

PREPARED FOR:

PREPARED BY:

Mine Waste Solutions



Pre-disturbance Environmental Site Assessment and Site Specific EMP

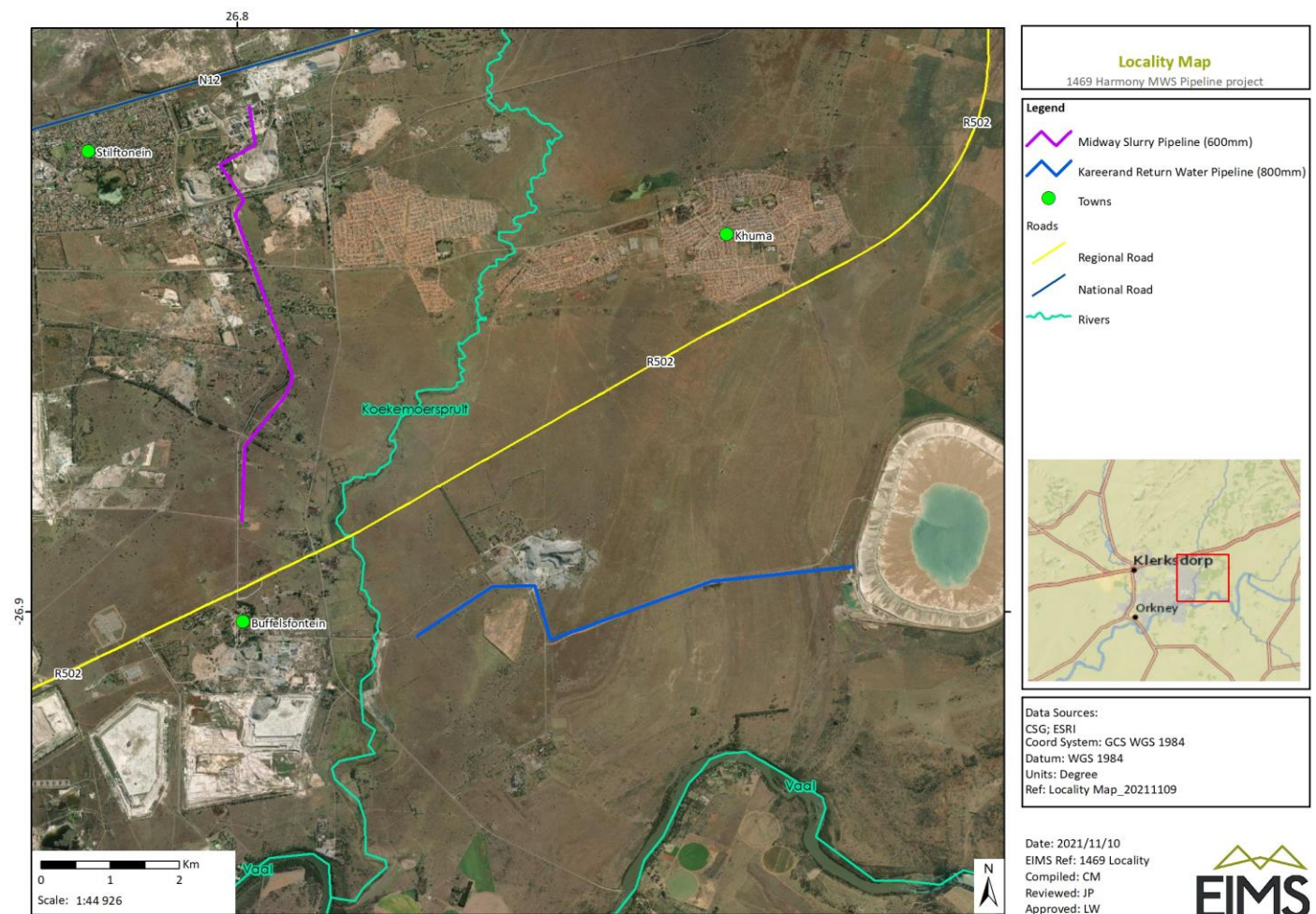
Site ID:	MWS Kareerand Pipelines	Contractor:	EIMS
Location:	Klerksdorp	Inspector:	Sinalo Matshona
Client representative:	John van Wyk	Inspection Date:	6 December 2021

1. Background						
Background of the project:	MWS want to install additional pipeline infrastructure to meet the planned life of mine (LOM) production rates and increase the volume of return water from the Kareerand TSF to the reclamation pump stations. The current slurry and return water infrastructure fail to meet the requirements of the planned LOM and impacts on the long-term sustainability of the MWS operations. The infrastructure planned is an additional 6 km RW pipeline (750 mm) from Kareerand TSF to Midway Dam, along the existing return water pipeline and a new 600 mm slurry pipeline from Midway Dam to MWS Processing Plant.					
Project Aspects:	Yes	No	Details (provide specifications)	Location (DD MM SS)		
				Latitude	Longitude	
❖ Raw Water Pipeline	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> 6 km RW pipeline (750 mm) Transport material – Process water Type – 6mm Steel Construction – 10 bar rated flanged on plinths, Flow Rate – 4000 m³/h 	<u>Start point</u> 26°53'38.08"S	26°52'30.35"E	
				<u>End point</u> 26°54'9.10"S	26°49'22.67"E	
				Length of Pipeline Route: 6km	Width of Pipeline 750mm	
❖ Slurry Pipeline	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> 6,2km Slurry Pipeline (600mm) Transport material – Slurry / Tailings Type – 6mm Steel (8mm HDPE Liner) Construction – 16 bar rated flanged on plinths Flow Rate – 1851 m³/h @ RD of 	<u>Start point</u> 26°53'17.02"S	26°48'1.77"E	
				<u>End point</u> 26°50'15.96"S	26°48'5.35"E	



			1.45 t/m3 (1324 t/hr dry tonnes)		
			Length of Pipeline Route:	6,2km	Width of Pipeline
					600mm
❖ Other:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No other aspects or component, no additional infrastructure or access roads, only two pipelines form part of the project.		

2. Site Layout Plan



2. DEA Screening Tool Assessment

Aspect	Very High	High	Medium	Low
Agriculture		X		
Animal species		X		
Aquatic Biodiversity	X			
Civil Aviation			X	
Defense Theme				X
Archaeological and Cultural Heritage				X
Paleontology	X			
Plant Species Theme			X	



Terrestrial Biodiversity	Ecology/	X			
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3. Site Assessment

3.1 Gradient (indicate the general gradient characteristics of site)

Aspect									
RW pipeline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Slurry pipeline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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

	RW pipeline		Slurry pipeline		Comment
	Yes	No	Yes	No	
Erosion Channels or areas of severe erosion/ destabilized soils	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Wetlands (within 32m)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Unstable slopes or geological features (rocky outcrops)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Bare areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Some bare areas around existing pipeline routes.
Other Sensitive or risk areas?					
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.)?	Yes <input checked="" type="checkbox"/>		No <input type="checkbox"/>		Comment:.. Both pipeline routes 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 type="checkbox"/>	Natural veld with scattered aliens <input type="checkbox"/>	Natural veld with heavy alien infestation <input checked="" type="checkbox"/>	Veld dominated by alien species <input type="checkbox"/>	Gardens <input type="checkbox"/>
Sport field <input type="checkbox"/>	Cultivated land <input type="checkbox"/>	Paved surface <input type="checkbox"/>	Building or other structure <input type="checkbox"/>	Bare soil <input checked="" type="checkbox"/>



Comments on vegetation composition:	Site areas are disturbed and degraded due to anthropogenic activities, such as clearing of vegetation, presence of a large amount of alien and invasive plant species, and fragmentation due to the presence of the existing pipelines including service roads. The least concern sensitivities are those areas that were deemed by the specialists to not have any features that are considered significant ecologically important or sensitive
Comments on weed species/type	<i>Conyza bonariensis</i> , <i>Bidens Pilosa</i> , <i>Datura ferox</i> , <i>Schkuhria pinnata</i> , <i>Tagetes minuta</i> , <i>Senna didymobotrya</i> and <i>Verbena bonariensis</i> all recorded in project area
Land cover/ use description: Describe the land uses on the site	
Raw water pipeline	Bare soils with scattered vegetation cover with heavy alien infestation. Pipeline along existing pipeline servitude within a mining area.
Slurry pipeline	Bare soils with scattered vegetation cover with heavy alien infestation. Pipeline along existing pipeline servitude within a mining area.
4. General Comments and Recommendations	
<p>The project areas are situated within the grassland biome. The vegetation and ecology within the proposed pipeline areas have been heavily disturbed for a long time, both currently and historically. No significant patches of intact natural vegetation remain within the project areas. Terrestrial botanical diversity within the project areas is very low. The temporary alteration of vegetation and soil structure in the affected areas of the proposed Kareerand RW pipeline as well as the Kareerand ST pipeline may however still impact the fauna and flora directly within the proposed pipeline alignments/servitudes and potentially in the immediate surrounding area. Minimal vegetation clearance and disturbances must occur along the proposed pipeline routes. Vegetation clearance should be restricted to the pipeline servitude especially within the existing access roads/ maintenance roads and areas that are already denuded of vegetation within the pipeline servitude. With that being said, both the pipelines are seen as acceptable from an ecological perspective.</p> <p>Five wetland systems were identified within the 500 m regulated area, of which four have been classified as unchannelled valley bottom wetlands and one being classified a floodplain. These systems have been determined to range from “Largely Modified” to “Seriously Modified” with the average ecosystem service scores being scored “Moderately Low” to “Moderately High”. The importance and sensitivity of these systems have been scored “Low” and “Moderate” with the calculated buffer determined to be 15 m. The associated risks posed to wetlands could be mitigated to an appreciable level, posing a “low” post-mitigation risk to the wetlands. Considering the “Low” post-mitigation significance ratings, a General Authorisation is permissible for the project.</p>	



Site Photos			
Aspect			
Raw Water pipeline and Slurry Pipeline routes			
Describe area and adjacent land use:	Photo along existing RW pipeline route, no adjacent land uses apart from mining and road infrastructure	Pump station adjacent to pipelines	General view of a section of the study area near the Kareerand TSF return water dam, adjacent mining land uses.
Raw Water pipeline and Slurry Pipeline routes			
Describe area and adjacent land use:	Concrete rubble waste on land adjacent to existing pipelines.	View of existing pipelines running parallel to mine and road infrastructure.	General view of the study area near the MWS processing plant.



7. Verification findings and motivation:

General Comments on Site Sensitivity:

The vegetation and ecology within the proposed pipeline areas have been heavily disturbed for a long time, both currently and historically. No significant patches of intact natural vegetation remain within the project areas. Terrestrial botanical diversity within the project areas is very low. In addition there are no agricultural areas that would be affected by the proposed pipelines along or near the pipeline routes proposed. Five wetland systems were identified within the 500 m regulated area.

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	High	None.	Full assessment to be undertaken
			Compliance Statement	
			Full Assessment	
			Other	
Archaeological and Cultural Heritage	Very High	Unknown	None.	Full assessment to be undertaken
			Compliance Statement	
			Full Assessment	
			Other	
Paleontology	Very High	Unknown	None.	Full assessment to be undertaken
			Compliance Statement	
			Full Assessment	
			Other	
Terrestrial Biodiversity	Very High	Moderate - Low	None.	Full assessment to be undertaken
			Compliance Statement	
			Full Assessment	
			Other	
Agriculture Theme	High	Low	None.	No agricultural areas or activities will be affected by the pipeline routes, confirmed



			Compliance Statement	<input type="checkbox"/>	during site inspection.
			Full Assessment	<input type="checkbox"/>	
			Other	<input type="checkbox"/>	
Animal Species	High	Moderate	None.	<input type="checkbox"/>	Full assessment to be undertaken
			Compliance Statement	<input type="checkbox"/>	
			Full Assessment	<input checked="" 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.