

APPLICANT:



PREPARED BY:



Environmental Site Sensitivity Verification Report

Site ID:	Zibulo North 132kV Overhead Powerlines	Contractor:	EIMS
Location:	Ogies	Inspector:	Vukosi Mabunda
Client representative:	Lerato Mazibuko Liesel Louw	Inspection Date:	Desktop Assessment & Review of Specialist Reports

1. Background

Background of the project:	<p>The Zibulo Colliery operates both underground and opencast operations located about 100 km east of Johannesburg and approximately 60 km southwest of eMalahleni in the Mpumalanga province of South Africa. The Zibulo Colliery was formed in 2010. The underground operation is a mechanised bord and pillar mining operation. Surface operations consist of a truck and shovel open cast operation operated by contractors. Coal mined at Zibulo underground is transported via overland conveyor to the Phola Coal Processing Plant (PCPP) with the surface operations delivering coal to the PCPP by road. Zibulo produces a premium product for sale into the export market and is an important role player in the mining sector contributing to local and regional economy as well as national GDP.</p> <p>Zibulo North Shaft requires a 20MVA electricity supply for the mining operations by 2025. Zibulo proposes to establish a 125m powerline corridor involving the construction of substations and overhead powerlines. The proposed development is approximately 6.6 km south of Kendal Power Station and approximately 14.5 km Southwest of Ogies. The proposed project area is situated within Nkangala District Municipality, extending between Victor Khanye and Emalahleni Local Municipalities, Mpumalanga Province.</p>	
Project Aspects:	<p>Zibulo North Shaft requires a 20MVA electricity supply for the mining operations by 2025. The following assets will be established for the supply:</p> <ul style="list-style-type: none"> • A new Zibulo North Shaft 132/11kV 2x20MVA Substation for the Zibulo North Shaft Point of Supply (POS). 2x20MVA TRFR's will be installed in phase 1 with an open TRFR bay for the installation of the third TRFR in 2032 should it be required. • Establish 132kV Feeder Bay at the existing Cologne Substation. • Build 7km (Option 1 & 2) Kingbird 132kV line from Cologne Substation to Zibulo North Shaft Substation. • Establish 132kV Feeder Bay at the existing Modiri Substation. • Build 10.5km (option 1) or 15km (option 2) Kingbird 132kV line from Modiri Substation to the Zibulo North Shaft Substation. The route options will be assessed during the course of this environmental registration process. <p>The proposed Zibulo North project is an overhead transmission line (OHL) development. The OHL share one characteristic, they carry 3-phase current. The voltages vary according to the particular grid system they belong to. Transmission voltages vary from 69kV up to 765kV. The DC voltage</p>	<p>Location (DD MM SS)</p> <p>Start: 26° 7'23.76"S; 28°59'45.41"E Mid: 26° 9'30.44"S; 29° 1'10.93"E End: 26°10'23.97"S; 29° 2'52.99"E</p>



	transmission tower has lines in pairs rather than in threes (for 3-phase current) as in AC voltage lines. One line is the positive current line and the other is the negative current line. The proposed development is an 132kV AC steel monopoles and/or H-structures OHL.	
❖ Substations	<ul style="list-style-type: none"> A new Zibulo North shaft 132/11kV 3x20MVA Substation for the Zibulo North Shaft Point of Supply (POS). 2x20MVA TRFR's will be installed in phase 1 with an open TRFR bay for the installation of the third TRFR in 2030. At the existing Cologne Substation a 132kV feeder bay will be established. At the existing Modiri Substation a 132kV feeder bay will be established. 	<p>Zibulo North Shaft Substation (Proposed) 26° 8'56.88"S, 28°57'22.38"E</p> <p>Cologne Substation (Existing) 26° 7'24.26"S, 28°59'46.03"E</p> <p>Modiri Substation (Existing) 26°12'11.37"S, 29° 1'17.01"E</p>
❖ Overhead Powerlines	<ul style="list-style-type: none"> Construction of a new 7km Kingbird 132kV powerline from Cologne substation to Zibulo North Shaft substation. Construction of a new 10.5km (option 1) or 15km (option 2) Kingbird 132kV powerline from Modiri substation to the Zibulo North Shaft substation. 	Refer to Figure 1 for the proposed powerline routes.
❖ Other:		

2. Site Layout Plan

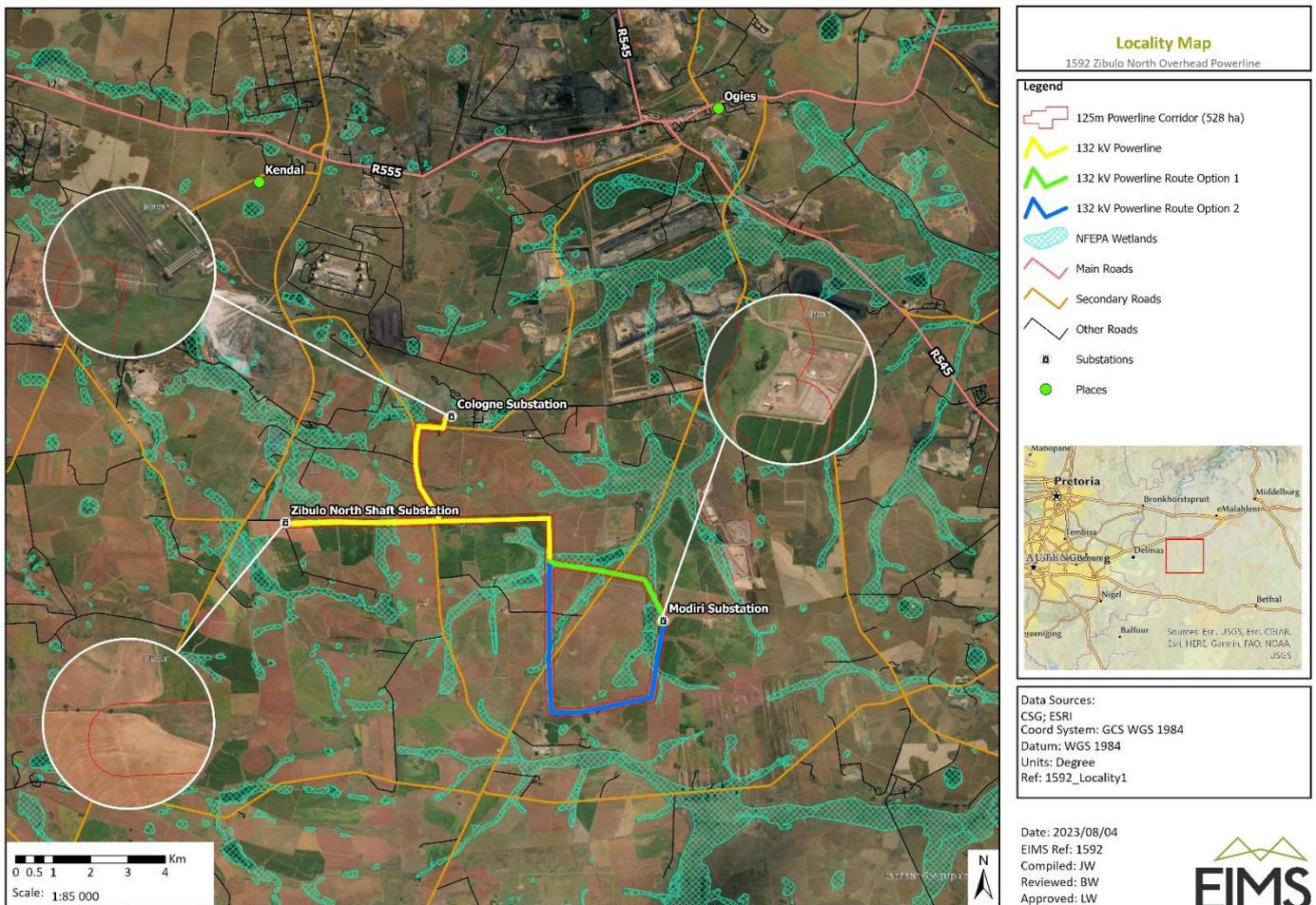


Figure 1: Locality map

2. DFFE 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	
Defence 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									
Proposed substation sites and powerline routes	<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:

	Substations and 132 kV powerline alignment		
	Yes	No	Comment
Erosion Channels or areas of severe erosion/ destabilized soils	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No erosion channels or areas of erosion/destabilized soils were noted by the soil's specialist.
Wetlands (within 32m)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Two (2) hydrogeomorphic (HGM) HGM units were identified within the 100m of the study area, namely, 14 seep wetlands and four (4) unchannelled valley bottom wetlands. Forty-one (41) of the proposed pylon positions are located within wetlands.
Unstable slopes or geological features (rocky outcrops)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No unstable slopes or geological features were noted by the specialists.
Bare areas	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Minimal bare areas were noted. The site comprises of agricultural ploughed land and grassland vegetation.
Other Sensitive or risk areas?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Heritage sites were noted within the development corridors by the heritage specialist. Sixty-eight (68) avifauna species including the <i>Phoeniconaias minor</i> (Lesser Flamingo) and



			<i>Phoenicopterus roseus</i> (Greater Flamingo) were recorded within 500m of the site by the ecologist, with four (4) being SCC.
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"/>	The proposed route (option 2) follows an existing Eskom powerline and falls within the servitude. The proposed powerline route traverse through agricultural fields and wetland areas that supply farm dams. The proposed powerline development footprint crosses secondary roads.

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 checked="" 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:	Three (3) terrestrial habitat units were encountered namely, Modified Habitat, Degraded Grassland and Wet Grassland were delineated by the ecologist. The vegetation was found to be dominated by pioneer graminoids and exotic and alien invasive flora species, however some of the most predominant indigenous flora species were recorded in the area. These vegetation units provide for some key ecosystem services and habitat connectivity. Much of the units have been subject to edge effects, historical overgrazing, and current indigenous/exotic weed invasion. No SCC or protected flora species were observed by the specialist.
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Comments on weed species/type	Eleven (11) Exotic and Alien Invasive Species (AIS) were recorded throughout the project area by the ecologist. Five (5) of these are listed as Category 1b invasive species and according to legislation these must be controlled according to an AIS management plan.
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Land cover/ use description: Describe the land uses on the site

Agriculture	The powerline infrastructure is situated in an area with predominant agricultural and mining area. The area is predominated by crop agriculture with mining activities (collieries) in the vicinity of the site.
Mining	Several collieries are located within close proximity to the proposed powerline. It is noteworthy that the proposed powerline infrastructure is for use within the mining industry by Zibulo North Shaft.

4. General Comments and/or Recommendations

The project areas are situated within a grassland habitat which exist in a degraded state. The vegetation and ecology within the proposed substation development site and powerline corridors have been disturbed through agricultural activities, both currently and historically, and infrastructure development such as road construction. Wetland resources were noted along the proposed powerline routes. The wetland resources maintains a moderate to low site ecological sensitivities within the proposed development area and the risk of the proposed development is considered low to the wetland units on site.

The heritage sensitive features noted on site need to be avoided and may not be removed without necessary permits as stipulated under that National Heritage Resources Act (Act 28 of 1999).



5. Verification findings and motivation:

Assessment for specialist studies and motivation:					
Screening Tool Specialist Study Required:	DFFE Level of Sensitivity:	Suggested Sensitivity:	Required level of Assessment	of	Motivation
Agriculture Theme	Very High	Medium	None.	<input type="checkbox"/>	The DFFE Screening tool indicated that the proposed development is located within a <i>Very High</i> Agricultural Sensitivity theme. The main economic activities in the region are mining, agricultural and manufacturing. There were pre-identified agricultural activities within the proposed development site. However, the proposed project is an electrical infrastructure project within an existing electrical corridor. In addition, powerlines are known to have minimal impacts on agricultural activities compared to footprint development. As such, an Agricultural Compliance Statement was recommended to verify the site agricultural sensitivity and potential impacts associated with the proposed development.
			Compliance Statement	<input checked="" type="checkbox"/>	
			Full Assessment	<input type="checkbox"/>	
			Other		
Landscape/Visual Impact Assessment	Nil	Low	None.	<input checked="" type="checkbox"/>	A Landscape/Visual Impact Assessment was not undertaken as the proposed project is a powerline and substation development within an existing powerline corridor and will connect onto an existing electrical infrastructure with no new significant visual changes and in the area. The development and its locality do not trigger the need for this specialist study based on the triggers as identified by Oberholzer (2005). Visual sensitivities would arise from receptors living in and visiting the study area and observing changes to the aesthetic baseline, currently rated low within the context of the sub-region.
			Compliance Statement	<input type="checkbox"/>	
			Full Assessment	<input type="checkbox"/>	
			Other		
Animal Species Theme	High	Low	None.	<input type="checkbox"/>	The National Web-Based Screening Tool Report found that the Relative Terrestrial Biodiversity Impact Assessment Theme Sensitivity is <i>Very High-Sensitive</i> . However, the site is not entirely pristine nor located within priority biodiversity areas (i.e., CBAs or ESA). Therefore, the EAP recommended that a Terrestrial Biodiversity Impact Compliance Assessment be undertaken to confirm if there are no Flora or Fauna, Avifauna SCC, or protected species within the development site, verify site terrestrial biodiversity sensitivity and provide necessary mitigation measures.
			Compliance Statement	<input checked="" type="checkbox"/>	
			Full Assessment	<input type="checkbox"/>	
			Other		
Aquatic Biodiversity	Very High	Medium	None.	<input type="checkbox"/>	The Relative Aquatic Biodiversity Theme Sensitivity was assessed to be <i>Very High-Sensitive</i> by the National Web-Based Screening Tool Report. The study area transects watercourses and wetlands as per desktop studies. The protocols required that a Compliance Statement as a minimum be undertaken to verify the aquatic biodiversity sensitivity of the area. A Wetland and Baseline Risk Assessment was recommended.
			Compliance Statement	<input checked="" type="checkbox"/>	
			Full Assessment	<input type="checkbox"/>	
			Other		
Archaeological and Cultural Theme	High	Unknown	None.	<input type="checkbox"/>	The protocols require that a Compliance Statement as a minimum be undertaken to verify the archaeological heritage sensitivity of the area. The EAP recommend the undertaking of a Heritage Impact Assessment due
			Compliance Statement	<input type="checkbox"/>	



					to the known heritage features (graves) within proximity of the site. An Archaeological and Cultural Heritage Impact Assessment was recommended.
			Full Assessment	<input checked="" type="checkbox"/>	
			Other		
Civil Aviation Theme	Medium	Low	None.	<input checked="" type="checkbox"/>	Relative Civil Aviation Theme Sensitivity was assessed to be Low-Sensitive as the there were no identified aviation facilities or infrastructures within a 10km radius of the site. The closest identified airfield is the Delmas Airfield which is approximately 30km west of the site. In addition, the closest civil aviation aerodrome is the SACE Aerodrome which is approximately 15km northeast of the site. Therefore, the construction of the powerline within the proposed development site was assessed to have a low impact on Civil Aviation and a specialist study was not deemed necessary. The CAA will however be included as a pre-identified I&AP for further notification and consultation.
			Compliance Statement	<input type="checkbox"/>	
			Full Assessment	<input type="checkbox"/>	
			Other		
Defence Theme	Low	Low	None.	<input checked="" type="checkbox"/>	There are no military bases / facilities present within the vicinity of the project site. The nearest military base is the Heidelberg Military Base, located approximately 120 km southwest of the project site. The nature of the development (substations and powerline) and components of the development during the construction and operational phases will not pose any risk to defence infrastructure or properties. Therefore, no defence specialist studies are required.
			Compliance Statement	<input type="checkbox"/>	
			Full Assessment	<input type="checkbox"/>	
			Other		
Palaeontology Theme	Very High	Medium	None.	<input type="checkbox"/>	Based on the 1:250 000 SAHRIS PalaeoMap and the National Web-Based Screening Tool Report, the study area is located within a <i>Very-High Palaeo-Sensitivity</i> area. The protocols require that a Compliance Statement as a minimum be undertaken to verify the palaeontological sensitivity of the area. Due to the known cultural heritage features on site and the high possibility of palaeontological finds, a Palaeontological Impact Assessment was recommended to identify palaeontological heritage features and provided mitigation measures.
			Compliance Statement	<input type="checkbox"/>	
			Full Assessment	<input checked="" type="checkbox"/>	
			Other		
Plant Species Theme	Medium	Medium - low	None.	<input type="checkbox"/>	The National Web-Based Screening Tool Report found that the Relative Terrestrial Biodiversity Impact Assessment Theme Sensitivity is Very High-Sensitive. However, the site is not entirely pristine nor located within priority biodiversity areas (i.e., CBAs or ESA). Therefore, the EAP recommended that a Terrestrial Biodiversity Impact Compliance Assessment be undertaken to confirm if there are no Flora or Fauna, Avifauna SCC, or protected species within the development site, verify site terrestrial biodiversity sensitivity and provide necessary mitigation measures.
			Compliance Statement	<input checked="" type="checkbox"/>	
			Full Assessment	<input type="checkbox"/>	
			Other		
Terrestrial Biodiversity Theme	Very High	Medium - low	None.	<input type="checkbox"/>	The National Web-Based Screening Tool Report found that the Relative Terrestrial Biodiversity Impact Assessment Theme Sensitivity is Very High-Sensitive. However, the site is not entirely pristine nor located within priority biodiversity areas (i.e., CBAs or ESA). Therefore, the EAP recommended that a Terrestrial Biodiversity Impact Compliance Assessment be undertaken to confirm if there are no Flora or Fauna, Avifauna SCC, or protected species within the
			Compliance Statement	<input checked="" type="checkbox"/>	
			Full Assessment	<input type="checkbox"/>	
			Other		



					development site, verify site terrestrial biodiversity sensitivity and provide necessary mitigation measures.
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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.