

PREPARED FOR:



PREPARED BY:

Harmony Mispah TSF Reclam and Pipeline



Environmental Site Sensitivity Verification Report

Site ID:	Harmony Mispah TSF Pipeline	Contractor:	EIMS
Location:	Harmony Gold Mine Vaal Reef	Inspector:	Ayabulela Manjezi
Client representative:	John van Wyk	Inspection Date:	23 November 2022

1. Background

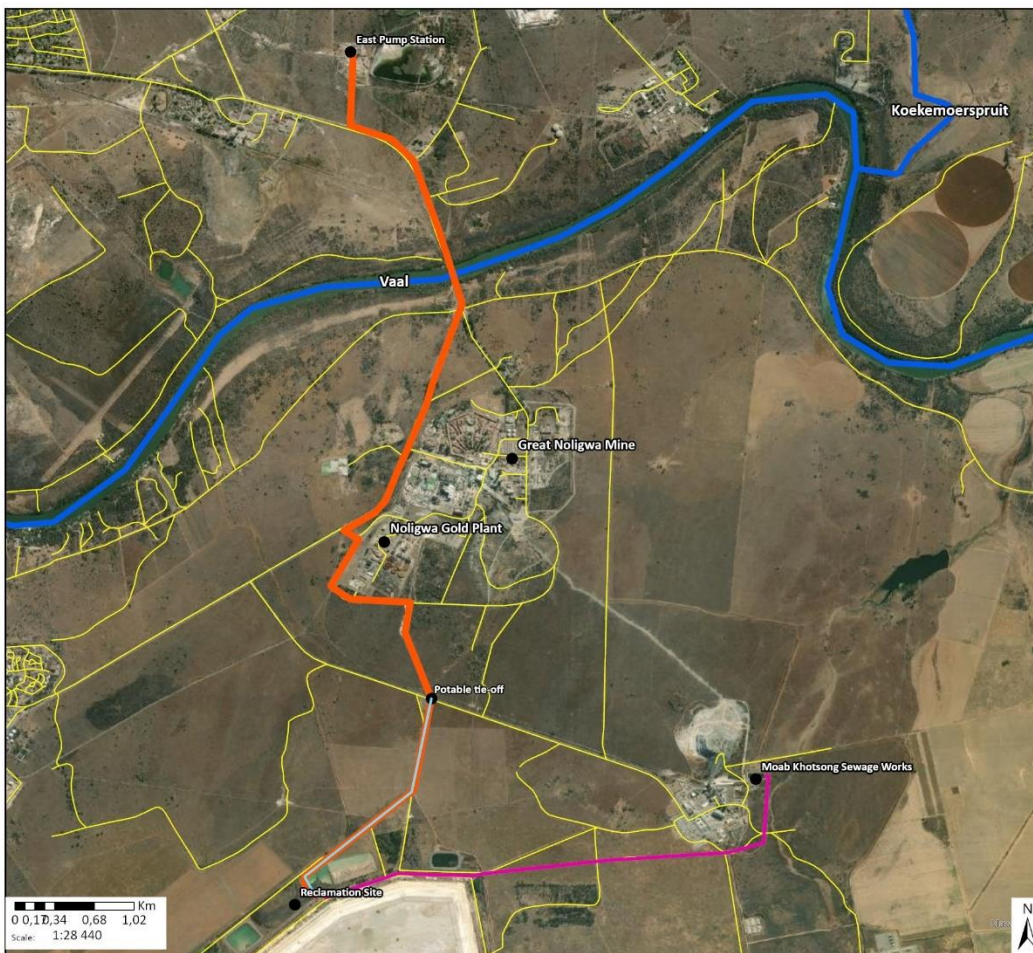
Background of the project: The applicant wishes to expand their reclamation activities to the Mispah 1 TSF through the construction of a reclamation pump station and installation of additional piping infrastructure to meet the planned Life of Mine (LOM) plan. The planned infrastructure will include a new process water and slurry pipeline and reclamation pump station. 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.

Project Aspects:	Yes	No	Details (provide specifications)	Location (DD MM SS)	
				Latitude	Longitude
❖ Slurry pipeline	<input checked="" type="checkbox"/>	<input type="checkbox"/>	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.	Start 26°55'44.31"S Mid 26°57'38.17"S End 26°59'36.77"S	26°46'23.37"E 26°46'36.15"E 26°46'10.14"E
❖ Process water pipeline	<input checked="" type="checkbox"/>	<input type="checkbox"/>	A 100mm NB potable waterline will be installed to the reclamation pump station.	Start 26°58'42.33"S End 26°55'44.31"S	26°46'44.58"E 26°46'23.37"E



❖ Sewage pipeline	<input checked="" type="checkbox"/>	<input type="checkbox"/>	A 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 Khotsoeng sewage work's. The sewage pipeline will be flanged steel pipeline and installed above-ground on pre-cast concrete plinths and a 3.5m wide access road, adjacent to the pipelines, will be cleared/graded to provide access for construction, maintenance and inspections.	Start 26°55'44.31"S	26°46'23.37"E
				Mid 26°59'29.23"S	26°47'14.15"E
				End 26°59'3.72"S	26°48'17.03"E
❖ Reclamation pump station	<input checked="" type="checkbox"/>	<input type="checkbox"/>	A new slurry reclamation pump station will 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.	26°59'37.75"S	26°46'7.46"E
❖ Other:	<input type="checkbox"/>	<input checked="" type="checkbox"/>			

2. Site Layout Plan



Locality Map
1542 Harmony Mispah TSF Reclam and Pipelines EIA WULA

- Places
- Roads
- Rivers

Name

- Reclamation Pipeline
- Sewage Pipeline
- Potable Water Pipeline

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

Date: 2022/11/10
EIMS Ref: 1542
Compiled: CM
Reviewed: JP
Approved: LW

2. DEA Screening Tool Assessment

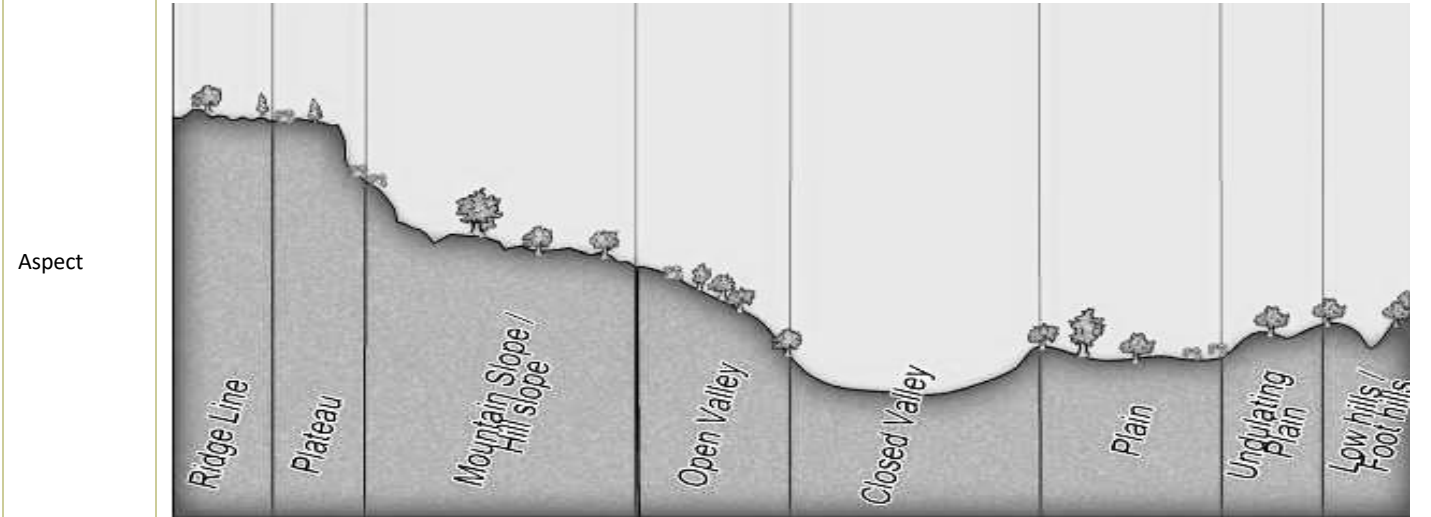
Aspect	Very High	High	Medium	Low
Agriculture		X		
Animal species		X		
Aquatic Biodiversity	X			
Archaeological and Cultural Heritage				X



Civil Aviation		X		
Defense Theme				X
Paleontology	X			
Plant Species Theme			X	
Terrestrial Biodiversity	X			

3. Site Assessment

3.1 Gradient (indicate the general gradient characteristics of site)



Aspect									
Reclamation site and pipelines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Is the site located on or in the immediate vicinity of any of the following:

	Reclamation site and pipelines		
	Yes	No	Comment
Erosion Channels or areas of severe erosion/ destabilized soils	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Wetlands (within 32m)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Unstable slopes or geological features (rocky outcrops)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bare areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Some bare areas around site proposed for the reclamation site.
Other Sensitive or risk areas?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	The area that will be cleared is located in a CBA. The CBA has been significantly disturbed with mining activities.
Are any existing servitudes and structures directly or indirectly affected by the proposed sites and routes (e.g. Eskom, public road servitudes and restrictions- 60m from National Road, farmer's water/irrigation supplies, etc.)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Mine road, existing pipelines and Eskom powerlines. The pipelines will follow existing pipeline servitudes.

3.2 Vegetation

Which of the listed descriptions best describes the general groundcover on and around the site?

Natural veld - good condition <input checked="" type="checkbox"/>	Natural veld with scattered aliens <input type="checkbox"/>	Natural veld with heavy alien infestation <input type="checkbox"/>	Veld dominated by alien species <input type="checkbox"/>	Gardens <input type="checkbox"/>
Sport field <input type="checkbox"/>	Cultivated land <input checked="" type="checkbox"/>	Paved surface <input type="checkbox"/>	Building structure <input type="checkbox"/> or other <input type="checkbox"/>	Bare soil <input type="checkbox"/>



Comments on vegetation composition:	The site is located within the Harmony Gold Target 1 and Moab mining area. The site area is heavily disturbed by mining activities such as clearing of vegetation, fragmentation due to the presence of mining infrastructures and traces of commercial annual crops rain-fed / dryland.
Comments on weed species/type	The area was flagged as a critical biodiversity area as well as an ecological support area. The area has been disturbed due mining activities and a biodiversity study will need to be conducted to ensure no indigenous vegetation is cleared during the construction of the reclamation pump station and pipelines.

Land cover/ use description: Describe the land uses on the site

Reclamation pump station	The landcover is made up of natural grassland and fallow land and old fields (grass). Traces of commercial annual crops rain-fed / dryland was noted close to the proposed reclamation site. The proposed reclamation site is located to surface mine infrastructure (tailings dam).
Slurry and Potable Water Pipelines	The pipelines will follow existing pipeline servitudes. The landcover is made up of natural grasslands with scattered alien vegetation, natural river (Vaal River) and artificial water bodies.
Sewage Pipeline	The sewage pipeline has a fallow land & old fields (grass) which is classified as cultivated land. A small patch of commercial annual crops rain-fed / dryland are noted.





4. General Comments and/or Recommendations

The project areas are situated within a grassland biome. The vegetation and ecology within the proposed reclamation site and pipeline route has been disturbed through mining activities, both currently and historically. Terrestrial diversity is relatively low in the project area. Minimal vegetation clearance and disturbance will occur as the pipelines will follow existing pipeline servitudes.

A river system is identified within 500m regulated area for the pipelines. The pipeline servitude will be located away from the floodline and attached on a bridge above the Vaal River. The importance and sensitivity of the system has been scored "very high" due to the river being CBA. The associated risks posed on the river system can be significantly reduced through engineering interventions such as installing single casing across the river system to avoid pipes leaking. Due to the pipelines carrying hazardous waste, a General Authorisation will not be applicable for this project.







Site Photos

<p>Reclamation pump station</p>		
<p>Describe area and adjacent land use:</p>	<p>View north from center of site. The adjacent land use is fallow land and old fields (grass).</p>	<p>View east from center of site towards tailings. The only adjacent land use is mining. The site area could be described as disturbed natural vegetation.</p>
<p>Reclamation pump station</p>		
<p>Describe area and adjacent land use:</p>	<p>View south from center of site. The only adjacent land use is mining. The site area could be described as disturbed natural vegetation.</p>	<p>View west from center of site. The site could be described as disturbed natural vegetation.</p>



<p>Sewage pipeline route</p>		
<p>Describe area and adjacent land use:</p>	<p>Pipelines will be following existing pipeline routes</p>	<p>Patch of area that will be cleared for pipelines to get to East Pump Station</p>
<p>Sewage pipeline route</p>		
<p>Describe area and adjacent land use:</p>	<p>Sewerage pipeline will be channeled underneath road.</p>	<p>Pipeline servitude will be channeled under the road towards the east pump station</p>



<p>Raw water pipeline and Slurry pipeline route</p>		
<p>Describe area and adjacent land use:</p>	<p>Slurry pipeline route along the bridge crossing the Vaal River. Sewage line will run on top of existing pipeline.</p>	<p>Slurry pipeline will be hoisted on the bridge before the floodline.</p>
<p>Raw water pipeline and Slurry pipeline route</p>		
<p>Describe area and adjacent land use:</p>	<p>Raw water pipeline and slurry pipeline route will follow existing pipeline servitude</p>	<p>Raw water pipeline and slurry pipeline route will follow existing pipeline servitude</p>

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7. Verification findings and motivation:

Assessment for specialist studies and motivation:					
Screening Tool Specialist Study Required:	Level of Sensitivity:	Suggested Sensitivity:	Required Assessment level	of	Motivation
Aquatic Biodiversity	Very High	Medium - Low	None.	<input type="checkbox"/>	A full DFFE protocol compliant specialist Aquatic and Wetland Impact Assessment will be undertaken.
			Compliance Statement	<input type="checkbox"/>	
			Full Assessment	<input checked="" type="checkbox"/>	
			Other	<input type="checkbox"/>	
Archaeological and Cultural Heritage	Low	Unknown	None.	<input type="checkbox"/>	A full DFFE protocol compliant specialist Heritage Impact Assessment will be undertaken.
			Compliance Statement	<input type="checkbox"/>	
			Full Assessment	<input checked="" type="checkbox"/>	
			Other	<input type="checkbox"/>	
Paleontology	Very High	Unknown	None.	<input type="checkbox"/>	A full DFFE protocol compliant specialist Paleontological Impact Assessment will be undertaken.
			Compliance Statement	<input type="checkbox"/>	
			Full Assessment	<input checked="" type="checkbox"/>	
			Other	<input type="checkbox"/>	
Terrestrial Biodiversity	Very High	Medium - Low	None.	<input type="checkbox"/>	A full DFFE protocol compliant specialist Terrestrial Biodiversity Impact Assessment will be undertaken.
			Compliance Statement	<input type="checkbox"/>	
			Full Assessment	<input checked="" type="checkbox"/>	
			Other	<input type="checkbox"/>	
Civil Aviation	High	Low	None.	<input checked="" type="checkbox"/>	The nature of the development (pipelines and reclamation pump station) and components of the development during the construction and operational phases will not pose any risk to commercial air traffic. Therefore no specialist aviation studies will be undertaken. However, SACAA will be included in the I&AP database.
			Compliance Statement	<input type="checkbox"/>	
			Full Assessment	<input type="checkbox"/>	
			Other	<input type="checkbox"/>	
Agriculture Theme	High	Low	None.	<input checked="" type="checkbox"/>	



			Compliance Statement	<input type="checkbox"/>	There is currently no agricultural activities along the development footprint. As such, no agricultural assessment is required.
			Full Assessment	<input type="checkbox"/>	
			Other	<input type="checkbox"/>	
Animal Species	High	Medium - Low	None.	<input checked="" type="checkbox"/>	No animal species assessment required however this will be covered in the ecological assessment to be undertaken.
			Compliance Statement	<input type="checkbox"/>	
			Full Assessment	<input type="checkbox"/>	
			Other	<input type="checkbox"/>	

Guidance notes:

- An applicant intending to undertake an activity identified in the scope of this protocol, on a site identified by the screening tool as being of “very high” or “high” sensitivity for terrestrial animal species must submit a Terrestrial Animal Species Specialist Assessment Report.
- An applicant intending to undertake an activity identified in the scope of this protocol on a site identified by the screening tool as being of “medium sensitivity” for terrestrial animal species must submit either a Terrestrial Animal Species Specialist Assessment Report or a Terrestrial Animal Species Compliance Statement, depending on the outcome of a site inspection undertaken in accordance with paragraph 4.
- An applicant intending to undertake an activity identified in the scope of this protocol on a site identified by the screening tool as being of “low” sensitivity for terrestrial animal species must submit a Terrestrial Animal Species Compliance Statement.
- Where the information gathered from the site sensitivity verification differs from the screening tool designation of “very high” or “high”, for terrestrial animal species sensitivity and it is found to be of a “low” sensitivity, then a Terrestrial Animal Species Compliance Statement must be submitted.
- Where the information gathered from the site sensitivity verification differs from the screening tool designation of “low” terrestrial animal species sensitivity and it is found to be of a “very high” or “high” terrestrial animal species sensitivity, a Terrestrial Animal Species Specialist Assessment must be conducted.
- If any part of the development falls within an area of confirmed “very high” or “high” sensitivity, the assessment and reporting requirements prescribed for the “very high” or “high” sensitivity, apply to the entire development footprint. Development footprint in the context of this protocol means, the area on which the proposed development will take place and includes the area that will be disturbed or impacted.