 330	1	
	WELGEVONDEN No. 183	1	

KONGIWE

JELANI RESOURCES

LAND TENURE

Legend

- Other Settlement
- Local Roads
- Main Road
- Railway
- Jelani Resources Boundary
- Parent Farm
- Ward Boundary
- Local Municipality
- District Municipalities
- Directly Affected
- Indirectly Affected

0 0.5 1 2 3

Kilometres

Project Code: JELA#001
Client: Jelani Resources
Drawn: C Strooh | Checked: Z Omar
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www.kongiwe.com | Date: 04 December 2025

1:45 000

(A3)

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

2025 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\Jelani_Resources\JELA001_Jelani_Resources_MR\Projects\Jelani Resources Land Tenure Landscape A3.mxd

Project Description

Jelani intends to initiate underground mining operations to extract the following potential mineral resources:

- Gold ore (primary target),
- Silver ore,
- Uranium ore,
- Sulphur,
- Platinum Group Metals,
- Rare earths,
- Diamonds (alluvial),
- Copper ore,
- Cobalt ore,
- Manganese ore,
- Molybdenum ore,
- Nickel ore,
- Lead ore,
- Tungsten ore,
- Zinc ore, and
- Iron ore.

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Project Description

- Jelani's underground mining operations initially will target shallower mineral resource deposits at the project site (approximately 1 200 mbs).
- As mine development progresses, new mining areas will be developed which will allow for the production rate to be steadily increased to the targeted full production rate of 60 000 tonnes of mined ore per month.
- Two mining methods have been identified as the most practical for exploiting the mineral resources: **conventional breast mining** and **shrinkage stoping**.
- The selection of each method is primarily based on the dip of the mineralised reef, with the shrinkage stoping being used for the steeper slopes (3% of the total stope tonnage). Where the orebody dips below 55°, conventional breast mining will be used.

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Project Description

- Ore will be transported to the shaft ore pass system using a fleet of 30-tonne dump trucks which are loaded by 10-tonne loaders (LHD). Subsequently, the broken rock will be loaded into hoisting bins and will be hoisted to surface, where the rock will either be sent to the processing plant or to the waste rock dump.
- The orebodies extend between 1 500m and 2 600m below surface.
- The total extent of the application area is 956.76 hectares (ha).
- All ore produced from the underground mining operations will be transported to the existing Target 1 metallurgical plant for processing.

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Infrastructure Requirements

- All operational mining infrastructure required for the Proposed Project will be located within Harmony's existing Target Mine mining right area. No new operational mining infrastructure planned within the JV project area.
- Underground access infrastructure will comprise either refurbished facilities at Target Shafts No. 3, 4, and 5 or newly constructed infrastructure at the Target No. 2 Shaft site, all within the existing mining right.
- The infrastructure requirements are intended to support the managerial, supervisory, and operational functions associated with the respective underground mining operations.

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Infrastructure Requirements

- To monitor potential mining-induced seismicity and boundary interactions with the adjacent Harmony Gold operations, four seismographic monitoring stations will be installed, spread equally along the shared boundary.
- Each station will include a small sensor pad/housing (approximately 5–10 m^2), basic power/comms setup, 6 m of perimeter fencing per station (total 24 m), and short gravel access tracks (total approximately 1 km across all stations, 4 m wide). These installations represent the only surface infrastructures on the JV project area.
- Additionally, a new Tailings Storage Facility (TSF) will be constructed to the west of the existing Target metallurgical plant and north of the existing Target TSF. The total area required for this new facility is approximately 69 Hectares (Ha). This TSF is a separate project being undertaken by Harmony Gold.

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Underground Access Infrastructure Photos

Photo 1: Harmony Target No 3 Shaft

Photo 2: Harmony Target No 2 Shaft

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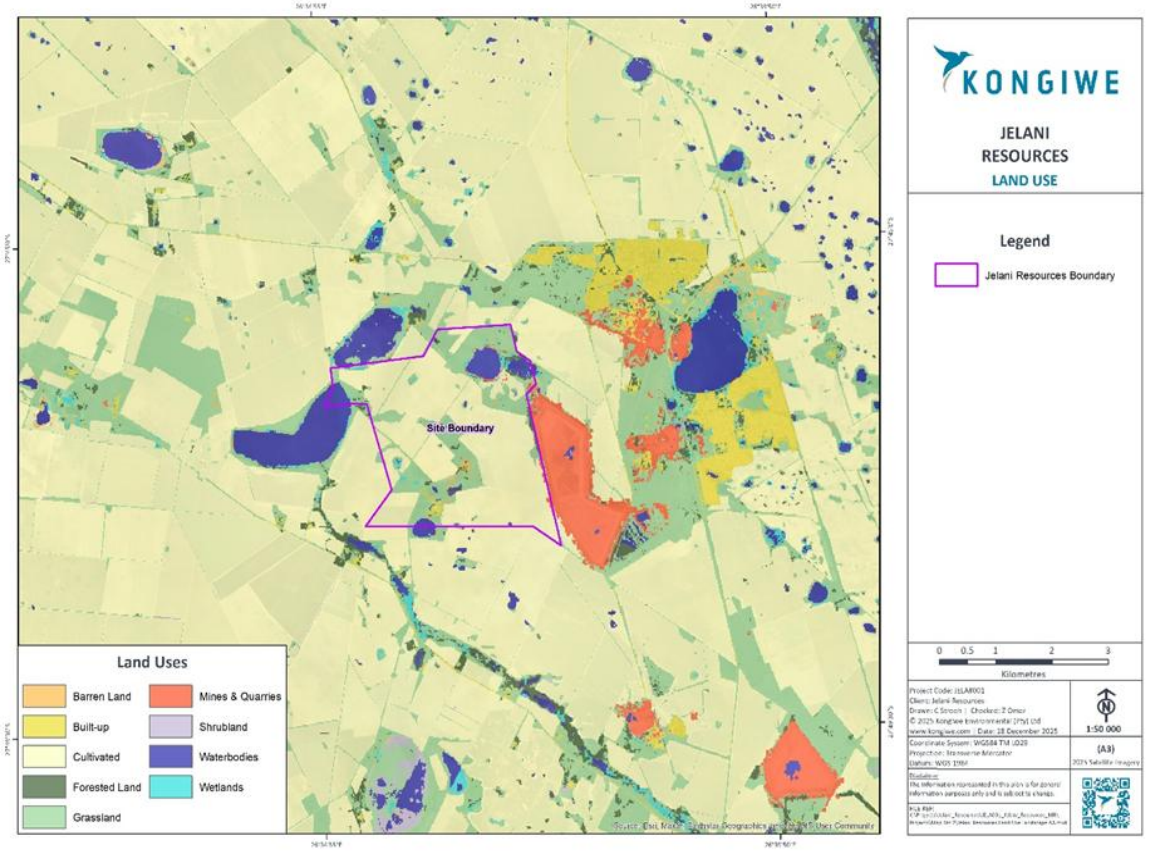
Current Land Use

- The project boundary is currently utilised for agricultural purposes.
- Land uses within the immediate project boundary consist predominantly of cultivated fields, grassland, forested areas, waterbodies, and wetlands.
- The immediate surrounding landscape also includes existing mines and tailings storage facilities (TSFs), as well as transport infrastructure, electricity infrastructure, water supply infrastructure and various farming operations.
- Furthermore, the Proposed Project area is situated immediately adjacent to, and west of, the Harmony Gold Target Mine.



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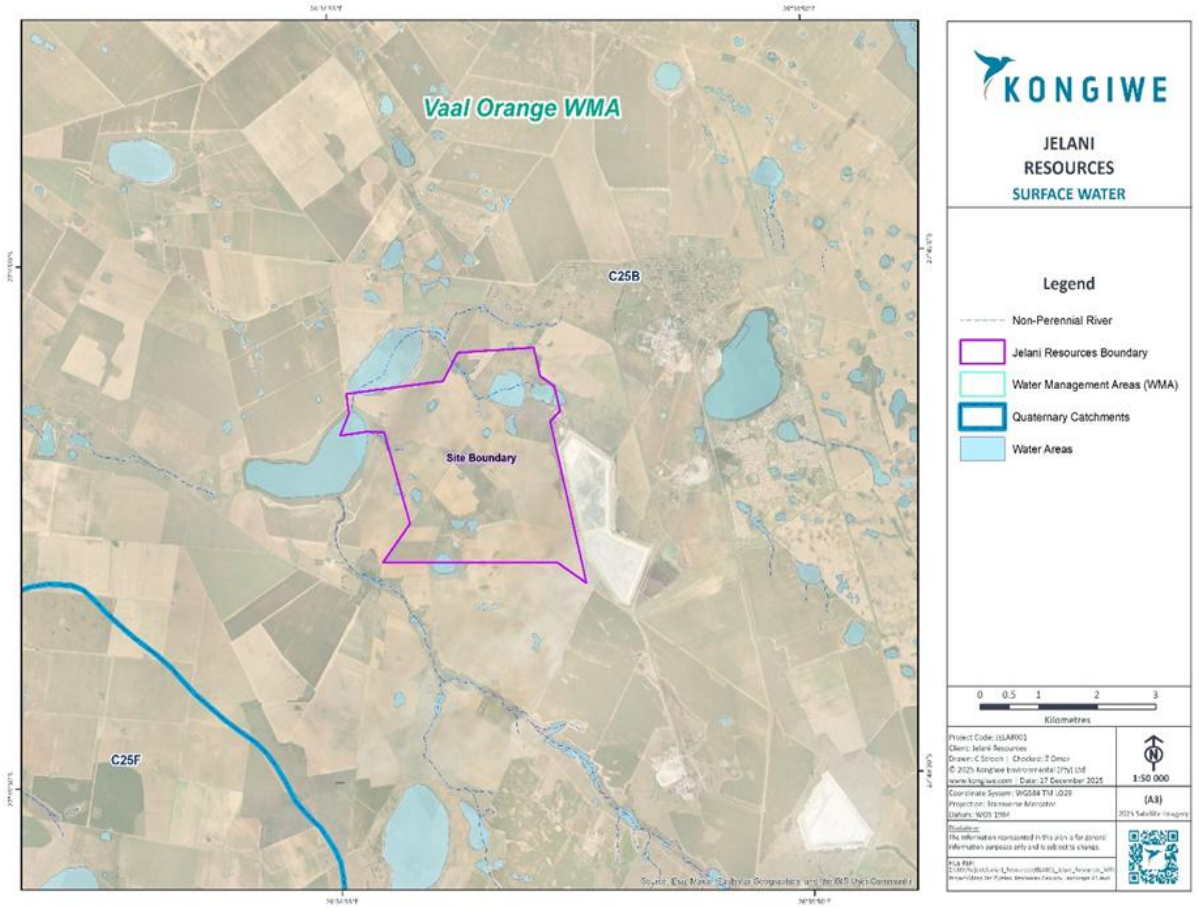
Surface Water

- The project is located within the Vaal Orange Water Management Area (WMA), specifically in quaternary catchment C25B.
- The surface water resource within the site boundary include a non-perennial river located to the north of the project area. Another non-perennial river is situated to the west of the site boundary.
- The surface water map indicates that the project area contains surface water areas, including wetlands.



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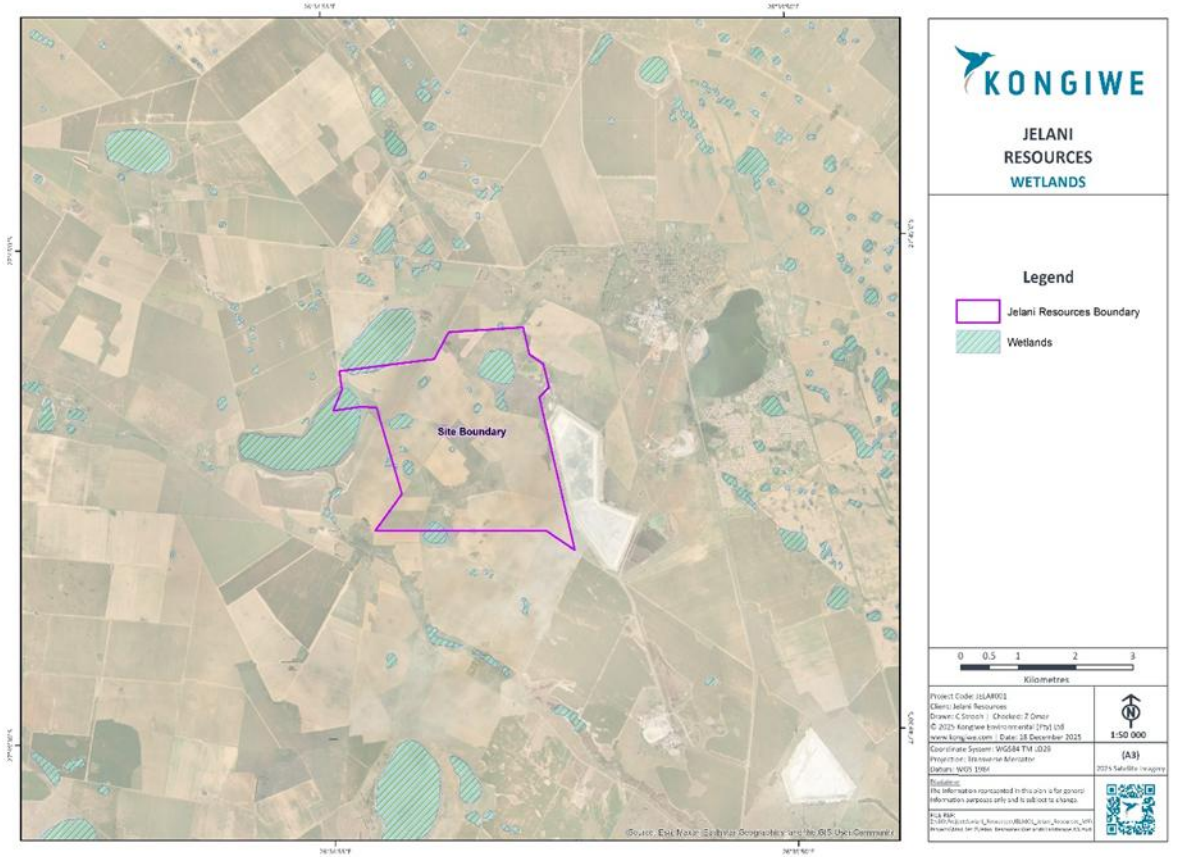
Wetland

- Several wetlands (wetlands depression and unchannelled valley-bottom (UVB) were identified and delineated occurring inside the project footprint with additional wetlands to the west, north, and south-central parts of the site.



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Biodiversity

- The Free State Conservation Plan (2024) classified areas on the basis of their 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’.
- Proposed Project falls within a CBA 1 and an ESA 2.

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Specialist Studies

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

Specialist Studies	
Biodiversity, Freshwater, including a Risk Assessment Matrix (RAM,) Soils and Agricultural Potential.	Mine Closure Plan
Desktop Heritage and Palaeontology	Hydrogeological Assessment
Hydrological Assessment	Climate Change Impact Assessment
Air Quality Impact Quality Assessment	Blasting and Vibrations
Noise Impact Assessment	Socio-Economic Impact Assessment

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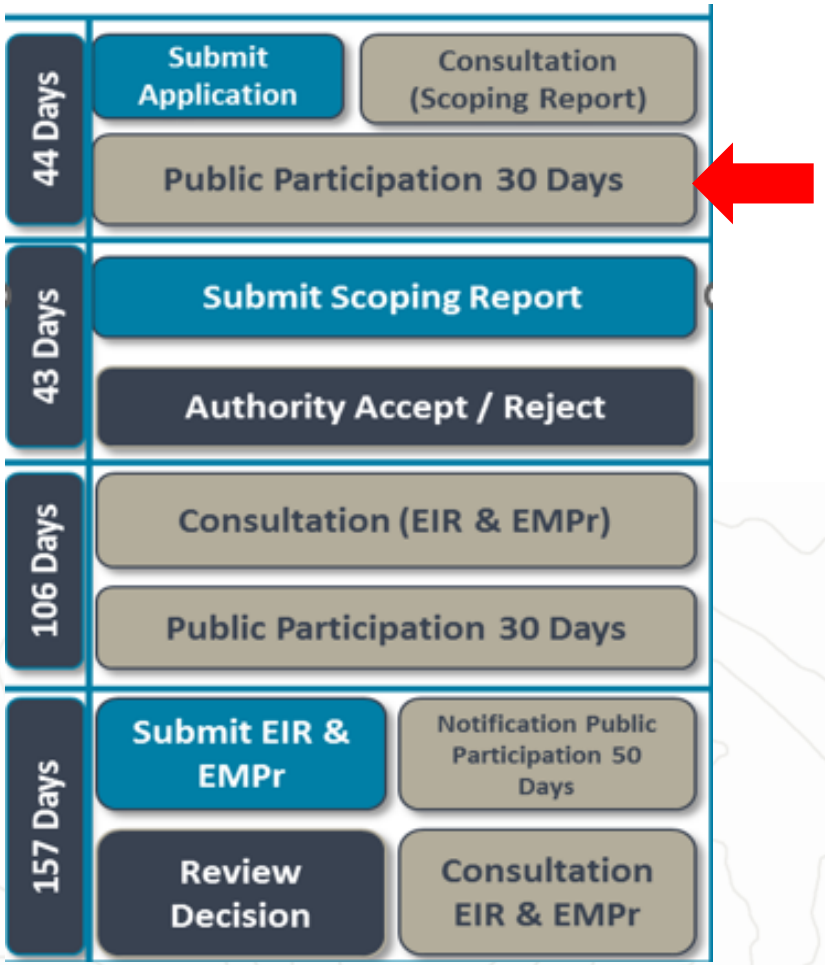
Legislative Framework

- A Scoping and Environmental Impact Assessment (S&EIA) process is being undertaken which evaluates the environmental impacts associated with the Proposed Project as part of an application for Environmental Authorisation (EA). The S&EIA and specialist studies to be undertaken will support the application for the required approval. The following applications have been made to the relevant departments:
  - EA application 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).
  - An Integrated Water Use Licence Application (IWULA) in terms of the National Water Act, 1998 (Act No. 36 of 1998) (NWA) was submitted to the Department of Water and Sanitation (DWS) for any potential impact to water resources by the Proposed Project.



Listed and Specified Activities

Name of Activity	Aerial Extent of the Activity (ha) Ha or m²	Applicable Listing Notice GNR 983, 984 and 985 as amended by GNR 327, GNR 325 or GNR 324	Listed Activity	Water Use License Authorisation
Underground Mining Operation	956,76 Hectares	GNR 325 - Activity 17	Any activity including the operation of that activity which requires a mining right in terms of section 22 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity as contained in this Listing Notice, in Listing Notice 1 of 2014 or Listing Notice 3 of 2014, required to exercise the mining right	Section 21 (c) and (i)

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Listed and Specified Activities

Name of Activity	Aerial Extent of the Activity (ha) Ha or m²	Applicable Listing Notice GNR 983, 984 and 985 as amended by GNR 327, GNR 325 or GNR 324	Listed Activity	Water Use License Authorisation
Development of gravel access tracks	Gravel access tracks approximately 1 km across all stations, with a width of 4 m wide	GNR 985 – Activity 4	The development of a road wider than 4 metres with a reserve less than 13,5 metres. **(b) Free State** (i) Outside urban areas: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;	Section 21 (c) and (i)

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Listed and Specified Activities

Name of Activity	Aerial Extent of the Activity (ha) Ha or m²	Applicable Listing Notice GNR 983, 984 and 985 as amended by GNR 327, GNR 325 or GNR 324	Listed Activity	Water Use License Authorisation
Installation of the seismographic monitoring stations.	40 m²	GNR 985 - Activity 14	The development of (ii) infrastructure or structures with a physical footprint of 10 square metres or more; where such development occurs (a) within a watercourse; (b) in front of a development setback; or (c) if no development setback has been adopted, within 32 meters of a watercourse, measured from the edge of a watercourse; **(b) Free State** (i) Outside urban areas: (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;	Section 21 (c) and (i)

Public Participation

- The EA Application was submitted to the DMPR on Tuesday, 21 April 2026. The acceptance letter for the EA application was received on 18 May 2026.
- The Draft Scoping Report (DSR) was released for public review on 21 May 2026 . The review period will remain open for 30 days, from Thursday, 21 May 2026 to Monday, 22 June 2026. A Copy of the DSR will be made available at the following locations:
  - Allanridge Public Library (53 Caledon St, Allanridge)
  - Kongiwe website: http://www.Kongiwe.com/publications-view/public-documents/
- Online Meeting: Wednesday, 27 May 2026, from 10:00 to 11:00 via Microsoft Teams.
- An Open Day will be held on Saturday, 30 May 2026,at S.A. Mokhothu Primary School from 11H00 – 13H00
- Indirectly affected landowner and stakeholder meetings are ongoing.
- After public review, the Final Scoping Report will be finalised and submitted.
- Comments will be recorded in a Comments and Response Report and submitted to the relevant Competent Authorities.

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Comment & Discussion

- Discussion
- Action Points
- Closing

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Contact

- **Name: Vanessa Viljoen / Jean-Mari Williams**
- **Tel: 010 140 1725/26**
- **Email: stakeholders@kongiwe.com**

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Kongiwe Stakeholder Engagement

From: Kongiwe Stakeholder Engagement
Sent: Monday, 29 June 2026 14:22
To: dewald@lejwe.co.za
Subject: Jelani Resources (Pty) Ltd: JV Area Underground Mining Project: Minutes of Online Meeting held on Tuesday, 26 May 2026 with Lejweleputswa District Municipality
Attachments: JELA#001_Lejweleputswa.pdf; JELA_001_Lejweleputswa_District_Presentation.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Tracking:

Recipient	Read
dewald@lejwe.co.za	
Umeshree Naicker	
Ripfumelo Macevele	
Jean-Mari Williams	Read: 2026/06/29 14:23

Dear Stakeholders,

I hope this message finds you well.

Please find attached the minutes and associated appendices from the online meeting held with Lejweleputswa District Municipality on **Tuesday, 26 May 2026**.

Should you have any queries, please do not hesitate to contact us.

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.
www.kongiwe.com

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MINUTES OF MEETING

Date	Wednesday, 27 May 2026	**Time**	10:00 – 11:00
Venue	Microsoft Teams		
Subject	**Online Meeting Minutes: Broader Stakeholder Meeting**		

List of Attendees

Organisation	Name of Attendee	Designation
Blaauwklip Trust	Mr Eduard Steyn	Directly Affected Landowner
Taljaard Willem Hendrik (Private Landowner)	Mr Willem Taljaard	Directly Affected Landowner
Grootspruit Familie Trust\ de Jager Boerdery	Mr Frans De Jager	Indirectly Affected Landowner
Department of Land Reform and Rural Development (DLRRD)	Ms Nozipho Dlamini	Assistant Manager
Federation for a Sustainable Environment (FSE)	Ms Mariette Liefferink	CEO
South African National Road Agency (SANRAL)	Ms Karabo Mabyana	Statutory Control Officer
SANRAL	Ms Khuliso Nenguda	Statutory Control Officer
Sand-Vet WUA	Mr Andries Labuscagne	Chief Executive
Jelani Resources (Pty) Ltd	Mr Neels Hoek	Project Manager
Kongiwe Environmental (Pty) Ltd	Ms Umeshree Naicker	Principal Environmental Consultant
Kongiwe Environmental (Pty) Ltd	Mr Ripfumelo Macevale	Environmental Consultant

Apologies

Organisation	Name of Attendee	Designation
Harmony Gold Mining Company Limited	Mr Tshepo Moloto	Specialist: Mining and Prospecting Rights

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.

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No	Item
1	**Welcome and Introductions**
1.1	Ms Umeshree Naicker (Ms Naicker) welcomed all online meeting attendees.
2	**Meeting Purpose**
2.1	Discuss the proposed Underground Mining Project.
2.2	Provide an overview of the Scoping and Environmental Impact Assessment (S&EIA) process in support of the Environmental Authorisation Application.
2.3	Provide you with an opportunity to raise comments/seek clarity and provide input.
2.4	Record comments raised and include in the Comments and Responses Report.
3	**Meeting Agenda**
3.1	Purpose of the Meeting.
3.2	Kongiwe's Role as an independent EAP.
3.3	Project Background.
3.4	Project Description.
3.5	Infrastructure Requirements.
3.6	Baseline Environment.
3.7	Specialist Studies.
3.8	Legislative Framework.
3.9	Listed and Specified Activity.
3.10	Public Participation Process.
3.11	The Way Forward.
3.12	Comments and Discussion.
4	**Discussion**
4.1	Refer to the table below

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STAKEHOLDERS		COMMENT	RESPONSE
4.1.1	Mr Frans De Jager (Mr De Jager)	Mr De Jager stated that written comments had already been submitted to Kongiwe. He further enquired whether Ms Naicker had received the document that had been sent through.	Ms Naicker acknowledged receipt of the comments from the Grootspruit Familie Trust. She noted that the comments were of a highly technical nature and had therefore been shared with the appointed groundwater specialist for review and input. Ms Naicker further advised that the groundwater specialist is currently in the process of preparing a response. Once the specialist's feedback has been received, further engagement would be undertaken with Mr De Jager.
4.1.2	Mr De Jager	Mr De Jager stated that he did not want the consultation process to be treated merely as an administrative exercise to indicate that engagement had taken place with landowners. He noted that his primary concern relates to the potential impact of the proposed mining activities on his borehole water source and water quality, as well as what actions would need to be taken should the project impact his borehole water. He further raised concern regarding the depth of the proposed mining activities and the potential implications this may have on groundwater resources, including the possibility of lowering the water table or affecting aquifer systems. He queried what measures or actions would be implemented should adverse impacts on water resources occur. Mr De Jager emphasised the need for direct engagement with a qualified hydrologist or groundwater specialist with experience in underground mining projects, who could explain the location of aquifers, the depth of boreholes, and the potential implications of	Ms Naicker explained that the appointed groundwater specialist would be required to assess these aspects in detail as part of the specialist assessment being undertaken for the Proposed Project. She advised that the findings of the groundwater assessment would provide responses to the concerns and questions raised by Mr De Jager regarding potential impacts on groundwater resources and water quality. Ms Naicker further explained that the project is currently in the scoping phase, during which potential impacts associated with the proposed project are identified together with comments and concerns raised by interested and affected parties. She noted that the subsequent phase of the process would involve detailed impact assessments relating to each identified potential impact, including a dedicated groundwater impact assessment. Ms Naicker confirmed that, once the groundwater assessment has been completed, further engagement would be undertaken with affected stakeholders. She further advised that the request for

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STAKEHOLDERS		COMMENT	RESPONSE
		the proposed mining activities on surrounding groundwater resources. He further indicated that affected farmers would like to be shown the exact location of the proposed mining areas in relation to their water sources in order to better understand whether any impacts may occur. Mr De Jager concluded by reiterating that the availability and quality of water resources are of critical importance to farming operations and that this remains the primary concern of the affected landowners and further indicated that he would appreciate it if the submission from the Grootspruit Familie Trust could be shared with other affected landowners.	engagement with the groundwater specialist had been noted and that arrangements would be made for a session during which the findings of the groundwater assessment would be presented and discussed with the affected farmers and landowners.
4.1.3	Mr De Jager	Mr De Jager stated that he had additional comments which had not been included in his previously submitted document. He noted that these comments relate to the proposed power supply requirements for the project. He estimated that a mine of the proposed scale would likely require a power supply capacity of approximately 20 Megavolt-Amperes (MVA). He therefore enquired whether new Eskom powerlines would be constructed to service the proposed mining operations and requested clarity regarding the proposed routing of such infrastructure. Mr De Jager further queried how the proposed powerline infrastructure may affect his property and surrounding farming properties. He noted that understanding the location and extent of the associated infrastructure is important in order for affected landowners to gain a clearer understanding of the overall project	Ms Naicker responded that a more detailed response regarding the power supply would be provided. However at this stage, based on the Propose Project's infrastructure requirements, the intention is to utilise existing infrastructure that can be shared with the existing mine operations. **Post meeting Note:** Both Target No. 3 and Target No. 2 shafts have existing Eskom bulk supplies providing power for the care and maintenance operations. The 3 Shaft main substation has sufficient installed capacity in order supply the power requirements for the phase 1 mining operation. The 2 Shaft main substation will require a complete upgrade. Target No 3 Shaft Bulk Supply

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STAKEHOLDERS		COMMENT	RESPONSE
		layout and its potential impacts. He reiterated that this remains an additional concern for affected farmers and landowners. Mr De Jager further noted that, prior to his retirement, he had served as a Planning Manager at Eskom and therefore had experience relating to electricity supply requirements. Based on his experience, he advised that a mine of the proposed scale would likely require approximately two 20 MVA power supplies and expressed the view that there may currently be insufficient electricity supply capacity available for the project. Mr De Jager stated that, in his opinion, additional 132 kV or 88 kV powerlines may need to be constructed to supply electricity to the proposed mining operations. He requested that these potential infrastructure requirements and associated impacts be taken into consideration as part of the project assessment process.	The No. 3 shaft substation is supplied at 6.6kV from the Eskom bulk supply 44/6.6kV substation, which includes the following 44/6.6kV transformers: • 2 x 10MVA transformers • 2 x 5 MVA transformers • 4 x 3.1 MVA transformers No. 3 shaft will supply the complete power requirements for the phase 1 mining, which includes the first two years of production. During this initial period the repair and upgrading of No. 2 shaft facilities will occur, following which the mining operation will be supplied from No. 2 shaft. The calculated peak demand for No. 3 shaft is as follows: • Phase 1 – 12.5 MVA • Phase 2 – 1 MVA (Only JV project load) The existing No. 2 shaft substation is supplied at 6.6kV from the Eskom bulk supply 44/6.6kV substation and consists of the following 44/6.6kV transformers: • 1 x 5 MVA transformers • 2 x 3.1 MVA transformers

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STAKEHOLDERS		COMMENT	RESPONSE
			The No. 2 shaft substation will require complete upgrade of both the Eskom and mine substations in order to supply the additional load of the Jelani JV project.
4.1.4	Mr Willem Taljaard (Mr Taljaard)	Mr Taljaard referred to the land tenure map presented during the meeting and stated that his family owns the farms Swartpan, Diamant Graspan and the majority of Welvaart. Mr Taljaard sought clarification regarding the proposed mining operations and indicated that, based on his understanding of the presentation, Target 2 and Target 3 Shaft would be utilised for the proposed mining activities together with the associated Harmony Target slimes dam. He queried whether his understanding of the Proposed Project infrastructure and operations was correct.	Ms Naicker responded that the proposed project intends to utilise existing infrastructure associated with Harmony Target Mine. This includes the Target No. 3 and No. 2 shafts, the Target No. 1 Processing Plant and associated surface infrastructure. All mining infrastructure required for the Proposed Project will be located within the existing Harmony Target Mine mining right area. No new operational mining infrastructure is planned within the project area. Information regarding the new TSF will be provided in the EIA phase.
4.1.5	Mr Taljaard	Mr Taljaard stated that the farms previously referenced are directly adjacent to the existing Harmony Target slimes dam. He further noted, in his capacity as a landowner operating adjacent to mining activities, that he has experienced ongoing operational and environmental concerns associated with the existing operations. He reported that he has previously raised complaints with the mine regarding contaminated water, which he described as cyanide-impacted water, reportedly discharging from the slimes dam area onto his agricultural land. He further expressed concern regarding the adequacy and reliability of maintenance responses to such incidents, stating that delays in pump repairs have occurred. With regards to potential pollution impacts on boreholes, Mr Taljaard commented that their galvanised pipes corrode rapidly. He	Ms Naicker explained that, in terms of the impact assessment process, the next phase of the study, which is the Environmental Impact Assessment (EIA) phase would provide a more detailed evaluation of potential impacts, including those relating to underground water resources and potential pollution impacts. She reiterated that these aspects would be assessed in greater detail as part of the specialist studies to be undertaken. The Groundwater Impact Assessment will be conducted in the EIA phase and will consider the assessment of impacted presented, where possible.

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STAKEHOLDERS		COMMENT	RESPONSE
		stated that, as a result, the water is not suitable for human or animal consumption. He further noted that overflow from Harmony Target evaporation and return water dams, located within the Jelani project site, has occurred during periods of heavy rainfall in recent years, which he indicated has resulted in downstream impacts, including loss of grazing land. Mr Taljaard expressed that, in his view, the introduction of additional mining activities may exacerbate existing issues. He further stated that he shares the concerns previously raised by Mr De Jager regarding potential impacts on boreholes and the risk of reduced or lost groundwater availability.	
4.1.6	Mr Eduard Steyn (Mr Steyn)	Mr Steyn stated that he is a neighbouring landowner to Mr Taljaard and indicated that he shares the concerns raised regarding underground water resources. He further noted concerns relating to above-ground water resources, including dams, pans and surrounding wetland features. He enquired what impact the proposed mining activities would have on above-ground farming operations. In particular, he requested clarity on potential impacts on farm infrastructure, roads, water resources, and farm labour residing on the properties.	Ms Naicker responded that the Surface Water Assessment as well as the Groundwater Impact Assessment would be undertaken as part of the EIA process. She explained that this specialist assessments would identify and assess potential impacts (including roads and surface water), including the significance of such impacts, and would also propose appropriate mitigation measures. This information would be included in the Draft EIA Report and Environmental Management Programme (EMPr). Ms Naicker further advised that, at this stage, the project considers the use of existing operational mining infrastructure.
4.1.7	Ms Karabo Mabyana (Ms Mabyana)	Ms Mabyana stated that she generally shares the concerns raised by Mr De Jager and other attendees regarding the potential impacts of the proposed activities on neighbouring properties. She enquired	Ms Naicker responded that, in terms of the surface infrastructure on directly affected properties, the project currently considers only monitoring stations and the associated access roads (see Section 1.7 of the DSR).

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STAKEHOLDERS		COMMENT	RESPONSE
		how such activities would affect surrounding landowners and to what extent such impacts may be experienced.	Potential impacts associated with these infrastructures will be investigated further through specialist assessment such as the biodiversity, surface water etc, which are currently being undertaken to support the application for Environmental Authorisation (EA).
4.1.8	Ms Mabyana	Ms Mabyana requested clarification on the intention regarding SANRAL's property, noting that although it may not be directly affected, she sought clarity on whether and how it may be impacted by the Proposed Project. She indicated that understanding the extent of potential impact remains a key concern for affected stakeholders. Ms Mabyana sought further clarification regarding potential future land use implications, including whether any land uses classified as subservient to mining activities may affect surrounding properties in any manner.	Ms Naicker advised that she would consult with the technical team regarding the potential future land use implications, as this matter requires further technical input. She reiterated that the current project proposes to utilise the existing Harmony Target Mine surface infrastructure to support the underground mining operations. Ms Naicker confirmed that feedback would be provided to Ms Mabyana following consultation with the technical team. She further noted that, at this stage, the assessment considers monitoring stations located within the directly affected surface footprint. Specialist assessments for the Proposed Project will be conducted in the EIA phase. The findings of these assessments will be included in the Draft EIA Report. **Post Meeting Note:** Closure and Rehabilitation Planning The Mine Closure and Rehabilitation Plan to include post-closure land use, rehabilitation of tailings and waste rock dumps (WRDs), and water treatment measures as well as provide an estimate of the financial provisioning required for closure, in line with NEMA

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STAKEHOLDERS		COMMENT	RESPONSE
			regulations and the Mine Works Programme as required by the MPRDA.
4.1.9	Ms Mariette Liefferink (Ms Liefferink)	Ms Liefferink indicated that her comments were comprehensive and requested that they be treated as recommendations rather than objections. She first commended Kongiwe, stating that she is familiar with the organisation and that there is a generally positive working relationship. She noted that the report is well structured and aligns with the EIA Regulations. However, she expressed the view that the Scoping Report remains largely a high-level desktop study with limited site-specific empirical specialist input. She further noted that the report acknowledges its baseline information is primarily derived from desktop investigation, which she indicated introduces uncertainty. Ms Liefferink concluded by reiterating that the comments should be considered recommendations and that a detailed response is requested. She further confirmed that she has no adversarial position toward the applicant and expressed willingness for constructive engagement.	Ms Naicker acknowledged that at this stage of the Scoping phase, only high-level desktop baseline studies have been conducted; however, specialist studies will be finalised in the EIA phase, and findings will be included in the Draft EIA Report.
		Ms Liefferink raised concerns regarding the absence of a radiological assessment for the Proposed Project, given the uranium mining context and associated risks related to uranium, radioactive decay products, and long-term exposure pathways. She highlighted the need to consider radiological risks, including radon exposure, radioactive waste management, regulatory requirements, and potential radiological implications associated with other minerals	The geology of the Proposed Project area is a direct extension of the geological formations occurring within the Harmony Target Mine mining right area (Section 7.3 of the DSR), which has already been subject to detailed radiological assessment and regulatory approval (2024 Free State Radiological Public Safety Assessment: System Description, undertaken by AquiSim Consulting (Pty) Ltd

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STAKEHOLDERS		COMMENT	RESPONSE
		such as molybdenum. She further recommended that water quality assessments consider uranium toxicity thresholds and human health risks. In addition, concerns were raised regarding legacy mining impacts, including acid mine drainage (AMD), sulphide oxidation, long-term environmental degradation, and the need to assess closure liabilities and post-closure water quality risks.	for Harmony Gold Mining Company Limited - Free State Operations). Harmony Gold Mining Company Limited, a joint venture partner in Jelani Resources, already holds a Radiological Public Safety Assessment for its Free State operations, as well as a valid Certificate of Registration (CoR Regulation 10) issued by the National Nuclear Regulator (NNR) for its Target Mine operation located adjacent to the Proposed Project area. The proposed underground mining operation will involve the excavation of mineral resources within the Proposed Project area. However, access to and egress from the underground workings will be undertaken through the existing Harmony Target shafts, and the ore will be processed using the existing Harmony Target operational mining infrastructure. These shafts, operational systems and geological formations have already been assessed and approved by the NNR. Although uranium is listed as a potential co-product within the mineral resource, the Proposed Project does not introduce new processing streams or changes in radiological exposure pathways beyond those already authorised under Harmony's existing operations. Based on the above, it is considered that the Proposed Project does not introduce new or materially different radiological risks

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STAKEHOLDERS		COMMENT	RESPONSE
			that would warrant a standalone Radioactivity assessment at this stage. It was further noted that a Radiological Public Safety Assessment is a key requirement for an initial CoR application. International best practice recommends that such assessments be reviewed and updated every 3 to 5 years. Should the project be authorised, the Jelani Project's contributions will be incorporated into the next scheduled update of the radiological assessment. The Radiological aspects will be included in the EIA report. It is further noted that the EIA phase will assess potential impacts associated with groundwater and surface water quality, including existing legacy mining influences, AMD-related risks, and relevant human health considerations where applicable. The assessment will also consider closure and post-closure environmental risks in accordance with the applicable regulatory requirements.
		The high-level nature of the assessment does not adequately address cumulative impacts, including groundwater risks, seismicity, biodiversity sensitivity, socio-economic impacts, and radiological risks associated with uranium and its progeny. She emphasised that uranium has a very long half-life and that environmental impacts may persist over geological timeframes, not only biological timescales, which should be considered in closure liability planning.	The assessment of cumulative impacts will be undertaken during the detailed EIA phase, and appropriate mitigation measures will be proposed. The impact identification and evaluation methodology applied by all specialists incorporates cumulative impacts quantitatively to determine the final impact score and corresponding significance rating (refer to Section 8.3 of the DSR).

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STAKEHOLDERS		COMMENT	RESPONSE
		Existing Tailing Storage Facility (TSF) may present seepage and contamination risks; therefore, cumulative impacts should be assessed. In addition, the potential cumulative impact of a proposed new 69-hectare TSF should be assessed. It is noted that this will be a separate application undertaken by Harmony Gold.	
		The Scoping Report is largely a high-level desktop assessment with limited site-specific empirical specialist input, creating uncertainty in the baseline conditions.	The Scoping Report is intended to provide a preliminary assessment of the receiving environment and identify potential issues, sensitivities, and information gaps requiring further investigation. Detailed site-specific baseline studies, fieldwork, and empirical data collection will be undertaken during the EIA phase through the relevant specialist assessments, which will refine the baseline conditions and inform the impact assessment. A Plan of Study for the EIA has been developed during the Scoping Phase.
		The report states there are no alternative sites considered, and all required infrastructure will be located within the Harmony Target mining right area, indicating that this is not compatible with Section 24 of NEMA as well as the EIA Regulations, because it requires a comparative assessment of feasible and reasonable alternatives. The alternatives that must also be considered include, layout, technology, operational, and no-go alternatives. Reliance on existing infrastructure does not automatically make the site environmentally preferable. It was recommended that the assessment consider whether the proposed development represents the best practicable	The Proposed Project intends to initiate an underground mining operation within the Joint Venture area to extract various minerals, primarily Gold, along with Silver, Uranium, and associated minerals. Jelani Resources Pty Ltd holds the Prospecting Rights for these minerals in this area. The Proposed Project follows the completion of the Prospecting Phase, which confirmed the viability of developing an underground mining operation and identified significant potential mineral resources to support such development. Additionally, the Proposed Project intent to utilise available spare capacity within Harmony's existing infrastructure at the Target Mine, which is located adjacent to the JV area. As the

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STAKEHOLDERS		COMMENT	RESPONSE
		environmental options in terms of National Environmental Management Act (NEMA) principles.	potential mineral resources were confirmed within specific properties and the required supporting operational mining infrastructure already exists within Harmony's Target Mine mining right area, the activity is constrained to these locations. Therefore, no alternative sites are feasible. Furthermore, Activity, Design and Technology and Operation alternatives have been considered, and the no go alternative has been included (see Section 5 of the DSR).
		The report also appears to heavily relay on the argument that the infrastructure planned to be utilised for the project is already existing but this is not sufficient justification for excluding site assessment as the no-go alternative and the approach to site alternatives may be legally vulnerable because cumulative impacts in the region may already be severe due to the legacy of gold mining within the Witwatersrand and Free State goldfields. Concerns were also raised that, in addition to regional legacy impacts, existing impacts within the Harmony Target mine area itself should be considered.	The use of existing infrastructure is one of several factors considered and does not replace the assessment of alternatives. The No-Go Alternative will be assessed during the EIA phase. The EIA phase will include an assessment of cumulative impacts, taking into account both the legacy impacts of mining within the region and existing impacts associated with the Target Mine operations.
		The scoping report acknowledges the groundwater impacts such as the dewatering of deep aquifer causing groundwater level decline, lowering of the water table in the shallow aquifer, groundwater flow alteration and potential seepage of mine water to the groundwater system, which may contaminate groundwater resources. Groundwater impacts require more detailed assessment, including:	The Groundwater Impact Assessment will be conducted in the EIA phase and will consider the assessment of impacted presented, where possible.

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STAKEHOLDERS		COMMENT	RESPONSE
		a. Deep aquifer dewatering, which may alter regional groundwater flow partners b. Aquifer connectivity and transmissivity c. Drawdown cone modelling d. Regional groundwater flow impacts beyond the mine area e. Decant risks and post-closure rewatering scenarios f. Long-term mobilisation of contaminants, including uranium and other metals. The hydrogeological assessment should include geochemical testing, sulphur balance analysis, radionuclide mobility, and long-term post-closure monitoring.	
		The scoping report confirms the project activities trigger section 21 water uses, necessitating the application for Water Use License. However, water balance information, water demand projections, cumulative water stress analysis, and regional water status have not been presented. It was recommended that water quality discharges comply with Resource Quality Objectives and Water Use Licence conditions, with reference to uranium toxicity thresholds and associated human health risks	An application will be submitted to Department of Water and Sanitation (DWS). As part of the WUL application process, supporting technical report, including the Integrated Water and Waste Management Plan (IWWMP) will be developed. The IWWMP will address the water balance information, water demand projections, cumulative water stress analysis, and regional water status as well as water quality objectives requirements.
		Seismicity and subsidence risks require further assessment and monitoring plan.	Blasting and Vibration Assessment will be undertaken during the EIA phase, and the outcomes of this study will be presented and assessed in the Draft EIA Report.

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STAKEHOLDERS		COMMENT	RESPONSE
		Closure liabilities and long-term environmental risks, including post-closure AMD generation and water quality deterioration over geological timeframes, should be incorporated into assessments.	The Groundwater Impact Assessment will be conducted in the EIA phase and will consider the assessment of impacted presented, where possible.
		Biodiversity and ecological impacts require further detailed assessment, including aquatic ecology, wetlands, grassland sensitivity, and cumulative biodiversity impacts, indicating that the project area is heavy disturbed and therefore stringent mitigation measure are required.	A Terrestrial Biodiversity (Flora and Fauna) Assessment Study and Freshwater and Aquatic Biodiversity Assessment Study will be conducted in the EIA phase. The EIA phase will include an assessment of cumulative impacts.
		Socio-economic vulnerability in mining-affected communities was highlighted as an ongoing concern and should be considered in the assessment.	A Socio-Economic Impact Assessment will be conducted during the EIA phase.
4.10	Mr Neels Hoek (Mr Hoek)	Mr Hoek thanked all attendees for their participation in the meeting. He further extended specific appreciation to Ms Liefferink for her detailed comments.	
4.11	Ms Naicker	Ms Naicker added a final comment, thanking all attendees for participating in the meeting and for providing their comments. She noted that the project team would work through and address all comments raised during the meeting. She further advised that the team would remain in communication with all attendees going forward and that feedback would be provided on the matters raised. She encouraged attendees to submit any additional comments not raised during the meeting directly to Kongiwe stakeholder engagement team, noting that contact details had been provided. Ms Naicker concluded by stating that the team looks forward to continuing engagement and addressing all inputs received in relation to the project.	
5	**Closing**		
5.1	Ms Naicker thanked everyone for their time and the meeting was adjourned at 10:58AM.	ALL	-

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Jelani Resources (Pty) Ltd

Environmental Authorisation and Integrated Water Use License Application for the Proposed Jelani Underground Mining Project

Online Stakeholder Engagement Meeting

DMPR Reference Number: FS30/5/1/2/3/2/1(10098)EM

DWS Reference Number: WU38176

27 May 2026

Introductions

- **Jelani Resources (Pty) Ltd (Applicant)**
  - Neels Hoek
- **Harmony Gold Mining Company Limited**
  - Tshepo Moloto
- **Kongiwe Environmental (Pty) Ltd (EAP)**
  - Umeshree Naicker
  - Ripfumelo Macevele
  - Vanessa Viljoen

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Agenda

1. Purpose of the Meeting
2. Kongiwe's Role as an independent EAP
3. Project Background
4. Project Description
5. Infrastructure Requirements
6. Baseline Environment
7. Specialist Studies
8. Legislative Framework
9. Listed and Specified Activity
10. Public Participation Process
11. The Way Forward
12. Comments and Discussion

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Purpose of the Meeting

- Discuss the proposed Underground Mining Project.
- Provide an overview of the Scoping and Environmental Impact Assessment (S&EIA) process in support of the Environmental Authorisation application.
- 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 and Petroleum Resources (DMPR)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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Kongiwe's Role

As an independent Environmental Assessment Practitioner, it is our role to perform an objective assessment of what the positive and negative environmental impacts of the Proposed Project may be, to quantify these, describe possible mitigations, collect public comment and supply the Competent Authority with the documentation so that it can determine if the project should proceed or not.

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Project Background

- **Applicant**: Jelani Resources (Pty) Ltd
- **Activity**: Underground Mining
- **Life of Operation**: 14 years
- **Location**: The project area is situated immediately adjacent to and west of the Harmony Gold Target Mine, approximately 11km northwest of Odendaalsrus, 2,5km west of Allanridge, and 22km east of Wesselsbron. It lies within Ward 36 of the Matjhabeng Local Municipality, under the jurisdiction of the Lejweleputswa District Municipality.
- Jelani Resources (Pty) Ltd ("Jelani") is a joint venture (JV) company established by White Rivers Exploration and Harmony Gold.
- The JV was formed to conduct underground mining operations within the joint venture (JV) area, which is made up of areas within the existing Harmony Target mining right (Harmony contribution) and Prospecting Rights (PR) areas to the west of Harmony Gold's existing Target Mine (WRE contribution).
- Following the exploration and licensing phases, Jelani intends to initiate underground mining operations within the same area.

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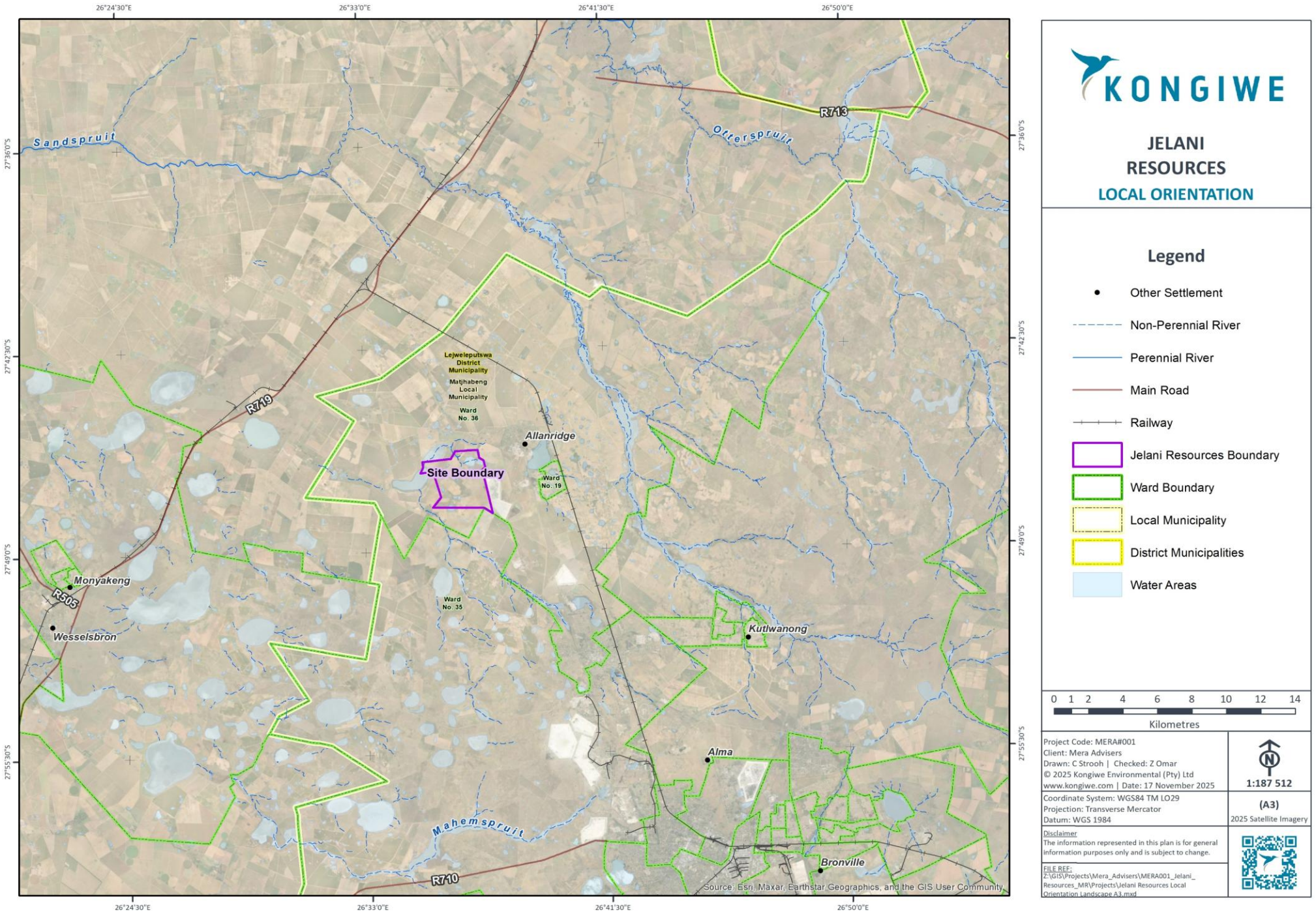
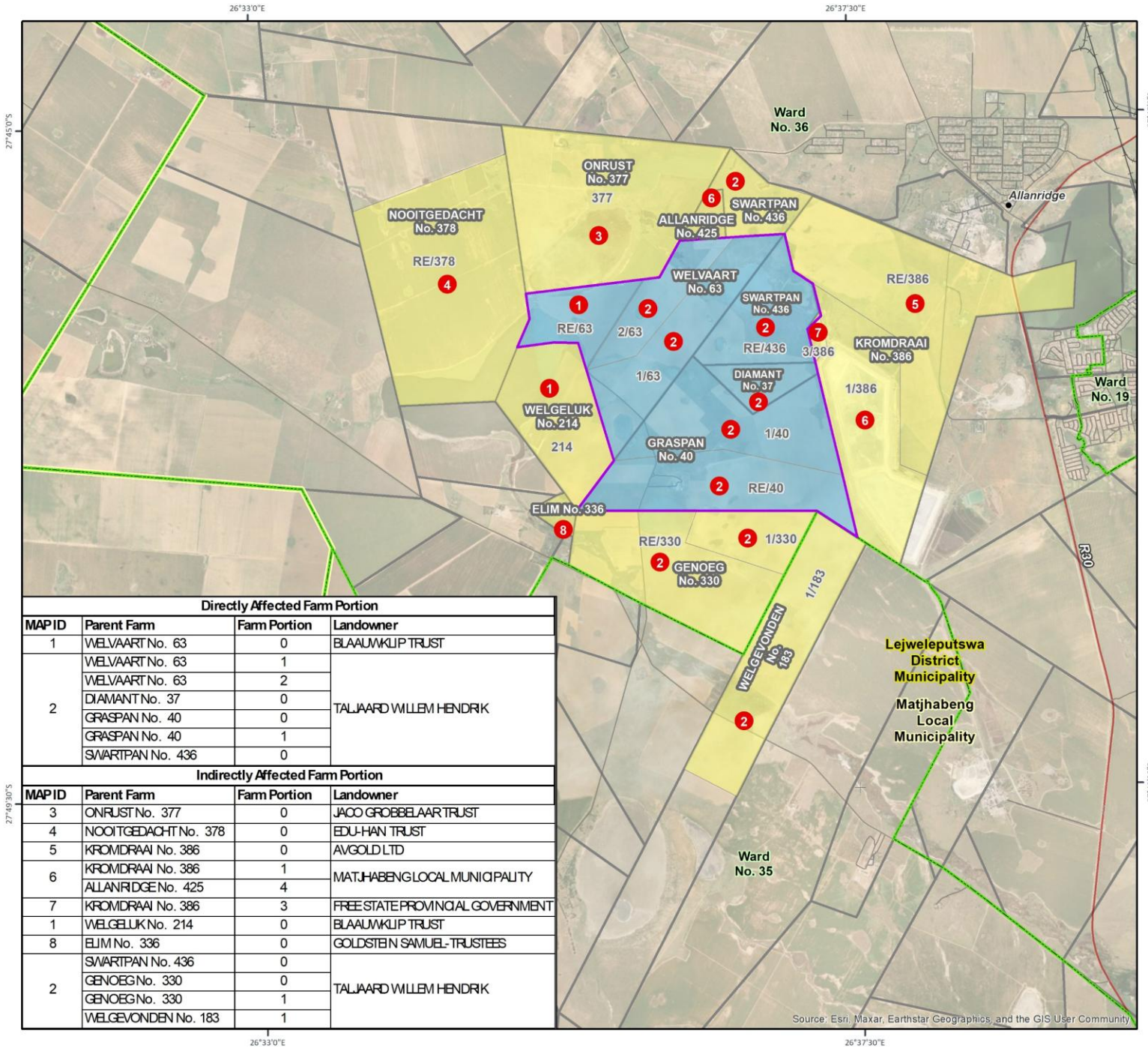
Project Location



Property Map



Directly Affected Farm Portion			
MAP ID	Parent Farm	Farm Portion	Landowner
1	WELVAART No. 63	0	BLAAUWKLIP TRUST
2	WELVAART No. 63	1	TALJAARD WILLEM HENDRIK
	WELVAART No. 63	2	
	DIAMANT No. 37	0	
	GRASPAN No. 40	0	
	GRASPAN No. 40	1	
	SWARTPAN No. 436	0	

Indirectly Affected Farm Portion			
MAP ID	Parent Farm	Farm Portion	Landowner
3	ONRUST No. 377	0	JACO GROBBELAAR TRUST
4	NOOITGEDACHT No. 378	0	EDU-HAN TRUST
5	KROMDRAAI No. 386	0	AVGOLD LTD
6	KROMDRAAI No. 386	1	MATJHABENG LOCAL MUNICIPALITY
	ALLANRIDGE No. 425	4	
7	KROMDRAAI No. 386	3	FREE STATE PROVINCIAL GOVERNMENT
1	WELGELUK No. 214	0	BLAAUWKLIP TRUST
8	ELIM No. 336	0	GOLDSTEIN SAMUEL - TRUSTEES
2	SWARTPAN No. 436	0	TALJAARD WILLEM HENDRIK
	GENOEG No. 330	0	
	GENOEG No. 330	1	
	WELGEVONDEN No. 183	1	

KONGIWE

JELANI RESOURCES

LAND TENURE

Legend

- Other Settlement
- Local Roads
- Main Road
- Railway
- Jelani Resources Boundary
- Parent Farm
- Ward Boundary
- Local Municipality
- District Municipalities
- Directly Affected
- Indirectly Affected

0 0.5 1 2 3

Kilometres

Project Code: JELA#001
Client: Jelani Resources
Drawn: C Strooh | Checked: Z Omar
© 2025 Kongiwe Environmental (Pty) Ltd
www.kongiwe.com | Date: 04 December 2025

1:45 000

(A3)

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

2025 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\Jelani_Resources\JELA001_Jelani_Resources_MR\Projects\Jelani Resources Land Tenure Landscape A3.mxd

Project Description

Jelani intends to initiate underground mining operations to extract the following potential mineral resources:

- Gold ore (primary target),
- Silver ore,
- Uranium ore,
- Sulphur,
- Platinum Group Metals,
- Rare earths,
- Diamonds (alluvial),
- Copper ore,
- Cobalt ore,
- Manganese ore,
- Molybdenum ore,
- Nickel ore,
- Lead ore,
- Tungsten ore,
- Zinc ore, and
- Iron ore.

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Project Description

- Jelani's underground mining operations initially will target shallower mineral resource deposits at the project site (approximately 1 200 mbs).
- As mine development progresses, new mining areas will be developed which will allow for the production rate to be steadily increased to the targeted full production rate of 60 000 tonnes of mined ore per month.
- Two mining methods have been identified as the most practical for exploiting the mineral resources: **conventional breast mining** and **shrinkage stoping**.
- The selection of each method is primarily based on the dip of the mineralised reef, with the shrinkage stoping being used for the steeper slopes (3% of the total stope tonnage). Where the orebody dips below 55°, conventional breast mining will be used.

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Project Description

- Ore will be transported to the shaft ore pass system using a fleet of 30-tonne dump trucks which are loaded by 10-tonne loaders (LHD). Subsequently, the broken rock will be loaded into hoisting bins and will be hoisted to surface, where the rock will either be sent to the processing plant or to the waste rock dump.
- The orebodies extend between 1 500m and 2 600m below surface.
- The total extent of the application area is 956.76 hectares (ha).
- All ore produced from the underground mining operations will be transported to the existing Target 1 metallurgical plant for processing.

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Infrastructure Requirements

- All operational mining infrastructure required for the Proposed Project will be located within Harmony's existing Target Mine mining right area. No new operational mining infrastructure planned within the JV project area.
- Underground access infrastructure will comprise either refurbished facilities at Target Shafts No. 3, 4, and 5 or newly constructed infrastructure at the Target No. 2 Shaft site, all within the existing mining right.
- The infrastructure requirements are intended to support the managerial, supervisory, and operational functions associated with the respective underground mining operations.

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Infrastructure Requirements

- To monitor potential mining-induced seismicity and boundary interactions with the adjacent Harmony Gold operations, four seismographic monitoring stations will be installed, spread equally along the shared boundary.
- Each station will include a small sensor pad/housing (approximately 5–10 m^2), basic power/comms setup, 6 m of perimeter fencing per station (total 24 m), and short gravel access tracks (total approximately 1 km across all stations, 4 m wide). These installations represent the only surface infrastructures on the JV project area.
- Additionally, a new Tailings Storage Facility (TSF) will be constructed to the west of the existing Target metallurgical plant and north of the existing Target TSF. The total area required for this new facility is approximately 69 Hectares (Ha). This TSF is a separate project being undertaken by Harmony Gold.

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Underground Access Infrastructure Photos

Photo 1: Harmony Target No 3 Shaft

Photo 2: Harmony Target No 2 Shaft

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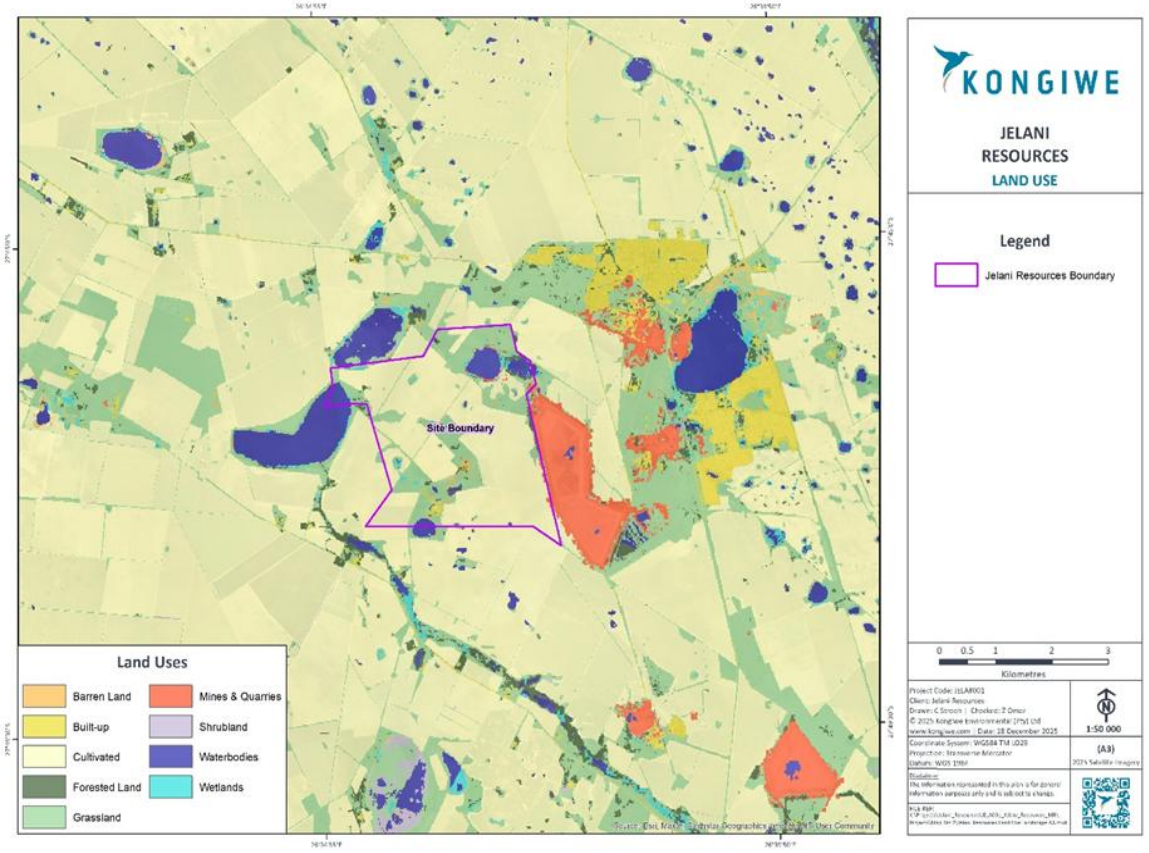
Current Land Use

- The project boundary is currently utilised for agricultural purposes.
- Land uses within the immediate project boundary consist predominantly of cultivated fields, grassland, forested areas, waterbodies, and wetlands.
- The immediate surrounding landscape also includes existing mines and tailings storage facilities (TSFs), as well as transport infrastructure, electricity infrastructure, water supply infrastructure and various farming operations.
- Furthermore, the Proposed Project area is situated immediately adjacent to, and west of, the Harmony Gold Target Mine.



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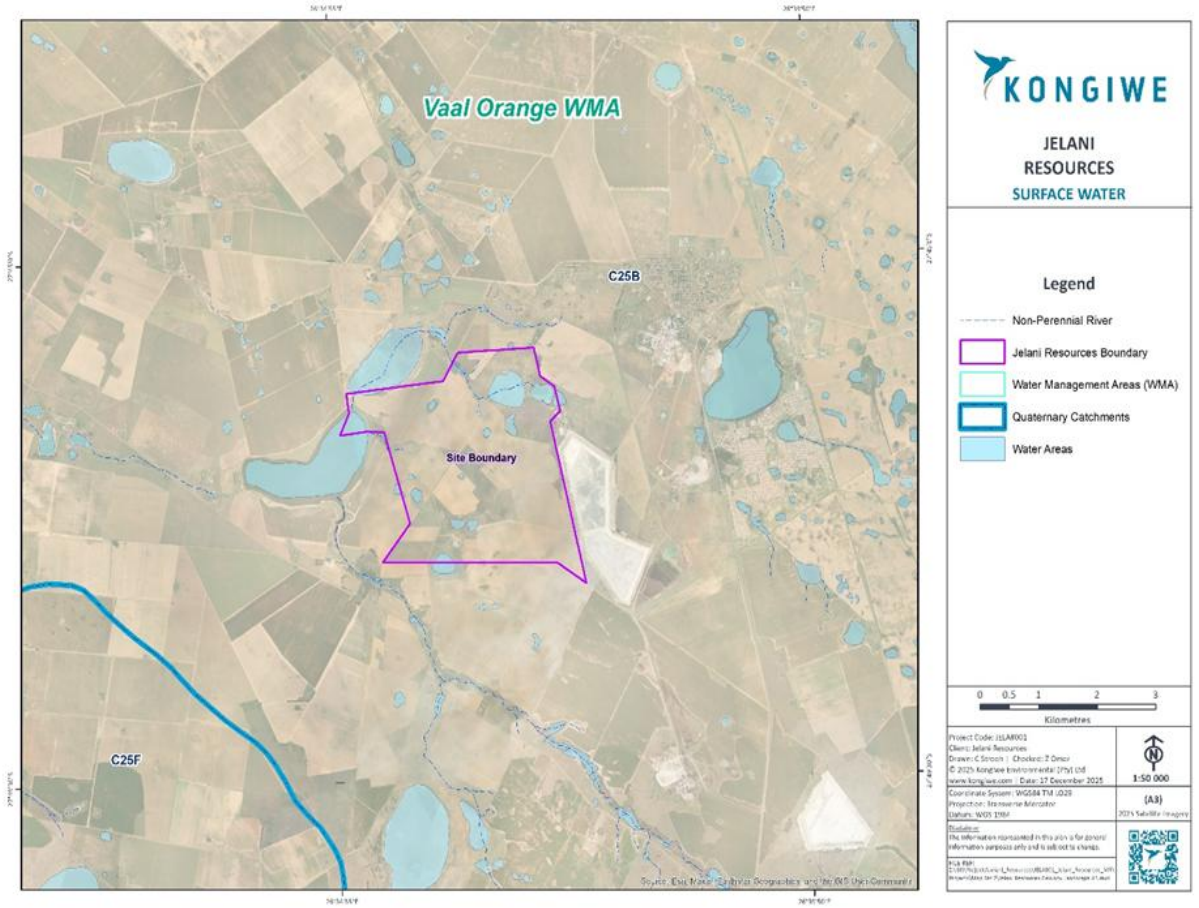
Surface Water

- The project is located within the Vaal Orange Water Management Area (WMA), specifically in quaternary catchment C25B.
- The surface water resource within the site boundary include a non-perennial river located to the north of the project area. Another non-perennial river is situated to the west of the site boundary.
- The surface water map indicates that the project area contains surface water areas, including wetlands.



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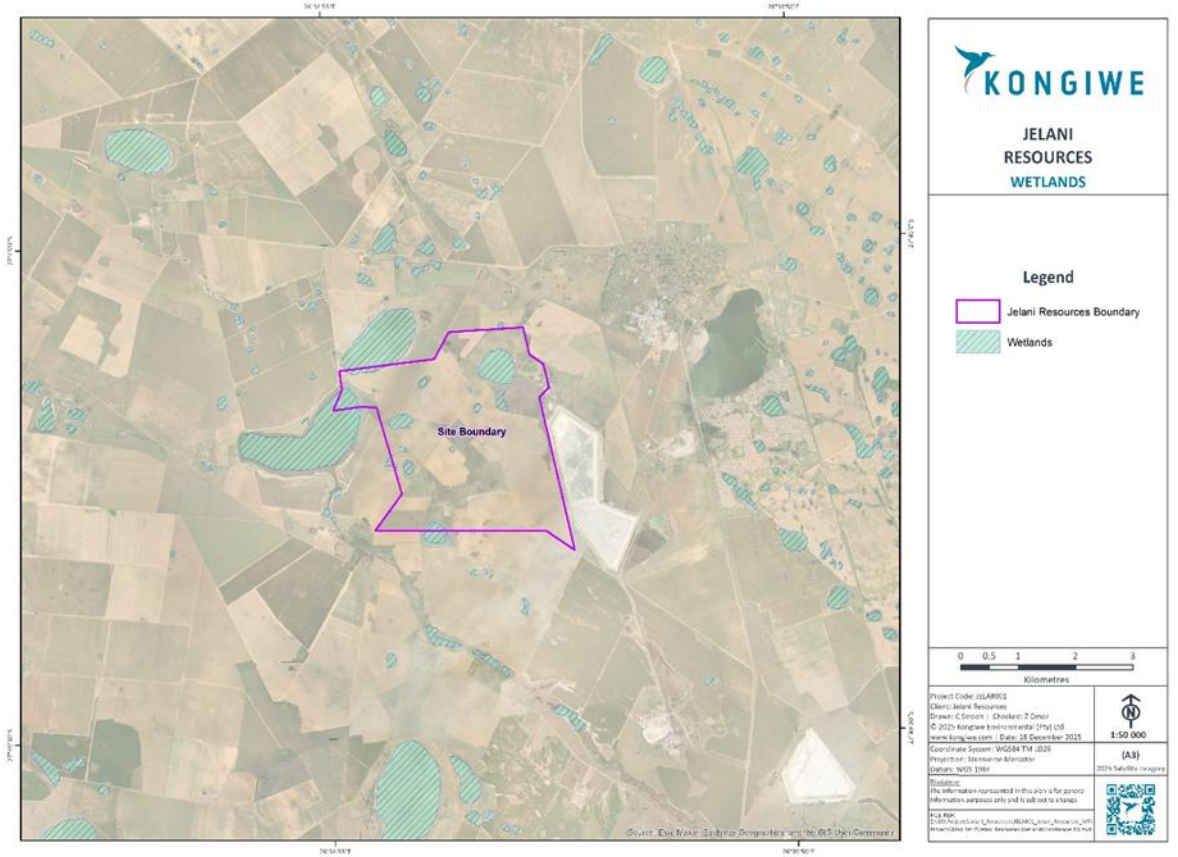
Wetland

- Several wetlands (wetlands depression and unchannelled valley-bottom (UVB) were identified and delineated occurring inside the project footprint with additional wetlands to the west, north, and south-central parts of the site.



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Biodiversity

- The Free State Conservation Plan (2024) classified areas on the basis of their 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’.
- Proposed Project falls within a CBA 1 and an ESA 2.

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Specialist Studies

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

Specialist Studies	
Biodiversity, Freshwater, including a Risk Assessment Matrix (RAM,) Soils and Agricultural Potential.	Mine Closure Plan
Desktop Heritage and Palaeontology	Hydrogeological Assessment
Hydrological Assessment	Climate Change Impact Assessment
Air Quality Impact Assessment	Blasting and Vibrations
Socio-Economic Impact Assessment	

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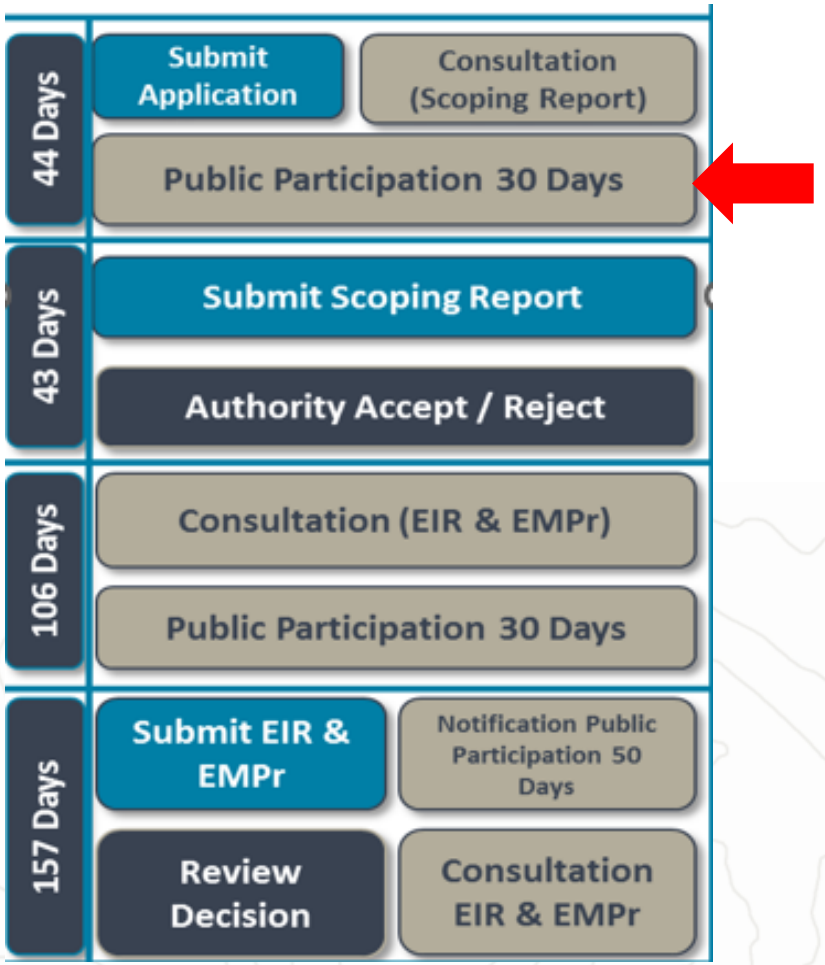
Legislative Framework

- A Scoping and Environmental Impact Assessment (S&EIA) process is being undertaken which evaluates the environmental impacts associated with the Proposed Project as part of an application for Environmental Authorisation (EA). The S&EIA and specialist studies to be undertaken will support the application for the required approval. The following applications have been made to the relevant departments:
  - EA application 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).
  - An Integrated Water Use Licence Application (IWULA) in terms of the National Water Act, 1998 (Act No. 36 of 1998) (NWA) was submitted to the Department of Water and Sanitation (DWS) for any potential impact to water resources by the Proposed Project.



Listed and Specified Activities

Name of Activity	Aerial Extent of the Activity (ha) Ha or m²	Applicable Listing Notice GNR 983, 984 and 985 as amended by GNR 327, GNR 325 or GNR 324	Listed Activity	Water Use License Authorisation
Underground Mining Operation	956,76 Hectares	GNR 325 - Activity 17	Any activity including the operation of that activity which requires a mining right in terms of section 22 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity as contained in this Listing Notice, in Listing Notice 1 of 2014 or Listing Notice 3 of 2014, required to exercise the mining right	Section 21 (c) and (i)

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Listed and Specified Activities

Name of Activity	Aerial Extent of the Activity (ha) Ha or m²	Applicable Listing Notice GNR 983, 984 and 985 as amended by GNR 327, GNR 325 or GNR 324	Listed Activity	Water Use License Authorisation
Development of gravel access tracks	Gravel access tracks approximately 1 km across all stations, with a width of 4 m wide	GNR 985 – Activity 4	The development of a road wider than 4 metres with a reserve less than 13,5 metres. **(b) Free State** (i) Outside urban areas: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;	Section 21 (c) and (i)

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Listed and Specified Activities

Name of Activity	Aerial Extent of the Activity (ha) Ha or m²	Applicable Listing Notice GNR 983, 984 and 985 as amended by GNR 327, GNR 325 or GNR 324	Listed Activity	Water Use License Authorisation
Installation of the seismographic monitoring stations.	40 m²	GNR 985 - Activity 14	The development of (ii) infrastructure or structures with a physical footprint of 10 square metres or more; where such development occurs (a) within a watercourse; (b) in front of a development setback; or (c) if no development setback has been adopted, within 32 meters of a watercourse, measured from the edge of a watercourse; **(b) Free State** (i) Outside urban areas: (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;	Section 21 (c) and (i)

Public Participation

- The EA Application was submitted to the DMPR on Tuesday, 21 April 2026. The acceptance letter for the EA application was received on 18 May 2026.
- The Draft Scoping Report (DSR) was released for public review on 21 May 2026 . The review period will remain open for 30 days, from Thursday, 21 May 2026 to Monday, 22 June 2026. A Copy of the DSR is available at the following locations:
  - Allanridge Public Library (53 Caledon St, Allanridge)
  - Kongiwe website: http://www.Kongiwe.com/publications-view/public-documents/
- Online Meeting: Wednesday, 27 May 2026, from 10:00 to 11:00 via Microsoft Teams.
- An Open Day will be held on Saturday, 30 May 2026,at S.A. Mokhothu Primary School from 11H00 – 13H00
- Indirectly affected landowner and stakeholder meetings are ongoing.
- After public review, the Final Scoping Report will be finalised and submitted.
- Comments will be recorded in a Comments and Response Report and submitted to the relevant Competent Authorities.

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Comment & Discussion

- Discussion
- Action Points
- Closing

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Contact

- **Name: Vanessa Viljoen / Jean-Mari Williams**
- **Tel: 010 140 1725/26**
- **Email: stakeholders@kongiwe.com**

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Kongiwe Stakeholder Engagement

From: Kongiwe Stakeholder Engagement
Sent: Friday, 26 June 2026 11:09
To: Jean-Mari Williams
Cc: Umeshree Naicker; Ripfumelo Macevele
Subject: Jelani Resources (Pty) Ltd: JV Area Underground Mining Project: Minutes of Online Meeting held on Wednesday, 27 May 2026 with Broder Stakeholders
Attachments: Online_Day_Minutes_Final.pdf; JELA_001_Online_Meeting_Presentation.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Tracking:

Recipient	Read
Jean-Mari Williams	Read: 2026/06/26 11:15
Umeshree Naicker	Read: 2026/06/29 12:41
Ripfumelo Macevele	Read: 2026/06/26 13:27
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Dear Stakeholders,

I hope this message finds you well.

Please find attached the minutes and associated appendices from the online meeting held with Broader Stakeholders on **Wednesday, 27 May 2026**.

Should you have any queries, please do not hesitate to contact us.

Kind Regards,

Stakeholder Engagement Team | Kongiwe Environmental (Pty) Ltd.
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MINUTES OF THE MEETING			
Date	Saturday, 30 May 2026	**Time**	11:00 – 13:30
Venue	S.A. Mokhothu Primary School		
Subject	**Open Day Meeting Minutes**		

List of Attendees		
Organisation	**Name of Attendee**	**Designation**
Jelani Resources (Pty) Ltd	Mr Neels Hoek	Project Manager
Kongiwe Environmental (Pty) Ltd	Ms Umeshree Naicker	Principal Environmental Consultant
	Mr Ripfumelo Macevele	Environmental Consultant
	Mr Lubabalo Zongolo	Junior Environmental Consultant
	Ms Jean-Mari Williams	Project Coordinator

Apologies		
Organisation	**Name of Attendee**	**Designation**
Harmony Gold Mining Company Limited	Mr Tshepo Moloto	Specialist: Mining and Prospecting Rights

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.

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No	Item
1	**Welcome and Introductions**
1.1	Mr Ripfumelo Macevele (Mr Macevele) welcomed all attendees.
2	**Meeting Purpose**
2.1	Discuss the proposed Underground Mining Project.
2.2	Provide an overview of the Scoping and Environmental Impact Assessment (S&EIA) process in support of the Environmental Authorisation Application.
2.3	Content of the Social and Labour Plan (SLP)
2.4	Provide Stakeholders, as well as Interested and Affected Parties (I&AP), with an opportunity to raise comments, seek clarity, and provide input
2.5	Record comments raised and include in the Comments and Responses Report.
3	**Meeting Agenda**
3.1	**Scoping and Environmental Impact Assessment (S&EIA) process**
3.1.1	Purpose of the Meeting.
3.1.2	Kongiwe's Role as an independent EAP.
3.1.3	Project Background.
3.1.4	Project Description.
3.1.5	Infrastructure Requirements.
3.1.6	Baseline Environment
3.1.7	Specialist Studies.
3.1.8	Legislative Framework.
3.1.9	Listed and Specified Activity.
3.1.10	Public Participation Process.
3.1.11	The Way Forward.
3.2	**Social and Labour Plan (SLP)**
3.2.1	Content of the Social and Labour Plan (SLP).
3.2.2	Public Participation Process.
3.2.3	The Way Forward.

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No	Item		
4	Comments and Discussion		
Stakeholder/I&AP		**Comment**	**Response**
4.1	Community Member (Ms Khanyisile)	Ms Khanyisile enquired whether the community will experience additional Tailings Storage Facilities (TSFs), noting that dust emissions are currently affecting the community. She further indicated that crops (agricultural activities) near Shaft 2 are also impacted and raised concerns regarding water usage and water quality.	Mr Macevele explained that the Proposed Project's development plan includes the utilisation of available spare capacity within Harmony's existing infrastructure at the Target Mine. This includes Target No. 2 and No. 3 shafts, the Target No. 1 Processing Plant, and associated surface infrastructure. All operational mining infrastructure, including Tailings Storage Facilities (TSFs) required for the Proposed Project, will be located within the existing Harmony Target Mine mining right area. No new operational mining infrastructure is planned within the project area (refer to Chapter 1.7 of the Final Scoping Report (DSR) for a detailed project description). He further noted that a new Tailings Storage Facility (TSF) is proposed to be constructed to the west of the existing Target metallurgical plant and north of the existing Target TSF. However, this TSF forms part of a separate project and application being undertaken by Harmony Gold and is not included in the current Proposed Project. The project is currently in the Scoping Phase of the Environmental Impact Assessment (EIA) process. At this stage, the Final Scoping Report (FSR) has identified high-level potential impacts and associated mitigation measures for the Proposed Project (refer to Table 9-3 of the DSR). Should the application proceed to the EIA phase, Chapter 9 of the DSR outlines the proposed Plan of Study for the EIA. The Plan of Study includes detailed specialist assessments covering key environmental aspects such as biodiversity, surface water, groundwater, air quality, soil, agriculture, climate etc. These studies will assess potential impacts,

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Stakeholder/I&AP		Comment	Response
			including those related to water quality and air quality, in greater detail and propose mitigation measures. The findings of the specialist assessments will be included in the EIA Report and presented to stakeholders and interested and affected parties (I&APs) during the public participation process for the EIA phase. In accordance with the National Environmental Management Act (NEMA) and the Environmental Impact Assessment (EIA) Regulations, the environmental assessment will include an evaluation of cumulative impacts.
4.2		Ms Khanyisile requested that the EIA documents be translated into other languages used in the area, such as Sesotho and Afrikaans, during the next Public Participation Process window.	The Public Participation Process will continue to accommodate the predominant languages spoken within the Project area. Accordingly, key project information and engagement activities will be made available in English and Sesotho, where appropriate, to promote meaningful participation and understanding by Interested and Affected Parties. The full Environmental Impact Assessment report will remain available in English, as the official language of submission to the Competent Authority.
4.3	Mr Molefi Abel Thebeeahae (Director of KB Salman Civil Engineering and General Projects)	Mr Molefi raised a concern regarding the Social and Labour Plan (SLP). He stated that the presentation did not adequately explain what the SLP entails and how it benefits the mine community. He further expressed concern that the presentation indicated the SLP would be treated as an expansion of the existing Harmony Target Mine SLP. He emphasised that the existing Harmony Target Mine SLP does not benefit the mine-affected community. He recommended that the Jelani Resources SLP be reviewed to ensure that it includes tangible benefits for the communities directly affected by the mining operations.	**Public Engagement Discussion** Kongiwe has been appointed by Jelani Resources (Pty) Ltd to undertake the required applications for Environmental Authorisation (EA) and the Integrated Water Use Licence (IWUL), as well as the development of the Social and Labour Plan (SLP) for the Jelani Project. A key component of our scope includes facilitating the Public Participation Process (PPP) associated with the Proposed Project. As part of the PPP, stakeholders and interested and affected parties must be consulted. As mentioned above, Kongiwe is assisting Jelani Resources with developing its own SLP, which is currently under public review.

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Stakeholder/I&AP		Comment	Response
			Ms Naicker explained that an SLP is a legally required document that mining companies in South Africa must submit as part of their application for a Mining Right (MR). It is developed in terms of the Mineral and Petroleum Resources Development Act (MPRDA) and outlines how the company will contribute to the social and economic development of affected communities and employees. The SLP sets out the company's commitments in areas such as skills development, local economic development, employment equity, and improved living conditions for workers. With specific reference to the Jelani Project SLP, the Matjhabeng Local Municipality and the ward councillor were engaged to identify community needs and the SLP initiatives. Through this process, the refurbishment of the Community Hall was identified. Should the SLP be approved, it must therefore be reviewed every five years. As part of the initial phase (Jelani Project SLP 1), the Nyakallong Community Hall will be refurbished to support and promote socio-economic development within the local community. Given that the Jelani Project is not yet operational, limited funding is expected during this phase. In the second phase (Jelani Project SLP 2: Years 5–10), increased funding is anticipated, which may enable the implementation of larger community development projects. **Post Meeting Note** Kindly note the clarification as follows:

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Stakeholder/I&AP		Comment	Response
			The stakeholder engagement being undertaken relates to both the EA and the SLP. The public meeting included an overview of the SLP and specified the proposed LED Project. Selection of LED programmes are subject to alignment with the Matjhabeng Local Municipality's Integrated Development Plan (IDP) (2024/2025) in conjunction with recommendations made by the Matjhabeng Local Municipality's Executive Director of LED. In light of the chronic lack of capacity by Matjhabeng Local Municipality to provide funds to support Jelani in LED projects, investment in the Nyakallong Community Hall for this initial SLP cycle – which requires minimal maintenance while providing long term functions for the community - is the preferred option for both the Matjhabeng Local Municipality and Jelani. Although the Jelani Project is a joint venture (JV) between Harmony Gold and White Rivers Exploration (Pty) Ltd (WRE), Jelani Resources, as the applicant and prospective holder of the Mining Right (should it be granted), will be responsible for the implementation of the SLP. Accordingly, comments relating to Harmony Gold's existing SLP for the Target Mine fall outside the scope of this SLP process and should be directed to Harmony Gold through the appropriate engagement channels.
4.4	Community Member	Community member commented that, in future, the Kongiwe project team should focus their presentations on the specific project they have been appointed to undertake, namely the development of the SLP for Jelani Resources. The inclusion of the existing Harmony Target Mine SLP was viewed as unnecessary, as it is perceived not to benefit the community and may lead to additional questions directed at the Kongiwe team.	**Post Meeting Note** Kindly note the clarification as follows: The stakeholder engagement being undertaken relates specifically to the **mining project proposed by Jelani**, and not **Harmony Gold Mining Company Limited**. Although the Jelani Project is a joint venture (JV) between Harmony Gold and White Rivers Exploration (Pty) Ltd (WRE), Jelani Resources, as the applicant and prospective holder of the Mining Right (should it be granted), will be responsible

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Stakeholder/I&AP		Comment	Response
			for the implementation of the SLP. Accordingly, comments relating to Harmony Gold's existing SLP for the Target Mine fall outside the scope of this SLP process and should be directed to Harmony Gold through the appropriate engagement channels.
4.5	Community Member	He further stated that the Jelani Project SLP should include provisions for bursaries for the community, rather than focusing solely on the refurbishment of the Nyakallong Community Hall. He emphasised that a more pressing community need is the development of a clinic, which would provide greater benefit, as the Community Hall is reportedly used more by the Municipality than by the community. He concluded by recommending that, when recruitment process begin, the mine community must be considered.	**Public Engagement Discussion** The LED project is only one of numerous social development initiatives. Jelani will implement various training programmes relating to AET, core business, learnerships and portable skills. **Post Meeting Note** In consultation with the MLM, Jelani will award a limited number of bursaries per year (no more than three) to HDPs from the local community, to study for a diploma or degree at an accredited tertiary institutions in South Africa. The bursaries will be focused on engineering (particularly mine engineering and metallurgy), geology or environmental management. Jelani's SLP 2: will make provision for further bursary opportunities.
4.7	Community Member	Community member stated that any company proposing to undertake mining activities within the Allanridge area should have a formal written agreement with the affected community. He expressed the view that the current consultation process appears to be a 'tick-box' exercise, indicating concern that signatures on attendance registers may be used to support authorisation applications.	**Post Meeting Notes** The purpose of the Public Participation Process is to provide Interested and Affected Parties with an opportunity to obtain information about the Proposed Project, raise concerns, and submit comments for consideration as part of the environmental assessment process. Attendance registers are used solely as a record of participation and do not constitute support for, or consent to, the Proposed Project or the environmental authorisation application. All comments received will be objectively considered and addressed in the Comments and Responses Report.

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Stakeholder/I&AP		Comment	Response
4.8		Regarding the EIA process, he questioned where the Draft Scoping Report hard copy is made available for public review, noting that some community members may find it difficult to access the Allanridge Library. He emphasised that, during the next consultation period, more hard copies should be placed in easily accessible public areas throughout Allanridge to improve access.	Mr Macevele responded by stating that Kongiwe is an independent environmental consulting firm conducting EIA process, including an independent Public Participation Process (PPP), in accordance with the EIA Regulations. He referred to his presentation on the role of Kongiwe and the phases of the S&EIA process, emphasising that once a decision on the application for Environmental Authorisation (EA) has been made by DMPR (the Competent Authority), any I&APs who feel aggrieved by the decision have the right to appeal. He noted that the outcome of the application, along with information regarding the appeal process, will be communicated to all I&APs). Regarding copies of the Draft Scoping Report, he indicated that for those with internet access, the report is available on Kongiwe's website under the public documents section. He also highlighted that the Kongiwe team is available to assist attendees with downloading the report. Additionally, the Kongiwe stakeholder consultation team remains available to assist with any PPP matters, and community members are encouraged to reach out for support where needed.
4.9		He recommended that Jelani Resources should present its economic development plan to the community and engage them before finalising the SLP. This would allow the community to provide input on key development initiatives to be included in the SLP, such as SMME participation, targets for the inclusion of women in mining, and the involvement of persons living with disabilities. He emphasised the need for a signed agreement outlining community benefits prior to submission of the SLP to the Department of Mineral and Petroleum Resources (DMPR).	**Public Engagement Discussion** With specific reference to the Jelani Project SLP. Ms Naicker explained that the Matjhabeng Local Municipality and the ward councillor were engaged to identify community needs and the SLP initiatives. Through this process, the refurbishment of the Nyakallong Community Hall was identified. She further indicated that the current consultation process is intended to present the contents of the SLP. All submissions are being recorded and will be included in the Comments and Responses Report to be submitted to the DMPR for

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Stakeholder/I&AP		Comment	Response
			evaluation and decision-making. She noted that the SLP timeframes differ from those of the EIA process. She also indicated that, upon receiving the outcome of the SLP, Jelani Resources will be required to communicate the contents of the approved SLP as follows: • to the public within 30 days; • to the local community within 180 days (through a public communication process); and • to employees immediately upon their appointment. **<u>Post Meeting Notes</u>** Local contractor teams/ SMMEs will be considered favourably during the procurement process for the LED programme, on the condition that they have the pre-requisite certifications for their trade.Selection of LED programmes are subject to alignment with the Matjhabeng Local Municipality's Integrated Development Plan (IDP) (2024/2025) in conjunction with recommendations made by the Matjhabeng Local Municipality's Executive Director of LED.
4.10		Future consultation meetings should be conducted through presentations delivered by a speaker using a projector, rather than posters.	Mr Macevele acknowledged the comments regarding the format of future consultation meetings. He noted the request that meetings be conducted through presentations delivered by a speaker using a projector rather than posters.
4.11	Community Member	Community member asked about all the potential mineral resources in the Proposed Project area, that Jelani plans to extract, as well as the current activities at Harmony Target 3.	Jelani intends to initiate underground mining operations. The Proposed Project involves obtaining licenses for the underground mining of the following potential mineral resources: • Gold ore (primary target),

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Stakeholder/I&AP		Comment	Response
			• Silver ore, • Uranium ore, • Sulphur, • Platinum Group Metals, • Rare earths, • Diamonds (alluvial), • Copper ore, • Cobalt ore, • Manganese ore, • Molybdenum ore, • Nickel ore, • Lead ore, • Tungsten ore, • Zinc ore, and • Iron ore. At present, the Harmony Target 3 Shaft is used for dewatering, while the Target 2 Shaft serves as an emergency exit for Target 1.
4.12	Community Member	Community member raised concerns regarding how information was circulated, suggesting that it should be communicated to all interested and affected parties, taking into account the geographical layout of Nyakallong and Allanridge. He recommended that public consultation documents be placed in accessible public areas such as schools, municipal offices and other community facilities to improve access. Concern was noted that currently the documents are only available at the Allanridge Library.	The recommendation to make project documentation available at additional public facilities within Nyakallong and Allanridge, where feasible, will be considered for the EIA phase of the Public Participation Process to improve accessibility. Furthermore, future public engagements will continue to accommodate the predominant languages spoken within the Project area, with presentations and key project information being provided in English and Sesotho, where appropriate, to facilitate meaningful participation and understanding.

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Stakeholder/I&AP		Comment	Response
		He further suggested that future presentations be conducted in Sesotho to ensure broader understanding.	
5	**Comment Register** - Key Issues Recorded: Please refer to Appendix B for the submissions recorded in the comment register collected during the Open Day.		
5.1	Unemployment		A Social Impact Assessment will be conducted in the EIA phase and will consider the Proposed Project's impact on unemployment. The findings of the assessment will be included in the Draft EIA Report and presented to the I&APs. At present, as part of the Social and Labour Plan, the Nyakallong Community Hall will be refurbished. This forms part of the Local Economic Development (LED) project approved by the Matjhabeng Local Municipality. This initiative is expected to contribute to short-term employment. There will be no employees on the Jelani payroll in the first four years of the SLP cycle. In Year 5, there will be 39 employees on the Jelani pay roll. The breakdown of these employees, based on job grading bands, there will be no personnel on contractor's payrolls or service provider payrolls. Where possible, Harmony workers will be sourced from Target. If Target cannot provide all Harmony workers, the balance will be obtained from other Harmony mines in the Free State Goldfields area.

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<table>
<tr><th>Stakeholder/I&AP</th><th>Comment</th><th>Response</th></tr>
<tr><td></td><td></td><td>
Table 1: Number of Jelani Employees, by Job Grading
<table>
<tr><th>Job Grade</th><th>Year 1</th><th>Year 2</th><th>Year 3</th><th>Year 4</th><th>Year 5</th><th>Total</th></tr>
<tr><td>Executive Management.</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Senior Management.</td><td>0</td><td>0</td><td>0</td><td>0</td><td>7</td><td>7</td></tr>
<tr><td>Professionally qualified and experienced specialists and mid-management.</td><td>0</td><td>0</td><td>0</td><td>0</td><td>31</td><td>31</td></tr>
<tr><td>Skilled technical and academically qualified workers, junior management, supervisors, foreman and superintendents.</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Semi-skilled and discretionary decision making.</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Non-permanent employees.</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Total</td><td>0</td><td>0</td><td>0</td><td>0</td><td>39</td><td>39</td></tr>
</table>
Table 2: Number of Employees on the Harmony Payroll, by Job Grading
<table>
<tr><th>Job Grade</th><th>Year 1</th><th>Year 2</th><th>Year 3</th><th>Year 4</th><th>Year 5</th><th>Total</th></tr>
<tr><td>Executive Management.</td><td>0</td><td>0</td><td>0</td><td>0</td><td>3</td><td>3</td></tr>
<tr><td>Senior Management.</td><td>0</td><td>0</td><td>0</td><td>0</td><td>23</td><td>23</td></tr>
<tr><td>Professionally qualified and experienced specialists and mid-management.</td><td>0</td><td>0</td><td>0</td><td>0</td><td>99</td><td>99</td></tr>
<tr><td>Skilled technical and academically qualified workers, junior management, supervisors, foreman and superintendents.</td><td>0</td><td>0</td><td>0</td><td>0</td><td>159</td><td>159</td></tr>
<tr><td>Semi-skilled and discretionary decision making.</td><td>0</td><td>0</td><td>0</td><td>0</td><td>222</td><td>222</td></tr>
<tr><td>Non-permanent employees.</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Total</td><td>0</td><td>0</td><td>0</td><td>0</td><td>506</td><td>506</td></tr>
</table>
</td></tr>
<tr><td>5.2</td><td>Bursaries for the community</td><td>As part of the initial phase (Jelani Project SLP 1), the Nyakallong Community Hall will be refurbished to support and promote socio-economic development within</td></tr>
</table>

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Stakeholder/I&AP		Comment	Response
			the local community. Given that the Jelani Project is not yet operational, limited funding is expected during this phase. In the second phase (Jelani Project SLP 2: Years 5–10), increased funding is anticipated, which may enable the implementation of larger community development projects. The submissions regarding bursaries for the community and the consideration of a local surveying company have been noted.
5.3	Regular engagement and inclusivity during the process		Engagement with Interested and Affected Parties (I&APs) will continue throughout the environmental assessment process, providing opportunities for stakeholders to review project information, submit comments, and participate meaningfully in the decision-making process. All comments received will be recorded, considered, and addressed in the Comments and Responses Report.
5.4	Consideration of a local surveying company		The appointment of service providers will be based on the required scope of work, demonstrated capability, compliance, and commercial considerations.
5.5	Commitment from Jelani Resources to supply tankered water should a decline in groundwater levels be recorded. Protection of water resources (borehole water) and monitoring programme		At this stage, Jelani Resources cannot commit to the request. A Groundwater Impact Assessment will be undertaken as part of the EIA phase to assess the potential impacts of the Proposed Project on groundwater resources. Where required, appropriate mitigation measures, monitoring requirements, and contingency actions will be incorporated into the Environmental Management Programme (EMPr). Should monitoring indicate that the Proposed Project has resulted in a demonstrable impact on groundwater resources affecting existing lawful users, appropriate mitigation and remedial measures will be implemented in consultation with the relevant authorities and affected parties. The nature of

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Stakeholder/I&AP	Comment	Response	
		such measures, including the provision of an alternative water supply where warranted, will be determined based on the findings of the investigation and the confirmed cause of the impact	
6	**Closing**		
6.1	The project team thanked everyone for their time and the meeting adjourned at around 13:30PM.	ALL	-

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Jelani Resources (Pty) Ltd: Environmental Authorisation and Integrated Water Use License Application for Jelani Joint Venture (JV) Area Underground Mining Project, Free State Province
Draft Scoping Report

Project Background

Kongiwe Environmental (Pty) Ltd ("Kongiwe") has been appointed by Jelani Resources (Pty) Ltd ("Jelani") as the independent Environmental Service Provider to conduct the Scoping and Environmental Impact Assessment (S&EIA) process. This process aims to critically evaluate the potential environmental and social impacts of the **proposed Jelani Joint Venture (JV) Area Underground Mining Project** ("Proposed Project"), as part of its Environmental Authorisation (EA) application. The S&EIA process, together with the required specialist studies, will support the application for the necessary authorisation. The following application has been submitted to the Department of Mineral and Petroleum Resources (DMPR)(Competent Authority):

- EA application 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).
- 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.

Jelani Resources (Pty) Ltd ("Jelani") is a joint venture (JV) company established by White Rivers Exploration and Harmony Gold. The JV was formed to conduct underground mining operations within the joint venture (JV) area, which is made up of areas within the existing Harmony Target mining right (Harmony contribution) and Prospecting Rights (PR) areas to the west of Harmony Gold's existing Target Mine (WRE contribution).

Project Description

Jelani intends to initiate underground mining operations to extract the following potential mineral resources:

- Gold ore (primary target),
- Silver ore,
- Uranium ore,
- Sulphur,
- Platinum Group Metals,
- Rare earths,
- Diamonds (alluvial),
- Copper ore,
- Cobalt ore,
- Manganese ore,
- Molybdenum ore,
- Nickel ore,
- Lead ore,
- Tungsten ore,
- Zinc ore, and
- Iron ore.

Jelani's underground mining operations initially will target shallower mineral resource deposits at the project site (approximately 1 200 mbs). As mine development progresses, new mining areas will be developed which will allow for the production rate to be steadily increased to the targeted full production rate of 60 000 tonnes of mined ore per month.

Two mining methods have been identified as the most practical for exploiting the mineral resources: conventional breast mining and shrinkage stoping. The selection of each method is primarily based on the dip of the mineralised reef, with the shrinkage stoping being used for the steeper slopes (3% of the total stope tonnage). Where the orebody dips below 55° , conventional breast mining will be used.

Ore will be transported to the shaft ore pass system using conveyor system loaded by a fleet of 30-tonne dump trucks which are loaded by 10-tonne loaders (LHD). Subsequently, the broken rock will be loaded into hoisting bins and will be hoisted to surface, where the rock will either be sent to the processing plant or to the waste rock dump.

Existing underground access (shafts and level access) will be refurbished and re-equipped. Target No 2 and Target No 3 shafts will, over the course of the mines life, be used for the movement of men, material and rock depending on which phase the mine is in.

Infrastructure Requirements

All operational mining infrastructure required for the Proposed Project will be located within Harmony's existing Target Mine mining right area. No new operational mining infrastructure planned within the JV project area.

Underground access infrastructure will comprise either refurbished facilities at Target Shafts No. 3, 4, and 5 or newly constructed infrastructure at the Target No. 2 Shaft site, all within the existing mining right.

The infrastructure requirements are intended to support the managerial, supervisory, and operational functions associated with the respective underground mining operations.

To monitor potential mining-induced seismicity and boundary interactions with the adjacent Harmony Gold operations, four seismographic monitoring stations will be installed, spread equally along the shared boundary, with short gravel access tracks provided for each station. These installations represent the only surface infrastructures on the JV project area.

Additionally, a new Tailings Storage Facility (TSF) will be constructed to the west of the existing Target metallurgical plant and north of the existing Target TSF. The total area required for this new facility is approximately 69 Hectares (Ha). This TSF is a separate project being undertaken by Harmony Gold.

Area Extent

The total extent of the application area is 956.76 hectares (ha).

Depth of Mineral Below Surface

The orebodies extend between 1 500m and 2 600m below surface.

Proposed Beneficiation Process

All ore produced from the underground mining operations will be transported to the existing Target 1 metallurgical plant for processing.

Underground Access Infrastructure Photos

Figure 1: Harmony Target No 3 Shaft

Figure 2: Harmony Target No 2 Shaft

Project Schedule

Prior to the initiation of mine implementation and construction activities, various stages of design work will be required to be undertaken. It is expected that these activities will take approximately four years before implementation can be initiated. Active mining can commence during year 7.

Table 1: Project Timelines

Period	Description
Year 1 - 3	Site data gathering and feasibility studies
Year 4	Detailed engineering design
Year 5 - 8	Implementation and construction activities
Year 7	Hiring of employees
Year 7	Initiation of mining activities underground

The production build-up is planned to occur in two phases:

- In Phase 1, which is planned to last for four years starting in Year 5, with construction and refurbishment with mining starting in Year 7. The first two years are required for level access and refurbishment, after which Target No 3 shaft will be used for hoisting of men, material and rock.
- Phase 2 commences in Year 9, whereby access to the underground workings is via Target No 2 shaft, with Target No 3 shaft being reserved as a second outlet.

As mine development progresses over the first four years, new mining areas will be developed which will allow for the production rate to be steadily increased to the targeted full production rate of 60 000 tonnes of ore per month, which is achieved in Year 10.

10 340 Mt of ore is expected to be mined over the Life of Mine (LOM), which is 14 years

Jelani Resources (Pty) Ltd: Environmental Authorisation and Integrated Water Use License Application for Jelani Joint Venture (JV) Area Underground Mining Project, Free State Province
Draft Scoping Report

Project Location

The Proposed Project area is situated immediately adjacent to and west of the Harmony Gold Target Mine, approximately 11km northwest of Odendaalsrus, 1,5km west of Allanridge town, and 22km east of Wesselsbron, in the Free State Province of South Africa. It lies within Ward 36 of the Matjhabeng Local Municipality, under the jurisdiction of the Lejweleputswa District Municipality. Refer to Figure 3 for the Proposed Project local orientation.

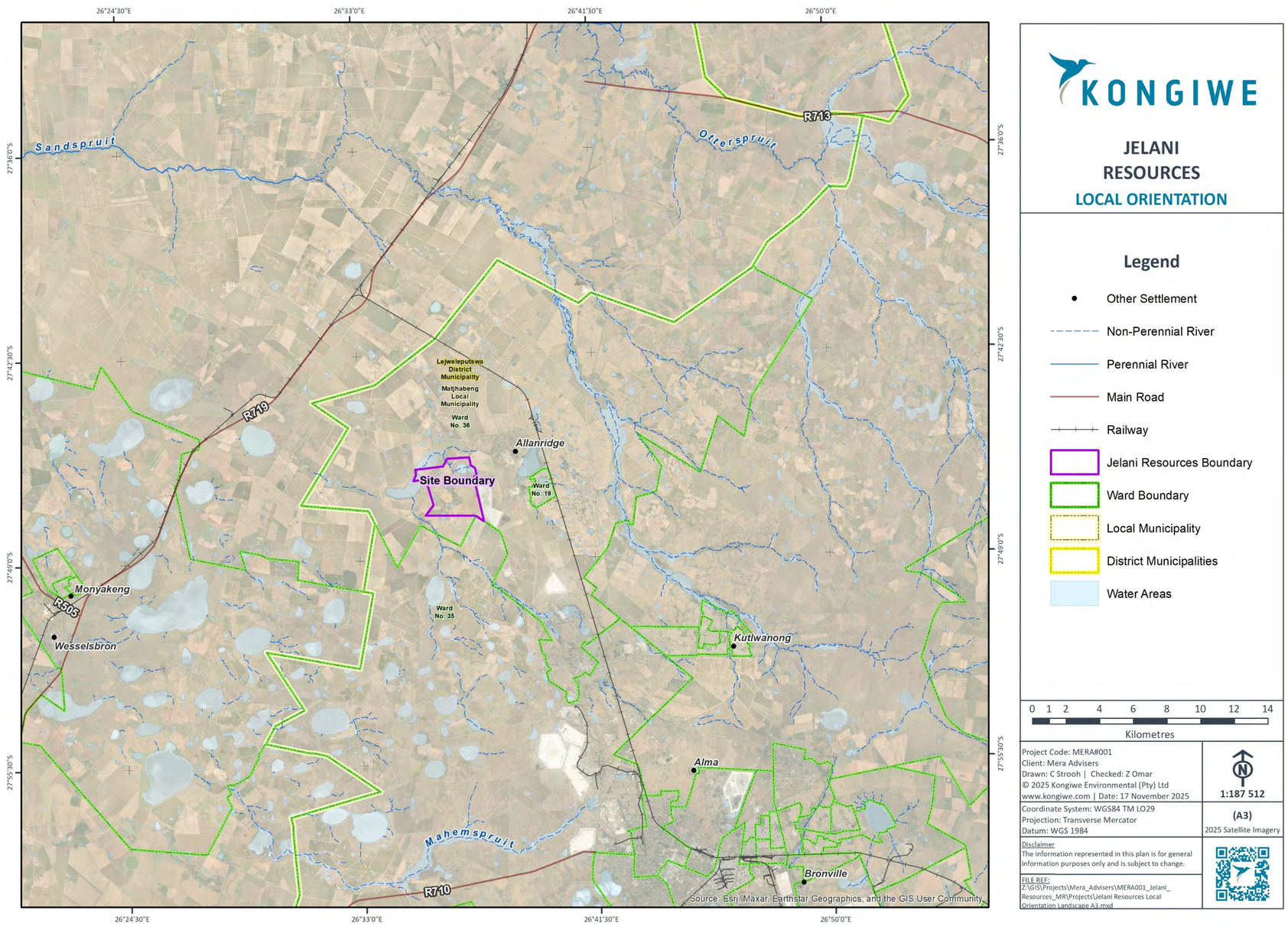
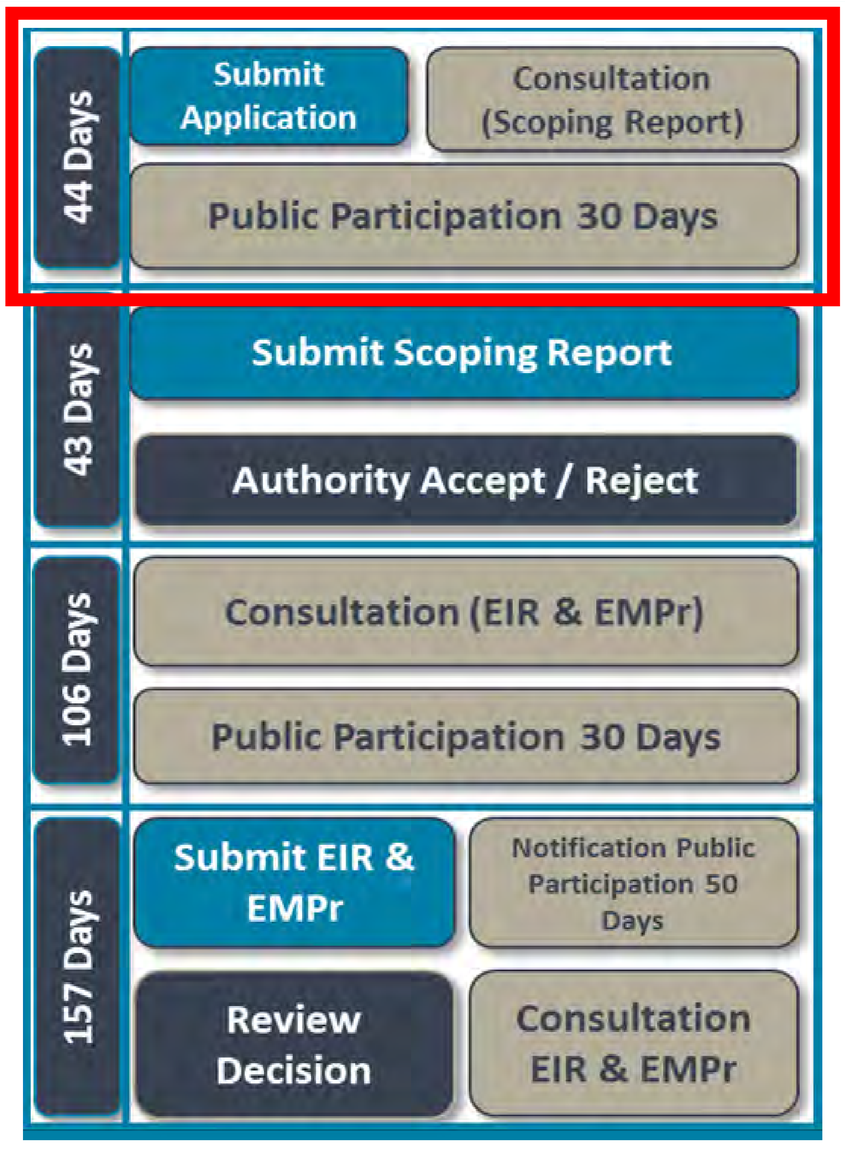


Figure 3: Local Orientation of the proposed JV Area Underground Mining Project

Key Findings of the Scoping Report

Environmental Component	Component Type	Potential Impact (positive or negative)	Specialist Study Planned for EIA
Physical Environment (non-living)	Surface water	• Potential hydrocarbon spills during the construction of the seismographic monitoring stations and the development of the gravel access tracks.	• Biodiversity, Freshwater, including a Risk Assessment Matrix (RAM). • Hydrological Assessment
	Groundwater	• Dewatering of deep aquifer causing groundwater level decline. • Lowering of the water table in the shallow aquifer. • Groundwater flow alteration. • Potential seepage of mine water to the groundwater system may contaminate groundwater resources.	• Hydrogeological Assessment
	Soil and geology	• Potential soil contamination from hydrocarbon spills. • Subsidence risk above mined-out areas. • Seismicity risk from deep-level blasting.	• Biodiversity, Freshwater, including a Risk Assessment Matrix (RAM,) Soils and Agricultural Potential. • Hydrogeological Assessment. • Blasting and Vibrations.
	Air quality	• Dust emissions during the installation of the seismographic monitoring stations and the development of the gravel access tracks. • Dust emissions from ore handling. • Diesel exhaust emissions.	• Air Quality Impact Assessment • Climate Change Impact Assessment
Biological Environment	Fauna and Flora	• Vegetation clearance required for the installation of the seismographic monitoring stations and the development of the gravel access tracks may result in the loss of habitat for local flora and fauna, potentially disrupting ecological communities and reducing biodiversity in the affected area.	• Biodiversity, Freshwater, including a Risk Assessment Matrix (RAM,) Soils and Agricultural Potential.
Social and Economic Environment	Socio-Economic	• Potential employment opportunities and job security. • Potential investment in local economy. • Influx of people seeking employment. • Potential community conflict and increases in certain social challenges (e.g., in-migration and potential increases in crime). • Impact on economic and social infrastructure in the local area. • Impact on local resource use (energy, water).	• Social Impact Assessment.
	Vibration	• Vibration from shaft hoisting operations and ore handling. • Vibration from underground blasting and drilling. • Vibration impacts from blasting potentially affecting nearby structures.	• Blasting and Vibrations.

Jelani Resources (Pty) Ltd: Environmental Authorisation and Integrated Water Use License Application for Jelani Joint Venture (JV) Area Underground Mining Project, Free State Province
Draft Scoping Report



National Environmental Management Act and National Water Act

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):

- GNR 984 - Activity 17
- GNR 985 – Activity 4
- GNR 985 - Activity 14

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 C and I.

Public Participation Process

AVAILABILITY OF THE SCOPING REPORT FOR PUBLIC REVIEW AND COMMENT: The Draft Scoping Report (DSR) was released for public review on Wednesday, 13 May 2026. The review period will remain open for 30 days, from Thursday, 21 May 2026 to Monday, 22 June 2026.

National Environmental Management Act and National Water Act

The Proposed Project requires Environmental Authorisation (EA) in terms of the NEMA 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 DMPR, within 300 days of the submission of the EA application.

Furthermore, 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 (DSR) 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 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 impacts.

Public Participation Process

- NEMA EA Application was submitted to the DMPR on Tuesday, 21 April 2026. The acceptance letter for the EA application was received on 18 May 2026.
- Project Announcement: Thursday, 14 May 2026

- The DSR will be made available as follows:
  - A hard copy at the Allanridge Public Library
  - An electronic copy on Kongiwe's website: https://kongiwe.com/projects/

- **Stakeholder Meeting**

Proposed Dates	Time	Method of Engagement
Online Meeting		
Wednesday, 27 May 2026	10H00 – 11H00	Microsoft Teams
In-Person Meetings: Open Day		
Saturday, 30 May 2026	11H00 – 13H00	S.A. Mokhothu Primary School

- Submission of the Final Scoping Report by 1 July 2026
  - 43 days review period (approve/reject)

Way Forward

- During the EIA phase of the Proposed Project, a Draft Environmental Impact Assessment and Draft Environmental Management Programmes (DEIAs/EMPrs) with required Specialist Assessment reports, in support of the EA application, will be made available for a public review for 30 days. After the review period a Final Reports will be compiled and the following would take place:
  - Submit the Reports to DMPR.
  - 107 days review period (approve/reject)
  - Notify stakeholder of the decision from the Competent Authority (DMPR)

- 60 day Public Participation period for Water Use Licence

Jelani Resources (Pty) Ltd: Social Labour Plan for Jelani Joint Venture (JV) Area Underground Mining Project, Free State Province

Project Background

Kongiwe Environmental (Kongiwe) has been appointed by Jelani Resources (Pty) Ltd (Jelani) to compile this Social and Labour Plan (SLP) for their proposed mining Project ('the Project'). The SLP, which sets out the social and labour programmes for Project's Life of Mine (LoM), has been prepared in accordance with requirements of Mineral and Petroleum Resources Development (MPRDA) Act (Act No. 28 of 2002). Jelani will be required to submit this SLP to the Department of Mineral and Petroleum Resources (DMPR) for approval as a prerequisite for a Mining Right (MR) to be granted.

Upon receiving approval for the SLP, Jelani will be required to communicate the contents of the SLP:

- To the public within 30 days (through various means, such as local newspapers, company website and hard copies placed at municipal offices);
- To the local community within 180 days (through a process of public communication); and
- To employees immediately upon their appointment.

The MPRDA requires that mining proponents promote broad-based economic empowerment, sustainable local development and environmental protection. Thus, the objectives of the SLP are to promote economic growth, employment, skills development (among employees and the community), socio-economic development and social welfare – particularly regarding empowerment of historically disadvantaged people (HDPs) in the vicinity.

The SLP demonstrates Jelani's commitment to advancing the social and economic welfare of its employees as well as the local community as by promoting employment, contributing to local socio-economic development, and playing a role in the transformation of the mining industry to ensure a fairer distribution of benefits.

Local communities refer to communities located in areas where a mine is operating – as well as areas from which most of the workforce is sourced.

In the meeting held with the DMPR on 25 November 2025, Kongiwe was advised that a stand-alone LED project should be identified by the Matjhabeng Local Municipality (MLM) 's LED Department.

Jelani Resources (Pty) Ltd

Kongiwe contacted MLM's Executive Director of LED (Dr. Sefako Ramphoma) in January 2026 regarding Jelani's proposed funding for a LED project. Following consultation with the Ward Councillor of Ward 19, Dr. Ramphoma advised Kongiwe (on 4 February 2026) that a priority LED project was the refurbishment of Nyakallong Community Hall. Nyakallong is a major sending area for the Target mine.

On 19 March 2026, the MLM issued a letter of approval (signed by Dr Vuyo Adonis, Acting Municipal Manager) for Jelani to allocate R1,000,000 to the refurbishment of Nyakallong Community Hall.

There will be no employees on the Jelani payroll in the first four years of the SLP cycle. In Year 5, there will be 39 employees on the Jelani pay roll. The breakdown of these employees, based on job grading bands, are shown in Table 1 For the entire SLP cycle, there will be no personnel on contractor's payrolls or service provider payrolls.

Where possible, Harmony workers will be sourced from Target. If Target cannot provide all Harmony workers, the balance will be obtained from other Harmony mines in the Free State Goldfields area. The number of employees on the Harmony payroll that are to be involved in the Project is presented in Table 2.

Table 1: Number of Jelani Employees, by Job Grading

Job Grade	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Executive Management.	0	0	0	0	1	1
Senior Management.	0	0	0	0	7	7
Professionally qualified and experienced specialists and mid-management.	0	0	0	0	31	31
Skilled technical and academically qualified workers, junior management, supervisors, foreman and superintendents.	0	0	0	0	0	0
Semi-skilled and discretionary decision making.	0	0	0	0	0	0
Non-permanent employees.	0	0	0	0	0	0
Total	0	0	0	0	39	39

Table 2: Number of Employees on the Harmony Payroll, by Job Grading

Job Grade	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Executive Management.	0	0	0	0	3	3
Senior Management.	0	0	0	0	23	23
Professionally qualified and experienced specialists and mid-management.	0	0	0	0	99	99
Skilled technical and academically qualified workers, junior management, supervisors, foreman and superintendents.	0	0	0	0	159	159
Semi-skilled and discretionary decision making.	0	0	0	0	222	222
Non-permanent employees.	0	0	0	0	0	0
Total	0	0	0	0	506	506

Jelani Resources (Pty) Ltd: Social Labour Plan for Jelani Joint Venture (JV) Area Underground Mining Project, Free State Province

Project Name	Refurbishment of the Nyakallong Community Hall.	Community Services
Background	This project is being implemented with the support of the MLM. Wherever possible, suitably qualified and skilled local contractors will be sourced. Contractor teams comprising women and youth will also be considered favourably. The entire Nyakallong community will benefit from the renovations to be undertaken.	

Geographical location	**District Municipality**	**Local Municipality**	**Villages**	**Project Start Date:**		**Project End date:**	
	Lejweleputswa District Municipality,	MLM	Nyakallong	3rd year of SLP cycle.		5th year of SLP cycle	

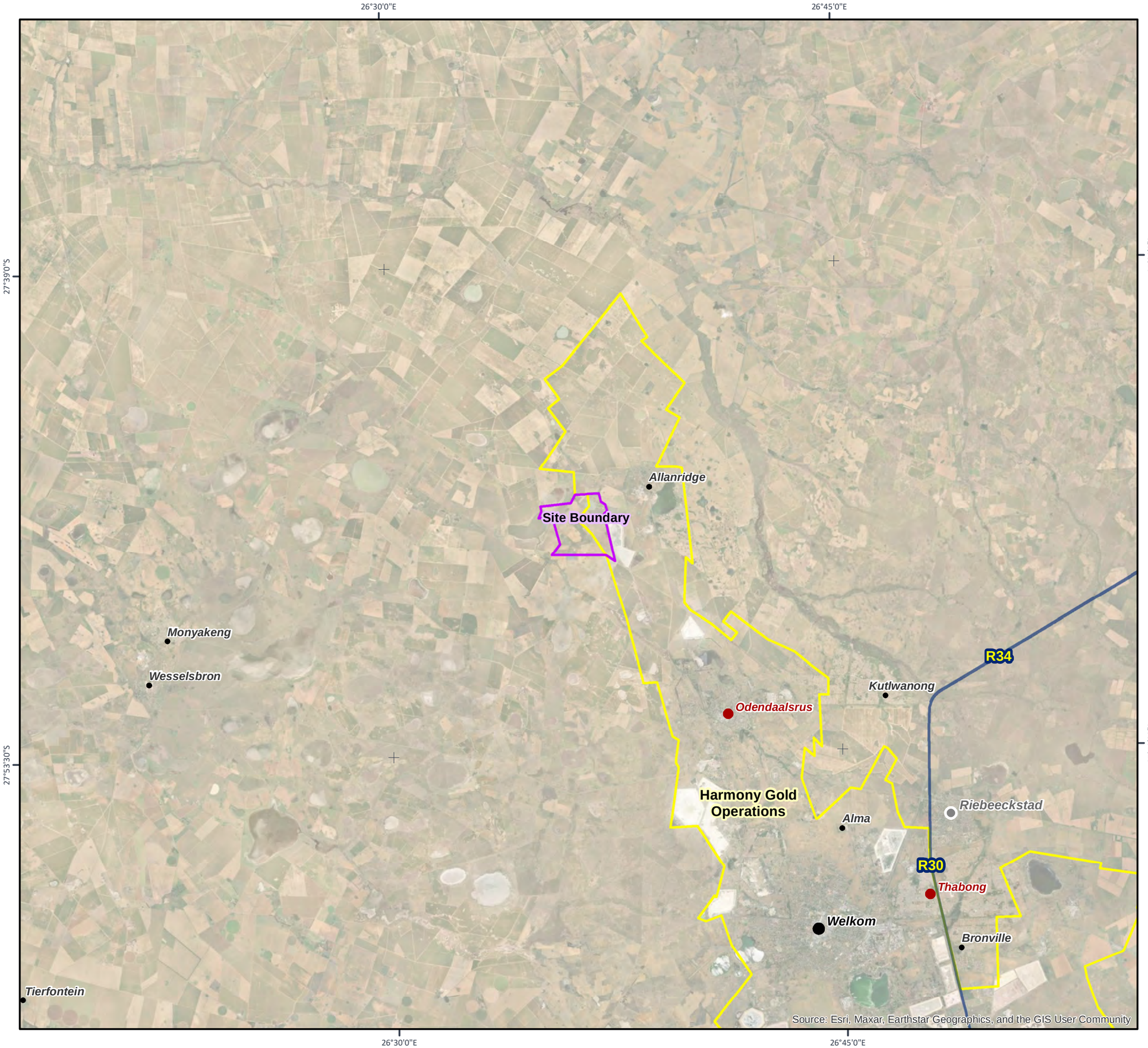
Output	**Key Performance Area**	**Responsible entity (inclusive all role players)**	**Quarterly timelines and year**	**Quarterly timelines and year**	**Quarterly timelines and year**	**Budget**
Community Amenities	Renovated community hall	Jelani and MLM Council.	3rd year of SLP cycle. R400 000	4th year of SLP cycle. R300 000	4th year of SLP cycle. R300 000	R1,000 000

Classification of jobs	**No of jobs to be created**	**Male Adults**	**Female Adults**	**Male Youth**	**Female Youth**	**Total**	**Comments**
Short term	Number of jobs - and composition of males, females and youth in contractor teams - will be dependent on composition of contractor teams. Local contractor teams comprising women and youth will be considered favourably, on the condition that they have the pre-requisite certifications for their trade. For example: • Building contractors must be registered with the National Home Builders Registration Council (NHBRC); • Plumbers must be certified by the Plumbing Industry Registration Board (PIRB) to sign off on compliance certificates; and • Electricians must hold an Installation Electrician (IE) or Master Installation Electrician (MIE) registration to sign off on compliance certificates. Trades not specified above, that are to be required for the refurbishment of the project, must be appropriately certified. Also note that major renovations and structural alterations require approved, registered professional plans (SACAP) and municipal approval to comply with National Building Regulations.						
Medium term	The entire Nyakallong community will benefit from the renovations to be undertaken.						
Long term	The entire Nyakallong community will benefit from the renovations to be undertaken.						
Number of dependents?	The entire Nyakallong community will benefit from the renovations to be undertaken.						

Completion date and exit strategy: Year 5 of the SLP cycle.

Sustainability: Funds to enable the maintenance of the facility may be considered as one of the LED initiatives in the next SLP cycle – pending agreement by the MLM at the commencement of the second SLP cycle.

NB: Beneficiaries include the entire community of Nyakallong.



KONGIWE

JELANI RESOURCES

CUMULATIVE IMPACTS

Legend

- Other Settlement
- SecondaryTown
- Major Town
- City
- National Road
- Harmony Operations
- Jelani Resources Boundary

0 2 4 8 12 16

Kilometres

Project Code: JELA#001
Client: Jelani Resources
Drawn: C Strooh | Checked: Z Omar
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www.kongiwe.com | Date: 17 December 2025

1:200 000

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

(A3)
2025 Satellite Imagery

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FILE REF:
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26°34'55"E

26°39'50"E

27°45'0"S

27°49'30"S

Site Boundary

Land Uses

- Barren Land
- Built-up
- Cultivated
- Forested Land
- Grassland
- Mines & Quarries
- Shrubland
- Waterbodies
- Wetlands

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

KONGIWE

JELANI RESOURCES

LAND USE

Legend

Jelani Resources Boundary

0 0.5 1 2 3

Kilometres

Project Code: JELA#001
Client: Jelani Resources
Drawn: C Strooh | Checked: Z Omar
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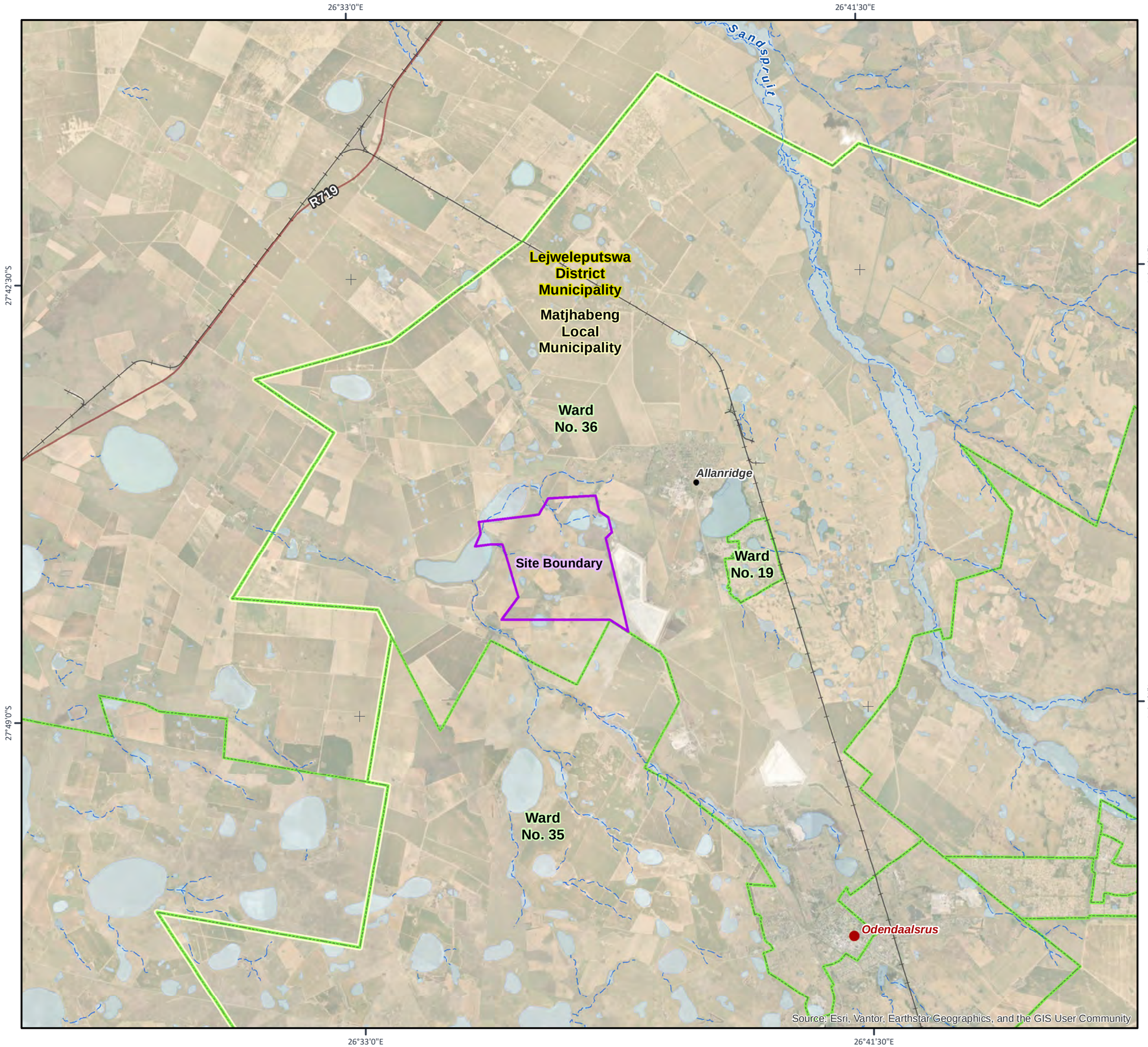

KONGIWE

JELANI RESOURCES

LOCAL ORIENTATION

Legend

- Other Settlement
- Major Town
- Non-Perennial River
- Perennial River
- Main Road
- Railway
- Jelani Resources Boundary
- Ward Boundary
- Local Municipality
- District Municipalities
- Water Areas

0 1 2 4 6

Kilometres

Project Code: MERA#001
Client: Mera Advisers
Drawn: C Strooh | Checked: Z Omar
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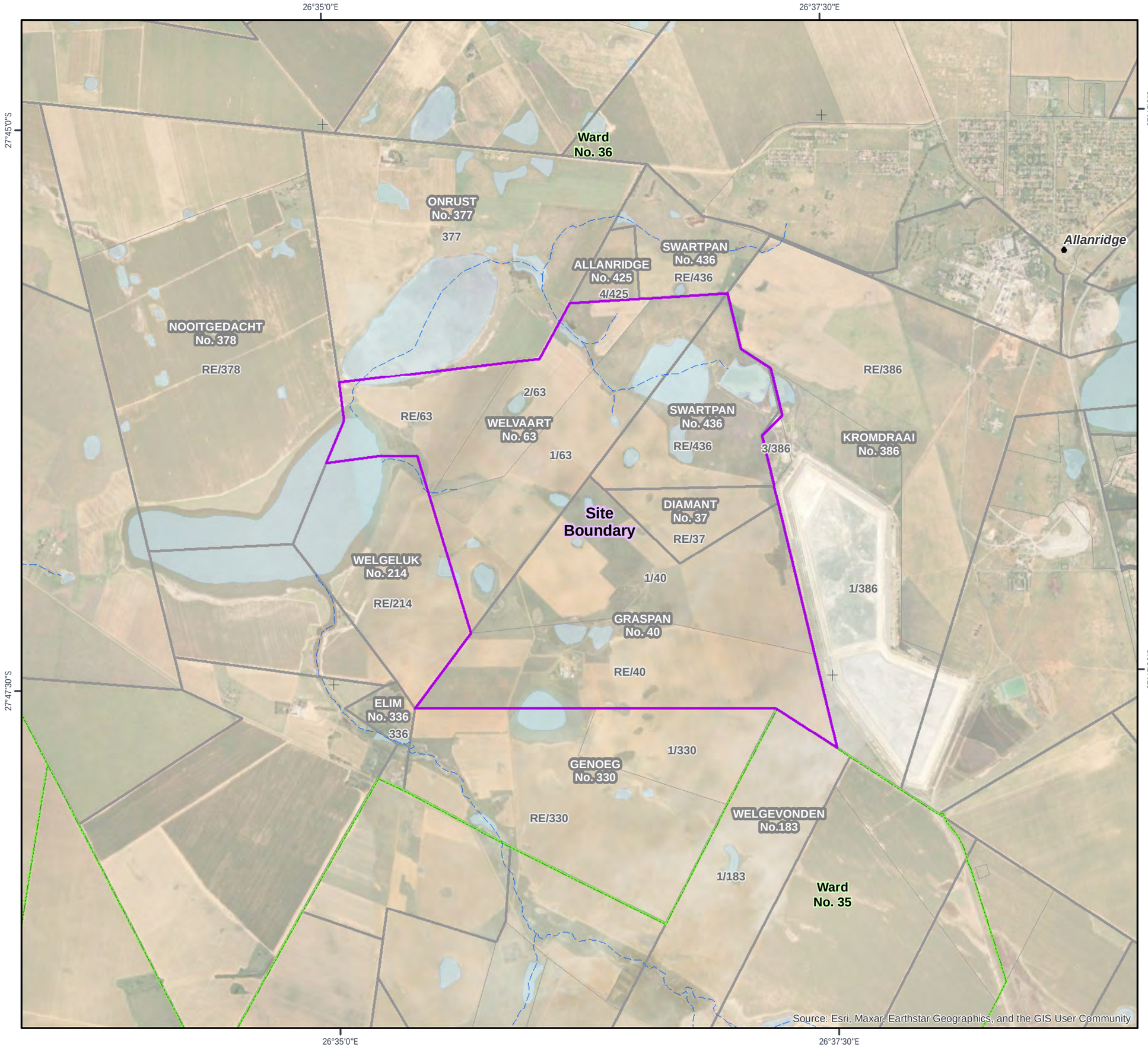

KONGIWE

JELANI RESOURCES

SITE ORIENTATION

Legend

- Other Settlement
- Non-Perennial River
- Perennial River
- Main Road
- Railway
- Farm Portions
- Parent Farm
- Jelani Resources Boundary
- Ward Boundary
- Water Areas

0 0.5 1 2

Kilometres

Project Code: MERA#001
Client: Mera Advisers
Drawn: C Strooh | Checked: Z Omar
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MINUTES OF MEETING			
Date	Thursday, 28 May 2026	**Time**	10:00 – 11:00 AM
Venue	Microsoft Teams		
Subject	**Online Meeting Minutes: Matjhabeng Local Municipality**		

List of Attendees		
Organisation	**Name of Attendee**	**Designation**
Matjhabeng Local Municipality	Mr Serake Leeuw	Special Advisor to the Office of the Executive Mayor
Matjhabeng Local Municipality	Mr Lunga Ncapai	Solid Waste Manager
Matjhabeng Local Municipality	Mr Johannes Theunissen	Manager: Waste Department
Kongiwe Environmental (Pty) Ltd	Ms Umeshree Naicker	Principal Environmental Consultant
Kongiwe Environmental (Pty) Ltd	Mr Ripfumelo Macevale	Environmental Consultant
Apologies		
Organisation	**Name of Attendee**	**Designation**
Jelani Resources (Pty) Ltd	Mr Neels Hoek	Project Manager

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.

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No	Item
1	**Welcome and Introductions**
1.1	Ms Naicker welcomed all online meeting attendees.
2	**Meeting Purpose**
2.1	Discuss the proposed Underground Mining Project.
2.2	Provide an overview of the Scoping and Environmental Impact Assessment (S&EIA) process in support of the Environmental Authorisation Application.
2.3	Content of the Social and Labour Plan
2.4	Provide you with an opportunity to raise comments/seek clarity and provide input.
2.5	Record comments raised and include in the Comments and Responses Report.
3	**Meeting Agenda**
3.1	Purpose of the Meeting.
3.2	Kongiwe's Role as an independent EAP.
3.3	Project Background.
3.4	Project Description.
3.5	Infrastructure Requirements.
3.6	Baseline Environment.
3.7	Specialist Studies.
3.8	Legislative Framework.
3.9	Listed and Specified Activity.
3.10	Social and Labour Plan.
3.11	Public Participation Process.
3.12	The Way Forward.
3.13	Comments and Discussion.
4	**Discussion**
4.1	Refer to the table below

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STAKEHOLDERS		COMMENT	RESPONSE
4.1.1	Mr Johannes Theunissen (Mr Theunissen)	Mr Theunissen raised queries regarding the specialist assessments for the Proposed Project, including whether dewatering and groundwater impact assessments had been undertaken and whether potential impacts on Nyakallong had been considered. He also enquired about assessments relating to acid mine drainage (AMD), waste management, alignment with municipal services, and potential impacts on water, wastewater, and waste infrastructure. In addition, he requested clarity on the status and availability of the Air Quality Assessment and whether further engagement would be held to discuss the findings. Lastly, he queried whether any assessment or modelling of potential ground subsidence associated with the proposed mining activities would be undertaken.	Ms Naicker responded by explaining that, during the Scoping phase, the project team identifies all potential impacts that may arise from the Proposed Project together with the relevant specialist studies required to assess such impacts in detail. The relevant specialist studies are conducted in the Environmental Impact Assessment (EIA) phase (see Chapter 9 of the Draft Scoping Report, for the plan of study for the Environmental Impacts Assessment). Ms Naicker advised the groundwater impact assessment, have already commenced, while additional studies such as the air quality assessment and surface water assessment, blasting and vibration, closure risk assessment which will address potential ground subsidence would also be undertaken. She noted that these studies would contribute toward assessing potential pollution risks and related environmental impacts. She further explained that detailed findings relating to groundwater impacts, waste management, pollution risks, air quality, and associated mitigation measures would be presented during the EIA phase. The Draft EIA Report would be circulated for a 30-day public review and comment period, during which stakeholders would have the opportunity to submit additional comments and engage further on the findings of the specialist studies.
4.1.2	Mr Theunissen	Mr Theunissen recommended that the specialist studies give particular consideration to waste management, noting that the Allanridge landfill site is relatively small and has limited capacity, and therefore recommended that this aspect be carefully considered during the relevant impact assessments.	Ms Naicker will inform the specialist accordingly.

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STAKEHOLDERS		COMMENT	RESPONSE
4.1.3	Mr Serake Leeuw (Mr Leeuw)	Mr Leeuw stated that a number of his key concern had already been addressed through the comments raised by Mr Theunissen, particularly relating to integrated waste management. He noted the following for the Social Labour Plan:	
		Clarification regarding the applicable Social Development Framework (SDF) and enquired what provisions or guidance the framework contains in relation to the proposed development.	**Post Meeting Note** Clarification was sought from the relevant specialist, note the response below: To address identified skills gaps among employees, Jelani will implement various training programmes relating to AET, core business, learnerships and portable skills. It is proposed that limited funding for these training programmes be allocated over the final three years of the SLP cycle. Within six months of the appointment of Project employees (in Year 5 of the SLP cycle), the HR Department is to recruit a skills development facilitator to prepare detailed training programmes and associated budgets.
		Local Economic Development (LED) initiatives associated with the proposed project should be aligned and integrated with existing local development planning processes.	**Post Meeting Note** Clarification was sought from the relevant specialist, note the response below: Kongiwe contacted Matjhabeng Local Municipality (MLM's) Executive Director of LED (Dr. Sefako Ramphoma) in January 2026 regarding Jelani's proposed funding for a LED project. Following consultation with the Ward Councillor of Ward 19, Dr. Ramphoma advised Kongiwe (on 4 February 2026) that a priority LED project was the refurbishment of Nyakallong Community Hall. Nyakallong is a major sending area for the Target mine.

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STAKEHOLDERS		COMMENT	RESPONSE
			On 11 February, Dr Ramphoma presented the LED proposal to the Matjhabeng Local Municipality Executive Committee. On 19 March 2026, the MLM issued a letter of approval (signed by Dr Vuyo Adonis, Acting Municipal Manager) for Jelani to allocate funds to the refurbishment of Nyakallong Community Hall. Funds would be distributed over three years, from Year 3 to Year 5 of the SLP cycle.
		Noted that mining projects typically allocate a percentage of investment toward social development initiatives. He enquired whether the project proponents are considering the establishment of a community trust for the duration of the proposed project, which was indicated to be approximately 14 years.	**Post Meeting Note** Clarification was sought from the relevant specialist, note the response below: No employees will be appointed for the Project for the first four years of this SLP cycle. As the Mine Work Programme for the initial SLP cycle (Years 1 to 5) will be dedicated to feasibility/ engineering studies and implementation/ construction activities, the mandatory SLP Future Forum will be established at the commencement of Year 5. The Future Forum will comprise representatives from Jelani management, employees and contractors – and will act as a committee that addresses labour issues, worker rights, and strategies for job preservation or retrenchment.
		Nyakallong Community Hall refurbishment mentioned during the presentation and enquired whether there are additional associated projects planned which stakeholders should be aware of.	As no revenue will be generated for the first SLP cycle (SLP-1), financial provisions for LED initiatives are limited for this cycle. Other LED initiatives will be considered only in the next SLP cycle (SLP-2).
		Raised concerns relating to the Voëlpan, noting that it is currently creating challenges within the area. He enquired whether the proposed project has considered any measures or assistance in this regard.	Voëlpan is located approximately 2.6 km east of the Proposed Project within Harmony Target's Mining Right area. Where relevant and appropriate, potential cumulative impacts associated with Voëlpan will be considered as part of the EIA phase.
4.1.4		Mr Ncapai stated that a number of his questions had already been addressed through the comments raised for the SLP by previous speakers but wanted to raise the following points:	

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STAKEHOLDERS		COMMENT	RESPONSE
	Mr Lunga Ncapai (Mr Ncapai)	Mr Ncapai highlighted concerns regarding the high unemployment rate within the Matjhabeng area. Emphasised the need for local SMME (Small, Medium and Micro Enterprise) participation and inclusion in the Proposed Project.	The LED Project Plan specifies that, wherever possible, suitably qualified and skilled local contractors will be sourced. Contractor teams comprising women and youth will also be considered favourably.
		Enquired about the proposed rehabilitation and closure plans following the anticipated 14-year life of mine. Requested information on the guarantees and measures that will be implemented to ensure successful rehabilitation and restoration of affected land.	A Closure and Rehabilitation Plan will be compiled during the EIA phase and included in the Draft EIA Report.
		Highlighted the importance of assessing potential community health impacts associated with the Proposed Project. Requested that potential health risks to surrounding communities be considered as part of the environmental assessment process.	The Air Quality Impact Assessment will be conducted in the EIA phase. The specialist study will assess anticipated air quality impacts and develop mitigation and management measures for the identified potential impacts. This will include the implementation of an air quality monitoring programme.
		Requested clarity on the percentage of employment opportunities that would be allocated to local community members.	Ms Naicker advised that she would need to consult with the relevant specialist before providing a response to the matter raised. **Post Meeting Note** Clarification was sought from the relevant specialist, note the response below: No employees will be appointed for the Project for the first four years of this SLP cycle. As the Mine Work Programme for this entire SLP cycle (Years 1 to 5) will be dedicated to feasibility/ engineering studies and implementation/ construction activities, it is likely that all 39 employees – to be appointed in Year 5 of the SLP cycle - will have professional qualifications. Suitably qualified candidates will be selected at the discretion of Jelani through a formal interview process.

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<table>
<tr><th colspan="2">STAKEHOLDERS</th><th>COMMENT</th><th>RESPONSE</th></tr>
<tr><td colspan="2"></td><td></td><td>In Year 5, 506 contactors will be sourced from the Harmony Target Operation (as shown in Table 1 below). If Target cannot provide all Harmony workers, the balance will be obtained from other Harmony mines in the Free State Goldfields area.

The Target SLP will apply to employees contracted from the Harmony Target Operation. Employees on the Harmony payroll are ineligible in terms of contributions from the Jelani SLP.

Table 1: Number of Employees on the Harmony Payroll, by Job Grading

<table>
<tr><th>Job Grade</th><th>Year 1</th><th>Year 2</th><th>Year 3</th><th>Year 4</th><th>Year 5</th><th>Total</th></tr>
<tr><td>Executive Management.</td><td>0</td><td>0</td><td>0</td><td>0</td><td>3</td><td>3</td></tr>
<tr><td>Senior Management.</td><td>0</td><td>0</td><td>0</td><td>0</td><td>23</td><td>23</td></tr>
<tr><td>Professionally qualified and experienced specialists and mid-management.</td><td>0</td><td>0</td><td>0</td><td>0</td><td>99</td><td>99</td></tr>
<tr><td>Skilled technical and academically qualified workers, junior management, supervisors, foreman and superintendents.</td><td>0</td><td>0</td><td>0</td><td>0</td><td>159</td><td>159</td></tr>
<tr><td>Semi-skilled and discretionary decision making.</td><td>0</td><td>0</td><td>0</td><td>0</td><td>222</td><td>222</td></tr>
<tr><td>Non-permanent employees.</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Total</td><td>0</td><td>0</td><td>0</td><td>0</td><td>506</td><td>506</td></tr>
</table></td></tr>
<tr><td colspan="2"></td><td>Suggested that social responsibility initiatives should consider additional community infrastructure and services, including schools, clinics, and support for the Allanridge landfill site, which has limited capacity.</td><td>The proposed initiatives will be considered for inclusion in future SLP activities, where feasible.

Selection of LED programmes are subject to alignment with the Matjhabeng Local Municipality’s Integrated Development Plan (IDP) (2024/2025) in conjunction with</td></tr>
</table>

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STAKEHOLDERS		COMMENT	RESPONSE
			recommendations made by the Matjhabeng Local Municipality's Executive Director of LED. As the Matjhabeng Local Municipality has been placed under provincial administration due to a total breakdown of service delivery, the municipality in no position to contribute funds to the establishment and maintenance of public services at this stage. In light of the chronic lack of capacity by Matjhabeng Local Municipality to provide funds to support Jelani in LED projects, investment in the Nyakallong Community Hall for this initial SLP cycle – which requires minimal maintenance while providing long term functions for the community - is the preferred option for both the Matjhabeng Local Municipality and Jelani.
4.1.5	Ms Naicker	Ms Naicker concluded the meeting by advising attendees that additional comments may still be submitted to the Kongiwe project team. Ms Naicker noted that comments requiring specialist input would be referred to the relevant specialists for review and response, and that adequate time would be needed to consider and address such submissions. She thanked attendees and indicated that the project team looks forward to receiving any additional feedback.	
5	**Closing**		
5.1	Ms Naicker thanked everyone for their time and the meeting was adjourned at 10:37AM.		ALL	-

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Jelani Resources (Pty) Ltd

Environmental Authorisation and Integrated Water Use License Application, as well as Social and Labour Plan for the Proposed Jelani Underground Mining Project

Stakeholder Engagement Meeting – Matjhabeng Local Municipality

DMPR Reference Number: FS30/5/1/2/3/2/1(10098)MR

DWS Reference Number: WU38176

28 May 2026

Introductions

- **Jelani Resources (Pty) Ltd (Applicant)**
  - Neels Hoek

- **Kongiwe Environmental (Pty) Ltd (EAP)**
  - Umeshree Naicker
  - Ripfumelo Macevele
  - Vanessa Viljoen

- **Matjhabeng Local Municipality**

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Agenda

1. Purpose of the Meeting
2. Kongiwe's Role as an independent EAP
3. Project Background
4. Project Description
5. Infrastructure Requirements
6. Baseline Environment
7. Specialist Studies
8. Legislative Framework
9. Listed and Specified Activity
10. Social and Labour Plan
11. Public Participation Process
12. The Way Forward
13. Comments and Discussion

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Purpose of the Meeting

- Discuss the proposed Underground Mining Project.
- Provide an overview of the Scoping and Environmental Impact Assessment (S&EIA) process in support of the Environmental Authorisation application.
- Content of the Social and Labour Plan.
- 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 of the following legislation:
  - 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 and Petroleum Resources (DMPR)will be the Competent Authority to assess the EA for the Proposed Project.
  - Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA) in fulfilment of the requirements of Regulations 42(3) and (4) relating to stakeholder engagement on the content of the Social and Labour Plan.
  - 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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Kongiwe's Role

As an independent Environmental Assessment Practitioner, it is our role to perform an objective assessment of what the positive and negative environmental impacts of the Proposed Project may be, to quantify these, describe possible mitigations, collect public comment and supply the Competent Authority with the documentation so that it can determine if the project should proceed or not.

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Project Background

- **Applicant**: Jelani Resources (Pty) Ltd
- **Activity**: Underground Mining
- **Life of Operation**: 14 years
- **Location**: The project area is situated immediately adjacent to and west of the Harmony Gold Target Mine, approximately 11km northwest of Odendaalsrus, 2,5km west of Allanridge, and 22km east of Wesselsbron. It lies within Ward 36 of the Matjhabeng Local Municipality, under the jurisdiction of the Lejweleputswa District Municipality.
- Jelani Resources (Pty) Ltd ("Jelani") is a joint venture (JV) company established by White Rivers Exploration and Harmony Gold.
- The JV was formed to conduct underground mining operations within the joint venture (JV) area, which is made up of areas within the existing Harmony Target mining right (Harmony contribution) and Prospecting Rights (PR) areas to the west of Harmony Gold's existing Target Mine (WRE contribution).
- Following the exploration and licensing phases, Jelani intends to initiate underground mining operations within the same area.

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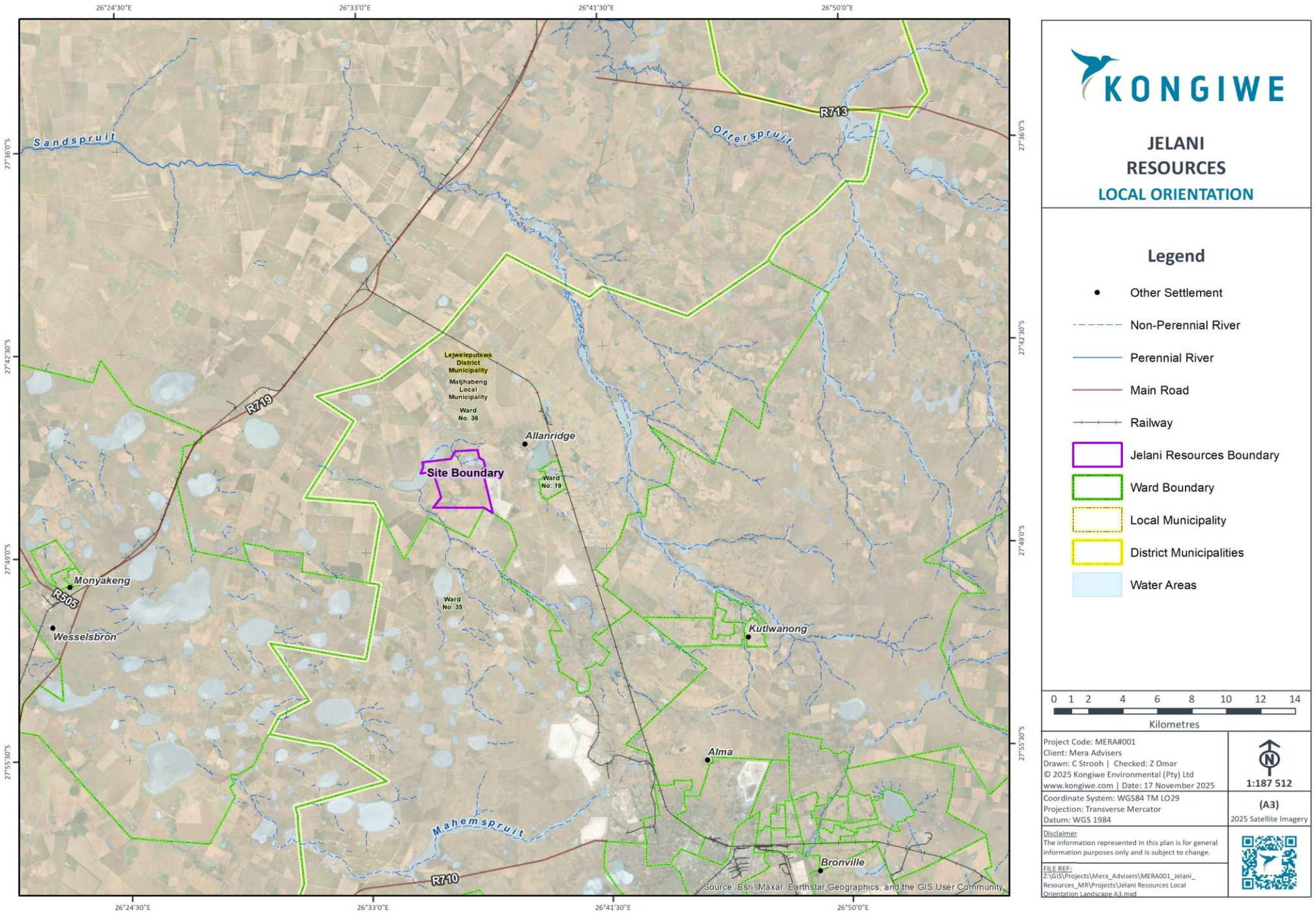
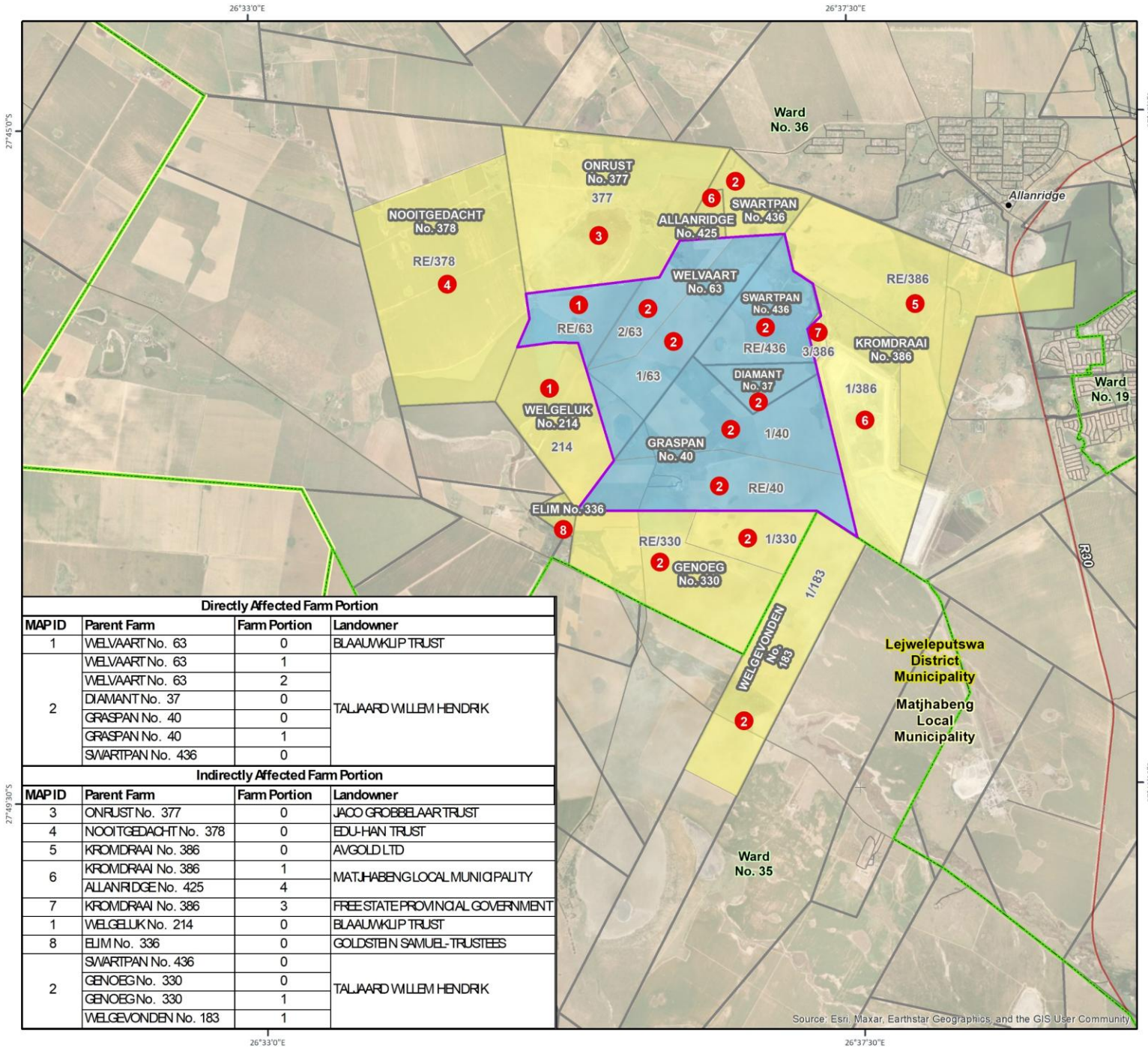
Project Location



Property Map



Directly Affected Farm Portion			
MAP ID	Parent Farm	Farm Portion	Landowner
1	WELVAART No. 63	0	BLAAUWKLIP TRUST
2	WELVAART No. 63	1	TALJAARD WILLEM HENDRIK
	WELVAART No. 63	2	
	DIAMANT No. 37	0	
	GRASPAN No. 40	0	
	GRASPAN No. 40	1	
	SWARTPAN No. 436	0	

Indirectly Affected Farm Portion			
MAP ID	Parent Farm	Farm Portion	Landowner
3	ONRUST No. 377	0	JACO GROBBELAAR TRUST
4	NOOITGEDACHT No. 378	0	EDU-HAN TRUST
5	KROMDRAAI No. 386	0	AVGOLD LTD
6	KROMDRAAI No. 386	1	MATJHABENG LOCAL MUNICIPALITY
	ALLANRIDGE No. 425	4	
7	KROMDRAAI No. 386	3	FREE STATE PROVINCIAL GOVERNMENT
1	WELGELUK No. 214	0	BLAAUWKLIP TRUST
8	ELIM No. 336	0	GOLDSTEIN SAMUEL - TRUSTEES
2	SWARTPAN No. 436	0	TALJAARD WILLEM HENDRIK
	GENOEG No. 330	0	
	GENOEG No. 330	1	
	WELGEVONDEN No. 183	1	

KONGIWE

JELANI RESOURCES

LAND TENURE

Legend

- Other Settlement
- Local Roads
- Main Road
- Railway
- Jelani Resources Boundary
- Parent Farm
- Ward Boundary
- Local Municipality
- District Municipalities
- Directly Affected
- Indirectly Affected

0 0.5 1 2 3

Kilometres

Project Code: JELA#001
Client: Jelani Resources
Drawn: C Strooh | Checked: Z Omar
© 2025 Kongiwe Environmental (Pty) Ltd
www.kongiwe.com | Date: 04 December 2025

1:45 000

(A3)

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

2025 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\Jelani_Resources\JELA001_Jelani_Resources_MR\Projects\Jelani Resources Land Tenure Landscape A3.mxd

Project Description

Jelani intends to initiate underground mining operations to extract the following potential mineral resources:

- Gold ore (primary target),
- Silver ore,
- Uranium ore,
- Sulphur,
- Platinum Group Metals,
- Rare earths,
- Diamonds (alluvial),
- Copper ore,
- Cobalt ore,
- Manganese ore,
- Molybdenum ore,
- Nickel ore,
- Lead ore,
- Tungsten ore,
- Zinc ore, and
- Iron ore.

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Project Description

- Jelani's underground mining operations initially will target shallower mineral resource deposits at the project site (approximately 1 200 mbs).
- As mine development progresses, new mining areas will be developed which will allow for the production rate to be steadily increased to the targeted full production rate of 60 000 tonnes of mined ore per month.
- Two mining methods have been identified as the most practical for exploiting the mineral resources: **conventional breast mining** and **shrinkage stoping**.
- The selection of each method is primarily based on the dip of the mineralised reef, with the shrinkage stoping being used for the steeper slopes (3% of the total stope tonnage). Where the orebody dips below 55°, conventional breast mining will be used.

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Project Description

- Ore will be transported to the shaft ore pass system using a fleet of 30-tonne dump trucks which are loaded by 10-tonne loaders (LHD). Subsequently, the broken rock will be loaded into hoisting bins and will be hoisted to surface, where the rock will either be sent to the processing plant or to the waste rock dump.
- The orebodies extend between 1 500m and 2 600m below surface.
- The total extent of the application area is 956.76 hectares (ha).
- All ore produced from the underground mining operations will be transported to the existing Target 1 metallurgical plant for processing.

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Infrastructure Requirements

- All operational mining infrastructure required for the Proposed Project will be located within Harmony's existing Target Mine mining right area. No new operational mining infrastructure planned within the JV project area.
- Underground access infrastructure will comprise either refurbished facilities at Target Shafts No. 3, 4, and 5 or newly constructed infrastructure at the Target No. 2 Shaft site, all within the existing mining right.
- The infrastructure requirements are intended to support the managerial, supervisory, and operational functions associated with the respective underground mining operations.

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Infrastructure Requirements

- To monitor potential mining-induced seismicity and boundary interactions with the adjacent Harmony Gold operations, four seismographic monitoring stations will be installed, spread equally along the shared boundary.
- Each station will include a small sensor pad/housing (approximately 5–10 m^2), basic power/comms setup, 6 m of perimeter fencing per station (total 24 m), and short gravel access tracks (total approximately 1 km across all stations, 4 m wide). These installations represent the only surface infrastructures on the JV project area.
- Additionally, a new Tailings Storage Facility (TSF) will be constructed to the west of the existing Target metallurgical plant and north of the existing Target TSF. The total area required for this new facility is approximately 69 Hectares (Ha). This TSF is a separate project being undertaken by Harmony Gold.

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Underground Access Infrastructure Photos

Photo 1: Harmony Target No 3 Shaft

Photo 2: Harmony Target No 2 Shaft

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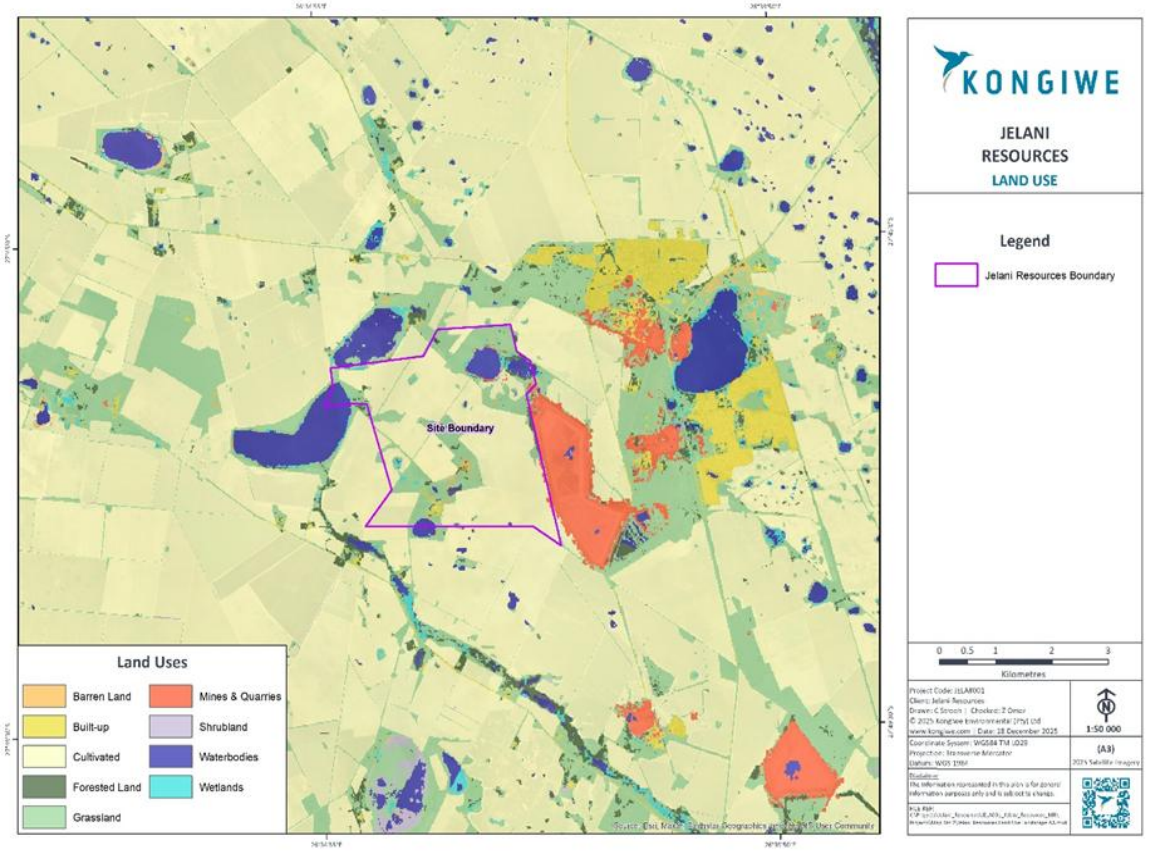
Current Land Use

- The project boundary is currently utilised for agricultural purposes.
- Land uses within the immediate project boundary consist predominantly of cultivated fields, grassland, forested areas, waterbodies, and wetlands.
- The immediate surrounding landscape also includes existing mines and tailings storage facilities (TSFs), as well as transport infrastructure, electricity infrastructure, water supply infrastructure and various farming operations.
- Furthermore, the Proposed Project area is situated immediately adjacent to, and west of, the Harmony Gold Target Mine.



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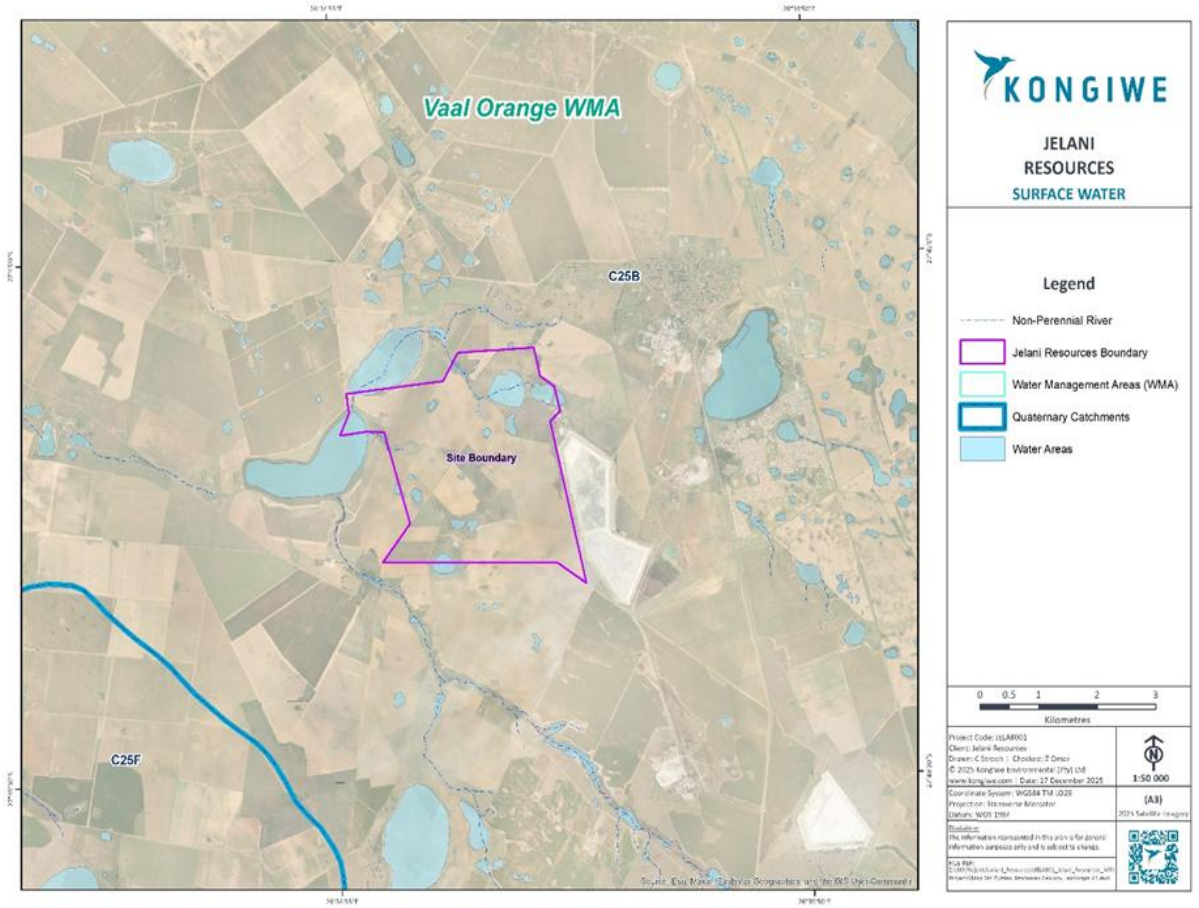
Surface Water

- The project is located within the Vaal Orange Water Management Area (WMA), specifically in quaternary catchment C25B.
- The surface water resource within the site boundary include a non-perennial river located to the north of the project area. Another non-perennial river is situated to the west of the site boundary.
- The surface water map indicates that the project area contains surface water areas, including wetlands.



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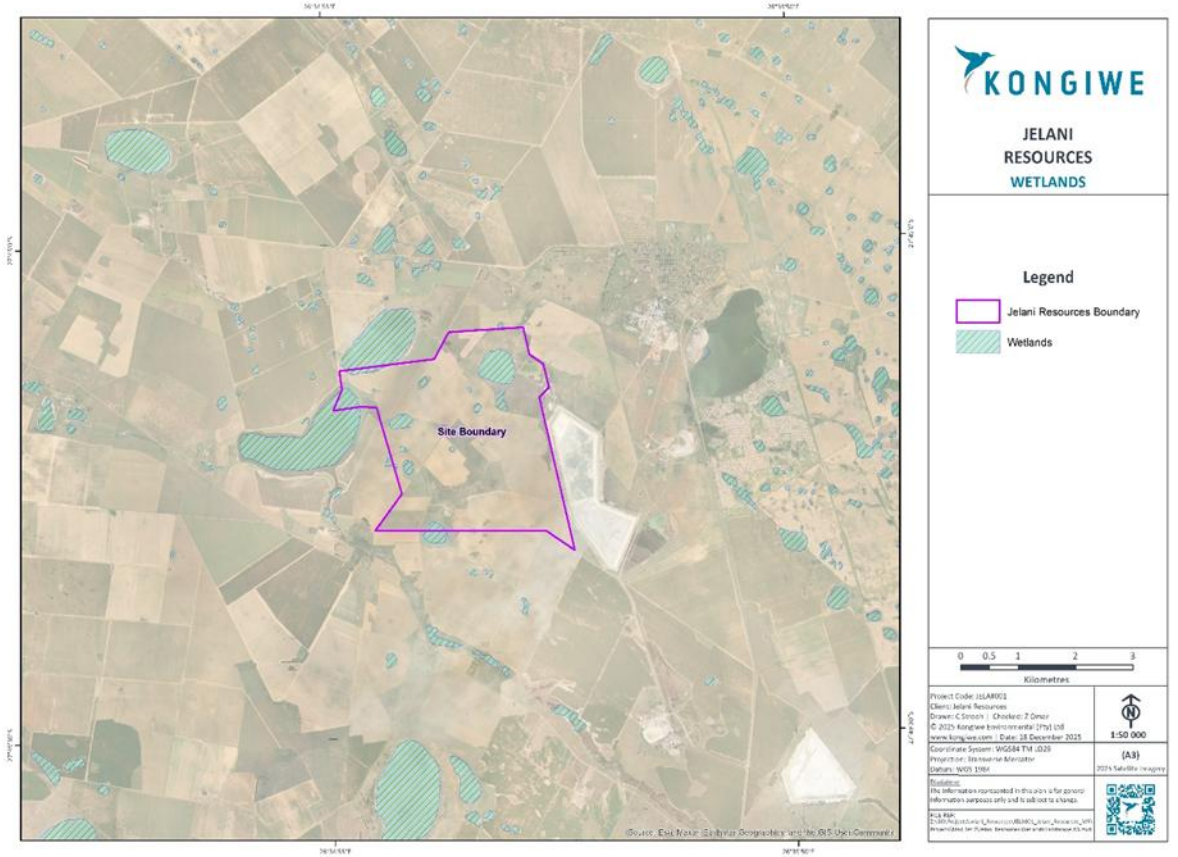
Wetland

- Several wetlands (wetlands depression and unchannelled valley-bottom (UVB) were identified and delineated occurring inside the project footprint with additional wetlands to the west, north, and south-central parts of the site.



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Biodiversity

- The Free State Conservation Plan (2024) classified areas on the basis of their 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’.
- Proposed Project falls within a CBA 1 and an ESA 2.

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Specialist Studies

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

Specialist Studies	
Biodiversity, Freshwater, including a Risk Assessment Matrix (RAM,) Soils and Agricultural Potential.	Mine Closure Plan
Desktop Heritage and Palaeontology	Hydrogeological Assessment
Hydrological Assessment	Climate Change Impact Assessment
Air Quality Impact Assessment	Blasting and Vibrations
Socio-Economic Impact Assessment	

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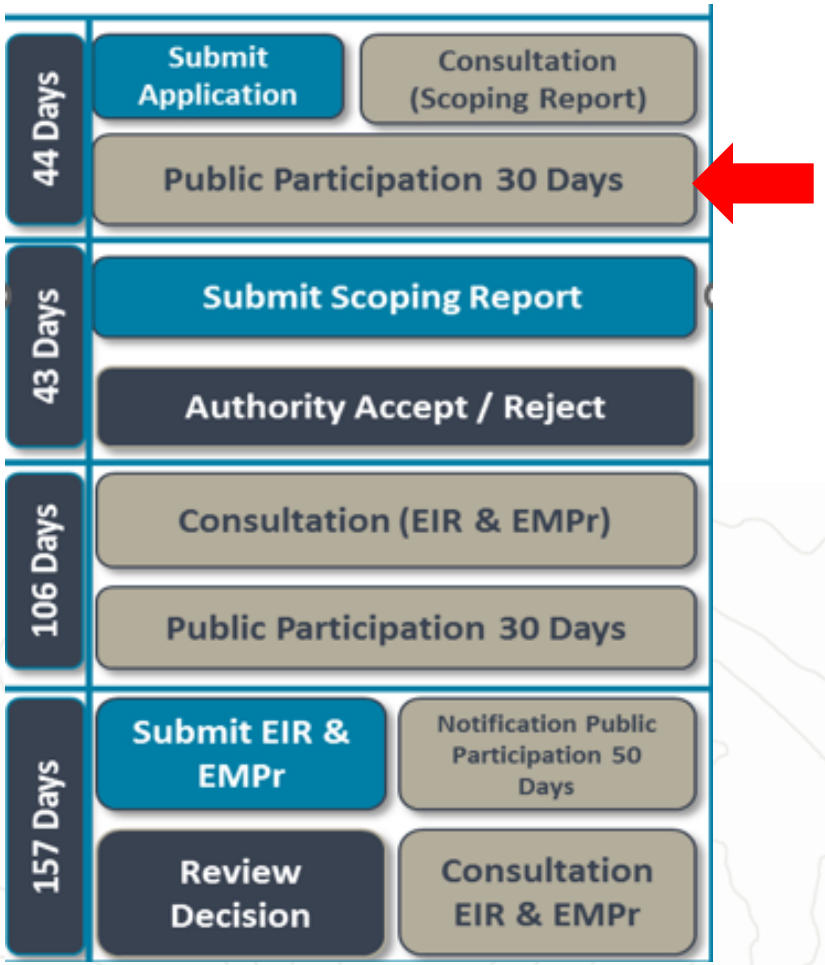
Legislative Framework

- A Scoping and Environmental Impact Assessment (S&EIA) process is being undertaken which evaluates the environmental impacts associated with the Proposed Project as part of an application for Environmental Authorisation (EA). The S&EIA and specialist studies to be undertaken will support the application for the required approval. The following applications have been made to the relevant departments:
  - EA application 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).
  - An Integrated Water Use Licence Application (IWULA) in terms of the National Water Act, 1998 (Act No. 36 of 1998) (NWA) was submitted to the Department of Water and Sanitation (DWS) for any potential impact to water resources by the Proposed Project.



Listed and Specified Activities

Name of Activity	Aerial Extent of the Activity (ha) Ha or m²	Applicable Listing Notice GNR 983, 984 and 985 as amended by GNR 327, GNR 325 or GNR 324	Listed Activity	Water Use License Authorisation
Underground Mining Operation	956,76 Hectares	GNR 325 - Activity 17	Any activity including the operation of that activity which requires a mining right in terms of section 22 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity as contained in this Listing Notice, in Listing Notice 1 of 2014 or Listing Notice 3 of 2014, required to exercise the mining right	Section 21 (c) and (i)

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Listed and Specified Activities

Name of Activity	Aerial Extent of the Activity (ha) Ha or m²	Applicable Listing Notice GNR 983, 984 and 985 as amended by GNR 327, GNR 325 or GNR 324	Listed Activity	Water Use License Authorisation
Development of gravel access tracks	Gravel access tracks approximately 1 km across all stations, with a width of 4 m wide	GNR 985 – Activity 4	The development of a road wider than 4 metres with a reserve less than 13,5 metres. **(b) Free State** (i) Outside urban areas: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;	Section 21 (c) and (i)

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Listed and Specified Activities

Name of Activity	Aerial Extent of the Activity (ha) Ha or m²	Applicable Listing Notice GNR 983, 984 and 985 as amended by GNR 327, GNR 325 or GNR 324	Listed Activity	Water Use License Authorisation
Installation of the seismographic monitoring stations.	40 m²	GNR 985 - Activity 14	The development of (ii) infrastructure or structures with a physical footprint of 10 square metres or more; where such development occurs (a) within a watercourse; (b) in front of a development setback; or (c) if no development setback has been adopted, within 32 meters of a watercourse, measured from the edge of a watercourse; **(b) Free State** (i) Outside urban areas: (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;	Section 21 (c) and (i)

Social and Labour Plan

- The Social and Labour Plan (SLP), setting out the social and labour programmes for Project's Life of Mine (LoM), has been prepared:
  - SLP outline specific initiatives such as projected number of employees by job grade.
  - Human resource development programmes to foster the development of requisite skills through training initiatives relating to basic adult education, learnerships, bursaries, mentorships and portable skills.
- As part of the SLP, the Nyakallong Community Hall will be refurbished under a Local Economic Development (LED) project.
- Jelani will be required to submit this SLP to the DMPR for approval as a prerequisite for a Mining Right (MR) to be granted.
- Upon receiving approval for the SLP, Jelani will be required to communicate the contents of the SLP:
  - To the public within 30 days (through various means, such as local newspapers, company website and hard copies placed at municipal offices);
  - To the local community within 180 days (through a process of public communication); and
  - To employees immediately upon their appointment.

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Public Participation

- The EA Application was submitted to the DMPR on Tuesday, 21 April 2026. The acceptance letter for the EA application was received on 18 May 2026.
- The Draft Scoping Report (DSR) was released for public review on 21 May 2026 . The review period will remain open for 30 days, from Thursday, 21 May 2026 to Monday, 22 June 2026. A Copy of the DSR will be made available at the following locations:
  - Allanridge Public Library (53 Caledon St, Allanridge)
  - Kongiwe website: http://www.Kongiwe.com/publications-view/public-documents/
- Online Meeting: Wednesday, 27 May 2026, from 10:00 to 11:00 via Microsoft Teams.
- An Open Day will be held on Saturday, 30 May 2026,at S.A. Mokhothu Primary School from 11H00 – 13H00
- Indirectly affected landowner and stakeholder meetings are ongoing.
- After public review, the Final Scoping Report will be finalised and submitted.
- Comments will be recorded in a Comments and Response Report and submitted to the relevant Competent Authorities.

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Comment & Discussion

- Discussion
- Action Points
- Closing

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Contact

- **Name: Vanessa Viljoen / Jean-Mari Williams**
- **Tel: 010 140 1725/26**
- **Email: stakeholders@kongiwe.com**

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PostNet Suite no 163, Private Bag X21, Bryanston, 2021, South Africa.

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www.kongiwe.com

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Kongiwe Stakeholder Engagement

From: Kongiwe Stakeholder Engagement
Sent: Friday, 26 June 2026 14:54
To: Serake.Leeuw@matjhabeng.co.za; Lunga.Ncapai@matjhabeng.co.za; Johannes.Theunissen@matjhabeng.co.za
Cc: Jean-Mari Williams; Umeshree Naicker; Ripfumelo Macevele
Subject: Jelani Resources (Pty) Ltd: JV Area Underground Mining Project: Minutes of Online Meeting held on Thursday, 28 May 2026 with Matjhabeng Local Municipality
Attachments: Matjhabeng_Local_Municipality_Meeting_Minutes_Final.pdf; JELA_001 _Matjhabeng_Presentation_EA_IWULA&SLP.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Tracking:

Recipient	Read
Serake.Leeuw@matjhabeng.co.za	
Lunga.Ncapai@matjhabeng.co.za	
Johannes.Theunissen@matjhabeng.co.za	
Jean-Mari Williams	Read: 2026/06/26 15:07
Umeshree Naicker	Read: 2026/06/29 12:42
Ripfumelo Macevele	Read: 2026/06/26 14:56

Dear Stakeholders,

I hope this message finds you well.

Please find attached the minutes and associated appendices from the online meeting held with Matjhabeng Local Municipality on **Thursday, 28 May 2026**.

Should you have any queries, please do not hesitate to contact us.

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.
www.kongiwe.com

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Appendix C9: Written Comments

This appendix is not included in the publicly distributed version of this report.

Appendix C9 comprises the written comments received from interested and affected parties in the form in which they were submitted, being email correspondence containing the senders' names, email addresses and other personal contact details. This personal information may not be disclosed in a publicly distributed document without the consent of the data subjects, in terms of the Protection of Personal Information Act 4 of 2013.

Appendix C9 is submitted in full and unredacted to the Competent Authority. All written comments have been captured in Appendix C10.

Appendix C10: Comment and Response Report

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Environmental Authorisation and Integrated Water Use Licence Application for the Jelani Joint Venture (JV) Area Underground Mining Project, Free State Province

Comments and Responses Report for the Draft Environmental Impact Assessment Report (DEIA)/Draft Environmental Management Programme (DEMPr)
DMPR reference number: FS30/5/1/2/3/2/1(10098) MR
DWS reference number: WU50090

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1 Competent Authority

1.1 Department of Water and Sanitation (DWS)

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
			No Comments received.		

1.2 Department of Mineral and Petroleum Resources (DMPR)

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
Comments raised during the Pre- Application Meeting with the DMPR for the draft Scoping Report, dated, Friday, 6 February 2026					
Mr Tuwani Monyai, Assistant Director: Mine Environmental Management	Online Meeting (Microsoft Teams)	Friday, 6 February 2026	Mr Monyai enquired as to whether Harmony Target Shafts 2 and 3 form part of an existing Mining Right. Mr Monyai advised that a Memorandum of Understanding would be required between Harmany Gold and Jelani Recourses, given that all infrastructure required for the Proposed Project will be located within the existing Harmony Target Mine mining right area and Jelani would be utilising Harmony Gold's shafts to access its underground mining area. This was noted as necessary to address operational and coordination challenges associated with multiple parties using the same infrastructure.	Ms Naicker explained that all existing infrastructure proposed to be included in the application falls under Harmony's Mining Right. No new operational mining infrastructure is planned within the project area. Mr Hoek clarified that Harmony Gold is a shareholder in the project through a joint venture arrangement. He further noted that, in terms of the joint venture agreement, no new infrastructure is required for the proposed project.	Section 1.3 Section 1.7 Appendix C

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
Mr Ripfumelo Macevele, Environmental Consultant, Kongiwe Environmental	Online Meeting (Microsoft Teams)	Friday, 6 February 2026	Mr Macevele sought clarification regarding the requirement for a Memorandum of Understanding between Jelani Resources and Harmony Gold. It was queried whether such an agreement would be necessary, given that Harmony Gold is a shareholder in Jelani Resources and that the parties have entered into a joint venture agreement.	Mr Fhedzisani advised that a Memorandum of Understanding (MoU) would be required to clearly set out how the two parties would work together as well as to address the project's development plan which includes utilising the available spare capacity within Harmony's existing infrastructure at the Target Mine. He noted that this information should be sufficiently detailed and accessible for inclusion in the public participation process and is therefore not only relevant to the competent authority or the proponent. Mr Hoek reiterated that a Joint Venture Agreement is in place, which would be reviewed to determine whether it adequately addresses matters relating to shared infrastructure. It was further noted that, should the agreement not provide sufficient detail, a memorandum of agreement would be prepared for submission as part of the application	Section 1.3 Section 1.7 Appendix C
Mr Tuwani Monyai, Assistant Director: Mine Environmental Management	Online Meeting (Microsoft Teams)	Friday, 6 February 2026	Mr Monyai stated that the specialist studies to be undertaken should not be informed solely by the screening tool. He further noted that, should any additional aspects be identified that require specialist input, these should also be included in the scope of studies.	Ms Naicker noted that any additional aspects identified that require specialist assessment will be undertaken as required.	Section 9.1 Section 9.2

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
			Mr Monyai stated that EAPASA registration is a prerequisite for conducting the EIA. He further emphasised the importance of undertaking a robust cumulative impact assessment as part of the EIA process. It was noted that this is necessary to avoid situations where responsibility for cumulative impacts may be disputed, particularly where Harmony and Jelani could potentially attribute impacts to one another.	Ms Naicker confirmed that both herself and Mr Macevele are registered EAPs under EAPASA. She further confirmed that the relevant certificates would be included in the application. Ms Naicker also noted that, with regard to cumulative impacts, the S&EIA process will be conducted in accordance with NEMA, which includes the assessment of cumulative impacts. Mr Hoek acknowledged Mr Monyai's point and advised that Bara Engineering, who are responsible for the Mining Plans and associated engineering designs, are also involved in Harmony's operations. He noted that cumulative impacts are being considered within the engineering design process, including an assessment of whether the existing infrastructure is capable of accommodating the anticipated additional load associated with the Jelani project.	Section 8.3 Appendix A
Mr Cedrick Fhedzisani, Deputy Director: Mine	Online Meeting (Microsoft Teams)	Friday, 6 February 2026	Mr Fhedzisani enquired if a new Tailings Storage Facility would be constructed or if they would make use of existing Tailing Storage Facilities.	Ms Naicker stated that the application does not include a Tailings Storage Facility and that an existing facility would be utilised for deposition which falls under Harmony's Target Mining right infrastructure.	Section 1.7

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
Environmental Management			Mr Fhedzisani emphasized the importance of the Memorandum of Understanding, noting that it should include clear information regarding Tailings storage, specifically confirming that Jelani would be depositing onto Harmony's infrastructure. He referred to a precedent at Jagersfontein, where a storage facility failure was attributed to infrastructure not having been designed to accommodate increased deposition from a second operation. In this context, he stated that the Memorandum of Understanding would need to explicitly confirm that the Tailings Storage Facility is suitably designed and capable of receiving the additional load associated with the proposed Jelani operation.	Ms Naicker acknowledged this point and confirmed that the Memorandum of Understanding will be submitted as part of the application form.	-
			Mr Fhedzisani advised that the DWS should be consulted so that the DMPR and DWS can run the application process in parallel.	Ms Naicker acknowledged this point and added that a Water Use Licence Application (WULA) for the proposed underground mining project will be submitted to DWS.	Section 1.2
Mr Tuwani Monyai, Assistant Director: Mine Environmental Management	Online Meeting (Microsoft Teams)	Friday, 6 February 2026	Mr Monyai expressed support for Mr Fhedzisani's comments, with the view that, in order to streamline the licensing process, the applications should be undertaken concurrently. This would allow the proponent to obtain the	Ms Naicker stated that Kongiwe has included engagement with SAHRA within the project timeline and that the Water Use Licencing process would be aligned with the EIA application.	Section 1.2 Section 9.1 Section 9.2

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			Environmental Authorisation and Water Use Licence simultaneously. He further emphasised the importance of engagement with SAHRA, noting that formal comments should be actively sought from SAHRA rather than merely informing them of the project, which he observed to be common industry practice.		
Ms Umeshree Naicker, Kongiwe	Online Meeting (Microsoft Teams)	Friday, 6 February 2026	Ms Naicker enquired whether the department is happy to receive one hard copy and one soft copy for both the scoping and EIA reports?	Mr Monyai stated that they would provide confirmation after the application has been received as they do not know who the project manager for the DMPR will be. He stated that once the application has been submitted, details relating to submission requirements would be communicated. Mr Hoek Stated that he would submit all the soft copies on to SAMRAD system and should any hard copies be required, Kongiwe would submit those.	Appendix C
Mr Tuwani Monyai, Assistant Director: Mine Environmental Management	Online Meeting (Microsoft Teams)	Friday, 6 February 2026	Mr Monyai highlighted an issue with regard to climate change impacts, advicing that the proposed project would be required to consider how it may contribute to or impact climate change. He further noted that the Department has observed EIAs being challenged and appealed where insufficient consideration has	Ms Naicker stated that a climate change impact assessment has been included as a specialist study for the project.	Section 9.1 Section 9.2

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			been given to the potential climate change impacts of proposed developments.		
			Mr Monyai stated that the EAP must consider the Financial Provision Regulations 2015 as they relate to mining project as well as relevant Environmental Regulations. He emphasised the importance of complying with these regulations and requested that the EAP take these requirements into account and ensure that they are included in the documentation.	Ms Naicker thanked Mr Moyai for his input and stated that this would be considered in the EIA process and will also be included in the submissions.	Section 1.9
Mr Cedrick Fhedzisani, Deputy Director: Mine Environmental Management	Online Meeting (Microsoft Teams)	Friday, 6 February 2026	Mr Fhedzisani stated that once an application has been lodged for the Water and waste use licences, that information can be forwarded to the relevant person from the DMPR.	Ms Naicker confirmed that they would forward this information once it is available.	-
Mr Tuwani Monyai, Assistant Director: Mine Environmental Management	Online Meeting (Microsoft Teams)	Friday, 6 February 2026	Mr Monyai stated that the application would be subjected to the regulations of the MPRDA and therefore the application would need to be lodged simultaneously with the application in terms of NEMA. He stated that the timeline would only begin counting for the NEMA process once the application has been submitted in terms of the MPRDA.	Ms Naicker noted this comment.	-

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Mr Cedrick Fhedzisani, Deputy Director: Mine Environmental Management	Online Meeting (Microsoft Teams)	Friday, 6 February 2026	Mr Fhedzisani stated that any further information requirements would be communicated in writing once the application has been lodged. Mr Fhedzisani further advice that in future the team should include all the relevant mining right reference numbers (specifically Harmony Target Mining Right), particularly where an application may require or involve infrastructure already authorised under other Mining Rights so that the department can include all the relevant project managers in the meetings.	Ms Naicker acknowledged that in future the team would include those reference numbers.	Appendix C

2 Organs of the State

2.1 Lejweleputswa District Municipality (LDM)

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
Comments raised during the Online Meeting with the District Municipality for the draft Scoping Report, dated, Tuesday, 26 May 2026					
Mr Dewald Kirsten, Manager Environmental Health Services, (LDM)	Online Meeting Microsoft Teams)	Tuesday, 26 May 2026	Mr Kirsten sought clarification regarding the baseline information that was considered and included in the Draft Scoping Report.	Ms Naicker responded that, the Department of Forestry, Fisheries and the Environment (DFFE) National Web-Based Environmental Screening Tool was used to identify environmental sensitivities and specialist study requirements associated with the proposed	Section 7 Section 9 Appendix D

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
				development footprint. The tool assigns sensitivity ratings (Very High, High, Medium or Low) across a range of environmental themes, including biodiversity, terrestrial animal species, terrestrial plant species, aquatic biodiversity, agriculture, heritage, palaeontology, civil aviation and defence. Based on the identified sensitivities, the Screening Report indicates the specialist studies and assessment protocols that may be required for the application. She mentioned that the Scoping Report considered all baseline information in terms of vegetation, aquatic biodiversity, groundwater, heritage, palaeontology, as well as wetlands. She further added that for the Scoping phase, a desktop assessment of the baseline area is undertaken, and in the EIA phase, appointed specialist studies assess the impacts associated with the project. Refer to Section 7 of the Draft Scoping Report (DSR) for the baseline environment and Section 9, Table 9-1 of the DSR for the Plan of Study for specialist studies that is proposed for the EIA Phase.	
			Mr Kirsten enquired whether the specialist studies would be undertaken as desktop assessments rather than field-based investigations.	Ms Naicker responded that, at the Scoping phase stage, a desktop assessment was conducted to identify potential impacts for the Proposed Project. However, detailed specialist assessments will take place in the EIA	Section 9

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
				phase (see Section 9, Table 9-1 of the DSR for the Plan of Study for specialist studies that is proposed for the EIA Phase). She mentioned that the specialist studies to be conducted consists of the following: Biodiversity and Freshwater Impact Assessment, Air Quality Impact Assessment, Hydrogeological, Hydrological Assessment and Climate Change Assessment. A desktop Heritage and Palaeontology Assessment will be conducted. She added that a Blasting and Vibration Assessment, Socio-Economic Impact Assessment, and a Mine Closure Plan will also be considered.	
			Mr Kirsten mentioned that he will send the questions to Kongiwe team for written responses. However, he requested that the specialist assessments also consider that, due to the presence of uranium-bearing material, a radioactive exposure assessment should be conducted. He added that, although the site is not currently in operation, it had been operational for many years in the surrounding area. He suggested that the question should be raised regarding the	Ms Naicker noted that the existing Radioactivity Study for the Harmony Target Mine will be used for the Proposed Project. The geology of the Proposed Project area is a direct extension of the geological formations occurring within the Harmony Target Mine mining right area (Section 7.3 of the DSR), which has already been subject to detailed radiological assessment and regulatory approval (2024 Free State Radiological Public Safety Assessment: System Description, undertaken by AquiSim Consulting	Section 7.3 Section 8.3

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
			cumulative impacts of the existing Harmony Target operations together with the new Jelani JV project, and that these should also be evaluated. He noted that he believes most of the specialist studies may include this aspect; however, from his perspective, there are currently many desktop studies being undertaken for project similar to Jelani. Given that the area is already a mining-disturbed environment, he emphasised the need to consider the cumulative impacts involved. He pointed out that some specialist studies do not always take these into account, instead focusing on the specific operation in isolation. He clarified that his questions are not intended as an open critique of the entire development, but rather to highlight that, particularly from an environmental health perspective, it is important to assess impacts beyond the isolated environment in which the operation will take place.	(Pty) Ltd for Harmony Gold Mining Company Limited - Free State Operations). Ms Naicker also noted that the specialist studies conducted in the EIA phase will consider cumulative impacts.	

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			Mr Kirsten mentioned that, based on his observations from similar operations, very little attention is often given to mine closure and post-closure environmental risks, particularly with regard to rehabilitation and closure planning processes. He added that, upfront, he would like to request that the necessary attention be given to these aspects. He further noted that, in line with this, there is sometimes a breakdown in communication once operations have commenced or after closure, particularly regarding the financial aspects between the relevant authorities and the operating companies. Specifically, he referred to continuous monitoring data on water quality, air quality, radiation, waste management, and related aspects.	Mine Closure Risk Assessment will be conducted for the Proposed Project, including the estimated financial rehabilitation quantum calculation will be undertaken. The financial quantum for rehabilitation is required to be paid in full prior to the issuance of the Environmental Authorisation as per the Mineral and Petroleum Resources Development Act (MPRDA). This information will be included the EIA phase.	Section 1.9
			Mr Kirsten mentioned that, going forward, he will submit all his questions and inputs so that a good working relationship can be established with the Jelani Project, extending beyond the Scoping and EIA reporting processes.	Ms Naicker responded that Mr Kirsten is welcome to submit his comments, via the stakeholder email address.	Appendix C

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
Mr Neels Hoek, Project Manager, Jelani Resources	Online Meeting Microsoft Teams)	Tuesday, 26 May 2026	Mr Hoek mentioned that an open day will be held on Saturday, 30 May 2026, between 11:00 and 13:00, and that municipal personnel are welcome to attend.	Mr Kirsten responded that he appreciates and has noted the invitation. However, based on his past experience, he does not prefer attending such meetings, as he would be seated with the community and, at times, questions raised may create misunderstandings among community members, which could place the project in a difficult position.	Appendix C
			Mr Hoek mentioned that he believes it would be beneficial, once the project reaches the EIA phase, to arrange an in-person meeting. He noted that the EIA will also be available for public comment, and suggested that the team consider holding a separate, dedicated meeting with the municipality at that stage, distinct from the open days. He added that such a meeting could be arranged with the municipality at that time, should there be a requirement from the municipal representatives.	Mr Kirsten responded that he would support this approach. He noted that he will be raising some questions with the team, and while responses will be provided, there may still be a need for further clarification. He therefore suggested that an open discussion on some of the questions, to ensure mutual understanding, would be beneficial, and that such a meeting could be arranged. Ms Naicker agreed that this was a good suggestion and added that, in the next phase, the team will present all the identified impacts and the outcomes of the specialist studies. She further indicated that the municipality will be provided with a copy of the report, and by the time engagement takes place in the next phase, the municipality will have significantly more information available.	Appendix C

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
Mr Dewald Kirsten, Manager Environmental Health Services, (LDM)	Email Correspondence	Tuesday, 02 June 2026	Good morning, Jean-Mari Thank you for the short virtual engagement and presentation of the proposed project, held on 26 May 2026 Attached please find the questions related to the proposed project. Thank you with kind regards	Dear Mr Dewald Kirsten We refer to your email sent to our Stakeholder Engagement Team for the Jelani JV Underground Mining Project Environmental Impact Assessment/ Integrated Water Use Licence Application Process (DMPR Ref: FS10098 MR) (DWS: WU50090). Please find the attached responses to the comments you have raised. All comments raised by yourself will be included in the Comment and Response Report (CRR). Please do not hesitate to contact us if you have any further queries.	Appendix C
Comments on the attached letter received via email from Mr Dewald Kirsten (LDM) dated, Tuesday, 02 June 2026 as per the email correspondence above.					
			1. How were environmental health risks to surrounding communities have been identified and prioritised during the Scoping Phase? Can this process be explained?	Potential environmental risks to surrounding communities were identified during the Scoping Phase through a combination of the Department of Forestry, Fisheries and the Environment (DFFE) Screening Tool, desktop studies, site verification, stakeholder engagement, and a review of existing environmental information.	Section 8.2 Section 9.2 Appendix D

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				The Environmental Assessment Practitioner (EAP) then evaluated how Proposed Project activities could interact with these sensitivities to give rise to potential environmental health risks, such as impacts related to air quality, water resources etc. (see Chapter 8.2 of the Draft Scoping Report (DSR), for possible positive and negative impacts identified). The Scoping Phase is intended to identify the key issues and define the scope of the Environmental Impact Assessment (EIA). The detailed assessment of environmental risks, including the evaluation of impact significance and the development of mitigation measures, will be undertaken during the EIA phase through the appointed specialist studies and documented in the Draft EIA Report and Environmental Management Programme (EMPr).	
			2. Has a dedicated assessment of public and environmental health impacts been undertaken for this project, particularly considering the mining of uranium-bearing and heavy-metal-bearing ore?	The purpose of the Scoping phase is to identify potential environmental and socio-economic issues, determine the specialist studies required, and define the scope of the EIA. During the Scoping phase, it was identified that the geology of the Proposed Project area is a direct extension of the geological formations occurring within the Harmony Target Mine mining right area (Section 7.3	Section 7.3

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
				of the DSR), which has already been subject to detailed radiological assessment and regulatory approval (2024 Free State Radiological Public Safety Assessment: System Description, undertaken by AquiSim Consulting (Pty) Ltd for Harmony Gold Mining Company Limited - Free State Operations). Harmony Gold Mining Company Limited, a joint venture partner in Jelani Resources Pty Ltd, already holds a Radiological Public Safety Assessment for its Free State operations, as well as a valid Certificate of Registration (CoR Regulation 10) issued by the National Nuclear Regulator (NNR) for its Target Mine operation located adjacent to the Proposed Project area. During the Environmental Impact Assessment (EIA) phase, the existing radiological assessment and regulatory approval will be integrated into the Draft EIA Report.	
			3. What baseline environmental data and Health data has been collected for Allanridge, surrounding farms, and affected communities before project commencement?	Desktop baseline assessments were conducted for the Proposed Project during the Scoping Phase. The baseline environmental conditions are presented in Section 7 of the Draft Scoping Report.	Section 7 Section 9

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				Specialist assessments will provide additional baseline information, as well as detailed findings, which will be incorporated during the Draft EIA Report.	
			4. How will potential impacts on community health arising from dust, blasting, noise, vibration, sewage infrastructure, contaminated water, and hazardous waste be assessed?	The dust, blasting, noise and vibration aspects, as well as the groundwater and surface water assessments related to contaminated water, have been identified for evaluation as part of the EIA process. Chapter 9 of the Draft Scoping Report details the Plan of Study for the EIA, with Table 9-2 outlining the terms of reference for the assessment. Findings from the specialist assessments will be included in the Draft EIA Report. The management of contaminated water and hazardous waste will be further detailed in the Integrated Water and Waste Management Plan (IWWMP). The Proposed Project will not impact sewage infrastructure. The development plan includes the utilisation of existing Shaft 2 and Shaft 3, located within the Harmony Mining Right area. All operational mining infrastructure required for the Proposed Project will be situated within the existing Harmony Target Mine mining right area. No new operational mining infrastructure is planned within the project area. Only seismic monitoring stations will be developed within the project area (Section 1.7).	Section 1.7 Section 8 Section 9

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
			5. How will cumulative impacts from the existing Harmony operations together with the Jelani JV project be evaluated and included?	The identification and assessment of cumulative impacts will be undertaken, during the detailed EIA phase. The impact identification and calculation methodology employed by all specialists incorporates cumulative impacts Section 8.3). The mitigation measures presented by the specialist will be integrated into the EMPr.	
			6. How will the Air Quality Impact Assessment specifically assess potential respiratory health impacts on nearby communities?	The air quality aspect has been identified for evaluation as part of the EIA process. Table 9-2 of the DSR outlines the terms of reference for the assessment, including those for the Air Quality Assessment.	Section 9.2
			7. Has the specialist assessment considered possible radioactive exposure risks associated with uranium-bearing material, including dust and groundwater contamination?	The existing radiological assessment and regulatory approval will be integrated into the Draft EIA Report. Air quality and groundwater aspects have also been identified for evaluation as part of the EIA process. Table 9-2 of the DSR outlines the terms of reference for the assessments, including those for the Air Quality Assessment as well as the Groundwater Assessment.	Section 9.1 Section 9.2
			8. How will the hydrogeological and hydrological studies assess risks to groundwater used by communities, farmers, and municipal purposes?	A Groundwater Impact Assessment will be conducted during the EIA phase and findings of the assessment will be included in the Draft EIA Report. Refer to Table 9-2 of the DSR outlines the terms of reference for the Groundwater Impact Assessments.	Section 1.7 Section 8.3 Section 9.1

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					Section 9.2
			9. What mitigation measures are proposed to prevent contamination from: • dirty water dams, • sewage infrastructure, • waste rock dumps, and • the proposed Tailings Storage Facility?	The Proposed Project will not impact sewage infrastructure. The development plan includes the utilisation of existing Shaft 2 and Shaft 3, located within the Harmony Mining Right area. All operational mining infrastructure required for the Proposed Project will be situated within the existing Harmony Target Mine mining right area. No new operational mining infrastructure is planned within the project area. Only seismic monitoring stations will be developed within the project area (Section 1.7). Due to the ongoing mining operations at Harmony Gold Target Mine and the presence of agricultural activities within the development footprint and its immediate surroundings, the assessment of cumulative impacts is of significant importance. The identification and assessment of cumulative impacts will be undertaken, and mitigation measures suggested during the detailed EIA level investigation. The impact identification and calculation methodology employed by all specialists incorporates cumulative impacts in a quantitative manner to determine the final impact score and corresponding rating (Section 8.3).	Section 1.7 Section 8.3

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				The proposed Tailings Storage Facility will be assessed in a separate environmental process.	
			10. How will the EIA assess the adequacy and compliance of the proposed sewerage plant from an environmental health perspective?	The Proposed Project does not include sewerage plant. See Chapter 1.7 of the DSR, for detail project description, including infrastructure requirement.	Section 1.7
			11. What emergency response measures are being proposed for incidents such as: • sewage spills, • hazardous substance releases, • dust exceedances, • tailings failures, and • contaminated water discharges?	Emergency preparedness and response measures will be identified during the EIA phase and included in the EMPr to guide the management of potential emergency situations.	Section 9.2
			12. How will environmental complaints from communities be recorded, investigated, and resolved during the construction and operational phases?	The process for recording, managing, and investigating complaints will be addressed during the EIA phase and included in the EMPr.	Section 9.2
			13. What monitoring systems are proposed for ongoing environmental surveillance during the life of the mine? These monitoring mechanism/systems must	Air quality, surface water, groundwater, and biodiversity assessments will be conducted to support the EIA	Section 9.2

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			also address continuous reporting for the duration of the project and the operational process thereafter. Some environmental monitoring only takes place during commencement of the project, but fail to establish mechanisms for continuous monitoring, communication and engagement with enforcement authorities like Municipal Health Services. This especially important where potential long-term impacts affects nearby communities and the environmental stability.	process. Part of the scope of the assessment is to develop an environmental surveillance monitoring program. This monitoring program will be incorporated into the Draft EIA Report.	
			14. Will environmental monitoring data relating to air quality, water quality, radiation, and waste management be shared with the municipality on a regular basis?	Environmental monitoring requirements, including the parameters to be monitored and reporting obligations, will be determined through the Environmental Authorisation (EA), where applicable, and any other relevant licences or permits issued for the Proposed Project. Where reporting to regulatory authorities or other stakeholders, including the municipality, is required, this will be undertaken in accordance with the applicable legislative and authorisation requirements.	-
			15. How frequently will environmental management / health compliance	Should the Competent Authority grant the Environmental Authorisation (EA), the required	-

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			audits be conducted, and will Municipal Health Services have access to these reports?	frequency of compliance audits will be stipulated as a condition of the EA.	
			16. How does the Public Participation Process ensure meaningful participation by vulnerable groups, farm dwellers, and communities with limited access to online platforms?	The Public Participation Process has been designed to promote meaningful participation by all Interested and Affected Parties (I&APs), including vulnerable groups, farm dwellers, and communities with limited access to online platforms. The relevant Ward Councillors are included in the stakeholder database and are notified of all key public participation activities, including the Open Day held on 30 May 2026. In addition, a hard copy of the Draft Scoping Report was made available for public review at the Allanridge Public Library to ensure access to project information for those without reliable internet access. During stakeholder engagements, participants can express whether the methods of communication and access to project information are suitable for their needs. Where barriers to participation are identified, reasonable alternative measures are considered to facilitate effective and meaningful participation.	Appendix C

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			17. What measures have been implemented to ensure environmental information is communicated in a language and format understandable to affected communities?	The relevant Ward Councillors are engaged throughout the Public Participation Process to assist in disseminating project information to their respective communities. In addition, feedback received during stakeholder engagement activities, is used to assess whether the information and communication methods are accessible and understandable. Where necessary, reasonable measures are implemented to improve accessibility and facilitate meaningful participation.	Appendix C
			18. How were potentially affected schools, clinics, community facilities, and sensitive receptors identified during stakeholder mapping?	Potentially affected schools, clinics, community facilities, and other sensitive receptors were identified through a desktop assessment using available spatial information and aerial imagery (including Google Earth). The findings of the desktop assessment were subsequently verified during a site visit undertaken by the EAP to confirm the location of sensitive receptors within and adjacent to the Proposed Project area.	Section 7
			19. In the opinion of the EIA consultant, are the current specialist studies sufficient to assess all environmental health risks associated with deep-level underground mining activities over the proposed 14-year life of mine?	The specialist studies being undertaken for the EIA phase are considered appropriate to assess the potential environmental impacts and associated environmental risks identified for the Proposed Project, including those relevant to the proposed deep-level underground mining activities over the 14-year life of mine.	Section 9.2

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			20. How will mine closure and post-closure environmental health risks be addressed within the rehabilitation and closure planning process?	A Mine Closure Report will be undertaken in the EIA phase.	Section 1.9
			21. What provisions are proposed to ensure long-term protection of groundwater and public health after mine closure?	The Groundwater Impact Assessment and Mine Closure Report will be conducted in the EIA phase. Provision for long term protection will be discussed in the Draft EIA Report.	Section 9.2
			22. How will the consultant ensure alignment between the project's environmental management commitments and the constitutional obligation of municipalities to provide a safe and healthy environment?	The EIA process is being undertaken in accordance with the applicable environmental legislation, including the National Environmental Management Act (NEMA), and its environmental management principles. The specialist assessments will identify and evaluate potential environmental and socio-economic impacts, and appropriate mitigation measures will be incorporated into the EMPr to avoid, minimise, manage, or remedy identified impacts.	Section 1.10 Section 2 Section 9.2
			23. What coordination mechanisms are proposed between the mine, the municipality, the Department of Water and Sanitation, and environmental health authorities for ongoing compliance and incident management?	The Proposed Project will be implemented in accordance with the conditions of the Environmental Authorisation (EA) and any other applicable licences or permits. Jelani will continue to engage with the relevant regulatory authorities, including the municipality, the Department of Water and Sanitation, and other	Appendix C

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
				competent authorities, in accordance with applicable legislative requirements and authorisation conditions to ensure ongoing compliance and the appropriate management and reporting of environmental incidents.	
			24. Has consideration been given to the possible strain this project may place on municipal environmental services and infrastructure, and if so, what mitigation measures are proposed?	At this stage, the Proposed Project is planned to utilise existing Harmony Target mining infrastructure, where feasible, thereby reducing the need for additional municipal services and infrastructure.	Section 1.7
			25. What specific environmental health and management performance indicators will be included in the EMPr for monitoring compliance throughout the project lifecycle?	The EMPr will include appropriate monitoring requirements, performance indicators, compliance measures, reporting requirements, and corrective actions relevant to the construction, operation, and closure phases of the Proposed Project.	Section 9.2
			26. Can the consultant confirm whether the Draft Scoping Report adequately addresses all environmental health risks associated with the proposed underground mining project, and provide reasons for this conclusion?	The purpose of the DSR is to identify the potential environmental and socio-economic issues, determine the scope of the assessment, and identify the specialist studies required for the EIA phase. The detailed assessment of environmental impacts associated with the proposed underground mining activities will be undertaken during the EIA phase through the appointed specialist studies. The findings of these assessments, together with recommended	Section 9.2

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
				mitigation measures, will be presented in the Draft EIA Report and incorporated into the EMPr. Accordingly, the DSR is considered appropriate for its intended purpose in accordance with the applicable EIA Regulations.	

2.2 Matjhabeng Local Municipality (MLM)

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
Comments raised during the Online Meeting with the Matjhabeng Local Municipality for the draft Scoping Report, dated, Thursday, 28 May 2026.					
Mr Johannes Theunissen, Manager: Waste Department	Online Meeting (Microsoft Teams)	Thursday, 28 May 2026	Mr Theunissen raised queries regarding the specialist assessments for the Proposed Project, including whether dewatering and groundwater impact assessments had been undertaken and whether potential impacts on Nyakallong had been considered. He also enquired about assessments relating to acid mine drainage (AMD), waste management, alignment with municipal services, and potential impacts on water, wastewater, and waste infrastructure. In addition, he requested clarity on the status and availability of the Air Quality Assessment and whether further engagement	Ms Naicker responded by explaining that, during the Scoping phase, the project team identifies all potential impacts that may arise from the Proposed Project together with the relevant specialist studies required to assess such impacts in detail. The relevant specialist studies are conducted in the Environmental Impact Assessment (EIA) phase (see Chapter 9 of the Draft Scoping Report, for the plan of study for the Environmental Impacts Assessment). Ms Naicker advised the groundwater impact assessment, have already commenced, while additional studies such as the air quality assessment and surface water assessment, blasting and vibration, closure risk	Section 6 Section 9

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
			would be held to discuss the findings. Lastly, he queried whether any assessment or modelling of potential ground subsidence associated with the proposed mining activities would be undertaken.	assessment which will address potential ground subsidence would also be undertaken. She noted that these studies would contribute toward assessing potential pollution risks and related environmental impacts. She further explained that detailed findings relating to groundwater impacts, waste management, pollution risks, air quality, and associated mitigation measures would be presented during the EIA phase. The Draft EIA Report would be circulated for a 30-day public review and comment period, during which stakeholders would have the opportunity to submit additional comments and engage further on the findings of the specialist studies.	
			Mr Theunissen recommended that the specialist studies give particular consideration to waste management, noting that the Allanridge landfill site is relatively small and has limited capacity, and therefore recommended that this aspect be carefully considered during the relevant impact assessments.	Ms Naicker will inform the specialist accordingly.	-
Mr Serake Leeuw, Special Advisor to the	Online Meeting (Microsoft Teams)	Thursday, 28 May 2026	Mr Leeuw stated that a number of his key concern had already been addressed through the comments raised by Mr Theunissen, particularly relating to integrated waste management. He noted the following for the Social Labour Plan:		

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
Office of the Executive Mayor			Clarification regarding the applicable Social Development Framework (SDF) and enquired what provisions or guidance the framework contains in relation to the proposed development.	**Post Meeting Note** Clarification was sought from the relevant specialist, note the response below: To address identified skills gaps among employees, Jelani will implement various training programmes relating to AET, core business, learnerships and portable skills. It is proposed that limited funding for these training programmes be allocated over the final three years of the SLP cycle. Within six months of the appointment of Project employees (in Year 5 of the SLP cycle), the HR Department is to recruit a skills development facilitator to prepare detailed training programmes and associated budgets.	Appendix C Social and Labour Plan
			Local Economic Development (LED) initiatives associated with the proposed project should be aligned and integrated with existing local development planning processes.	**Post Meeting Note** Clarification was sought from the relevant specialist, note the response below: Kongiwe contacted Matjhabeng Local Municipality (MLM's) Executive Director of LED (Dr. Sefako Ramphoma) in January 2026 regarding Jelani's proposed funding for a LED project. Following consultation with	Appendix C Social and Labour Plan

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
				the Ward Councillor of Ward 19, Dr. Ramphoma advised Kongiwe (on 4 February 2026) that a priority LED project was the refurbishment of Nyakallong Community Hall. Nyakallong is a major sending area for the Target mine. On 11 February, Dr Ramphoma presented the LED proposal to the Matjhabeng Local Municipality Executive Committee. On 19 March 2026, the MLM issued a letter of approval (signed by Dr Vuyo Adonis, Acting Municipal Manager) for Jelani to allocate funds to the refurbishment of Nyakallong Community Hall. Funds would be distributed over three years, from Year 3 to Year 5 of the SLP cycle.	
			Noted that mining projects typically allocate a percentage of investment toward social development initiatives. He enquired whether the project proponents are considering the establishment of a community trust for the duration of the proposed project, which was indicated to be approximately 14 years.	**Post Meeting Note** Clarification was sought from the relevant specialist, note the response below: No employees will be appointed for the Project for the first four years of this SLP cycle. As the Mine Work Programme for the initial SLP cycle (Years 1 to 5) will be dedicated to feasibility/ engineering studies and implementation/ construction activities, the mandatory SLP Future Forum will be established at the commencement of Year 5. The Future Forum will comprise representatives from Jelani management,	Appendix C Social and Labour Plan

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
				employees and contractors – and will act as a committee that addresses labour issues, worker rights, and strategies for job preservation or retrenchment.	
			Nyakallong Community Hall refurbishment mentioned during the presentation and enquired whether there are additional associated projects planned which stakeholders should be aware of.	As no revenue will be generated for the first SLP cycle (SLP-1), financial provisions for LED initiatives are limited for this cycle. Other LED initiatives will be considered only in the next SLP cycle (SLP-2).	Appendix C Social and Labour Plan
			Raised concerns relating to the Voëlpan, noting that it is currently creating challenges within the area. He enquired whether the proposed project has considered any measures or assistance in this regard.	Voëlpan is located approximately 2.6 km east of the Proposed Project within Harmony Target's Mining Right area. Where relevant and appropriate, potential cumulative impacts associated with Voëlpan will be considered as part of the EIA phase.	Section 8.3
Mr Lunga Ncapai, Solid Waste Manager	Online Meeting (Microsoft Teams)	Thursday, 28 May 2026	Mr Ncapai stated that a number of his questions had already been addressed through the comments raised for the SLP by previous speakers but wanted to raise the following points:		
			Mr Ncapai highlighted concerns regarding the high unemployment rate within the Matjhabeng area. Emphasised the need for local SMME (Small, Medium and Micro Enterprise) participation and inclusion in the Proposed Project.	The LED Project Plan specifies that, wherever possible, suitably qualified and skilled local contractors will be sourced. Contractor teams comprising women and youth will also be considered favourably.	Appendix C Social and Labour Plan
			Enquired about the proposed rehabilitation and closure plans following the anticipated 14-year life of mine. Requested information on the guarantees and measures that will be	A Closure and Rehabilitation Plan will be compiled during the EIA phase and included in the Draft EIA Report.	Section 1.9

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
			implemented to ensure successful rehabilitation and restoration of affected land.		
			Highlighted the importance of assessing potential community health impacts associated with the Proposed Project. Requested that potential health risks to surrounding communities be considered as part of the environmental assessment process.	The Air Quality Impact Assessment will be conducted in the EIA phase. The specialist study will assess anticipated air quality impacts and develop mitigation and management measures for the identified potential impacts. This will include the implementation of an air quality monitoring programme.	Section 9.2
			Requested clarity on the percentage of employment opportunities that would be allocated to local community members.	Ms Naicker advised that she would need to consult with the relevant specialist before providing a response to the matter raised. **<u>Post Meeting Note</u>** Clarification was sought from the relevant specialist, note the response below: No employees will be appointed for the Project for the first four years of this SLP cycle. As the Mine Work Programme for this entire SLP cycle (Years 1 to 5) will be dedicated to feasibility/ engineering studies and implementation/ construction activities, it is likely that all 39 employees – to be appointed in Year 5 of the SLP cycle - will have professional qualifications. Suitably	Appendix C Social and Labour Plan

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<table>
<tr><th>Stakeholder</th><th>Consultation Method</th><th>Date of Comments Received</th><th>Issues Raised</th><th>Response to issues raised</th><th>Section Reference in the Report</th></tr>
<tr><td></td><td></td><td></td><td></td><td>qualified candidates will be selected at the discretion of Jelani through a formal interview process.

In Year 5, 506 contactors will be sourced from the Harmony Target Operation (as shown in Table 1 below). If Target cannot provide all Harmony workers, the balance will be obtained from other Harmony mines in the Free State Goldfields area.

The Target SLP will apply to employees contracted from the Harmony Target Operation. Employees on the Harmony payroll are ineligible in terms of contributions from the Jelani SLP.

Table 1: Number of Employees on the Harmony Payroll, by Job Grading

<table>
<tr><th>Job Grade</th><th>Year 1</th><th>Year 2</th><th>Year 3</th><th>Year 4</th><th>Year 5</th><th>Total</th></tr>
<tr><td>Executive Management.</td><td>0</td><td>0</td><td>0</td><td>0</td><td>3</td><td>3</td></tr>
<tr><td>Senior Management.</td><td>0</td><td>0</td><td>0</td><td>0</td><td>23</td><td>23</td></tr>
<tr><td>Professionally qualified and experienced specialists and mid-management.</td><td>0</td><td>0</td><td>0</td><td>0</td><td>99</td><td>99</td></tr>
<tr><td>Skilled technical and academically qualified workers, junior management, supervisors, foreman and superintendents.</td><td>0</td><td>0</td><td>0</td><td>0</td><td>159</td><td>159</td></tr>
<tr><td>Semi-skilled and discretionary decision making.</td><td>0</td><td>0</td><td>0</td><td>0</td><td>222</td><td>222</td></tr>
<tr><td>Non-permanent employees.</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Total</td><td>0</td><td>0</td><td>0</td><td>0</td><td>506</td><td>506</td></tr>
</table>
</td><td></td></tr>
</table>

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
			Suggested that social responsibility initiatives should consider additional community infrastructure and services, including schools, clinics, and support for the Allanridge landfill site, which has limited capacity.	The proposed initiatives will be considered for inclusion in future SLP activities, where feasible. Selection of LED programmes are subject to alignment with the Matjhabeng Local Municipality's Integrated Development Plan (IDP) (2024/2025) in conjunction with recommendations made by the Matjhabeng Local Municipality's Executive Director of LED. As the Matjhabeng Local Municipality has been placed under provincial administration due to a total breakdown of service delivery, the municipality in no position to contribute funds to the establishment and maintenance of public services at this stage. In light of the chronic lack of capacity by Matjhabeng Local Municipality to provide funds to support Jelani in LED projects, investment in the Nyakallong Community Hall for this initial SLP cycle – which requires minimal maintenance while providing long term functions for the community - is the preferred option for both the Matjhabeng Local Municipality and Jelani.	Appendix C Social and Labour Plan
Ms Umeshree Naicker, Principal Environmental Consultant, Kongiwe	Online Meeting (Microsoft Teams)	Thursday, 28 May 2026	Ms Naicker concluded the meeting by advising attendees that additional comments may still be submitted to the Kongiwe project team. Ms Naicker noted that comments requiring specialist input would be referred to the relevant specialists for review and response, and that adequate time would be needed to consider and address such submissions. She thanked attendees and indicated that the project team looks forward to receiving any additional feedback.		Appendix C

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2.3 National Transmission Company South Africa (NTCSA)

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
Mr Khululwa Matshoba, Senior Environmental Advisor	Email Correspondence	Friday, 22 May 2026	Kindly share the kmz file Thank you. Warm regards	Dear Mr Matshoba, Thank you for your email. Please find the KMZ file attached for your perusal. Kind Regards	Appendix C

2.4 Department of Forestry, Fisheries and the Environment (DFFE)

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
Ms Khuliso Khomari, Directorate: Biodiversity Conservation	Email Correspondence	Wednesday, 17 June 2026	Dear Sir/Madam RE: Department of Forestry Fisheries and the Environment Directorate: Biodiversity Conservation hereby acknowledge receipt of the invitation on the 25th of May 2026 for review and comment on the project mentioned in the subject line.	Ms Khuliso Khomari Thank you for your email and for confirming that the Proposed Project has been allocated to Ms P Makitla and Mr M Nsizwane. Thank you also for clarifying that all Public Participation Process documentation relating to the Biodiversity EIA review, as well as any biodiversity-related queries,	Appendix C

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
			Kindly note that the project has been allocated to Ms P Makitla and Mr Mthokozese Nsizwane (Copied in this email). Note, all Public Participation Process documents related to Biodiversity EIA review and Biodiversity EIA queries must be submitted to the Directorate: Biodiversity Conservation by email: BCAdmin@dffe.gov.za for attention of Mr Seoka Lekota. Regards, Ms Khuliso Khomari	should be submitted to the Directorate: Biodiversity Conservation via BCAdmin@dffe.gov.za for the attention of Mr Seoka Lekota. The Proposed Project stakeholder database has been updated to reflect the relevant contact details. We will ensure that all applicable documentation and future correspondence are submitted accordingly.	
Ms Khuliso Khomari, Directorate: Biodiversity Conservation	Email Correspondence	Monday, 13 July 2026	Dear Sir/Madam RE: Department of Forestry Fisheries and the Environment Directorate: Biodiversity Conservation hereby acknowledge receipt of the invitation on the 1st of July 2026 for review and comment on the project mentioned in the subject line.	Good day, Thank you for confirming the allocation of the project. The Directorate: Biodiversity Conservation's email address is included in the stakeholder database, and all relevant Public Participation Process (PPP) documentation, including the EIA Report for review, will continue to be shared with the Directorate throughout the process. Please do not hesitate to contact us if you have any further queries.	Appendix C

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
			Kindly note that the project has been allocated to Ms P Makitla and Mr Mthokozese Nsizwane (Copied in this email). Note, all Public Participation Process documents related to Biodiversity EIA review and Biodiversity EIA queries must be submitted to the Directorate: Biodiversity Conservation by email: BCAdmin@dffe.gov.za for attention of Mr Seoka Lekota. Regards, Ms Khuliso Khomari		
Ms Khuliso Khomari, Directorate: Biodiversity Conservation	Email Correspondence	Wednesday, 05 August 2026	Dear Sir / Madam Please find the attached comments from the Directorate: Biodiversity Conservation. Regards Mthokozese	Dear Mthokozese We refer to your email received Wednesday, 05 August 2026, sent by e-mail to Kongiwe Environmental on the Jelani Joint Venture (JV) Area Underground Mining Project, Free State Province. Please find the attached responses to the comments you have raised.	Appendix C

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
				All comments raised by yourself will be included in the Comment and Response Report (CRR). Please do not hesitate to contact us if you have any further queries.	
			Comments received from the Directorate: Biodiversity Conservation dated Wednesday, 05 August 2026 as per email above		
			The following aspects must, however, be duly considered: All specialist assessments must be conducted in accordance with the procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of Sections 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998, as amended.	Specialist assessments will be undertaken in accordance with the applicable legislative requirements, including the prescribed protocols and minimum reporting requirements for environmental themes in terms of the National Environmental Management Act, 1998, as amended. The Draft Environmental Impact Assessment (EIA) Report and Environmental Management Programme (EMPr) will integrate the findings of the specialist assessments and the mitigation measures.	Section 7 Section 8 Appendix E
			The specialist assessments must comply with the applicable assessment protocols, including, but not limited to, those relating to terrestrial biodiversity (flora and fauna). The Environmental Impact Assessment Report must clearly demonstrate compliance with the relevant protocols and provide justification where any protocol requirements are not applicable.		

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
			To ensure the continued persistence of ecosystems and that national conservation targets are achieved, it is essential that impacts on sensitive and highly localised habitats are minimized or avoided altogether as per the mitigation hierarchy requirements.		
			The Public Participation Process documents related to Biodiversity EIA for review and queries should be submitted to the Directorate: Biodiversity Conservation at Email; BCAdmin@dffe.gov.za for the attention of Mr. Seoka Lekota.	All Biodiversity EIA-related reports and correspondence will be submitted to the Directorate: Biodiversity Conservation at the prescribed email address for the attention of the designated official.	

2.5 South African National Roads Agency SOC Ltd. (SANRAL)

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
Ms Ntsebo Mkhize, Environmental Coordinator	Email Correspondence	Wednesday, 1 July 2026	Good day Kongiwe Stakeholder Engagement and Jean- Mari Please share the KMZ file of the 'Jelani Resources Boundary' as presented in the Locality Map on page 32/308 of the DSR	Dear Ms Ntsebo Mkhize Thank you for your email. Attached please find the KMZ file for the Jelani Resources boundary for your perusal. Please contact us if you have any further queries.	-

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3 Interested and Affected Parties

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
Comments raised during the Indirectly Affected Landowners Meeting for the draft Scoping Report, dated, Monday, 15 December 2025.					
Mr Tertius De Jager, Indirectly Affected Landowner	Online Meeting (Microsoft Teams)	Monday, 15 December 2025	Mr De Jager thanked (Mr Macevele) for his presentation. He stated that he did not understand why this was being presented as a new project, as he was under the impression that Harmony had owned the land for approximately 20 years and that exploration had already been conducted to depths of about 3,000 metres. The tunnels must be present throughout the area.	Mr Macevele explained that the blue area indicated on the map presented is the proposed project site. He clarified that the land does not belong to Harmony and that WRE has only acquired prospecting rights to search for minerals in the area.	Section 1.5 Appendix C
			Mr De Jager requested that Mr Macevele indicate the location of the existing operational underground tunnels. He noted that, to his knowledge, the underground tunnels are significantly wider than had been explained.	Mr Macevele indicated that they do not have drawings of the underground tunnels and only have information relating to the surface area. He further noted that the existing operational area is Target, which is currently operational. Ms Umeshree Naicker (Ms Naicker) added that the details relating to the underground activities, design, shaft usage, and the condition of the underground facilities are still under consultation. The appointed consultants are in the process of finalising the designs. She further acknowledged that Kongiwe understands the information Mr De Jager is requesting and	Appendix C

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
				confirmed that Kongiwe also requires the same information. The information will be shared with all relevant parties once it has been received.	
			Mr De Jager stated that, from a farming perspective, their primary concern relates to the potential impact of the proposed mining operation on their existing water supply. He noted that an irrigation stream runs along the outer boundary of the property and is used for crop production and pecan trees. He asked what would happen to the water supply should the mining operation proceed as indicated.	Ms Naicker informed the meeting that, as part of the process, several specialist studies have been identified and will be undertaken. These include a groundwater assessment, which incorporates a hydro census component. Information will be obtained from existing boreholes and will form part of the groundwater impact assessment. She added that additional specialist studies such as surface water assessment, biodiversity assessment and others will also be conducted and that more detailed information will be available at a later stage once the studies have progressed. Ms Vanessa Viljoen (Ms Viljoen) informed Mr De Jager that the project is still in its initial stages and that a Scoping Report and an Environmental Impact Assessment (EIA) Report will be made available at a later stage. She explained that the purpose of the current meeting was to inform stakeholders of what is planned for the proposed project and to request permission/access for specialists to conduct their studies on the identified properties, she further added that detailed responses would be provided once	Section 9.1 Section 9.2

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
				additional information is received from the specialist studies.	
			Mr De Jager enquired about the scope of the specialists' work in relation to the boreholes, specifically what information they require and what activities will be undertaken.	Ms Naicker explained that a letter had been sent to all landowners outlining the scope of the specialist's site activities. She indicated that these activities include the identification and recording of the location of borehole(s), documenting their usage, measuring water levels within the borehole(s), and taking a preliminary water quality sample, should landowner agree.	Section 1.5 Appendix C
			Mr De Jager asked how the groundwater specialist would take water samples if a pump were already installed. He further indicated that, for the specialist to conduct a proper study, they would need assistance from the farmer (landowner), noting that the specialist should visit the site when the landowner is available.	Ms Naicker responded by stating that Kongiwe would engage with the specialist regarding the method for taking the samples, and that the specialist could provide a procedure to address this specific request. Ms Viljoen acknowledged the comment and indicated that she would request Jean, the Hydro Senses specialist, to contact the stakeholders directly to explain the scope of his work in more detail and what is required from the study. **Post note:** Jean contacted Mr De Jager to inform him that site access has been arranged for 12 January 2026. He also provided further details regarding the study he intends to conduct.	Appendix C

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
Mr Johan De Jager, Indirectly Affected Landowner	Online Meeting (Microsoft Teams)	Monday, 15 December 2025	Mr De Jager expressed concern that not all relevant information had been presented and that the meeting seemed rushed, appearing to prioritise the commencement of the specialist study. He stated that he felt more preparation was needed from Kongiwe to adequately address questions regarding the scope and objectives of the study.	Ms Viljoen acknowledged the comment and explained that the project is still in its initial phase of the Scoping and Environmental Impact Assessment process. She further clarified that the purpose of the meeting was to provide an overview of the proposed Project, to provide an opportunity to raise initial comments and to inform landowners about the planned upcoming activities for the proposed project and to request permission or access for specialists to conduct their studies on the identified properties.	Appendix C
Mr Frans de Jager, Indirectly Affected Landowner, Grootspruit Family Trust	Email Correspondence	Tuesday, 19 May 2026	Good day, Attached please find the signed document as well as our formal feedback. Kind regards Frans de Jager	Dear Frans de Jager and Tertius de Jager, Kongiwe acknowledge receipt of your email and wish to confirm that your comments have been received.	Appendix C
			Comments received via email from Mr Frans de Jager dated, Tuesday, 19 May 2026 as per the email correspondence above.		
			We, Frans de Jager and Tertius de Jager, acting as Co-Trustees of the Grootspruit Familie Trust, hereby submit our formal comments regarding the Jelani Joint Venture (JV) Underground Mining Project.	Kongiwe acknowledge receipt of your email and wish to confirm that your comments have been received.	Appendix C
			The Trust is the owner of Farm Zuurbron, which falls within the broader hydrogeological influence area of the proposed underground mining	A Groundwater Impact Assessment will be available during the EIA phase of the Proposed Project.	Section 9.2

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
			activities. Our primary concern relates to the potential impact of deep-level mining on groundwater resources and the aquifer system that supplies Zuurbron.		
			1. Aquifer Sensitivity and Dependence Zuurbron relies entirely on a fractured-rock aquifer system for: • Livestock watering • Irrigation • Domestic use The aquifer is known to be sensitive to: • Groundwater drawdown • Changes in flow direction • Contamination migration through geological fractures	The Groundwater Impact Assessment will address concerns related to groundwater drawdown, changes in flow direction and the potential migration of contaminants through geological fractures.	Section 9.2
			2. Dewatering and Water Level Impacts Mining at depths of 1500–2600 m may cause significant lowering of groundwater levels. We request that the EIA/IWULA clearly quantify: • The predicted radius of influence	**<u>Response from Groundwater Specialist</u>** The quantifications are assumed to be requested for the aquifer from which landowner borehole sources tap groundwater, as this is the main concern for the owners of Zuurbron farm.	Section 9.2

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
			• Expected drawdown in metres • The risk to existing boreholes on Zuurbron • Mitigation and compensation measures for affected landowners	The farms in close vicinity of the proposed and existing mining sites are underlain by the shallow Karoo aquifer, which is the main source of groundwater for individual landowner borehole sources. For the three boreholes at the Zuurbron Farm it was established that one borehole is 18 m deep and another one approximately 30 m; no depth could be derived from the third borehole. This suggests that these boreholes are indeed abstracting from the Karoo aquifer. A groundwater level was obtained from one of the boreholes and measured to be 5.6 below ground level (mbgl), illustrating groundwater levels at Zuurbron are not substantially impacted upon by exiting mining dewatering activities. Evidence from existing hydrogeological reports (AquiSim, 2025) indicates that the shallow Karoo aquifer is not hydraulically connected to the deep Witwatersrand mine workings (See Figure 1 below). This has been shown by groundwater level data for shallow boreholes in the entire Harmony mining area which vary between 0 and 33 mbgl, show an average depth to groundwater of 5.3 mbgl and are mostly between 0-4 mbgl. For the area close to the proposed Jelani mine activities in specific, groundwater levels measured in	

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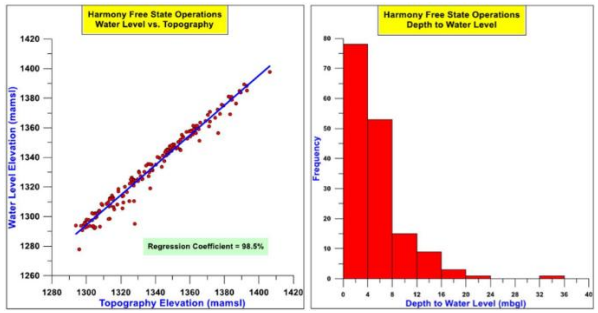
Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
				hydrocensus boreholes in December 2025 were observed to be between 0.6 and 5.3 mbgl. Where boreholes were pumped while visiting, deeper groundwater levels of 12.5 and 44.9 mbgl were observed, indicating drawdown effects due to the active borehole abstraction. This shows natural groundwater levels in the shallow Karoo aquifer are close to surface with no indication of any impacts by mine activities, and as such no regional radius of influence or drawdown effects have been observed in the shallow Karoo aquifer despite decades of mining at Target 2 and 3. Currently no evidence exists that mining has reduced regional shallow groundwater availability or has had a significant impact on shallow groundwater levels. 	

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				Figure 1: Groundwater Level Correlation with Topography and Depth to groundwater Level Existing mining at Target 2 dips to the west with a maximum mining depth of ~2 556 m below reference level. Mining at the Jelani project extends to a maximum depth of ~2 694 m below reference level (Figure 2, Figure 3 and Figure 4). The Target 3 mine to the south extends across an area of approximately 8 km2, with the Target 2 mine extending across an area of approximately 11 km2. In comparison, the Jelani project in covers only about 2.8 km2 with the vast majority aligning with the current Target 2 extent and as such represents a small, incremental extension within an existing mining footprint. Jelani extends only ~140 m deeper than existing Target 2 workings and is situated within an already dewatered deep mine environment. As there will be no new infrastructure built to connect to the surface as existing shafts will be used for access, groundwater inflows into the Jelani mine are expected to be controlled by surrounding fractures and existing	

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				Target 2 mine voids rather than any new regional aquifer capture. As the existing mining operations over an extensive area have not caused widespread shallow groundwater depletion, and Jelani is a comparatively small extension within an already operational mining area, substantial risks to existing boreholes at Zuurbron or other nearby farms are not expected. Continued groundwater monitoring, mine closure mitigations, groundwater management measures and compensation in case it is proven that the mine is impacting on shallow groundwater sources will be included in the specialist report.	

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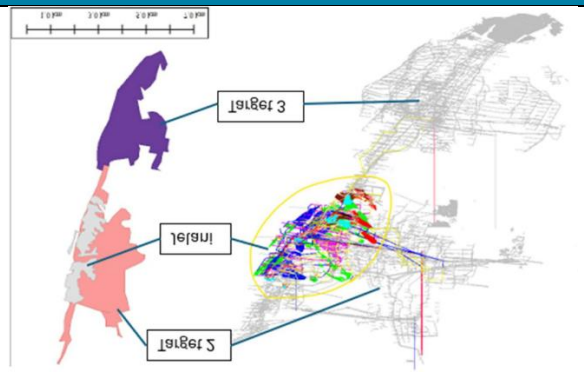
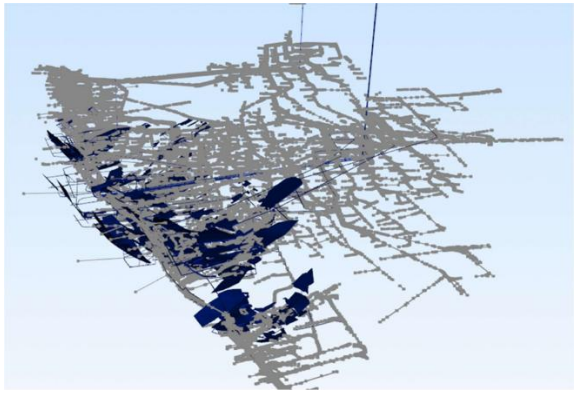
				 Figure 2: Jelani JV Mine Plan Compared to Existing Harmony Target 2 and 3 Mines. 	

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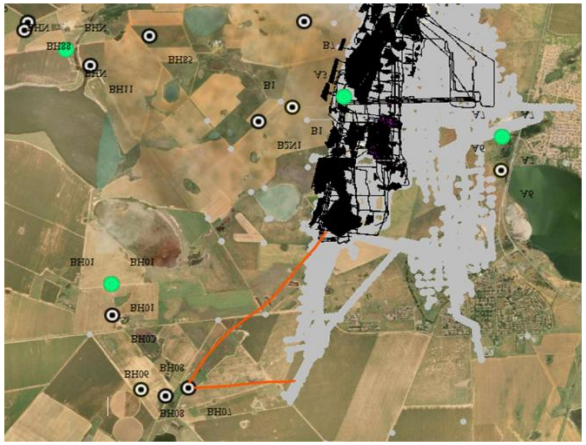
				Figure 3: Jelani JV Mine Plan Compared to Existing Harmony Target 2 Mine, Showing Partial Overlap Between Existing Mining (Grey) and Proposed Mining (Blue).  Figure 4: Jelani JV Proposed Mine Extent (Black) in Comparison to Existing Target 2 Mine Extent (Grey), Showing a Significantly Smaller Extent and Larger Distance to Zuurbron Farm. Findings of the Groundwater Impact Assessment will be incorporated into the Draft Environmental Impact Assessment (EIA) Report and the Integrated Water and	

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				Waste Management Plan (IWWMP) for Integrated Water Use Licence Application (IWULA).	
			3. Groundwater Quality and Contamination Risk Given the fractured geology, contaminants can migrate rapidly. We request: • A detailed hydrogeological model that includes Zuurbron and neighbouring farms • Assessment of potential migration pathways for mine-affected water • Monitoring for heavy metals, sulphides, and radioactive elements (including uranium)	**<u>Response from Groundwater Specialist</u>** A detailed hydrogeological model that includes groundwater pathways and contaminant plume migration for the area including Zuurbron Farm and neighbouring farms was completed by AquiSim . In this study, the main sources of contamination in terms of size and contamination were determined to be the Target No. 1 and 2 Tailings Storage Facilities (TSFs), the Target 2 TSF Evaporation Dam and the Swart Pan (Figure 5). The study uses sulphate, which is present in appreciable quantities in gold tailings, as a conservative tracer to illustrate the release and dispersion of waterborne contaminants to the groundwater. The Proposed Project will utilise the existing surface infrastructure with no additional or new infrastructure proposed, and therefore no changes in sources are expected. The images below (Figure 5 and Figure 6) show: 1. that the extent of the simulated sulphate plume does not extend to the Zuurbron Farm, as well as the groundwater flow directions	Section 9.2

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				showing a general westerly flow direction, and as such not towards the Zuurbron Farm boreholes. 2. existing contaminant plume modelling reportedly indicates only limited migration from current Waste Rock Dumps (WRDs) and TSFs. No major new pollution source infrastructure is proposed for the Proposed Project. Jelani will use existing mining infrastructure and is not expected to materially increase seepage source areas. 3. in term of potential contamination through underground mine voids, existing studies conclude that post-closure water levels are expected to remain several hundred metres below the Karoo aquifer and surface, making potential migration of deep mine water into the shallow aquifer system unlikely.	

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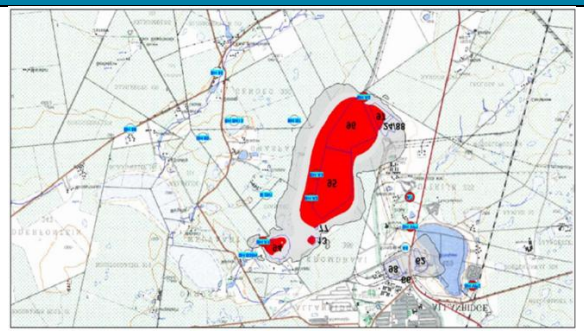
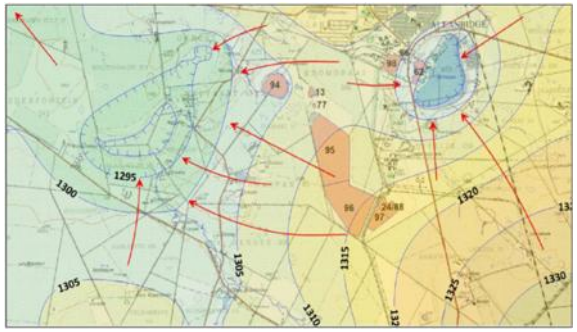
				 Figure 5: Simulated Contaminant Migration from Existing Mine Infrastructure.  Figure 6: Simulated Groundwater Contours (Karoo Aquifer) Indicating Main groundwater Flow Directions.	

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				Monitoring for heavy metals, sulphides, and radioactive elements (including uranium) will be included during the EIA process. The findings of the Groundwater Impact Assessment will be incorporated into the Environmental Impact Assessment (EIA) report and the Integrated Water and Waste Management Plan (IWWMP).	
			4. Inclusion of Zuurbron in Baseline and Ongoing Monitoring We request that all Zuurbron boreholes be included in: • Baseline water-level measurements • Chemical and bacteriological water-quality testing • Long-term monitoring We will provide access for sampling.	This request is currently under deliberation and will be considered, where appropriate, as part of the Groundwater Impact Assessment. Kongiwe will engage with you further in due course regarding the outcome of this consideration.	-
			5. Accountability and Reporting The final EIA/IWULA should specify:	The Groundwater Impact Assessment will address accountability and reporting requirements. The findings of the assessment will be incorporated into the EIA report and the IWWMP, outlining remediation and compensation measures if impact is proven and should	Section 9.2

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			• Who is responsible for remediation or compensation if boreholes dry up or become contaminated • The frequency of monitoring • How monitoring results will be communicated to affected landowners and the Trust	it be determined that the project may result in the drying up of boreholes in the surrounding area. The Draft EIA Report, EMPr, and IWWMP will include a monitoring programme and specify how monitoring reports will be communicated to affected landowners.	
			6. Request for a Technical Groundwater Session We request a dedicated technical meeting with landowners and specialists to address groundwater risks, modelling assumptions, and mitigation strategies.	An engagement between the Groundwater specialist will be arranged during the EIA phase.	-
			7. Protection of Trust Property Rights As the lawful owners of Zuurbron, the Grootspruit Familie Trust requires confirmation that: • No mining-related activities, servitudes, infrastructure, or access routes will be placed on Zuurbron without prior written consent from the Trustees	All mining infrastructure required for the Proposed Project will be located within the existing Harmony Target Mine mining right area. No new operational mining infrastructure is planned within the project area. To monitor potential mining-induced seismicity and boundary interactions with the adjacent Harmony Gold operations, four seismographic monitoring stations will be installed, spread equally along the shared boundary, with short gravel access tracks provided for each	Section 1.7

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			• Any future amendments to the groundwater model or impact predictions will be communicated to the Trust • The Trust will be consulted as an Interested and Affected Party throughout the project lifecycle	station. These installations represent the only surface infrastructures on the JV project area (see Chapter 1.7 of the Final Scoping Report). Any future amendments to the groundwater model or impact predictions will be communicated and subject to ongoing consultation between the Applicant and Interested and Affected Party as well as stakeholder throughout the project lifecycle. These will be included as considerations in the EIA Report and incorporated as conditions of the Environmental Authorisation (EA), should it be granted.	
			8. Need for Independent Professional Input on Underground Aquifer Impacts Given the depth and scale of the proposed underground workings, we request that the EIA/IWULA include independent specialist review by a professional hydrogeologist with proven experience in deep-level mining environments. This review must specifically address: • The vulnerability of the deep fractured aquifer system underlying Zuurbron • Potential long-term impacts on recharge, transmissivity, and fracture connectivity	The groundwater specialist appointed for the Proposed Project is an independent specialist with extensive experience and the necessary professional expertise to undertake the assessment in accordance with applicable legislative and technical requirements. An independent peer review will not be undertaken, as the assessment is being completed by an independent, suitably qualified and experienced hydrogeological specialist.	-

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
			• The likelihood of irreversible aquifer dewatering • The risk of cross-aquifer contamination or hydraulic short-circuiting caused by mining voids • Expert recommendations for protection, monitoring, and mitigation		
			The Trust requires assurance that aquifer-related risks have been evaluated using best-practice hydrogeological methods, peer-reviewed modelling, and independent professional oversight.	The Groundwater Impact Assessment will present the aquifer related risks. The groundwater specialist appointed for the Proposed Project is an independent specialist with extensive experience and the necessary professional expertise to undertake the assessment in accordance with applicable legislative and technical requirements. An independent peer review will not be undertaken, as the assessment is being completed by an independent, suitably qualified and experienced hydrogeological specialist.	Section 9.2
Comments raised during the Broader Stakeholder Meeting for the draft Scoping Report, dated, Wednesday, 27 May 2026.					
Mr Frans De Jager, Indirectly Affected Landowner	Online Meeting Microsoft Teams)	Wednesday, 27 May 2026	Mr De Jager stated that written comments had already been submitted to Kongiwe. He further enquired whether Ms Naicker had received the document that had been sent through.	Ms Naicker acknowledged receipt of the comments from the Grootspruit Familie Trust. She noted that the comments were of a highly technical nature and had therefore been shared with the appointed groundwater specialist for review and input.	

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				Ms Naicker further advised that the groundwater specialist is currently in the process of preparing a response. Once the specialist's feedback has been received, further engagement would be undertaken with Mr De Jager. ***Post-meeting note:*** The response on the written comments that was sent to Kongiwe was emailed to the stakeholders on Monday, 29 June 2026.	
			Mr De Jager stated that he did not want the consultation process to be treated merely as an administrative exercise to indicate that engagement had taken place with landowners. He noted that his primary concern relates to the potential impact of the proposed mining activities on his borehole water source and water quality, as well as what actions would need to be taken should the project impact his borehole water. He further raised concern regarding the depth of the proposed mining activities and the potential implications this may have on groundwater resources, including the possibility of lowering the water table or affecting aquifer systems. He	Ms Naicker explained that the appointed groundwater specialist would be required to assess these aspects in detail as part of the specialist assessment being undertaken for the Proposed Project. She advised that the findings of the groundwater assessment would provide responses to the concerns and questions raised by Mr De Jager regarding potential impacts on groundwater resources and water quality. Ms Naicker further explained that the project is currently in the scoping phase, during which potential impacts associated with the proposed project are identified together with comments and concerns raised by interested and affected parties. She noted that the subsequent phase of the process would involve detailed	Section 9.2

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			queried what measures or actions would be implemented should adverse impacts on water resources occur. Mr De Jager emphasised the need for direct engagement with a qualified hydrologist or groundwater specialist with experience in underground mining projects, who could explain the location of aquifers, the depth of boreholes, and the potential implications of the proposed mining activities on surrounding groundwater resources. He further indicated that affected farmers would like to be shown the exact location of the proposed mining areas in relation to their water sources in order to better understand whether any impacts may occur. Mr De Jager concluded by reiterating that the availability and quality of water resources are of critical importance to farming operations and that this remains the primary concern of the affected landowners and further indicated that he would appreciate it if the submission from the Grootspruit Familie Trust could be shared with other affected landowners.	impact assessments relating to each identified potential impact, including a dedicated groundwater impact assessment. Ms Naicker confirmed that, once the groundwater assessment has been completed, further engagement would be undertaken with affected stakeholders. She further advised that the request for engagement with the groundwater specialist had been noted and that arrangements would be made for a session during which the findings of the groundwater assessment would be presented and discussed with the affected farmers and landowners.	

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			Mr De Jager stated that he had additional comments which had not been included in his previously submitted document. He noted that these comments relate to the proposed power supply requirements for the project. He estimated that a mine of the proposed scale would likely require a power supply capacity of approximately 20 Megavolt-Amperes (MVA). He therefore enquired whether new Eskom powerlines would be constructed to service the proposed mining operations and requested clarity regarding the proposed routing of such infrastructure. Mr De Jager further queried how the proposed powerline infrastructure may affect his property and surrounding farming properties. He noted that understanding the location and extent of the associated infrastructure is important in order for affected landowners to gain a clearer understanding of the overall project layout and its potential impacts. He reiterated that this remains an additional concern for affected farmers and landowners. Mr De Jager further noted that, prior to his retirement, he had served as a Planning Manager	Ms Naicker responded that a more detailed response regarding the power supply would be provided. However, at this stage, based on the Propose Project's infrastructure requirements, the intention is to utilise existing infrastructure that can be shared with the existing mine operations. **Post meeting Note:** Both Target No. 3 and Target No. 2 shafts have existing Eskom bulk supplies providing power for the care and maintenance operations. The 3 Shaft main substation has sufficient installed capacity in order supply the power requirements for the phase 1 mining operation. The 2 Shaft main substation will require a complete upgrade. Target No 3 Shaft Bulk Supply The No. 3 shaft substation is supplied at 6.6kV from the Eskom bulk supply 44/6.6kV substation, which includes the following 44/6.6kV transformers: • 2 x 10MVA transformers • 2 x 5 MVA transformers	Section 1.8

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			at Eskom and therefore had experience relating to electricity supply requirements. Based on his experience, he advised that a mine of the proposed scale would likely require approximately two 20 MVA power supplies and expressed the view that there may currently be insufficient electricity supply capacity available for the project. Mr De Jager stated that, in his opinion, additional 132 kV or 88 kV powerlines may need to be constructed to supply electricity to the proposed mining operations. He requested that these potential infrastructure requirements and associated impacts be taken into consideration as part of the project assessment process.	• 4 x 3.1 MVA transformers No. 3 shaft will supply the complete power requirements for the phase 1 mining, which includes the first two years of production. During this initial period the repair and upgrading of No. 2 shaft facilities will occur, following which the mining operation will be supplied from No. 2 shaft. The calculated peak demand for No. 3 shaft is as follows: • Phase 1 – 12.5 MVA • Phase 2 – 1 MVA (Only JV project load) The existing No. 2 shaft substation is supplied at 6.6kV from the Eskom bulk supply 44/6.6kV substation and consists of the following 44/6.6kV transformers: • 1 x 5 MVA transformers • 2 x 3.1 MVA transformers The No. 2 shaft substation will require complete upgrade of both the Eskom and mine substations in order to supply the additional load of the Jelani JV project.	

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Mr Willem Taljaard, Directly Affected Landowner	Online Meeting Microsoft Teams)	Wednesday, 27 May 2026	Mr Taljaard referred to the land tenure map presented during the meeting and stated that his family owns the farms Swartpan, Diamant Graspan and the majority of Welvaart. Mr Taljaard sought clarification regarding the proposed mining operations and indicated that, based on his understanding of the presentation, Target 2 and Target 3 Shaft would be utilised for the proposed mining activities together with the associated Harmony Target slimes dam. He queried whether his understanding of the Proposed Project infrastructure and operations was correct.	Ms Naicker responded that the proposed project intends to utilise existing infrastructure associated with Harmony Target Mine. This includes the Target No. 3 and No. 2 shafts, the Target No. 1 Processing Plant and associated surface infrastructure. All mining infrastructure required for the Proposed Project will be located within the existing Harmony Target Mine mining right area. No new operational mining infrastructure is planned within the project area. Information regarding the new TSF will be provided in the EIA phase.	Section 1.7
			Mr Taljaard stated that the farms previously referenced are directly adjacent to the existing Harmony Target slimes dam. He further noted, in his capacity as a landowner operating adjacent to mining activities, that he has experienced ongoing operational and environmental concerns associated with the existing operations. He reported that he has previously raised complaints with the mine regarding contaminated water, which he described as cyanide-impacted water, reportedly discharging from the slimes dam area onto his agricultural land. He further expressed	Ms Naicker explained that, in terms of the impact assessment process, the next phase of the study, which is the Environmental Impact Assessment (EIA) phase would provide a more detailed evaluation of potential impacts, including those relating to underground water resources and potential pollution impacts. She reiterated that these aspects would be assessed in greater detail as part of the specialist studies to be undertaken.	Section 9.1 Section 9.2

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			concern regarding the adequacy and reliability of maintenance responses to such incidents, stating that delays in pump repairs have occurred. With regards to potential pollution impacts on boreholes, Mr Taljaard commented that their galvanised pipes corrode rapidly. He stated that, as a result, the water is not suitable for human or animal consumption. He further noted that overflow from Harmony Target evaporation and return water dams, located within the Jelani project site, has occurred during periods of heavy rainfall in recent years, which he indicated has resulted in downstream impacts, including loss of grazing land. Mr Taljaard expressed that, in his view, the introduction of additional mining activities may exacerbate existing issues. He further stated that he shares the concerns previously raised by Mr De Jager regarding potential impacts on boreholes and the risk of reduced or lost groundwater availability.	The Groundwater Impact Assessment will be conducted in the EIA phase and will consider the assessment of impacted presented, where possible.	
Mr Eduard Steyn, Directly Affected Landowner.	Online Meeting	Wednesday, 27 May 2026	Mr Steyn stated that he is a neighbouring landowner to Mr Taljaard and indicated that he shares the concerns raised regarding underground	Ms Naicker responded that the Surface Water Assessment as well as the Groundwater Impact Assessment would be undertaken as part of the EIA	Section 9.1 Section 9.2

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	Microsoft Teams)		water resources. He further noted concerns relating to above-ground water resources, including dams, pans and surrounding wetland features. He enquired what impact the proposed mining activities would have on above-ground farming operations. In particular, he requested clarity on potential impacts on farm infrastructure, roads, water resources, and farm labour residing on the properties.	process. She explained that this specialist assessments would identify and assess potential impacts (including roads and surface water), including the significance of such impacts, and would also propose appropriate mitigation measures. This information would be included in the Draft EIA Report and Environmental Management Programme (EMPr). Ms Naicker further advised that, at this stage, the project considers the use of existing operational mining infrastructure.	
Ms Karabo Mabyana, Statutory Control Officer, SANRAL	Online Meeting Microsoft Teams)	Wednesday, 27 May 2026	Ms Mabyana stated that she generally shares the concerns raised by Mr De Jager and other attendees regarding the potential impacts of the proposed activities on neighbouring properties. She enquired how such activities would affect surrounding landowners and to what extent such impacts may be experienced.	Ms Naicker responded that, in terms of the surface infrastructure on directly affected properties, the project currently considers only monitoring stations and the associated access roads (see Section 1.7 of the DSR). Potential impacts associated with these infrastructures will be investigated further through specialist assessment such as the biodiversity, surface water etc, which are currently being undertaken to support the application for Environmental Authorisation (EA).	Section 1.7
			Ms Mabyana requested clarification on the intention regarding SANRAL's property, noting that although it may not be directly affected, she sought clarity on whether and how it may be impacted by the Proposed Project. She indicated	Ms Naicker advised that she would consult with the technical team regarding the potential future land use implications, as this matter requires further technical input. She reiterated that the current project proposes to utilise the existing Harmony Target Mine surface	Section 1.9 Section 9.2

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			that understanding the extent of potential impact remains a key concern for affected stakeholders. Ms Mabyana sought further clarification regarding potential future land use implications, including whether any land uses classified as subservient to mining activities may affect surrounding properties in any manner.	infrastructure to support the underground mining operations. Ms Naicker confirmed that feedback would be provided to Ms Mabyana following consultation with the technical team. She further noted that, at this stage, the assessment considers monitoring stations located within the directly affected surface footprint. Specialist assessments for the Proposed Project will be conducted in the EIA phase. The findings of these assessments will be included in the Draft EIA Report. **Post Meeting Note:** Closure and Rehabilitation Planning The Mine Closure and Rehabilitation Plan to include post-closure land use, rehabilitation of tailings and waste rock dumps (WRDs), and water treatment measures as well as provide an estimate of the financial provisioning required for closure, in line with NEMA regulations and the Mine Works Programme as required by the MPRDA.	
Ms Mariette Liefferink, CEO, FSE	Online Meeting	Wednesday, 27 May 2026	Ms Liefferink indicated that her comments were comprehensive and requested that they be	Ms Naicker acknowledged that at this stage of the Scoping phase, only high-level desktop baseline studies have been conducted; however, specialist studies will	Section 7

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	Microsoft Teams)		treated as recommendations rather than objections. She first commended Kongiwe, stating that she is familiar with the organisation and that there is a generally positive working relationship. She noted that the report is well structured and aligns with the EIA Regulations. However, she expressed the view that the Scoping Report remains largely a high-level desktop study with limited site-specific empirical specialist input. She further noted that the report acknowledges its baseline information is primarily derived from desktop investigation, which she indicated introduces uncertainty. Ms Liefferink concluded by reiterating that the comments should be considered recommendations and that a detailed response is requested. She further confirmed that she has no adversarial position toward the applicant and expressed willingness for constructive engagement.	be finalised in the EIA phase, and findings will be included in the Draft EIA Report.	
			Ms Liefferink raised concerns regarding the absence of a radiological assessment for the Proposed Project, given the uranium mining context and associated risks related to uranium,	The geology of the Proposed Project area is a direct extension of the geological formations occurring within the Harmony Target Mine mining right area (Section 7.3 of the DSR), which has already been subject to detailed	Section 2 Section 7.3

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			radioactive decay products, and long-term exposure pathways. She highlighted the need to consider radiological risks, including radon exposure, radioactive waste management, regulatory requirements, and potential radiological implications associated with other minerals such as molybdenum. She further recommended that water quality assessments consider uranium toxicity thresholds and human health risks. In addition, concerns were raised regarding legacy mining impacts, including acid mine drainage (AMD), sulphide oxidation, long-term environmental degradation, and the need to assess closure liabilities and post-closure water quality risks.	radiological assessment and regulatory approval (2024 Free State Radiological Public Safety Assessment: System Description, undertaken by AquiSim Consulting (Pty) Ltd for Harmony Gold Mining Company Limited - Free State Operations). Harmony Gold Mining Company Limited, a joint venture partner in Jelani Resources, already holds a Radiological Public Safety Assessment for its Free State operations, as well as a valid Certificate of Registration (CoR Regulation 10) issued by the National Nuclear Regulator (NNR) for its Target Mine operation located adjacent to the Proposed Project area. The proposed underground mining operation will involve the excavation of mineral resources within the Proposed Project area. However, access to and egress from the underground workings will be undertaken through the existing Harmony Target shafts, and the ore will be processed using the existing Harmony Target operational mining infrastructure. These shafts, operational systems and geological formations have already been assessed and approved by the NNR. Although uranium is listed as a potential co-product within the mineral resource, the Proposed Project does	Section 9.2

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				not introduce new processing streams or changes in radiological exposure pathways beyond those already authorised under Harmony's existing operations. Based on the above, it is considered that the Proposed Project does not introduce new or materially different radiological risks that would warrant a standalone Radioactivity assessment at this stage. It was further noted that a Radiological Public Safety Assessment is a key requirement for an initial CoR application. International best practice recommends that such assessments be reviewed and updated every 3 to 5 years. Should the project be authorised, the Jelani Project's contributions will be incorporated into the next scheduled update of the radiological assessment. The Radiological aspects will be included in the EIA report. It is further noted that the EIA phase will assess potential impacts associated with groundwater and surface water quality, including existing legacy mining influences, AMD-related risks, and relevant human health considerations where applicable. The assessment will also consider closure and post-closure	

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				environmental risks in accordance with the applicable regulatory requirements.	
			The high-level nature of the assessment does not adequately address cumulative impacts, including groundwater risks, seismicity, biodiversity sensitivity, socio-economic impacts, and radiological risks associated with uranium and its progeny. She emphasised that uranium has a very long half-life and that environmental impacts may persist over geological timeframes, not only biological timescales, which should be considered in closure liability planning. Existing Tailing Storage Facility (TSF) may present seepage and contamination risks; therefore, cumulative impacts should be assessed. In addition, the potential cumulative impact of a proposed new 69-hectare TSF should be assessed. It is noted that this will be a separate application undertaken by Harmony Gold.	The assessment of cumulative impacts will be undertaken during the detailed EIA phase, and appropriate mitigation measures will be proposed. The impact identification and evaluation methodology applied by all specialists incorporates cumulative impacts quantitatively to determine the final impact score and corresponding significance rating (refer to Section 8.3 of the DSR).	Section 8.3
			The Scoping Report is largely a high-level desktop assessment with limited site-specific empirical specialist input, creating uncertainty in the baseline conditions.	The Scoping Report is intended to provide a preliminary assessment of the receiving environment and identify potential issues, sensitivities, and information gaps requiring further investigation. Detailed site-specific	Section 9

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
				baseline studies, fieldwork, and empirical data collection will be undertaken during the EIA phase through the relevant specialist assessments, which will refine the baseline conditions and inform the impact assessment. A Plan of Study for the EIA has been developed during the Scoping Phase.	
			The report states there are no alternative sites considered, and all required infrastructure will be located within the Harmony Target mining right area, indicating that this is not compatible with Section 24 of NEMA as well as the EIA Regulations, because it requires a comparative assessment of feasible and reasonable alternatives. The alternatives that must also be considered include, layout, technology, operational, and no-go alternatives. Reliance on existing infrastructure does not automatically make the site environmentally preferable. It was recommended that the assessment consider whether the proposed development represents the best practicable environmental options in	The Proposed Project intends to initiate an underground mining operation within the Joint Venture area to extract various minerals, primarily Gold, along with Silver, Uranium, and associated minerals. Jelani Resources Pty Ltd holds the Prospecting Rights for these minerals in this area. The Proposed Project follows the completion of the Prospecting Phase, which confirmed the viability of developing an underground mining operation and identified significant potential mineral resources to support such development. Additionally, the Proposed Project intent to utilise available spare capacity within Harmony's existing infrastructure at the Target Mine, which is located adjacent to the JV area. As the potential mineral resources were confirmed within specific properties and the required supporting operational mining infrastructure already exists within Harmony's Target	Section 1.7 Section 5

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
			terms of National Environmental Management Act (NEMA) principles.	Mine mining right area, the activity is constrained to these locations. Therefore, no alternative sites are feasible. Furthermore, Activity, Design and Technology and Operation alternatives have been considered, and the no go alternative has been included (see Section 5 of the DSR).	
			The report also appears to heavily relay on the argument that the infrastructure planned to be utilised for the project is already existing but this is not sufficient justification for excluding site assessment as the no-go alternative and the approach to site alternatives may be legally vulnerable because cumulative impacts in the region may already be severe due to the legacy of gold mining within the Witwatersrand and Free State goldfields. Concerns were also raised that, in addition to regional legacy impacts, existing impacts within the Harmony Target mine area itself should be considered.	The use of existing infrastructure is one of several factors considered and does not replace the assessment of alternatives. The No-Go Alternative will be assessed during the EIA phase. The EIA phase will include an assessment of cumulative impacts, taking into account both the legacy impacts of mining within the region and existing impacts associated with the Target Mine operations.	Section 5 Section 8.3
			The scoping report acknowledges the groundwater impacts such as the dewatering of deep aquifer causing groundwater level decline,	The Groundwater Impact Assessment will be conducted in the EIA phase and will consider the assessment of impacted presented, where possible.	Section 9.2

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
			lowering of the water table in the shallow aquifer, groundwater flow alteration and potential seepage of mine water to the groundwater system, which may contaminate groundwater resources. Groundwater impacts require more detailed assessment, including: a. Deep aquifer dewatering, which may alter regional groundwater flow partners b. Aquifer connectivity and transmissivity c. Drawdown cone modelling d. Regional groundwater flow impacts beyond the mine area e. Decant risks and post-closure rewatering scenarios f. Long-term mobilisation of contaminants, including uranium and other metals. The hydrogeological assessment should include geochemical testing, sulphur balance analysis, radionuclide mobility, and long-term post-closure monitoring.		
			The scoping report confirms the project activities trigger section 21 water uses, necessitating the application for Water Use License. However, water balance information, water demand projections,	An application will be submitted to Department of Water and Sanitation (DWS). As part of the WUL application process, supporting technical report, including the Integrated Water and Waste Management	-

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
			cumulative water stress analysis, and regional water status have not been presented. It was recommended that water quality discharges comply with Resource Quality Objectives and Water Use Licence conditions, with reference to uranium toxicity thresholds and associated human health risks	Plan (IWWMP) will be developed. The IWWMP will address the water balance information, water demand projections, cumulative water stress analysis, and regional water status as well as water quality objectives requirements.	
			Seismicity and subsidence risks require further assessment and monitoring plan.	Blasting and Vibration Assessment will be undertaken during the EIA phase, and the outcomes of this study will be presented and assessed in the Draft EIA Report.	Section 9.2
			Closure liabilities and long-term environmental risks, including post-closure AMD generation and water quality deterioration over geological timeframes, should be incorporated into assessments.	The Groundwater Impact Assessment will be conducted in the EIA phase and will consider the assessment of impacted presented, where possible.	Section 9.2
			Biodiversity and ecological impacts require further detailed assessment, including aquatic ecology, wetlands, grassland sensitivity, and cumulative biodiversity impacts, indicating that the project area is heavy disturbed and therefore stringent mitigation measure are required.	A Terrestrial Biodiversity (Flora and Fauna) Assessment Study and Freshwater and Aquatic Biodiversity Assessment Study will be conducted in the EIA phase. The EIA phase will include an assessment of cumulative impacts.	Section 9.2
			Socio-economic vulnerability in mining-affected communities was highlighted as an ongoing	A Socio-Economic Impact Assessment will be conducted during the EIA phase.	Section 9.2

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
			concern and should be considered in the assessment.		
Mr Neels Hoek, Project Manager, Jelani Resources	Online Meeting Microsoft Teams)	Wednesday, 27 May 2026	Mr Hoek thanked all attendees for their participation in the meeting. He further extended specific appreciation to Ms Liefferink for her detailed comments.		Appendix C
Ms Umeshree Naicker, Principal Environmental Consultant, Kongiwe	Online Meeting Microsoft Teams)	Wednesday, 27 May 2026	Ms Naicker added a final comment, thanking all attendees for participating in the meeting and for providing their comments. She noted that the project team would work through and address all comments raised during the meeting. She further advised that the team would remain in communication with all attendees going forward and that feedback would be provided on the matters raised. She encouraged attendees to submit any additional comments not raised during the meeting directly to Kongiwe stakeholder engagement team, noting that contact details had been provided. Ms Naicker concluded by stating that the team looks forward to continuing engagement and addressing all inputs received in relation to the project.		Appendix C
Comments raised during the Open Day in-person Meeting for the draft Scoping Report, dated, Saturday, 30 May 2026.					
Community Member (Ms Khanyisile)			Ms Khanyisile enquired whether the community will experience additional Tailings Storage Facilities (TSFs), noting that dust emissions are currently affecting the community. She further indicated that crops (agricultural activities) near Shaft 2 are also impacted and raised concerns regarding water usage and water quality.	Mr Macevele explained that the Proposed Project's development plan includes the utilisation of available spare capacity within Harmony's existing infrastructure at the Target Mine. This includes Target No. 2 and No. 3 shafts, the Target No. 1 Processing Plant, and associated surface infrastructure. All operational mining infrastructure, including Tailings Storage Facilities (TSFs) required for the Proposed Project, will be located within the existing Harmony Target Mine mining right area. No	Section 1.7 Section 8.3 Section 9

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
	Open Day	Saturday, 30 May 2026		new operational mining infrastructure is planned within the project area (refer to Chapter 1.7 of the Final Scoping Report (DSR) for a detailed project description). He further noted that a new Tailings Storage Facility (TSF) is proposed to be constructed to the west of the existing Target metallurgical plant and north of the existing Target TSF. However, this TSF forms part of a separate project and application being undertaken by Harmony Gold and is not included in the current Proposed Project. The project is currently in the Scoping Phase of the Environmental Impact Assessment (EIA) process. At this stage, the Final Scoping Report (FSR) has identified high-level potential impacts and associated mitigation measures for the Proposed Project (refer to Table 9-3 of the DSR). Should the application proceed to the EIA phase, Chapter 9 of the DSR outlines the proposed Plan of Study for the EIA. The Plan of Study includes detailed specialist assessments covering key environmental aspects such as biodiversity, surface water, groundwater, air quality, soil, agriculture, climate etc. These studies will assess potential impacts, including those related to water	

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
				quality and air quality, in greater detail and propose mitigation measures. The findings of the specialist assessments will be included in the EIA Report and presented to stakeholders and interested and affected parties (I&APs) during the public participation process for the EIA phase. In accordance with the National Environmental Management Act (NEMA) and the Environmental Impact Assessment (EIA) Regulations, the environmental assessment will include an evaluation of cumulative impacts.	
			Ms Khanyisile requested that the EIA documents be translated into other languages used in the area, such as Sesotho and Afrikaans, during the next Public Participation Process window.	The Public Participation Process will continue to accommodate the predominant languages spoken within the Project area. Accordingly, key project information and engagement activities will be made available in English and Sesotho, where appropriate, to promote meaningful participation and understanding by Interested and Affected Parties. The full Environmental Impact Assessment report will remain available in English, as the official language of submission to the Competent Authority.	Appendix C Social and Labour Plan
Mr Molefi Abel Thebeeahae (Director of KB	Open Day	Saturday, 30 May 2026	Mr Molefi raised a concern regarding the Social and Labour Plan (SLP). He stated that the presentation did not adequately explain what the	**Public Engagement Discussion** Kongiwe has been appointed by Jelani Resources (Pty) Ltd to undertake the required applications for	Appendix C Social and Labour Plan

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
Salman Civil Engineering and General Projects)			SLP entails and how it benefits the mine community. He further expressed concern that the presentation indicated the SLP would be treated as an expansion of the existing Harmony Target Mine SLP. He emphasised that the existing Harmony Target Mine SLP does not benefit the mine-affected community. He recommended that the Jelani Resources SLP be reviewed to ensure that it includes tangible benefits for the communities directly affected by the mining operations.	Environmental Authorisation (EA) and the Integrated Water Use Licence (IWUL), as well as the development of the Social and Labour Plan (SLP) for the Jelani Project. A key component of our scope includes facilitating the Public Participation Process (PPP) associated with the Proposed Project. As part of the PPP, stakeholders and interested and affected parties must be consulted. As mentioned above, Kongiwe is assisting Jelani Resources with developing its own SLP, which is currently under public review. Ms Naicker explained that an SLP is a legally required document that mining companies in South Africa must submit as part of their application for a Mining Right (MR). It is developed in terms of the Mineral and Petroleum Resources Development Act (MPRDA) and outlines how the company will contribute to the social and economic development of affected communities and employees. The SLP sets out the company's commitments in areas such as skills development, local economic development, employment equity, and improved living conditions for workers. With specific reference to the Jelani Project SLP, the Matjhabeng Local Municipality and the ward councillor	

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
				were engaged to identify community needs and the SLP initiatives. Through this process, the refurbishment of the Community Hall was identified. Should the SLP be approved, it must therefore be reviewed every five years. As part of the initial phase (Jelani Project SLP 1), the Nyakallong Community Hall will be refurbished to support and promote socio-economic development within the local community. Given that the Jelani Project is not yet operational, limited funding is expected during this phase. In the second phase (Jelani Project SLP 2: Years 5–10), increased funding is anticipated, which may enable the implementation of larger community development projects. **Post Meeting Note** Kindly note the clarification as follows: The stakeholder engagement being undertaken relates to both the EA and the SLP. The public meeting included an overview of the SLP and specified the proposed LED Project. Selection of LED programmes are subject to	

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
				alignment with the Matjhabeng Local Municipality's Integrated Development Plan (IDP) (2024/2025) in conjunction with recommendations made by the Matjhabeng Local Municipality's Executive Director of LED. In light of the chronic lack of capacity by Matjhabeng Local Municipality to provide funds to support Jelani in LED projects, investment in the Nyakallong Community Hall for this initial SLP cycle – which requires minimal maintenance while providing long term functions for the community - is the preferred option for both the Matjhabeng Local Municipality and Jelani. Although the Jelani Project is a joint venture (JV) between Harmony Gold and White Rivers Exploration (Pty) Ltd (WRE), Jelani Resources, as the applicant and prospective holder of the Mining Right (should it be granted), will be responsible for the implementation of the SLP. Accordingly, comments relating to Harmony Gold's existing SLP for the Target Mine fall outside the scope of this SLP process and should be directed to Harmony Gold through the appropriate engagement channels.	
Community Member	Open Day	Saturday, 30 May 2026	Community member commented that, in future, the Kongiwe project team should focus their	**Post Meeting Note**	Appendix C

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
			presentations on the specific project they have been appointed to undertake, namely the development of the SLP for Jelani Resources. The inclusion of the existing Harmony Target Mine SLP was viewed as unnecessary, as it is perceived not to benefit the community and may lead to additional questions directed at the Kongiwe team.	Kindly note the clarification as follows: The stakeholder engagement being undertaken relates specifically to the **mining project proposed by Jelani**, and not **Harmony Gold Mining Company Limited**. Although the Jelani Project is a joint venture (JV) between Harmony Gold and White Rivers Exploration (Pty) Ltd (WRE), Jelani Resources, as the applicant and prospective holder of the Mining Right (should it be granted), will be responsible for the implementation of the SLP. Accordingly, comments relating to Harmony Gold's existing SLP for the Target Mine fall outside the scope of this SLP process and should be directed to Harmony Gold through the appropriate engagement channels.	Social and Labour Plan
Community Member	Open Day	Saturday, 30 May 2026	He further stated that the Jelani Project SLP should include provisions for bursaries for the community, rather than focusing solely on the refurbishment of the Nyakallong Community Hall. He emphasised that a more pressing community need is the development of a clinic, which would provide greater benefit, as the Community Hall is reportedly used more by the Municipality than by the community.	**Public Engagement Discussion** The LED project is only one of numerous social development initiatives. Jelani will implement various training programmes relating to AET, core business, learnerships and portable skills. **Post Meeting Note** In consultation with the MLM, Jelani will award a limited number of bursaries per year (no more than three) to	Appendix C Social and Labour Plan

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
			He concluded by recommending that, when recruitment process begin, the mine community must be considered.	HDPs from the local community to study for a diploma or degree at an accredited tertiary institution in South Africa. The bursaries will be focused on engineering (particularly mine engineering and metallurgy), geology or environmental management. Jelani's SLP 2: will make provision for further bursary opportunities.	
Community Member	Open Day	Saturday, 30 May 2026	Community member stated that any company proposing to undertake mining activities within the Allanridge area should have a formal written agreement with the affected community. He expressed the view that the current consultation process appears to be a 'tick-box' exercise, indicating concern that signatures on attendance registers may be used to support authorisation applications.	**Post Meeting Notes** The purpose of the Public Participation Process is to provide Interested and Affected Parties with an opportunity to obtain information about the Proposed Project, raise concerns, and submit comments for consideration as part of the environmental assessment process. Attendance registers are used solely as a record of participation and do not constitute support for, or consent to, the Proposed Project or the environmental authorisation application. All comments received will be objectively considered and addressed in the Comments and Responses Report.	Appendix C
			Regarding the EIA process, he questioned where the Draft Scoping Report hard copy is made available for public review, noting that some community members may find it difficult to access the Allanridge Library. He emphasised that, during	Mr Macevele responded by stating that Kongiwe is an independent environmental consulting firm conducting EIA process, including an independent Public Participation Process (PPP), in accordance with the EIA Regulations. He referred to his presentation on the role	Appendix C

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
			the next consultation period, more hard copies should be placed in easily accessible public areas throughout Allanridge to improve access.	of Kongiwe and the phases of the S&EIA process, emphasising that once a decision on the application for Environmental Authorisation (EA) has been made by DMPR (the Competent Authority), any I&APs who feel aggrieved by the decision have the right to appeal. He noted that the outcome of the application, along with information regarding the appeal process, will be communicated to all I&APs). Regarding copies of the Draft Scoping Report, he indicated that for those with internet access, the report is available on Kongiwe's website under the public documents section. He also highlighted that the Kongiwe team is available to assist attendees with downloading the report. Additionally, the Kongiwe stakeholder consultation team remains available to assist with any PPP matters, and community members are encouraged to reach out for support where needed.	
			He recommended that Jelani Resources should present its economic development plan to the community and engage them before finalising the SLP. This would allow the community to provide input on key development initiatives to be included in the SLP, such as SMME participation, targets for the inclusion of women in mining, and the involvement of persons living with disabilities.	**Public Engagement Discussion** With specific reference to the Jelani Project SLP. Ms Naicker explained that the Matjhabeng Local Municipality and the ward councillor were engaged to identify community needs and the SLP initiatives.	Appendix C Social and Labour Plan

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
			He emphasised the need for a signed agreement outlining community benefits prior to submission of the SLP to the Department of Mineral and Petroleum Resources (DMPR).	Through this process, the refurbishment of the Nyakallong Community Hall was identified. She further indicated that the current consultation process is intended to present the contents of the SLP. All submissions are being recorded and will be included in the Comments and Responses Report to be submitted to the DMPR for evaluation and decision-making. She noted that the SLP timeframes differ from those of the EIA process. She also indicated that, upon receiving the outcome of the SLP, Jelani Resources will be required to communicate the contents of the approved SLP as follows: • to the public within 30 days; • to the local community within 180 days (through a public communication process); and • to employees immediately upon their appointment. **Post Meeting Notes** Local contractor teams/ SMMEs will be considered favourably during the procurement process for the LED	

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				programme, on the condition that they have the pre-requisite certifications for their trade.Selection of LED programmes are subject to alignment with the Matjhabeng Local Municipality's Integrated Development Plan (IDP) (2024/2025) in conjunction with recommendations made by the Matjhabeng Local Municipality's Executive Director of LED.	
			Future consultation meetings should be conducted through presentations delivered by a speaker using a projector, rather than posters.	Mr Macevele acknowledged the comments regarding the format of future consultation meetings. He noted the request that meetings be conducted through presentations delivered by a speaker using a projector rather than posters.	Appendix C
Community Member	Open Day	Saturday, 30 May 2026	Community member asked about all the potential mineral resources in the Proposed Project area, that Jelani plans to extract, as well as the current activities at Harmony Target 3.	Jelani intends to initiate underground mining operations. The Proposed Project involves obtaining licenses for the underground mining of the following potential mineral resources: • Gold ore (primary target), • Silver ore, • Uranium ore, • Sulphur, • Platinum Group Metals, • Rare earths, • Diamonds (alluvial), • Copper ore,	Section 1.7

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
				• Cobalt ore, • Manganese ore, • Molybdenum ore, • Nickel ore, • Lead ore, • Tungsten ore, • Zinc ore, and • Iron ore. At present, the Harmony Target 3 Shaft is used for dewatering, while the Target 2 Shaft serves as an emergency exit for Target 1.	
Community Member	Open Day	Saturday, 30 May 2026	Community member raised concerns regarding how information was circulated, suggesting that it should be communicated to all interested and affected parties, taking into account the geographical layout of Nyakallong and Allanridge. He recommended that public consultation documents be placed in accessible public areas such as schools, municipal offices and other community facilities to improve access. Concern was noted that currently the documents are only available at the Allanridge Library.	The recommendation to make project documentation available at additional public facilities within Nyakallong and Allanridge, where feasible, will be considered for the EIA phase of the Public Participation Process to improve accessibility. Furthermore, future public engagements will continue to accommodate the predominant languages spoken within the Project area, with presentations and key project information being provided in English and Sesotho, where appropriate, to facilitate meaningful participation and understanding.	Appendix C

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
			He further suggested that future presentations be conducted in Sesotho to ensure broader understanding.		
			Comment Register - Key Issues Recorded: Please refer to Appendix B for the submissions recorded in the comment register collected during the Open Day.		
			1. Unemployment	A Social Impact Assessment will be conducted in the EIA phase and will consider the Proposed Project's impact on unemployment. The findings of the assessment will be included in the Draft EIA Report and presented to the I&APs. At present, as part of the Social and Labour Plan, the Nyakallong Community Hall will be refurbished. This forms part of the Local Economic Development (LED) project approved by the Matjhabeng Local Municipality. This initiative is expected to contribute to short-term employment. There will be no employees on the Jelani payroll in the first four years of the SLP cycle. In Year 5, there will be 39 employees on the Jelani pay roll. The breakdown of these employees, based on job grading bands, there will be no personnel on contractor's payrolls or service provider payrolls.	Appendix C Social and Labour Plan

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<table>
<tr><th>Stakeholder</th><th>Consultation Method</th><th>Date of Comments Received</th><th>Issues Raised</th><th>Response to issues raised</th><th>Section Reference in the Report</th></tr>
<tr><td></td><td></td><td></td><td></td><td>Where possible, Harmony workers will be sourced from Target. If Target cannot provide all Harmony workers, the balance will be obtained from other Harmony mines in the Free State Goldfields area.

Table 1: Number of Jelani Employees, by Job Grading

<table>
<tr><th>Job Grade</th><th>Year 1</th><th>Year 2</th><th>Year 3</th><th>Year 4</th><th>Year 5</th><th>Total</th></tr>
<tr><td>Executive Management.</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Senior Management.</td><td>0</td><td>0</td><td>0</td><td>0</td><td>7</td><td>7</td></tr>
<tr><td>Professionally qualified and experienced specialists and mid-management.</td><td>0</td><td>0</td><td>0</td><td>0</td><td>31</td><td>31</td></tr>
<tr><td>Skilled technical and academically qualified workers, junior management, supervisors, foreman and superintendents.</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Semi-skilled and discretionary decision making.</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Non-permanent employees.</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Total</td><td>0</td><td>0</td><td>0</td><td>0</td><td>39</td><td>39</td></tr>
</table>

Table 2: Number of Employees on the Harmony Payroll, by Job Grading

<table>
<tr><th>Job Grade</th><th>Year 1</th><th>Year 2</th><th>Year 3</th><th>Year 4</th><th>Year 5</th><th>Total</th></tr>
<tr><td>Executive Management.</td><td>0</td><td>0</td><td>0</td><td>0</td><td>3</td><td>3</td></tr>
<tr><td>Senior Management.</td><td>0</td><td>0</td><td>0</td><td>0</td><td>23</td><td>23</td></tr>
<tr><td>Professionally qualified and experienced specialists and mid-management.</td><td>0</td><td>0</td><td>0</td><td>0</td><td>99</td><td>99</td></tr>
<tr><td>Skilled technical and academically qualified workers, junior management, supervisors, foreman and superintendents.</td><td>0</td><td>0</td><td>0</td><td>0</td><td>159</td><td>159</td></tr>
<tr><td>Semi-skilled and discretionary decision making.</td><td>0</td><td>0</td><td>0</td><td>0</td><td>222</td><td>222</td></tr>
<tr><td>Non-permanent employees.</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Total</td><td>0</td><td>0</td><td>0</td><td>0</td><td>506</td><td>506</td></tr>
</table>
</td><td></td></tr>
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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
			2. Bursaries for the community	As part of the initial phase (Jelani Project SLP 1), the Nyakallong Community Hall will be refurbished to support and promote socio-economic development within the local community. Given that the Jelani Project is not yet operational, limited funding is expected during this phase. In the second phase (Jelani Project SLP 2: Years 5–10), increased funding is anticipated, which may enable the implementation of larger community development projects. The submissions regarding bursaries for the community and the consideration of a local surveying company have been noted.	Appendix C Social and Labour Plan
			3. Regular engagement and inclusivity during the process	Engagement with Interested and Affected Parties (I&APs) will continue throughout the environmental assessment process, providing opportunities for stakeholders to review project information, submit comments, and participate meaningfully in the decision-making process. All comments received will be recorded, considered, and addressed in the Comments and Responses Report.	Appendix C
			4. Consideration of a local surveying company	The appointment of service providers will be based on the required scope of work, demonstrated capability, compliance, and commercial considerations.	Appendix C

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
			5. Commitment from Jelani Resources to supply tankered water should a decline in groundwater levels be recorded. Protection of water resources (borehole water) and monitoring programme	At this stage, Jelani Resources cannot commit to the request. A Groundwater Impact Assessment will be undertaken as part of the EIA phase to assess the potential impacts of the Proposed Project on groundwater resources. Where required, appropriate mitigation measures, monitoring requirements, and contingency actions will be incorporated into the Environmental Management Programme (EMPr). Should monitoring indicate that the Proposed Project has resulted in a demonstrable impact on groundwater resources affecting existing lawful users, appropriate mitigation and remedial measures will be implemented in consultation with the relevant authorities and affected parties. The nature of such measures, including the provision of an alternative water supply where warranted, will be determined based on the findings of the investigation and the confirmed cause of the impact	Section 9.2
Mr Qondane Tembani, Interested & Affected Party, Sisu Community Social	Email Correspondence	Wednesday, 03 June 2026	Dear Ms Williams and Ms Viljoen, Sisu Community Social Organization hereby submits its completed Stakeholder Registration	Dear Mr Tembani, Thank you for your registration form and noting your interest in the Proposed Project.	Appendix C

Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
Organization, Chairperson			and Comments Form for the Jelani Resources (Pty) Ltd JV Area Underground Mining Project. SCSO appreciates the opportunity to register as an Interested and Affected Party and to participate in the public consultation process. As a community-based organisation operating within the broader Lejweleputswa and Matjhabeng community environment, SCSO has an interest in ensuring that community development, local participation, social responsibility, employment opportunities, skills development, environmental protection, and meaningful stakeholder engagement are properly considered throughout the project process. Attached please find the completed registration form for your attention and records. We kindly request that Sisu Community Social Organization be included in future stakeholder communication, consultation meetings, notices, updates, and opportunities to provide further comments regarding the project.	As per your request, Sisu Community Social Organisation, will be included in all correspondence for the Proposed Project.	
Mr Molefi Abel Thebeeahae, Interested &	Email Correspondence	Tuesday, 09 June 2026	Good Day	Good day Mr. Molefi,	Appendix C Social and Labour Plan

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
Affected Party, KB Salman Civil Construction & General Projects, Director			Kongiwe Management/Team Hereby, I wish to send my comment as a contribution in line with your previous consultation with the community of Nyakallong Allanridge. I am Molefi Abel Thebeeahae, the director of KB Salman Civil Engineering and General Projects. I would like to base my comment on behalf of the above company and the entire community of Nyakallong Allanridge, including struggling small businesses in our respective area. As an individual member of Nyakallong Allanridge, also as the director of the above company, which has been struggling since it's inception in 2023, my personal comment concerns community upliftment and your social responsibility in line with the following aspects; 1. Jobs & Employment Opportunities 2. SMME's & Business Opportunities	Kongiwe hereby acknowledges receipt of your submission. The concerns relating to employment opportunities, SMME participation, skills development, youth and women empowerment, and environmental management have been recorded and will be considered as part of the Environmental Impact Assessment (EIA) process where relevant. The stakeholder engagement undertaken on 30 May 2026 relates specifically to the mining project proposed by Jelani Resources Pty Ltd (Jelani), and not Harmony Gold Mining Company Limited (Harmony). Jelani is not seeking to extend an existing Harmony's Social and Labour Plan (SLP). Although the Proposed Project is a joint venture (JV) between Harmony Gold and White Rivers Exploration (Pty) Ltd (WRE), Jelani, as the applicant and prospective holder of the Mining Right (should it be granted), will be responsible for the implementation of the Jelani Social SLP, therefore, the stakeholder engagement undertaken in is relation to the SLP that pertains	

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			3. Skills Development 4. Youth & Women Empowerment 5. Water use and Environmental Kindly take note that in my personal capacity, I would like to kindly edge and plea with you to review Harmony Gold Mine SLP, which you intend to extend as per your operations, or rathe come up with your own independent SLP considering proper consultation with the community of Nyakallong Allanridge, hence Harmony Gold Mine SLP has never BENEFITED the community of Nyakallong Allanridge as a mining town, therefore as the host of the latter. Kindly bear with me in this regard. Sincerely	specifically to the Jelani Resources (Pty) Ltd Proposed Project. Accordingly, comments relating to Harmony's existing SLP for the Target Mine fall outside the scope of this SLP process and should be directed to Harmony through the appropriate engagement channels. For any questions regarding the Harmony Operations, please contact Sabelo Mgotywa: Senior Manager: Stakeholder Relationships of Harmony Gold. The comments submitted will be included in the Comment and Response Report and considered during the ongoing assessment process.	
Ms Lerato Mokonyane, Executive Secretary, Umkhonto WomNotho	Email Correspondence	Friday, 12 June 2026	**CONFIDENTIAL & URGENT** To: Kongiwe and Jelani JV partners Kindly find attached the formal, comprehensive legal objection and dispute notice submitted by	Dear Lerato Mokonyane and Musawenkosi Dyantyi **RE: FORMAL SUBMISSION OF COMPREHENSIVE OBJECTION TO THE DRAFT SCOPING REPORT FOR THE JELANI RESOURCES (PTY) LTD JV AREA UNDERGROUND**	Appendix C Social and Labour Plan

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
			Umkhonto Womnotho Community-Based Organisation regarding the Draft Scoping Report for the Jelani Resources JV Underground Mining Project (DMPR Ref: FS30/5/1/2/3/2/1(10098) EM). Please be advised that this submission serves as a formal registration of dispute concerning material administrative defects under the Promotion of Administrative Justice Act (PAJA), outstanding Section 11 Ministerial Consent protocols, and localised Social and Labour Plan (SLP) compliance requirements in terms of MPRDA, read with the Mining Charter III. Given that these material defects directly impact the underlying mining rights and international joint venture structures, this matter has been simultaneously escalated to the Office of the Minister, the Free State Regional DMPR, and the relevant stakeholders in South Africa and in London financial and regulatory advisors. We demand a formal acknowledgement of receipt within forty-eight (48) hours as requested in the	**MINING PROJECT, FREE STATE PROVINCE (DMPR REF NO: FS10098 MR) (DWS: WU50090).** We refer to your email dated 12 June 2026, sent to our Stakeholder Engagement Team. We respond to 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. From the outset we must state the stakeholder engagement undertaken on 30 May 2026 relates specifically to the mining project proposed by Jelani Resources Pty Ltd (Jelani), and not Harmony Gold Mining Company Limited (Harmony). Although the Proposed Project is a joint venture (JV) between Harmony Gold and White Rivers Exploration (Pty) Ltd (WRE), Jelani, as the applicant and prospective holder of the Mining Right (should it be granted), will be responsible for the implementation of the Social Labour Plan (SLP). Accordingly, comments relating to Harmony's existing SLP for the Target Mine fall outside the scope of this SLP process and should be directed to	

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
			attached notification, alongside proposed dates for the mandatory multi-lateral roundtable sitting. UW-CBO reserves the right to reveal this information to media channels and take legal steps, post reasonable turnaround time. The formal submission is attached hereto in PDF format.	Harmony through the appropriate engagement channels. For any questions regarding the Harmony Operations, please contact Sabelo Mgotywa: Senior Manager: Stakeholder Relationships of Harmony Gold.	
Comments on the attached Objection Letter received via email from Ms Lerato Mokonyane dated, Friday, 12 June 2026 as per the email correspondence above.					
			Umkhonto Womnotho (hereinafter referred to as "UW") hereby formally registers as an Interested and Affected Party (I&AP) and submits its urgent, categorical objection to the Draft Scoping Report (DSR), the associated Integrated Water Use Licence Application (IWULA) for the proposed Jelani Resources Proprietary Limited (Formally called Friedshelf 1541 Proprietary Limited) JV Underground Mining Project and Proposed SLP extension from the existing one.	Kongiwe hereby confirms that Umkhonto Womnotho has been registered as an I&AP and is included in the database. We take note of your objection to the DSR and the IWULA for the proposed Jelani Underground Mining Project. It must be noted the Jelani SLP is a new SLP and not an extension of an existing one.	Section 1.5 Appendix C
			UW represents the primary economic, social, and developmental interests of the host community within Ward 36 and 19 of the Matjhabeng Local Municipality. The proposed project area comprising the farms Welvaart No. 63, Diamant No. 37, Graspan No. 40, and Swartpan No. 436	As part of the Scoping and Environmental Impact Assessment (S&EIA) process, Kongiwe identified the directly affected and adjacent landowners associated with the Proposed Project through a landowner identification process.	

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			directly overlies the ancestral, living, and economic geography of the people we represent.	With reference to the farms specifically mentioned, the following landowners were identified: • **Welvaart No. 63:** Blaauwklip Trust; • **Diamant No. 37:** Taljaard Willem Hendrik; • **Graspan No. 40:** Taljaard Willem Hendrik; and • **Swartpan No. 436:** Taljaard Willem Hendrik. During engagements with the identified directly affected landowners, no indication was provided that they were represented by Umkhonto Womnotho. Should Umkhonto Womnotho be acting on behalf of any of the identified landowners or on behalf of the host community, kindly provide written confirmation of such representation. Upon receipt of the relevant authorisation, Kongiwe will update the stakeholder database accordingly and ensure that future correspondence is directed to the appointed representative, where applicable.	
			UW's objection is grounded in systemic failures regarding administrative justice, environmental risk concealment, and a blatant corporate strategy designed to bypass host-community equity and	We respond to the points as per below.	-

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			benefits that are legislative obligations, in line with the following legislation: • Mineral and Petroleum Resources Development Act 28 of 2002 • National Environmental Management Act 107 of 1998 • National Water Act 36 of 1998 • Promotion of Administrative Justice Act 3 of 2000 • Mining Charter III of 2018		
			1. Administrative Fatalities Regarding Section 11 Ministerial Consent UW notes with grave concern the public disclosure that Lexington Gold Ltd acquired 76% of White Rivers Exploration (Pty) Ltd (WRE), the 65% joint venture partner to Harmony Gold's subsidiary (Avgold Ltd) in the Jelani Resources JV. This transaction effectively transferred controlling interest of local mineral wealth to a foreign-listed corporate entity.	Jelani Resources is a joint venture company with participants White Rivers Exploration (Pty) Ltd, and Afgold Limited and Loraine Gold Mines Limited, both wholly owned subsidiaries of Harmony Gold Mining Company Limited. White Rivers Exploration is a privately owned company with shareholders in South Africa and Australia. The company is South Africa focused and has various prospecting rights for gold, coal and other minerals. During 2023, WRE was placed under business rescue proceedings. A combination of factors and events	Section 1.3

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			In terms of Section 11 of the Mineral and Petroleum Resources Development Act (MPRDA), such a transfer strictly requires Ministerial Consent. UW places it on the record that at no point was the host community ever notified, consulted, or informed by the Ministry or the applicants regarding this change of control as per section 10 of MPRDA. This constitutes a fatal procedural flaw under the PAJA. A transaction that dispossesses local community oversight without consultation is constitutionally invalid.	during the years preceding the commencement of Proceedings, all contributed to the Company's Financial Distress. Lexington Gold (AIM: LEX), a gold exploration and development company, announced on 15 May 2023 to shareholders (published on 2 June 2023), the completion of its acquisition of White Rivers Exploration Proprietary Limited ("WRE"), an exploration and development company with significant gold assets in South Africa. Accordingly, WRE exited its business rescue process with no creditors other than the Lexington Gold group, and the Company, through its wholly owned subsidiary Lexington Gold South Africa Proprietary Limited, subject to approval from the Minister of Mineral Resources and Energy in terms of Section 11 of the MPRDA, will be the sole shareholder of WRE, with a 26% in WRE to be issued to Lexington Gold's Broad-Based Black Economic Empowerment Partners ("BBBEE"), Masana Exploration. On 12 December 2024, the Deputy Director General, Mineral and Petroleum Regulation of the Department of Mineral and Petroleum Resources granted consent	

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				for the cession of 100% of the issued shares held in WRE to Lexington Gold South Africa (Pty) Ltd and Masana Exploration (Pty) Ltd. Subsequently to Section 11 approval, 74% interest in White Rivers Exploration has been issued to Lexington Gold South Africa (Pty) Ltd, a subsidiary of Lexington Gold PLC (AIM:LEX); and 26% interest in White Rivers Exploration has been issued to Masana Exploration (Pty) Ltd, a subsidiary of Letsema Holdings (Pty) Ltd, a 100% Broad-Based Black Economic Empowerment Company. The Final Scoping Report has been updated to include the information presented above.	
			2. The Expiring License Subterfuge & Expired SLP Compliance It is a matter of public record that Harmony Gold's primary mining rights and operating licenses in this region are set to lapse next year, in 2027. Kongiwe and Harmony are attempting an impermissible regulatory maneuver by trying to EXTEND an existing Social and Labour Plan (SLP) and consolidate historic water permits to launch a	The Proposed Project is not seeking to extend an expiring mining right or to avoid the applicable regulatory requirements through the extension of an existing Social and Labour Plan (SLP) or the consolidation of existing authorisations. The stakeholder engagement undertaken in relation to the SLP pertains specifically to the Jelani Resources (Pty) Ltd Proposed Project. The SLP process is being undertaken in accordance with the applicable legislative	Appendix C Social and Labour Plan

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			brand-new, 14-year Life of Mine underground project. The host community remains entirely in the dark regarding Harmony's compliance metrics for previous years' licenses. Harmony cannot legally extend an SLP for a new 14-year venture when its underlying regional right expires in 2027, and when historic compliance has never been transparently audited or presented to the community.	requirements and independently of the environmental authorisation process. The status of existing mining rights, compliance with previous SLP commitments, and the administration of mining rights and SLPs fall within the jurisdiction of the relevant regulatory authorities and are administered in terms of the applicable mining legislation. The current EIA process is intended to assess the potential environmental and socio-economic impacts of the Proposed Project and does not constitute an audit of historical compliance. All applicable statutory processes and approvals required for the Proposed Project will be undertaken in accordance with the relevant legislative requirements.	
			3. Deliberate Infrastructure Overlap to Bypass Community Equity The Background Information Document (BID) states that all operational mining infrastructure for the Jelani project will leverage the existing Harmony Target Mine rights area (specifically Shafts No#2 and #3). It further states that no new	The Proposed Project is being assessed as a proposed underground mining development through the prescribed Scoping and Environmental Impact Assessment (EIA) process in accordance with the National Environmental Management Act (NEMA) and the Environmental Impact Assessment Regulations. As described in the project documentation, the Proposed Project intends to utilise the existing Harmony Target Mine infrastructure, where feasible, with	Section 1.7 Appendix C

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			operational mining infrastructure is planned within the project area. UW sees this for what it is: a structural sleight of hand. By tunneling horizontally from old mining areas into the new 956.76-hectare Jelani JV project area, the JV partners are trying to camouflage a brand-new mining operation as a mere "extension" of an old one. This is being done deliberately to bypass the modern, localized Black Economic Empowerment (BEE) and community-trust asset allocations required for new mining right applications under the Mining Charter of 2018. You are extracting fresh wealth (Gold, Silver, and Uranium) from our soil while utilizing old structures to shut the community out.	upgrades and modifications to the existing infrastructure undertaken where necessary to safely support the proposed mining activities. The use of existing infrastructure has been considered as a means of reducing the need for additional surface infrastructure and, where practicable, minimising the associated environmental disturbance. The environmental assessment considers the proposed underground mining activities within the Proposed Project's area and the potential environmental impacts associated with those activities. The statutory Public Participation Process forms part of the EIA and provides Interested and Affected Parties (I&APs), including host and neighbouring communities, with the opportunity to review the project information and submit comments for consideration. All comments received during the process are recorded (in the Comments and Responses Report) and considered as part of the environmental assessment.	
			4. Unmitigated Environmental and Aquifer Liability The host community notes the severe historical environmental degradation caused by mining	The Draft EIA Report will assess the environmental impacts of the Proposed Project, including cumulative impacts where applicable, taking into account the existing environmental baseline. Where potential impacts are identified, appropriate mitigation measures	Section 8.3 Section 9.2

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			operations in the area, including the documented radioactivity risks to the Karoo aquifer, unregularized discharges, and the flooding of Allanridge pan. The proposed project aims to hoist 60,000 tonnes of mined ore per month. The community will absolutely not absorb the massive cumulative environmental footprint, acid mine drainage risk, and water-use stress of this new 14-year operation while being entirely excluded from the economic structure of the joint venture.	will be incorporated into the Environmental Management Programme (EMPr).	
			MANDATORY DEMANDS TO REMEDY THIS OBJECTION To prevent this application from being tied up in protracted, indefinite litigation, all media channels, High Court reviews, and formal appeals to the Department of Water and Sanitation (DWS) and the DMPR, UW demands the following:		
			• Immediate Multi-Lateral Sitting: The immediate suspension of the processing of this Scoping Report pending a formal, round-table meeting between the Jelani Resources JV partners (Harmony Gold and Lexington Gold) and the leadership of Umkhonto Womnotho to negotiate a localized Joint Venture allocation.	For any questions regarding the Harmony Operations, please contact Sabelo Mgotywa: Senior Manager: Stakeholder Relationships of Harmony Gold as above mentioned. With regards any questions on the application process on the Jelani applications please continue to engage Kongiwe. We suggest a meeting in the week 6 - 11 July 2026. Please indicate if a MS Teams meeting is adequate or if you prefer an in-person meeting.	Appendix C

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			• Dedicated Technical Presentation: As per the commitment made by Kongiwe's executive directors at previous open days to address representative councils, we demand a dedicated stakeholder engagement meeting specifically for UW to interrogate the Scoping and EIA frameworks	Kongiwe's Executive Directors were not present at the Open Day; the meeting was attended by two Environmental Assessment Practitioners (EAPs). No commitment of the nature described was made by the Kongiwe representatives. During the Open Day, Kongiwe presented an overview of the Scoping and EIA process and informed attendees that, during the EIA phase, a further Open Day will be held to present the findings of the Draft EIA Report and provide stakeholders with an opportunity to comment. As above mentioned, we would be happy to have a separate meeting with you to discuss any technical queries you may have.	Appendix C
			• Full Disclosure of Compliance Data: Immediate disclosure of Harmony's historical SLP compliance audits for host communities in Free State Operations and the full text of the Section 11 Ministerial Consent given for the WRE/Lexington transaction.	For any questions regarding the Harmony Operations, please contact Sabelo Mgotywa: Senior Manager: Stakeholder Relationships of Harmony Gold.	Appendix C
			• Supplier Operations: Immediate stop to the Allanridge rock dump project until an	For any questions regarding the Harmony Operations, please contact Sabelo Mgotywa: Senior Manager: Stakeholder Relationships of Harmony Gold.	Appendix C

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			amicable solution is reached at the requested round table.		
			Umkhonto Womnotho understands that the MPRDA seeks to promote mining development, employment creation and socio-economic development which is what we stand for. We are not here to obstruct lawful development, but because section 2 of MPRDA obliges mines to contribute toward the socio-economic welfare and development of the areas in which it operates. As the host community, we therefore seek meaningful participation, transparency and partnership as legislatively required	The Public Participation Process for the Proposed Project is being undertaken in accordance with the applicable Environmental Impact Assessment (EIA) Regulations and is intended to facilitate meaningful stakeholder participation. I&APs are afforded the opportunity to access project information, submit comments, and participate constructively in public engagement activities throughout the S&EIA process. All comments received will be considered and addressed in the Comments and Responses Report. This is the opportunity to meaningfully participate in socio-economic development.	Appendix C
			Please acknowledge receipt of this formal objection within 48 hours and provide proposed dates for the mandatory round-table engagement. Should Kongiwe or the applicants proceed to submit the Final Scoping Report to the DMPR without resolving these host-community defects, UW will not hesitate to interdict the process to protect the economic and constitutional rights of our community.	An acknowledgement of receipt of the correspondence issued by Kongiwe via email on 12 June 2026. With respect to the request for a round-table engagement, stakeholders are requested to engage directly with Harmony. The submission of the Final Scoping Report is subject to the statutory timeframes prescribed by the EIA Regulations. Accordingly, the Final Scoping Report is scheduled to be submitted to the Department of	Appendix C

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				Mineral and Petroleum Resources (DMPR) by 1 July 2026. The comments received for the Proposed Project have been recorded in the Comment and Response Report, which forms part of the Final Scoping Report submitted to the Competent Authority.	
Mr Tinashe Maramba, Environmental Manager, Tetra4	Email Correspondence	Tuesday, 30 June 2026	Dear, Vanessa Viljoen / Jean-Mari Williams The project described below bears reference. **Jelani Resources (Pty) Ltd** **Environmental Authorisation and Integrated Water Use License Application for the Proposed Jelani Underground Mining Project** **DMPR Reference Number: FS30/5/1/2/3/2/1(10098)EM** **DWS Reference Number: WU38176** We would like to have a look at the extent of your project relative to our Production Right boundary and the extent of our various Exploration Rights.	Dear Mr Maramba This email confirms that Tetra4 has been registered as an Interested and Affected Party and has been included in the database. As required, please find the KMZ file attached. Please do not hesitate to contact us if you have any further queries.	Appendix C

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			Please kindly furnish us with a kml/kmz for our reference. In addition, please register Tetra4 as an official I&AP. Regards,		
Mr Lucky Tshepang, Interested & Affected Party	Email Correspondence	Wednesday, 01 July 2026	Dear Jelani JV Environmental Team, My name is MazibukoTshepang Lucky. I am an Interested & Affected Party and a resident of Nyakallong, which is located adjacent to the proposed Jelani JV underground mining area in Odendaalsrus, Free State. I acknowledge receipt of the Final Scoping Report and have reviewed the Executive Summary. I support responsible mining development in the area. As a member of the closest host community, I request that: 1. I be registered and considered for local employment and skills development opportunities in line with the project's Social and Labour Plan SLP, should the Mining Right be approved.	Good day Mr Mazibuko, Kongiwe hereby confirms that you have been registered as an Interested and Affected Party (I&AP) and have been included in the project database. We also thank you for taking the time to review the FSR and provide your comments. 1. There will be no employees on the Jelani payroll in the first four years of the SLP cycle. In Year 5, there will be 39 employees on the Jelani pay-roll. As the Mine Work Programme for this entire SLP cycle (Years 1 to 5) will be dedicated to feasibility/ engineering studies and implementation/ construction activities, it is likely that all (or mostly all) employees in this cycle will have professional qualifications. In Year 5, approximately 506 Harmony workers will be sourced/ contracted from Target. If Target cannot provide all Harmony workers, the balance will be obtained from other Harmony mines in the Free State Goldfields area.	Appendix C Social Labour Plan

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			2. I be kept informed of all future public participation meetings, recruitment drives, and learnership/apprenticeship programs related to the project. Please confirm that my details are captured on the I&AP database.	The Local Economic Development (LED) project will provide further opportunities for local employment. The LED Project, as identified by Matjhabeng Local Municipality (MLM) and the Ward Councillor of Ward 19, is to refurbish the Nyakallong Community Hall. MLM identified this project as being in alignment with the municipality's Integrated Development Plan (2024/2025) (IDP), which involved consultations with community members in all wards throughout the municipality. On 19 March 2026, the MLM issued a letter of approval for Jelani to allocate R1,000,000 to the refurbishment of Nyakallong Community Hall. Wherever possible, suitably qualified and skilled local contractors will be sourced locally. Contractor teams comprising women and youth will also be considered favourably. 2. You will be notified of future public participation meetings and engagement opportunities during the EIA phase of the project. Please do not hesitate to contact us if you have any further queries.	
Mr Pule Theodore Sekaja,	Email Correspondence	Friday, 03 July 2026	Good afternoon, Sir/Ma'am,	Good day Mr Sekaja,	Appendix C

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Director, Titan TP Tradings (Pty) Ltd			My name is Pule Theodore Sekaja (Director)from a developing Company (Titan TP Tradings Pty Ltd). Furthermore, we provide with deferent types of services including (Waste Management Service) and we are so much interested in making business with Kongiwe as a big Company that is going to operate within our community. Your reply will give more positive drive to (Titan TP Trading), I thank you. Yours Sincerely TP Sekaja(Director)	Kongiwe hereby confirms that you have been registered as an Interested and Affected Party (I&AP). Please note that Kongiwe has been appointed by Jelani Resources (Jelani) to assist with the Environmental Authorisation (EA) and Integrated Water Use Licence (IWUL) application processes for the Jelani Underground Mining Project. Following the completion of these application processes, our involvement in the project will cease. Should the EA and IWUL be granted, Jelani will be authorised to commence with the proposed mining project. Kongiwe will not be involved during the mining phase of the project. However, your comment regarding the registration of your company, Titan TP Trading (Pty) Ltd, on the SMME database has been received and will be included in the Comment and Response Report (CRR).	
Mr Tinashe Maramba, Environmental Manager, Tetra4	Email Correspondence	Friday, 17 July 2026	Good day, This communiqué serves as a formal request for information.	Dear Mr Maramba; We refer to your email received Friday, 17 July 2026, sent by e-mail to Kongiwe Environmental Stakeholder Engagement Team.	Appendix C

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			Please kindly forward us the following information as it relates to your project;	Please find the attached responses to the comments you have raised. All comments raised by yourself will be included in the Comment and Response Report (CRR). Please do not hesitate to contact us if you have any further queries.	
			1. Mine Works Programme	The Mine Works Programme (MWP) cannot be shared as it contains confidential technical and financial information. Secondly, the MWP is currently still in draft form and has not yet been approved by the Department of Mineral and Petroleum Resources (DMPR). However, Renergen Limited is welcome to contact Jelani Representatives at nhoek@mera.co.za , should they wish to discuss operational matters, etc.	-
			2. Mine Works Schedule	Prior to the initiation of mine implementation and construction activities, various stages of design work will be required to be undertaken. It is expected that these activities will take approximately four years before implementation can be initiated. Active mining can commence during year 7. The key timelines are listed in Table 2 below: **Table 1: Project Timelines**	Section 1.7.5

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<tr><th>Period</th><th>Description</th></tr>
<tr><td>Year 1 - 3</td><td>Site data gathering and feasibility studies</td></tr>
<tr><td>Year 4</td><td>Detailed engineering design</td></tr>
<tr><td>Year 5 - 8</td><td>Implementation and construction activities</td></tr>
<tr><td>Year 7</td><td>Hiring of employees</td></tr>
<tr><td>Year 7</td><td>Initiation of mining activities underground</td></tr>
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The production build-up is planned to occur in two phases:

In Phase 1, which is planned to last for four years starting in Year 5, with construction and refurbishment with mining starting in Year 7. The first two years are required for level access and refurbishment, after which Target No 3 shaft will be used for hoisting of men, material and rock.

Phase 2 commences in Year 9, whereby access to the underground workings is via Target No 2 shaft, with Target No 3 shaft being reserved as a second outlet.

As mine development progresses over the first four years, new mining areas will be developed which will</td><td></td></tr>
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				allow for the production rate to be steadily increased to the targeted full production rate of 60 000 tonnes of ore per month, which is achieved in Year 10. 10 340 Mt of ore is expected to be mined over the Life of Mine (LOM), which is 14 years.	
			3. Location of all activities (prospecting drilling to underground workings)	The proposed Jelani Project involves underground mining activities within the joint venture (JV) area. The JV area is made up of areas within the existing Harmony Target mining right (Harmony contribution) and Prospecting Rights (PR) areas to the west of Harmony Gold's existing Target Mine (WRE contribution). Project development will utilise the available spare capacity within Harmony's existing infrastructure at the Target Mine. This includes the Target No. 3 and No. 2 shafts, the Target No. 1 Processing Plant and associated surface infrastructure. All mining infrastructure required for the Proposed Project will be located within the existing Harmony Target Mine mining right area. No new operational mining infrastructure is planned within the project area. The Project area is situated immediately adjacent to and west of the Harmony Gold Target Mine, approximately 11km northwest of Odendaalsrus, 1,5km west of	Section 1.1 Section 1.5 Figure 1.3 Section 1.7.1

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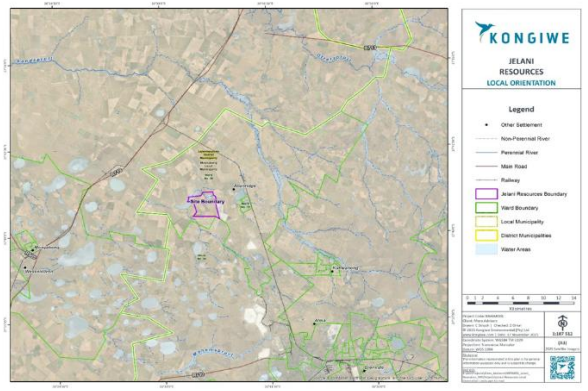
				Allanridge town, and 22km east of Wesselsbron, in the Free State Province of South Africa. Refer to Figure 1 for the Project local orientation.  **Figure 1: Local Orientation of the proposed JV Area Underground Mining Project**	
			4. List of Minerals for which the right is applied for	Jelani Project entails licensing the underground mining of the following potential mineral resources: • Gold ore (primary target), • Silver ore, • Uranium ore, • Sulphur, • Platinum Group Metals,	Project Introduction and Background

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Stakeholder	Consultation Method	Date of Comments Received	Issues Raised	Response to issues raised	Section Reference in the Report
				• Rare earths, • Diamonds (alluvial), • Copper ore, • Cobalt ore, • Manganese ore, • Molybdenum ore, • Nickel ore, • Lead ore, • Tungsten ore, • Zinc ore, and • Iron ore.	
			5. Contact details of your subsurface and engineering lead; and	Jelani Resources intends to initiate underground mining operation, to extract various minerals, primarily focusing on Gold ore, along with Silver, Uranium, and other associated minerals. The Project is currently in the licensing phase, during which the necessary Mining Rights are being obtained. Mining activities have not yet commenced. At this stage, no subsurface or engineering lead has been appointed.	Executive Summary
			6. A copy of the acceptance letter for the mining right application.	Refer to the attached acceptance letter for the Jelani Project Mining Right application.	-

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Appendix C11: Social and Labour Plan Consultation

MINUTES OF MEETING			
Date	Tuesday, 25 November 2025	**Time**	10:00 – 11:00
Venue	MS Teams Online Meeting		
Subject	**Department of Mineral and Petroleum Resources (DMPR) Meeting**		
List of Attendees			
Organisation	**Name of Attendee**	**Designation**	
Department of Mineral and Petroleum Resources (DMPR)	Ms Cecelia Sedutla	Officer for the Promotion of Access to Information Act (PAIA)	
DMPR	Mr Mphatheleni Khomola	Social and Labour Plan Officer	
Jelani Resources (Pty) Ltd (Jelani)	Neels Hoek	Applicant	
Kongiwe Environmental (Pty) Ltd	Mr Bradly Thornton	Project Director	
Kongiwe Environmental (Pty) Ltd	Mr Andrew Hamlet	Principal Social Consultant	
Kongiwe Environmental (Pty) Ltd	Ms Thuli Phakathi	Stakeholder Engagement Consultant	
Apologies			
Organisation	**Name of Attendee**	**Designation**	
None			

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

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No	Item	Responsible Person	Due Date
1	**Welcome and Introductions**		
1.1	Mr Bradly Thorton welcomed all the atteendees	N/A	N/A
2	**Meeting Purpose**		
2.1	Discuss the Social and Labour Plan's project details.		
2.2	To discuss the Social and Labour Plan approach		
2.3	To discuss the budget for the SLP and way forward in terms of project		
3	**Meeting Agenda**		
3.1	Project Details		
3.2	Project Location		
3.3	Social and Labour Plan		
3.4	Comment and Discussion		
3.5	Closing		
4	**Discussion**		
	Comment	**Discussion**	
4.1	Ms Sedutla clarified that she had initially assumed the meeting was intended specifically to discuss the Social and Labour Plan (SLP). However, she noted that the discussion also required the involvement of mineral law officials, as certain matters fell outside the SLP team's area of specialisation. She emphasised that the issues raised relate more to mine economics and mineral law than to SLP. She referred to Mr Thorton's presentation regarding an incorporated gold exploration Joint Venture (JV) company, comprising 65% ownership by White Rivers Exploration (WRE), a subsidiary of Lexington Gold, and 35% held by Harmony Gold subsidiaries (Lorraine Gold Mines Limited and Avgold Limited).	Mr Hoek indicated that he has already had a discussion with the Unit related to mineral law within the Department. He explained that his participation in this meeting is not to address operational matters, but rather to provide clarity on the SLP.	

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4.2	Ms Sedutla suggested that Jelani should develop and submit its own separate SLP.	Mr Hoek explained that Jelani's intention is to ensure meaningful impact through the SLP. He noted that if Jelani selects its own standalone LED projects, these may not achieve the desired long-term impact. He suggested that Jelani considers contributing to existing long-term projects such as the agricultural project and the youth development project rather than initiating short-term initiatives. He added that the idea is to link Jelani's commitments with Harmony's existing LED projects to enhance sustainability and community benefit.
4.3	Ms Sedutla noted and explained that, from a reporting perspective, it would be problematic if Jelani did not have its own SLP, as each company is required to submit and report on its own SLP.	Mr Hoek acknowledged the comment.
4.4	Ms Sedutla sought clarity and asked what budget Jelani intended to allocate for its LED projects.	Mr Hoek indicated that the first five years of the project will be focused on development, during which limited funds will be available for LED expenditure. He added that the preliminary estimate for the LED budget is approximately R800,000 over the first four-year period. Mr Hoek further explained that the team still needs to engage with the municipality, as consultations and alignment with all stakeholders have not yet been completed.
4.5	Ms Sedutla confirmed that discussions with the municipality are necessary to identify suitable projects. She further emphasized that, since the municipality is responsible for the Integrated Development Plan (IDP), any proposed projects must be aligned with their IDP.	The comment was acknowledged.
4.6	Ms Sedutla inquired for clarification, stating that, according to the presentation, there would be no employees from Year 1 to Year 4. She asked whether this means that there would be no Human Resource and Training (HRT) elements during that period.	Mr Hoek explained that provisions will be made for bursaries and other training initiatives as required. He confirmed that mentorship and internal employee training will also be accounted for. He further clarified that while these provisions will be made, the funds may not necessarily be spent during the initial period, but they will be allocated and planned for.
4.7	Ms Sedutla acknowledged Mr Hoek's comments and added that any provisions made for training, bursaries, or other initiatives within the first five years would need to be fully utilised during that same period.	Mr Hoek explained that the project will involve a gradual ramp-up. He noted that while the main operational activities may start in Year 5, the appointment process for employees would begin around Year 3. Provisions will be made

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		accordingly, and funds will be spent progressively rather than in a large upfront allocation. He added that there will likely be a need for internal training, particularly for Jelani's own staff, even in the early stages.		
4.8	Ms Sedutla inquired whether Jelani has engaged with Harmony regarding the LED programme and its potential contributions.	Mr Hoek indicated that Jelani is in the process of engaging with Harmony and that a meeting will be scheduled with them to discuss the LED programme and potential contributions.		
4.9	Mr Hoek explained that the Jelani project is intended as part of a broader strategy to extend the life of the Target Mine. He emphasised that the project is primarily focused on preserving jobs.	The comment was noted by the attendees.		
4.10	Ms Sedutla inquired whether Jelani intends to mine under the existing Target Mine mining right or if it plans to apply for a new mining right.	Mr Hoek explained that Jelani will submit a new mining right application.		
4.11	Mr Khomola suggested providing Jelani with the SLP guidelines to follow. These guidelines will include a preamble introducing Jelani, specifying the location of the mine, and outlining the required structure for submissions.	The comment was noted.		
4.12	Mr Thorton thanked the attendees and noted that the outstanding matters would be addressed offline. He indicated that a follow-up session will be scheduled once Jelani has finalised some figures, and Kongiwe has met with the municipality, and clarified a few remaining details.	The comment was noted.		
4.13	Mr Hamlet highlighted that the municipality's priority issues, particularly in the wards surrounding the mine, include access to water, improved sanitation, electricity, LED programmes, and road and stormwater management. He noted that the team already has an understanding of these priorities but needs to confirm them with the municipality.	Ms Sedutla recommended engaging directly with the municipality and liaise with the LED Manager.		
5	**Closing**			
5.1	The meeting adjourned at 10:30 AM.		ALL	-

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Jelani Resources (Pty) Ltd

Social & Labour Plan (SLP) for the Jelani Resources JV Project (Jelani JV Project) in Free State Province

25 November 2025

Agenda

1. Welcome and Introduction
2. Project Details
3. Project Location
4. Social & Labour Plan
5. Comment & Discussion
6. Closing

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Project Details

- Applicant: **Jelani Resources (Pty) Ltd.**
- An incorporated gold exploration **Joint Venture (JV)** company comprised of **65% held by White Rivers Exploration (WRE)** (a subsidiary of Lexington Gold) and **35% by subsidiaries of Harmony Gold** (Lorraine Gold Mines Limited and Avgold Limited).
- Proposed project located adjacent to **Harmony Gold's Target Mine.**
- Current prospecting right entitles Jelani to prospect for gold under registration number 17/2024.
- **Infrastructure used for the Project will be the existing Harmony Target Mine.**
- A Mining Right Application is being prepared supported by a **Social and Labour Plan (SLP).**
- 10 340 Mt of ore mined over the Life of Mine (LOM) **which is 23 years.**

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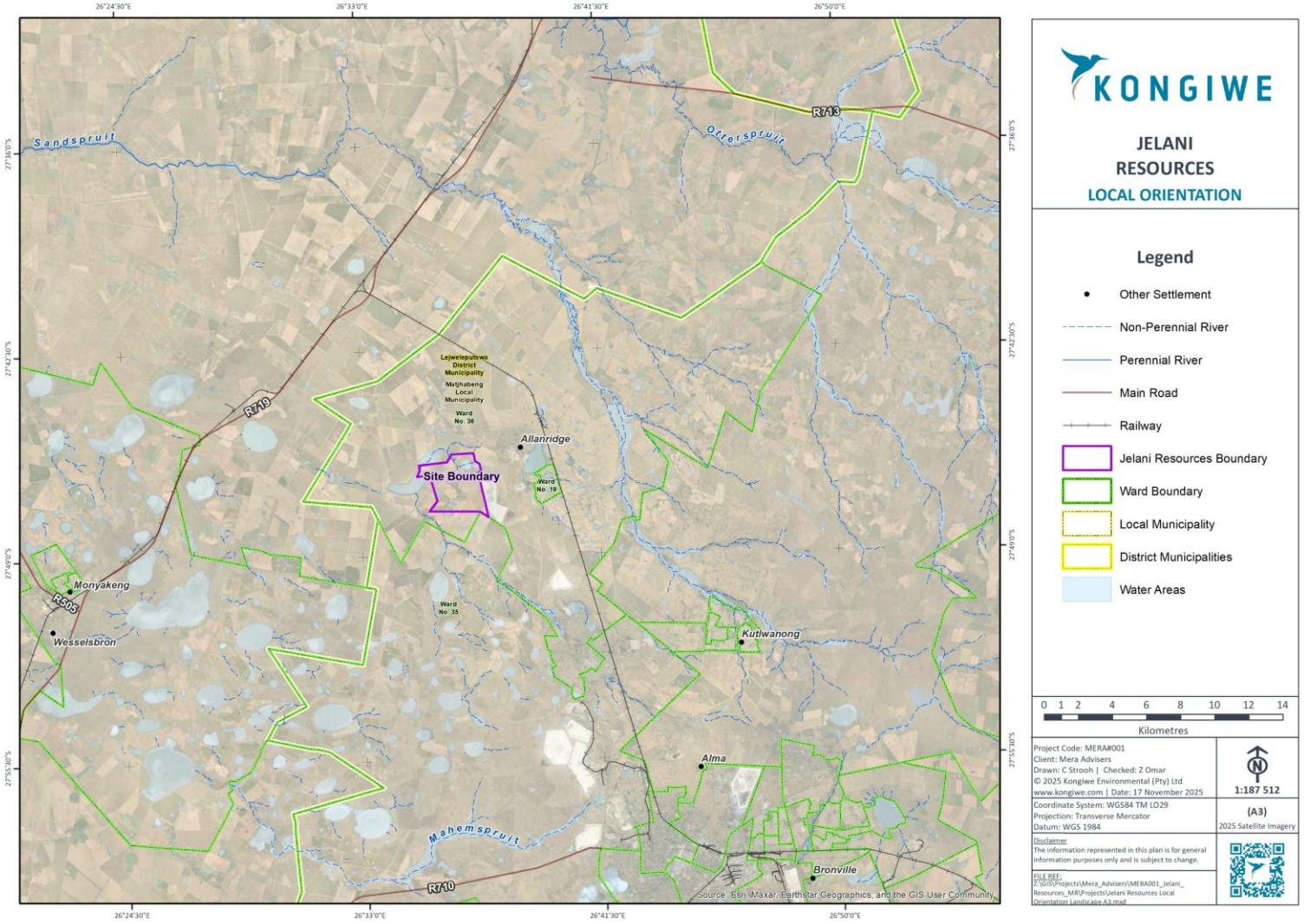
Project Location



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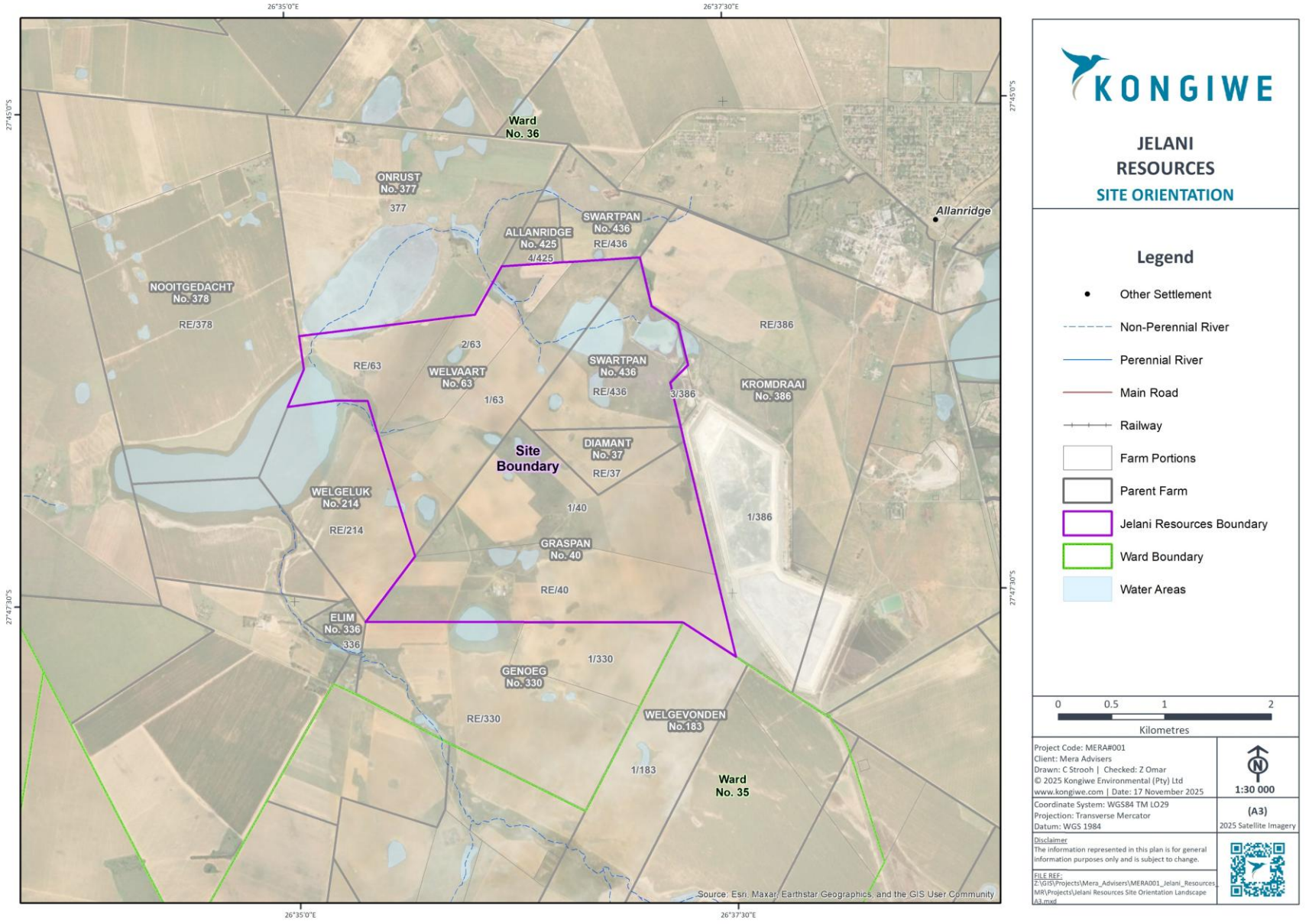
Project Location



KONGIWE

JELANI RESOURCES

SITE ORIENTATION

Legend

- Other Settlement
- Non-Perennial River
- Perennial River
- Main Road
- Railway
- Farm Portions
- Parent Farm
- Jelani Resources Boundary
- Ward Boundary
- Water Areas

0 0.5 1 2

Kilometres

Project Code: MERA#001
Client: Mera Advisers
Drawn: C Strooh | Checked: Z Omar
© 2025 Kongiwe Environmental (Pty) Ltd
www.kongiwe.com | Date: 17 November 2025

1:30 000

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

(A3)

2025 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\Mera_Advisers\MERA001_Jelani_Resources_MR\Projects\Jelani Resources Site Orientation Landscape A3.mxd

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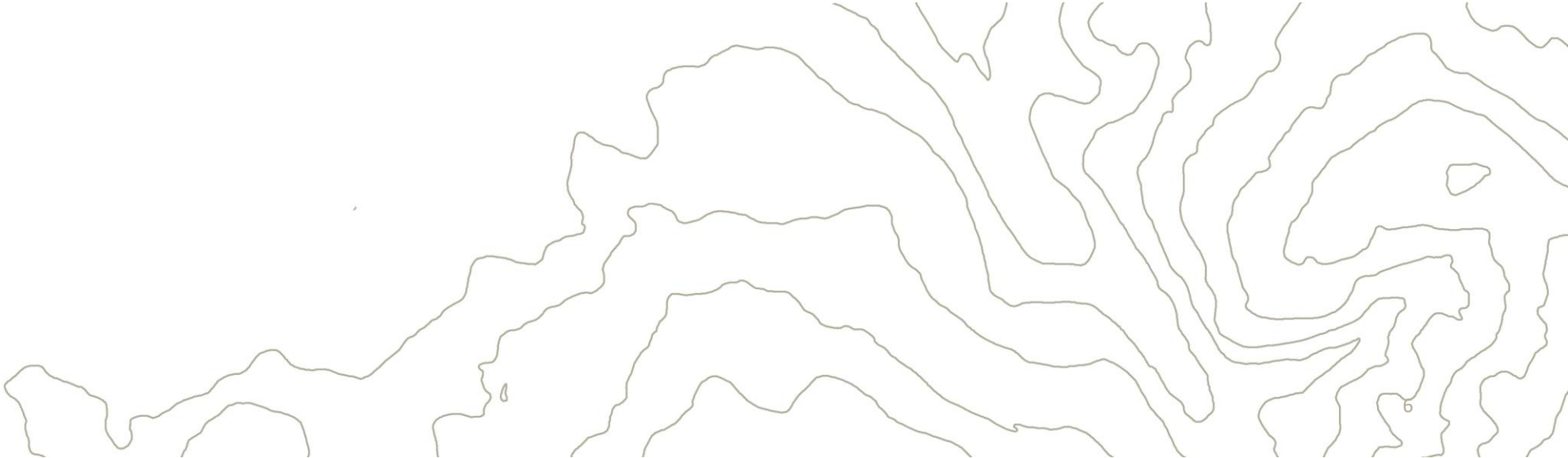
Social and Labour Plan

- Ore will be mined underground and brought to surface at Target. Target's surface infrastructure will be used.
- There will be no employees / staff from Year 1 to Year 4 from the date that the Mining Right is granted.
- Employment for the Project will only take place in Year 5, upon commencement of the development phase.
- Where possible, Harmony workers will be sourced from the Target Operation. If Target cannot provide workers, the balance will be obtained from other Harmony mines in the Free State Goldfields area.



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Social and Labour Plan

- As most – if not all – Harmony personnel will be sourced from Target Operation, the **Jelani SLP is closely aligned to the current Target SLP (2023-2027).** Consequently, the planning and proposed activities in the Jelani SLP are collaborative with the Target SLP.
- In particular, the **Jelani SLP proposes to contribute to the existing LED programmes** already being implemented by Target Operation (1% of net profit).
- HR spend will be 5% of payroll.
- Approximately 39 employees over the LoM which will be employed from year 5, the rest will be Harmony employees.
- Most of the this initial 5-year SLP cycle will occur during the planning phase of the Project.

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Comment and Discussion

- **Discussion**
  - General.
- **Way Forward**
  - Discuss municipal consultation expectations.
  - Additional meeting with DMPR will be set up to present the draft SLP for discussion.
- **Closing**

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Contact

- **Name: Andrew Hamlet**
- **Tel: 079 303 8484**
- **Email: ahamlet@kongiwe.com**

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Wednesday, January 21, 2026

Memorandum	
To	Sefako Ramphoma (Executive Director LED: Matjhbeng Local Municipality)
From	Andrew Hamlet
Subject	**Proposed Jelani Resources Project and SLP**

Dear Sefako,

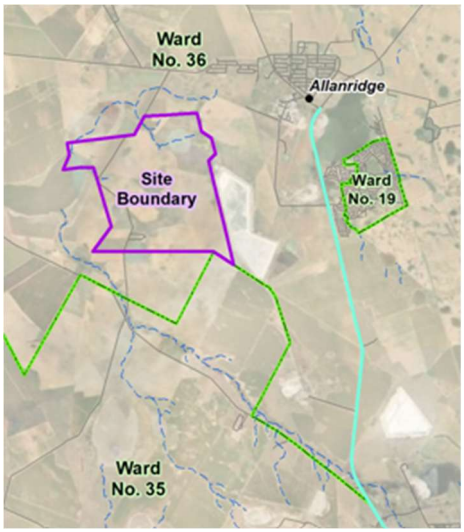
Thank you for confirming a time for a phone call tomorrow. For some context for our discussion, I have provided some information about the mining proponent and the SLP being developed.

Company Background

- Jelani Resources Pty Ltd (Jelani) is preparing a Mining Right Application that will be supported by a SLP.
- Jelani is an incorporated gold exploration Joint Venture company comprised of 65% held by White Rivers Exploration (a subsidiary of Lexington Gold) and 35% by subsidiaries of Harmony Gold (Lorraine Gold Mines Limited and Avgold Limited).

Mine Details

- Adjacent to Harmony Target Mine, 2km to the west of Allanridge. Located in Ward 36. Wards 19 and 35 are nearby.
- Project will use existing surface infrastructure from Harmony Target Mine to process ore.
- 10 340 Mt of ore will be mined underground over the Life of Mine (23 years).



Employment Projection

- There will be no employees / staff from Year 1 to Year 4 from the date that the Mining Right is granted.
- Employment for the Project will only take place in Year 5, upon commencement of the development phase.
- The Mine will have approximately 39 employees over the LoM. All other workers will be Harmony employees.
- Harmony workers will be sourced from Target Operation. Workers from other Harmony mines will be sourced if Target Operation cannot provide all workers.

SLP Cycle

- Most of the initial 5-year SLP cycle will occur during the planning phase of the Project.
- LED spend is to equate to 1% of nett profit after tax. As there will be no profit in this SLP cycle, a total of R600,000 is proposed over a 3-year period (commencing in Year-3 of the SLP cycle).

	Year 1	Year 2	Year 3	Year 4	Year 5	Total
LED Project	-	-	R 200,000	R 200,000	R 200,000	R 600,000

Possible LED Project

- Jelani is seeking to implement a LED project that provides outcomes from limited funding within a three-year period.
- Possible LED Project: Development of facilities at a school near the project area, such as building a new classroom or installation of water tanks/ solar panels.

I look forward to our discussion tomorrow.

Your faithfully,

Andrew Hamlet
Principal Social Consultant

MATJHABENG

Municipality
Umasipala
P O Box 708
Welkom, 9460
South Africa

Mmasepala
Munisipaliteit
Tel: (057) 391 3711
Fax: (057) 357 4393
E-mail: mm@matjhabeng.co.za

OFFICE OF THE MUNICIPAL MANAGER

Enquiries/Navrae/Dipatlisi : **Dr S.S Ramphoma**
Room no/ Kamer nr/ Kamore ya : **Room 408, 4th Floor, Procor Building, One Reinet Street**
Date/ Datum/Letsatsi : **27 February 2026**

Programme Manager (SLP)
JELANI GROUP
150 Bryanston Drive, Bryanston, Sandton, 2191, South Africa.
Bryanston
Sandton
2191
Email: ahamlet@kongiwe.com

Attention: Mr. A.Hamlet

SOCIAL LABOR PLAN PROJECTS FOR THE IDP & LED 2026 - 2028 FINANCIAL YEARS

Your attention is drawn in terms of the Social Labor Plan (SLP) review in compliance with the **Minerals and Petroleum Resource Development Act (Act 28 of 2002) and its Regulations.** The municipality has reviewed its Integrated Development Plan (IDP) 2024/25. The revised IDP has identified a number of priority projects which are listed in the table below falling within the jurisdiction of your mining operation.

Section 4.4. of SLP guidelines and Section 46 (c)(iii) of the Minerals and Petroleum Resource Development Regulations requires your development contributions in terms of infrastructure and poverty eradication projects that the mine would undertake in line with the **IDP** of the areas and other relevant frameworks in which the mine operates and the major sending areas. The identified IDP priority infrastructure projects should be implemented in terms of section 4.5.1 of 4.5 of the SLP guideline. Below are three (04) identified IDP priority projects:

No.	Project Name	Est Cost	Financial Year
1.	Refurbishment of Nyakallong Community Hall	R 1 000 000	2026 - 2028

The Municipality urges your company to fund the full scope of the projects including consultants' fees for technical reports and designs for all projects as well as full contract fees for actual works. An implementation plan of the identified projects must be provided to the municipality in line with the section 4.4.3 and 4.4.4 of 4.4 of the SLP guidelines. It is important to note that your development contribution in line with the mining license must conform to the IDP cycles. **Note that council may review these projects based on the IDP reviews.**

Yours in development partnership

Dr V Adonis
Acting Municipal Manager

Environmental Authorisation, Integrated Water Use Licence Application, and Social Labour Plan for the Jelani Joint Venture (JV) Underground Mining Project, Free State Province

DMPR reference number: FS30/5/1/2/3/2/1(10098) EM

DWS reference number: WU50090

Jelani Resources (Pty) Ltd ("Jelani") is a joint venture between White Rivers Exploration (WRE) and Harmony Gold, formed to conduct underground mining operations in the Free State Province of South Africa. The joint venture area includes portions of Harmony Gold's existing Target Mine mining right area (Harmony contribution) and prospecting right areas located west of the Target Mine (WRE contribution).

Jelani is proposing to develop and to commence underground mining within the same area (the Project). The primary mineral resource targeted is gold, with additional potential resources including silver, uranium, sulphur, platinum group metals, rare earth elements, diamonds (alluvial), and a range of base and ferrous metals such as copper, cobalt, manganese, molybdenum, nickel, lead, tungsten, zinc, and iron.

Mining will initially focus on shallower ore bodies at approximately 1,200 metres below surface. As mine development progresses, further mining areas will be opened, allowing production to gradually increase to a planned steady-state rate of 60,000 tonnes of ore per month.

Two underground mining methods have been identified as most suitable: conventional breast mining and shrinkage stoping. The selection of method is primarily determined by the dip of the mineralised reef, with shrinkage stoping applied to steeper reef sections, representing approximately 3% of the total stope tonnage. Where the orebody dips below 55°, conventional breast mining will be used.

All operational mining infrastructure required for the Proposed Project will be located within Harmony's existing Target Mine mining right area. No new operational mining infrastructure planned within the JV project area. Underground access infrastructure will comprise either refurbished facilities at Target Shafts No. 3, 4, and 5 or newly constructed infrastructure at the Target No. 2 Shaft site, all within the existing mining right.

To monitor potential mining-induced seismicity and boundary interactions with the adjacent Harmony Gold operations, four seismographic monitoring stations will be installed, spread equally along the shared boundary, with short gravel access tracks provided for each station. These installations represent the only surface infrastructures on the JV project area.

Additionally, a new Tailings Storage Facility (TSF) will be constructed to the west of the existing Target metallurgical plant and north of the existing Target TSF. The total area required for this new facility is approximately 69 Hectares (Ha). This TSF is a separate project being undertaken by Harmony Gold.

The Social Labour Plan (SLP), which sets out the social and labour programmes for Project's Life of Mine (LoM), has been prepared in accordance with requirements of Mineral and Petroleum Resources Development (MPRDA) Act (Act No. 28 of 2002). Jelani will be required to submit this SLP to the Department of Mineral and Petroleum Resources (DMPR) for approval as a prerequisite for a Mining Right (MR) to be granted.

The project area is situated immediately adjacent to and west of the Harmony Gold Target Mine, approximately 11km northwest of Odendaalsrus, 2,5km west of Allanridge, and 22km east of Wesselsbron, in the Free State Province of South Africa. It lies within Ward 36 of the Matjhabeng Local Municipality, under the jurisdiction of the Lejweleputswa District Municipality.

Availability of the Draft Scoping Report (DSR) for Public Review and Comment:

The **DSR** for the Project is available for public review and comment for 30 days, from **Thursday, 21 May 2026 to Monday, 22 June 2026.**

The **DSR** is available on Kongiwe's website https://kongiwe.com/projects/, and an electronic copy can be made available upon request. In addition, non-technical summaries of the **DSR** are also available electronically.

A hard copy of the **DSR** is available at the following public place: **Allanridge Public Library** (53 Caledon St, Allanridge, Contact: Ms Anna Matjelo, Librarian - (078) 713 2063).

Stakeholder Meeting:

Open Day: The purpose of this meeting is to discuss the Project, the contents of the **DSR and SLP,** and to provide Interested and Affected Parties (I&APs) with the opportunity to raise their comments and to interact with the Project team. Please see below the proposed stakeholder meeting details:

Proposed Date	Available Time Slot	Method of Engagement / Venue
In-Person Meeting: Open Day		
Saturday, 30 May 2026	**11H00 – 13H00**	**S.A. Mokhothu Primary School, 3073 Nyakallong, Allanridge, 9490**

To register as an I&AP, contact:
Kongiwe Environmental Stakeholder Engagement Team
Ms Jean-Mari Williams - Phone: (010) 140 1726
Ms Vanessa Viljoen - Phone: (010) 140 1725
E-mail: stakeholders@kongiwe.com

Our team welcomes your participation and looks forward to your involvement throughout this process.

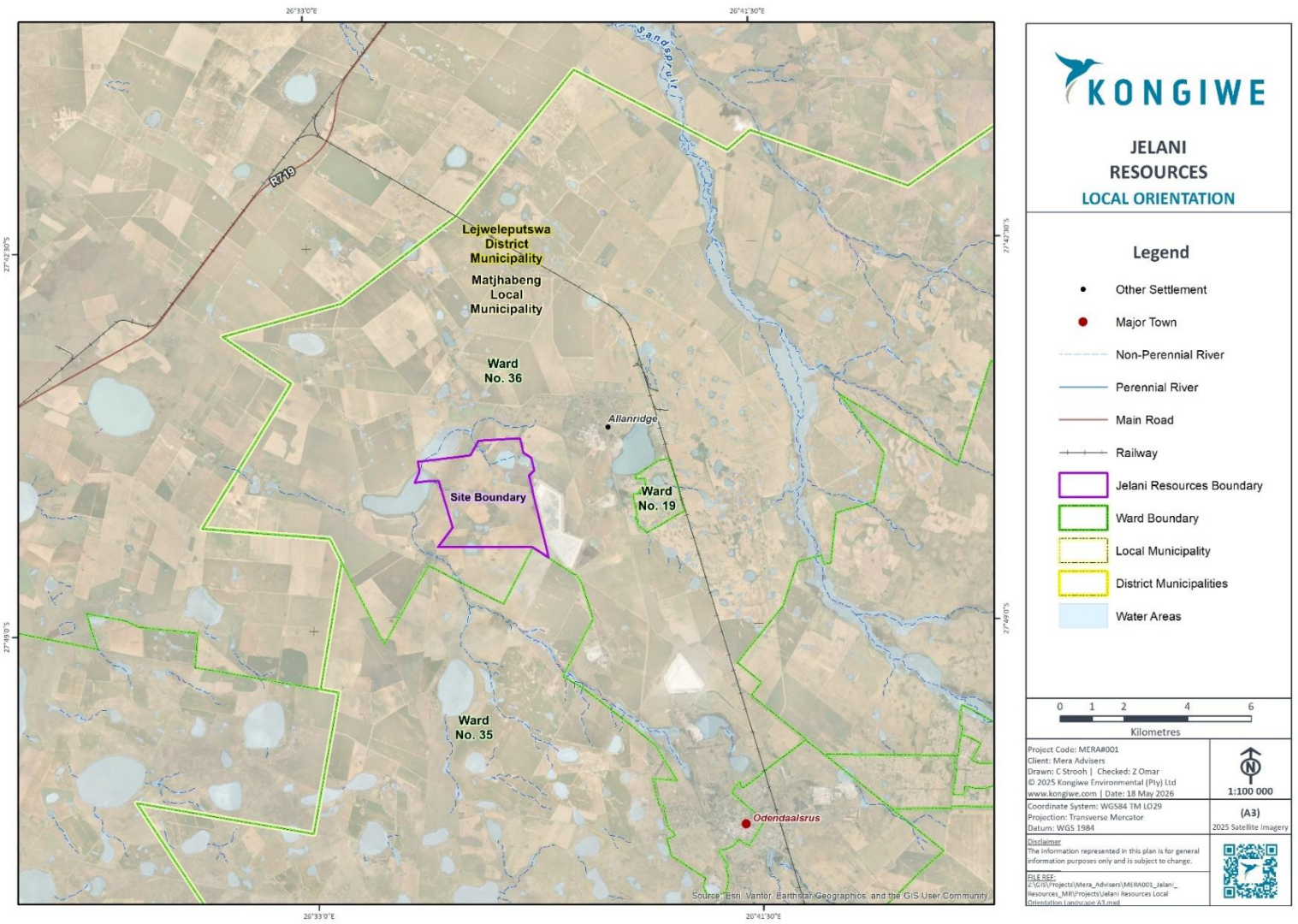


Figure 1: Locality Map

Appendix D: Wetland Assessment

Can be accessed here:
https://kongiwe.com/projects/

SCIENTIFIC AQUATIC SERVICES

Freshwater and Aquatic Assessments

AS PART OF THE ENVIRONMENTAL AND WATER USE AUTHORISATION PROCESSES FOR THE PROPOSED UNDERGROUND MINING ACTIVITIES IN THE ALLENRIDGE AREA, FREE STATE PROVINCE.

Prepared for:	Kongiwe Environmental (Pty) Ltd
Report authors:	C. De Freitas
	Dr. A. Kock (Pr.Sci.Nat)
Report reviewers:	K. Coertze (Pri.Sci.Nat)
	S. van Staden (Pri.Sci.Nat)
Report Reference:	SAS 25-0190
Report Date:	August 2026

Part of the SAS Environmental Group of Companies

Website: http://www.sasenvironmental.co.za

EXECUTIVE SUMMARY

Scientific Aquatic Services (SAS) (Pty) Ltd was appointed to conduct freshwater and aquatic assessments as part of the Environmental Authorisation (EA) and Water Use Authorisation (WUA) processes for the proposed Jelani Joint Venture (JV) area underground mining project, near Allenridge in the Free State Province (hereafter referred to as the "study area").

The freshwater assessment for the study area was undertaken in December 2025. Six seep wetlands and 26 depression wetlands were identified within the study area, as well as a Channelled Valley Bottom (CVB) wetland southwest of the study area. Only the seep and depression wetlands were assessed in this report due to the potential impacts on these systems as a result of the proposed activities. Due to the significant invasion of alien vegetation and modification of the hydraulic regime of the various systems, the wetlands were assessed to be in moderately to largely modified (Category C/D) ecological conditions, respectively, and of moderate ecological importance and sensitivity. The ecological service provisioning was assessed as low/very low. This is largely due to the modified ecological condition of the wetlands, however, the wetlands provide isolated habitats for important fauna thus providing moderate service provision in terms of biodiversity maintenance.

Following the freshwater ecosystem assessment, the Department of Water and Sanitation (DWS) Risk Assessment Matrix (2023) was applied to determine the significance of impacts of the proposed underground mining activities on the wetlands. As no surface infrastructure is proposed (only underground activities) to encroach within the wetlands or within the General Notice (GN) 4167 500 m Zone of Regulation (ZoR) of the systems and provided that all mitigation measures outlined in this report are adhered to throughout the life of the proposed underground mining operation, the perceived impact significance is considered to be "Low".

The outcome of the impact assessment [provided by the Environmental Assessment Practitioner (EAP)] states that the operational and closure phase activities associated with the proposed project are medium without the implementation of mitigation measures and low with the implementation of mitigation measures.

The assessment of potential impacts to groundwater was not part of the scope of this report but was considered, at a high level, as the potential for decant relates to surface freshwater resource management. As such, the mitigation measures as outlined in the Technical Report (Bara Consulting, 2025) to mitigate against potential subsidence, creation of a groundwater pollution plume, that poses a risk to surface water resources, and possible decant must be implemented and strictly adhered to in order to ensure a low impact significance. It is also recommended that the pillar safety factor under the wetlands be included as an additional margin of safety to ensure that no subsidence of the wetlands takes place.

Thus, it is the opinion of the specialist that the proposed undermining of the wetlands associated with the proposed Jelani EJV is considered acceptable and can be authorised by means of a Water Use Authorisation process in terms of Government Notice (GN) 4167 as it relates to the National Water Act (NWA) and is acceptable for Environmental Authorisation (EA).

MANAGEMENT SUMMARY

Scientific Aquatic Services (SAS) (Pty) Ltd was appointed to conduct freshwater and aquatic assessments as part of the Environmental Authorisation (EA) and Water Use Authorisation (WUA) processes for the proposed Jelani Joint Venture (JV) area underground mining project (hereafter referred to as the 'proposed underground mining operation'), near Allenridge in the Free State Province (referred to as the "study area").

The purpose of this report is to define the ecology of the freshwater ecosystems associated with the proposed underground mining operation and the associated investigation area (defined as a 500 m radius around the study area), in line with Government Notice (GN) 4167 as it relates to the National Water Act, 1998 (Act No. 36 of 1998) as amended (NWA), in terms of freshwater characteristics, including mapping of the freshwater ecosystems, defining areas of increased Ecological Importance and Sensitivity (EIS) and defining the Present Ecological State (PES) of the freshwater ecosystems associated with the proposed underground mining operation. The report also aims to define the socio-cultural and ecological service provision of the freshwater ecosystems and additionally outlines the Recommended Ecological Category (REC), Recommended Management Objective (RMO) and Best Attainable State (BAS) for the freshwater ecosystems.

The assessment took the following approach:

- A desktop study was conducted, in which possible freshwater ecosystems were identified for on-site investigation, and relevant national and provincial databases were consulted;
- The field assessment was undertaken on the 10th of December 2025 to ground truth the freshwater ecosystems associated with the study area. Multiple natural seep and depression wetlands were identified within the study area and associated investigation area, as well as a channelled valley-bottom (CVB) wetland in the southwestern corner of the investigation area; and
- The characteristics of the wetlands were defined, including the PES, EIS, REC, RMO and BAS.

The results of the field assessment are presented in Section 4 of this report, and are summarised in table A below:

Table A: Summary of results of the field assessment as discussed in Section 4.

Freshwater ecosystems	PES	Ecoservices importance	EIS	REC / RMO / BAS
Seep Wetlands	PES Category C (Moderately Modified)	Very low to Moderate	Moderate	REC Category: C BAS Category: C RMO: Maintain
Depression Wetlands	PES Category D (Largely Modified)			REC Category: D BAS Category: D RMO: Maintain
Extent of modification anticipated.	**Low** Based on the PES and EIS of the wetlands and the findings of the DWS Risk Assessment Matrix (2023), the activities associated with the proposed undermining of the wetlands will pose a "Low" risk to the ongoing functionality of the systems. Key mitigation measures include: ➢ Mitigation measures as stipulated in the Technical Report compiled by Bara Consulting (2025), to mitigate against subsidence and dewatering, formation of a pollution plume and decant respectively, must be implemented; and ➢ It is advised that the pillar safety factor under the wetlands be increased to further ensure no subsidence takes place.			

Following the freshwater ecosystem assessment, the Department of Water and Sanitation (DWS) Risk Assessment Matrix (2023) was applied to determine the significance of impacts of the proposed undermining of the wetlands. Provided that all mitigation measures outlined in this report are adhered to throughout the life of the proposed underground mining operation, the perceived impact significance is "Low" provided that the mitigation measures as outlined in this report are strictly adhered to.

The assessment of potential impacts to groundwater was not part of the scope of this report but was considered, at a high level, as the potential for decant relates to surface freshwater resource management. As such, the mitigation measures as outlined in the Technical Report (Bara Consulting, 2025) to mitigate against potential subsidence, creation of a groundwater pollution plume, that poses a risk to surface water resources, and possible decant must be implemented and strictly adhered to in order to ensure a low impact significance. It is also recommended that the pillar safety factor under the wetlands be included as an additional margin of safety to ensure that no subsidence of the wetlands takes place.

A summary of the DWS Risk Assessment is provided in Table B below.

Table B: Summary of DWS Risk Assessment applied to the freshwater ecosystems associated with the proposed underground mining operation.

Phase	No.	Activity	Impact	Risk Rating
Operational	1	Operation of the underground mining area related to the undermining of the freshwater ecosystems.	• Potential creation of a cone of depression, which may drain water from the wetlands, thus resulting in desiccation of the systems.	L
			• Potential destabilisation of the surrounding environment through the extraction of ore and subsequent potential subsidence of the land.	L
Closure/ Post Closure	2	Post-closure management activities. (Decant of contaminated water from the rehabilitated mine area into the receiving environment subject to confirmation by a suitably qualified geohydrologist).	• Contamination of water within the receiving environment, and subsequent reduction in water quality (increase in salts and specific contaminants of concern and reduced pH); • Post-operational subsidence; • Subsequent negative impacts on biota and vegetation; • Altered flow regimes (increased hydroperiod); and • Habitat degradation.	L

The outcome of the impact assessment [provided by the Environmental Assessment Practitioner (EAP)] states that the operational and closure phase activities associated with the proposed project are medium without the implementation of mitigation measures and low with the implementation of mitigation measures.

Given these findings, it is the opinion of the specialist that the proposed undermining of the wetlands associated with the proposed Jelani project is considered acceptable and can be authorised by means of a Water Use Authorisation process in terms of Government Notice (GN) 4167 as it relates to the National Water Act (NWA) and is acceptable for Environmental Authorisation (EA).

DOCUMENT GUIDE

The table below provides the specialist report requirements for the assessment and reporting of impacts on aquatic biodiversity in terms of Government Notice 320 as promulgated in Government Gazette 43110 of 20 March 2020 in line with the Department of Environmental Affairs screening tool requirements, as it relates to the National Environmental Management Act, 1998 (Act No. 107 of 1998).

No.	Requirements	Section in report
2.1	Assessment must be undertaken by a suitably qualified SACNASP registered specialist	Appendix H
2.2	Description of the preferred development site, including the following aspects-	Section 1.1.1
2.2.1	a. Aquatic ecosystem type b. Presence of aquatic species and composition of aquatic species communities, their habitat, distribution and movement patterns	Section 4.4
2.2.2	Threat status, according to the national web based environmental screening tool of the species and ecosystems, including listed ecosystems as well as locally important habitat types identified	Section 3.1
2.2.3	National and Provincial priority status of the aquatic ecosystem (i.e. is this a wetland or river Freshwater Ecosystem Priority Area (FEPA), a FEPA sub- catchment, a Strategic Water Source Area (SWSA), a priority estuary, whether or not they are free-flowing rivers, wetland clusters, etc., a CBA or an ESA; including for all a description of the criteria for their given status	Section 3.1
2.2.4	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.); b. The historic ecological condition (reference) as well as Present Ecological State (PES) of rivers (in-stream, riparian and floodplain habitat), wetlands and/or estuaries in terms of possible changes to the channel, flow regime (surface and groundwater)	Section 4.4
2.3	Identify any alternative development footprints within the preferred development site which would be of a "low" sensitivity as identified by the national web based environmental screening tool and verified through the Initial Site Sensitivity Verification	Section 5
2.4	Assessment of impacts – a detailed assessment of the potential impact(s) of the proposed development on the following very high sensitivity areas/ features:	Section 7
2.4.1	Is the development consistent with maintaining the priority aquatic ecosystem in its current state and according to the stated goal?	Section 4.4 and Section 7
2.4.2	Is the development consistent with maintaining the Resource Quality Objectives for the aquatic ecosystems present?	Section 4.4
2.4.3	How will the development impact on fixed and dynamic ecological processes that operate within or across the site, including: 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. Change in the sediment regime (e.g. sand movement, meandering river mouth/estuary, changing flooding or sedimentation patterns) of the aquatic ecosystem and its sub-catchment; c. The extent of the modification in relation to the overall aquatic ecosystem (i.e. 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.). d. Assessment of the risks associated with water use/s and related activities.	Section 4.4
2.4.4	How will the development impact on the functionality of the aquatic feature including: a. Base flows (e.g. too little/too much water in terms of characteristics and requirements of system);	Section 4.4 and Section 7

	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 unchannelled valley-bottom wetland to a channelled valley-bottom wetland); d. Quality of water (e.g. due to increased sediment load, contamination by chemical and/or organic effluent, and/or eutrophication); and e. Fragmentation (e.g. road or pipeline crossing a wetland) and loss of ecological connectivity (lateral and longitudinal).	
2.4.5	How will the development impact on the functionality of the aquatic feature including: a. 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) b. Change in the hydrogeomorphic typing of the aquatic ecosystem (e.g. change from an unchannelled valley-bottom wetland to a channelled valley-bottom wetland). c. Quality of water (e.g. due to increased sediment load, contamination by chemical and/or organic effluent, and/or eutrophication); d. Fragmentation (e.g. road or pipeline crossing a wetland) and loss of ecological connectivity (lateral and longitudinal); e. The loss or degradation of all or part of any unique or important features (e.g. waterfalls, springs, oxbow lakes, meandering or braided channels, peat soil, etc.) associated with or within the aquatic ecosystem.	Section 4.4 and Section 7
2.4.6	How will the development impact on key ecosystem regulating and supporting services especially Flood attenuation; Streamflow regulation; Sediment trapping; Phosphate assimilation; Nitrate assimilation; Toxicant assimilation; Erosion control; and Carbon storage.	Section 4.4 and Section 7
2.4.7	How will the 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?	Section 4.4
2.4.9	A motivation must be provided if there were development footprints identified as per paragraph 2.3 above that were identified as having a “low” biodiversity sensitivity and were not considered appropriate.	Section 8
3.	The report must contain as a minimum the following information:	
3.1	Contact details and curriculum vitae of the specialist including SACNASP registration number and field of expertise and their curriculum vitae;	Appendix H
3.2	A signed statement of independence by the specialist;	Appendix H
3.3	The duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;	Section 2 and 4.4
3.4	The methodology used to undertake the impact assessment and site inspection, including equipment and modelling used, where relevant;	Appendix C - E
3.5	A description of the assumptions made and any uncertainties or gaps in knowledge or data as well as a statement of the timing and intensity of site inspection observations;	Section 1.3
3.6	Areas not suitable for development, to be avoided during construction and operation (where relevant);	Section 5
3.7	Additional environmental impacts expected from the proposed development based on those already evident on the site and a discussion on the cumulative impacts;	Section 7.4
3.8	A suitable construction and operational buffer for the aquatic ecosystem, using the accepted protocol;	Section 5
3.9	Impact management actions and impact management outcomes proposed by the specialist for inclusion in the EMPr;	Section 7
3.10	A motivation where the development footprint identified as per 2.3 were not considered stating reasons why these were not being considered; and	Section 8
3.11	A reasoned opinion, based on the finding of the specialist assessment, regarding the acceptability or not, of the development and if the development should receive approval, and any conditions to which the statement is subjected.	Section 8

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GLOSSARY OF TERMS

Alien vegetation:	Plants that do not occur naturally within the area but have been introduced either intentionally or unintentionally. Vegetation species that originate from outside of the borders of the biome - usually international in origin.
Biodiversity:	The number and variety of living organisms on earth, the millions of plants, animals and micro-organisms, the genes they contain, the evolutionary history and potential they encompass and the ecosystems, ecological processes and landscape of which they are integral parts.
Buffer:	A strip of land surrounding a wetland or riparian area in which activities are controlled or restricted, in order to reduce the impact of adjacent land uses on the wetland or riparian area.
Catchment:	The area where water is collected by the natural landscape, where all rain and run-off water ultimately flows into a river, wetland, lake, and ocean or contributes to the groundwater system.
Delineation (of a wetland):	To determine the boundary of a wetland based on soil, vegetation and/or hydrological indicators.
Ecoregion:	An ecoregion is a "recurring pattern of ecosystems associated with characteristic combinations of soil and landform that characterise that region".
Facultative species:	Species usually found in wetlands (76%-99% of occurrences) but occasionally found in non-wetland areas
Gleying:	A soil process resulting from prolonged soil saturation which is manifested by the presence of neutral grey, bluish or greenish colours in the soil matrix.
Groundwater:	Subsurface water in the saturated zone below the water table.
Hydromorphic soil:	A soil that in its undrained condition is saturated or flooded long enough to develop anaerobic conditions favouring the growth and regeneration of hydrophytic vegetation (vegetation adapted to living in anaerobic soil).
Hydrology:	The study of the occurrence, distribution and movement of water over, on and under the land surface.
Indigenous vegetation:	Vegetation occurring naturally within a defined area.
Mottles:	Soil with variegated colour patterns are described as being mottled, with the "background colour" referred to as the matrix and the spots or blotches of colour referred to as mottles.
Watercourse:	In terms of the definition contained within the National Water Act, a watercourse means: • A river or spring; • A natural channel which water flows regularly or intermittently; • A wetland, dam or lake 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
Wetland Vegetation (WetVeg) type:	Broad groupings of wetland vegetation, reflecting differences in regional context, such as geology, climate, and soil, which may in turn have an influence on the ecological characteristics and functioning of wetlands.

ACRONYMS

°C	Degrees Celcius
AIP	Alien and Invasive Plant
CVB	Channelled Valley Bottom
CR	Critically Endangered
BAS	Best Attainable State
DEA	Department of Environmental Affairs
DWA	Department of Water Affairs
DWAF	Department of Water Affairs and Forestry
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EC	Electrical Conductivity
EI	Ecological Importance
EIS	Ecological Importance and Sensitivity
EPL	Ecosystem Protection Level
ES	Ecological Sensitivity
ESA	Ecological Support Area
ETS	Ecosystem Threat Status
FEPA	Freshwater Ecosystem Priority Areas
GA	General Authorisation
GDI	Generic Diatom Index
GIS	Geographic Information System
GN	Government Notice
GPS	Global Positioning System
ha	Hectare
HGM	Hydrogeomorphic
JV	Joint Venture
km	Kilometre
LOM	Life of Mining
m	Metre
mm	Millimetre
m.a.m.s.l	Metres above mean sea level
MAP	Mean Annual Precipitation
MRA	Mining Right Area
mS/m	Millisiemens/metre
NBA	National Biodiversity Assessment
NEMA	National Environmental Management Act
NEMBA	National Environmental Management: Biodiversity Act
NFEPA	National Freshwater Ecosystem Priority Areas
NP	Not Protected
NWA	National Water Act
PES	Present Ecological State
POC	Probability of Occurrence
PR	Prospecting Rights
%PTV	Percentage Pollution Tolerant Values
RAM	Risk Assessment Matrix
REC	Recommended Ecological Category
RMO	Resource Management Objective
RWQO	Resource Water Quality Objectives
SACNASP	South African Council for Natural Scientific Professions
SAS	Scientific Aquatic Services
SPI	Specific Pollution Sensitivity Index
SWSA	Strategic Water Source Area

SQR	Sub quaternary catchment reach
subWMA	Sub-Water Management Area
TDI	Trophic Diatom Index
TSF	Tailings Storage Facility
WetVeg Groups	Wetland Vegetation Groups
WMA	Water Management Areas
WRE	White Rivers Exploration
WUA	Water Use Authorisation
ZoR	Zone of Regulation

1 INTRODUCTION

1.1 *Background*

Scientific Aquatic Services (SAS) (Pty) Ltd was appointed to conduct freshwater and aquatic assessments as part of the Environmental Authorisation (EA) and Water Use Authorisation (WUA) processes for the proposed Jelani Joint Venture (JV) area underground mining project (hereafter referred to as the 'proposed underground mining operation'), near Allenridge in the Free State Province (referred to as the "study area"). (Figures 1 and 2).

The site visit for the freshwater assessment was undertaken on the 10th of December 2025 to establish baseline ecological conditions and the risk significance posed by the proposed activities, to guide the activities in relation to any potential freshwater ecosystems that may be affected directly or indirectly by the proposed underground mining operation. In order to identify all possible freshwater ecosystems that may potentially be impacted by the proposed underground mining operation, a 500 m "zone of investigation" around the study area, in accordance with Government Notice (GN) 4167 of 2023 as it relates to the National Water Act, 1998 (Act No. 36 of 1998) (NWA), as amended was used as a guide in which to assess possible sensitivities of the receiving environment. This area – i.e. the 500 m zone of investigation around the study area – will henceforth be referred to as the "investigation area".

1.1.1 *Project Description*

Jelani Resources (Pty) Ltd ("Jelani") is a joint venture (JV) company established by White Rivers Exploration (WRE) and Harmony Gold. The JV was formed to conduct underground mining operations within the JV area, which is made up of areas within the existing Harmony Target mining right (Harmony contribution) and Prospecting Rights (PR) areas to the west of Harmony Gold's existing Target Mine (WRE contribution) in the Free State Province of South Africa. Following the exploration and licensing phases, Jelani intends to initiate underground mining operations within the same area (hereafter referred to as the "study area").

The proposed development area is approximately (~) 956 hectares (ha) in extent, situated directly west of the Harmony Gold Target Mine and is ~ 2.5 kilometres (km) west of Allanridge, 11 km northwest of Odendaalsrus, and 22 km east of Wesselsbron, in the Free State Province of South Africa. The study area is within Ward 36 of the Matjhabeng Local Municipality, under the jurisdiction of the Lejweleputswa District Municipality.
Existing underground access (shafts and level access) will be refurbished and re-equipped. Target No 2 and Target No 3 shafts will, over the course of the mine's life, be used for the

movement of men, material and rock, depending on which phase the mine is in. All infrastructure required for the Proposed Project will be located within the existing Harmony Target Mine mining right area. No new infrastructure is planned within the project area. Underground access infrastructure will either consist of refurbished facilities at Target Shafts No. 3, 4, and 5 or newly constructed infrastructure at the Target No. 2 Shaft site, all within the existing mining right.

Additionally, a new Tailings Storage Facility (TSF) will be constructed to the west of the existing Target metallurgical plant and north of the existing Target TSF. The total area required for this new facility is ~ 69 Ha. This TSF is a separate project being undertaken by Harmony Gold, thus will not be discussed further in this report.

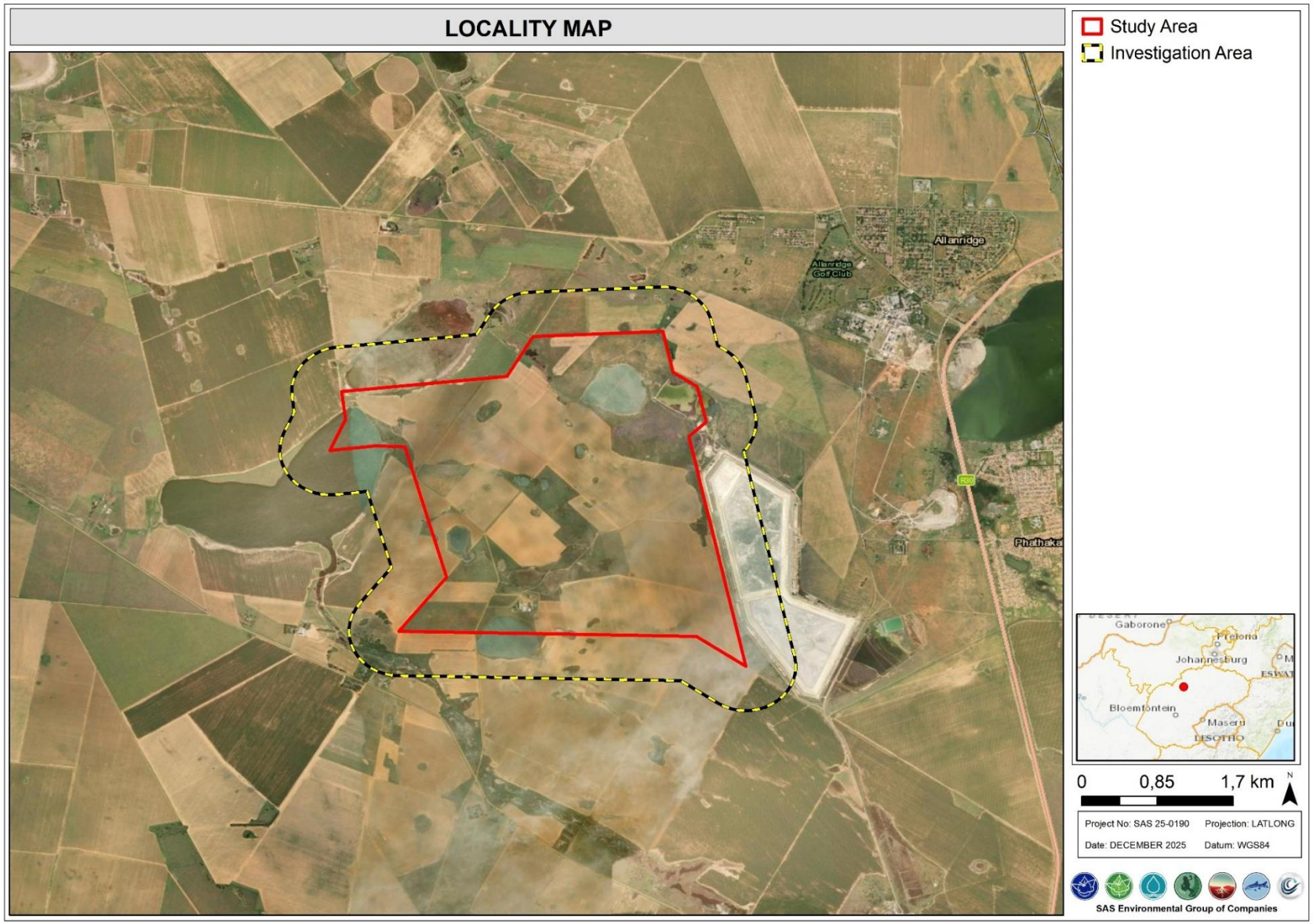


Figure 1: The study and associated investigation area depicted in relation to the surrounding area.

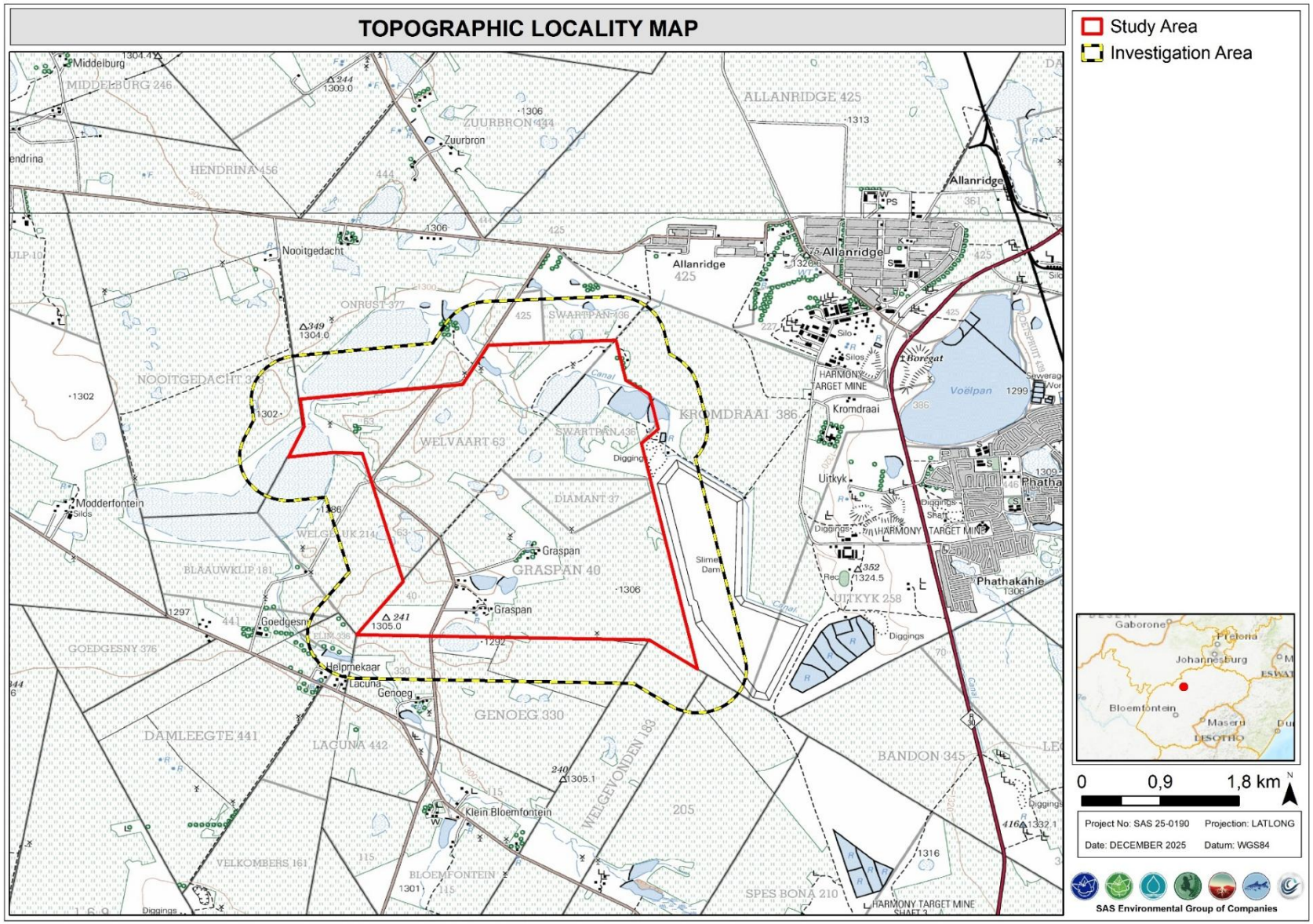


Figure 2: The study and associated investigation area, depicted on an ortho-topographic map.

1.2 *Scope of Work*

Specific outcomes in terms of this report are outlined below:

- A background study of relevant national, provincial and municipal datasets [such as the National Freshwater Ecosystem Priority Areas (NFEPA, 2011) database; the Department of Water and Sanitation Research Quality Information Services (DWS RQIS PES/EIS, 2014) database, National Biodiversity Assessment (NBA, 2018) database, and the Free State Biodiversity Plan (FSBP, 2019)], were undertaken to aid in defining the Present Ecological State (PES) and Ecological Importance and Sensitivity (EIS) of the freshwater ecosystems;
- Freshwater ecosystems were field verified according to the Department of Water Affairs and Forestry (DWAF, 2008[1]): "A practical Guideline Procedure for the Identification and Delineation of Wetlands and Riparian Zones". Aspects such as soil, morphological characteristics, vegetation types and wetness were used to verify the freshwater ecosystems;
- The classification of the freshwater ecosystems was undertaken according to the Classification System for Wetlands and other Aquatic Ecosystems in South Africa: User Manual: Inland systems (Ollis *et al*., 2013);
- The PES of the freshwater ecosystems were determined according to the WET Health tool (Macfarlane *et al.,* 2008);
- The EIS of the freshwater ecosystems were determined according to the method described by Rountree and Kotze*,* (2013);
- The Ecoservices of the freshwater ecosystems were assessed according to "A technique for rapidly assessing ecosystem services supplied by wetlands" (Kotze *et al.,* 2020) (Version 2);
- Allocation of a suitable Recommended Management Objective (RMO), Recommended Ecological Category (REC) and Best Attainable State (BAS) to the freshwater ecosystems based on the results obtained from the PES and EIS assessment's;
- The freshwater ecosystem boundaries, and legislated zones of regulation were depicted for the freshwater ecosystems, where applicable;
- The Environmental Assessment Practitioner (EAP)-provided impact assessment method and the Department of Water and Sanitation (DWS) Risk Assessment Matrix (2023) was applied to identify potential impacts that may affect the freshwater

[1] Even though an updated manual is available since 2008 (Updated Manual for the Identification and Delineation of Wetlands and Riparian Areas), this is still considered a draft document currently under review.

ecosystems within the investigation area as a result of the proposed underground mining operation, and to aim to quantify the significance thereof; and

- To present management and mitigation measures which should be implemented during the proposed underground mining operation to assist in minimising the impact of the proposed activities on the receiving environment.

1.3 *Assumptions and Limitations*

The following assumptions and limitations are applicable to this report:

- The determination of the freshwater ecosystem boundaries and the assessment thereof, is confined to the reaches of the freshwater ecosystems that traverse the study area and associated investigation area;
- Delineations depicted in this report are largely based on a desktop analysis with limited site verification. As a result, the delineations within this report can only be used as part of the underground mining application, as it was assumed that the existing surface infrastructure would be used. If additional surface infrastructure is required, a more detailed site verification will need to be undertaken;
- The study and investigation areas and their immediate surrounds have undergone historical transformation including agriculture, urbanisation and current and historic mining activities. As a result, various areas within the study and associated investigation area displayed transformed topography, soil profiles and runoff patterns within the landscape. As such, these disturbances have likely resulted in alterations to the hydroperiod of the identified freshwater ecosystems;
- It is important to note that although all data sources used provide useful and often verifiable, high-quality data, the various databases used do not always provide an entirely accurate indication of the actual site characteristics within the study area at the scale required to inform the EA process. However, this information is considered to be useful as background information to the study;
- Global Positioning System (GPS) technology is inherently inaccurate and some inaccuracies due to the use of handheld GPS instrumentation may occur. If more accurate assessments are required, the freshwater ecosystems will need to be surveyed and pegged according to surveying principles and with surveying equipment;
- Wetland, riparian and terrestrial zones create transitional areas where an ecotone is formed as vegetation species change from terrestrial to obligate/facultative species. Within this transition zone, some variation of opinion on the freshwater ecosystem boundaries may occur. However, if the DWAF (2008) method is followed, all assessors should get largely similar results;

- With ecology being dynamic and complex, certain aspects (some of which may be important) may have been overlooked. It is, however, expected that the freshwater ecosystems that may be affected by the proposed underground mining operation have been accurately assessed and considered, based on the site observations undertaken in terms of freshwater ecosystem ecology; and
- To ensure that our turnaround time meets expectations diatom analysis and identification is done on "live" diatom samples. There are no limitations through the use of "live" samples with accurate analysis and identification of samples and as such results for the report are considered accurate. There is no substantial impact on the validity of the final conclusions drawn in this report.

2 ASSESSMENT APPROACH

2.1 *Freshwater Ecosystem Definition*

For the purposes of this investigation, the definitions of a watercourse, riparian and wetland habitat were taken as per that in the National Water Act, 1998 (Act No. 36 of 1998) as amended. The definitions are as follows:

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

The National Water Act, 1998 (Act No. 36 of 1998) further provides definitions of wetland and riparian habitats as follows:

Wetland habitat is "land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil."

Riparian habitat includes the physical structure and associated vegetation of the areas associated with a watercourse which are commonly characterized by alluvial soils, and which are inundated or flooded to an extent and with a frequency sufficient to support vegetation of species with a composition and physical structure distinct from those of adjacent areas.

Thus, for the purposes of this investigation, the definition of a freshwater ecosystem is synonymous with the definition of a watercourse as per the National Water Act, 1998 (Act No. 36 of 1998), as amended and the terms may be used interchangeably in this report.

2.2 *Freshwater Ecosystem Field Verification*

A site verification and assessment was undertaken on the 10th of December 2025 (Free State Summer, wet period) during which the presence of any freshwater ecosystem characteristics as defined by Department of Water Affairs and Forestry (DWAF, 2008) and the National Water Act, 1998 (Act No. 36 of 1998), as amended were noted (please refer to Section 4 of this report). A detailed explanation of the methods of assessment undertaken is provided in **Appendix C** of this report.

The freshwater ecosystem delineation took place, as far as possible, according to the method presented in the "Updated manual for the identification and delineation of wetland and riparian resources" (DWAF, 2008). The foundation of the method, is based on the fact that freshwater ecosystems have several distinguishing factors including the following:

- Landscape position;
- The presence of water at or near the ground surface;
- Distinctive hydromorphic soils; and
- Vegetation adapted to saturated soils.

2.3 *Sensitivity Mapping*

All freshwater ecosystems associated with the study areas were delineated with the use of a GPS. Geographic Information System (GIS) software was used to project these features onto aerial imagery and topographic maps and are presented in Sections 3 and 4.

2.4 *Freshwater/Aquatic Ecological and Water Quality Assessment*

Best practice methods of assessment (detailed methods of assessment provided in Appendix C) were used to assess the aquatic ecological integrity of the site based on water quality, instream and riparian/wetland habitat condition and biological impacts and integrity. Factors investigated included the following:

- Visual conditions of the site, including an assessment of impacts on the wetlands;
- Delineation of the wetland habitats according to (DWAF) (2008);
- Water quality (physico-chemical) variables were measured *in-situ* using an Extech (EC 500 series) pH/Conductivity/TDS/temperature probe and an Extech (DO 600 series) dissolved oxygen (DO) probe and are discussed against various guidelines as follows:

- South African water quality guidelines volume 7, Aquatic ecosystems Target Water Quality Objectives (TWQR; DWAF, 1996);

- Assessment of environmental conditions (nutrient loading, salinisation, pH change and organic enrichment) based on the presence and absence of key indicator diatom taxa inferred from Taylor *et al*. (2007) and Omnidia software (Lecointe *et al.,* 1993). The following indices were calculated for this report;
  - Specific Pollution sensitivity Index (SPI) (CEMAGREF, 1982);
  - Generic Diatom Index (GDI) (Coste and Ayphassorho, 1991);
  - Trophic Diatom Index (TDI) (Kelly and Whitton, 1995); and
  - Percentage Pollution Tolerant Values (%PTV) (Kelly and Whitton, 1995); and
- General catchment impacts were considered in the ecological assessments, such as land use and impoundments.

2.5 *Risk Assessment and Recommendations*

Following the completion of the assessment, the DWS Risk Assessment methodology was conducted for both the proposed and existing infrastructure/activities (please refer to **Appendix D** for the method of approach). Recommendations were also developed to address and mitigate impacts associated with the various proposed and existing activities. A summary of the RAM and the associated mitigation measures are presented in Section 6.

2.6 *Impact Assessment*

In addition to the DWS Risk Assessment, the EAP provided Impact Assessment methodology was undertaken for the proposed underground mining operation (please refer to **Appendix E** for the method of approach).

3 RESULTS OF THE DESKTOP ANALYSIS

3.1 *Analyses of Relevant Databases*

The following section contains data accessed as part of the desktop assessment and are presented as a “dashboard” report below (Table 1). The dashboard report aims to present concise summaries of the data on as few pages as possible to allow for integration of results by the reader to take place. Where required, further discussion and interpretation is provided, and information that was considered of importance was emboldened.

It is important to note that although all data sources used provide useful and often verifiable, high-quality data, the various databases used do not always provide an entirely accurate indication of the “proposed development’s” actual site characteristics at the scale required to inform the EA/WUA processes. Nevertheless, this information is considered useful as background information to the study, is important in legislative contextualisation of risk and impact, and was used as a guideline to inform the assessment and to focus on areas and aspects of increased conservation importance. It must, however, be noted that site assessment of key areas may potentially contradict the information contained in the relevant databases, in which case the site verified information must carry more weight in the decision-making process. The information contained in the dashboard report below is intended to provide background to the landscape of the study and associated investigation area. **Actual site conditions at the time of the assessment may differ to the background information provided by various datasets. Please refer to Section 4 for details pertaining to the site investigation**.

Table 1: Desktop data relating to the characteristics of the freshwater ecosystems associated with the study and investigation areas [Quarter Degree Squares (QDS) 2726DA and 2726DC].

Aquatic ecoregion and sub-regions in which the study area is located	
Ecoregion	Highveld
Catchment	Vaal
Quaternary Catchment	C25B
WMA	Middle Vaal
Sub-WMA	Middle Vaal
Dominant characteristics of the Highveld Ecoregion Level II (Kleynhans *et al.*, 2007)	
Ecoregion Level II	11.08
Dominant primary terrain morphology	Plains, moderate relief
Dominant primary vegetation types	Moist Cold Highveld Grassland
Altitude (m a.m.s.l)	1300 to 1700
MAP (mm)	500 to 500
Coefficient of Variation (% MAP)	25 to 34
Rainfall concentration	45 to 60
Rainfall seasonality	Mid to late-summer
Mean annual temp. (°C)	14 to 18
Winter temp. (July) (°C)	-2 to 18
Summer temp. (Feb) (°C)	12 to 28
Annual simulated runoff (mm)	5 to 10 (limited); 10 to 80
Ecological Status of the most proximal sub-quaternary reach (DWS, 2014) (Figure 10)	
Sub-quaternary reach	C52B-02423 (Sandspruit River)
Point Proximity to study area	±8 km east of the study area
Assessed by expert?	Yes
PES Category Median	Moderately Modified (Class C)
Mean EI Class	Moderate
Mean ES Class	Moderate
Stream Order	1
Default Ecological Class	Class C (Moderate)
Summary	Considering the study area is more than 8 km west, albeit upgradient from the SQR monitoring point, it is highly unlikely that similar fish and aquatic macro invertebrate species will be found in the study area, considering the seeming lack of hydrological connectivity. As a result, the ecological status and related background information pertaining

Detail in terms of the National Freshwater Ecosystem Priority Area (NFEPA) (2011) database	
FEPA CODE	The entire study area and investigation area are not located within a FEPA catchment considered important in terms of freshwater biodiversity conservation.
Wetland Vegetation Type	According to the NFEPA database, the entire study area and investigation area are situated within the Dry Highveld Grassland Group 3 wetland vegetation (WetVeg) type, indicated as Vulnerable (VU) by Mbona *et al.* (2015).
NFEPA Wetlands (Figure 3)	According to the NFEPA Wetlands database, fourteen depression wetlands, three unchannelled valley bottom (UCVB) wetlands, two channelled valley bottom (CVB) wetlands, two seep wetlands, and one valley head seep wetland are all indicated to be within the study area and associated investigation area. The depression wetlands, two of the UCVBs, and one of the CVBs are all indicated as Moderately Modified (Class C). The two seep wetlands, the valley head seep, one UCVB and one CVB are all indicated by the database as being in a Heavily to Critically Modified (Class Z) ecological condition. Several of the UCVB, CVB and depression wetlands are also indicated to be overlain by artificial Heavily to Critically Modified (Class Z) wetlands.
NFEPA Rivers	According to the NFEPA Rivers database, there are no rivers flowing through the study area or the associated investigation area.
National Biodiversity Assessment (2018): South African Inventory of Inland Aquatic Ecosystems (SAIIAE) Rivers, Artificial Wetlands, and Draft National Wetland Map 6 (2024) – Condition is based on National Wetland Map 5 (2018) (Figure 4)	
The NBA Rivers Database indicates that there are no rivers flowing through the study area or the associated investigation area. According to the draft National Wetland Map 6 (2024), seventeen (17) depression wetlands, one (1) seep wetland, and one (1) UCVB wetland are all indicated in the study area and associated investigation area. The majority of the depression wetlands are indicated to be in a Natural to Near Natural (Class A/B) ecological condition while the rest are in a Moderately Modified (Class C) ecological condition. The seep wetland is in a Largely to Critically Modified (Class D/E/F) ecological condition while the UCVB wetland is indicated to be in a Moderately Modified (Class C) ecological condition. The depressions are indicated as Least Concern (LC) and Poorly Protected (EPL) while the seep and UCVB wetlands are Critically Endangered (ETS) and Not Protected (EPL). The Artificial Wetlands database indicates five dams in the study area, and three dams in the investigation area. The database also indicates an open reservoir east of the study area within the investigation area.	

	to the PES and EIS for the C52B-02423 (Sandspruit River) are not provided in this report.	
Strategic Water Source Areas (SWSA) (2017 & 2021)		
Surface water SWSAs are defined as areas of land that supply a disproportionate (i.e., relatively large) quantity of mean annual surface water runoff in relation to their size. The SWSA for groundwater reflect areas that have high groundwater recharge and where the groundwater forms a nationally important resource. The 2021 CSIR-MTPA database (Lötter, M.C. and Le Maitre, D) was used for surface water, while the WRC 2017 database (Le Maitre, D.C. et al.) was used for the groundwater SWSAs.		
The study area and associated investigation area are not indicated to be within a surface water SWSA or a groundwater SWSA.		
Detail Of the Study Area in terms of the Free State Biodiversity Plan: Terrestrial Theme only (FSBP, 2019) (Figure 5)		
Critical Biodiversity Area (CBA)	The depression wetland areas in the north and north eastern portion of the study area and investigation area, and a patch in the centre of the study area also associated with a pan-depression wetland are all classified as CBA1: Irreplaceable Areas. **CBAs** are areas that must be maintained in a natural or near-natural state in order to meet biodiversity targets. CBAs should collectively meet biodiversity targets for all ecosystem types as well as for species and ecological processes that depend on natural or near-natural habitat, that have not already been met in the protected area network.	
Ecological Support Areas (ESA)	The sections of the study area and investigation area in the west and a patch in the south of the investigation area are classified as ESA 1 areas while a majority of the study area and investigation area are indicated as ESA 2 areas which especially align with the cultivation areas. **ESAs** are area that must be maintained in at least fair ecological condition (semi-natural/moderately modified state) in order to support the ecological functioning of a CBA or protected area, or to generate or deliver ecosystem services, or to meet remaining biodiversity targets for ecosystem types or species when it is not possible or not necessary to meet them in natural or near-natural areas. **ESA 1** sites are sites with minimal degradation and **ESA 2** are sites with degradation, i.e., they can be totally degraded but not totally transformed.	
Other Natural Areas (ONA)	No sections of the study area and investigation area are classified as Other Natural Areas. Areas identified as "**Other Natural Areas**" account for approximately 16% of the provinces land area. These are areas of natural habitat that are not required to meet biodiversity targets for ecosystem types, species or ecological processes, i.e. natural areas not selected as Critical Biodiversity Areas (CBA) or Ecological Support Areas (ESA). Other Natural Areas (ONA) is an area in a good or fair ecological condition (natural, near-natural or semi-natural) that is not required to meet biodiversity targets for ecosystem types, species or ecological processes.	
Degraded Areas (No Natural Remaining)	Patches of the study area and investigation area in the south west and south east associated with the mining areas are located within Degraded Areas (No Natural Remaining). Areas classified as **degraded** are considered to no longer represent functioning ecosystems with intact or near-intact ecological and evolutionary processes. These areas are not in climax condition due to factors other than physical disturbance. Degraded Areas account for approximately 18% of the province's land area. No Natural Remaining (NNR) is an area in poor ecological condition (severely or irreversibly modified) that is not required to meet biodiversity targets for ecosystem types, species or ecological processes.	
Land Cover/Land Use of the Matjhabeng Local Municipality (Figure 6)		
Cultivation	The majority of the study area and investigation area has agricultural/farming areas which are identified by the land cover database as cultivated. These correlate with the ESA 2 areas identified in the FSBP database (2019).	
Natural	All wetlands identified to be within the study area and investigation area are identified as natural areas. These areas also partially correspond to the areas identified as CBA 1 and ESA1 and 2 areas by the FSBP (2019).	
Waterbodies	All artificial features in the study area and investigation area (indicated as dams by the NBA) are classified as waterbodies.	
Mines	Sections of the study area in the north and sections of the investigation area to the east are indicated as Mining areas. These correspond to the degraded Areas (No Natural Remaining) indicated by the FSBP (2019).	
Detail Of the Study Area in terms of the Land Type (Job *et al.*, 2019) (Figure 7)		
The study area and investigation area are located within the Ae40 and Dc9 land type groupings.		

Ae Land Types are red and yellow, freely drained apedal soils of the Hutton, Griffin and Clovelly soils occupying more than 40% of the landscape. Deeper (> 300 mm, but generally 500 to 1 000 mm) red soils of the Hutton form are dominant. Mishap and Glenrosa soils usually occupy significant proportions of the landscape. Soils with neocutanic, plinthic, duplex horizons and shallow black clay soils may occupy small proportions of the landscape. Katspruit, duplex soils and black clay soils usually occupy bottomland terrain positions with streambeds and erosion. **Dc Land Types** accommodate duplex soils and gleycutanic soils, including Estcourt, Sterkspruit, Swartland, Valsrivier and Kroonstad soil forms. After subtracting exposed rock land, these Land Types consist of land with more than 50% duplex soils. Dc includes land where, in addition to the duplex soils, soils with vertic, melanic and red structured horizons comprise more than 10% of the land surface.	
Importance of the study area according to the Mining and Biodiversity Guidelines (2012) (Figure 8)	
Highest Biodiversity Importance (B)	The study area and investigation area in the northern sections are classified as areas of **Highest Biodiversity Importance** from a mine planning perspective. **Risk for mining:** Highest risk for mining. **Implications for mining:** Environmental screening, EIAs and their associated specialist studies should focus on confirming the presence and significance of these biodiversity features, and to provide site-specific basis on which to apply the mitigation hierarchy to inform regulatory decision-making for mining, water use licences, and environmental authorisations. If they are confirmed, the likelihood of a fatal flaw for new mining projects is very high because of the significance of the biodiversity features in these areas and the associated ecosystem services. These areas are viewed as necessary to ensure protection of biodiversity, environmental sustainability, and human well-being. An environmental impact assessment should include the strategic assessment of optimum, sustainable land use for a particular area will determine the significance of the impact on biodiversity. This assessment should fully take into account the environmental sensitivity of the area, the overall environmental and socio-economic costs and benefits of mining, as well as the potential strategic importance of the minerals to the country. Authorisations may well not be granted. If granted, the authorisation may set limits on allowed activities and impacts and may specify biodiversity offsets that would be written into licence agreements and/or authorisations.

°C = Degree Celsius; CBA = Critical Biodiversity Area; CVB = Channelled valley Bottom; DWS = Department of Water and Sanitation; EA = Environmental Authorisation; EI = Ecological Importance; EIA = Environmental Impact Assessment; ES = Ecological Sensitivity; ESA = Ecological Support Area; FEPA = Freshwater Ecosystem Priority Area; FSBP = Free State Biodiversity Plan; m.a.m.s.l = Metres above Mean Sea Level; MAP = Mean Annual Precipitation; mm = millimetres; MTPA = Mpumalanga Tourism and Parks Agency; NBA = National Biodiversity Assessment; NFEPA = National Freshwater Ecosystem Priority Areas; ONA = Other Natural Areas; PES = Present Ecological State; SAIIAE = South Africa Inventory of Inland Aquatic Ecosystems; SWSA = Strategic Water Source Area; UCVB – Unchannelled Valley Bottom; VU = Vulnerable; WMA = Water Management Area; WRC = Water Research Commission.

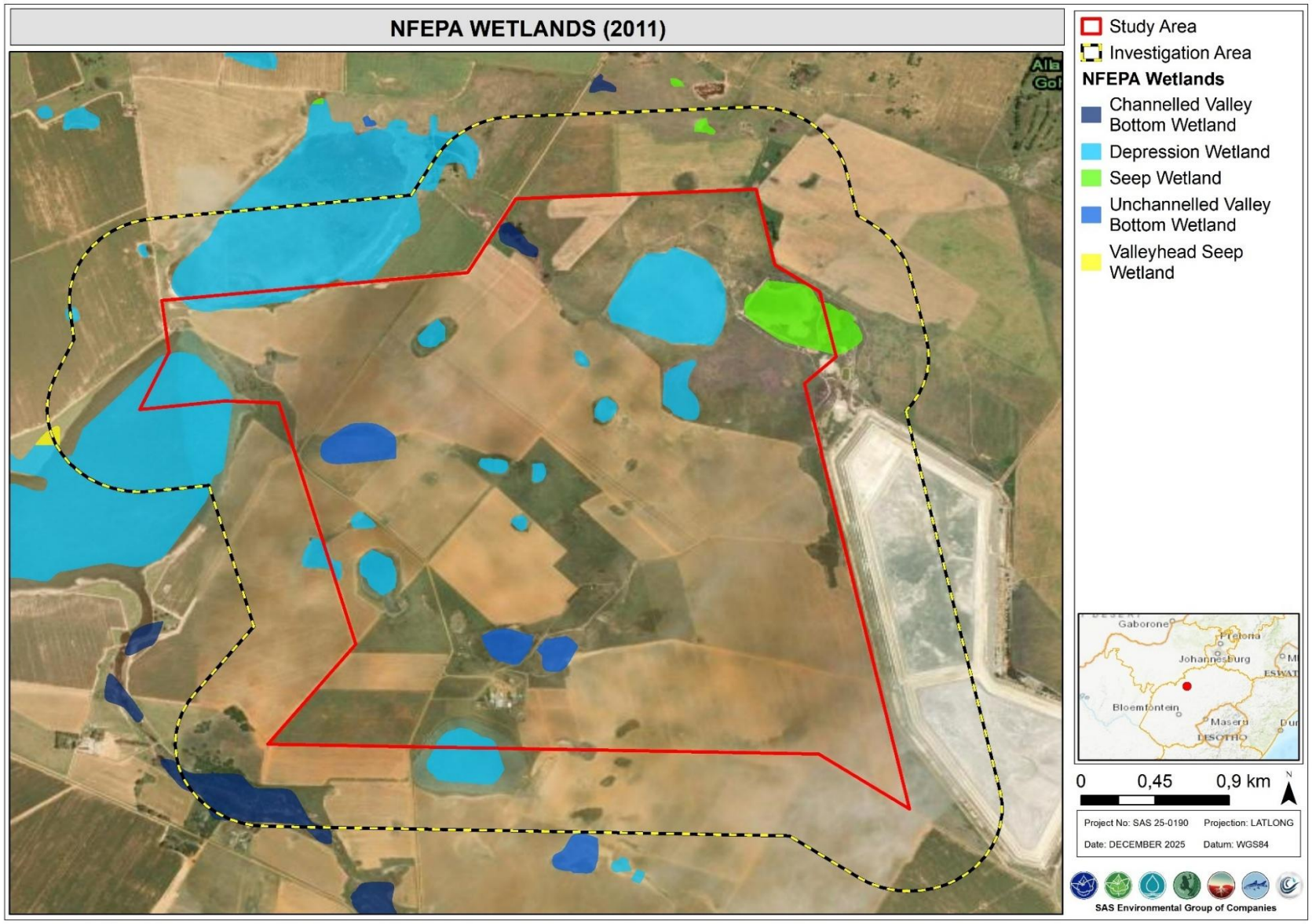


Figure 3: Freshwater ecosystems associated with the study area and associated investigation area according to the NFEPA (2011) database.

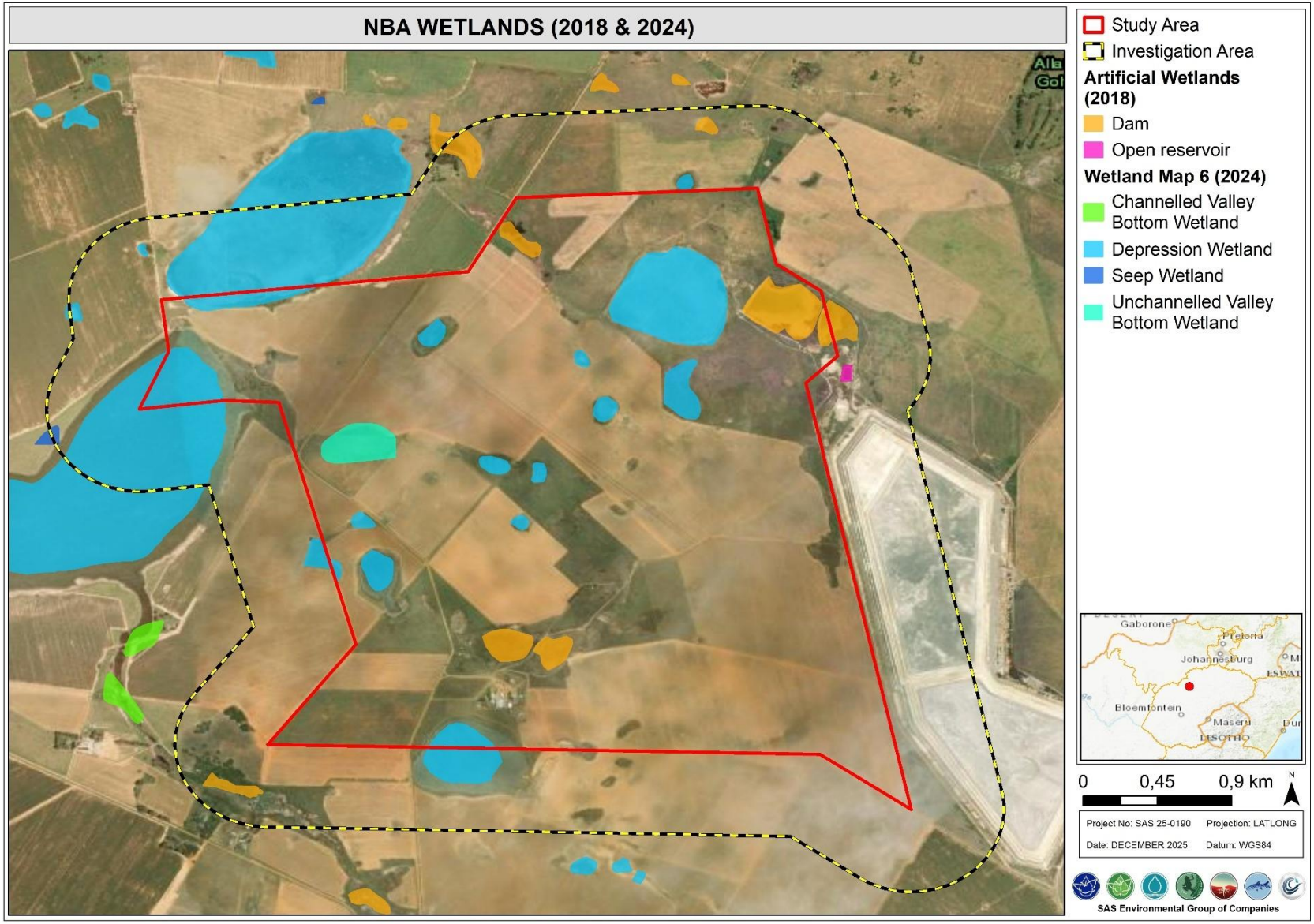


Figure 4: Freshwater ecosystems associated with the study area and associated investigation area according to the NBA (2018) database.

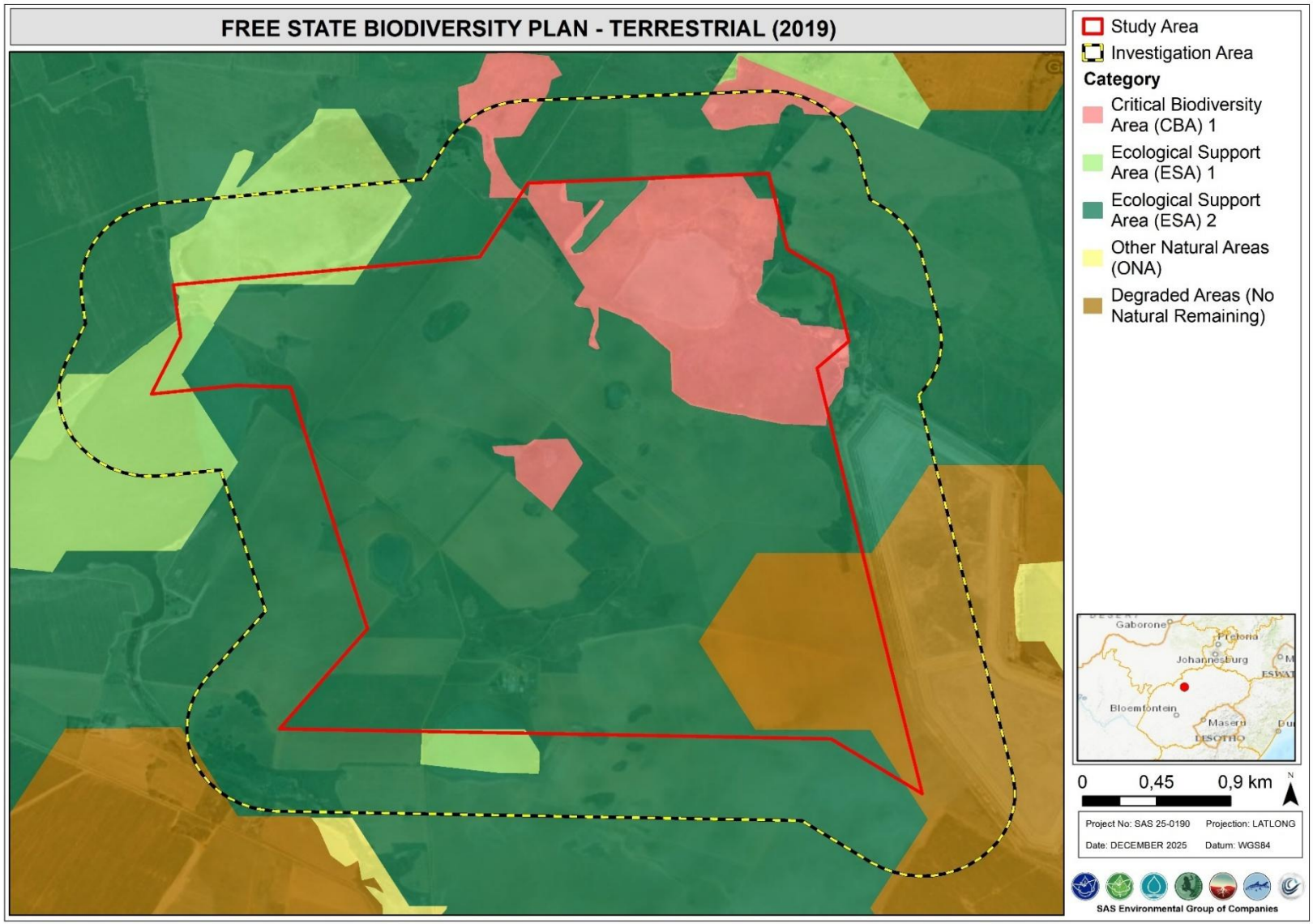


Figure 5: Areas of Biodiversity sensitivity associated with the study area and associated investigation area according to the Free State Biodiversity Plan: Terrestrial Assessment (2019) database.

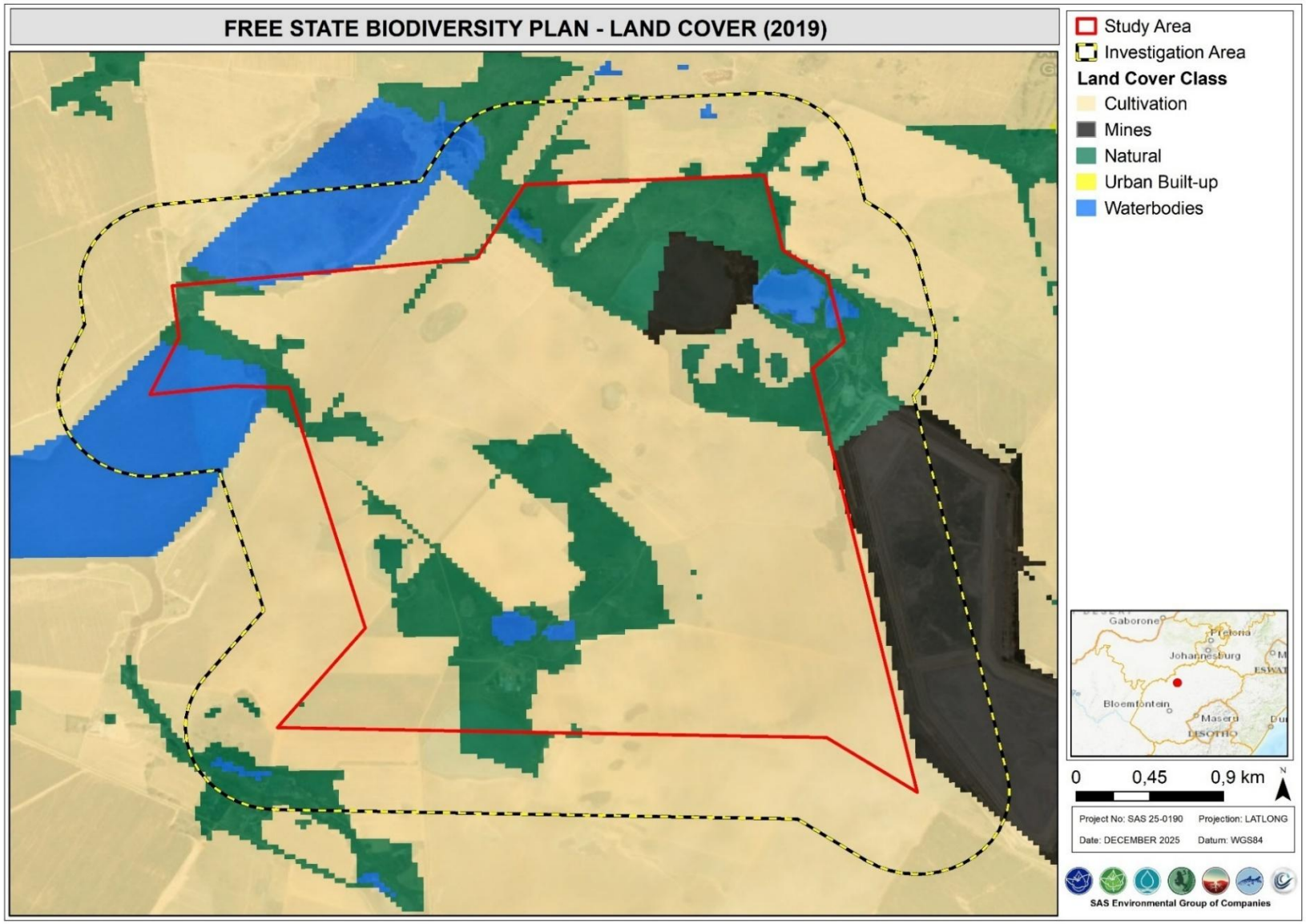


Figure 6: Land cover within the study area and investigation area according to the Free State Biodiversity Plan: Terrestrial Assessment (2019) database.

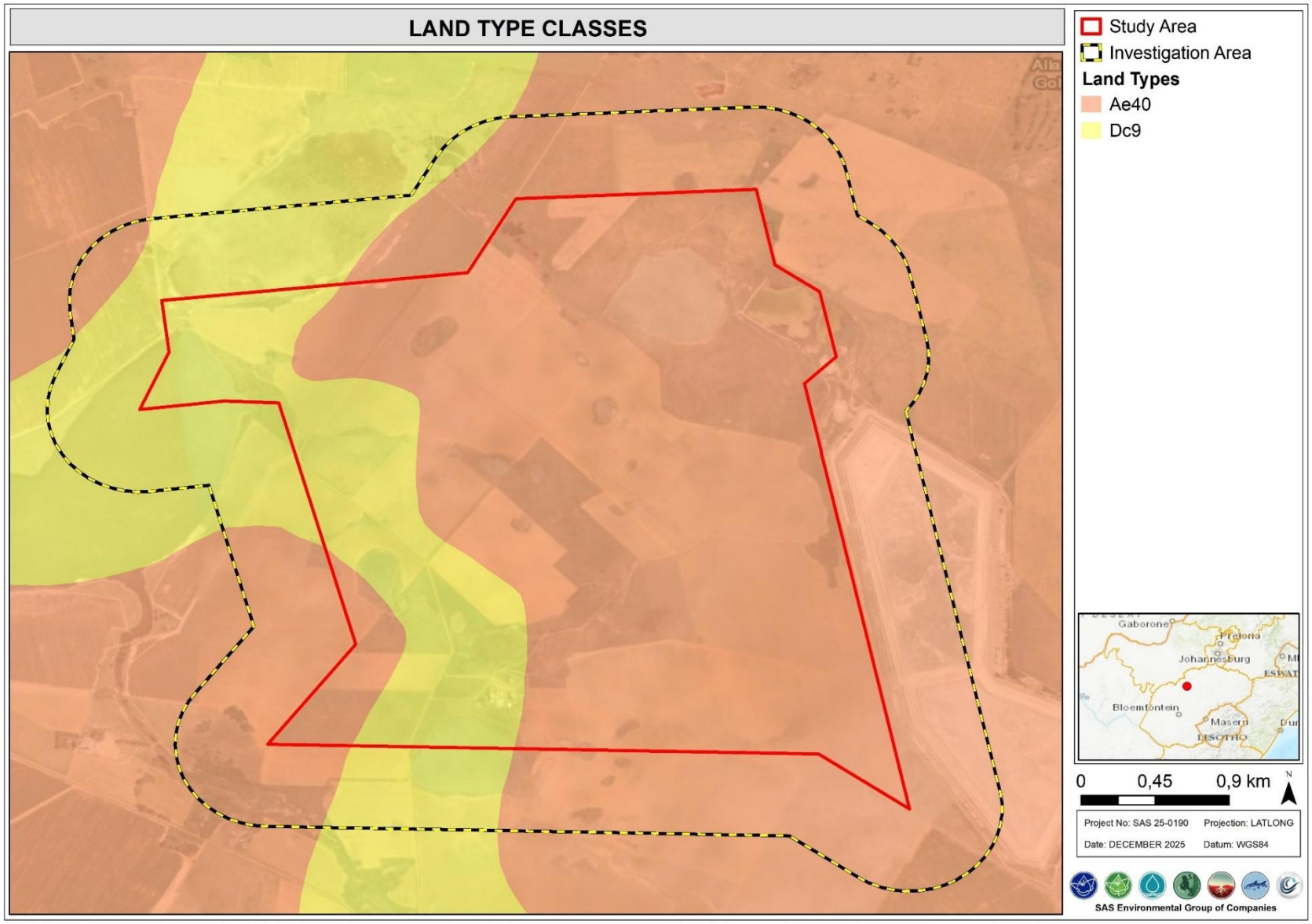


Figure 7: Land types located within the study area and associated investigation area.

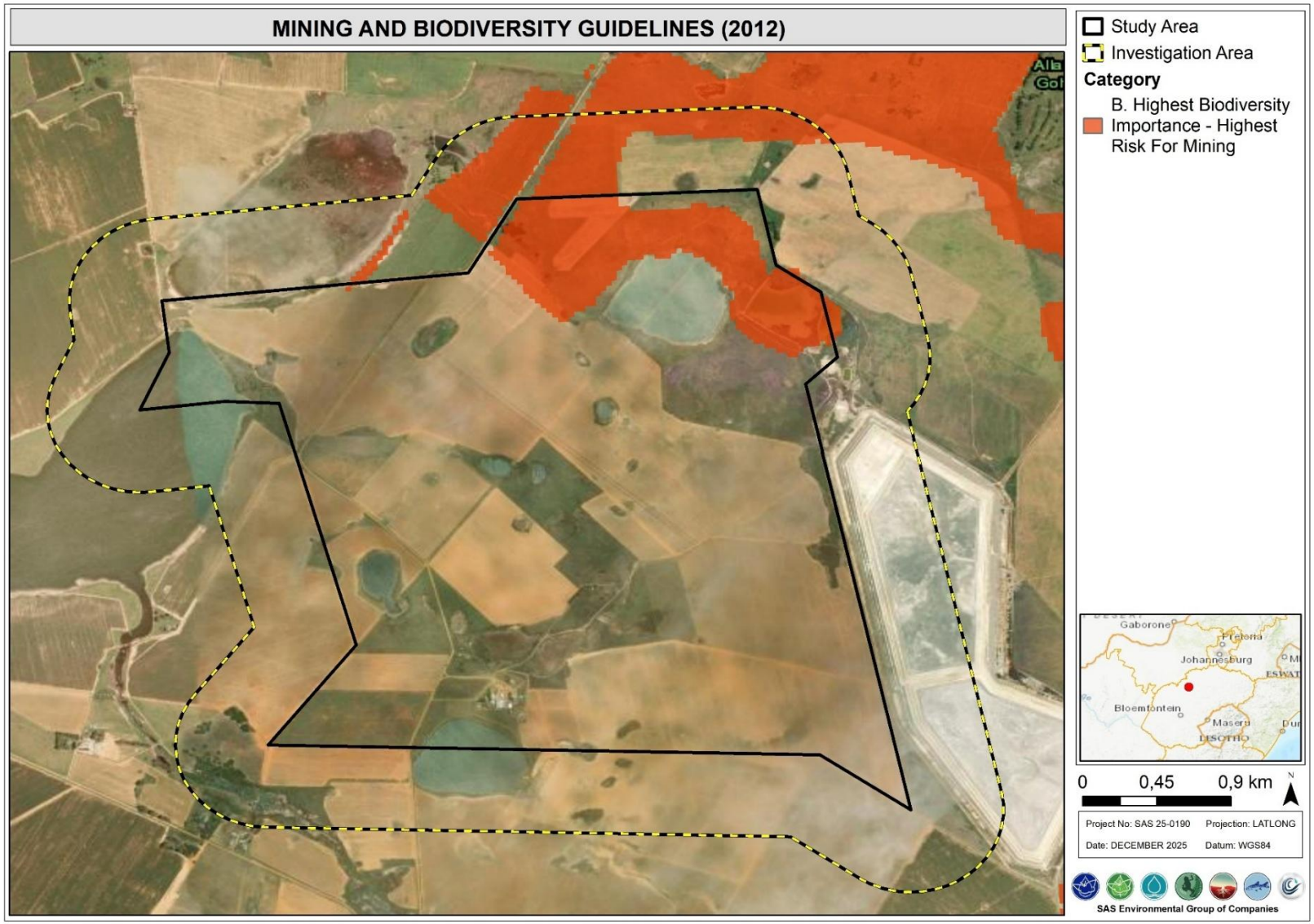


Figure 8: Important areas in terms of mining associated with the study area and investigation area according to the Mining and Biodiversity Guidelines database (2012).

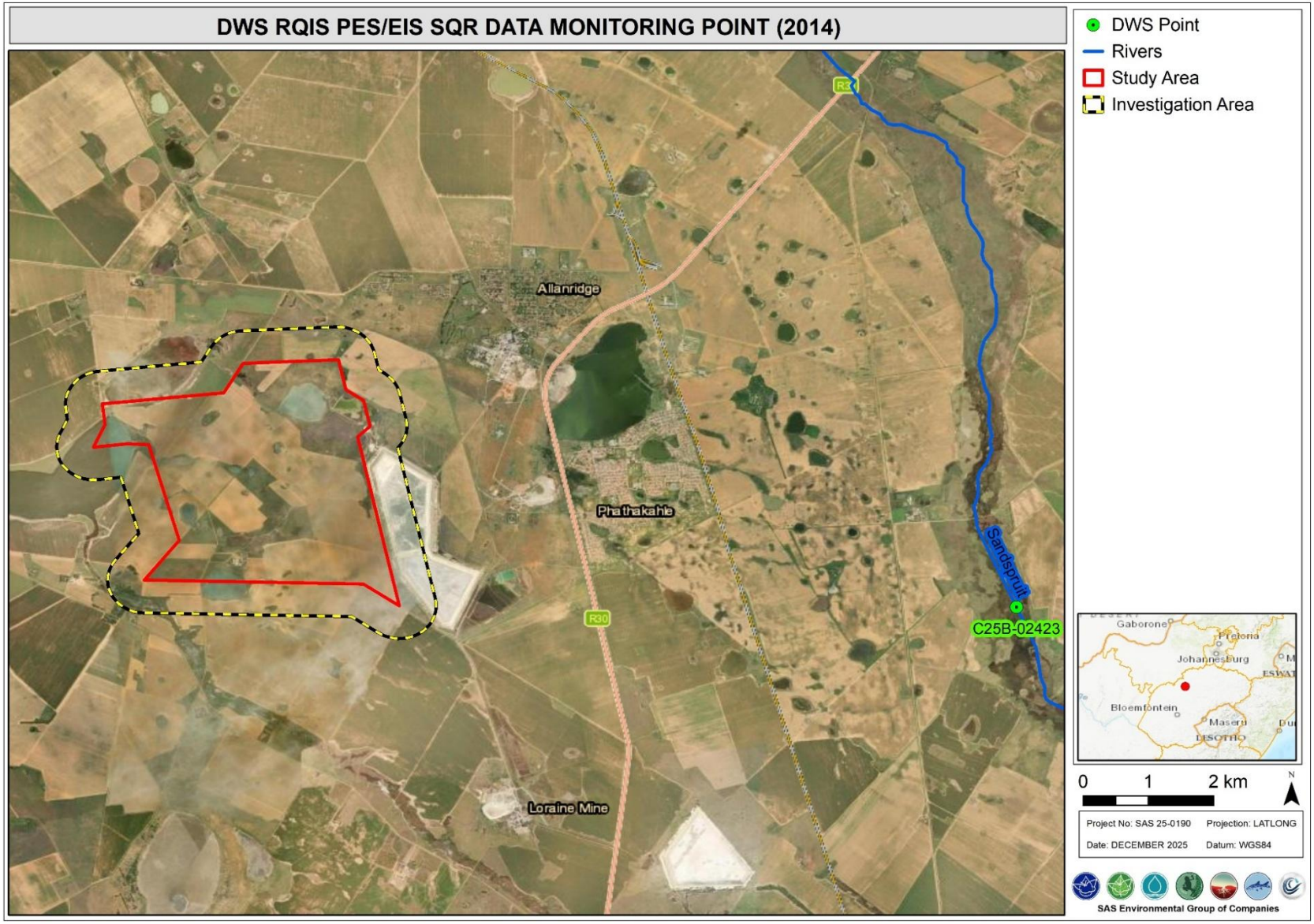


Figure 9: The DWS RQIS PES/EIS monitoring points associated with the study area and associated investigation area.

4 RESULTS: FRESHWATER ECOSYSTEM ASSESSMENT

4.1 *Freshwater Ecosystem Characterisation*

The freshwater ecosystems associated with the proposed underground mining operation (namely the seep and depression wetlands) were classified according to the Classification System (Ollis *et al.*, 2013) as an Inland System within the Dry Highveld Grassland Groups 3 WetVeg (wetland vegetation) group, classified by Mbona *et al*. (2015) as "Vulnerable". At Levels 3 (Landscape Unit) and 4 (Hydrogeomorphic (HGM) Type) of the Classification System, the wetlands are classified as per the summary in the table below.

Table 2: Characterisation at Levels 3 and 4 of the Classification System (Ollis *et al*., 2013) of the freshwater ecosystems within the study area.

Freshwater Ecosystem	Level 3: Landscape unit	Level 4: HGM Type
Depression wetland	**Valley floor:** The base of a valley, situated between two distinct valley side-slopes.	A wetland with closed (or near-closed) elevation contours which increases in depth from the perimeter to a central area of greatest depth and within which water typically accumulates, giving rise to vertical water fluctuations. Depressions may be linked to a river and have channelled in and out flow (exorheic) but may also form in the absence of a river where the water table (groundwater input) intercepts the land surface, with no in and outflow channel present (known as endorheic isolated depressions).
Seep wetland		A wetland area located on (gently to steeply) sloping land, which is dominated by the colluvial (i.e. gravity-driven), unidirectional movement of material down-slope. Seeps are often located on the side-slopes of a valley, but they do not, typically, extend into a valley floor.

4.2 *Anthropogenically derived artificial features*

Two artificial features were identified within the study and associated investigation areas.

According to Ollis *et al*., (2013) an artificially created system is defined as a feature that is "produced by humans, not naturally occurring". Ollis *et al*., (2013) further elaborates "artificial features are aquatic ecosystems where hydric soil features have developed, or where wetland plants have colonised, in historically non-wetland areas due to human activities". In addition to the identified freshwater ecosystems, anthropogenically derived features in which water ponds, were also noted within the study area and associated investigation area. Two large artificial impoundments were identified within the northern portion of the study area and two smaller impoundments in the southern portion. Multiple smaller impoundments were identified during the site assessment but have not been delineated further due to their artificial nature. The impoundment located in the northeastern portion of the study area is associated with the

current mining activities, while the impoundment located in the northwestern portion of the study area is associated with the current agricultural activities.

These features have formed due to land-use changes prompting increased runoff and ponding, as well as historic excavation activities which have altered the natural topography, thus allowing water to collect. As these features are of an artificial origin and anthropogenically derived they were not further assessed, however these were included for mapping purposes to indicate locality within the landscape. Figure 10 below presents photographs of the artificial features in relation to the wetlands.

Figure 10: Representative photographs of the artificial impoundments within the study area. (Left) The large agricultural dam in the northwestern portion of the study area which is downstream of the CVB wetland and (Right) the artificial impoundment related to the existing mining activities, located in the northeastern portion of the study area.

4.3 *Freshwater Ecosystem Delineation*

As noted in Section 1.2, the freshwater ecosystem assessment was limited to the study area and associated investigation area as provided by the proponent. It was confirmed during the site assessment that various land transformation had occurred within the study area and immediate surrounds over time with the most significant impact from the ongoing agricultural activities and mining activities (to a lesser degree). As a result, changes to the topography, soil and vegetation profiles were evident. Thus, where necessary, delineations were refined and augmented with the use of digital satellite imagery, historical aerial imagery and 5 m contours to improve the accuracy of the delineations, where necessary. The delineations as presented in this report are, nevertheless, deemed the best estimate of the temporary zone boundaries of the freshwater ecosystems based on site conditions present at the time of the assessment, and are considered adequate to allow for informed decision-making.

During the site assessment (undertaken in December 2025), the following indicators were used to verify the boundaries of the freshwater ecosystems:

- Terrain units were used as the primary indicator. Despite transformation of the landscape associated with the investigation area, the terrain provided an indication of low-lying areas where water is likely to collect and/or move through the landscape;
- Vegetation was utilised in conjunction with the soil indicators associated with the freshwater ecosystems, where feasible. The distinction between obligate, facultative, and terrestrial vegetation was relatively discernible;
- Soil wetness indicator, duration and frequency of saturation in the soil profile is a diagnostic indicator since it influences the colour change in the soil. Low chroma (grey and muted colours) as well as mottles are more prominent in soil which have higher saturation frequency. Moist soil also indicates an increased hydroperiod and thus the potential presence of hydromorphic characteristics. This was utilised with the vegetation as the secondary indicator; and
- Soil morphological characteristics typically associated with freshwater ecosystem conditions, such as gleying or mottling were utilised in conjunction with saturation as the secondary indicator.

The delineated freshwater ecosystems and artificial features are conceptually depicted in Figure 13 overleaf.

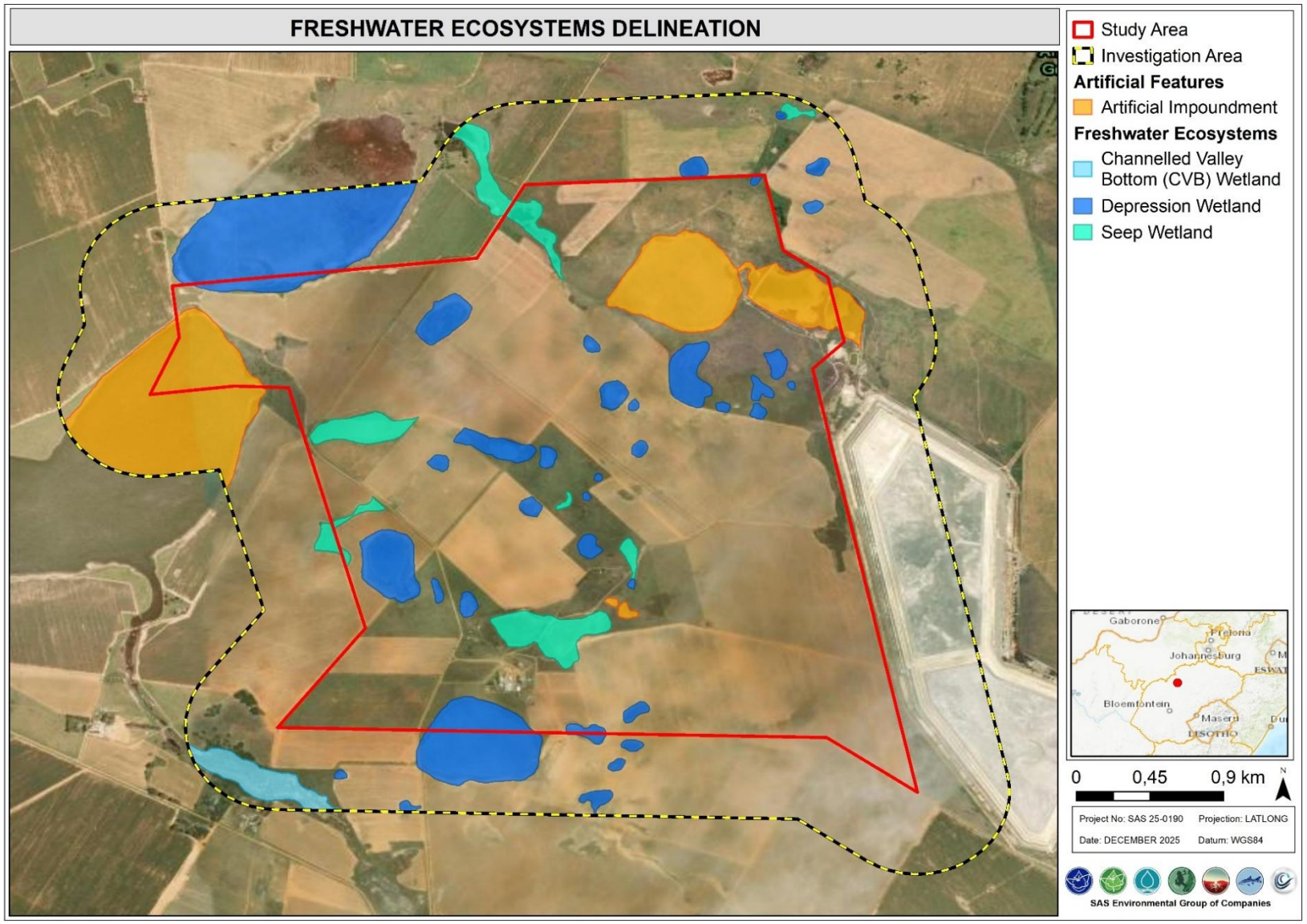


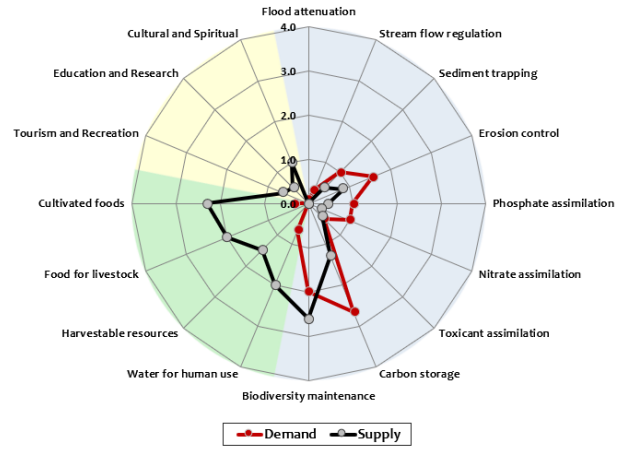
Figure 11: Map depicting the delineated freshwater ecosystems and artificial features associated with the study and investigation areas.

4.4 *Freshwater Ecosystem: Site Verification Results*

Following the site assessment, the assessments outlined in Section 1.2 were applied. The results of the ecological assessment are discussed in the dashboard style reports which follow, and the details thereof are presented in **Appendix F**.

Considering the nature of the proposed activities (i.e. Restricted to underground mining only) and due to similar catchment wide impacts posed on the wetlands (cultivation with livestock grazing husbandry, informal road crossings and AIP proliferation), the assessments were undertaken in a combined manner for each HGM type. Only the freshwater ecosystems within the study area were assessed, i.e. the seep wetlands and depression wetlands.

Table 3: Summary of the assessment of the seep wetlands associated with the proposed underground mining operation.

<table>
<tr><td colspan="2">Ecological & socio-cultural service provision graph:

</td><td colspan="2">
Representative photographs of the seep wetlands and the various impacts affecting the ecological condition of the wetlands including linear infrastructure, agricultural activities, embankment erosion and Alien and Invasive Plant (AIP) encroachment.</td></tr>
<tr><td>PES Discussion</td><td>PES Category: C (Moderately modified)
The seep wetlands were assessed to be in a moderately modified ecological condition due to changes in the natural functioning and ecological state of the wetlands. Numerous anthropogenic impacts relating to catchment wide mining, agricultural activities and urbanisation has resulted in changes to the natural timing and pattern of flows, increased sediment loads and erosion, altered water quality which has subsequently led to a transformed habitat with numerous AIP species outcompeting the natural vegetation.</td><td>Ecoservice provision</td><td>Ecoservices importance category: Very Low to Low
The Ecosystem service provided by the seep wetlands of greatest importance is biodiversity maintenance. These wetland areas provide some of the only remaining natural habitat in the area and as such are important in terms of biodiversity maintenance, as well as for livestock grazing. The wetlands are also identified by the Screening Tool (2020), NFEPA (2011) and NBA (2018) datasets as wetlands on a landscape scale, thus increasing their ecosystem provision for biodiversity maintenance. The importance of sediment trapping, phosphate, nitrate and toxicant assimilation is due to increased hardened surfaces and stormwater inputs into the seep wetlands from the surrounding catchment, and cultivated areas. The limited ecological service provisioning across all components was primarily attributed to the degraded ecological integrity of the wetlands.</td></tr>
</table>

EIS discussion	**EIS Category: Moderate** The seep wetlands are considered to be of moderate ecological importance and sensitive. This is mainly due to the systems being identified by the Screening Tool (2020), as well as the NFEPA (2011) and NBA (2018) datasets as wetlands on a landscape scale. The wetlands are also considered importance for biodiversity maintenance as they provide some of the only remaining natural habitat in an area dominated by agricultural and mining activities, as well as rural settlements.	**REC, RMO & BAS Category**	**REC: C / BAS: C/ RMO: Maintain** The Recommended Management Objective (RMO) of the seep wetlands is to maintain the PES. The maintenance of the PES of these systems is likely as only underground mining activities are proposed. Any decrease in the PES of these systems would potentially be as a result of the ongoing agricultural activities over which the proponent has no control. Potential improvement of the PES of these systems would require a catchment-wide approach by all stakeholders, and ecological restoration of the wetlands is not the sole responsibility of a single stakeholder. Please refer to the discussion below pertaining to impacts and mitigation measures.

Freshwater Ecosystem drivers and receptors discussion (hydraulic regime, geomorphological processes, water quality and habitat and biota):

Alterations to the natural hydraulic regime and geomorphological processes of the seep wetlands have occurred. These impacts include road crossings as well as disturbed and hardened surfaces due to catchment wide agricultural and mining activities. The road crossings cause head cut erosion on lateral inflows due to the flow being concentrated and has exacerbated gully erosion within the wetlands. Upstream impoundments and road crossings alter the natural flow path and velocity of flow within the wetlands which can negatively impact habitat and ecoservice provision of the systems. Increased hardened surfaces reduce infiltration rates and increase inputs of sediment laden runoff to the wetlands and subsequently changes in water quality. These impacts have resulted in AIP proliferation.

Basic water quality parameters were taken, during the December 2025 assessment of the seep wetland in the southern portion of the study area (See Figure 13 below for sampling site locations), and the water quality was noted to be poor. Temperature was 32.1 ºC, whilst Electrical Conductivity (EC) was 12.6 mS/m, which is within the acceptable (<30mS/m) to tolerable (≤ 85 mS/m) range limit and pH of 10.61 which is well above the acceptable range limit (≥ 6.5 mS/m - ≤ 8.0 mS/m) according to the Research Water Quality objectives (RWQO) of South Africa (DWA, 2011).

High levels of agricultural and mining activities were noted within the surrounding area, which have had a significant impact on the habitat provisioning of the seep wetlands due to the limited existing buffer zone around the wetlands. However, the wetlands provide isolated habitat for biota with numerous provincially protected floral species present (STS, 2026a) such as *Haemanthus* sp., *Gladiolus* sp., *Helichrysum* sp. (Status = Species-specific. Probability of Occurrence [POC] = High), as well as *Nerine* sp., *Orchidaceae* sp. and *Kniphofia* sp. (Status = Species-specific. POC = Medium). The wetlands are well vegetated with the following species (STS, 2026a):
AIP species: *Agave americana*, *Argemone ochroleuca* subsp. *ochroleuca, Cirsium vulgare*, *Tamarix ramosissima, Verbena bonariensis* and *Xanthium strumarium;*
Forb species: *Conyza bonariensis, Denekia capensis, Drimia elata, Lobelia erinus, Monsonia angustifolia* and *Senecio coronatus;*
Graminoid species: *Afroscirpoides dioeca*, *Aristida congesta*, *Cyperus congestus*, *Cyperus laevigatus, Cyperus marginatus*, *Imperata cylindrica*, *Juncus rigidus, Kyllinga alba*, *Phragmites australis, Sporobolus africanus* and *Typha capensis;* and
Tree species: *Asparagus laricinus* and *Gomphocarus fruticosus*.

Overall, the wetlands are considered likely to provide some roosting, breeding and feeding habitat for avifauna, small mammals, amphibians, reptiles and invertebrates, albeit less sensitive species. Although the extent of anthropogenic activity surrounding the wetlands will largely deter faunal activity. According to STS (2026b), several vulnerable bird species were found within the wetlands, including the Yellow billed stork and the Great crested grebe. Many bird species of Least Concern (Not threatened) were also identified, such as the Yellow billed duck, African darter, Cape shoveler, Great flamingo, Red billed teal and the Knob-billed duck (STS, 2026b).

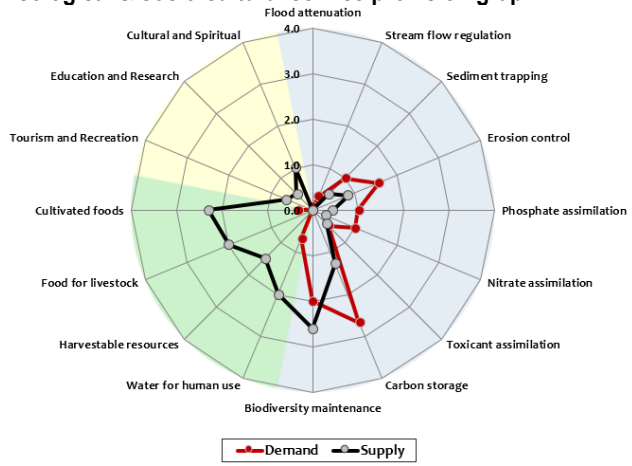
Extent of modification anticipated	The proposed undermining of the seep wetlands has the potential to alter the functioning of the wetlands to an overall low degree. The extraction of ore can potentially lead to destabilisation of the surrounding environment and to subsequent potential subsidence of the land and creation of a cone of depression. Water entering the underground mining area as a result of ingress into underground mine workings may necessitate dewatering of the underground mining area, which may result in the discharge of dirty water into the wetland environment. Possible decant from the underground mining also poses a low threat to the seep wetlands as contaminated water may alter water quality, flow regimes and lead to a subsequent loss of biodiversity of the wetlands. Thus, strict implementation of the recommended mitigation measures will need to occur to prevent direct impacts and edge-effects from occurring.

Risk Assessment Outcome & Business Case:

The DWS Risk Assessment (2023) only considers activities within the delineated extent of freshwater ecosystems and/or within the regulated zone (GN 4167 500 m ZoR). As such, the seep wetlands located within the study area were considered in this assessment.	
Low	Based on the PES and EIS of the wetlands and the findings of the DWS Risk Assessment Matrix (2023), the activities associated with the proposed undermining of the wetlands will pose a "Low" risk to the ongoing functionality of the systems. Key mitigation measures include: ➢ Mitigation measures as stipulated in the Technical Report compiled by Bara Consulting (2025), to mitigate against subsidence and dewatering, formation of a pollution plume and decant respectively, must be implemented; and ➢ It is advised that the pillar safety factor under the wetlands be increased to further ensure no subsidence takes place.

Table 4: Summary of the assessment of the depression wetlands associated with the proposed underground mining operation.

Ecological & socio-cultural service provision graph:



Representative photographs of the depression wetlands and the various impacts affecting the ecological condition of the wetlands including animal grazing, embankment erosion and algal blooms.

PES Discussion	**PES Category: D (largely modified)** The largely modified ecological condition of the depression wetlands is ascribed to numerous changes to the hydraulic regimes, geomorphological processes and vegetation composition which have occurred within the wetlands as well as the catchments thereof. Impacts such as ongoing agricultural activities, road crossings, hardened surfaces, , historical and current mining activities, as well as dense alien vegetation have altered the ecological condition of the wetlands.	**Ecoservice provision**	**Ecoservices importance category: Very Low to Moderate** The Ecosystem service provided by these seep wetlands of greatest importance is biodiversity maintenance. These wetland areas provide some of the only remaining natural habitat in the area and as such are important in terms of biodiversity maintenance, as well as for livestock grazing. The wetlands are also identified by the Screening Tool (2020), NFEPA (2011) and NBA (2018) datasets as wetlands on a landscape scale, thus increasing their ecosystem provision for biodiversity maintenance. The importance of sediment trapping, phosphate, nitrate and toxicant assimilation is due to increased hardened surface and stormwater inputs into the seep wetlands from the surrounding catchment, and cultivated areas. The limited ecological service provisioning across all components was primarily attributed to the degraded ecological integrity of the wetlands.

EIS discussion	**EIS Category: Moderate** The depression wetlands are considered to be of moderate ecological importance and sensitive. This is mainly due to the systems being identified by the Screening Tool (2020), NFEPA (2011) and NBA (2018) datasets as wetlands on a landscape scale. The wetlands are also considered importance for biodiversity maintenance as they provide some of the only remaining natural habitat in an area dominated by agricultural and mining activities.	**REC, RMO & BAS Category**	**REC: D / BAS: D/ RMO: Maintain** The Recommended Management Objective (RMO) of the depression wetlands is to maintain the PES. The maintenance of the PES of these systems is likely as only underground mining activities are proposed. Any decrease in the PES of these systems would potentially be as a result of the ongoing agricultural activities over which the proponent has no control. Potential improvement of the PES of these systems would require a catchment-wide approach by all stakeholders, and ecological restoration of the wetlands is not the sole responsibility of a single stakeholder. Please refer to the discussion below pertaining to impacts and mitigation measures.

Freshwater ecosystems drivers and receptors discussion (hydraulic regime, geomorphological processes, water quality and habitat and biota):

Alterations to the natural hydraulic regime and geomorphological processes of the depression wetlands have occurred. These impacts include hardened surfaces due to catchment wide agricultural and mining activities. Increased hardened surfaces reduce infiltration rates and increase inputs of sediment laden runoff to the wetlands, especially due to the inward draining characteristics of the wetlands, and subsequently changes in water quality. These impacts has subsequently also led to AIP proliferation.
Although no onsite specific water quality testing was undertaken for the depression wetlands, water quality is likely to be similar to that of the seep wetlands as these HGM types occur in close proximity to one another and are influenced by similar impacts.

High levels of agricultural and mining activities were noted within the surrounding area, which have had a significant impact on the habitat provisioning of the depression wetlands due to the limited existing buffer zone around the wetlands. However, the wetlands provide isolated habitat for biota with numerous provincially protected floral species present (STS, 2026a). Overall, the wetlands are considered likely to provide some roosting, breeding and feeding habitat for avifauna, small mammals, amphibians, reptiles and invertebrates, albeit less sensitive species. Although the extent of anthropogenic activity surrounding the wetlands will largely deter faunal activity. Flora and fauna species present in the depression wetlands were largely similar to those in the seep wetlands (see full list in Table 3 above), with the exception of Forb species which were more abundant in the seep wetlands.

Extent of modification anticipated	The proposed undermining of the depression wetlands has the potential to alter the functioning of the wetlands to an overall low degree. The extraction of ore can potentially lead to destabilisation of the surrounding environment and to subsequent potential subsidence of the land and creation of a cone of depression. Water entering the underground mining area as a result of ingress into underground mine workings may necessitate dewatering of the underground mining area, which may result in the discharge of dirty water into the wetland environment. Possible decant from the underground mining also poses a low threat to the depression wetlands as contaminated water may alter water quality, flow regimes and lead to a subsequent loss of biodiversity of the wetlands. Thus, strict implementation of the recommended mitigation measures will need to occur to prevent direct impacts and edge-effects from occurring.

Risk Assessment Outcome & Business Case:

The DWS Risk Assessment (2023) only considers activities within the delineated extent of freshwater ecosystems and/or within the regulated zone (GN 4167 500 m ZoR). As such, the depression wetlands located within the study area were considered in this assessment.

Low	Based on the PES and EIS of the wetlands and the findings of the DWS Risk Assessment Matrix (2023), the activities associated with the proposed undermining of the wetlands will pose a "Low" risk to the ongoing functionality of the systems. Key mitigation measures include: ➢ Mitigation measures as stipulated in the Technical Report compiled by Bara Consulting (2025), to mitigate against subsidence and dewatering, formation of a pollution plume and decant respectively, must be implemented; and ➢ It is advised that the pillar safety factor under the wetlands be increased to further ensure no subsidence takes place.

Diatom Analysis Results (See Figure 12 below for sampling site locations)

Parameter	J1	J2	Discussion

Dominant Taxa	*Navicula* sp., *Cyclotella meneghiniana*, *Nitzschia palea*, *Gyrosigma* sp., *Nitzschia* sp., *Rhopalodia gibba*, *Fragilaria biceps*.	*Cyclotella meneghiniana*, *Diploneis elliptica*, *Navicula* sp.	Site J1 has a moderate species diversity with a high species evenness. The site is considered to be in a Poor ecological condition (Category D) with meso-eutrophic nutrient conditions, elevated electrolyte concentrations, and very heavily to extremely contaminated conditions, as per the calculated SPI score (9.5) and dominant diatom taxa. The dominant diatom taxa included *Navicula sp., Cyclotella meneghiniana, Nitzschia palea, Gyrosigma sp., Nitzschia sp., Rhopalodia gibba,* and *Fragilaria biceps*, representing a community dominated by motile taxa with contributions from planktonic and high-profile forms. The dominance of *Navicula sp., Nitzschia sp.,* and *Gyrosigma sp*. further indicates nutrient enrichment, elevated electrolytes, and physical disturbance (sedimentation, scouring, erosion, trampling, etc.), while the presence of *Fragilaria sp.* and *Rhopalodia sp*. indicates some periods of substrate stability. The functional groups indicate mixed habitat conditions with sedimentation and variable flow regimes. The diatom size classes ranged from small motile taxa to larger benthic forms, consistent with mixed disturbance and nutrient enrichment. The calculated %PTV score (15.1%) indicates that the site is free from organic contamination. Site J2 has a low species diversity with a moderate species evenness. The site is considered to be in a Moderate ecological condition (Category C) with mesotrophic nutrient conditions, moderate electrolyte concentrations, and contaminated conditions, as per the calculated SPI score (13.1) and dominant diatom community. The dominant diatom taxa included *Cyclotella meneghiniana, Diploneis elliptica,* and *Navicula sp.,* indicating a community dominated by low-profile taxa with some motile and adnate forms present. The dominance of Cyclotella sp. further indicates nutrient enrichment and possible hydrological variability, while the presence of *Navicula sp.* indicates physical disturbances and possibly industrial contamination. The functional groups indicate relatively stable substrate conditions with moderate nutrient enrichment. The diatom size classes consisted mostly of small to medium-sized taxa with some larger adnate forms present, supporting the results of moderately enriched but stable conditions. The calculated %PTV score (0%) indicates that the site is free from organic contamination. While some of the observed diatom community patterns may reflect natural geomorphological variability for the sites, the consistent dominance of motile and tolerant taxa across multiple sites indicates anthropogenic impacts and influences at the sites.
Functional Groups	Mix of benthic motile, planktonic centric, and erect taxa.	Mix of planktonic centric and benthic motile taxa with adnate forms present.	
Ecological Guilds	Motile guild dominate site, with low-profile and high-profile guilds also present.	Low-profile guild dominant at site with motile and adnate guilds present.	
Size Classes	Wide range of size classes with small–medium taxa dominant and some larger forms present.	Mostly small to medium-sized taxa with some larger adnate forms present.	
SPI	9.5 - Poor quality (Category D); Meso-eutrophic	13.1 – Moderate quality (Category C); Mesotrophic	
%PTV	15.1 – Site free from organic pollution	0.0 – Site free from organic pollution	
Diversity	2.73 – Moderate	1.41 – Low	
Evenness	0.97 – High	0.89 – Moderate	

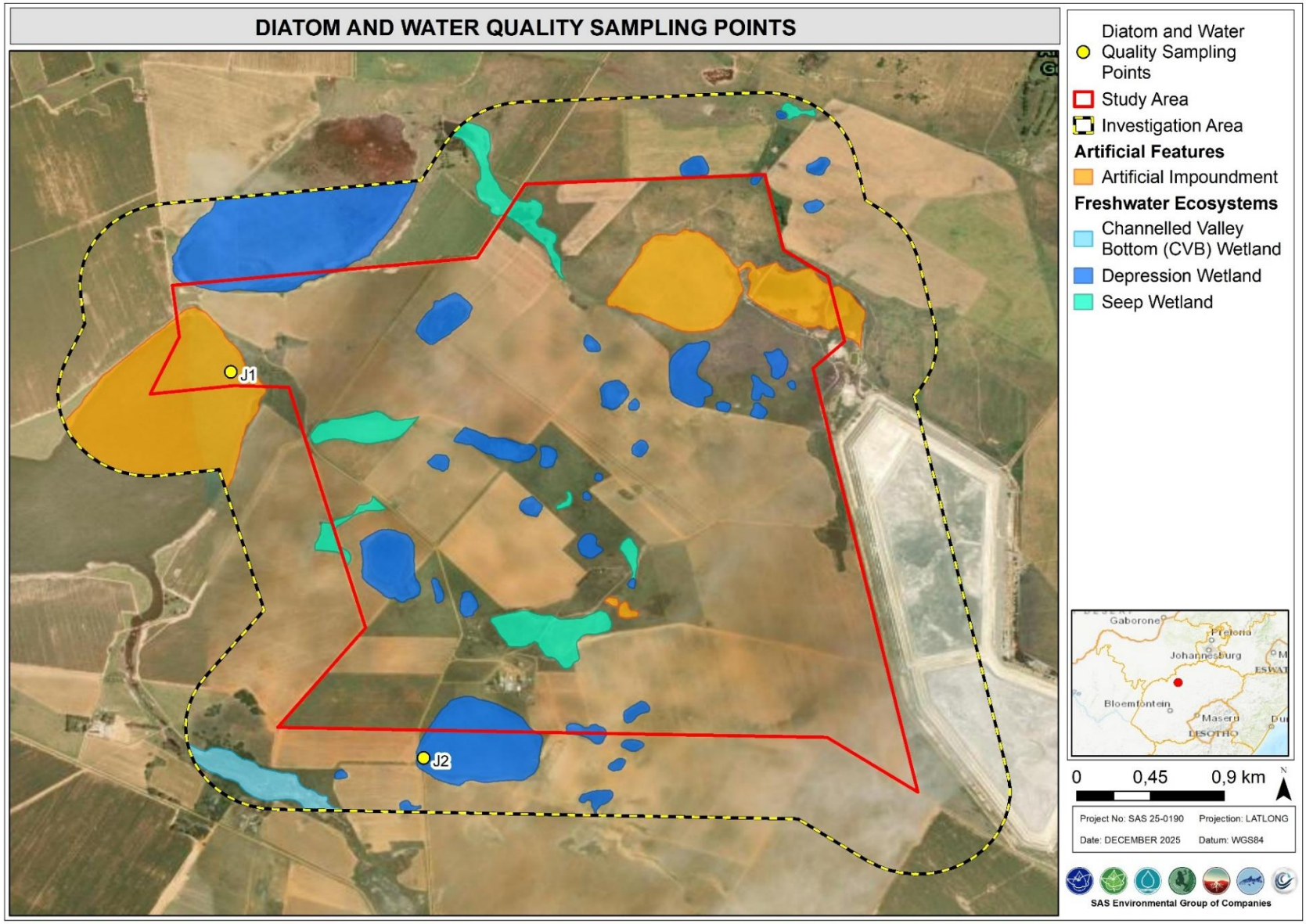


Figure 12: Sampling locations sites for diatom and water quality analyses. See Appendix C for diatom assessment methodology.

5 LEGISLATIVE REQUIREMENTS

The following legislative requirements and relevant provincial guidelines were taken into consideration during the assessment. A detailed description of these legislative requirements is presented in **Appendix B**:

- Constitution of the Republic of South Africa, 1996[2];
- The National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA);
- The National Water Act, 1998 (Act No. 36 of 1998) (NWA) as amended;
- Government Notice 4167 (GN 4167) as published in the Government Gazette 49833 of 2023 as it relates to the National Water Act, 1998 (Act No. 36 of 1998) as amended; and
- Government Notice 704 (GN 704) as published in the Government Gazette 20119 of 1999.

The definition and motivation for a regulated zone of activity for the protection of the assessed freshwater ecosystems can be summarised as follows:

Table 5: Articles of Legislation and the relevant zones of regulation applicable to each article.

Regulatory authorisation required	Zone of applicability
Water Use License Application for water uses as stipulated in Section 21(c) and (i) of the National Water Act, 1998 (Act No. 36 of 1998).	Government Notice 4167 as published in the Government Gazette 49833 of 08 December 2023 as it relates to the National Water Act (NWA), 1998 (Act No.36 of 1998) as amended. In accordance with GN 4167, a regulated area of a watercourse in terms of water uses as listed in Section 21(c) and 21(i) is defined as: • the outer edge of the 1 in 100-year flood line 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; and • in the absence of a determined 1 in 100-year flood line or riparian area the area within 100 m distance from the edge of a watercourse where the edge of the watercourse (excluding flood plains) is the first identifiable annual bank fill flood bench. • **In respect of a wetland, a 500 m radius around the delineated boundary (extent) of any wetland, including pans.**
	Government Notice 704 Regulations as published in the Government Gazette 20119 of 1999 as it relates to the National Water Act, 1998 (Act No. 36 of 1998) regarding the use of water for mining and related activities aimed at the protection of water resources. These Regulations were put in place in order to prevent the pollution of water resources and protect water resources in areas where mining activity is taking place from impacts generally associated with mining. It is recommended that the proposed project complies with Regulation GN 704 of the National Water Act, 1998 (Act No. 36 of 1998) which contains regulations on use of water for mining and related activities aimed at the protection of water resources. GN 704 states that: *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 flood line* ***or within a horizontal distance of 100 metres from any watercourse or estuary, borehole or well, excluding boreholes or***

[2] Since 1996, the Constitution has been amended by seventeen amendments acts. The Constitution is formally entitled the 'Constitution of the Republic of South Africa, 19996". It was previously also numbered as if it were an Act of Parliament – Act No. 108 of 1996 – but since the passage of the Citation of Constitutional Laws Act, neither it nor the acts amending it are allocated act numbers.

Regulatory authorisation required	Zone of applicability
	wells drilled specifically to monitor the pollution of groundwater, or on waterlogged ground, or on ground likely to become waterlogged, undermined, unstable or cracked*;* According to the above, the activity footprint must fall outside of the 1:100 year flood line of the aquatic resource or 100m from the edge of the resource, whichever distance is the greatest.
Listed activities in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) EIA Regulations (2014), as amended in 2017[3]. **Department of Forestry, Fisheries and the Environment (DFFE).** ***(As confirmed by the EAP)***	**Activities of Listing Notice 1 (GN 327) of the National Environmental Management Act, 1998 (Act No.107 of 1998) EIA regulations, 2014 (as amended):** **Activity 12** *The development of—* *(i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; or* *(ii) infrastructure or structures with a physical footprint of 100 square metres or more;* *where such development occurs—;* ***a) within a watercourse;*** *b) in front of a development setback;* *c) if no development setback exists, within **32 metres of a watercourse**, measured from the edge of a watercourse.* **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;*** *b) in front of a development setback;* *if no development setback exists, within **32 metres of a watercourse**, measured from the edge of a watercourse*

These zones of regulations (ZoR) must be taken into consideration during the proposed underground mining operation, in line with the mitigation hierarchy as advocated by the Department of Environmental Affairs *et. al*, (2013). The delineated wetlands and their applicable zones of regulation in terms of the National Water Act, 1998 (Act No. 36 of 1998) (GN 4167), (GN 704) and the National Environmental Management Act, 1998 (Act No. 107 of 1998) are conceptually depicted in Figure 13 and Figure 14 below.

[3] Note – only listing notice activities that are associated with a zone of regulation are detailed in this table. This does not exclude the applicability of other potentially applicable activities that relate to the freshwater environment (e.g., Listing Notice 1 Activity 19) or any other applicable listing notice activity to the proposed development.

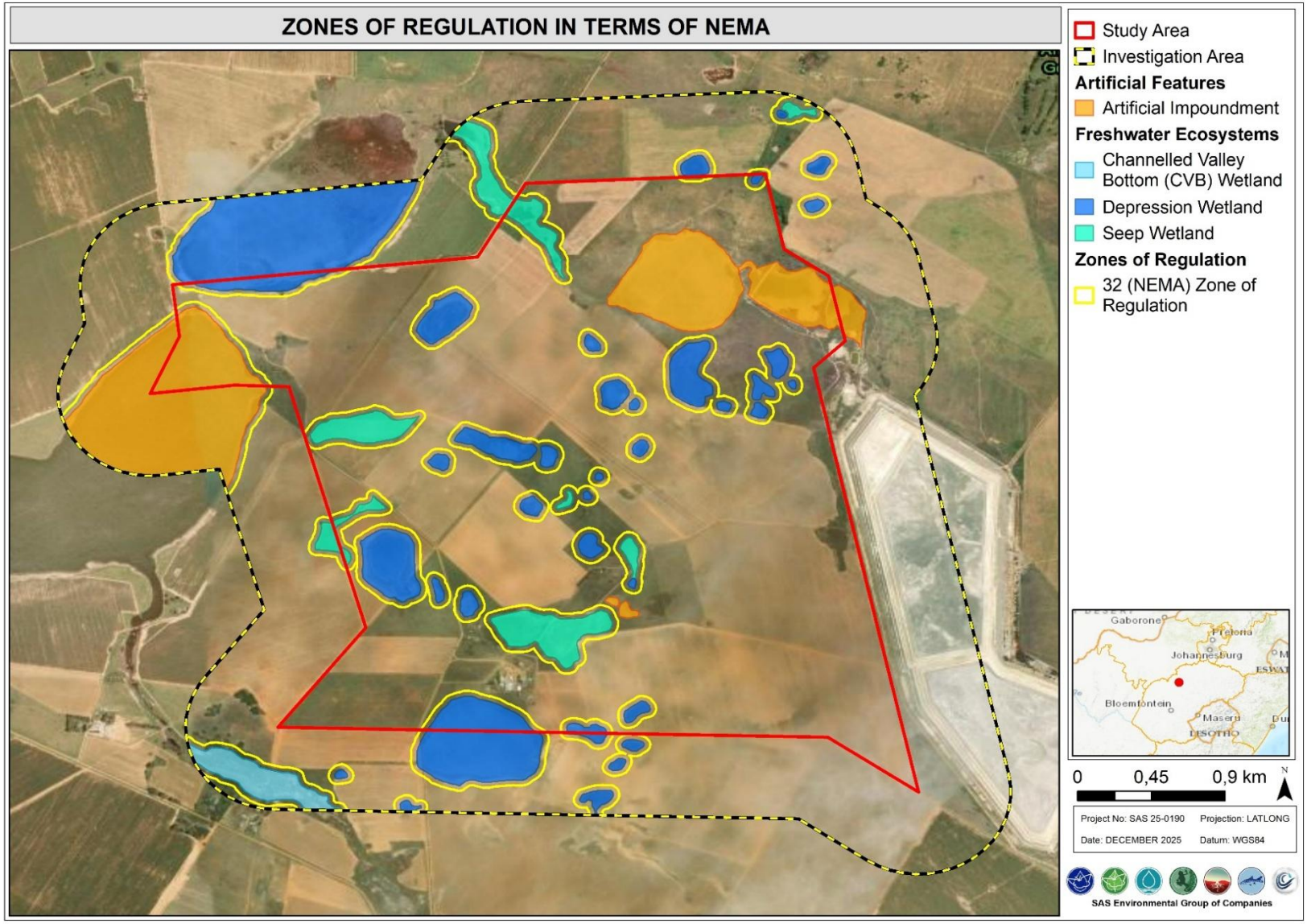


Figure 13: Conceptual presentation of the ZoRs in terms of NEMA, applicable to the study and investigation areas.

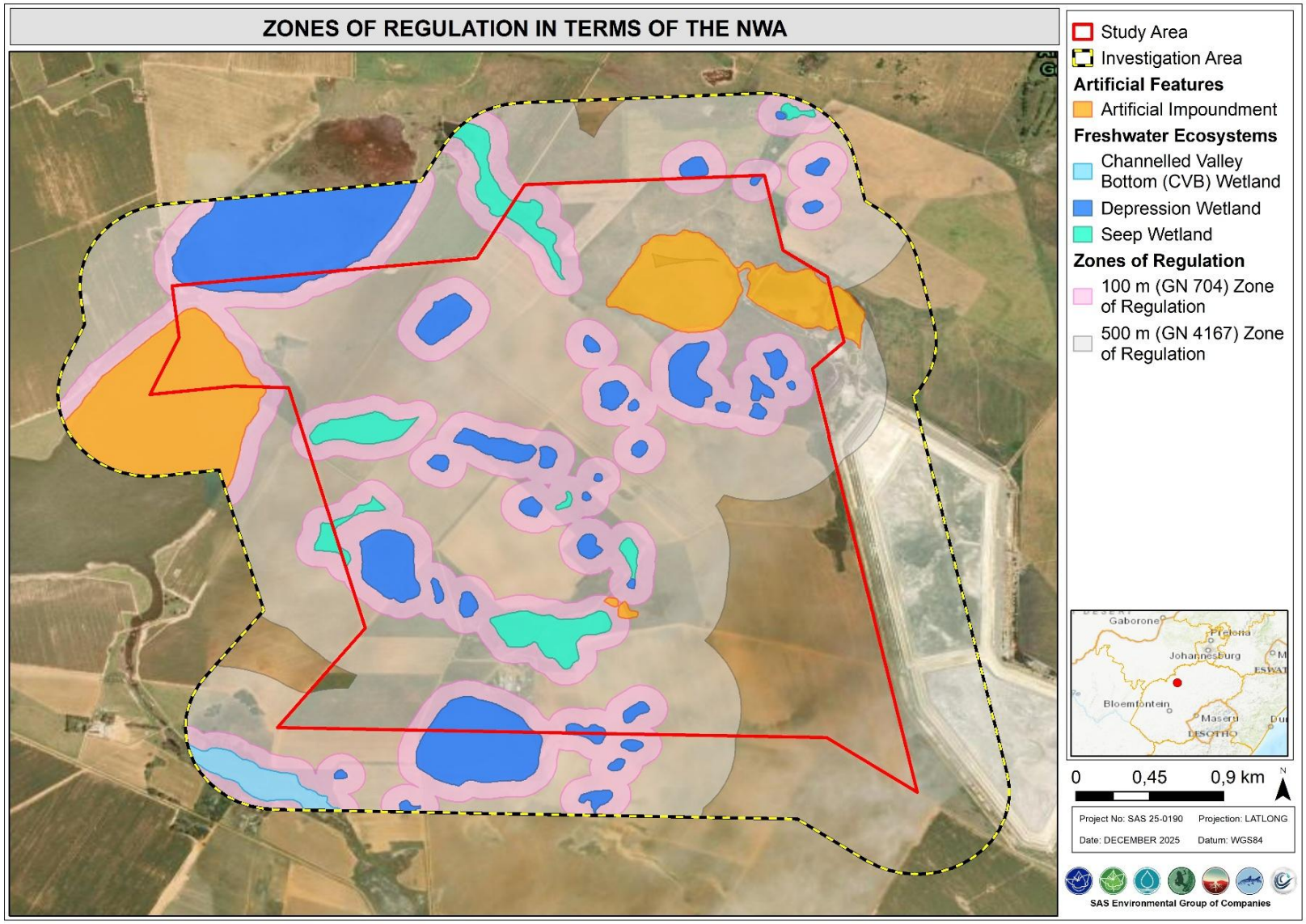


Figure 14: Conceptual presentation of the ZoRs in terms of GN 4167 and GN 704 as it relates to the NWA, applicable to the study and investigation areas.

6 APPLICATION OF THE DFFE SCREENING TOOL FOR THE PROPOSED INFRASTRUCTURE AREAS

The protocol for the assessment of freshwater and aquatic biodiversity prepared in support of the Department of Forestry, Fisheries and Environment (DFFE) (previously the Department of Environmental Affairs (DEA)) National Web-based Environmental Screening Tool (2020), provides the criteria for the assessment and reporting of impacts on aquatic/freshwater biodiversity for activities requiring EA. For the aquatic / freshwater biodiversity theme, the requirements are for sites which support various levels of biodiversity. The relevant aquatic / freshwater biodiversity theme in the National Web-based Environmental Screening Tool (2020) has been provided by the South African National Biodiversity Institute (SANBI). Based on the sensitivity rating, a suitably qualified specialist must prepare the relevant report or opinion memorandum which is to be submitted as part of the EA application.

As part of the process of the background information gathering, the DFFE Screening Tool was applied to the proposed underground mining operation area and the associated investigation area. According to the guidelines, an applicant intending to undertake an activity on a site identified as being of “very high sensitivity” for an aquatic biodiversity theme must submit an Aquatic Biodiversity Impact Assessment, or if the area is identified as being of “low sensitivity” then an Aquatic Biodiversity Compliance Statement must be compiled and submitted to the competent authority. It is noted, however, that during a site survey undertaken by a suitably qualified freshwater ecologist should the sensitivity be determined different from that assigned by the screening tool (i.e. that a high risk to the regional aquatic biodiversity or freshwater ecosystems in the area is likely even though it is assigned as a “low” sensitivity, or if it is assigned a high sensitivity, however, the proposed development risks are deemed low) then the relevant assessment approach must be followed based on the site survey results and not the screening tool allocation.

According to the screening tool, the majority of the proposed underground mining operation area is of low aquatic biodiversity sensitivity. However, isolated portions of study area, as well as sections of the investigation area are indicated as very high aquatic biodiversity sensitivity (Figure 16).
The triggering features for the very high sensitivity are for being within Wetlands (Depression, UCVB, and seep Wetlands).

Based on the site verification undertaken for the proposed underground mining operation, and the findings thereof presented in this report, the designation of very high sensitivity to freshwater features in study and the investigation areas, by the DFFE Screening Tool has been supported through the findings of the freshwater assessment that has confirmed the high sensitivity of the freshwater ecosystems.

Under the Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Aquatic Biodiversity, (GN320 of March 2020), for areas of very high aquatic biodiversity sensitivity an Aquatic Biodiversity Assessment must be produced. Such a reporting approach (EIA-phase freshwater report) have accordingly been compiled.

Please see below map of the specialist site tracks during the site assessment undertaken for the proposed underground mining operation in December 2025 (Figure 15).

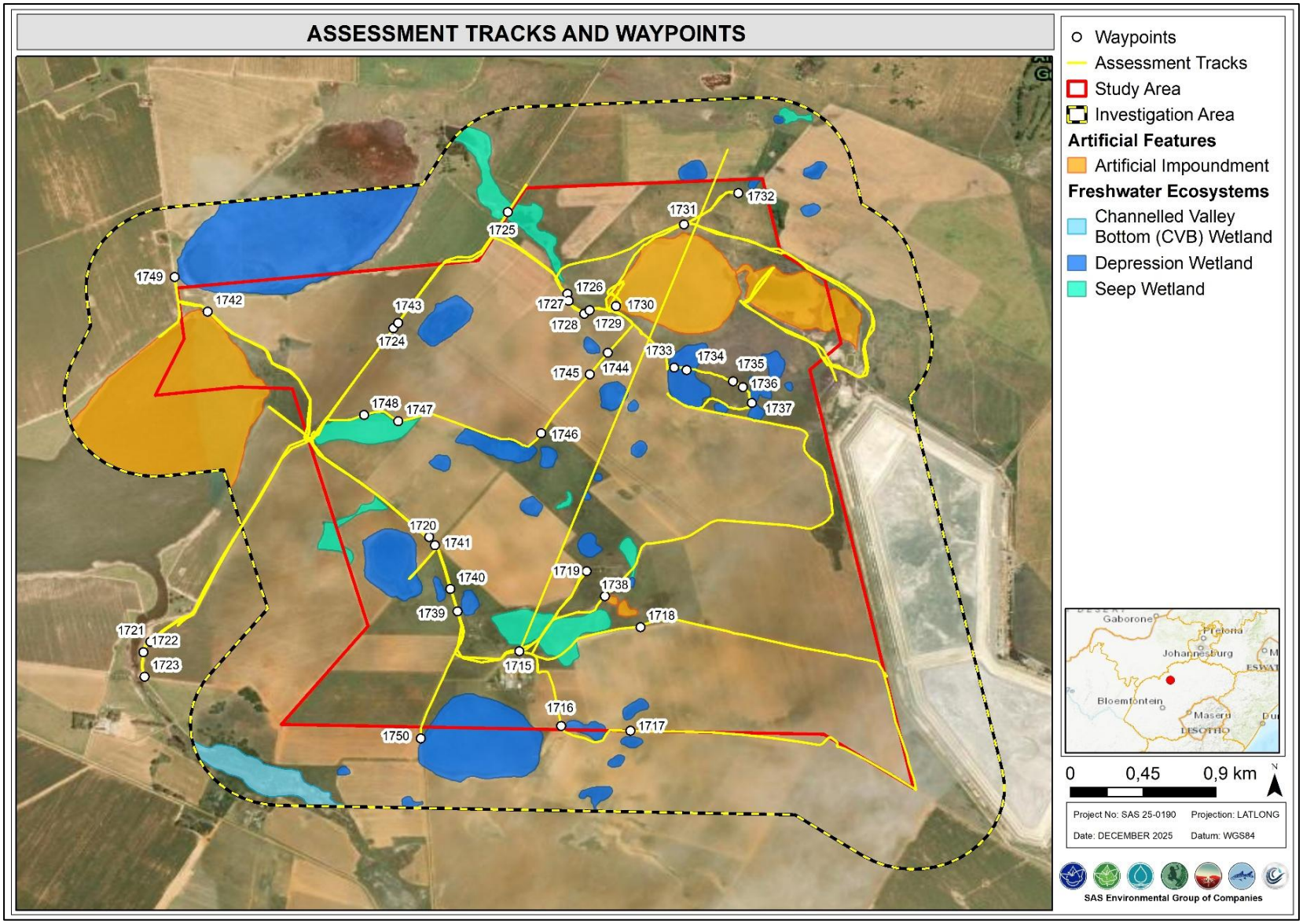


Figure 15: Specialist site tracks and waypoints as per the field verification undertaken on the 10th of December 2025.

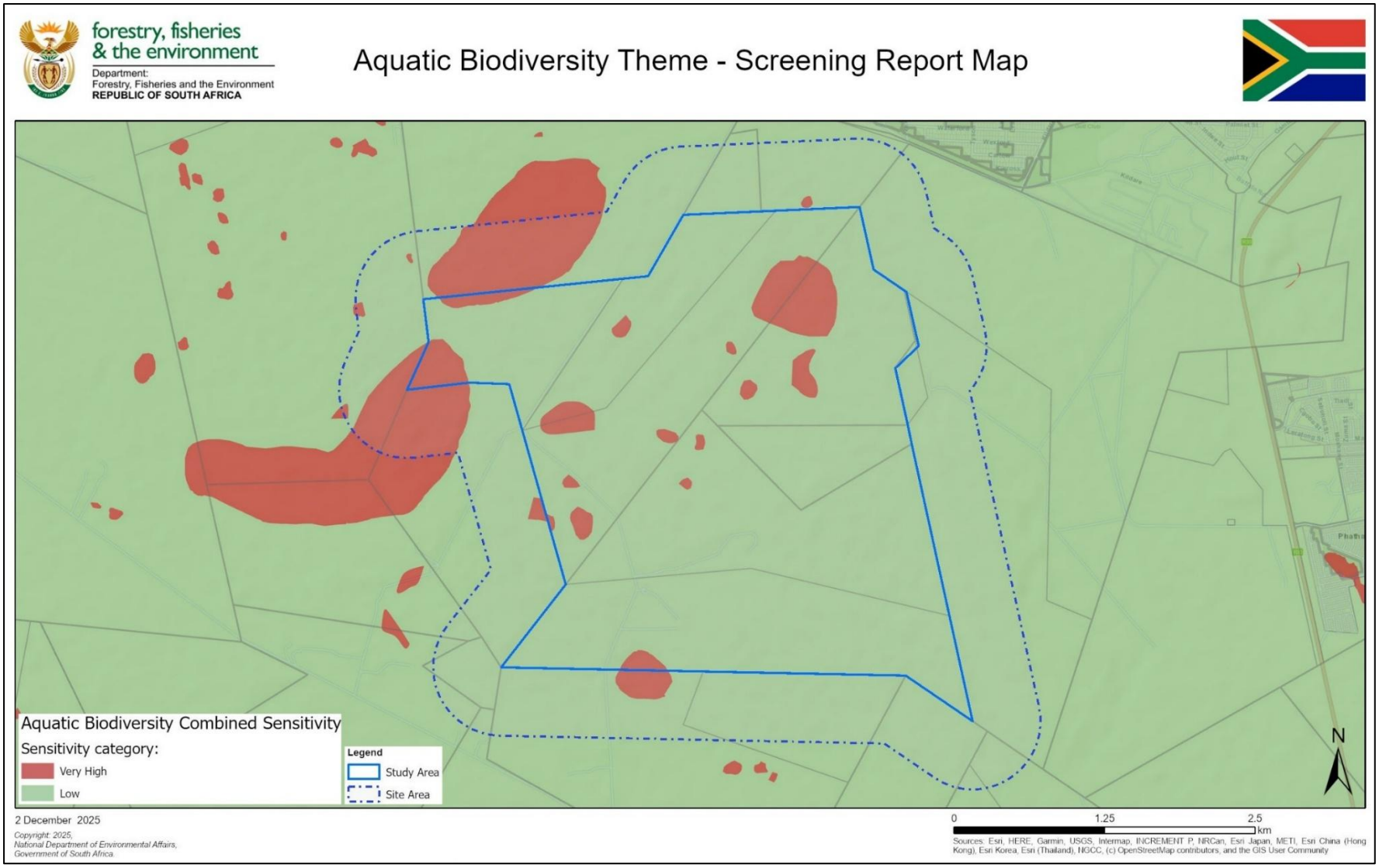


Figure 16: Map of relative aquatic biodiversity theme sensitivity for the study area (blue solid line) and investigation area (blue dashed line) according to the National Web-Based Environmental Screening Tool (2020; Accessed 2025).

7 RISK AND IMPACT ASSESSMENTS

This section presents the significance of potential impacts on the freshwater ecology of the wetlands located within the study area associated with the proposed underground mining operation. In addition, it indicates the required mitigatory measures needed to minimise the perceived impacts of the proposed underground mining operation and presents an assessment of the significance of the impacts taking into consideration the available mitigatory measures and assuming that they are fully implemented.

The results of the Impact Assessment for the proposed undermining activities as presented here (Section 7.3) will be utilised in the EA process, whilst the results of the DWS Risk Assessment Matrix (2023) will be utilised in the WUA process which will be undertaken separately to the EA process, in consultation with the relevant competent authorities. Thus, although the two methods may present different scores for the same activity, this is due to differences in their methodologies (please refer to **Appendix D and Appendix E**) and not due to inconsistencies in their application, and each must be judged individually for their specified purpose as discussed above.

7.1 *Consideration taken with the application of the Risk and Impact Assessment*

The points below summarise the considerations undertaken as part of the risk assessment:

- The DWS Risk Assessment Matrix (RAM) (2023) was applied assuming that a high level of mitigation is implemented, thus the results of the risk assessment provided in this report presents the perceived impact significance ***post-mitigation****;*
- In applying the risk assessment, it was assumed that the mitigation hierarchy as advocated by the DEA *et al.* (2013) (**Figure D1; Appendix D**) would be followed, i.e. the impacts would be avoided, minimised if avoidance is not feasible, rehabilitated as necessary and offset if required;
- The risk assessment only considers activities within the delineated extent of freshwater ecosystems and/or within the regulated zone (GN 4167 500 m ZoR). As such, the seep and depression wetlands in the study are were considered in this assessment;
- It was assumed that no new surface infrastructure will be required as part of the underground mining activities and thus surface infrastructure was not assessed;
- As the proposed activities are only underground – impacts to the surface footprint of the wetlands are considered to be negligible (i.e. no wetland habitat loss);

- **The RAM does not consider impacts to groundwater as this is beyond the scope of the RAM**;
- The DWS RAM (2023) takes into consideration the PES and Overall Freshwater Ecosystem Importance, with the latter carrying the most weight during the calculations. As such the PES and EIS as determined in Section 4.4 was included in the application of the RAM; and
- The considered control measures are easily practicable.

7.2 *Risk Assessment discussion of anticipated ecological impacts*

There are four key ecological impacts on the freshwater ecosystems that are anticipated to occur namely:

- Loss of wetland habitat and ecological structure;
- Changes to the sociocultural and ecological service provision;
- Impacts on the hydrology and sediment balance of the wetlands; and
- Impacts on water quality.

Various activities and development aspects may lead to these impacts, however, provided that the mitigation hierarchy is followed, some impacts can be avoided or adequately minimised where avoidance is not feasible. The mitigation measures provided in this report have been developed with the mitigation hierarchy in mind, and the implementation and strict adherence to these measures will assist in minimising the significance of impacts on the receiving environment.

A summary of the DWS Risk Assessment Matrix applied to the proposed underground mining operation is provided in the table below, whilst a comprehensive outcome of the risk assessment is presented in **Appendix G**.

Table 6: Summary of the results of the DWS Risk Assessment matrix applied to the freshwater ecosystems associated with the proposed underground mining operation.

Phase	No.	Activity	Impact	Potentially affected watercourses			Severity	Consequence	Likelihood	Significance	Risk Rating	Mitigation Measures to be implemented
				Name/s	PES	Overall Watercourse Importance						
Operational	1	Operation of the underground mining area related to the undermining of the freshwater ecosystems.	• Potential creation of a cone of depression, which may drain water from the wetlands, thus resulting in desiccation of the systems.	Seeps	C	Moderate	**10**	**30**	40%	**12**	**L**	• Mitigation measures as stipulated in the Technical Report compiled by Bara Consulting (2025), to mitigate against subsidence and dewatering, formation of a pollution plume and decant respectively, must be implemented; • The management and mitigation measures recommended by a suitably qualified geohydrologist must be implemented to mitigate the potential impacts arising from the formation of a cone of depression and pollution plume, from the mine into the receiving environment; and • Water levels need to be strictly managed to ensure they are kept below any decant level while ensuring that a significant cone of depression impact does not take place.
				Depressions	D	Moderate	**10**	**30**	40%	**12**	**L**	
	2		• Potential destabilisation of the surrounding environment through the extraction of ore and subsequent potential subsidence of the land.	Seeps	C	Moderate	**11**	**33**	60%	**19.8**	**L**	• Mitigation measures as stipulated in the specialist studies to mitigate against subsidence must be implemented; • As per the Technical Report (Bara Consulting, 2025) to avoid potential surface subsidence, pillars will be designed with a minimum factor of safety to ensure subsidence is avoided; and • It is advised that the pillar safety factor under the wetlands be increased to further ensure no subsidence takes place.
				Depressions	D	Moderate	**11**	**33**	60%	**19.8**	**L**	

Phase	No.	Activity	Impact	Potentially affected watercourses			Severity	Consequence	Likelihood	Significance	Risk Rating	Mitigation Measures to be implemented
				Name/s	PES	Overall Watercourse Importance						
Closure/ Post closure	3	Post-closure management activities. (Decant of contaminated water from the rehabilitated mine area into the receiving environment subject to confirmation by a suitably qualified geohydrologist).	• Contamination of water within the receiving environment, and subsequent reduction in water quality (increase in salts and specific contaminants of concern and reduced pH); • Post-operational subsidence; • Subsequent negative impacts on biota and vegetation; • Altered flow regimes (increased hydroperiod); and • Habitat degradation..	Seeps	C	Moderate	**8**	**24**	40%	**9.6**	**L**	• The management and mitigation measures as recommended in the Technical Report (Bara Consulting, 2025) must be implemented to mitigate the potential impacts arising from decant of contaminated water from the mine into the receiving environment; • If feasible, the volume of decant can be managed via passive water management systems before release into the environment; and • Any area where decant points may be determined needs to be very carefully managed throughout the Life Of Mining (LOM).
				Depressions	D	Moderate	**8**	**24**	40%	**9.6**	**L**	

As noted from the risk assessment above, the assessed activities and aspects are expected to pose an overall "Low" risk to the wetlands, provided that the mitigation measures as outlined in this report are strictly adhered to. The assessment of potential impacts to groundwater was not part of the scope of this report. As such, the mitigation measures as outlined in the Technical Report (Bara Consulting, 2025) to mitigate against potential subsidence, creation of a pollution plume and possible decant must be implemented and strictly adhered to in order to ensure a low impact significance (as assessed in the previously mentioned reports). It is also recommended that the pillar safety factor under the wetlands be increased with an appropriate margin of safety to ensure that no subsidence of the wetlands take place.

7.3 *Impact Assessment*

The results of the DWS specified Risk Assessment Matrix [as promulgated in GN4167 of 2023 as it relates to the National Water Act, 1998 (Act No. 36 of 1998)], as amended are translated into the impact assessment methodology provided by the EAP.

7.3.1 Impacts associated with the Operational Phase:

Table 7: Potential changes to hydrological functioning and water quality should subsidence occur.

NATURE OF THE IMPACT: Changes to hydrological functioning and water quality.		
	Impact Rating Without Mitigation	**Impact Rating With Mitigation**
Impact Status:	**Negative**	**Negative**
Extent	Local	Site
Duration	Long term	Long term
Magnitude	Moderate	Minor
Probability	Definite	Possible
Calculated Significance Rating	**Medium**	**Low**
Reversibility: *(Reversible or Irreversible)*	Irreversible: Depending on the degree of subsidence, (i.e., sink hole or cracking) physical rehabilitation will need to be implemented (following a Landscape and Rehabilitation plan developed by qualified specialists) to restore any impact to wetland habitat integrity and ecological functionality.	
Irreplaceable loss of resources:	No	
Can impacts be enhanced: *(Yes or No)*	Yes, with rehabilitation measures.	
Potential Residual impacts ➢ Localised but irreversible loss of wetland habitat, particularly where subsidence causes sinkholes or persistent ground deformation. ➢ Altered runoff patterns within the local catchment of the freshwater ecosystems, potentially leading to increased erosion and sedimentation of the receiving freshwater environment. ➢ Potential impacts on the water quality of surface water runoff (when present) which may potentially enter the downgradient freshwater ecosystems and contamination of soils.		
Mitigation measures ➢ **Adaptive Subsidence Management:** Mitigation measures as stipulated in the specialist studies to mitigate against subsidence must be implemented. As per the Technical Report (Bara Consulting, 2025) to avoid potential surface subsidence, pillars will be designed with a minimum factor of safety to ensure subsidence is avoided. It is advised that the pillar safety factor under the wetlands be increased to further ensure no subsidence takes place.		

NATURE OF THE IMPACT: Changes to hydrological functioning and water quality.
➢ **Planning and mine design:** Adequate safety precautions and monitoring protocols be developed to lower the potential of subsidence and effective monitoring (especially of freshwater ecosystems) to allow for immediate management of potential subsidence events. ➢ In areas where subsidence is anticipated a walkdown should take place to observe and mark any signs of erosion and any changes to hydraulic pattern in the landscape.

Table 8: Potential changes to geomorphological processes should subsidence occur .

NATURE OF THE IMPACT: Changes to the geomorphological processes (sediment balance, erosion and sedimentation).		
	Impact Rating Without Mitigation	**Impact Rating With Mitigation**
Impact Status:	**Negative**	**Negative**
Extent	Local	Site
Duration	Long term	Long term
Magnitude	Moderate	Minor
Probability	Unlikely	Unlikely
Calculated Significance Rating	**Medium**	**Low**
Reversibility:	Irreversible	
Irreplaceable loss of resources:	No	
Can impacts be enhanced: *(Yes or No)*	Yes, with rehabilitation measures.	
Potential Residual impacts ➢ Reduced nutrient cycling and soil water retention. ➢ Exposure of soils, leading to increased runoff and erosion, and thus increased sedimentation of the impacted freshwater ecosystems. ➢ Impact of increased sedimentation, potentially leading to smothering of biota and potentially altering surface water quality (if present). ➢ Soil compaction altering run-off patterns. ➢ Disturbed and fragmented habitats remain susceptible to invasion by AIPs.		
Mitigation measures ➢ Bare areas are more susceptible to erosion, and these areas should be monitored to indicate any initial signs of subsidence. ➢ **Adaptive Subsidence Management:** Mitigation measures as stipulated in the specialist studies to mitigate against subsidence must be implemented. As per the Technical Report (Bara Consulting, 2025) to avoid potential surface subsidence, pillars will be designed with a minimum factor of safety to ensure subsidence is avoided. It is advised that the pillar safety factor under the wetlands be increased to further ensure no subsidence takes place. ➢ **Concurrent rehabilitation** should be implemented. At the first signs of soil erosion the surface should be covered with native plant species to prevent further loss of soil (where applicable).		

Table 9: Potential increased proliferation of AIPs and potential habitat loss.

NATURE OF THE IMPACT: Increased proliferation of AIPs and potential habitat loss.		
	Impact Rating Without Mitigation	**Impact Rating With Mitigation**
Impact Status:	**Negative**	**Negative**
Extent	Local	Site
Duration	Long term	Short term
Magnitude	Minor	Minor
Probability	Possible	Possible
Calculated Significance Rating	**Medium**	**Low**
Reversibility:	Reversible with proactive AIP management.	
Irreplaceable loss of resources:	No	
Can impacts be enhanced: *(Yes or No)*	Yes, with rehabilitation measures.	
Potential Residual impacts ➢ Decreased habitat integrity and diversity of biota as a result of unmanaged AIP proliferation. ➢ Potential inadequate AIP control methods, in turn altering freshwater habitat and runoff patterns, or contamination of surface water (if present) with herbicides. ➢ Potential inadequate re-vegetation methods, leading to failure of vegetation establishment, resulting in bare soil with increased risk of erosion and AIP proliferation.		
Mitigation measures		

NATURE OF THE IMPACT: Increased proliferation of AIPs and potential habitat loss.
➢ **Adaptive Subsidence Management:** Mitigation measures as stipulated in the specialist studies to mitigate against subsidence must be implemented. As per the Technical Report (Bara Consulting, 2025) to avoid potential surface subsidence, pillars will be designed with a minimum factor of safety to ensure subsidence is avoided. It is advised that the pillar safety factor under the wetlands be increased to further ensure no subsidence takes place. ➢ **Concurrent rehabilitation** should be implemented. At the first signs of AIP proliferation and establishment within monitoring areas or operation areas AIP management must commence. Following an AIP Management and Control Plan associated with the mine. Any current or existing AIP control plans should be updated to include all additional proposed activities and be updated annually to incorporate any new information.

7.3.2 Impacts associated with the Closure/Post-Closure Phase:

Following the completion of the proposed underground mining operations, the decommissioning, closure, and rehabilitation activities for the proposed project will be limited to the removal of underground infrastructure.

Table 10: Potential freshwater habitat/functionality loss and impacts to biota due to potential subsidence post mine closure.

NATURE OF THE IMPACT: Potential freshwater habitat loss and impacts to biota		
	Impact Rating Without Mitigation	**Impact Rating With Mitigation**
Impact Status:	**Negative**	**Negative**
Extent	Local	Local
Duration	Long term	Long term
Magnitude	Moderate	Minor
Probability	Unlikely	Unlikely
Calculated Significance Rating	**Medium**	**Low**
Reversibility:	Irreversible	
Irreplaceable loss of resources:	No	
Can impacts be enhanced: *(Yes or No)*	Yes, with rehabilitation measures.	
Potential Residual impacts ➢ Possible localised but irreversible loss of wetland habitat and functionality, particularly where subsidence causes sinkholes or persistent ground deformation. ➢ Disturbed and fragmented habitats remain susceptible to invasion by AIPs. ➢ Altered runoff patterns within the local catchment of the freshwater ecosystems, potentially leading to increased erosion and sedimentation of the receiving freshwater environment. ➢ Exposure of soils, leading to increased runoff and erosion, and thus increased sedimentation of the impacted freshwater ecosystems. ➢ Impact of increased sedimentation, potentially leading to smothering of biota and potentially altering surface water quality (if present).		
Mitigation measures ➢ **Adaptive Subsidence Management:** Mitigation measures as stipulated in the specialist studies to mitigate against subsidence must be implemented. As per the Technical Report (Bara Consulting, 2025) to avoid potential surface subsidence, pillars will be designed with a minimum factor of safety to ensure subsidence is avoided. It is advised that the pillar safety factor under the wetlands be increased to further ensure no subsidence takes place. ➢ A Rehabilitation and Landscape Plan should be developed as a precautionary measure for subsidence to follow protocols and guidelines provided by qualified experts. ➢ Monitoring post mine closure and decommission should take place for at least 5 year post closure to ensure no delayed subsidence has occurred.		

7.4 *Cumulative Impact Assessment*

Cumulative impacts are activities and their associated impacts on the past, present and foreseeable future, both spatially and temporally, considered together with the impacts identified in Section 7.2 & 7.3, above. Freshwater ecosystems within the region are under continued threat largely due to ongoing mining and agricultural activities as well as urbanisation. These cumulative impacts lead to increasing impacts on the functioning and service provision by wetlands and rivers.

As the wetlands are isolated and small in extent, it is imperative that impacts on the wetlands be reduced through implementation of the mitigation measures provided in this report to reduce the cumulative risk and impacts on the surrounding freshwater and terrestrial environment which is affected by mining, agricultural and urbanisation impacts which affect water quality, as well as instream and aquatic biota.

The potential for decant of contaminated water also increases which can lead to impaired water quality and changes to the hydrological processes of the freshwater ecosystems in the region.

Mining, agricultural and urban activities in the area have resulted in the reduction of functional freshwater habitats in the landscape and continued mining and urban activities will contribute to the degradation of water quality, and loss of indigenous vegetation, especially if potential impacts are not managed accordingly in line with the mitigation hierarchy and best practice protocols.

Table 11: Potential cumulative effects on wetland habitat due to potential subsidence post mine closure.

NATURE OF THE CUMULATIVE IMPACT: Potential freshwater habitat loss and impacts to biota		
	Impact Rating Without Mitigation	**Impact Rating With Mitigation**
Impact Status:	**Negative**	**Negative**
Extent	Local	Local
Duration	Long term	Long term
Magnitude	Minor	Minor
Probability	Unlikely	Unlikely
Calculated Significance Rating	**Low**	**Low**
Reversibility:	Irreversible	
Irreplaceable loss of resources:	No	
Can impacts be enhanced: *(Yes or No)*	Yes, with rehabilitation measures.	
Potential Residual impacts ➢ Increased risk of AIP proliferation due to disturbances within the delineated extent of the freshwater ecosystems and within the immediate surrounds. ➢ Increased risk for erosion and sedimentation due to increased stormwater runoff within the catchment of the freshwater ecosystems.		

NATURE OF THE CUMULATIVE IMPACT: Potential freshwater habitat loss and impacts to biota
➢ Increased risk of nutrient inputs from the mining and agricultural activities resulting in changes to the water quality of the freshwater ecosystems. ➢ Increased dust generation due to mining and agricultural activities and vehicle movement within the freshwater ecosystems and within the immediate surrounds. ➢ Increased likelihood of deterioration of ecological functioning and ecoservice provisioning potential of the freshwater ecosystems.
Mitigation measures ➢ **Adaptive Subsidence Management:** Mitigation measures as stipulated in the specialist studies to mitigate against subsidence must be implemented. As per the Technical Report (Bara Consulting, 2025) to avoid potential surface subsidence, pillars will be designed with a minimum factor of safety to ensure subsidence is avoided. It is advised that the pillar safety factor under the wetlands be increased to further ensure no subsidence takes place. ➢ A Rehabilitation and Landscape Plan should be developed as a precautionary measure for subsidence to follow protocols and guidelines provided by qualified experts. ➢ Monitoring post mine closure and decommission should take place for at least 5 year post closure to ensure no delayed subsidence has occurred.

8 CONCLUSION

SAS (Pty) Ltd was appointed to conduct freshwater and aquatic assessments as part of the EA and WUA processes for the proposed Jelani JV area underground mining project, Free State province (referred to as the 'proposed underground mining operation').

Multiple seep and depression wetlands were identified within the study and investigation areas. The results of the assessment are summarised in the table below:

Table 12: Summary of results of the field assessment as discussed in Section 4.

Freshwater ecosystems	PES	Ecoservices importance	EIS	REC / RMO / BAS
Seep Wetlands	C	Very low to Moderate	Moderate	REC Category: C BAS Category: C RMO: Maintain
Depression Wetlands	D			REC Category: D BAS Category: D RMO: Maintain
Extent of modification anticipated.	**Low** Based on the PES and EIS of the wetlands and the findings of the DWS Risk Assessment Matrix (2023), the activities associated with the proposed undermining of the wetlands will pose a "Low" risk to the ongoing functionality of the systems. Key mitigation measures include: ➢ Mitigation measures as stipulated in the Technical Report compiled by Bara Consulting (2025), to mitigate against subsidence and dewatering, formation of a pollution plume and decant respectively, must be implemented; and ➢ It is advised that the pillar safety factor under the wetlands be increased to further ensure no subsidence takes place.			

Following the freshwater ecosystem assessment, the Department of Water and Sanitation (DWS) Risk Assessment Matrix (2023) was applied to determine the significance of impacts of the proposed undermining of the wetlands. Provided that all mitigation measures outlined in this report are adhered to throughout the life of the proposed underground mining operation,

the perceived impact significance is “Low” provided that the mitigation measures as outlined in this report are strictly adhered to.

The assessment of potential impacts to groundwater was not part of the scope of this report but was considered, at a high level, as the potential for decant relates to surface freshwater resource management. As such, the mitigation measures as outlined in the Technical Report (Bara Consulting, 2025) to mitigate against potential subsidence, creation of a groundwater pollution plume, that poses a risk to surface water resources, and possible decant must be implemented and strictly adhered to in order to ensure a low impact significance. It is also recommended that the pillar safety factor under the wetlands be included as an additional margin of safety to ensure that no subsidence of the wetlands takes place.

The outcome of the impact assessment (provided by the EAP) states that the operational and closure phase activities associated with the proposed project are medium without the implementation of mitigation measures and low with the implementation of mitigation measures.

Thus, it is the opinion of the specialist that the proposed undermining of the wetlands associated with the proposed Jelani JV project is considered acceptable and can be authorised by means of a Water Use Authorisation process in terms of GN 4167 as it relates to the NWA and is acceptable for EA.

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APPENDIX A – Terms of Use and Indemnity

The findings, results, observations, conclusions and recommendations given in this report are based on the author's best scientific and professional knowledge as well as available information. The report is based on survey and assessment techniques which are limited by time and budgetary constraints relevant to the type and level of investigation undertaken and SAS (Pty) Ltd and its staff reserve the right, at their sole discretion, to modify aspects of the report including the recommendations if and when new information may become available from ongoing research or further work in this field or pertaining to this investigation.

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APPENDIX B – Legislative Considerations

The Constitution of the Republic of South Africa, 1996	The environment and the health and well-being of people are safeguarded under the Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996) by way of section 24. Section 24(a) guarantees a right to an environment that is not harmful to human health or well-being and to environmental protection for the benefit of present and future generations. Section 24(b) directs the state to take reasonable legislative and other measures to prevent pollution, promote conservation, and secure the ecologically sustainable development and use of natural resources (including water and mineral resources) while promoting justifiable economic and social development. Section 27 guarantees every person the right of access to sufficient water, and the state is obliged to take reasonable legislative and other measures within its available resources to achieve the progressive realisation of this right. Section 27 is defined as a socio-economic right and not an environmental right. However, read with section 24 it requires of the state to ensure that water is conserved and protected and that sufficient access to the resource is provided. Water regulation in South Africa places a great emphasis on protecting the resource and on providing access to water for everyone.
National Environmental Management Act (Act No. 107 of 1998) (NEMA)	The National Environmental Management Act (NEMA) (Act 107 of 1998) and the associated Regulations as amended in 2017, 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 Environmental Impact Assessment (EIA) process depending on the scale of the impact. Provincial regulations must also be considered.
National Environmental Management: Biodiversity Act (2004) (Act 10 of 2004) (NEMBA)	**Ecosystems that are threatened or in need of protection** (1) (a) The Minister may, by notice in the Gazette, publish a national list of ecosystems that are threatened and in need of protection. *(b)* An MEC for environmental affairs in a province may, by notice in *the Gazette,* publish a provincial list of ecosystems in the province that are threatened and in need of protection. (2) The following categories of ecosystems may be listed in terms of subsection (1): *(a)* critically endangered ecosystems, being ecosystems that have undergone severe degradation of ecological structure, function or composition as a result of human intervention and are subject to an extremely high risk of irreversible transformation; *(b)* endangered ecosystems, being ecosystems that have undergone degradation of ecological structure, function or composition as a result of human intervention, although they are not critically endangered ecosystems; (c) vulnerable ecosystems, being ecosystems that have a high risk of undergoing significant degradation of ecological structure, function or composition as a result of human intervention, although they are not critically endangered ecosystems or endangered ecosystems; and *(d)* protected ecosystems, being ecosystems that are of high conservation value or of high national or provincial importance, although they are not listed in terms of paragraphs *(a), (b)* or (c).
The National Water Act 1998 (Act No. 36 of 1998) (NWA)	The National Water Act (NWA) (Act 36 of 1998) recognises that the entire ecosystem and not just the water itself in any given water resource 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 Department of Water and Sanitation (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) & (i).
Government Notice 4167 as published in the Government Gazette 49833 of 08 December 2023 as it relates to the NWA (Act 36 of 1998) as amended	GN 4167 outlines the parameters and process of a General Authorisation (GA), which replaces the need to apply for a licence in terms of Section 40 of the NWA, provided that the water use is within the limits and conditions of the GA. The notice replaces GN 509 of 2016. The GA sets out the need to determine the regulated area of a watercourse, as well as the degree of risk posed by an activity/ies related to a particular water use. In accordance with GN 4167 of December 2023, the regulated area of a watercourse for section 21c and 21i of the NWA, 1998 is defined as: a) the outer edge of the 1 in 100-year flood line 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; b) in the absence of a determined 1 in 100-year flood line or riparian area the area within 100 m distance from the edge of a watercourse where the edge of the watercourse (excluding flood plains) is the first identifiable annual bank fill flood bench; or

	c) In respect of a wetland, a 500 m radius around the delineated boundary (extent) of any wetland, including pans. The GA only applies to the use of water in terms of Section 21(c) and (i) of the NWA where the risk class is LOW as determined through the application of the Risk Matrix as prescribed in the Notice. The GA also does not apply where other Section 21 water uses are triggered, does not apply for most sewage infrastructure and pipelines carrying hazardous materials, water uses associated with hazardous materials, water uses associated with water and wastewater treatment works, and for most mining-related water uses. The GA may be exercised as follows: i) Section 21(c) or (i) water use activities that are determined to pose a LOW Risk as determined through the application of the Risk Matrix as prescribed in the Notice can be undertaken subject to the general conditions of the GA; ii) Section 21(c) or (i) water use activities set out in Appendix D1 of the Notice can be undertaken without being subject to the requirement of a risk assessment and subject to the general conditions of the GA. Such water use activities in Appendix D1 include inter alia emergency river crossings, fence erection, solar renewable infrastructure that has no direct impact on watercourses and mini-scale hydropower developments; iii) Prescribed water use activities undertaken by certain State Owned Entities as detailed in Appendix D2 of the Notice can be undertaken without being subject to the requirement of a risk assessment and subject to the general conditions of the GA; iv) Maintenance work associated an existing lawful water use in terms of section 21(c) or (i) of the Act that has a LOW risk class as determined through the Risk Matrix can be undertaken ; v) River and stormwater management activities including maintenance of infrastructure as contained in a river management plan or similar management plan, may be conducted subject to the approval of such a plan by the relevant DWS regional office or catchment management agency; vi) Rehabilitation of wetlands or rivers where such rehabilitation activities has a LOW risk class as determined through the Risk Matrix can be conducted; and vii) Emergency work arising from an emergency situation and or incident associated with the persons' existing lawful water use entitlement can be undertaken, provided that all work is executed and reported in the manner prescribed in the Emergency protocol contained in Appendix C of the GA. A General Authorisation (GA) issued as per this notice will require the proponent to adhere with specific conditions, rehabilitation criteria and monitoring and reporting programme. Furthermore, the water user must ensure that there is a sufficient budget to complete, rehabilitate and maintain the water use as set out in this GA. Upon completion of the registration, the responsible authority will provide a certificate of registration to the water user within 30 working days of the submission. On written receipt of a registration certificate from the Department, the person will be regarded as a registered water user and can commence within the water use as contemplated in the GA.
Government Notice 704 as published in the Government Gazette 20119 of 1999 as it relates to the National Water Act, 1998 (Act 36 of 1998)	Regarding the use of water for mining and related activities aimed at the protection of water resources. These Regulations were put in place in order to prevent the pollution of water resources and protect water resources in areas where mining activity is taking place from impacts generally associated with mining. It is recommended that the proposed project complies with Regulation GN 704 of the National Water Act, 1998 (Act No. 36 of 1998) which contains regulations on use of water for mining and related activities aimed at the protection of water resources. GN 704 states that: *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 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 waterlogged ground, or on ground likely to become waterlogged, undermined, unstable or cracked;* According to the above, the activity footprint must fall outside of the 1:100 year flood line of the aquatic resource or 100m from the edge of the resource, whichever distance is the greatest.

APPENDIX C – Freshwater Ecosystems and Aquatic Method of Assessment

1. Desktop Study

Prior to the commencement of the field assessment, a background study, including a literature review, was conducted in order to determine the ecoregion and ecostatus of the larger aquatic system within which the freshwater features present or in close proximity of the proposed study area are located. Aspects considered as part of the literature review are discussed in the sections that follow.

1.1 National Freshwater Ecosystem Priority Areas (NFEPA, 2011)

The NFEPA project is a multi-partner project between the Council of Scientific and Industrial Research (CSIR), Water Research Commission (WRC), South African National Biodiversity Institute (SANBI), DWA, South African Institute of Aquatic Biodiversity (SAIAB) and South African National Parks (SANParks). The project responds to the reported degradation of freshwater ecosystem condition and associated biodiversity, both globally and in South Africa. It uses systematic conservation planning to provide strategic spatial priorities of conserving South Africa's freshwater biodiversity, within the context of equitable social and economic development.

The NFEPA project aims to identify a national network of freshwater conservation areas and to explore institutional mechanisms for their implementation. Freshwater ecosystems provide a valuable, natural resource with economic, aesthetic, spiritual, cultural and recreational value. However, the integrity of freshwater ecosystems in South Africa is declining at an alarming rate, largely as a consequence of a variety of challenges that are practical (managing vast areas of land to maintain connectivity between freshwater ecosystems), socio-economic (competition between stakeholders for utilisation) and institutional (building appropriate governance and co-management mechanisms).

The NFEPA database was searched for information in terms of conservation status of rivers, wetland habitat and wetland features present in the vicinity of or within the proposed study area.

2. Classification System for Wetlands and other Aquatic Ecosystems in South Africa

The freshwater features encountered within the proposed study area were assessed using the Classification System for Wetlands and other Aquatic Ecosystems in South Africa. User Manual: Inland Systems (Ollis *et al*., 2013), hereafter referred to as the "Classification System". A summary of Levels 1 to 4 of the classification system are presented in Table C1 and C2, below.

Table C1: Proposed classification structure for Inland Systems, up to Level 3.

WETLAND / AQUATIC ECOSYSTEM CONTEXT		
LEVEL 1: SYSTEM	LEVEL 2: REGIONAL SETTING	LEVEL 3: LANDSCAPE UNIT
Inland Systems	DWA Level 1 Ecoregions OR NFEPA WetVeg Groups OR Other special framework	Valley Floor
		Slope
		Plain
		Bench (Hilltop / Saddle / Shelf)

Table C2: Hydrogeomorphic (HGM) Unit for the Inland System, showing the primary HGM Types at Level 4A and the subcategories at Level 4B to 4C.

FUNCTIONAL UNIT		
LEVEL 4: HYDROGEOMORPHIC (HGM) UNIT		
HGM type	Longitudinal zonation/ Landform / Outflow drainage	Landform / Inflow drainage
A	**B**	**C**
River	Mountain headwater stream	Active channel
		Riparian zone
	Mountain stream	Active channel
		Riparian zone
	Transitional	Active channel
		Riparian zone
	Upper foothills	Active channel
		Riparian zone
	Lower foothills	Active channel
		Riparian zone
	Lowland river	Active channel
		Riparian zone
	Rejuvenated bedrock fall	Active channel
		Riparian zone
	Rejuvenated foothills	Active channel
		Riparian zone
	Upland floodplain	Active channel
		Riparian zone
Channelled valley-bottom wetland	(not applicable)	(not applicable)
Unchannelled valley-bottom wetland	(not applicable)	(not applicable)
Floodplain wetland	Floodplain depression	(not applicable)
	Floodplain flat	(not applicable)
Depression	Exorheic	With channelled inflow
		Without channelled inflow
	Endorheic	With channelled inflow
		Without channelled inflow
	Dammed	With channelled inflow
		Without channelled inflow
Seep	With channelled outflow	(not applicable)
	Without channelled outflow	(not applicable)
Wetland flat	(not applicable)	(not applicable)

Level 1: Inland systems

From the Classification System, Inland Systems are defined as aquatic ecosystems that have no existing connection to the ocean[4] (i.e. characterised by the complete absence of marine exchange and/or tidal influence) but which are inundated or saturated with water, either permanently or periodically. It is important to bear in mind, however, that certain Inland Systems may have had a historical connection to the ocean, which in some cases may have been relatively recent.

Level 2: Ecoregions & NFEPA Wetland Vegetation Groups

For Inland Systems, the regional spatial framework that has been included at Level 2 of the classification system is that of DWA's Level 1 Ecoregions for aquatic ecosystems (Kleynhans *et al.,* 2005). There is

[4] Most rivers are indirectly connected to the ocean via an estuary at the downstream end, but where marine exchange (i.e. the presence of seawater) or tidal fluctuations are detectable in a river channel that is permanently or periodically connected to the ocean, it is defined as part of the estuary.

a total of 31 Ecoregions across South Africa, including Lesotho and Swaziland. DWA Ecoregions have most commonly been used to categorise the regional setting for national and regional water resource management applications, especially in relation to rivers.

The Vegetation Map of South Africa, Swaziland and Lesotho (Mucina & Rutherford, 2006) group's vegetation types across the country according to Biomes, which are then divided into Bioregions. To categorise the regional setting for the wetland component of the National Freshwater Ecosystem Priority Areas (NFEPA) project, wetland vegetation groups (referred to as WetVeg Groups) were derived by further splitting bioregions into smaller groups through expert input (Nel *et al*., 2011). There are currently 133 NFEPA WetVeg Groups. It is envisaged that these groups could be used as a special framework for the classification of wetlands in national- and regional-scale conservation planning and wetland management initiatives.

Level 3: Landscape Setting

At Level 3 of the Classification System, for Inland Systems, a distinction is made between four Landscape Units (Table C1) on the basis of the landscape setting (i.e. topographical position) within which an HGM Unit is situated, as follows (Ollis *et al.,* 2013):

- **Slope:** an included stretch of ground that is not part of a valley floor, which is typically located on the side of a mountain, hill or valley;
- **Valley floor:** The base of a valley, situated between two distinct valley side-slopes;
- **Plain:** an extensive area of low relief characterised by relatively level, gently undulating or uniformly sloping land; and
- **Bench (hilltop/saddle/shelf):** an area of mostly level or nearly level high ground (relative to the broad surroundings), including hilltops/crests (areas at the top of a mountain or hill flanked by down-slopes in all directions), saddles (relatively high-lying areas flanked by down-slopes on two sides in one direction and up-slopes on two sides in an approximately perpendicular direction), and shelves/terraces/ledges (relatively high-lying, localised flat areas along a slope, representing a break in slope with an up-slope one side and a down-slope on the other side in the same direction).

Level 4: Hydrogeomorphic Units

Seven primary HGM Types are recognised for Inland Systems at Level 4A of the Classification System (Table C2), on the basis of hydrology and geomorphology (Ollis *et al*., 2013), namely:

- **River:** a linear landform with clearly discernible bed and banks, which permanently or periodically carries a concentrated flow of water;
- **Channelled valley-bottom wetland:** a valley-bottom wetland with a river channel running through it;
- **Unchannelled valley-bottom wetland:** a valley-bottom wetland without a river channel running through it;
- **Floodplain wetland:** the mostly flat or gently sloping land adjacent to and formed by an alluvial river channel, under its present climate and sediment load, which is subject to periodic inundation by over-topping of the channel bank;
- **Depression:** a landform with closed elevation contours that increases in depth from the perimeter to a central area of greatest depth, and within which water typically accumulates.
- **Wetland Flat:** a level or near-level wetland area that is not fed by water from a river channel, and which is typically situated on a plain or a bench. Closed elevation contours are not evident around the edge of a wetland flat; and
- **Seep:** a wetland area located on (gently to steeply) sloping land, which is dominated by the colluvial (i.e. gravity-driven), unidirectional movement of material down-slope. Seeps are often located on the side-slopes of a valley but they do not, typically, extend into a valley floor.

The above terms have been used for the primary HGM Units in the classification system to try and ensure consistency with the wetland classification terms currently in common usage in South Africa. Similar terminology (but excluding categories for "channel", "flat" and "valleyhead seep") is used, for example, in the recently developed tools produced as part of the Wetland Management Series including

WET-Health (Macfarlane *et al*., 2008), WET-IHI (DWAF, 2007) and WET-EcoServices (Kotze *et al*., 2009).

3. WET-Health

Healthy wetlands are known to provide important habitats for wildlife and to deliver a range of important goods and services to society. Management of these systems is therefore essential if these attributes are to be retained within an ever-changing landscape. The primary purpose of this assessment is to evaluate the eco-physical health of wetlands, and in so doing to promote their conservation and wise management.

Level of Evaluation

Two levels of assessment are provided by WET-Health:

- Level 1: Desktop evaluation, with limited field verification. This is generally applicable to situations where a large number of wetlands need to be assessed at a very low resolution; or
- Level 2: On-site evaluation. This involves structured sampling and data collection in a single wetland and its surrounding catchment.

Framework for the Assessment

A set of three modules has been synthesised from the set of processes, interactions and interventions that take place in wetland systems and their catchments: hydrology (water inputs, distribution and retention, and outputs), geomorphology (sediment inputs, retention and outputs) and vegetation (transformation and presence of introduced alien species).

Units of Assessment

Central to WET-Health is the characterisation of HGM Units, which have been defined based on geomorphic setting (e.g. hillslope or valley-bottom; whether drainage is open or closed), water source (surface water dominated or sub-surface water dominated) and pattern of water flow through the wetland unit (diffusely or channelled) as described under the Classification System for Wetlands and other Aquatic Ecosystems above.

Quantification of Present State of a wetland

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 State score. This takes the form of assessing the spatial *extent* of the impact of individual activities and then separately assessing the *intensity* of the impact of each activity in the affected area. The extent and intensity are then combined to determine an overall *magnitude* of impact. The impact scores, and Present State categories are provided in the table below.

Table C3: Impact scores and categories of Present State used by WET-Health for describing the integrity of wetlands.

Impact category	Description	Impact score range	Present State category
None	Unmodified, natural	0-0.9	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.	1-1.9	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.	2-3.9	C
Large	Largely modified. A large change in ecosystem processes and loss of natural habitat and biota and has occurred.	4-5.9	D
Serious	The change in ecosystem processes and loss of natural habitat and biota is great, but some remaining natural habitat features are still recognisable.	6-7.9	E
Critical	Modifications have reached a critical level and the ecosystem processes have been completely modified with an almost complete loss of natural habitat and biota.	8-10	F

Assessing the Anticipated Trajectory of Change
As is the case with the Present State, future threats to the state of the wetland may arise from activities in the catchment upstream of the unit or within the wetland itself or from processes downstream of the wetland. In each of the individual sections for hydrology, geomorphology and vegetation, five potential situations exist depending upon the direction and likely extent of change (table below).

Table C4: Trajectory of Change classes and scores used to evaluate likely future changes to the present state of the wetland.

Change Class	Description	HGM change score	Symbol
Substantial improvement	State is likely to improve substantially over the next 5 years	2	↑↑
Slight improvement	State is likely to improve slightly over the next 5 years	1	↑
Remain stable	State is likely to remain stable over the next 5 years	0	→
Slight deterioration	State is likely to deteriorate slightly over the next 5 years	-1	↓
Substantial deterioration	State is expected to deteriorate substantially over the next 5 years	-2	↓↓

Overall health of the wetland
Once all HGM Units have been assessed, a summary of health for the wetland as a whole needs to be calculated. This is achieved by calculating a combined score for each component by area-weighting the scores calculated for each HGM Unit. Recording the health assessments for the hydrology, geomorphology and vegetation components provide a summary of impacts, Present State, Trajectory of Change and Health for individual HGM Units and for the entire wetland.

4. Watercourse Function Assessment

"The importance of a water resource, in ecological social or economic terms, acts as a modifying or motivating determinant in the selection of the management class".[5] The assessment of the ecosystem services supplied by the identified freshwater features was conducted according to the guidelines as described by Kotze *et al.* (2020). An assessment was undertaken that examines and rates 16 different ecosystem services, selected for their specific relevance to the South African situation, as follows:

- Flood attenuation;
- Stream flow regulation;
- Sediment trapping;
- Phosphate assimilation;
- Nitrate assimilation;
- Toxicant assimilation;
- Erosion control;
- Carbon storage;
- Biodiversity maintenance;
- Provision of water for human use;
- Provision of harvestable resources;
- Food for livestock;
- Provision of cultivated foods;
- Cultural and spiritual experience;
- Tourism and recreation; and
- Education and research.

For each ecosystem service, indicator scores are combined automatically in an algorithm given in the spreadsheet that has been designed to reflect the relative importance and interactions of the attributes represented by the indicators to arrive at an overall supply score. In addition, the demand for the

[5] Department of Water Affairs and Forestry, South Africa Version 1.0 of Resource Directed Measures for Protection of Water Resources, 1999

ecosystem service is assessed based on the wetland's catchment context (e.g. toxicant sources upstream), the number of beneficiaries and their level of dependency, which are also all rated on a five-point scale. Again, an algorithm automatically combines the indicator scores relevant to demand to generate a demand score.

*It is important to note that when assessing riparian zones associated with riverine habitats, the contribution of the riparian zone to streamflow regulation is omitted, owing to a lack of relevant studies (Kotze *et al*, 2020).

Table C5: Integrating scores for supply and demand to obtain and overall importance score

Integrating scores for supply & demand to obtain an overall importance score						
		Supply				
		Very Low	Low	Moderate	High	Very High
Demand		0	1	2	3	4
Very Low	0	0,0	0,0	0,5	1,5	2,5
Low	1	0,0	0,0	1,0	2,0	3,0
Moderate	2	0,0	0,5	1,5	2,5	3,5
High	3	0,0	1,0	2,0	3,0	4,0
Very High	4	0,5	1,5	2,5	3,5	4,0

A single overall importance score is generated for each ecosystem service by combining the supply and demand scores. This aggregation therefore places somewhat more emphasis on supply than demand, with the supply score acting as the starting score for a “moderate” demand scenario. The importance score is, however, adjusted by up to one class up where demand is “very high” and by up to one class down where demand is “very low”. The overall importance score can then be used to derive an importance category for reporting purposes.

Table C6: Classes for determining the likely extent to which a benefit is being supplied.

Importance Category		Description
Very Low	0-0.79	The importance of services supplied is very low relative to that supplied by other wetlands.
Low	0.8 – 1.29	The importance of services supplied is low relative to that supplied by other wetlands.
Moderately-Low	1.3 – 1.69	The importance of services supplied is moderately-low relative to that supplied by other wetlands.
Moderate	1.7 – 2.29	The importance of services supplied is moderate relative to that supplied by other wetlands.
Moderately-High	2.3 – 2.69	The importance of services supplied is moderately-high relative to that supplied by other wetlands.
High	2.7 – 3.19	The importance of services supplied is high relative to that supplied by other wetlands.
Very High	3.2 - 4.0	The importance of services supplied is very high relative to that supplied by other wetlands.

5. Ecological Importance and Sensitivity (EIS) (Rountree and Kotze, 2013)

The purpose of assessing importance and sensitivity of water resources is to be able to identify those systems that provide higher than average ecosystem services, biodiversity support functions or are especially sensitive to impacts. Water resources with higher ecological importance may require managing such water resources in a better condition than the present to ensure the continued provision of ecosystem benefits in the long term (Rountree & Kotze, 2013).

In order to align the outputs of the Ecoservices assessment (i.e. ecological and socio-cultural service provision) with methods used by the DWA (now the DWS) used to assess the EIS of other watercourse types, a tool was developed using criteria from both WET-Ecoservices (Kotze, *et, al,* 2009) and earlier

DWA EIA assessment tools. Thus, three proposed suites of important criteria for assessing the Importance and Sensitivity for wetlands were proposed, namely:

- Ecological Importance and Sensitivity, incorporating the traditionally examined criteria used in EIS assessments of other water resources by DWA and thus enabling consistent assessment approaches across water resource types;
- Hydro-functional importance, taking into consideration water quality, flood attenuation and sediment trapping ecosystem services that the wetland may provide; and
- Importance in terms of socio-cultural benefits, including the subsistence and cultural benefits provided by the wetland system.

The highest of these three suites of scores is then used to determine the overall Importance and Sensitivity category (Table C7) of the wetland system being assessed.

Table C7: Ecological Importance and Sensitivity Categories and the interpretation of median scores for biota and habitat determinants (adapted from Kleynhans, 1999).

EIS Category	Range of Mean	Recommended Ecological Management Class
Very high Wetlands that are considered ecologically important and sensitive on a national or even international level. The biodiversity of these wetlands is usually very sensitive to flow and habitat modifications.	>3 and <=4	A
High Wetlands that are considered to be ecologically important and sensitive. The biodiversity of these wetlands may be sensitive to flow and habitat modifications.	>2 and <=3	B
Moderate Wetlands that are considered to be ecologically important and sensitive on a provincial or local scale. The biodiversity of these wetlands is not usually sensitive to flow and habitat modifications.	>1 and <=2	C
Low/marginal Wetlands that are not ecologically important and sensitive at any scale. The biodiversity of these wetlands is ubiquitous and not sensitive to flow and habitat modifications.	>0 and <=1	D

6. Recommended Management Objective (RMO) and Recommended Ecological Category (REC) Determination

“A high management class relates to the flow that will ensure a high degree of sustainability and a low risk of ecosystem failure. A low management class will ensure marginal maintenance of sustainability but carries a higher risk of ecosystem failure” (DWA, 1999).

The RMO (table below) was determined based on the results obtained from the PES, reference conditions and EIS of the freshwater resource (sections above), with the objective of either maintaining, or improving the ecological integrity of the watercourse in order to ensure continued ecological functionality.

Table C8: Recommended management objectives (RMO) for water resources based on PES & EIS scores.

PES			Ecological and Importance Sensitivity (EIS)			
			Very High	High	Moderate	Low
	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

***PES Categories E and F are considered ecologically unacceptable (Malan and Day, 2012) and therefore, should a freshwater resource fall into one of these PES categories, an REC class D is allocated by default, as the minimum acceptable PES category.**

A freshwater resource may receive the same class for the REC as the PES if the freshwater resource is deemed in good condition, and therefore must stay in good condition. Otherwise, an appropriate REC should be assigned in order to prevent any further degradation as well as enhance the PES of the watercourse.

Table C9: Description of Recommended Ecological Category (REC) classes.

Class	Description
A	Unmodified, natural
B	Largely natural with few modifications
C	Moderately modified
D	Largely modified

7. Diatom Sampling Methodology

Diatom slides were prepared through pipetting three drops of the diatom samples onto microscope plates and covering with a microscope cover slide. Diatom taxa were identified to the lowest possible level of identification and diatom valves counted (400 counts) for ecological conclusions to be drawn. Dominant species ecology was inferred from Taylor *et al*. (2007) and Omnidia software (Lecointe *et al.,* 1993) were used to calculate diatom index scores with score interpretation presented in Tables 1 to 4. The following indices were calculated for the present report:

- Specific Pollution sensitivity Index (SPI) (CEMAGREF, 1982) (Tables 1 & 2): This index is the most comprehensive as it includes >1400 species to calculate its final score and provides a measure of organic pollution.
- Generic Diatom Index (GDI) (Coste and Ayphassorho, 1991) (Table 2): Final score is based on genus level and is a measure of organic pollution.
- Trophic Diatom Index (TDI) (Kelly and Whitton, 1995) (Table 3): The index's final score is quantified based on the degree of organic and inorganic pollution.
- Percentage Pollution Tolerant Valves (%PTV) (Kelly and Whitton, 1995) (Table 4): Indicates the diatoms in the sampled community that are tolerant to pollution, thus indicating the degree of eutrophication vs organic pollution. The %PTV score indicates whether nutrients or organic pollution contributed to the TDI final score.

Values for the SPI and GDI were transformed to a score out of 20 where a score of 0 indicates eutrophication and very heavy pollution and a score of 20 indicates no pollution and oligotrophic conditions (Tables C10 & C11). The TDI score is worked off a maximum of 100, where a score of <20% infers that the site is oligotrophic and free from pollution and a score >60% infers that the site is eutrophic with pollution present (Table C12). The %PTV is worked off a maximum score of 100%, where a score of <20% infers that the site is free from organic pollution and a score >60% infers that the site is heavily contaminated with organic pollution (Table C13). For the diatom frustule abnormality assessment, if the percentage of deformed frustules is greater than 2% of the population it is considered that there is

significant impact from either pesticides or metals and further assessment is recommended, especially where mining is a related concern.

Further to the calculated index scores, the diatom results are also discussed based on functional groups (diatom species grouped together based on ecological and morpho-physiological features). Diatoms are grouped and discussed based on life-forms (benthic, colonial, mobile, mucous tubules, pedunculate, pioneer and planktonic), ecological guilds (high profile, low profile, motile), and size classes (Size 1 to Size 5) (Passy, 2007; Rimet & Bouchez, 2011; Viktória *et al*., 2017). Diatoms have adapted to these different groups as a strategy to survive and resist a large set of environmental stressors. Knowledge on these functional groups and diatom ecology allows us to make precise conclusions on environmental health and stressors based on the adaptability of the diatoms.

Table C10: Interpretation of Ecological Categories from the SPI index scores.

Index Score (up to 20)	Ecosystem quality	Ecological Category
18 – 20	High quality	A
17 – 18		A/B
15 – 17	Good quality	B
14 – 15		B/C
12 – 14	Moderate quality	C
10 – 12		C/D
8 – 10	Poor quality	D
6 – 8		D/E
5 – 6	Bad quality	E
4 – 5		E/F
< 4		F

Table C11: Interpretation of both the SPI and GDI scores to determine the Ecosystem Quality and Trophic level of the sampled site.

Index Score (up to 20)	Trophic Level
>17	Oligotrophic (No Pollution)
15 - 17	Oligo-mesotrophic
12 - 15	Mesotrophic
9 - 12	Meso-eutrophic
< 9	Eutrophic

Table C12: Interpretation of the TDI score to determine the Trophic level of the sampled site.

Index Score	Trophic Level
0 – 20	Oligotrophic (No Pollution)
21 – 40	Oligo-mesotrophic
41 – 60	Mesotrophic
61 – 80	Meso-eutrophic
>80	Eutrophic

Table C13: Interpretation of the %PTV score to determine the Ecological Status of the site.

Index Score (up to 20)	Ecological Status
< 20	Site free from organic pollution
21 – 40	Some evidence of organic pollution
41 – 60	Organic pollution likely to contribute to eutrophication
>60	Heavily contaminated with organic pollution

Table C14: Interpretation of the different diatom ecological groups, guilds and size classes.

Category	Name	Key Features	Ecological Role	Typical Habitat	Examples
Functional Group	**Benthic**	Live on/in substrate (sediments, rocks)	Nutrient cycling, biofilm formation	Stream beds, lake bottoms	*Navicula*, *Cymbella*
	Colonial	Form chains or colonies (often planktonic)	Buoyancy, resistance to grazing	Pelagic or littoral zones	*Asterionella*, *Fragilaria*
	Mobile	Glide using raphe	Access to resources, avoid stress	Benthic habitats, biofilms	*Nitzschia*, *Navicula*
	Mucous Tubules	Secrete tubes for protection	Shelter, nutrient filtering	Benthic, periphytic	*Berkeleya*, *Encyonema*
	Pedunculate	Stalked diatoms; elevate above substrate	Avoid burial; better light access	Vegetated, stable benthic zones	*Gomphonema*, *Rhoicosphenia*
	Pioneer	Fast colonizers of new substrates	Early succession species	Recently disturbed surfaces	*Achnanthidium*, *Nitzschia*
	Planktonic	Free-floating in water column	Primary production in open water	Lakes, oceans	*Cyclotella*, *Thalassiosira*
Guild	**High Profile**	Tall, erect, or chain-forming forms	Good light access, sensitive to disturbance	Stable, low-disturbance zones	*Fragilaria*, *Gomphonema*
	Low Profile	Small, adnate, or prostrate	Tolerate disturbance and low light	High-shear or nutrient-poor areas	*Achnanthidium*, *Cocconeis*
	Motile	Glide over substrate	Avoid stress; access nutrients	Fine sediments, biofilms	*Navicula*, *Nitzschia*
Size Class	**Size 1**	Very small (<15 µm)	Tolerant to stress; high surface area	Oligotrophic or disturbed systems	*Achnanthidium minutissimum*
	Size 2	Small (15–30 µm)	Efficient resource use	Common in most environments	*Fragilaria*, *Eunotia*
	Size 3	Medium (30–60 µm)	Balanced traits	Mid-succession or stable zones	*Navicula*, *Cymbella*
	Size 4	Large (60–100 µm)	Competitive in stable, rich habitats	Low flow or high productivity sites	*Gomphonema*, *Surirella*
	Size 5	Very large (>100 µm)	Sensitive; low colonization rate	Undisturbed, nutrient-rich zones	*Gyrosigma*, *Didymosphenia*

APPENDIX D – DWS Risk Assessment Methodology

In order for the proponent to allow for sufficient consideration of all environmental impacts, impacts were assessed using a common, defensible method of assessing significance that will enable comparisons to be made between risks/impacts and will enable authorities, stakeholders and the client to understand the process and rationale upon which risks/impacts have been assessed. The method to be used for assessing risks/impacts is outlined in the sections below.

The first stage of the risk/impact assessment is the identification of environmental activities, aspects and impacts. This is supported by the identification of receptors and resources, which allows for an understanding of the impact pathway and an assessment of the sensitivity to change. The definitions used in the impact assessment are presented below.

DWS Risk Assessment Matrix (2023)

- An **activity** is a distinct process or task undertaken by an organisation for which a responsibility can be assigned. Activities also include facilities or infrastructure that is possessed by an organisation;
- **Environmental impacts** are the consequences of these impacts on environmental resources or receptors of particular value or sensitivity, for example, disturbance due to noise and health effects due to poorer air quality. In the case where the impact is on human health or wellbeing, this should be stated. Similarly, where the receptor is not anthropogenic, then it should, where possible, be stipulated what the receptor is;
- **Receptors** can comprise, but are not limited to, people or human-made systems, such as local residents, communities and social infrastructure, as well as components of the biophysical environment such as wetlands, flora and riverine systems;
- **Resources** include components of the biophysical environment;
- **Intensity** refers to the degree of change to the receptor status in terms of the reversibility of the impact; sensitivity of receptor to stressor; duration of impact (increasing or decreasing with time); controversy potential and precedent setting; threat to environmental and health standards;
- **Spatial scale** refers to the geographical scale of the impact; and
- **Duration** refers to the length of time over which the stressor will cause a change in the resource or receptor.

The significance of the impact is then assessed by rating each variable numerically according to the defined criteria (refer to the table below). The purpose of the rating is to develop a clear understanding of influences and processes associated with each impact. The intensity, spatial scale and duration of the impact together comprise the consequence of the impact and when summed can obtain a maximum value of 75. The likelihood of the impact occurring is determined by assigning a likelihood score of between 20% and 100%. The values for likelihood and consequence of the impact are then read off a significance rating matrix and are used to determine whether control is necessary[6].

The model outcome of the impacts was then assessed in terms of impact certainty and consideration of available information. The Precautionary Principle is applied in line with South Africa's National Environmental Management Act, 1998 (Act No. 107 of 1998) in instances of uncertainty or lack of information, by increasing assigned ratings or adjusting final model outcomes. In certain instances, where a variable or outcome requires rational adjustment due to model limitations, the model outcomes have been adjusted.

[6] Some risks/impacts that have low significance will however still require control

"RISK ASSESSMENT KEY" (Based on DWS 2023 publication: Section 21 c and i water use Risk Assessment Protocol)

Table D1: Intensity (What is the intensity of the impact on the resource quality - hydrology, water quality, geomorphology, biota?)

Negative impacts	
Negligible / non-harmful; no change in PES	0
Very low / potentially harmful; negligible deterioration in PES (<5% change)	+1
Low / slightly harmful; minor deterioration in PES (<10% change)	+2
Medium / moderately harmful; moderate deterioration in PES (>10% change)	+3
High / severely harmful; large deterioration in PES (by one class or more)	+4
Very high / critically harmful; critical deterioration in PES (to E/F or F class)	+5
Positive impacts	
Negligible; no change in PES	0
Very low / potentially beneficial; negligible improvement in PES (<5% change)	-1
Low / slightly beneficial; minor improvement in PES (<10% change)	-2
Medium / moderately beneficial; moderate improvement in PES (>10% change)	-3
Highly beneficial; large improvement in PES (by one class or more) and/or increase in protection status	-4
Very highly beneficial; improvement to near-natural state (A or A/B class) and/or major increase in protection status	-5

*PES of affected watercourses must be considered when scoring Impact Intensity

Table D2: Spatial Scale (How big is the area that the activity is impacting on, relative to the size of the impacted watercourses).

Very small portion of watercourse/s impacted (<10% of extent)	1
Moderate portion of watercourse/s impacted (10-60% of extent)	2
Large portion of watercourse/s impacted (60-80%)	3
Most or all of watercourse/s impacted (>80%)	4
Impacts extend into watercourses located well beyond the footprint of the activities	5

Table D3: Duration (How long does the aspect impact on the resource quality).

Transient (One day to one month)	1
Short-term (a few months to 5 years) OR repeated infrequently (e.g. annually) for one day to one month	2
Medium-term (5 – 15 years)	3
Long-term (ceases with operational life)	4
Permanent	5

Table D4: Likelihood of impact (What is the probability that the activity will impact on the resource quality).

Improbable / Unlikely	20%
Low probability	40%
Medium probability	60%
Highly probable	80%
Definite / Unknown	100%

Table D5: Rating Classes.

RATING	CLASS	MANAGEMENT DESCRIPTION
1 – 29	(L) Low Risk	Acceptable as is or with proposed mitigation measures. Impact to watercourses and resource quality small and easily mitigated, or positive.
30 – 60	M) Moderate Risk	Risk and impact on watercourses are notable and require mitigation measures on a higher level, which costs more and require specialist input. Licence required.
61 – 100	(H) High Risk	Watercourse(s) impacts by the activity are such that they impose a long-term threat on a large scale and lowering of the Reserve. Licence required.

A low risk class must be obtained for all activities to be considered for a GA

Table D6: Calculations.

Intensity = Maximum Intensity Score (negative value for positive impact)	MAX = 5
Severity = Intensity + Spatial Scale + Duration (<Intensity - Spatial Scale - Duration> for positive impact)	MAX = 15 (MIN = -15 for +ve impacts)
Consequence = Severity X Importance rating	MAX = 75
Significance\Risk = (Consequence X Likelihood) X (100/75)	MAX = 100

The following points were considered when undertaking the assessment:

- Risks and impacts were analysed in the context of the *project's area of influence* encompassing:
  - Primary project site and related facilities that the client and its contractors develops or controls;
  - Areas potentially impacted by cumulative impacts for further planned development of the project, any existing project or condition and other project-related developments; and
  - Areas potentially affected by impacts from unplanned but predictable developments caused by the project that may occur later or at a different location.
- Risks/Impacts were assessed for construction phase and operational phase; and
- Individuals or groups who may be differentially or disproportionately affected by the project because of their disadvantaged or vulnerable status were assessed.

Mitigation Measure Development

The following points present the key concepts considered in the development of control measures for the proposed construction:

- Control and performance improvement measures and actions that address the risks and impacts[7] are identified and described in as much detail as possible. Mitigating measures are investigated according to the impact minimisation hierarchy as follows:
  - Avoidance or prevention of impact;
  - Minimisation of impact;
  - Rehabilitation; and
  - Offsetting.
- Measures and actions to address negative impacts will favour avoidance and prevention over minimisation, control or compensation; and
- Desired outcomes are defined and have been developed in such a way as to be measurable events with performance indicators, targets and acceptable criteria that can be tracked over defined periods, wherever possible.

[7] Mitigation measures should address both positive and negative impacts

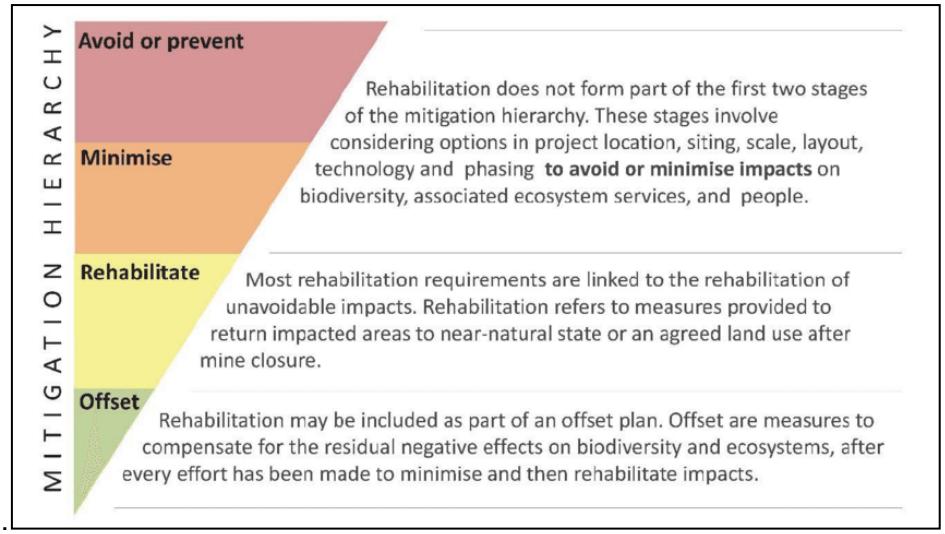


Figure D1: Impact Minimisation hierarchy as advocated by the DEA *et al.* (2013).

Recommendations

Recommendations were developed to address and control potential impacts on the ecology of the freshwater ecosystems traversed by or in close proximity of the proposed development activities.

APPENDIX E – EAP Provided Impact Assessment Methodology

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 E1, Table E2, and Table E3 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; and
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.

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

Table E1: 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
	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

Part B: Determining Consequence Rating

Rate consequence based on the definition of magnitude, spatial extent and duration.

Table E2: 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

Part C: Determining Significance Rating

Rate significance based on consequence and probability.

Table E3: 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

APPENDIX F - Results of the Field Investigation

PRESENT ECOLOGICAL STATE (PES) AND ECOLOGICAL IMPORTANCE AND SENSITIVITY (EIS) RESULTS

Table F1: Presentation of the results of the WET-Health PES assessment applied to the seep wetlands associated with the proposed activities.

Wetlands	Hydrology		Geomorphology		Vegetation		Overall PES Score
	Impact Score	Change Score	Impact Score	Change Score	Impact Score	Change Score	
Seeps	2.0	-1	2.4	-2	6.8	-2	3.49 (C)

Table F2: Presentation of the results of the WET-Health PES assessment applied to the depression wetlands associated with the proposed activities.

Wetlands	Hydrology		Geomorphology		Vegetation		Overall PES Score
	Impact Score	Change Score	Impact Score	Change Score	Impact Score	Change Score	
Depressions	6.5	-2	0.9	-2	3.5	-2	4.04 (D)

Table F3: Presentation of the results of the Ecoservices assessment applied to the freshwater ecosystem associated with the proposed activities.

		Seep Wetlands				Depression Wetlands			
ECOSYSTEM SERVICE		Supply	Demand	Importance Score	Importance	Supply	Demand	Importance Score	Importance
REGULATING AND SUPPORTING SERVICES	Flood attenuation	0.0	0.1	0.0	Very Low	0.0	0.1	0.0	Very Low
	Stream flow regulation	0.0	0.3	0.0	Very Low	0.0	0.3	0.0	Very Low
	Sediment trapping	0.5	1.0	0.0	Very Low	0.5	1.0	0.0	Very Low
	Erosion control	0.8	1.6	0.1	Very Low	0.8	1.6	0.1	Very Low
	Phosphate assimilation	0.4	1.0	0.0	Very Low	0.4	1.0	0.0	Very Low
	Nitrate assimilation	0.3	1.0	0.0	Very Low	0.3	1.0	0.0	Very Low
	Toxicant assimilation	0.4	0.5	0.0	Very Low	0.4	0.5	0.0	Very Low
	Carbon storage	1.3	2.7	1.1	Low	1.3	2.7	1.1	Low
	Biodiversity maintenance	2.6	2.0	2.1	Moderate	2.6	2.0	2.1	Moderate
PROVISIONING SERVICES	Water for human use	2.0	0.7	0.8	Low	2.0	0.7	0.8	Low
	Harvestable resources	1.5	0.0	0.0	Very Low	1.5	0.0	0.0	Very Low
	Food for livestock	2.0	0.0	0.5	Very Low	2.0	0.0	0.5	Very Low
	Cultivated foods	2.3	0.3	1.0	Low	2.3	0.3	1.0	Low
CULTURAL SERVICES	Tourism and Recreation	0.6	0.0	0.0	Very Low	0.6	0.0	0.0	Very Low
	Education and Research	0.5	0.0	0.0	Very Low	0.5	0.0	0.0	Very Low
	Cultural and Spiritual	1.0	0.0	0.0	Very Low	1.0	0.0	0.0	Very Low

Table F4: Presentation of the results of the EIS assessment applied to the freshwater ecosystems associated with the proposed activities.

Ecological Importance and Sensitivity			Seep wetlands	Depression wetlands
			Score (0-4)	Score (0-4)
Biodiversity support			A (average)	A (average)
			2.00	2.00
Presence of Red Data species			1	1
Populations of unique species			2	2
Migration/breeding/feeding sites			3	3
Landscape scale			B (average)	B (average)
			2.00	2.00
Protection status of the wetland			2	2
Protection status of the vegetation type			2	2
Regional context of the ecological integrity			1	2
Size and rarity of the wetland type/s present			2	2
Diversity of habitat types			3	2
Sensitivity of the wetland			C (average)	C (average)
			2.00	1,00
Sensitivity to changes in floods			4	1
Sensitivity to changes in low flows/dry season			1	1
Sensitivity to changes in water quality			1	1
Hydro-Functional Importance			Score (0-4)	Score (0-4)
			2,00	2,00
Regulating & supporting benefits	**Flood attenuation**		1	2
	Streamflow regulation		1	2
	Water Quality Enhancement	***Sediment trapping***	3	2
		Phosphate assimilation	2	2
		Nitrate assimilation	2	2
		Toxicant assimilation	2	2
		Erosion control	2	3
	Carbon storage		3	3
Direct Human Benefits			Score (0-4)	Score (0-4)
			0,67	0,83
Subsistence benefits	***Water for human use***		1	2
	Harvestable resources		2	2
	Cultivated foods		1	1
Cultural benefits	***Cultural heritage***		0	0
	Tourism and recreation		0	0
	Education and research		0	0

APPENDIX G – Risk Assessment Results

Table G1: Summary of the scorings of the DWS risk assessment matrix (2023) applied to the freshwater ecosystems within the study area.

Phase	Activity	Impact	Potentially affected watercourses			Intensity of Impact on Resource Quality					Overall Intensity	Spatial scale	Duration	Severity	Importance rating	Consequence	Likelihood	Significance	Risk Rating	Confidence level
						Abiotic Habitat (Drivers)			Biota (Responses)											
			Name/s	PES	Overall Watercourse Importance	Hydrology	Water Quality	Geomorph	Vegetation	Fauna										
OPERATIONAL	Operation of the underground mining area related to the undermining of the freshwater ecosystems.	• Potential creation of a cone of depression, which may drain water from the wetlands, thus resulting in desiccation of the systems.	Seeps	C	Moderate	1	2	1	1	1	**4**	2	4	**10**	**3**	**30**	40%	**12**	L	High
			Depressions	D	Moderate	1	2	1	1	1	**4**	2	4	**10**	**3**	**30**	40%	**12**	L	High
		• Potential destabilisation of the surrounding environment through the extraction of ore and subsequent potential subsidence of the land.	Seeps	C	Moderate	2	3	2	2	1	**6**	2	3	**11**	**3**	**33**	60%	**19.8**	L	High
			Depressions	D	Moderate	2	3	2	2	1	**6**	2	3	**11**	**3**	**33**	60%	**19.8**	L	High
CLOSURE/POST-CLOSURE	Post-closure management activities. (Decant of contaminated water from the rehabilitated mine area into the receiving environment subject to confirmation by a suitably qualified geohydrologist).	• Contamination of water within the receiving environment, and subsequent reduction in water quality (increase in salts and specific contaminants of concern and reduced pH); • Subsequent negative impacts on biota and vegetation; • Altered flow regimes (increased hydroperiod); and • Habitat degradation.	Seeps	C	Moderate	2	2	2	2	2	**4**	2	2	**8**	**3**	**24**	40%	**9.6**	L	Medium
			Depressions	D	Moderate	2	2	2	2	2	**4**	2	2	**8**	**3**	**24**	40%	**9.6**	L	Medium

APPENDIX H – Specialist information

DETAILS, EXPERTISE AND CURRICULUM VITAE OF SPECIALISTS

1. (a) (i) Details of the specialist who prepared the report

Cathrine-Rose De Freitas	MSc Geography and Environmental Studies (Stellenbosch University)
Dr Anrich Kock	PhD Environmental Sciences (North-West University)
Kristen Coertze	MSc (Botany) (University of the Free State)
Stephen van Staden	MSc (Environmental Management) (University of Johannesburg)

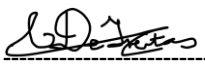
1. (a). (ii) The expertise of that specialist to compile a specialist report including a curriculum vitae

Company of Specialist:	Scientific Aquatic Services		
Name / Contact person:	Stephen van Staden		
Postal address:	29 Arterial Road West, Oriel, Bedfordview, 2007		
Postal code:	1401	Cell:	083 415 2356
Telephone:	011 616 7893	Fax:	011 615 6240/ 086 724 3132
E-mail:	stephen@sasenvgroup.co.za		
Qualifications	MSc (Environmental Management) (University of Johannesburg) BSc (Hons) Zoology (Aquatic Ecology) (University of Johannesburg) BSc (Zoology, Geography and Environmental Management) (University of Johannesburg)		
Registration / Associations	Registered Natural Professional Scientist at South African Council for Natural Scientific Professions (SACNASP) Accredited River Health Practitioner by the South African River Health Program (RHP) Member of the South African Soil Surveyors Association (SASSO) Member of the Gauteng Wetland Forum		

1. (b) a declaration that the specialist is independent in a form as may be specified by the competent authority

I, Cathrine-Rose De Freitas, declare that -

- I act as the **independent freshwater 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 relevant legislation and any guidelines that have relevance to the proposed activity;
- I will comply with the applicable legislation;
- I have not, 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.

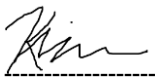


Signature of the Specialist

1. (b) a declaration that the specialist is independent in a form as may be specified by the competent authority

I, Kristen Coertze, 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 relevant legislation and any guidelines that have relevance to the proposed activity;
- I will comply with the applicable legislation;
- I have not, 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.

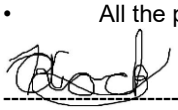


Signature of the Specialist

1. (b) a declaration that the specialist is independent in a form as may be specified by the competent authority

I, Dr. Anrich Kock, declare that -

- I act as the **independent Aquatic 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 relevant legislation and any guidelines that have relevance to the proposed activity;
- I will comply with the applicable legislation;
- I have not, 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.



Signature of the Specialist

1. (b) a declaration that the specialist is independent in a form as may be specified by the competent authority

I, Stephen van Staden, declare that -

- I act as the **independent Aquatic 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 relevant legislation and any guidelines that have relevance to the proposed activity;
- I will comply with the applicable legislation;
- I have not, 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.

Signature of the Specialist

SAS ENVIRONMENTAL GROUP OF COMPANIES –

SPECIALIST CONSULTANT INFORMATION

CURRICULUM VITAE OF STEPHEN VAN STADEN

PERSONAL DETAILS

Position in Company	Group CEO, Water Resource Discipline Lead, Managing Member, Ecologist, Aquatic Ecologist
Joined SAS Environmental Group of Companies	2003 (year of establishment)

MEMBERSHIP IN PROFESSIONAL SOCIETIES

Registered Professional Scientist at South African Council for Natural Scientific Professions (SACNASP)
Accredited River Health Practitioner by the South African River Health Program (RHP)
Member of the South African Soil Surveyors Association (SASSO) Member of the Gauteng Wetland Forum
Member of the Gauteng Wetland Forum
Member of International Association of Impact Assessors (IAIA) South Africa;
Member of the Land Rehabilitation Society of South Africa (LaRSSA)

EDUCATION

Qualifications

MSc Environmental Management (University of Johannesburg)	2003
BSc (Hons) Zoology (Aquatic Ecology) (University of Johannesburg)	2001
BSc (Zoology, Geography and Environmental Management) (University of Johannesburg)	2000

Short Courses

Integrated Water Resource Management, the National Water Act, and Water Use Authorisations, focusing on WULAs and IWWMPs	2017
Tools for Wetland Assessment (Rhodes University)	2017
Legal liability training course (Legricon Pty Ltd)	2018
Hazard identification and risk assessment training course (Legricon Pty Ltd)	2018
Wetland Management: Introduction and Delineation (WLID1502S) (University of the Free State)	2018
Hydropedology and Wetland Functioning (TerraSoil Science and Water Business Academy)	2018

AREAS OF WORK EXPERIENCE

South Africa – All Provinces
Southern Africa – Lesotho, Botswana, Mozambique, Zimbabwe Zambia
Eastern Africa – Tanzania Mauritius
West Africa – Ghana, Liberia, Angola, Guinea Bissau, Nigeria, Sierra Leona
Central Africa – Democratic Republic of the Congo

DEVELOPMENT SECTORS OF EXPERIENCE

1. Mining: Coal, chrome, Platinum Group Metals (PGMs), mineral sands, gold, phosphate, river
2. Linear developments (energy transmission, telecommunication, pipelines, roads)
3. Minerals beneficiation
4. Renewable energy (Hydro, wind and solar)
5. Commercial development
6. Residential development
7. Agriculture
8. Industrial/chemical

KEY SPECIALIST DISCIPLINES

Legislative Requirements, Processes and Assessments

- Water Use Applications (Water Use Licence Applications / General Authorisations)
- Environmental and Water Use Audits
- Freshwater Resource Management and Monitoring as part of EMPR and WUL conditions

Freshwater Assessments

- Freshwater (wetland / riparian) Delineation and Assessment
- Freshwater Eco Service and Status Determination
- Rehabilitation Assessment / Planning
- Maintenance and Management Plans
- Plant Species and Landscape Plans
- Freshwater Offset Plans
- Hydropedological Assessment
- Pit Closure Analysis

Aquatic Ecological Assessment and Water Quality Studies

- Habitat Assessment Indices (IHAS, HRC, IHIA & RHAM)
- Aquatic Macro-Invertebrates (SASS5 & MIRAI)
- Fish Assemblage Integrity Index (FRAI)
- Fish Health Assessments
- Riparian Vegetation Integrity (VEGRAI)
- Toxicological Analysis
- Water quality Monitoring
- Screening Test
- Riverine Rehabilitation Plans

Biodiversity Assessments

- Floral Assessments
- Biodiversity Actions Plan (BAP)
- Biodiversity Management Plan (BMP)
- Alien and Invasive Control Plan (AICP)
- Ecological Scan
- Terrestrial Monitoring
- Biodiversity Offset Plan

Soil and Land Capability Assessment

- Soil and Land Capability Assessment
- Hydropedological Assessment

Visual Impact Assessment

- Visual Baseline and Impact Assessments
- Visual Impact Peer Review Assessments

SAS ENVIRONMENTAL GROUP OF COMPANIES –

SPECIALIST CONSULTANT INFORMATION

CURRICULUM VITAE OF KRISTEN COERTZE

PERSONAL DETAILS

Position in Company	Freshwater Ecologist
Joined SAS Environmental Group of Companies	2021

MEMBERSHIP IN PROFESSIONAL SOCIETIES

Professional Scientist at South African Council for Natural Scientific Professions (Pri.Sci.Nat #146386)
Member of the Gauteng Wetland Forum
Member of the Grassland Society of Southern Africa
Member of the South African Wetland Society
Golden Key Honorary Society

EDUCATION

Qualifications

MSc Botany (University of the Free State)	2023
BSc (Hons) Environmental Science (University of the Free State)	2019
BSc Geography and Environmental Science (University of the Free State)	2018

AREAS OF WORK EXPERIENCE

South Africa – Free State, Western Cape, Northern Cape, North West, Gauteng, Mpumalanga, Limpopo Provinces.
Central Africa – Democratic Republic of Congo (DRC), Malawi

DEVELOPMENT SECTORS OF EXPERIENCE

1. Linear developments (energy transmission, telecommunication, pipelines, roads)
2. Renewable energy (wind and solar)
3. Commercial development
4. Residential development
5. Industrial/chemical
6. Mining: Cole, chrome Platinum Group Metals (PGMs)
7. Agriculture

KEY SPECIALIST DISCIPLINES

Freshwater Assessments

- Desktop Freshwater Delineation
- Freshwater Verification Assessment
- Freshwater (wetland / riparian) Delineation and Assessment
- Freshwater Eco Service and Status Determination
- Rehabilitation Assessment / Planning
- Freshwater Offset Plan
- Maintenance and Management Plans
- Plant Species and Landscape Plans

Legislative Requirements, Processes and Assessments

- Water Use Applications (Water Use License Applications / General Authorisations)

SAS ENVIRONMENTAL GROUP OF COMPANIES –

SPECIALIST CONSULTANT INFORMATION

CURRICULUM VITAE OF CATHRINE-ROSE DE FREITAS

PERSONAL DETAILS

Position in Company	Wetland Ecologist
Joined SAS Environmental Group of Companies	2024

AFFILIATIONS

Board member of the Western Cape Wetlands Forum (WCWF)
Member of the International Society of Wetland Scientists
Professional Scientist at South African Council for Natural Scientific Professions - pending

EDUCATION

Qualifications

MSc Geography and Environmental Studies (Stellenbosch University)	2022
BSc Hons Environmental Monitoring and Modelling (Unisa)	2020
BSc Environmental Management, majoring in Botany (Unisa)	2017

Short Courses

IAIAsa Introductory EIA report writing course	2020

AREAS OF WORK EXPERIENCE

South Africa – Western Cape, Eastern Cape, Northern Cape, Free State

KEY SPECIALIST DISCIPLINES

Freshwater Assessments

- Desktop Freshwater Delineation
- Freshwater Verification Assessment
- Freshwater (wetland / riparian) Delineation and Assessment
- Freshwater Eco Service and Status Determination
- Wetland Monitoring Plans
- Maintenance and Management Plans
- Rehabilitation Assessment / Planning
- Plant Species and Landscape Plans

GIS Assessments

- Spatial analysis and geoprocessing
- Freshwater ecosystem mapping

PUBLICATIONS

- De Freitas, C., & Grenfell, S. (2024). Event-scale suspended sediment fluxes in a dryland environment valley-bottom wetland: Implications for downstream sediment and phosphorous fluxes. *Geomorphology*, *452*, 109101.

SAS ENVIRONMENTAL GROUP OF COMPANIES –
SPECIALIST CONSULTANT INFORMATION
CURRICULUM VITAE OF ANRICH KOCK

PERSONAL DETAILS

Position in Company	Aquatic Ecologist
Joined SAS Environmental Group of Companies	2022

MEMBERSHIP IN PROFESSIONAL SOCIETIES

Professional Scientist at South African Council for Natural Scientific Professions (Pri.Sci.Nat)
Member of the Southern African Society of Aquatic Research (SASAqS) since 2014
Member and council member of the International Diatom Society

EDUCATION

Qualifications

PhD Environmental Sciences (North-West University)	2020
MSc Environmental Sciences (North-West University)	2016
BSc Environmental Sciences (Hons) (North-West University)	2014
BSc Environmental and Biological Sciences (North-West University)	2013

AREAS OF WORK EXPERIENCE

South Africa – Gauteng, Free State, Mpumalanga, North West, Limpopo, KwaZulu-Natal, Western Cape, Eastern Cape
Central Africa – Democratic Republic of the Congo

KEY SPECIALIST DISCIPLINES

Aquatic Ecological Assessment and Water Quality Studies

- Diatom Biomonitoring, Ecology & Ecotoxicology
- Riverine and Wetland Biomonitoring
- Fish Assemblage Integrity Index (FRAI)
- Water Quality Monitoring
- Sediment Assessment
- Habitat Assessment Indices (IHAS)
- Aquatic Macro-Invertebrates (SASS5 & MIRAI)
- Toxicological Analysis
- Riverine Rehabilitation Plans