

WATER USE LICENCE APPLICATION SUMMARY REPORT

NAME OF APPLICANT:

Chemwes (Pty) Ltd

Compiled by:

Environmental Impact Management Services (EIMS) (Pty) Ltd



Signature:

Date : 2023/02/23

1. Applicant details

Name of applicant: Chemwes (Pty) Ltd

Postal address: Randfontein Office Park, Gauteng, 1759

Cell phone number: 083 682 4089

E-mail address: jvwyk@harmony.co.za

2. Person submitting application

The person compiling and submitting the application on behalf of the applicant is Ms. Ayabulela Manjezi of Environmental Impact Management Services (Pty) Ltd (EIMS). Ms. Manjezi is an environmental scientist and consultant. She is a registered as a Candidate Natural Scientist (SACNASP - 142390) and Candidate Environmental Assessment Practitioner (EAPASA – 2019/1279) who holds a Bachelor of Science Honours degree in both Environmental Management and Applied Geology.

3. Background and purpose

3.1 Background

Chemwes (Pty) Ltd (Chemwes) has been in business since 1964, and conducts its operations over a large area of land to the east of Klerksdorp, within the area of jurisdiction of the City of Matlosana and JB Marks Local Municipalities (LM), which fall within the Dr Kenneth Kaunda District Municipality (DM) in the North-West Province. The Chemwes Operations are located primarily to the south of the N12, east of the town of Stilfontein. The closest town is Khuma, located about 3km northwest of the facility. Other nearby towns include Stilfontein (10km from facility) and Klerksdorp (19km from facility).

The operations at Chemwes entail the collection and reprocessing of mine tailings that were previously deposited on Tailings Storage Facilities (TSFs) in order to extract gold and uranium. High pressure water cannons are used to slurry the tailings on the Source TSFs. The slurry is then pumped by a number of pump stations and pipelines to the Chemwes Processing Plant. The residue from the processing plants is then pumped to the current Kareerand TSF. Once an old Source TSF has been completely recovered, it is cleaned-up and rehabilitated.

The Applicant wishes to expand their reclamation activities to the Mispah 1 TSF through the construction of a reclamation pump station adjacent to the Mispah 1 TSF and installation of additional pipelines to meet the planned LoM for Mispah TSF to approximately 8 years and reclaiming around 75 Million tons at a rate of around 9.4 mT/annum. The existing return water and slurry pipeline infrastructure fails to meet the requirements of the planned LoM and has direct and indirect impacts on the long-term sustainability of the MWS operations. The planned infrastructure is a new 600mm slurry- and 500mm low-pressure process water pipelines of ~9km from the East Pump Station to the Mispah 1 TSF Reclamation Pump Station, as shown in **Error! Reference source not found.** Both the slurry and process water pipeline will cross the Vaal River at Nologwa Bridge. In addition to the slurry and process water pipelines, a sewage pipeline will be installed from the sewage change house and abluion will be pumped to the Moab Khotsong sewage works (Refer to Figure 1).

Complete if the Water Use Licence Application (WULA) is for Development (housing, lodges etc)

Not Applicable for this application.

Complete if the WULA is for Infrastructure (Road, Rail etc.)

Not Applicable for this application

Complete if the WULA is for Wastewater Treatment Works (WWTWs) (Local Government)

Not Applicable for this application

Complete if the WULA is for water supply/Water Treatment Works (WTW) (potable water) (Local Government)

Not Applicable for this application

Complete if the WULA is for mine/industry

Chemwes (Pty) Ltd (Chemwes) has been in business since 1964, and conducts its operations over a large area of land to the east of Klerksdorp, within the area of jurisdiction of the City of Matlosana and JB Marks Local Municipalities (LM), which fall within the Dr Kenneth Kaunda District Municipality (DM) in the North-West Province. The Chemwes Operations are located primarily to the south of the N12, east of the town of Stilfontein. The closest town is Khuma, located about 3km northwest of the facility. Other nearby towns include Stilfontein (10km from facility) and Klerksdorp (19km from facility).

The operations at Chemwes entail the collection and reprocessing of mine tailings that were previously deposited on Tailings Storage Facilities (TSFs) in order to extract gold and uranium. High pressure water cannons are used to slurry the tailings on the Source TSFs. The slurry is then pumped by a number of pump stations and pipelines to the Chemwes Processing Plant. The residue from the processing plants is then pumped to the current Kareerand TSF. Once an old Source TSF has been completely recovered, it is cleaned-up and rehabilitated.

The project intends to expand the reclamation activities to the Mispah 1 TSF. The project includes the construction of a reclamation pump station and installation of additional pipelines to meet the planned LoM for Mispah TSF to approximately 8 years and reclaiming around 75 Million tons at a rate of around 9.4 mT/annum. The current return water and slurry pipeline infrastructure fail to meet the requirements of the planned LoM and has direct and indirect impacts on the long-term sustainability of the operations. The infrastructure planned is a new 600mm slurry- and 500mm low-pressure process water pipelines of almost 9km from the East Pump Station to the Mispah 1 TSF Reclamation Pump Station.

The activities traverse both the North West (NW) and Free State (FS) Provinces within the Fezile Dabi District Municipality (FS) and Southern District Municipality (NW). In the North West the pipelines cross portion 4 of farm Modderfontein IP 440 within the City of Matlosana Local Municipality. In the Free State Province the proposed pipeline traverse the remaining extent of Farm Mispah IP 274, Farm Chrystalkop IP 69, Farm Hoekplats IP 598, Farm Viljoenskroon RD IP 598 and port 1 of Farm Zuiping IP 394 within the Moqhaka Local Municipality. Harmony Moab Khotsong Operations (Pty) Ltd owns all the properties where the expansion is proposed.

Chemwes was issued with an Integrated Water Use License (IWUL) by the Department of Human Settlements, Water and Sanitation (DHSWS) on the 30th November 2018 (License no. 08/C24BAACIG/8368) to authorise water uses triggered by the current TSF in terms of Section 21 of the National Water Act, 1998 (Act No. 36 of 1998) (NWA). The following water uses were licensed in terms of Section 21 of the NWA:

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

Complete if the WULA is for is for Agriculture or Stream Flow Reduction Activities (SFRA)

Not Applicable for this application

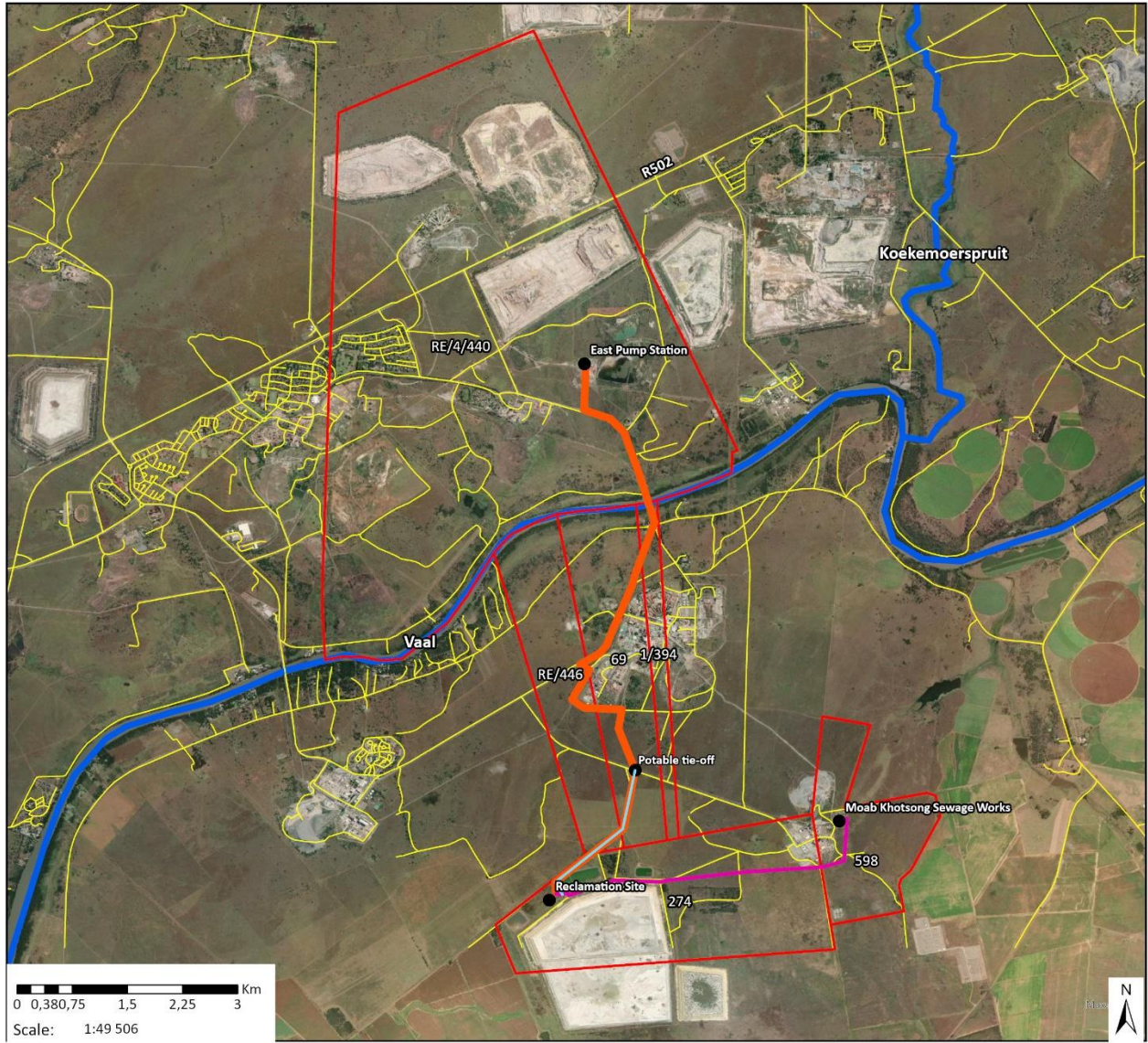
3.2 Location of water uses

The project activities traverse both the North West (NW) and Free State (FS) Provinces within the Fezile Dabi District Municipality (FS) and Southern District Municipality (NW). In the North West the pipelines cross portion 4 of farm Modderfontein IP 440 within the City of Matlosana Local Municipality. In the Free State Province the proposed pipeline traverses the remaining extent of Farm Mispah IP 274, Farm Chrystalkop IP 69, Farm Hoekplats IP 598, Farm Viljoenskroon RD IP 598 and port 1 of Farm Zuiping IP 394 within the Moqhaka Local Municipality.

Table 1: Property details

Property description	Title Deed number	Owner
Portion 4 RE of Farm Modderfontein 440	T85432/2022	HARMONY MOAB KHOTSONG OPERATIONS PTY LTD
Portion 0 of Farm Doornkom-West 440	T8152/2018	
Portion 1 of Farm Zuiping 394	T8152/2018	
Portion 0 of Farm Mispah 274	T8152/2018	
Portion 0 of Farm Hoekplaats 598	T8152/2018	
Portion 0 of Farm Chrystalkop 69	T8152/2018	





Property Map
1542 Harmony Mispah TSF Reclam and Pipelines EIA WULA

Legend

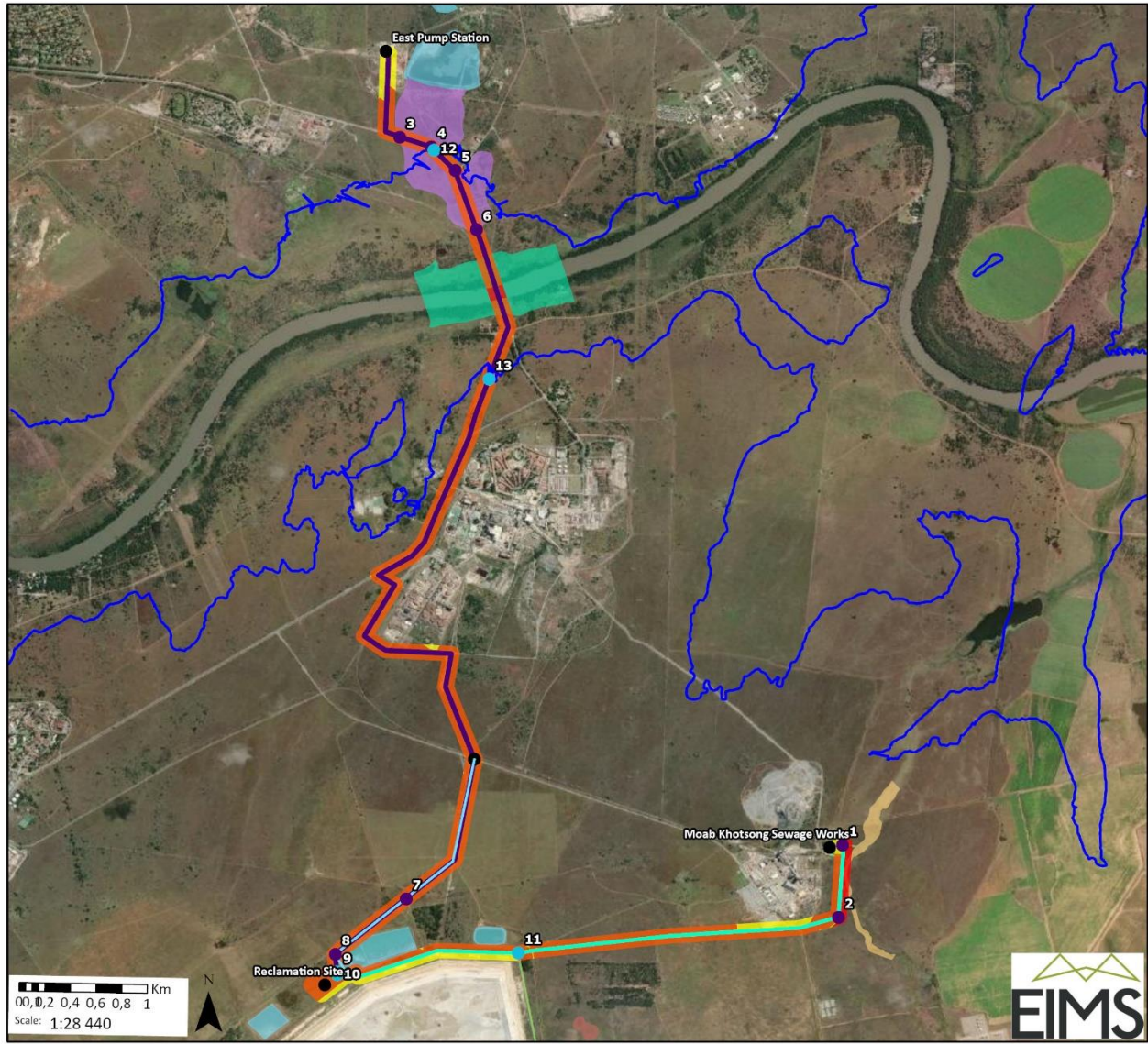
- Places
- Roads
- Rivers
- Name
- Reclamation Pipeline
- Sewage Pipeline
- Potable Water Pipeline
- Directly Affected Properties

Data Sources:
CSG; ESRI
Coord System: GCS WGS 1984
Datum: WGS 1984
Units: Degree
Ref: 1542_Property Map

Date: 2022/11/11
EIMS Ref: 1542
Compiled: CM
Reviewed: JP
Approved: LW



Figure 1: Locality map indicating the location of the pipelines and properties affected by the project



Consolidated Sensitivity Map

1542 Harmony Mispah TSF Reclam and Pipelines EIA WULA

Legend

- 1:100 year floodline
- Places
- Section 21 (c) and (j) Water Use Points

Harmony TFS Reclamation and pipelines

- Potable tie-off
- Reclamation Pipeline
- Sewage Pipeline

Delineated Wetlands

- Artificial
- Drain
- Unchannelled Valley Bottom (HGM 1)
PES: D- Largely Modified
Ecological Services: Intermediate
- River (HGM 2)
PES: D- Largely Modified
Ecological Services: Moderately High
- Unchannelled Valley Bottom (HGM 3)
PES: D- Seriously Modified
Ecological Services: Intermediate
- Depressions (HGM 4)
PES: D- Moderately Modified
Ecological Services: Moderately High

Terrestrial Biodiversity Sensitivity

Sensitivity Ranking

- Low
- Medium
- High
- No-Go

Water Use Points:

- 1: Sewage Pipeline within regulated area of UVB (Start)
- 2: Sewage Pipeline within regulated area of UVB (End)
- 3: Reclamation Pipeline crossing UVB1
- 4: Reclamation Pipeline crossing UVB2
- 5: Reclamation Pipeline crossing UVB3
- 6: Reclamation Pipeline crossing UVB4
- 7: Reclamation Pipeline within proximity of Raw Water Dam 1
- 8: Reclamation Pipeline within proximity of Raw Water Dam 2
- 9: Reclamation Pipeline within proximity of Raw Water Dam 3
- 10: Sewage Pipeline within regulated area of Wetland (Start)
- 11: Sewage Pipeline within regulated area of Wetland (End)
- 12: Reclamation Pipeline crossing River (Start)
- 13: Reclamation Pipeline crossing River (End)

Data Sources:	Date: 2023/02/21
CSG; ESRI	EIMS Ref: 1542
Coord System: GCS WGS 1984	Compiled: CM
Datum: WGS 1984	Reviewed: AM
Units: Degree	Approved: LW
Ref: 1542_Combined Sensitivity 20022023	

Figure 2: Master Plan showing proposed infrastructure and associated water uses.

4. Administrative documents and other technical reports submitted to support the WULA

4.1 Administrative documents

4.1.1 The administrative documents relevant to this application include the following:

- The ID document of the Authorised Signatory and Primary Contact

4.2 Reports and other technical documents

4.2.1 *List all Reports and other technical documents relevant to the application as per WULA regulation or any other information requested formally by the Department and indicate compilers of the documents and dates of compilation.*

Table 2: List of reports and other technical documents submitted

Number	Report Title	Compiled by	Date of report
1	Mispah 1 TSF BAR and EMPr	EIMS	February 2023
2	Mispah 1 TSF WULA Summary Report	EIMS	February 2023
3	Engineering Design Drawings		August 2022
4	Wetland Baseline Risk Assessment	The Biodiversity	February 2023
5	Terrestrial Compliance Statement	Company	February 2023
6	Hydropedology Compliance Statement		February 2023
7	Heritage Impact Assessment	PGS	February 2023

5. Project Description

Complete if the WULA is for mine/industry

The pipeline footprints are anticipated to have minimal impact on the farm portions in which they will traverse. The planned infrastructure includes a 600mm slurry and 500mm low pressure process water pipeline of almost 9km from the East Pump Station to the Mispah 1 TSF Reclamation Pump Station. Both the slurry and process water pipelines will cross the Vaal River at Nologwa Bridge. Additionally, a 100mm NB potable waterline and 150mm NB sewage line be installed to the reclamation pump station. The primary drivers in determining the location of the proposed pipelines is due the limited environmental degradation as the pipelines will be following existing pipeline servitudes. All pipelines will be placed on concrete plinths and will be above-ground.

The slurry reclamation pump station will be constructed west of the Mispah1 TSF. The area that will be cleared of vegetation will be minimal, less than 4ha. The preferred alignment of the reclamation pump station and associated pipeline infrastructure will have the liquefied slurry from the TSF gravitating to the pump station where it will then be pumped to the MWS processing plant, in Stilfontein, via the East Pump Station. From the East Pump Station, the slurry is pumped through existing pipelines to MWS processing plant to extract gold before the tailings are dispersed at Kareerand TSF. Additionally, the potable waterline and sewage line will be installed to the reclamation pump station where it will be following existing pipeline servitudes. Minimal vegetation will be cleared/graded for the construction, maintenance and inspection of the sewage line.

Complete if the WULA is for Developments (housing, lodge etc)

Not Applicable to this application

Complete if the WULA is for water supply/WTW (Local Government)

Not Applicable to this application

Complete if the WULA is for WWTWs (Local Government)

Not Applicable to this application

Complete if the WULA is for is for Agriculture or SFRA

Not Applicable to this application.

Complete if the WULA is for Infrastructure development (Road, Rail etc.)

Not Applicable to this application.

6. Methods statement (only for 21 (c) and (i) activities)

Chemwes plan to construct a new process water and slurry pipeline and reclamation pump station. The slurry pipeline will be a flanged 600mm NB steel pipeline with a concrete mortar or HDPE lining and flow rate of 472 l/s. The section across the Vaal River will be a continuous welded pipe with HDPE liner. While the low-pressure process water pipeline will be a flanged 500mm NB steel pipeline and flow rate of 337 l/s. Both pipes will be installed on surface on prefabricated concrete plinths.

A new slurry reclamation pump station will also be constructed west of the Mispah 1 TSF. The area cleared for the pump station will be ~ 4ha and consist of a series of slurry and high-pressure water pumps and associated infrastructure. The liquefied slurry from the TSF gravitate to the pump station where it is pumped to MWS processing plant, in Stilfontein, via the East pump station. From the East pump station, the slurry is pumped through the existing pipelines to MWS processing plant to extract gold before the tailings is disposed at Kareerand TSF. The pipelines will predominately follow existing pipeline corridors and vegetation clearance will be minimum.

Additionally, a 100mm Nominal Bore (NB) potable waterline and 150mm NB sewage line will also be installed to the reclamation pump station. The sewage from the change house and ablution will be pumped to the Moab Khotsong sewage Works. The sewage pipeline will be flanged steel pipeline and installed above-ground on pre-cast concrete plinths with a 3.5m wide access road adjacent to the pipelines which will be cleared/graded to provide access for construction, maintenance and inspections. All pipelines will be placed on concrete plinths and will be above-ground.

7. Stormwater Management Plan

Not applicable for the application – pipelines are a linear development therefore no SWMP is deemed required.

7.1 Management Approach

Not applicable for the application.

8. Rehabilitation Plan

Rehabilitation plans and mitigations measures are discussed in the EMPr complied by EIMS February 2023. The table below shows the rehabilitation plans for the Mispah 1 TSF project for the closure and decommissioning phase.

Table 2: Rehabilitation plans and mitigation measures

SITE CLOSURE AND REHABILITATION					
A	Areas that are denuded during construction need to be re-vegetated with indigenous vegetation to prevent erosion during flood events. This will also reduce the likelihood of encroachment by alien invasive plant species	Environmental Officer Contractor	Closure Phase/Rehabilitation phase	Ensure the site is returned to pre-construction conditions, prevent erosion or introduction of alien invasive species.	Quarterly for up to two years after the closure
B	All footprints are to be rehabilitated and landscaped after construction is complete. Rehabilitation of the disturbed areas existing in the project areas must be made a priority. Topsoil must also be utilised, and	Environmental Officer Contractor	Closure Phase/Rehabilitation phase		When necessary

	any disturbed area must be re-vegetated with plant and grass species that are endemic to this vegetation type;				
C	A fire management plan needs to be compiled and implemented to restrict the impact that fire would have on remaining natural and newly rehabilitated areas. Natural areas remaining adjacent to the development footprint should be left to naturally regenerate. Fire and cutting control methods must be authorised to clear areas containing natural indigenous vegetation.	Environmental Officer Contractor	Closure Phase/Rehabilitation phase	Fire management and control	During phase
D	Precautions must be taken against the erosion damage that would be caused by unplanned pipe leaks. Leak detection measures must be informed by the design engineers.	Environmental Officer Contractor	Closure Phase/Rehabilitation phase	Erosion Management and control.	During Phase and Ongoing Monitoring

9. Water Uses applied for *(Only put water uses applied for)*

The application includes the following water uses as detailed in Table 3.

Table 3: Water Use Applied for

Name of water use	Description	Purpose	Capacity/ Volume (m ³ , tonnes and/or m ³ /annum)/ dimension (Area (ha) Length/depth, (m)),	Property Description	Co-ordinates
Section 21 (c & i)					
Reclam_UVB1	Reclamation pipeline impeding an unchanneled valley bottom	Pipeline	0	Remaining extent portion 4 of Farm 440	26°56'5.12"S 26°46'26.10"E
Reclam_UVB2		Pipeline	0	Remaining extent portion 4 of Farm 440	26°56'7.51"S 26°46'33.95"E
Reclam_UVB3		Pipeline	0	Remaining extent portion 4 of Farm 440	26°56'13.51"S 26°46'40.03"E
Reclam_UVB4		Pipeline	0	Portion 1 of Farm 394	26°56'28.45"S 26°46'45.40"E
Reclam_River_Start	Reclamation pipeline	Pipeline	0	Remaining extent portion 4 of Farm 440	26°56'8.33"S 26°46'34.65"E

Name of water use	Description	Purpose	Capacity/ Volume (m ³ , tonnes and/or m ³ /annum)/ dimension (Area (ha) Length/depth, (m)),	Property Description	Co-ordinates
Reclam_River_End	impeding a river (Vaal)	Pipeline	0	Portion 1 of Farm 394	26°57'6.22"S 26°46'48.55"E
Reclam_RWD1	Reclamation pipeline impeding a return water dam (wetland)	Pipeline	0	Remaining extent of Farm 446	26°59'17.41"S 26°46'27.69"E
Reclam_RWD2		Pipeline	0	Land Parcel 274	26°59'31.43"S 26°46'9.80"E
Reclam_RWD3		Pipeline	0	Land Parcel 274	26°59'35.96"S 26°46'10.15"E
Sewage_RWD_proximity_Start	Sewage pipeline within regulated area of return water dam (wetland)	Pipeline	0	Land Parcel 274	26°59'36.60"S 26°46'10.28"E
Sewage_RWD_proximity_End		Pipeline	0	Land Parcel 274	26°59'31.12"S 26°46'56.01"E
Sewage_UVB_proximity_Start	Sewage pipeline within regulated area of an unchanneled valley bottom	Pipeline	0	Portion 0 of Farm 598	26°59'3.89"S 26°48'17.86"E
Sewage_UVB_proximity_End		Pipeline	0	Portion 0 of Farm 598	26°59'22.08"S 26°48'16.75"E

Motivation for an Exemption in terms of Government Notice 704 exemption (applicable to mining)

In terms of Regulation 4 (a) of GN 704 (1999): "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, unsuitable or cracked;"

The pipeline is required to transport tailings from the Mispah 1 TSF and pump station which is located south of the Vaal River into the East Pump Station which is located north of the Vaal River. The pipeline therefore will cross the Vaal River at the Nologwa Bridge. This pipeline stretch over the Vaal River falls within the 1:100 year flood-line and is therefore restricted in terms of GN704. As such an application for exemption from GN704, Regulations 4(a) will be required.

10. Description of the Environment

This section provides a description of the environment related to water that may be affected by the project. This information has been sourced from existing information available for the Harmony Mispah Operations area, as well as the specialist reports undertaken for the proposed Mispah 1 TSF expansion project.

10.1 Climate

According to Köppen-Geiger Climate classification, Orkney has a hot semi-arid climate (BSh). These climates tend to have hot, sometimes extremely hot, summers and warm to cool winters, with summer rainfall with the annual average of precipitation being approximately 530mm. High summer temperatures are common for this area with severe frost occurring throughout the winter (37 days per year on average).

10.2 Topography and Regional Drainage

The topographical inland and river line data for "2626" and "2726" quarter degree was used to identify potential wetland areas within the PAOI. This data set indicates multiple inland water areas classified as dams, large

reservoirs, marsh vlei, non-perennial pans and, sewerage works (Figure 3). Furthermore, a single perennial river (Vaal River) and two non-perennial streams have been identified.

10.3 Geology and Soils

The geology of the area is found within the Malmani Sub-Group of the Transvaal Basin. The geology is characterised by aeolian and colluvial sand which overlies mudstone, sandstone and shale of the Karoo Supergroup. Older Ventersdorp Supergroup basement gneiss and andesite is located to the north. Soil forms associated with the project area includes the Bd, Bc, Ae and Ba land types, which correlates with the findings from the land type database (Mucina and Rutherford, 2006).

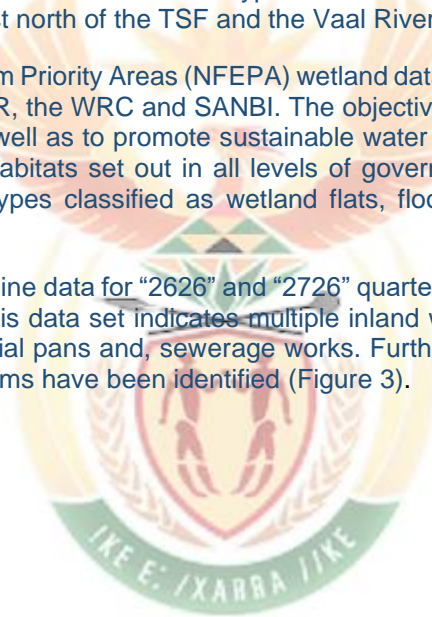
According to the land type database (Land Type Survey Staff, 1972 - 2006), the project area is characterised by the Bc 24, the Fa 13 and the Bc 25 land type. The Bc land type is characterised by plinthic catena. Upland duplex and margalitic soils are rare within this land type. Eutrophic red soils are widespread across this area. The Fa land type is characterised by Glenrosa and/or Mispah soil forms which are common in this area, however, other soils may occur. Lime is rare or absent throughout the entire landscape.

10.4 Surface Water (Wetland)

The South African Inventory of Inland Aquatic Ecosystems (SAIIAE) wetland dataset is a recent outcome of the National Biodiversity Assessment (NBA, 2018) and, was a collaborative project by the South African National Biodiversity Institute (SANBI) and the Council for Scientific and Industrial Research (CSIR). The SAIIAE dataset provides further insight into wetland occurrences and extents building on the information from the NFEPA, as well as other datasets. Two wetland types were identified by means of this dataset which incorporate a single depression just north of the TSF and the Vaal River.

The National Freshwater Ecosystem Priority Areas (NFEPA) wetland dataset is a collaborative project between multiple stakeholders such as CSIR, the WRC and SANBI. The objective of the project was to identify priority areas to conserve and protect as well as to promote sustainable water use, thereby assisting in meeting the biodiversity goals for freshwater habitats set out in all levels of government (Nel et al. 2011). The NFEPA dataset represents four wetland types classified as wetland flats, floodplain wetland, unchannelled valley bottoms and valley head seeps.

The topographical inland and river line data for “2626” and “2726” quarter degree was used to identify potential wetland areas within the PAOI. This data set indicates multiple inland water areas classified as dams, large reservoirs, marsh vlei, non-perennial pans and, sewerage works. Furthermore, a single perennial river (Vaal River) and two non-perennial streams have been identified (Figure 3).



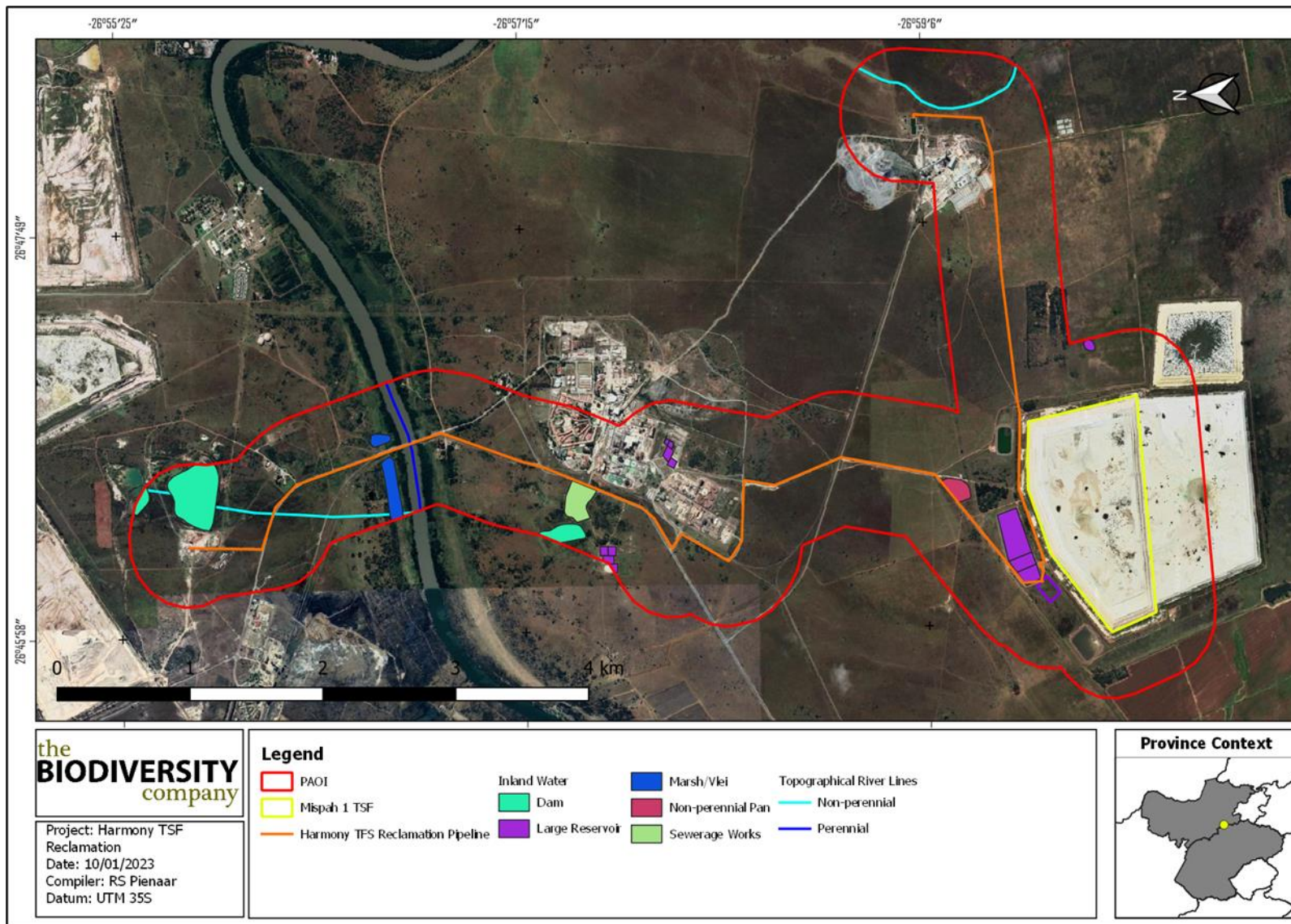


Figure 3: Topographical River lines and inland water areas located within the PAOI (The Biodiversity Company, 2023).

11. Impacts and mitigation measures

The potential impacts that are expected from the proposed activities are presented in Table 4.



Table 4: Summary of impacts identified

Impact	Positive or Negative	Pre-mitigation Significance	Final Significance
Poor housekeeping will result in the deterioration of water quality, increase in E coli resulting in potential health effects	Negative	-14	-4
Local spillages of oils from construction vehicles and machinery leading to groundwater contamination.	Negative	-6	-3,5
Increase in silt load in runoff due to site clearing, grubbing and the removal of topsoil from the construction footprint area.	Negative	-6	-2,8125
Disturbance of the area may release suspended solids into the river during the construction of the temporary earth berm	Negative	-13	-5,0625
Vegetation clearance may result in loss of faunal habitat ecological structure, species diversity and loss of species of conservation concern.	Negative	-3,5	-1,5
Potential spreading of alien invasive species as indigenous vegetation is removed, and pioneer alien species are provided with a chance to flourish.	Negative	-8,25	-5
Possible increase in dust generation, PM10 and PM2.5 because of bulk earthworks, operation of heavy machinery, and material movement.	Negative	-7	-2,5
Loss of vegetation species including vegetation species of conservational concern due to site clearance.	Negative	-13	-2,75
The use of vehicles and machinery during the construction phase may generate nuisance noise in the immediate vicinity	Negative	-8	-4,5
Localised clearing of vegetation and compaction of the construction footprint will result in the soils being particularly more vulnerable to soil erosion.	Negative	-11	-6

Poor waste management will result in the contamination of surface runoff resulting in the deterioration of water quality of the watercourse.	Negative	-11	-3
Impacts on heritage resource	Negative	-3,5	-1,5
Potential leakage of sewage water may result in nuisance odor and flies which may result in conflict with communities around the project area.	Negative	-13	-3,5
Erosion of the riverbeds and banks may result in siltation of the Vaal River	Negative	-14	-5
Disturbances to or removal of vegetation whilst accessing infrastructure to carry out maintenance activities may result in potential loss to indigenous vegetation and further proliferation of alien floral species.	Negative	-7,5	-1,25
The use of vehicles and machinery during maintenance and/repair may generate noise in the immediate vicinity	Negative	-9	-2,5
Potential leakage of the proposed slurry pipeline and into the Vaal River and associated riparian zone because of maintenance activities;	Negative	-18	-4,5



12. Water demand and water supply Analysis

12.1 Water demand

Not applicable to project.

12.2 Water supply analysis

Not Applicable to project.

13. Water Balance <<applicable to mining and industries>>

Not applicable for project. No water will be abstracted from natural resources.

14. Water quality <<only applicable to water quality related activities>>

Not applicable to project.

15. Public participation

This section provides details on the notifications that were distributed as part of the consultation process to date. The Public consultation process commenced during the initial call to register for both the EA process and WULA process.

15.1 Initial Notification of Landowners and I&APs

I&AP's were provided an opportunity to register for the proposed project from the 15 November 2022. I&AP's will be notified of the availability of the BAR which will be made available for 30 days from the 7th of March 2023 until the 6th of April 2023, for review and comment. Comments obtained during the BAR public review and comment period and the responses will be included in the final submission to the DFFE.

15.1.1 Registered Letters, Faxes and Emails

Notification letters and registered mail in English and Setswana were distributed on the 15 November 2022 to pre-identified I&APs through either registered mail, faxes, and/or emails. The notification documents included the following information:

- List of anticipated activities to be authorised;
- Sufficient detail of the proposed development to enable I&APs to assess/surmise what impact the development will have on them or on the use of their land;
- The purpose of the proposed project;
- Details of the application processes associated with proposed activities;
- Details of the affected properties (including a locality map);
- Details of the South African environmental legislation that must be adhered to;
- Date by which the I&AP must register and send comments through to EIMS;
- Contact details of the EAP.

15.1.2 Newspaper Advertisements

Advertisements describing the proposed project and EA process were placed in the Klerksdorp Record and National Gazette (in English and Setswana) with circulation in the vicinity of the study area on the 2nd of December 2022. The newspaper adverts included the following information: Project name;

- Project name;
- Applicant name;

- Project location;
- Nature of the activity;
- Legislative requirements; and
- Relevant EIMS contact person for the project.

15.1.3 Site Notice Placement

A1 Correx site notices (in English and Setswana) were placed within and surrounding the perimeter of the proposed project study area on the 23 November 2022. The on-site notices included the following information:

- Project name;
- Applicant name;
- Project location;
- Map of proposed project area;
- Project description;
- Legislative requirements; and
- Relevant EIMS contact person for the project.

15.2 Availability of the Basic Assessment Report

The BAR and associated appendices will be made available on the EIMS website and a hard copy of the report will be submitted to the local public library where members of the public can access the report.

15.2.1 Notifications for the availability of the Basic Assessment Report

Notification (in English and Setswana) regarding the availability of the BAR will be provided to preidentified and registered I&APs a distributed through either faxes, registered mail and/or emails. The notification includes details regarding where hard copies of the reports can be accessed.

Contact details have been provided to I&APs if they require assistance accessing the information or require copies of the reports.

15.2.2 Public open day

A To be confirmed.

15.3 Availability of the EIA/EMPR Report

To be confirmed.

15.3.1 Notifications for the availability of the EIA/EMPR

Notification (in English and Setswana) regarding the availability of the BAR Report will be provided to preidentified and registered I&APs through either faxes, registered mail and/or emails. The notifications will include details regarding where hard copies of the reports can be accessed.

15.3.2 Public Open day

Not applicable for the project.

15.4 Availability of the IWWMP report

An IWWMP report is not applicable for the project since no waste is generated from the activity (i.e. no 21(g) activity being applied for). However a WULA summary technical report applicable to Section 21 c&i will be made available on the 7th of March 2023.

16. Inputs/Authorisations from other Departments /Stakeholders

- Basic Assessment Report for the Mispah 1 TSF Project.

17. Section 27 (1)

The requirements contained in Section 27(1) of the National Water Act, 1998 (Act 36 of 1998) have been considered and are discussed further below.

a) Existing lawful water uses

Chemwes has an existing WUL (License No.: 08/C24B/AIACGI/11868) authorising various water uses in terms of Section 21 (a), (c), (g) and (i) of the National Water Act, 1998 (NWA). The existing WUL does not cover the properties that are applicable in the proposed Mispah reclamation and associated pipelines project.

With respect to the proposed project of constructing a reclamation pump station with its associate pipelines, section 21 (c) and (i) water use has been identified. The pipeline route will be crossing the Vaal River and because the pipelines will be carrying slurry, it triggers a full water use licence application.

b) Need to redress the results of past racial and gender discrimination

The Applicant aims to redress historical socio-economic inequalities, ensure broad-based economic empowerment (BBEE) and the meaningful participation of Historically Disadvantaged Persons in the mining and minerals industry within South Africa. The construction and extension of the pipelines will extend the LoM for Mispah TSF by \pm 8 years and reclaiming around 75 Million tons at a rate of around 9.4 mT/annum. This extension will indirectly impact the employment rate in the community.

c) Efficient and beneficial use of water in the public interest

Due to the limited nature of the project, the construction of the reclamation pipeline will not require additional water for the project. However, part of the Vaal Water Management strategy involves recycling as much water as possible. The water management system is based on the principles of pollution prevention, management of affected water at source, optimal re-use / recycling of affected water as well as zero discharge of affected water to the natural surface water environment.

d) Socio-economic impact –

The reclamation operations results into a number of socio-economic benefits within the affected local municipalities and its' communities. The details regarding the socio economic impacts are described below.

i) Of water use or uses if authorised:

ii) The project will have a positive impact on the employment opportunities in the KOSH region through the extension of the Chemwes Operations

iii) Of the failure to authorise water use or uses:

Failure to authorise the proposed water uses will result to the following socio economic impacts:

- Failure to authorise the proposed water use will result in a reduction of the LOM of the Chemwes Operations and premature closure of Chemwes Operations that will have impact on employment in the KOSH region. Without the necessary authorisation contractors and employees will be without a job and therefore further increase in poverty of this region.

e) Any catchment management strategy applicable to the relevant water resource

The catchment management agency for the Vaal River System was established on 29 January 2016, through the promulgation of GNR 81 in terms of the NWA and is called the Vaal River Catchment Management Agency. This notice specified the following amongst others:

- The Vaal Water Management Area (WMA) is the result of the consolidation of the Upper, Middle and Lower Vaal catchments. The Vaal Water Management Area occupies the Central North Eastern area of South Africa. It extends to Ermelo in Mpumalanga, just west of Swaziland in the east across to Kuruman in the Northern Cape to the West. To the northwest, the WMA borders Botswana and the Crocodile (West) and Olifants Catchments. Johannesburg sits on the boundary of the CMA. To the south east it is bounded by Lesotho;
- The major water uses in the water management area include industrial, mining sectors, power generation, commercial agriculture (including stock watering, small and large irrigation schemes, dry land farming and forestry), nature conservation, as well as urban and rural human settlements;
- The business case of the Vaal River Catchment Management Agency has been approved;
- All initial, inherent and delegated functions will be performed in the Vaal River CMA; and
- A Water Resource Management charge will be billed by the Vaal River CMA in accordance with Section 57(2) of the NWA.

f) Likely effect of the water use to be authorized on the water resource and on other water users.

The Middle Vaal WMA is largely dependent on water releases from the Upper Vaal WMA for meeting the bulk of the water requirements by the urban, mining and industrial sectors within its area of jurisdiction, with local resources mainly used for irrigation and smaller towns. The Middle Vaal water management area is relatively sparsely populated and represents just over 3% of the national population. The future demography and population distribution of the water management area will largely be influenced by economic opportunities and potential. Urban populations are expected to decline over much of the water management area mainly as a result of the decline in mining activity as well as due to a lack of other economic stimulants in the region. The main economic sector in the Middle Vaal WMA is mining, with a contribution of 45,6% to GGP. The main mining activity in this area is gold mining.

The Mispah TSF reclamation project is not likely to affect water resources in the area. The proposed pipelines routes will be following existing pipeline servitudes which limits impacts on the receiving environment, significantly. The proposed new water uses are driven by need meet the remaining Life of Mine (LoM). The section across the Vaal River will be a continuous welded pipe with HDPE liner. This will avoid any leakage or breakage over the water resource. The Applicant ensures that water is re-cycled and re-used in the process, therefore reducing the need for excessive reliance on natural water resources that supply the mine with water and preventing the wastage of water during the process.

g) Class and the resource quality objectives of the water resource

The water quality situation of the Vaal River main stem and the tributaries are discussed below. The water quality of the main stem of the Vaal River is not only affected by the water quality of the flow from the tributaries within the WMA but also by the water quality of the water received from the upstream Upper Vaal WMA. The water quality received from Upper Vaal WMA is considered to be relatively poor. Despite the blending practiced in the Upper Vaal WMA, with releases from Vaal Dam used to maintain the TDS concentration in the Vaal Barrage at 600 mg/l, salinity has been reported as a problem in the Vaal river main stem. Nutrients are also a water quality variable of concern. There is also the carry over of hyacinth to the Middle Vaal WMA from the Upper Vaal WMA. The water quality of the Vaal main stem is impacted on by mining activities in the Schoonspruit, Koekemoerspruit and the Sand-Vet systems in the Middle Vaal WMA.

h) Investments already made and to be made by the water user in respect of the water use in question

At this current stage, no capital investments besides those associated with the water use licensing processes, specialist studies, designs etc. have been made.

i) Strategic importance of the water use to be authorised

As described above the Mispah TSF form part of the LoM and without the proposed remaining of the Mispah TSF, Chemwes would not be able to meet the planned operation till 2042. The mine provides important socio-economic advantages to the community and to South Africa.

j) The quality of water in the water resource which may be required for the Reserve and for meeting international obligations

Due to the interdependencies, the management and planning of the Vaal River System is undertaken at the national level and not by the Middle Vaal water managers (CMA when it is established, until then the DWAF Regional Office). The Middle Vaal water managers will be responsible for the assessment of the availability of the local groundwater and surface water resources used to supply local authorities and district councils without access to the Vaal River System water supply infrastructure. The water requirement projections that are currently used for planning originate from the development of the National Water Resource Strategy (NWRS). The total water requirements in the Middle Vaal WMA is 872 million m³/annum. The total water requirements for the Middle Vaal are projected to reach 885 million m³/annum by the year 2025, for the base growth scenario. The water requirement projections that are currently used for planning originate from the development of the National Water Resource Strategy (NWRS). The total water requirements in the Middle Vaal WMA is 872 million m³/annum. The total water requirements for the Middle Vaal are projected to reach 885 million m³/annum by the year 2025, for the base growth scenario.

The current approach adopted in managing water quality is to apply the steps presented below on a sub-catchment basis. The first step is to carry out a situation assessment during which Interim Water Quality Objectives (WQO) are established and water quality variables of concern and sources of pollution are identified. The WQO are based on the water quality requirements of the user sectors as well as from the ecology. The subsequent phases in the process, following the situation assessment, are to develop water quality management plans or catchment management strategies. During this phase water management interventions such as source control, treatment and dilution are assessed. These phases also involve the revisiting of the WQO in an iterative manner to reach a balance between the water user requirements and achievable management strategies that do not impede continued economic growth.

Due to this inter-dependency it was identified that the current process of managing water at sub-catchment level, should be expanded to integrate management activities across sub-catchments, to meet shared water quality objectives in major tributaries as well as in the main stem of the Vaal River.

The role of the Middle Vaal WMA CMA will include:

- To manage the water quality by setting WQOs and developing a CMS as per the Water Quality Management Strategy. The setting of the WQOs will be within the framework of the Integrated Water Quality Management Plan for the Vaal River System.
- The monitoring of the system to provide management information for water quality management, abstraction control and input to the overarching operations and planning processes.
- Provide input into the supply of local authorities from local groundwater and surface water resources. This will be in the form of strategic level guidance as to where water can be obtained and the level of study needed to be submitted with the license application.
- All water use licences will be issued through the Middle Vaal WMA CMA.
- A very important communication role between the Water Users and the utility/DWAF Head Office
- Promotion of WC&DM through the water service providers and local authorities/DWAF Head Office to achieve efficient use of water. Only once efficient use has been achieved can further transfers be considered.
- Other delegated functions as determined during the process of establishing the CMA.

k) Probable duration of any undertaking for which a water use is to be authorised

The proposed new water uses are intended extend the current LoM by approximately 8 years and around 75 Million tons will be reclaimed at a rate of around 9.4 mT/annum. It is important to bear in mind that the current LoM is only an estimation and could be extended in the future should the need arise.

18. Declaration by the applicant with signature confirming that the information submitted is correct
[END OF WATER USE LICENCE APPLICATION SUMMARY]

