



30 January 2025

**Department of Water and Sanitation
North West Regional Office**
Old Rustenburg Road
Hartbeespoort
0216

Sibanye Rustenburg Platinum Mines (Pty) Ltd

**Amendment of Mining Right NW 30/5/1/2/2/80 MR and the Expansion of the Kwezi
Mining Operations through the inclusion of the Underground (UG) Shallows Blocks
(A&B)**

WU36938

REGULATION GN704 EXEMPTION APPLICATION

Herewith is the application for ***Exemption from Regulations 4(a), 4 (b), and 4 (c) of GN704*** dated 4 June 1999 in support of activities associated with the proposed continuation of mining at Kwezi Shaft with the inclusion of the UG Shallows Blocks (A&B).

The Application has been structured as follows:

- Section 1: Background to the mining operations
 - This section provides for a description of:
 - The current mining activities undertaken by Sibanye Rustenburg Platinum Mines (Pty) Ltd (SRPM) together with the existing approvals in place.
 - The proposed future mining operations that require not only a Water Use Licence Application but also exemption from GN704 Regulations.
- Section 2: Classification and declassification of material
 - The basis of the Exemption Application is supported by the waste classification process.
 - It allows for the declassification of the waste rock material to a Type 4 waste following a risk-based approach.
 - It supports the backfilling of the underground workings area with waste rock material.
- Section 3: Motivation for exemption from Regulation 4 (a)
- Section 4: Motivation for exemption from Regulation 4 (b)
- Section 5: Motivation for exemption from Regulation 4(c)
- Section 6: Environmental Management Programme
- Section 7: Stormwater Management Plan
- Section 8: Water Quality Monitoring

This exemption application supports the Water Use Licence Application E-WULAAS Reference number WU 36938.

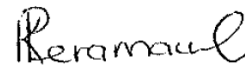
- Phase 1 Submission was undertaken on 15 October 2024

As all these activities form a critical component to the successful and compliant operation and management of SRPM Kwezi Operations, it is requested that the Department of Water and Sanitation (DWS), considers granting the GN704 Exemption components favourably for inclusion within the Water Use Licence.

Regards

Kirthi Peramaul

Environmental Assessment Practitioner



Tehya Henry
Main Author



Reata Colyn
Managing Director and Reviewer



The table below summarises the Water Uses applied for as part of the WU 36938 application in support of the proposed project:

TABLE 1: WATER USES (CURRENT APPLICATION)

Water Use Activity	Quaternary Catchment	Property Description	Associated Watercourse	Coordinates	Dimensions (Approximate)
Section 21 (c) Impeding or diverting the flow of water within a water course. And Section 21(i) Altering the beds, banks, course or characteristics of a watercourse.					
Undertaking of mining activities within 500m of the delineated wetland.	A22H	Portion 0 (RE) of the Farm Rustenburg Town and Townlands 272 JQ	Channelled Valley Bottom Wetland	<u>Start:</u> 25°37'30.38"S 27°13'48.39"E <u>End:</u> 25°37'19.94"S 27°14'2.17"E	
Section 21 (g): Disposing of waste in a manner which may detrimentally impact on a water resource					

Backfilling of the proposed mining blocks A & B.	A22H	Property Description	S21G Code	Owner	Title Deed Number	Channelled Valley Bottom Wetland	Outer Perimeter 25°37'30.36"S 27°13'44.09"E 25°37'28.54"S 27°13'46.74"E 25°38'6.73"S 27°14'22.46"E 25°38'11.58"S 27°14'17.34"E
		0 of erf 2774	T0JQ002 7000024 4700000	Glencore Operations South Africa Pty Ltd			
		1 of erf 2447	T0JQ002 7000024 4700001	Conradie Desiree Louise	T36001/2 006		
		2 of erf 2447	T0JQ002 7000024 4700002	Indvestic cc	T28070/1 988		
		3 of erf 2447	T0JQ002 7000024 4700003	Uptown Trading 305 cc	T81444/2 009		
		4 of erf 2447	T0JQ002 7000024 4700004	Ragie Abdul Aziz, Saloojee Ahmed Yusuf, Ebrahim Muhammed and Ragie Muhammed	T99577/2 008		

		5 of erf 2447	T0JQ002 7000024 4700005	Great Rhino INV cc	T32398/1 986				
		6 of erf 2447	T0JQ002 7000024 4700006	Are Ananeng Construct ion Pty Ltd	T35871/2 019				
		7 of erf 2447	T0JQ002 7000024 4700007	Unknown	T32398/1 986				
		8 of erf 2447	T0JQ002 7000024 4700008	Essah Abdulsat aar Omar	T65600/1 990				
		9 of erf 2447	T0JQ002 7000024 4700009	Rustenbu rg cc	T70458/1 991				
		10 of erf 2447	T0JQ002 7000024 4700010	Wetzlar prop Pty Ltd	T83540/2 011				
		0 of erf 2476	T0JQ002 7000024 7600000	Coca- Cola Beverage s South Africa Pty Ltd and Abi Bottling Pty Ltd	T93092/2 015				

		0 of erf 2257	T0JQ002 7000022 5700000	Torero Inv 6 Pty Ltd	T51622/2 023				
		0 of erf 2266	T0JQ002 7000022 6600000	Afri Ready Mix (Pty) Ltd	T22220/2 022				
		1 of erf 2266	T0JQ002 7000022 6600001	SPH Kundalila Pty Ltd	T87110/2 008				
		0 of erf 2420	T0JQ002 7000024 2000000	Glencore Operatio ns South Africa Pty Ltd	T117769/ 2000				
		0 of erf 2268	T0JQ002 7000022 6800000	Unknown	For info refer to Registrar of Deeds				
		0 of erf 2252	T0JQ002 7000022 5200000	Rustenbu rg Transitio nal Council	T73144/1 997				
		0 of erf 2256	T0JQ002 7000022 5600000	North West Recyclin g cc	T138150/ 2006				
		0 of erf 2295	T0JQ002 7000022 9500000	Rustenbu rg Industrial Park CC	T67401/1 991				

		0 of erf 2258	T0JQ002 7000022 5800000	Waterflex Pty (Ltd)	T71686/2 012				
		0 of erf 2267	T0JQ002 7000022 6700000	ERF Rustenbu rg Ext 9, Rustenbu rg Municipal ity	For info refer to Registrar of Deeds				
		0 of erf 2269	T0JQ002 7000022 6900000	Avron Property Holdings cc	T1394/20 20				
		0 of erf 2529	T0JQ002 7000025 2900000	Amalgam ated Beverage Industrie s Ltd	T41614/2 004				
		0 of erf 2323	T0JQ002 7000023 2300000	Rustenbu rg Local Municipal ity	T94309/2 002				
		Portion 0 of the Farm Town and townlan ds of Rustenb urg 272	T0JQ000 0000002 7200000	Rustenbu rg Local Municipal ity	G49/1942				

Water Activity	Use	Quaternary Catchment	Property Description				Associated Watercourse	Coordinates	Dimensions (Approximate)
			Portion 1 of the Farm	T0JQ0000000027200001	Rustenburg Local Municipality	G249/1908			
			Town and townlands of Rustenburg 272		Transnet LTD	T28779/1987			

The table below summarises the Regulations of GN704 for which exemption is being applied for:

TABLE 2 REGULATION GN 704 EXEMPTIONS TO BE APPLIED FOR

Regulation	Description	Applicability to the Project
4 (a)	No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir, together with any associated structure or any other facility within the 1:100 year flood-line or within a horizontal distance of 100 metres from any watercourse or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked	Deposition of residue material and underground working excavation up to and bordering a Channelled Valley Bottom Wetland (CVB) Distance- 0m.
4 (b)	No person in control of a mine or activity may except in relation to a matter contemplated in regulation 10, carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood-line or within a horizontal distance of 100 metres from any watercourse or estuary, whichever is the greatest	Underground mine development adjacent and up to and bordering a Channelled Valley Bottom Wetland (CVB) Distance- 0m.
4 (c)	No person in control of a mine or activity may place or dispose of any residue or substance which causes or is likely to cause pollution of a water resource, in the workings of any underground or opencast mine excavation, prospecting diggings, pit or any other excavation	Deposition of residue material in the underground workings excavation

1. BACKGROUND TO THE MINING OPERATIONS

1.1 Existing mining operations

Sibanye Rustenburg Platinum Mines (Pty) Ltd (SRPM) is a subsidiary entity within the Sibanye Stillwater Limited group of companies. Kwezi Shaft is owned and operated by SRPM. The current Kwezi shaft area and Operations take place within an existing Mining Right Area NW30/5/1/2/2/80 MR (80 MR). The SRPM Mine Lease Area stretches over several farms and includes operational areas such as the Kwezi Shaft Operation (current focus), K6 Shaft Operation, 4 Shaft Operation and the Klipfontein Opencast Operation project, as can be seen in Figure 1.

The 4 Shaft Operation is on care and maintenance whereas Kwezi Shaft and K6 Shaft are still operational.

The Kwezi Shaft was approved in the 2002 EMPr: Rustenburg UG2 Phase 2 Project — Boschfontein East EMPr Amendment/Addendum Reference: RDNW (KL) 6/2/2/195 (5) EM.

It is the intention of SRPM to expand the Mining Right Area (NW 30/5/1/2/2/80 MR) through the incorporation of an area over a portion of the remainder of Portion 1 and Portion 127 (now known as Rustenburg Ext 9) of the farm Rustenburg Town and Townlands 272 JQ (various erven) within Rustenburg, in the North West Province. The proposed expansion area lies at the border of the SRPM mining right and can be mined from the Kwezi Shaft (Figure 2).

In addition to the expansion of the Mining Right Area, SRPM intends to mine the UG2 Shallows Blocks (Blocks A and B) (see Figure 2). The timely addition of the UG2 Shallows blocks to the existing Kwezi production profile is required to optimise existing critical mass before decline in early 2025.

SRPM has undertaken a Section 102 application in terms of the Minerals and Petroleum Resources Development Act (Act 28 of 2002) for the amendment of Mining Right (80 MR). The DMRE (*now known as the Department of Mineral and Petroleum Resources(DMPR)*) reference number for the Section 102 application is NW-00383-MR/102. In terms of the National Environmental Management Act (Act 107 of 1998) Environmental Impact Assessment Regulations General Notice 327, 2017 (as amended), a Basic Assessment process is required for the amendment of a Mining Right. The processes required for a Section 102 Amendment in terms of the MPRDA and the Basic Assessment in terms of NEMA have been undertaken in parallel.

There are currently two WULs supporting the existing Kwezi operations (Licence No: 03/A22H/AG/726 and Licence No: 06/A22H/ACGIJ/14646). It is the intention of SRPM to apply for an additional WUL (currently in process) to support the proposed expansion area, inclusive of the UG2 Shallows Blocks A&B. This WUL has the following WU number: WU36938.

1.2 Locality

The proposed expansion project is located in the Rustenburg Local Municipality as well as within the Bojanala Platinum District Municipality. Kwezi shaft is situated on Portion 1 of Town and Townlands of Rustenburg 272 JQ. The proposed project is for the expansion of the Mining Right Area and the mining of Blocks A & B through the expansion of the Kwezi Underground Mining Operations.

TABLE 3: DESCRIPTION OF THE PROPERTY

Farm Name	• Portion 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10 of erf 2447 • Portion 0 of erf 2476 • Portion 0 of erf 2257 • Portion 0, and 1 erf 2266 • Portion 0 of erf 2420 • Portion 0 of erf 2268 • Portion 0 of erf 2252 • Portion 0 of erf 2256 • Portion 0 of erf 2295 • Portion 0 of erf 2258 • Portion 0 of erf 2267 • Portion 0 of erf 2269 • Portion 0 of erf 2529 • Portion 0 of erf 2323 <u>Farm name Town and Townlands of Rustenburg 272JQ</u> • Portion 0 of the Farm 272 JQ • Portion 1 of the Farm 272 JQ																																																											
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	Farm 272		
Title Deed Number	<i>A comprehensive list of the applicable Landowners has been uploaded onto e-WULAAS.</i>		
Application area (ha)	~ 35.1Ha		
Magisterial district	District Municipality – Bojanala Platinum District Municipality Local Municipality – Rustenburg Local Municipality		
Distance and direction from nearest town	Rustenburg ~ 1,5 – 5 km south		
Ward Number	Ward 11 and 18 of the Rustenburg Local Municipality		

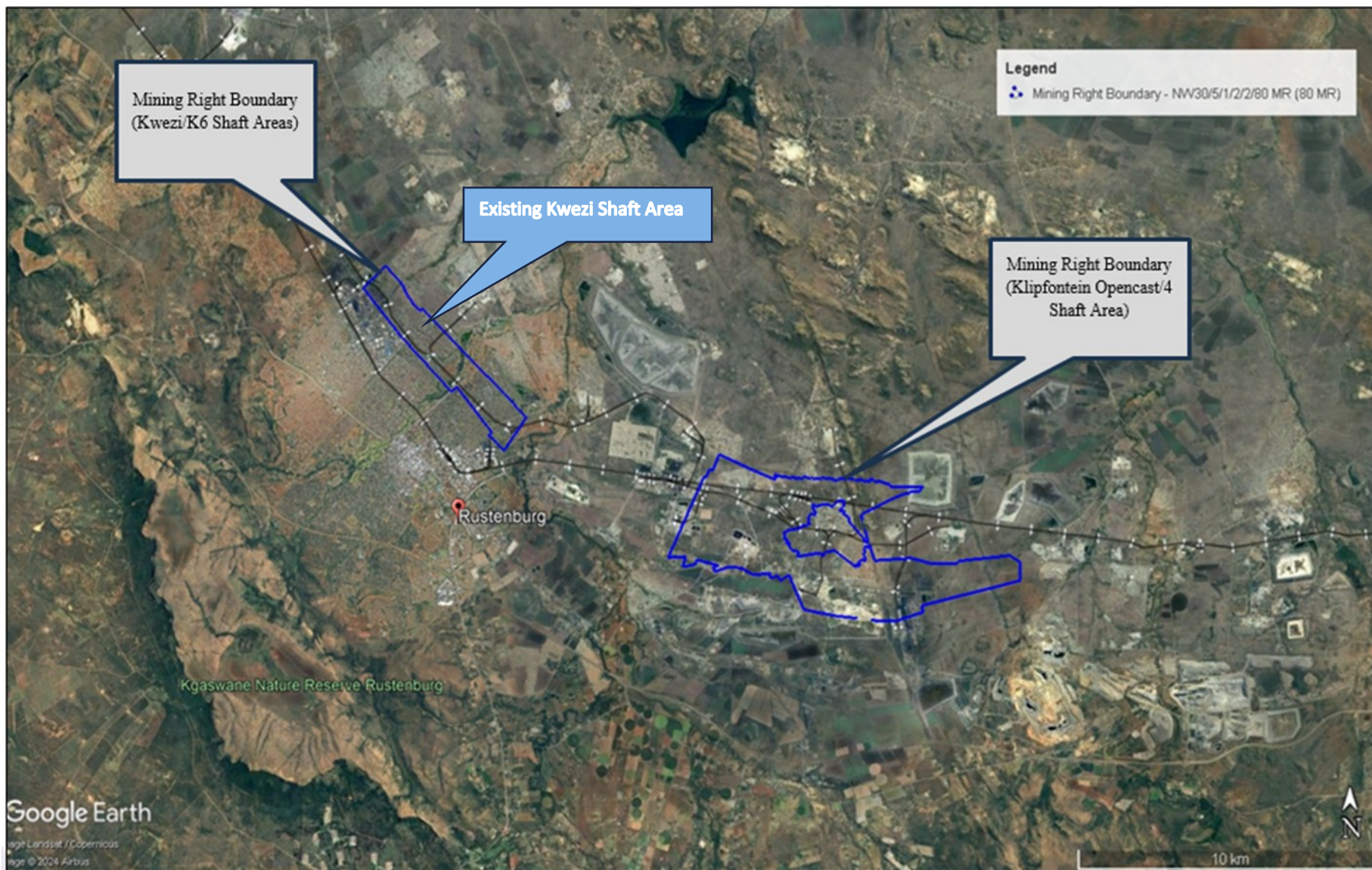


FIGURE 1: SIBANYE RUSTENBURG PLATINUM MINES (PTY) LTD (MR80) AREA

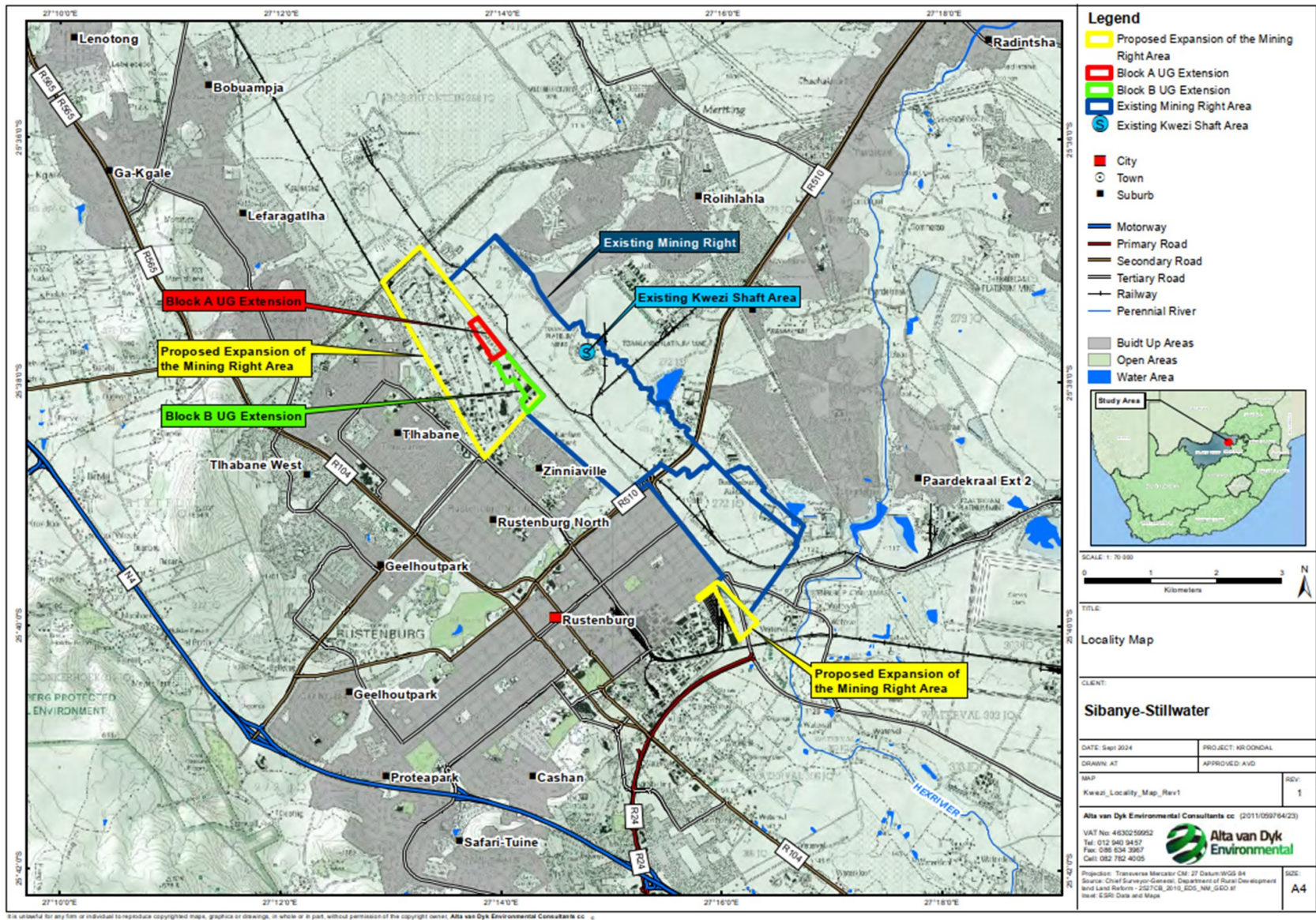


FIGURE 2: LOCALITY MAP

1.3 Current Authorisations

The site has an approved Water Use License: Reference No: 03/A22H/AG/726 dated 24 June 2011, and, through an extension request, is approved for an additional period of nine (9) years, until 10 June 2030. The water uses associated with the Kwezi Operations is provided in Table 4.

TABLE 4: APPROVED WATER USES (2011)

Description	Volume/dimension	Area	Coordinates
Section 21 (a) - taking water from a water resource			
Dewatering of the Kwezi (K5) Shaft	104 755 m ³ /a		S25 14'43.1" E27 20'11.9"
Section 21 (g) - disposing of waste in a manner which may detrimentally impact on a water resource			
K5 Mud Settlers no.1	76 500 m ³ /a	333 m ²	S25 37'48.14" E27 14'46.00"
K5 Mud Settlers no.2	76 500 m ³ /a	333 m ²	S25 37'48.14" E27 14'46.00"
K5 Erickson Dam	130 800 m ³ /a	46 m ²	S25 37'48.01" E27 14'44.86"
K5 Return Water Dam	15 600 m ³ /a	252 m ²	S25 37'45.53" E27 14'55.73"
K5 U/G Dam	108 000 m ³ /a	1 156 m ²	S25 37'48.42" E27 14'38.82"
K5 Sewage Plant	27 000 m ³ /a	400 m ²	S25 37'48.40" E27 14'48.52"

In addition, the site also has an additional approved WUL (06/A22H/ACGIJ/14646) from the DWS dated 7 November 2024 and is approved for a period of 20 years expiring on 6 November 2044. The license approves the following activities associated with Kwezi Operations (Table 5).

TABLE 5: APPROVED WATER USES (2024)

Description	Volume/dimension	Area	Coordinates
Section 21 (a) - taking water from a water resource			
Dewatering of the Kwezi Shaft	557 295m ³ /a		S25°37'45.73" E27°14'43.24"
Section 21 (c) & (i)- impeding or diverting the flow of a watercourse, altering the characteristics of a watercourse			
Undermining of the Dorpspruit and delineated wetland	N/A		<u>Outer Perimeter</u> Start: 25°38'13.31"S

Description	Volume/dimension	Area	Coordinates
			27°15'25.02"E End: 25°38'55.24"S 27°15'7.76"E Start: 25°38'13.31"S 27°15'25.02"E End: 25°38'16.89"S 27°14'15.08"E Start: 25°37'18.58"S 27°14'3.06"E End: 25°37'30.59"S 27°13'48.66"E
Section 21 (j) - removing, discharging or disposing of water found underground			
Pit Dewatering - Abstraction of fissure water for the safe continuance of mining activities	600 000m ³ /a		S25°37'45.73" E27°14'43.24"
Section 21 (g) - disposing of waste in a manner which may detrimentally impact on a water resource			
DMS Stockpile	7 656m ³ (total volume)		25°37'48.11"S 27°14'42.26"E
Waste Rock Dump	42 129 m ³		25°37'53.36"S 27°14'45.55"E
Dust suppression	42 705 m ³		Start: 25°37'58.84"S 27°14'53.63"E End: 25°37'12.71"S 27°14'42.75"E
Backfilling of Kwezi Shaft	42 129 m ³		S25°37'45.73" E27°14'43.24"

The expansion project will be supported by the water use activities within the existing approved WULs, in terms of pit dewatering and supporting surface infrastructure. The additional WUL(currently in process) is required to support activities in the expansion area.

1.4 Description of Proposed Activities

The Mining Right expansion area is shown in Error! Reference source not found.. The area outlined in yellow shows the Mining Right Expansion area with the yellow UG2 shallow blocks (Block A & B) situated just outside of the existing mining right (NW 30/5/1/2/2/80 MR). The expansion area is approximately 325.45 ha. This application supports the expansion of the mining right area with the mining of UG2 Blocks A and B, in order to increase the production and life of mine for the Kwezi Shaft.

The Kwezi Shaft is currently mining the UG2 reserve within the mining lease limits described under the mining right NW 30/5/1/2/2/80 MR. Figure 4 provides an illustration of the mined-out areas within the Kwezi shaft area, the remaining reserves as well as the proposed expansion areas referred to as the UG Shallows (Blocks A and B). The Kwezi shaft is currently considered to be in its production decline phase with the expected life of mine to be until 2029.



FIGURE 3: ILLUSTRATION OF BLOCK A & B IN RELATION TO THE MINING RIGHT (80MR)

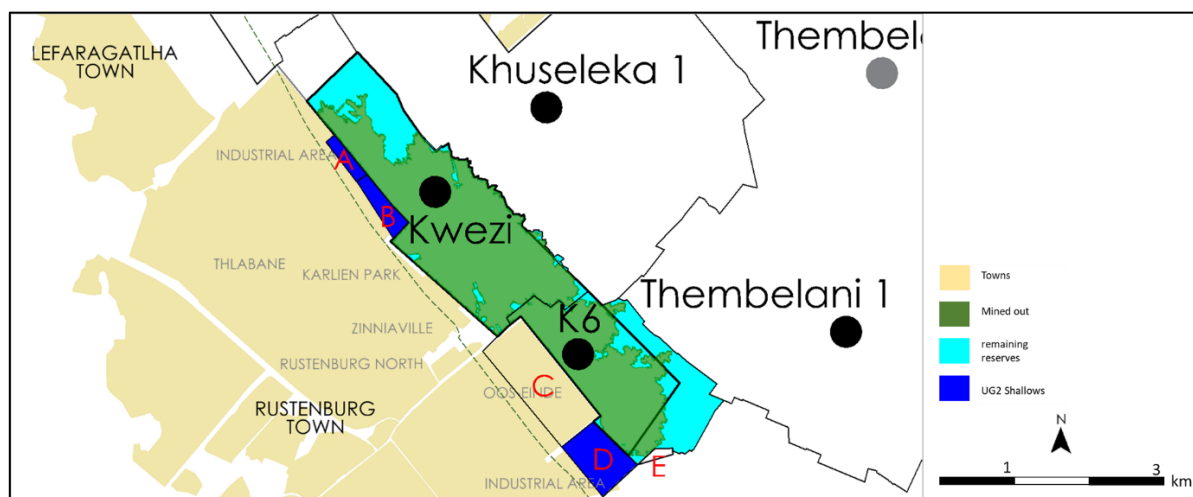


FIGURE 4: ILLUSTRATION ON 80 MR AND LOCATION OF UG2 SHALLOWS BLOCKS A & B

No new surface infrastructure will be required as the existing Kwezi Shaft will be utilised to access the additional blocks.

As the proposed mining blocks will be an expansion of the existing Kwezi underground mining area, room and pillar mining method through the use of mechanised mining will be undertaken. All mining takes place on the reef horizon, and all the ore will be transported to the surface via an underground conveyor system.

Waste rock will be removed in order to reach the ore. The waste rock is to remain underground and will be used in backfilling to promote stability in the mined-out underground areas. No waste rock will be brought to the surface for placement on the existing Waste Rock Dumps

1.5 Location of the proposed activities

The proposed expansion and mining of UG2 Shallows Blocks A & B is to take place adjacent and up to and bordering a Channelled Valley Bottom Wetland (CVB) (Figure 5).

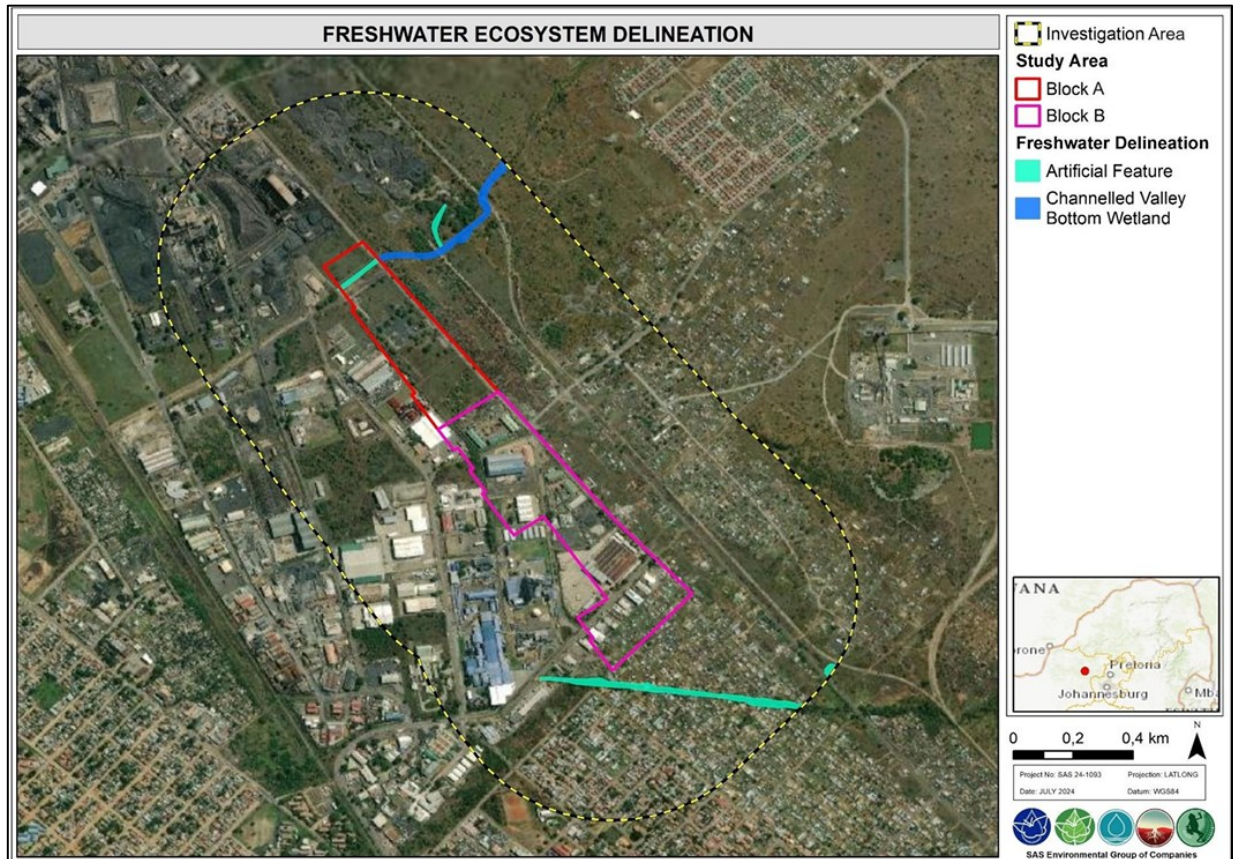


FIGURE 5: DELINEATED WATERCOURSES

2. CLASSIFICATION AND DECLASSIFICATION OF MATERIAL

Reference is made to the following supporting documentation/legislation:

- National Water Act (Act No. 36 of 1998) (NWA).
- Government Gazette No. 20119, No. 704, 4 June 1999. National Water Act, 1998 (Act No. 36 of 1998). Regulations on the use of water for mining and related activities aimed at the protection of water resources (GN704).
- National Environmental Management: Waste Act (Act No. 59 of 2008) (NEM:WA):
 - Regulation 634: NEM: WA: Waste Classification and Management Regulations.
 - Regulation 635: National Norms and Standards for the assessment of waste for landfill disposal, as amended by Government Gazette No. 5522 dated 7 November 2024
 - Regulation 636: National norms and Standards for disposal of waste to landfill.
- Sibanye-Stillwater Classification Report: Kwezi Waste Rock. Riskchem Chemical Safety Training and Consulting Services and Zantow Environmental Consulting Services CC. April 2023.
- Sibanye-Stillwater Klipfontein Geochemical and Waste Classification of Mine Residue Deposits at Kroondal Operation. SRK Consulting. May 2023.

2.1 Waste Classification

Waste in South Africa is primarily governed through the National Environmental Management: Waste Act, 2008 (Act 59 of 2008) ("NEM:WA"). The Waste Act supports the waste hierarchy in its approach to waste management, by promoting cleaner production, waste minimisation, reuse, recycling or recovery, and waste treatment with disposal only as a last resort in the management of waste.

Waste is divided into three classes based on the risk it poses - general waste, inert waste and hazardous waste. The NEM:WA provides for several tools that the Minister may use to simplify, standardise or improve waste management in South Africa. To this effect, the Minister of Environmental Affairs published the following Regulations and National Norms & Standards in Government Gazette No 36784 dated 23 August 2013 (as amended by Government Gazette No. 5522 dated 7 November 2024), which has been adopted by the NEM:WA as the methodology for the classification/assessment and management of waste

These regulations include:

- Regulation 634: NEM:WA: Waste Classification and Management Regulations;
- Regulation 635: National Norms and Standards for the assessment of waste for landfill disposal; and
- Regulation 636: National Norms and Standards for disposal of waste to landfill.

2.1 National Environmental Management: Laws Amendment Act (Act 2 of 2022)

With the promulgation of the National Environmental Management: Laws Amendment Act (Act 2 of 2022) (NEM:LA) dated 30 June 2023 (Government Gazette 48869), aspects of NEM:WA was repealed to give effect to the intention of NEM:LA. This included the repeal of Schedule 3 of NEM:WA which listed three pre-defined

waste streams. With the repeal of these pre-defined waste streams, the NEM:WA no longer set forth clear pre-defined waste streams and therefore tasked Environmental Assessment Practitioners (EAPs) to ascertain waste stream determination based on specific site activities, waste classifications and/or theoretical analysis and reasoning.

2.2 Waste Assessment

The assessment of waste is based on the Total Concentration Threshold (TCT) as well as the Leachable Concentration Threshold (LCT) limits of elements and chemical substances found within waste, these corresponding limits determine the type of waste classification that is then awarded as shown below.

The waste assessment as defined in GN635 (Section 7) are summarized below:

- Wastes with any element or chemical substance concentration above LCT3 or TCT2 limits ($LC > LCT3$ or $TC > TCT2$) are Type 0 Wastes.
- Wastes with any element or chemical substance concentration above the LCT2 but below or equal to the LCT3 limits, or above the TCT1 but below or equal to the TCT2 limits ($LCT2 < LC < LCT3$ or $TCT1 < TC < TCT2$), are Type 1 Wastes.
- Wastes with any element or chemical substance concentration above the LCT1 but below or equal to the LCT2 limits, and all concentrations below or equal to the TCT1 limits ($LCT1 < LC < LCT2$ or $TC < TCT1$), are Type 2 Wastes.
- Wastes with any element or chemical substance concentration above the LCT0 but below or equal to the LCT1 limits, and all concentrations below or equal to the TCT1 limits ($LCT0 < LC < LCT1$ or $TC < TCT1$), are Type 3 Wastes: or
- Wastes with all elements or chemical substance leachable concentration levels for metal ions and inorganic anions below or equal to the LCT0 limits are considered to be Type 4 waste, irrespective of the total concentration of elements or chemical substances in the waste. This is in line with Regulation 5522 dated 7 November 2024.

The results of the geochemical test work, specifically the total and leachable concentrations of the overburden material on site were used to de-classify the waste in accordance with the NEM: WA Regulations utilising a supported DWS risk-based approach.

2.3 Leaching Procedures

The Norms and Standards have 3 different leaching procedures based on the conditions of the waste and disposal. These conditions are explicit to the definitions below.

- Toxicity Characteristic Leaching Procedure (TCLP) Leach (Acidic leach – pH of 5) – Typical condition of a general landfill site where putrescible / biodegradable waste is disposed of.
 - A TCLP test was conducted for the Kwezi Operation. A TCLP test is an acidic-based test, which force leaches the material being tested; this results in higher than expected leachability results.
- Borax Leach (Alkaline leach – pH of 9.3) – Typical of a site where alkaline wastes and no putrescible wastes are disposed of (resting pH of many metallurgical wastes).

- Distilled water leach (neutral leach reagent water – pH of 7) – typically a mono-disposal site, where no putrescible waste is disposed of. Rainwater would be the only liquid coming into contact with this waste.
 - It should be noted the while a TCLP test was conducted, the mono-disposal site is the most accurate representation of the environmental conditions on site and the conditions to which material will be subjected to; rainwater is the primary and only source of recharge. Therefore, the Distilled water leach test would be more applicable to the Kwezi Operations, therefore lower leachability results are expected.
 - It should be noted rock material typically produced by chrome and platinum mining and related processing activities are not known to contain any significant quantities of sulphur, at least not enough for sustained long-term acid generation, and are therefore mostly non-acid generated. Due to the low levels of reactive sulphides within the Kwezi waste rock material, an Acid Base Accounting (ABA) test was not deemed necessary as the material holds a low risk of acidification.

2.4 Acid Mine Drainage Potential

Acid Base Accounting (ABA) is a static test commonly conducted to determine the total amount of sulphur (sulphide sulphur + sulphate sulphur) present in a sample. The higher the sulphur content, the higher the potential to generate acid (i.e. sulphuric acid). This information is then used to determine the Neutralisation Potential (NP), Acid Potential (AP), Net Neutralisation Potential (NNP) and Neutralising Potential Ratio (NPR).

The waste rock material typically produced by chrome and platinum mining and related processing activities are not known to contain any significant quantities of sulphur, at least not enough for sustained long-term acid generation, and are therefore mostly non-acid generating. For this reason, no ABA tests were conducted for the purpose of the geohydrological investigation, as the Kwezi waste rock material has little to no risk of acid formation or acid mine drainage potential. This principal is therefore applied to the site and therefore the site can be regarded as a non-generating acid neutral site.

2.5 Geochemical Assessment

A geochemical and waste classification assessment of the mine residue deposits (waste rock material) generated by mining operations at the Sibanye Stillwater Kroondal Complex was undertaken by SRK Consulting in 2023. As part of the mining operations at the proposed Kwezi underground expansion, waste rock will be generated in order to access the mineral ore, however, all waste rock will remain underground. No waste rock material is to be brought to the surface as to minimize the impact of the mining operation. The waste rock dump (WRD) at the existing Kwezi underground operation was sampled and the results determined the mineralogy and waste classification.

2.5.1 Mineralogy

The mineralogy of the existing Kwezi WRD (Samples A, B, and C) indicates that plagioclase is a predominant mineral and enstatite occurs as an abundant mineral. Chromite and quartz occur in minor amounts and the remaining minerals, namely, talc, chlorite, biotite, actinolite, augite, and montmorillonite all occur in trace amounts.

The waste rock samples are characterised predominantly by enstatite and plagioclase. The other aluminosilicate minerals present in the samples are talc, actinolite, augite, and montmorillonite. These aluminosilicate minerals can react with and consume acidity, thus contributing to the overall neutralisation potential of the samples. Based on the laboratory results, no acid-producing minerals were detected by the X-ray diffraction analysis (XRD).

2.5.1 Waste Classification & Declassification

It should be noted that Kwezi WRD was leached using acetic acid (TCLP Test) instead of distilled water, and the resulting leachate was analysed. The results of the total concentration and the leachable concentration analyses are provided in Table 6 and Table 7, respectively.

The geochemical risk assessment (GeoDyn, 2021) indicated that the mineral waste is unlikely to leach metal and metalloid contaminants into the groundwater in a post-closure scenario. The geochemical model results for the underground mine voids indicate that the risk of the development of Acid Mine Drainage (AMD) conditions is negligible. The post-closure underground mine void geochemical system has an acid neutralisation capacity far greater than the acid production capacity. The quality of the water that will fill the mine void post-closure is therefore expected to be good.

In accordance with the waste classification methodology, the specific type of waste is determined by comparing the TC and LC of the elements and chemical substances in the waste material with TCT and LCT limits as specified in terms of NEM: WA GN365.

The analytical results (Table 6) show that Copper and Nickel are the only elements exceeding the TCT0 threshold, but orders of magnitude lower than that of the TCT1 threshold.

The analytical results (Table 7) show that only Manganese was found to be slightly higher than the LCT0 limit but orders of magnitude lower than that of the LCT1 limit.

- The following must also be given consideration to:
 - In the laboratory with controlled conditions, two litres of leach solution are used to extract material that has been graded to <10 mm over a period of 18hrs -24 hrs. In practice, not much of the waste rock material will be crushed into such small particles. Therefore, these elements coming into solution, will if any, occur in much lower concentrations than indicated in the analysis;

- The Kwezi waste rock material was classified utilising the Toxicity Characteristics Leaching Procedure (TCLP) Leach test. This is an acid-based test which force leaches the material and as such represents elevated results. The underground shaft areas where the waste rock will be disposed of would be considered a mono-disposal site, where the neutral to slightly alkaline conditions would prevail, with the likelihood of no leaching of any element above LCT0 to take place.

Although a TCLP test was conducted, the mono-disposal site (Distilled Leach Testing) is the most accurate representation of the environmental conditions on site and the conditions to which material will be subjected to; rainwater is the primary and only source of recharge, therefore LCT levels in the baseline, more neutral environment will see a decrease. The potentially leached metal concentrations are likely to represent a **LOW ENVIRONMENTAL RISK**.

Based on the assessment of the material, the material is not considered a risk in terms of leachability of the listed metals and the conditions that would prevail when the material is backfilled to the underground workings. This therefore motivates the material to be defined as per Section 7(2)(e) of the Norms and Standards as **Type 4 waste**, supporting a Class D liner, based on the scenarios provided and actual conditions found on site and would therefore allow for the backfilling of the waste rock material into the Kwezi underground workings without a risk of causing pollution to the groundwater resource.

The waste classification and management regulations are developed with the aim of managing final waste deposition within established waste management infrastructure/facilities. These regulations when applied to backfilling practices in support of rehabilitation purposes are complex to implement as the regulations struggle to translate into a single perspective. This results in the inability to translate and therefore implement a Class D liner which aligns precisely with the preferences and exact specifications as set forth in GN 5523 dated 7 November 2024.

Class D Liners are characterised by a thick base preparation layer in which the preparation layer act as a barrier within itself to prevent the migrating/movement of contaminants. This barrier system is effective on the basis that the base preparation layer has a low permeability. As part of this GN704 Exemption Motivation consideration has been given to the geological setting in which the backfilling practices will be undertaken, and the following has been concluded: The site is supported by geological structures with a low hydraulic connectivity function similarly to the base preparation requirements of a Class D Liner by acting as a barrier to fluid movement. This geological setting helps to limit the migration of water and therefore contaminants.

The rock formations at depth have poor primary porosity and low permeability. The rock itself is therefore suitable as the base prep. Permeability of the area increases where there are faults and joints present. It is through these features that the water in the deeper part of the aquifer flows. The area will be cleaned and mapped geologically to check the fracture frequency. If the fracturing is excessive, an alternative site with less fracturing must be identified to prevent any possible contamination.

Attention is brought to Section 3 of this motivation in which the benefits of the materials utilisation for rehabilitation purposes are detailed. The primary objective of this practice (backfilling) remains focused on achieving effective site restoration and meeting rehabilitation objectives.

TABLE 6: SUMMARY OF TOTAL CONCENTRATIONS THRESHOLD (TCT) LIMITS (SRK, 2023)

Elements & Chemical Substances in Waste	Total Concentrations Threshold (TCT) Limits (mg/kg)			
	TCT0	TCT1	TCT2	KWEZI WRD(A,B,C)
As, Arsenic	5.8	500	2000	<2
B, Boron	150	15 000	60 000	19.09
Ba, Barium	62.5	6 250	25 000	47.56
Cd, Cadmium	7.5	260	1040	<0.1
Co, Cobalt	50	5 000	20 000	12.57
Cr _T , Chromium Total	46 000	800 000	N/A	117
Cu, Copper	16	19 500	78 000	1191
Hg, Mercury	0.93	160	640	<0.1
Mn, Manganese	1 000	25 000	100 000	230
Mo, Molybdenum	40	1 000	4 000	<0.1
Ni, Nickel	91	10 600	42 400	111
Pb, Lead	20	1 900	7 600	1.28
Sb, Antimony	10	75	300	<1
Se, Selenium	10	50	200	<3
V, Vanadium	150	2 680	10720	19.27
Zn, Zinc	240	160 000	640 000	39.86
Organics				
Benzene		10	40	<0.02
Benzo(a)pyrene		1.7	6.8	<0.04
Carbon tetrachloride		4	16	<0.1
Chlorobenzene		8800	35200	<0.04
Chloroform		700	2800	<0.1
2-Chlorophenol		2100	8400	<0.4
Di (2 ethylhexyl) phthalate		40	160	<2
1,2-Dichlorobenzene		31900	127600	<0.04
1,4-Dichlorobenzene		18400	73600	<0.04
1,2-Dichloroethane		3.7	14.8	<0.04
1,1-Dichloroethylene		150	600	<0.2
1-2-Dichloroethylene		3750	15000	<0.2
Dichloromethane		16	64	<1
2,4-Dichlorophenol		800	3200	<0.4
2,4-Dinitrotoluene		5.2	20.8	<1
Ethylbenzene		540	2160	<0.04

Elements & Chemical Substances in Waste	Total Concentrations Threshold (TCT) Limits (mg/kg)			
	TCT0	TCT1	TCT2	KWEZI WRD(A,B,C)
Formaldehyde		2000	8000	<2
Hexachlorobutadiene		2.8	5.4	<0.04
Methyl ethyl ketone		8000	32000	<20
MTBE (Methyl t-butyl ether)		1435	5740	<0.1
Nitrobenzene		45	180	<0.2
PAHs (total)		50	200	<0.8
Petroleum H/Cs, C6 to C9		650	2600	<0.2
Petroleum H/Cs, C10 to C36		10000	40000	<3800
Phenols (total, non-halogenated)		560	2240	<4
Polychlorinated biphenyls		12	48	<
Styrene		120	480	<0.1
1,1,1,2-Tetrachloroethane		400	1600	<0.2
1,1,2,2-Tetrachloroethane		5	20	<0.2
Terachloroethylene		200	800	<0.2
Toluene		1150	4600	<0.2
Trichlorobenzenes (total)		3300	13200	<0.1
1,1,1-Trichloroethane		1200	4800	<0.1
1,1,2-Trichloroethane		48	192	<0.1
Trichloroethylene		11600	46400	<0.2
2,4,6-Trichlorophenol		1770	7080	<0.4
Vinyl chloride		1.5	6	<0.2
Xylenes (total)		890	3560	<0.1
Pesticides				
DDT + DDD + DDE	0.05	50	200	<0.12
2,4-D	0.05	120	480	Unable to detect
Chlordane	0.05	4	16	<0.04
Heptachlor	0.05	1.2	4.8	<0.04

TABLE 7: SUMMARY OF LEACHABLE CONCENTRATION THRESHOLD (LTC) LIMITS (SRK, 2023)

Elements & Chemical Substances in Waste	Leachable Concentrations Threshold (LCT) Limits (mg/l)				
	LCT0	LCT1	LCT2	LCT3	KWEZI WRD(A,B,C)
Metal Ions					
As, Arsenic	0.01	0.5	1	4	<0.003
B, Boron	0.5	25	50	200	0.019
Ba, Barium	0.7	35	70	280	0.429
Cd, Cadmium	0.003	0.15	0.3	1.2	0.001
Co, Cobalt	0.5	25	50	200	0.006
CrT, Chromium Total	0.1	5	10	40	0.002
Cu, Copper	2	100	200	800	0.013
Hg, Mercury	0.006	0.03	0.6	2.4	<0.001
Mn, Manganese	0.5	25	50	200	0.696
Mo, Molybdenum	0.07	3.5	7	28	<0.001
Ni, Nickel	0.07	3.5	7	28	0.063
Pb, Lead	0.01	0.5	1	4	<0.001
Sb, Antimony	0.02	1	2	8	<0.002
Se, Selenium	0.01	0.5	1	4	<0.001
V, Vanadium	0.2	10	20	80	0.036
Zn, Zinc	5	250	500	2 000	0.093
Inorganic Anions					
TDS	1000	12 500	25 000	100 000	20.5
Chloride	300	15 000	30 000	120 000	<2.0
Sulphate, SO ₄	250	12 500	25 000	100 000	<4.0
NO ₃ as N, NitriteN	11	550	1100	4 400	<0.1
Fluoride	1.5	75	150	600	<0.1
Organics					

3. MOTIVATION FOR EXEMPTION FROM REGULATION 4 (A) and (C)

Table 8 presents the water uses associated with the undertaking of backfill activities as per the NWA. Due to the activity of backfilling, and the locality of this activity in relation to the watercourse, exemption from GN704 Regulation 4(a) and (c) is required as follows:

- **GN704 Regulation 4 (a):** “No person in control of a mine or activity may locate or place any residue deposit, dam, reservoir, together with any associated structure or any other facility within the 1:100 year flood-line or within a horizontal distance of 100 metres from any watercourse or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked.”
- **GN704 Regulation 4 (c):** “No person in control of a mine or activity may place or dispose of any residue or substance which causes or is likely to cause pollution of a water resource, in the workings of any underground or opencast mine excavation, prospecting diggings, pit or any other excavation.”

TABLE 8 GN704 EXEMPTION FOR REGULATION 4(A) AND (C)

Use Description	Distance from the activity in relation to the watercourse (m)	Description of the Exemption
Backfilling of the proposed mining Blocks A&B	0m	Deposition of residue (waste rock) in the underground mine excavation, adjacent and up to and bordering a Channelled Valley Bottom Wetland (CVB)

3.1 Alternatives Considered

The waste declassification and risk-based approach supports the classification of the waste rock material as a type 4 material with a low environmental risk which supports the backfilling of the underground workings. The following sections provides additional motivation to the utilisation of the waste rock material in rehabilitation purposes as opposed to allowing the material to be permanently stored on site on a dedicated waste rock disposal facility.

3.1.1 Alternative 1: Backfilling of the Underground (preferred)

Safety Perspective

The backfilling of the shaft will allow for further future pit stability by preventing subsidence.

Visual Impact Perspective

The backfilling of the underground void will reduce the ground-level footprint utilised for the existing Kwezi Waste Rock Dump (WRD) or the development of a new waste rock disposal facility. Depositing additional waste rock material onto the existing WRD will increase the height of the facility and its visual intrusion; therefore, backfilling of the waste rock material will minimise the material to be stockpiled, controlling the height and footprint of the existing WRD and minimising surface area disturbance. Should the waste rock material be utilised for backfilling instead of disposal on surface, there will be no

The backfilling of the underground workings will also aid in the rehabilitation process by restoring the natural contours of the landscape.

Socio-economic Perspective

Backfilling of the open pit will reduce the need for additional residue disposal facilities and eliminate the process of bringing the waste rock to the surface. The reduction of surface area disruption allows for the rehabilitation of the area into possible beneficial land use post-closure with a positive impact on the neighbouring communities.

3.1.2 Alternative 2: Placement of the waste rock on a dedicated residue disposal facility (No-go Alternative)

Safety perspective

Not backfilling the underground workings will necessitate a need for permanent fencing and access control. The land will not become available for a desirable future end land use and continue to pose a threat to neighbouring communities and livestock post closure. The development of new residue disposal facilities will also require access control from a safety and liability perspective.

Visual Impact Perspective

Either additional residue disposal facilities or an expansion to the existing Kwezi Waste Rock Dump will be required to accommodate the excess waste rock on site, should it be brought to the surface. Expansion of the existing WRD will result in an increased visual impact on the already affected neighbouring communities. The establishment of additional residue disposal facilities will remain as a visual intrusion and unnatural structure in the area, post-closure as the facilities will be permanent, and have long-lasting impacts.

Socio-economic Perspective

A decision not to backfill the underground workings will necessitate the need for fencing to prevent people and larger animals from entering the area. The fence is not considered a safe long-term option. Additional residue disposal facilities will be required to accommodate the excess waste rock brought to the surface which will sterilise additional surface area within this region. Should the underground void not be backfilled, it will remain vulnerable to subsidence, making the surface land unusable; this will not support beneficial social use, prohibiting future community initiatives on the land.

4. MOTIVATION FOR EXEMPTION FROM REGULATION 4 (B)

Table 9 presents the water uses located within the regulated zone as per the NWA. Due to the locality of these activities in relation to the watercourse, Exemption from GN704 Regulation 4(b) is required as follows:

- **GN704 Regulation 4 (b):** *“No person in control of a mine or activity may except in relation to a matter contemplated in regulation 10, carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood-line or within a horizontal distance of 100 metres from any watercourse or estuary, whichever is the greatest;”*

TABLE 9 GN704 EXEMPTION FOR REGULATION 4(B)

Use Description	Distance from the activity in relation to the watercourse (m)	Description of the Exemption
Undertaking of mining activities within 100m of the delineated wetland.	0m	Underground mining activities adjacent and up to and bordering a Channelled Valley Bottom Wetland (CVB)

4.1 Alternatives Considered

A freshwater assessment was commissioned as part of the environmental and water use authorisation process and is included in the Water Use Licence Application. According to the freshwater assessment undertaken by Scientific Aquatic Services (SAS) in 2024, several watercourses were identified within the proposed expansion area, see Figure 6. Multiple artificial features exist within the study area; however, these features were not assessed further as they have formed due to anthropogenic land-use changes. One natural watercourse was identified in the northeastern portion of the study area, a channel valley bottom wetland (CVB). The artificial features identified within Blocks A&B drain into the CVB.

The Present Ecological State (PES) for the CVB was established as Category E (Seriously Modified). The ecological integrity of the CVB was ascertained to be seriously modified at the time of the assessment, with the primary modifiers identified as channel straightening, urban development, historical and current mining activities and dense alien vegetation altering the ecological condition of the CVB.

The Ecoservices Importance category was established as Very Low to Low. Due to the location of the CVB wetland within an urbanised and mining area, and impacts from various culvert crossings which may act as a barrier to faunal migration, the wetland provides limited biodiversity maintenance.

The ecological importance and sensitivity (EIS) of the wetlands were assessed to be Low/Marginal, due to the seriously modified ecological condition of the Dorpspruit stream. The assessment revealed the following impacts prior to mitigation measures:

Operational Phase

- Potential creation of a cone of depression, which may drain water from the CVB wetland, thus resulting in desiccation of the wetland
- Potential destabilisation of surrounding environment through the extraction of ore and subsequent potential subsidence of the land

Closure/Post Closure

- 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.

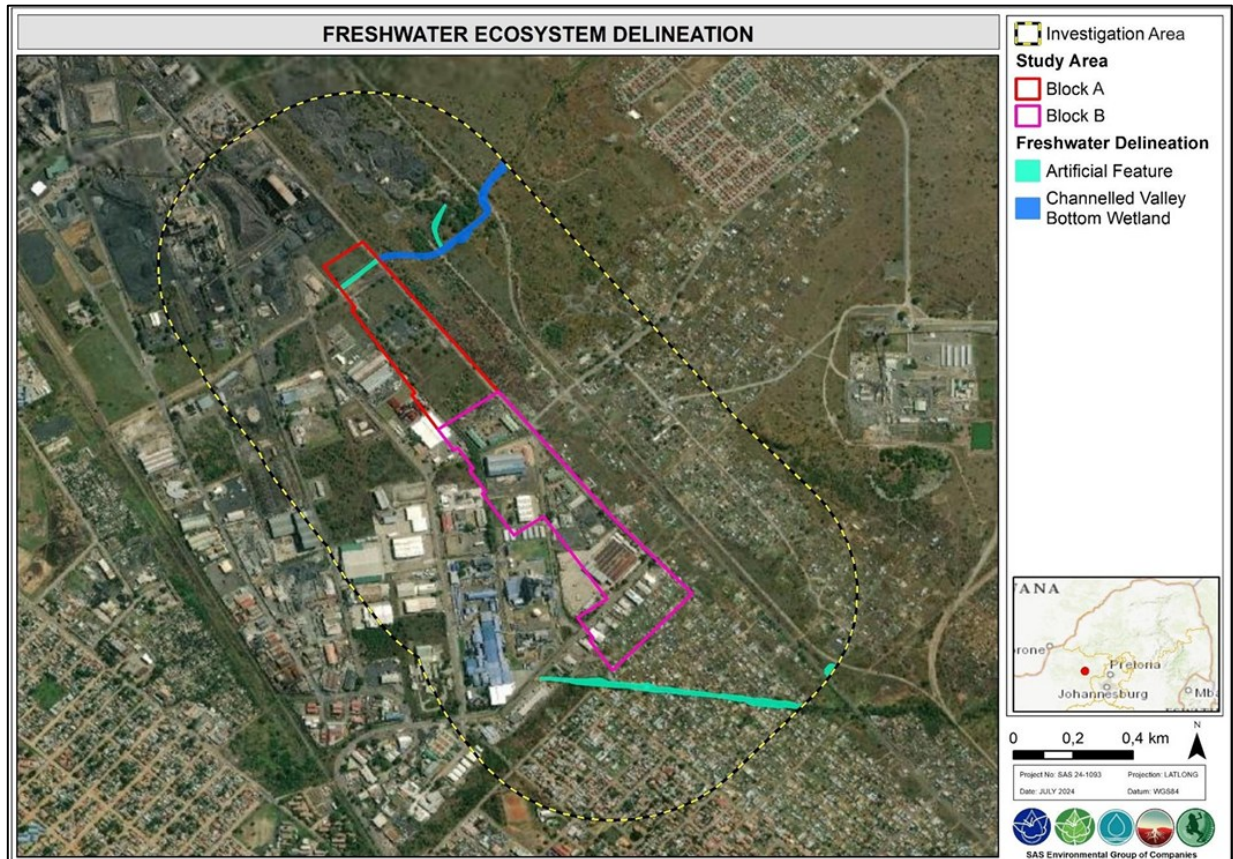


FIGURE 6 CONCEPTUAL DEPICTION OF THE DELINEATED CVB WETLAND AND ARTIFICIAL FEATURES ASSOCIATED WITH THE STUDY INVESTIGATION AREAS (SAS,2024)

4.1.1 Alternative 1: UG2 Shallows Blocks A&B (preferred)

The presence of mineral deposits governs the location of mining activities. Sibanye Rustenburg Platinum Mine (Pty) Ltd holds a Mining Right for the Kwezi Shaft operations, hence the intention is to expand on the existing operations to access known PGM ore deposits in the area. Expansion of the Kwezi Operations is both environmentally and economically practical, as UG2 Shallow Blocks A& B are adjacent to the existing Kwezi Mining Rights Area and can be accessed through the existing Kwezi Shaft. Due to proximity, only existing Kwezi infrastructure will be utilised, and no additional surface infrastructure is required as part of the proposed expansion, minimising disturbances to the surface environment.

In addition to the above, the development of a new shaft will require extensive resources, which is neither economically or environmentally practical nor feasible.

4.1.2 No -Go Alternative

The no-go alternative in this scenario is to not undertake the proposed expansion and amendment to the Mining Rights Area (80MR). In addition to South Africa's substantial chromium and PGM reserves, particularly within the Bushveld Igneous Complex, which holds significant potential to drive economic growth and beneficiation for both the North-West Province and the country as a whole, the proposed expansion of the mining right area offers several key advantages, as detailed below. If these proposed activities do not move forward, these potential benefits will not be realized.

- The employment of local individuals as full-time employees when the mine is fully operational. Sibanye Stillwater Rustenburg Platinum Mines has an approved Social and Labour Plan in place which outlines the Company's local economic development programmes. Sibanye-Stillwater employs more than 90 000 people making them the country's largest employer outside of government.
- Contributions to the SA Economy. Cumulatively over the last 10 years, SS have paid a total of R44 billion in taxes, representing a substantial contribution to the fiscus in jurisdictions where SS conduct business.
- The extraction of minerals within the UG2 Blocks A & B will maintain a sustainable production profile for the Kwezi shaft until 2029.

Should SRPM operations no longer be supported in the region, new areas for exploration and mining will be sought out. The identification and potential development of new operations in a new region will result in a much larger environmental footprint and impact than the expansion of an existing operation.

5. Environmental Management Program

The SRPM Kwezi Operations is in the process of obtaining Environmental Authorisation (through a Basic Assessment Process) in support of the proposed expansion. The Basic Assessment Process is accompanied by an Environmental Management Programme (EMPr).

The EMPr provides for the required management commitments in relation to the construction, operation and closure of the proposed activities. These management commitments aim to minimise potential impacts to the water resources at the operations due to the proposed activities. It further provides for additional management measures, together with the Water Use Licence conditions to protect the water resources on site.

The following management measures have been agreed upon:

- Limit impacts on drainage caused by underground mining.
- Develop, implement and Maintain a site-specific Dangerous Goods and Hazardous Substances Storage and Handling Management Plan and Chemical & Hydrocarbon Spill Procedure.
- Maintain an effective Stormwater Management Plan and Procedure.
- Maintain an effective Dewatering Management Plan.
- Maintain an effective Groundwater Water Monitoring and Management Plan and Network.
- Develop and Maintain an effective Surface Water Quality Monitoring Programme.
- Adherence to Regulation GN 704 of the National Water Act with respect of the separation of clean and dirty water.
- Implement Water Conservation and Water Demand Management Measures.
- Once rehabilitation commences, rehabilitate the topography of the landscape to a standard that is visually acceptable and does not diminish the aesthetic quality of the environment

6. Stormwater Management Plan

No additional surface infrastructure is to be constructed as part of the proposed expansion of the underground mining area. The main infrastructure and dewatering principles remain the same as outlined in the Stormwater Management Plan for the Sibanye Stillwater Kroondal Mine Shafts (Ref: 544176) as prepared by SRK Consulting, dated February 2020 and the updated Kwezi Shaft Stormwater Management Plan (Ref: EES11_2022), as designed by Hydrological Environmental Engineering Solutions (Pty)Ltd.

In terms of the current application, no additional residue disposal facilities will be created during the Expansion. Waste rock generated from the proposed Expansion will be utilised to backfill the mined underground areas. Expanded underground workings will be dewatered, as allowed by the existing Water Use Licence, Reference Number 03/A22H/AG/726 dated 24 June 2011.

The Stormwater Management plan is also to ensure that the Regulations on the use of water for Mining and related activities aimed at the protection of water resources - GN704 dated 4 June 1999 is considered in terms of the separation of clean and dirty water

7. Water Quality Monitoring

7.1 Surface Water Quality Impacts

As the proposed expansion is an underground mining operation, and no additional surface infrastructure is required, no impacts to surface water are anticipated. As such, no surface water quality monitoring has been recommended as part of the expansion project.

7.2 Groundwater Quality Impacts

Underground mining and mineral residue disposal activities in general can impact the groundwater resource, however, as the expansion activity represents a LOW ENVIRONMENTAL RISK, minimal impacts to the groundwater quality are anticipated. Possible impacts identified include, but are not limited to:

- Contamination may at some point begin to migrate in the downgradient groundwater flow direction as water levels slowly recover from the impacts of pit/aquifer dewatering and return to pre-mining levels. However, the quality of the water expected to fill the mine void, post-closure, is expected to be good, and therefore downgradient contamination is not anticipated in the future.
- Increased vulnerability of the aquifer to contamination due to an increase in the surface infiltration rate

In order to grant Exemption, it is recommended that the following groundwater resource protection measures be implemented:

- Separation of clean and dirty water
- Monitoring
 - Implementation and maintenance of a suitable groundwater monitoring programme.
 - Ensuring adequate availability of capital in support of the implementation and management of stormwater management facilities

7.3 Groundwater Monitoring Programme

The Kwezi Underground Operations has an existing Groundwater Monitoring Programme that has been aligned with industry standards and the conditions set forth in WUL (06/A22H/ACGIJ/14646)-from the DWS dated 7 November 2024. The Kwezi Underground Operations is to carry out groundwater monitoring in accordance with WUL (06/A22H/ACGIJ/14646) as to reduce the administrative load of the Operations. The groundwater levels are to be monitored monthly, whereas the groundwater quality is to be monitored quarterly. The results are required to be submitted to the Department of Water and Sanitation. From an administrative stance, the site would prefer the conditions of the new WUL (currently in process) and GN 704(this application) to align with the parameters and water quality limits as within the site's approved WULs (06/A22H/ACGIJ/14646 and 03/A22H/AG/726).

TABLE 10: GROUNDWATER MONITORING VARIABLES

Parameter	Unit	Frequency
pH	-	Quarterly
Electrical conductivity	mS/m	
Total Dissolved Solids	mg/ℓ	
Calcium	mg/ℓ	
Magnesium	mg/ℓ	

Parameter	Unit	Frequency
Sodium	mg/ℓ	
Potassium	mg/ℓ	
Alkalinity	mg/ℓ	
Chloride	mg/ℓ	
Sulphate	mg/ℓ	
Nitrate as N	mg/ℓ	
Fluoride	mg/ℓ	
Aluminium	mg/ℓ	
Iron	mg/ℓ	
Manganese	mg/ℓ	
Ammonia	mg/ℓ	
Total Hardness	mg/ℓ	
Nitrite as N	mg/ℓ	
Phosphate	mg/ℓ	
Boron	mg/ℓ	
Cadmium	mg/ℓ	
Chrome	mg/ℓ	
Copper	mg/ℓ	
Nickle	mg/ℓ	
Lead	mg/ℓ	
Zinc	mg/ℓ	

TABLE 11: EXISTING GROUNDWATER MONITORING POINTS

BH	South	East	Site description	Comments
ATG01	-25.62790	27.24979	Downgradient of Kwezi Shaft area (north-east)	
ATG02	-25.62888	27.25138	Downgradient of Kwezi Shaft area (east)	
ATG04	-25.62663	27.24448	Upgradient of Kwezi Shaft area (north-west)	Borehole demolished
ATG05	-25.63008	27.24946	Downgradient of Kwezi Shaft area (south-east)	

In addition to the existing monitoring boreholes (indicated in Figure 7), it is recommended that SRPM drill three to five additional operational monitoring boreholes within the potentially affected area to monitor groundwater levels. The recommended operational borehole positions are indicated in Figure 8.



FIGURE 7: EXISTING GROUNDWATER MONITORING BOREHOLES



FIGURE 8 RECOMMENDED MONITORING BOREHOLES