

# PROPOSED WATER SUPPLY SCHEME IN NGQONDO VILLAGE, DR AB XUMA LOCAL MUNICIPALITY, CHRIS HANI DISTRICT MUNICIPALITY, EASTERN CAPE

**DRAFT for Public Review**

**Botanical, Faunal (terrestrial) and Terrestrial Biodiversity  
Compliance Statement**

**PREPARED FOR:**

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In collaboration with Coastal and Environmental Services



AUGUST 2025

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Dr Greer Hawley completed her BSc degree in Botany and Zoology and a BSc Honours in Botany from the University of Cape Town in 1998 and 1999, respectively. She completed her PhD (Microbiology) at Rhodes University in 2007. Greer's core academic focus has been in the field of taxonomy both in the plant and fungal kingdom although her research experience is diverse, ranging from fresh water and marine algae, estuarine diatoms, plant species classification and fungal species identification and ecology. Greer was employed at Coastal and Environmental Services (CES) for over 13 years where she was involved with, and managed, many projects ranging from:

- 1) Environmental impact assessments in the aquaculture, waste and renewable energy sectors;
- 2) Biodiversity impact assessments and biodiversity management projects in South Africa, Sierra Leone, Mozambique, Eswatini and Malawi;
- 3) Catchment-based mapping and management plan for climate change adaptation (Malawi) and alien invasive plants (Buffalo City Metro); and
- 4) Environmental Planning projects such as Environmental Management Frameworks, Strategic Environmental Assessments and Environmental Management Plans.

More recently, Greer has become involved with biodiversity planning projects where she managed the review of the gazetted Eastern Cape Biodiversity Conservation Plan (2019) and the revision of the City of Ekurhuleni Bioregional Plan (2020/2021). Through these and the above-mentioned projects, Greer has demonstrated successful co-ordination and management of multi-faceted projects with large teams, meeting deadlines and ensuring the production of high-quality deliverables. Stakeholder engagement is a core function in all these projects.

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Jonathan completed his Master's degree in ornithology and phylogenetics through Rhodes University in Grahamstown, which he obtained with distinction in 2023. His M.Sc. followed straight on from his B.Sc. (Hons) in Zoology, and B.Sc. in Entomology and Ichthyology from the same institution. He is an old-school naturalist with a passion for birding, herping and list-keeping, and he has over 10 years of guiding experience around Southern Africa. His other work experience includes contractual EIA surveys (3 years), birding app development (5 years), and junior school sports coaching (3 years). Although his professional focus has usually been ornithological in nature, he is comfortable working with most other animal classes as well and has published both research and photographic material of mammals, fishes, reptiles, amphibians, and invertebrates. Jonathan has been with CES since early 2023.

## Acronyms

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<b>CBA</b>	Critical Biodiversity Area
<b>CR</b>	Critically Endangered
<b>ECBCP</b>	Eastern Cape Biodiversity Conservation Plan (2019)
<b>EN</b>	Endangered
<b>EIA</b>	Environmental Impact Assessment
<b>LC</b>	Least Concern
<b>NBA</b>	National Biodiversity Assessment (2018)
<b>NEMBA</b>	National Environmental Management Biodiversity Act
<b>PNCO</b>	Provincial Nature Conservation Ordinance
<b>QDS</b>	Quarter Degree Square
<b>SANBI</b>	South African National Biodiversity Institute
<b>TOPS</b>	Threatened and Protected Species
<b>SCC</b>	Species of Conservation Concern
<b>VU</b>	Vulnerable

## Glossary

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***Alien Invasive Species*** refers to an exotic and invasive species that can spread rapidly and displace native species causing damage to the naturally occurring biodiversity and the environment.

***Biodiversity*** is the term that is used to describe the variety of life on Earth and is defined as “*the variability among living organisms from all sources including terrestrial, marine and other aquatic ecosystems, and the ecological complexes of which they are part; this includes diversity within species, between species, and of ecosystems*” (Secretariat of the Convention on Biological Diversity, 2005).

***Protected Area*** is an area that has been proclaimed for the purposes of conservation and is recognised in terms of the National Environment Management Protected Areas Act.

## Executive summary

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### Introduction

The Chris Hani District Municipality is proposing the installation of a bulk line from the Water Treatment Works (WTW) facility to the remainder of the Ngqondo village, as well as reticulation for the installation of standpipes within the village itself.

### National Screening Tool

The National Screening Tool assessment has flagged the following themes, which are the subject of this report:

- **Plant theme:** The sensitivity rating of the project area is considered LOW to MODERATE due to the potential presence of 11 threatened plant species
- **Animal theme:** The sensitivity rating of the project area is considered LOW to HIGH due to the presence of 1 threatened bird species, and the potential presence of a further 2 threatened birds, 1 insect and 4 threatened mammals and 1 invertebrate (likely a mollusc).
- **Terrestrial Biodiversity theme:** The sensitivity rating of the project area is mapped as VERY HIGH due to the intersection of the site with Critical Biodiversity Areas, Ecological Support Areas, Strategic Water Source Areas, indigenous forest (Southern Mistbelt Forest) and an Endangered ecosystem (Mthatha Moist Grassland)

### Site Ecological Importance (SEI) – sensitivity

The SEI assessment classified most of the pipeline as falling in areas of LOW sensitivity. Three sections of pipeline that are routed through or adjacent to wetlands have been classified as HIGH sensitivity, while a single section in the very south has been mapped as MEDIUM sensitivity due to the grassland being intact and the pipeline located on a slope that is vulnerable to soil erosion. Alternative routes for these pipelines have been suggested.

### Terrestrial Biodiversity Assessment

The proposed project is located within a Strategic Water Source Area (SWSA). Given the vulnerability of the soil to disturbance extra care when installing the pipelines and rehabilitation after back-filling must be taken.

Most sections of the proposed Ngqondo Water Supply Scheme (WSS) reticulation are routed along existing access roads, or traverse highly degraded (eroded) and previously cultivated land. Therefore, there will be no additional loss of Mthatha Moist Grassland or CBA1/CBA2 (except for Section 6/6, an alternative route for which has been suggested).

In addition to standard impact minimisation measures, specific recommendations to minimise soil disturbance and erosion have been provided. This includes implementing measures to rehabilitate as soon after backfilling as possible.

The authors confirm that for the Plant Theme, Animal Theme and Terrestrial Biodiversity Theme, there are no concerns regarding the sensitivity of the WSS and associated infrastructure, and that no significant impacts will result from the proposed development. It is therefore the opinion of the specialists that the proposed development may be authorised.

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## Section 1. Introduction

### 1.1. Project description, locality and layout

The Chris Hani District Municipality is proposing the installation of a bulk line from the WTW facility to the remainder of the Ngqondo village, as well as reticulation for the installation of standpipes within the village itself.

The proposed Ngqondo WSS development falls within the Dr AB Xuma Local Municipality, approximately 20km northeast of Ngcobob. An existing pipeline is currently available that connects the command reservoir in Sundwana to the Water Treatment Facility in Ngqondo (Figure 1.1 and 1.2).

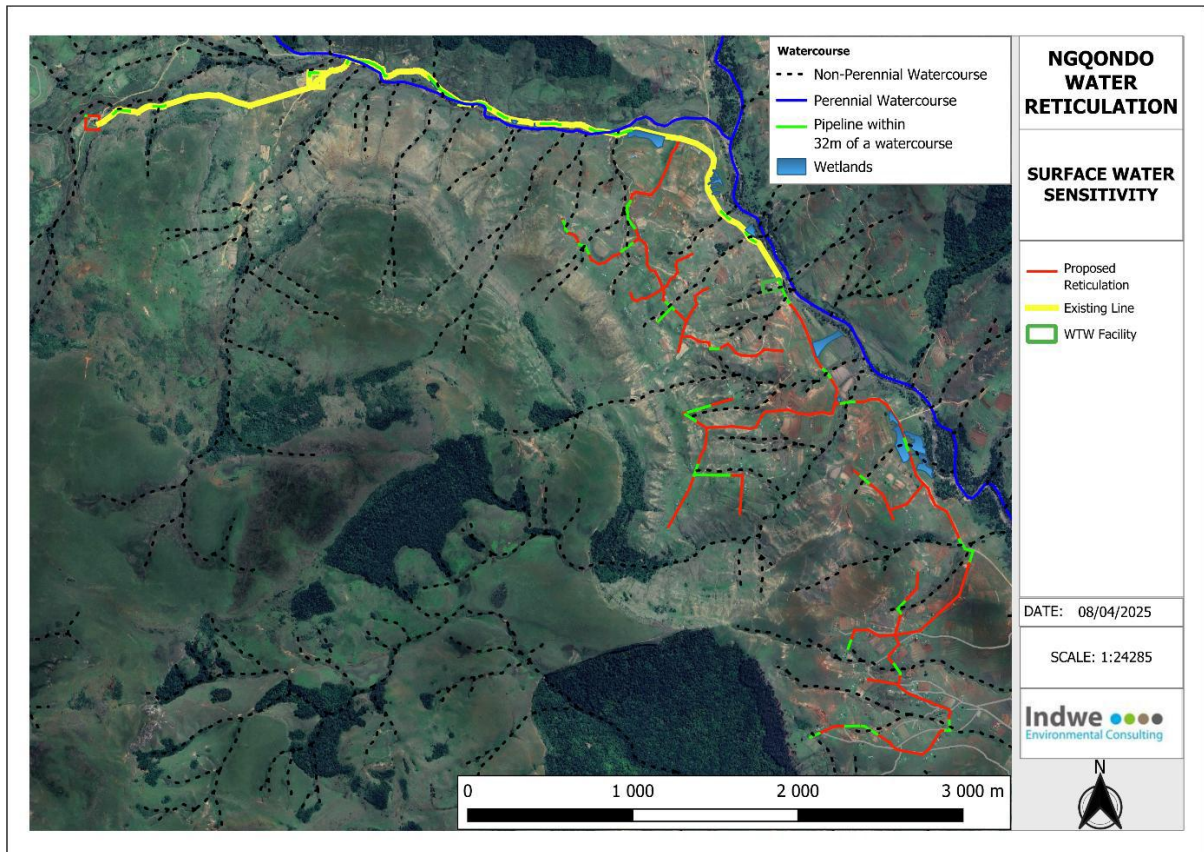


**Figure 1.1 The Preferred site layout map indicating project activities.**

The project consists of the following scope (Figure 1.2):

- Construction of approximately 1.2km of uPVC pipes of sizes ranging from 63mm diameter of various classes.
- Construction of approximately 5km of HDPE pipes of size 50mm diameter of various classes.
- Construction of approximately 4.5km of Klambon steel pipes of sizes ranging from 50mm diameter to 90mm diameter.
- Construction of stand taps, valve chambers, and all associated pipe fittings.
- Construction of new, and reinstatement of existing, stormwater along the reticulation mains.





**Figure 1.2 Proposed Ngqondo WSS showing existing and proposed reticulation**



## 1.2. Environmental Screening Tool (DFFE)

The approach to the botanical impact assessment is informed by the gazetted protocols and guidelines which are linked to the outputs of the Environmental Screening Tool.

### 1.2.1. Plant Theme

The sensitivity rating of the project area is considered LOW to MODERATE due to the potential presence of 11 threatened plant species (Figure 1.3).

### 1.2.2. Animal Theme

The sensitivity rating of the project area is considered LOW to HIGH due to the presence of 1 threatened bird species, and the potential presence of a further 2 threatened birds, 1 insect and 4 threatened mammals and 1 invertebrate (likely a mollusc) (Figure 1.4).

### 1.2.1. Terrestrial Biodiversity Theme

The sensitivity rating of the project area is mapped as VERY HIGH due to the intersection of the site with Critical Biodiversity Areas, Ecological Support Areas, Strategic Water Source Areas, indigenous forest (Southern Mistbelt Forest) and an Endangered ecosystem (Mthatha Moist Grassland) (Figure 1.5).

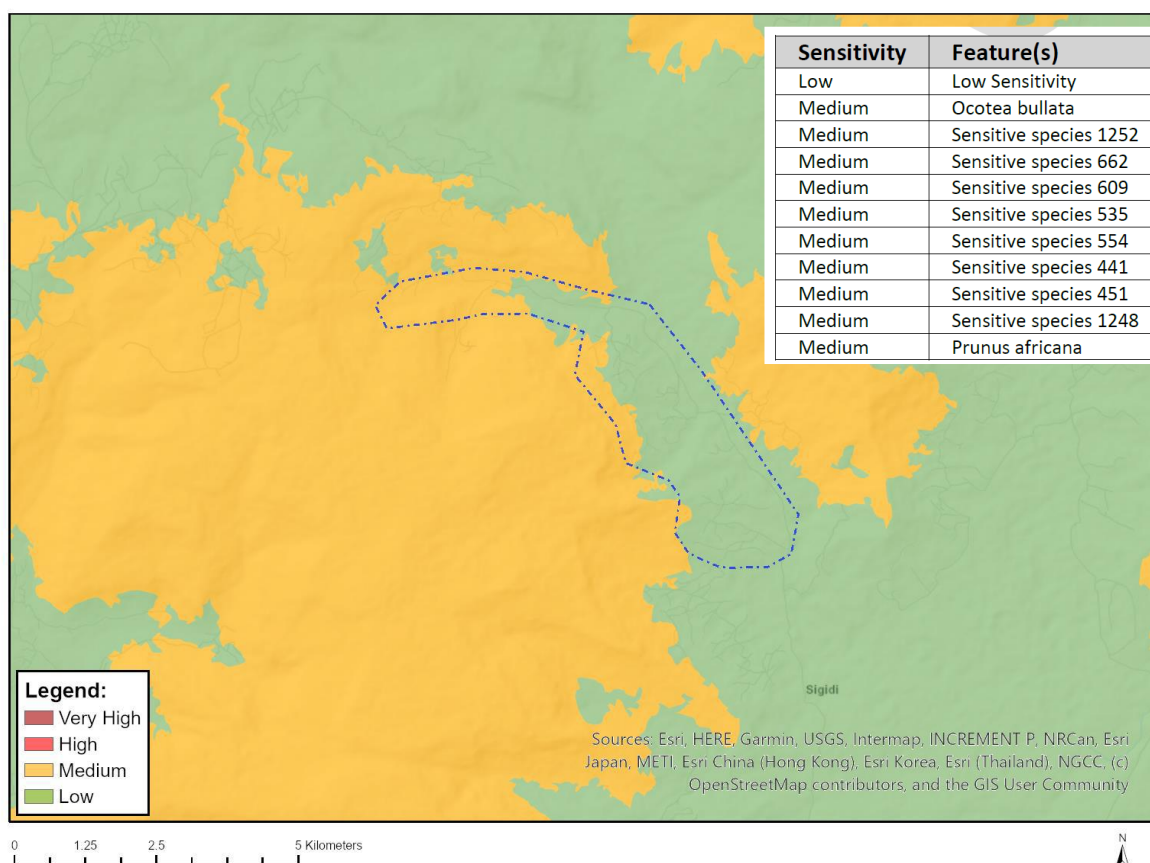


Figure 1.3 Environmental Screening Tool - Plant theme



## Section 2. Approach

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### 2.1. Field Survey

A comprehensive survey was undertaken by the EAPs, and photographic evidence was used to inform this assessment. No field surveys were undertaken by the specialists as it was felt that the site has been subjected to high levels of disturbance due to agricultural land uses, and the proposed development constituted such minor additional disturbances that are unlikely to result in significant impacts. Therefore, a desktop assessment, combined with the photographic evidence from site was used to inform this assessment.

### 2.2. Reporting requirements and objectives

#### 2.2.1. Plant (botanical) theme

The objectives of this study are to characterise the natural ecological resources in the project area and assess the potential impact of the proposed development activity. To achieve this, the study was guided by the Species Environmental Assessment Guidelines (SANBI, 2020) and complies with the requirements of the “Procedures for the Assessment and minimum criteria for reporting on identified environmental themes”, also known as the Protocols for specialist assessment of animal and plant species (GN 1150 of 2020 as amended in 2023). Based on aerial imagery of historical degradation of the area, it is considered low sensitivity (refer to Section 4) and as such a Plant Species Compliance Statement (this report) has been prepared for the project area.

#### 2.2.2. Animal (faunal) theme

According to Section 3 (1) of GN R. 1150, ‘*an applicant intending to undertake an activity identified in the scope of this protocol, on a site identified on the screening tool as being of high sensitivity for animal species theme, must submit an Animal Specialist Assessment*’. However, in terms of Section 1.4 of GN R. 1150, where the information gathered for the project footprint differs from the designation of high sensitivity on the screening tool and is found to be of a low sensitivity, then a Compliance Statement must be submitted. Based on aerial imagery of historical degradation of the area, it is considered low sensitivity (refer to Section 5) and as such an Animal Species Compliance Statement (this report) has been prepared for the project area.

#### 2.2.3. Terrestrial Biodiversity theme

The Terrestrial Biodiversity assessment component of the report has been developed in accordance with the “Protocol for the assessment and minimum report content requirements for Environmental Impact on Terrestrial Biodiversity” (NEMA GN 320 of 2020), which will from now be referred to as the “Terrestrial Biodiversity Protocol”. The environmental screening tool identified portions of the project area as falling within a Critical Biodiversity Area and an Endangered ecosystem and was therefore classified as VERY HIGH sensitivity. However, the site has been severely modified, is no longer in a natural state and it is unlikely that the site will contribute in any meaningful manner towards the conservation of the ecosystem type. As a result of inspection of site photos and current and historical aerial imagery, the development area was deemed a ‘Low’ sensitivity in terms of the Terrestrial Biodiversity theme. Therefore, a compliance statement was prepared for the EIA.

### 2.3. Site Sensitivity Assessment

The approach to determine the Site Ecological Importance (SEI) in terms of both species and habitat

followed the Species Environmental Assessment guideline (SANBI, 2021). The habitats in the project area were assessed based on criteria regarding their conservation importance, functional integrity and receptor resilience. The sensitivity map was developed by applying the SEI sensitivity criteria to spatial areas depicting the ecosystems and communities. The method that was applied is summarised in Appendix B. The SEI rating informs the impact assessment and mitigation requirements.

## **2.4. Limitations and Assumptions**

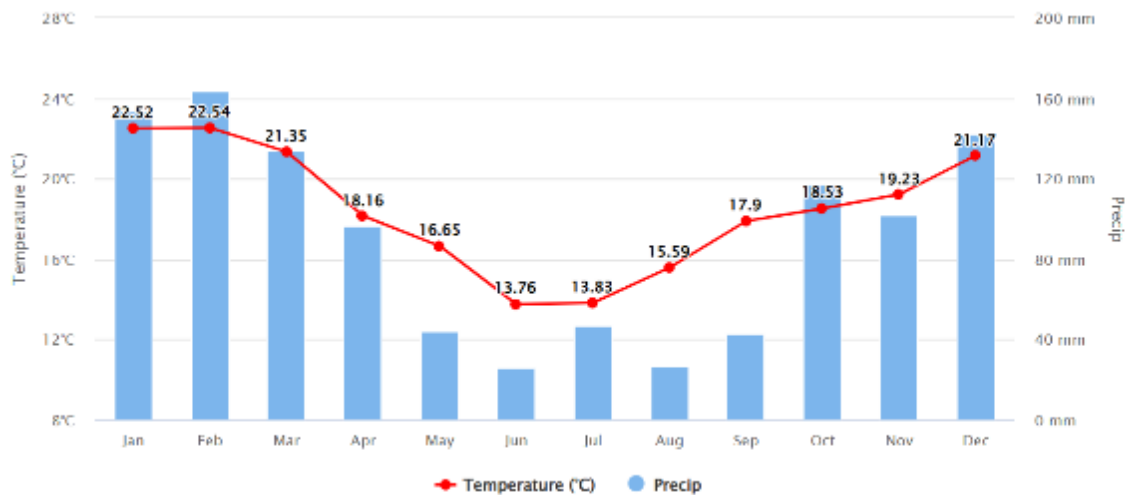
This report acknowledges the following limitations:

- The report is based on a project description received from the client.
- The site was surveyed by the EAP and photos of the site were used to inform the assessment.
- While the information recorded by the EAP and used in the report is deemed sufficient for the assessment, a full species assessment was not undertaken.

## Section 3. Physical Profile

### 3.1. Climate

The temperate and rainfall information from the nearest town, Ngcobo, has been used to estimate the climatic conditions in the project area (Figure 3.1). The data indicate that the project area experiences seasonal fluctuations in both temperature and rainfall. The area experiences relatively cool summers (average of 22°C) and mild winters (average of 13°C). It must be noted that the project area is located at the foothills of mountain ranges that frequently experience winter snowfall and can experience much colder temperatures during the snow events. The proposed project falls within a summer rainfall area, which peaks between December-March. Winter rain, although less frequent, does occur.



**Figure 3.1 Climate data for the town of Ngcobo**

<https://weatherandclimate.com/south-africa/eastern-cape/engcobo>

### 3.2. Geology and soils

The geology of an area influences the soil formation, and in turn influences vegetation composition and structure, and is therefore a factor that is considered when describing the vegetation type(s) and the species that it supports. The underlying geology in the project area consists of an underlying Karoo Supergroup, overlain by Beaufort Group and Tarkastad Subgroup (Figure 3.2). The resulting soils are typically red and greenish-gray mudstone, clay-loam with fine to medium grained sandstone. In the western portion of the project, where the existing pipeline is routed, is underlain by the Molteno formation.

### 3.3. Hydrology and Topography

A dedicated specialist report has been developed to assess the aquatic sensitivity of the project area. This report therefore briefly describes the numerous ephemeral streams that the pipeline needs to cross. The significant erosion in the project area indicates that soil erosion is a risk, especially in water courses. For this reason, stream crossings need to be stabilised to ensure that pipeline installation does not contribute towards further erosion, especially since these streams drain into the Mbashe River, which is a FEPA priority river.

There are also numerous wetlands associated with valley bottoms closer towards the Mbashe River, but also wetland seeps in the upper slope areas of the pipeline, where a self in the slope offers flatter terrain.



It is possible that plant and animal species of interest area associated with the wetlands and wetland edges. One wetland seep will be impacted by a proposed reticulation pipeline.

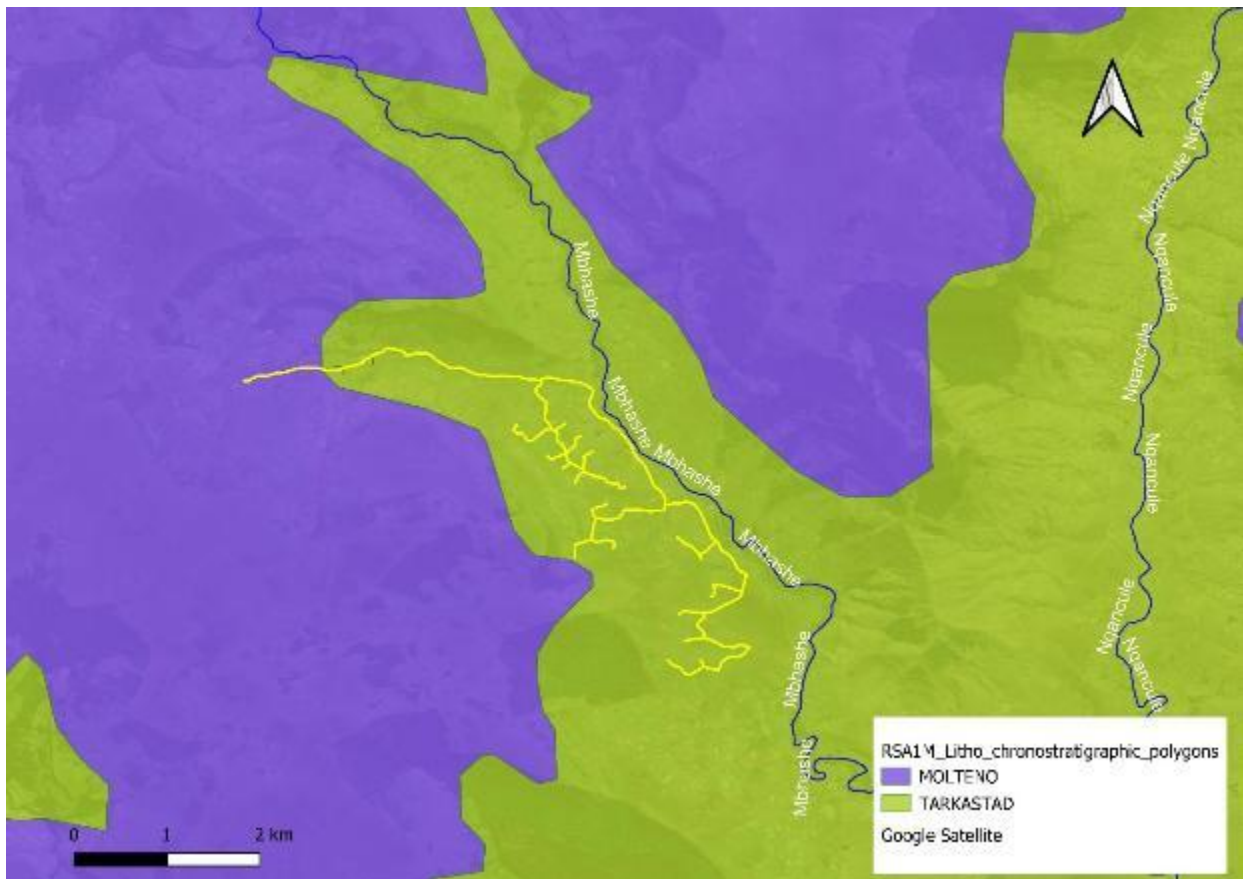


Figure 3.2 Geology of the project area.

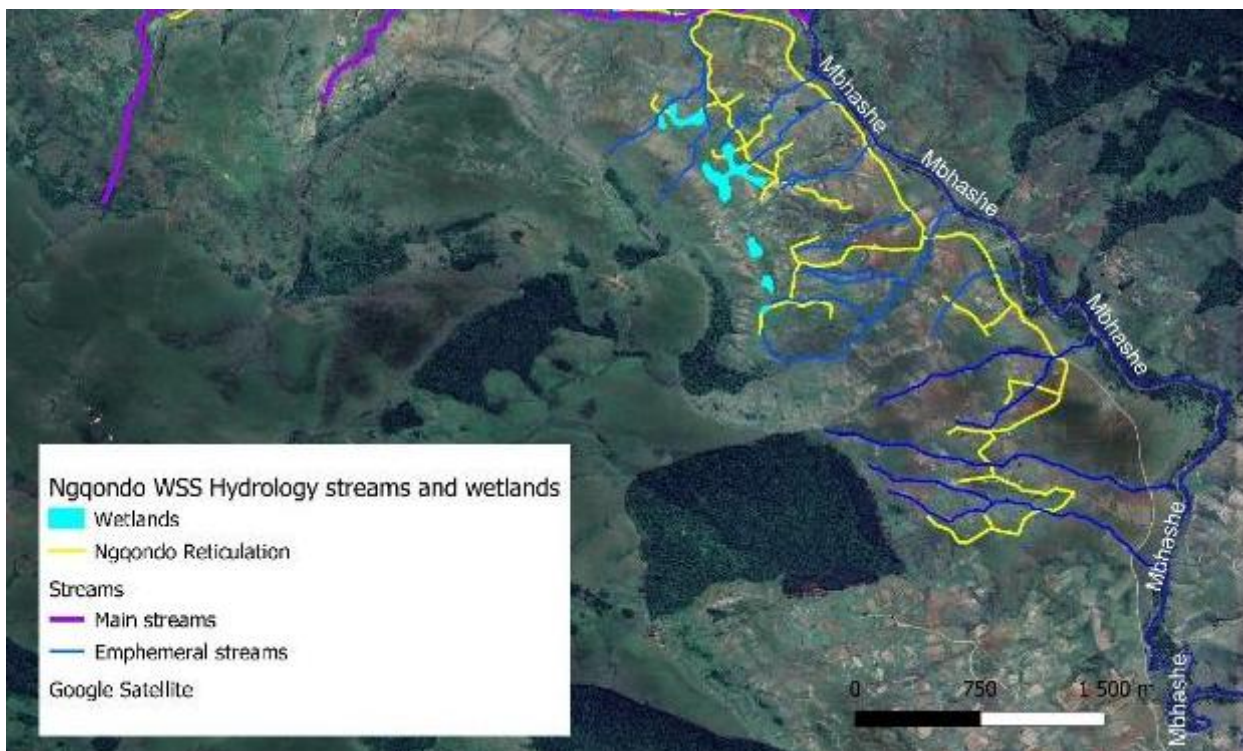


Figure 3.3 Hydrology of the project area.



## Section 4. Botanical Assessment (Plant theme)

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### 4.1. Site floristics

#### 4.1.1. South African Vegetation Map – ecosystem threat status

According to the South African Vegetation Map (Mucina *et al.*, 2006-2024) two vegetation types occur in project area, namely Drakensberg Foothill Moist Grassland, which is classified as **Least Concern** and small sections of Mthatha Moist Grassland (Figure 4.1), which is classified as **Endangered** (Red List of Ecosystems, 2022). (Figure 4.2). It must be noted that the proposed reticulation pipelines are routed along existing access roads, which are essentially no longer natural. Therefore, the proposed pipeline will not contribute towards any further loss of this ecosystem (See SEI in Section 6). Southern Mistbelt Forest is also present in the project area in valleys and south-facing slopes. No forest will be impact by the proposed Ngqondo WSS and will therefore not be considered further.

The key distinguishing features between the two grassland types are the underlying soils which support varying levels of species diversity:

- The soils of Drakensberg Foothill Moist Grassland are formed by the mudstones and sandstones of the Tarkastad subgroup and Molteno Formation, as well as intrusive dolerite. The deep soils (80cm) are well drained, with 15-55% clay content. These soils support a wide diversity of herbs and bunch grasses such as *Themeda triandra*.
- The soils associated with Mthatha Moist Grassland are mudstones of the Tarkastad and Adelaide subgroups, which are highly leached. This grassland is comparatively species poor and is characterised by sourveld grasses such as *Eragrostis* sp.

#### 4.1.2. Indigenous plant species

The potential SCCs that have been flagged in the National Screening Tool have been assessed in terms of the likelihood of occurrence (Table 4.1). The probability of the species being in the project areas is based on the presence of suitable preferred habitat and also considers the sensitivity of the species to over-grazing, soil erosion and medicinal use.

#### 4.1.3. Alien and invasive plant species

Five (5) alien invasive species classified as Category 1b and 2 on the National Environmental Management: Biodiversity Act (2004) Alien Invasive Species Lists, (2020) were recorded from the photographic evidence (Table 4.2). Category 1b species are invasive species requiring compulsory control as part of an invasive species control programme. Landowners are required to remove and destroy these species. These plants are deemed to have such a high invasive potential that infestations can qualify to be placed under a government sponsored invasive species management programme. The proposed Ngqondo WSS project activities must not result in the further spread of these alien invasive species.

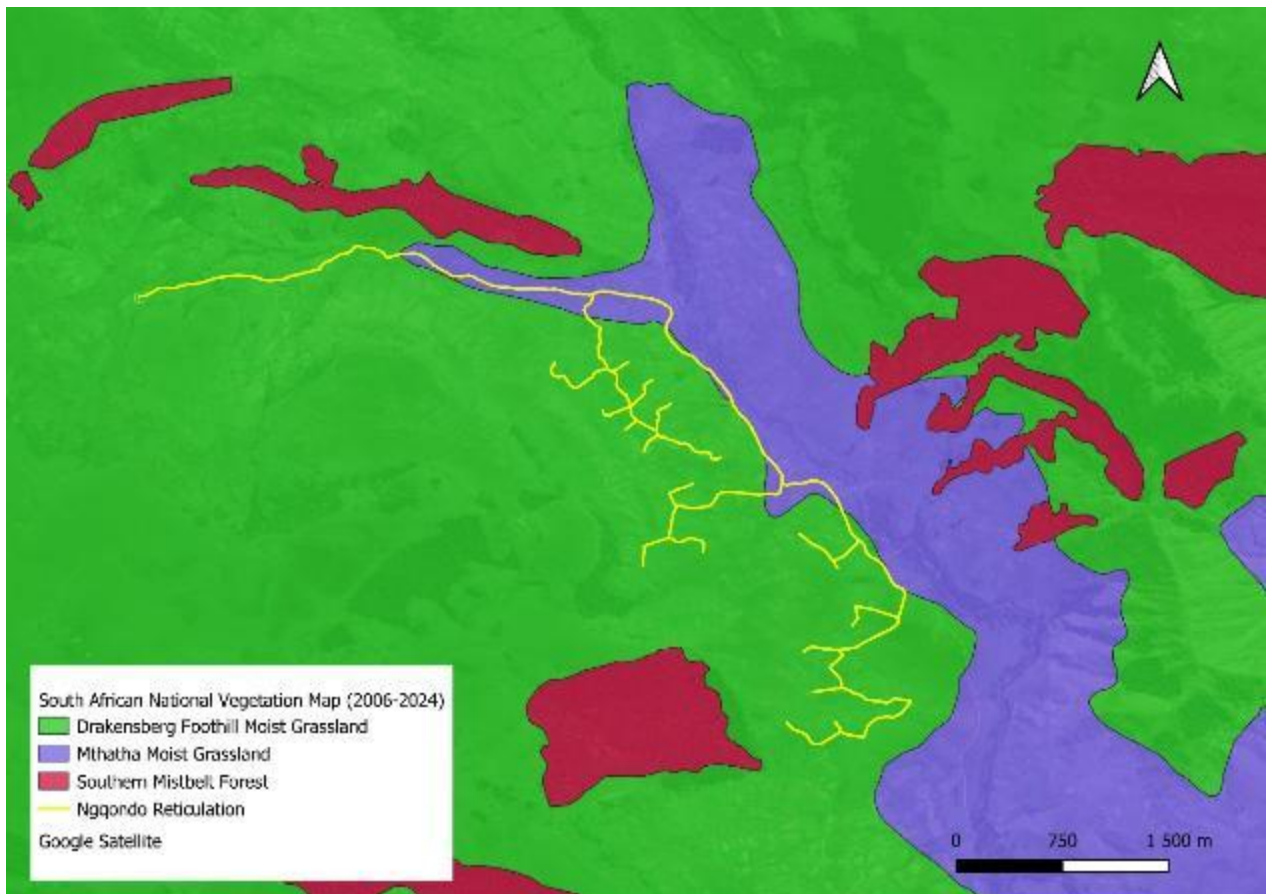


Figure 4.1 Vegetation map (Mucina *et al.*, 2006-2024) and the ecosystem threat status (RLE, 2021).

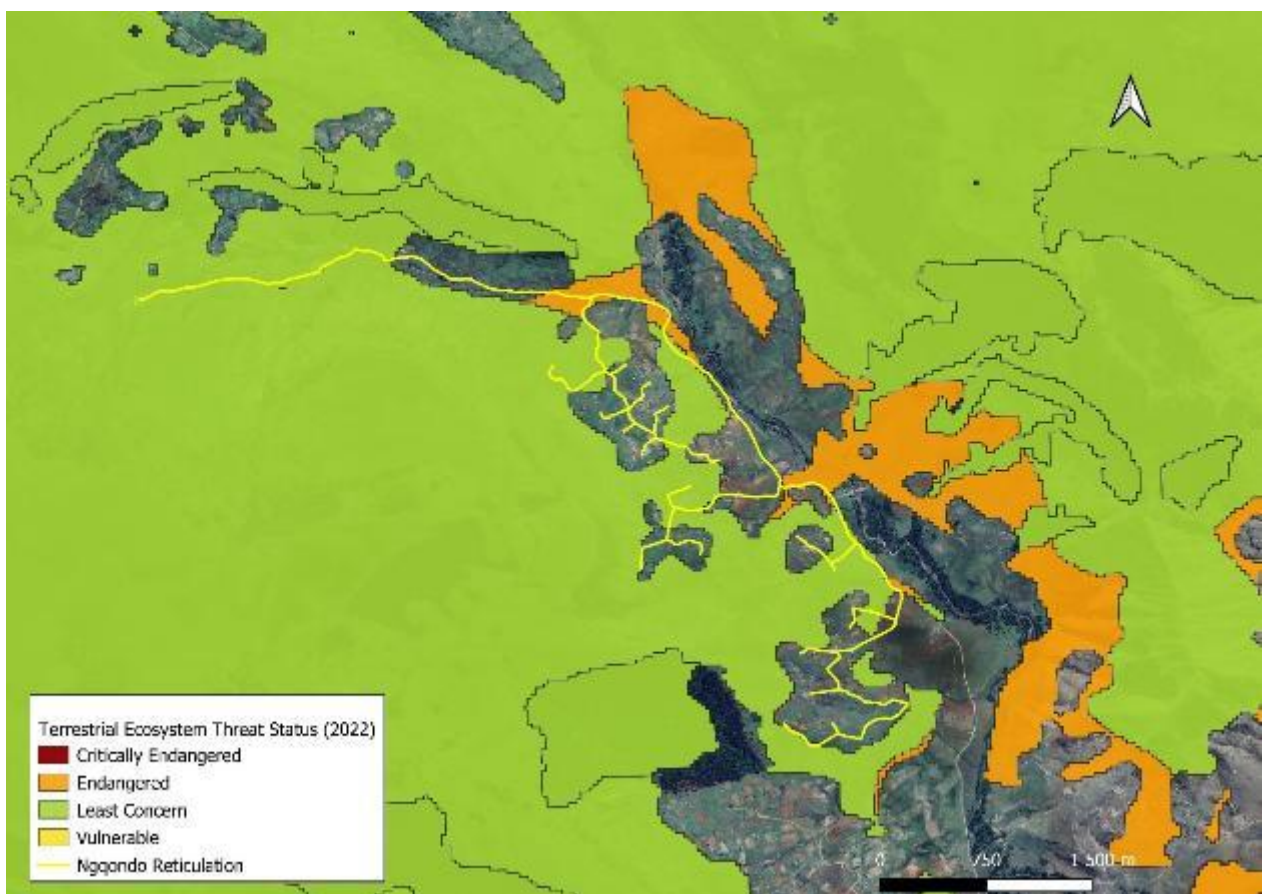


Figure 4.2 Ecosystem threat status as per the National Red List of Ecosystems (2022).

**Table 4.1 List of potential SCC plant species and likelihood of occurrence.**

Family	Species name	Threat status	Description of habitat	Likelihood of occurrence
LAURACEAE	<i>Ocotea bullata</i>	EN	<i>Ocotea bullata</i> occurs forests across South Africa, from the kloofs of Table Mountain to the mountain forests of Limpopo.	Unlikely to occur along the pipeline routes – no forest habitat.
	Sensitive species 1252	VU	This species is widely distributed in South Africa, growing in grasslands and forest. The species experienced a significant decline in the 1950's when it was harvested for medicinal purposes.	Possible, but unlikely to persist close to settlements and cultivated land.
	Sensitive species 662	EN	SS 662 is known from just a few localities in the mountains to the north of Encobo and Umtata in Eastern Cape. Here the plants grow on shaded, wet rock ledges at the head of mountain streams.	Possible, in streams that have not been eroded.
	Sensitive species 609	VU	SS 609 is endemic to South Africa and is distributed in KwaZulu-Natal and Eastern Cape. Naturally found in the understory of coastal forest and at the edge of seeps and vleis in grassland, at altitudes ranging from 350–1 400 m.	Possible, at the edge of seeps on higher-lying slopes.
	Sensitive species 535	EN	It is usually found in damp grassland near streams from 1 520 to 2 590 m altitude.	Possible, in streams that have not been eroded.
	Sensitive species 554	VU	This species is found on dolerite outcrops in grassland.	Unlikely, no suitable habitat present.
	Sensitive species 441	EN	Wetlands, seepages or stream edges in high altitude grassland, 1 500-2 000 m.	Possible, at the edge of seeps and streams on higher-lying slopes.
	Sensitive species 451		Damp, rocky grasslands, 100-3000 m.	Possible, suitable habitat present.
	Sensitive species 1248	VU	This species occurs at low and medium altitudes, and is usually found along mountain ranges, in thickly vegetated river valleys, under bush clumps and in boulder screes. It has been recorded as scrambling at the margins of karroid, succulent bush in the Eastern Cape, and in KwaZulu-Natal, and it may occur in bushy kloofs at the coast and in the midlands.	Unlikely, no suitable habitat present.
ROSACEAE	<i>Prunus africana</i>	VU	<i>Prunus africana</i> is confined to evergreen forests from near the coast to the mist belt and montane forests in KwaZulu-Natal, Eastern Cape, Swaziland, Mpumalanga, Zimbabwe and tropical Africa.	Unlikely to occur along the pipeline routes – no forest habitat.

**Table 4.2 Alien and Invasive plant species recorded on site.**

Species name	Common name	Alien Invasive Category
<i>Cirsium vulgare</i>	Scotch Thistle	1b
<i>Eucalyptus</i> sp	Eucalyptus	1b
<i>Acacia mearnsii</i>	Black Wattle	2
<i>Acacia dealbata</i>	Silver Wattle	2
<i>Solanum chrysotrichum</i>	Devils' fig	1b

## Section 5. Faunal Assessment (Animal Theme)

### 5.1. Faunal Species of Conservation Concern

A total of 36 faunal SCC could possibly occur within the general area of the proposed Ngqondo WSS development. While several invertebrate species were noted, there is no suitable habitat in the development sites for the threatened invertebrate species ("Forest Invertebrate") that was listed in the National Screening Tool report.

The following threatened faunal species potentially occur in the project area: 27 bird SCC, 8 single mammal SCC, and a single reptile SCC are listed (Table 5.1). The likelihood of occurrence of these species on site has been assessed based on suitable habitat and habitat condition (Table 5.1). Based on an assessment of distribution, no amphibian SCC are likely to occur in the area.

**Table 5.1 Potential Avifaunal SCC and indicated species recorded on site (EN – endangered, VU – vulnerable, NT – near threatened, LC – least concern).**

Common Name	Scientific Name	Regional Red List Status	Global Red List Status	Likelihood of Occurrence
<b>Birds</b>				
Harrier, Black	<i>Circus maurus</i>	EN	EN	Moderate
Crane, Wattled	<i>Grus carunculatus</i>	EN	VU	Low
Hornbill, Southern Ground	<i>Bucorvus leadbeateri</i>	EN	VU	Low
Crane, Grey Crowned	<i>Balearica regulorum</i>	VU	EN	Moderate
Duck, Maccoa	<i>Oxyura maccoa</i>	VU	EN	Low
Secretarybird	<i>Sagittarius serpentarius</i>	VU	EN	Low
Blackcap, Bush	<i>Sylvia nigricapillus</i>	VU	VU	Moderate
Crane, Blue	<i>Grus paradiseus</i>	VU	VU	Low
Vulture, Cape	<i>Gyps coprotheres</i>	VU	VU	High
Bustard, Denham's	<i>Neotis denhami</i>	VU	NT	Moderate
Eagle, Crowned	<i>Stephanoaetus coronatus</i>	VU	NT	Low
Korhaan, Blue	<i>Eupodotis caerulescens</i>	VU	NT	Low
Eagle, Verreaux's	<i>Aquila verreauxii</i>	VU	LC	Low
Finfoot, African	<i>Podica senegalensis</i>	VU	LC	Low
Harrier, African Marsh	<i>Circus ranivorus</i>	VU	LC	Moderate
Darter, African	<i>Anhinga rufa</i>	NT	LC	Low
Duck, Yellow-billed	<i>Anas undulata</i>	NT	LC	Moderate
Egret, Great	<i>Ardea alba</i>	NT	LC	Low
Falcon, Lanner	<i>Falco biarmicus</i>	NT	LC	Moderate
Hamerkop	<i>Scopus umbretta</i>	NT	LC	Low
Heron, Black-crowned Night	<i>Nycticorax nycticorax</i>	NT	LC	Moderate
Kite, Black-winged	<i>Elanus caeruleus</i>	NT	LC	Moderate
Owl, Marsh	<i>Asio capensis</i>	NT	LC	Moderate
Pochard, Southern	<i>Netta erythrophthalma</i>	NT	LC	Low
Teal, Red-billed	<i>Anas erythrorhyncha</i>	NT	LC	High
Rockjumper, Drakensberg	<i>Chaetops aurantius</i>	LC	NT	Low
Thrush, Sentinel Rock	<i>Monticola explorator</i>	LC	NT	Moderate

Common Name	Scientific Name	Regional Red List Status	Global Red List Status	Likelihood of Occurrence
<b>Mammals</b>				
Giant Golden Mole	<i>Chrysospalax trevelyani</i>	EN	EN	Low
Mountain Reedbuck	<i>Redunca fulvorufula</i>	EN	EN	Low
Dark-footed Forest Shrew	<i>Myosorex cafer</i>	VU	VU	Low
White-Tailed Rat	<i>Mastromys albicaudatus</i>	VU	VU	Low
African Clawless Otter	<i>Aonyx capensis</i>	NT	NT	Moderate
Grey Rhebok	<i>Pelea capensis</i>	NT	NT	Moderate
Spotted-necked Otter	<i>Hydricotis maculicollis</i>	VU	NT	Low
Vlei Rat	<i>Otomys auratus</i>	NT	NT	High
<b>Reptiles</b>				
Copper Grass Lizard	<i>Chamaesaura aenea</i>	LC	NT	Moderate

The species that have been given a likelihood of occurrence higher than **LOW** are mainly those that will likely only traverse the site during foraging or dispersal activity. This is especially relevant to the raptor and Crane species. Other species will likely be restricted to suitable areas of habitat nearby, but are likely to remain there, rather than venturing onto the site itself. This is applicable to Bush Blackcap (forest patches), Denham's Bustard (grassland patches), Yellow Billed Duck and Black Crowned Night Heron (riparian patches), and Sentinel Rock Thrush (rocky patches).

Regarding mammal SCC, only the Vlei Rat is likely to occur on the development site, as they tend to become accustomed to human activity. African Clawless Otter will likely only occur in the riparian areas, while Grey Rhebok will likely remain in the high-altitude grassland and rocky slope areas, if they have not been hunted out. Neither of the Endangered mammal species are likely to occur within the development area, as the Giant Golden Mole is confined to forest habitats and Mountain Reedbuck, if they have not been hunted out, are shy antelope that would not be expected to occur around settlements.

The Copper Grass Lizard has specific habitat requirements and is only likely to occur in the high-altitude grasslands in the north-western area of the project, which will not be impacted by the proposed pipeline reticulation of the Ngqondo WSS.



## Section 6. Site Ecological Importance

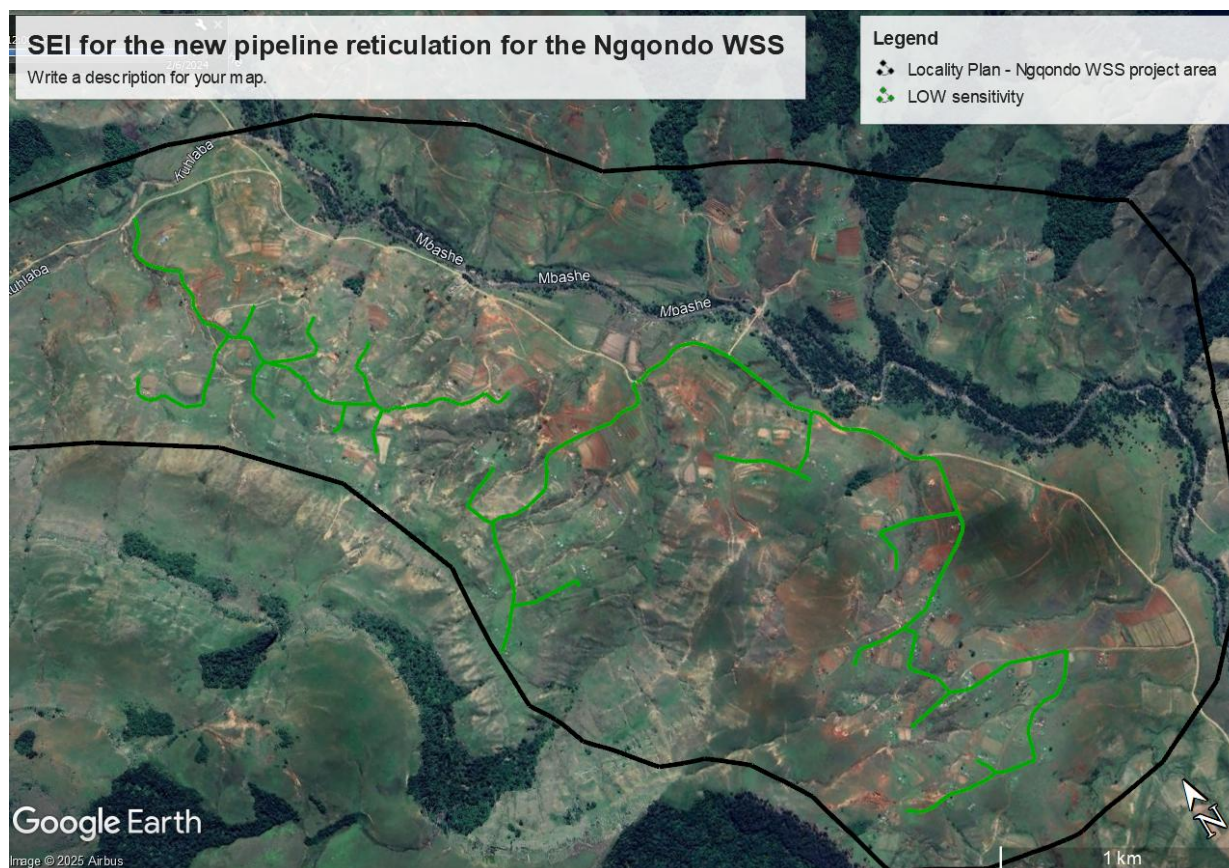
The Species Environmental Assessment Guideline criteria (SANBI, 2020) were applied to assess the Site Ecological Importance (SEI) or sensitivity of the proposed new reticulation pipeline routes. The assessment considers criteria such as conservation importance (CI), functional integrity (FI), and receptor resilience (RR) (Appendix B) to determine sensitivity. These criteria were applied as a combined assessment for the plant and animal theme to the proposed pipeline routes.

The conservation importance for the natural and degraded grasslands is considered Low-Very Low due to high grazing pressure around the settlements and historical cultivation (Table 6.1). The receptor resilience for all areas is low-very low, as evidenced by the slope erosion throughout the vicinity indicating that soils do not readily recover from disturbances and are vulnerable to erosion. Wetlands are areas that could potentially support species of conservation of concern, are considered important ecological service infrastructure. The resulting sensitivity ranking of wetlands in the project are therefore high.

**Table 6.1 SEI of habitats/communities along the reticulation routes of the Ngqondo WSS.**

	CI	FI	RR	Sensitivity
Degraded areas	Very Low	Low	Very Low	Low
Natural grassland	Low	Medium	Very Low	Medium
Wetlands	High	Medium	Low	High

The pipeline layout has been optimised to avoid areas of High and Medium sensitivity, and the resulting map represents the Low sensitivity along the length of the pipeline (Figure 6.1).



**Figure 6.1 Sensitivity of the pipeline route associated with the new Ngqondo WSS reticulation pipeline routes.**



## Section 7. Terrestrial Biodiversity Assessment

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### 7.1. Ecological drivers and processes

Grasslands in South Africa cover approximately one third of South Africa's total land surface area and support high levels of biodiversity. Grasslands are considered important water production landscapes and provide various ecosystem services particularly for rural communities in South Africa (SANBI, 2013).

The two (2) key ecological drivers of grassland ecosystems include climate and fire, which influences their character, community structure, composition, and primary productivity. In addition to climate and fire, other ecological drivers influencing these features include grazing, soil types, and nutrient status. Due to their high biodiversity and their suitability for human habitation, these ecosystems are often negatively impacted by various anthropogenic activities including grazing by livestock, over harvesting of natural resources, inappropriate fire regimes, mining, agriculture, urban and industrial expansion, amongst others (SANBI, 2013).

### 7.2. Strategic Water Source Areas (SWSAs)

The WWF and CSIR (2017) identified twenty-one (21) Strategic WSAs for surface water (SWSA) which covered 8% of South Africa and supplied 50% of the mean annual runoff, expanding on the work of the National Freshwater Priority Areas (NFEPA 2011), which identified high water-yield areas and high groundwater recharge areas. A 2021 review of SWSAs resulted in additional areas being mapped.

Strategic Water Source Areas (SWSAs) are defined as areas of land that either: (a) supply a disproportionate quantity of mean annual surface water runoff in relation to their size and so are considered nationally important; or (b) have high groundwater recharge and where the groundwater forms a nationally important resource; or (c) areas that meet both criteria (a) and (b). SWSAs are in high rainfall areas and contribute to sustained river flows, which are important for supporting people and communities who depend directly on rivers for their water, especially during the dry season and droughts. However, only 11% of SWSAs receive formal protection. For these reasons, managing the terrestrial water catchments in these areas are critical for the maintenance of water quality and quantity and land use decisions need to ensure that the management objectives required of SWSAs are considered.

The proposed Ngqondo WSS is located in the Eastern Cape Drakensberg SWSA (Figure 7.1) which drains into the south-flowing Mbhashe River, which one of the Eastern Cape's major rivers. The soil in the project area appears to be highly eroded, and the sediment that is transported downstream by runoff will be affecting the quality of the water that drains into the Mbhashe River. Given the vulnerability of the soil to disturbance, in order to reduce the impact on the SWSA the installation of the pipelines must:

- Be carefully considered in terms of rain season and periods of rain.
- Should be concluded in the shortest amount of time. It is suggested that short sections at a time are installed and rehabilitated as soon as possible with indigenous grass species.
- When digging trenches, topsoil should be stacked separately to lower soil horizons and the trench back-filled with lower horizons first and ending with the topsoil layer on top.



**Figure 7.1 Eastern Cape Drakensberg Strategic Water Source Area in relation to the project area (pipelines indicated by yellow lines).**

### **7.3. Eastern Cape Biodiversity Conservation Plan (ECBCP, 2019)**

In terms of the Eastern Cape Biodiversity Conservation Plan (2019), sections of the proposed new Ngqondo WSS reticulation are located in a Terrestrial Critical Biodiversity Area (CBA) 1 and 2 (Figure 7.2). CBAs are defined as areas that are required to meet biodiversity targets. The land use objective for CBA1 and CBA2 is to maintain them in a natural state. The ECBPC (2019) was modelled using an integrated land cover map (based on the National 2014 landcover map available at the time). The National land cover map was used to identify areas that were **still in a natural state**. The scale and resolution the mapping does not always reflect the conditions on the ground, and for this reason all Biodiversity spatial plans should be ground truthed.

In the case of the proposed Ngqondo WSS reticulation, most of the sections that are routed with CBA1 and CBA2 are along **existing access roads**, or **traverse highly degraded** (eroded) and previously cultivated land (Figure 7.3 and Figure 7.4 a-d). The condition of the grasslands within the broader of project area is generally poor due to overgrazing and historical cultivation which has led to severe erosion. In addition, certain sections of the proposed pipeline reticulation are routed along access roads or through severely eroded areas, the vegetation has been permanently modified. The habitats along these sections of pipeline are unlikely to be supporting plant SCC and possibly experience transient faunal SCC (mainly birds) that may fly through the site or use the wetlands on the higher-lying slopes. The proposed pipelines therefore do not constitute a loss of CBA1 or CBA2, as they have already been modified/degraded.



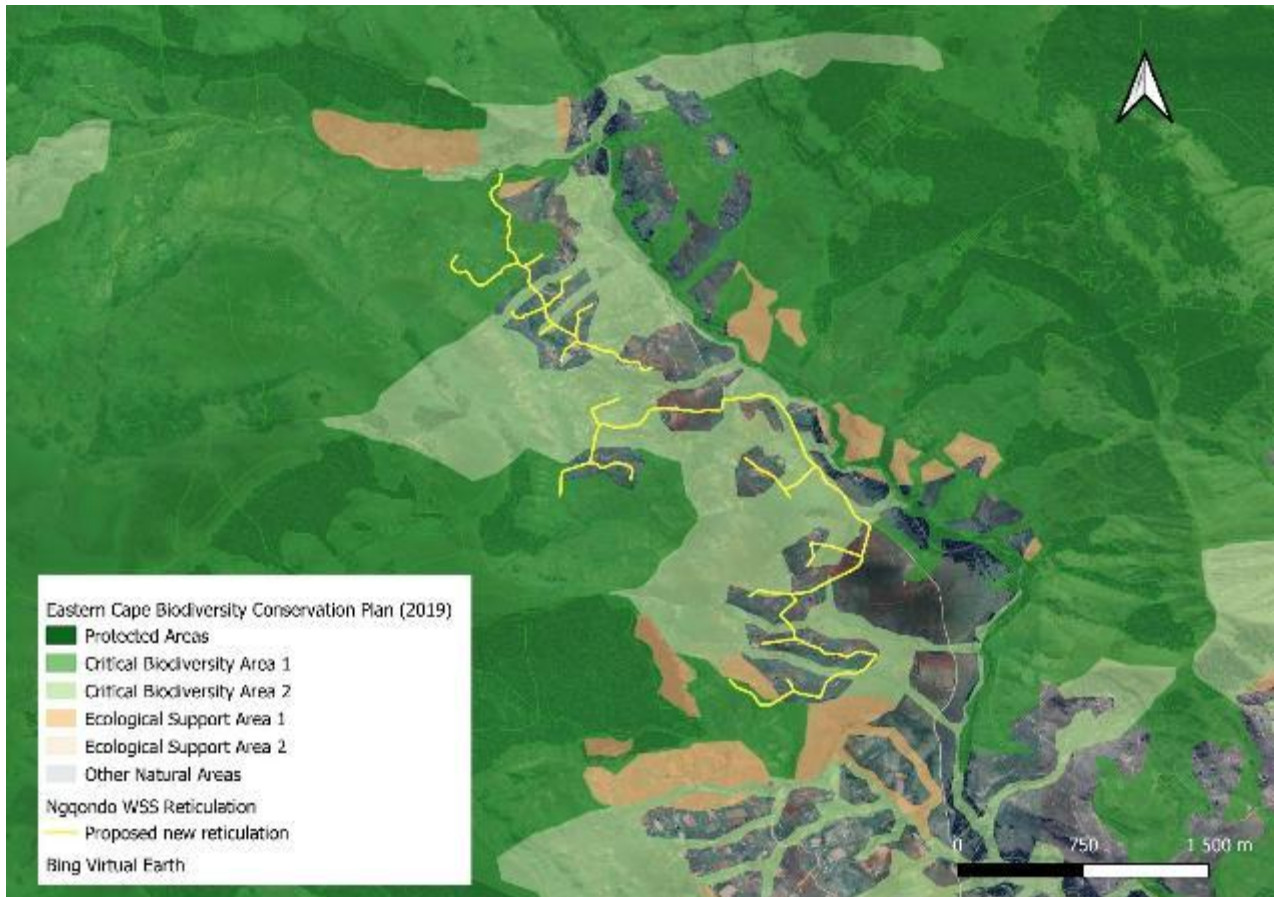


Figure 7.2 ECBCP (2019) in the project area.



Figure 7.3 Severe erosion along the access roads and on slopes in the distance due to cultivation and overgrazing.



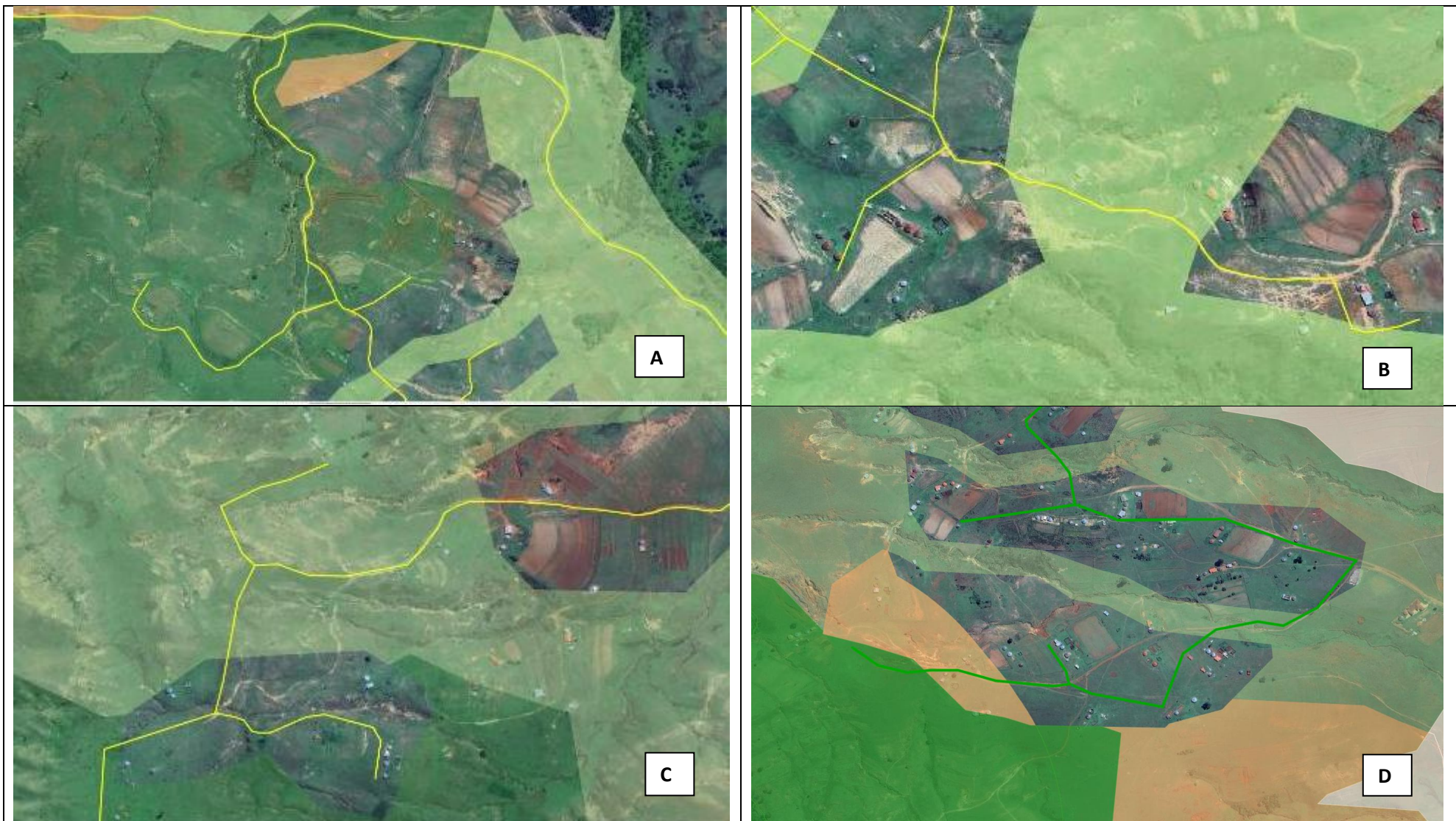


Figure 7.4 a-d: Examples of sections of pipeline reticulation that are routed through CBA1 and CBA2.



#### 7.4. Protected Areas and Protected Area Expansion Strategy Priorities

The proposed Ngqondo WSS reticulation is located approximately 55km west of the closest protected area, the Nduli Nature Reserve. The site is not located within a Protected Area Expansion Strategy Focus Area, and the closest priority area is approximately 40km north of the proposed activity (Figure 7.5).

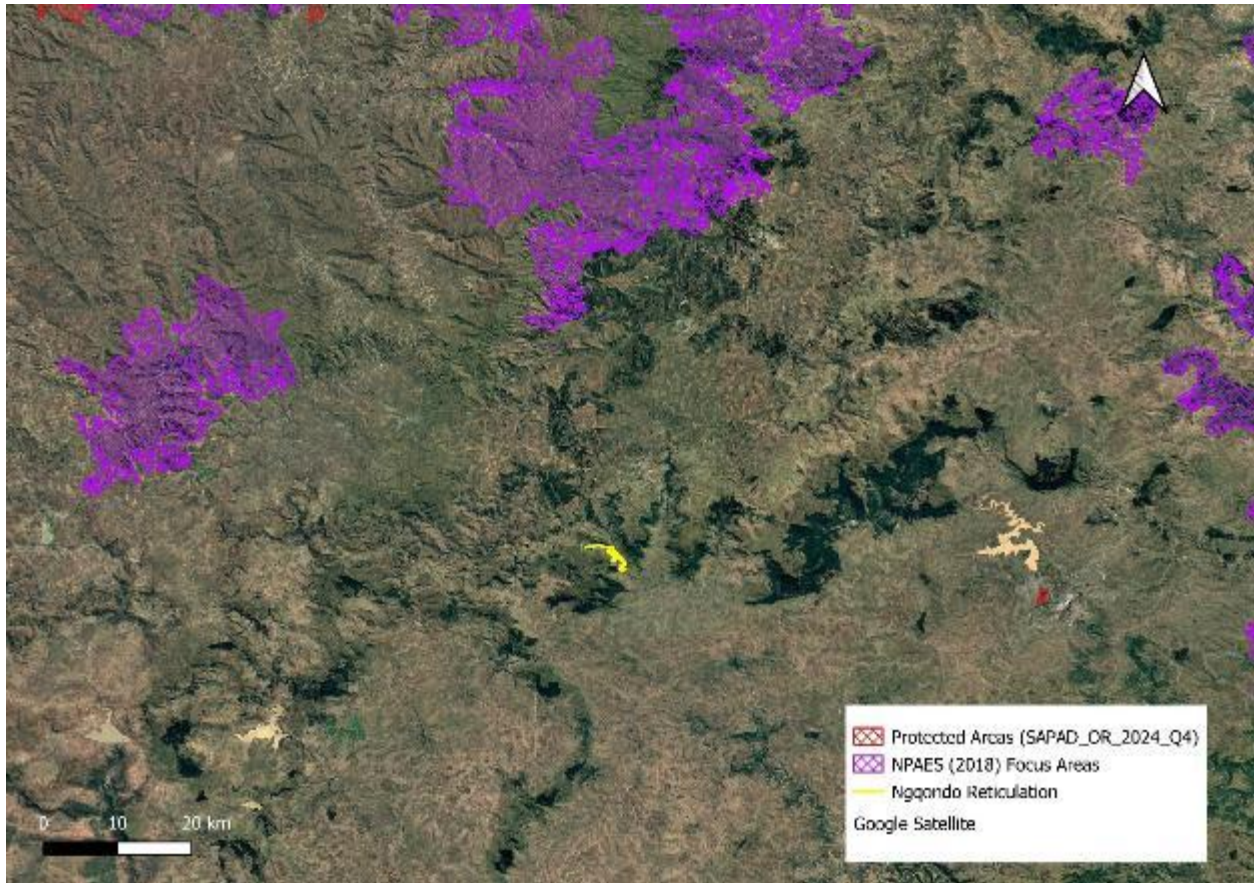


Figure 7.5 Protected Areas (SAPAD, Q1-2025) and NPAES (DFFE, 2018).

## Section 8. Conclusions and Recommendations

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### 8.1. Summary of findings

The assessment found that the majority of the proposed Ngqondo WSS pipeline routes traverse areas already heavily impacted by human activity, such as existing access roads and land degraded by erosion and historical cultivation. As a result, these sections are unlikely to support significant plant species of conservation concern, with only transient faunal species, such as birds, possibly making use of the altered habitats. The SEI analysis identified sensitive habitats associated with high-altitude seep wetlands, which could potentially support plant SCC. This and the ecosystem services supplied by the wetlands require that we treat them as high sensitivity habitats and alternative routes to avoid these areas have been used.

The location of the project within a Strategic Water Source Area requires that the impact on surface water quality and quantity is minimised. Therefore, emphasise must be placed on minimising construction impacts and placing appropriate efforts into rehabilitation management to prevent run-off of soil and soil erosion.

The pipelines do not represent further loss of critical biodiversity areas (CBA1 and CBA2) where the land is already modified.

Overall, the findings indicate that, the proposed development will not result in significant additional impacts to biodiversity.

### 8.2. Recommendations

The following is recommended for inclusion into the Environmental Management Programme:

- Conduct a search and rescue prior to clearing especially along the edges of streams at stream-crossings and the edges of wetlands where construction is likely to impact the vegetation.
- Rehabilitate/re-vegetate construction areas with indigenous plant species as soon as possible. Installing small sections at a time will decrease the time that soil is exposed and allow for revegetation as trenches are closed.
- During construction remove AIPs that establish within the demarcated construction areas, including laydown and construction camps if applicable.

In addition, specific measures to minimise soil disturbance and soil erosion must be included in the EMPr. Suggestions include the following for construction:

- Construction should not be undertaken during the rainy season if possible, or during periods of rain.
- Pipe installation should be concluded in the shortest amount of time. It is suggested that short sections are installed at a time and rehabilitated as soon as possible, with indigenous grass species.
- When digging trenches, topsoil horizons should be stacked separately to lower soil horizons on either side of the trench, and the trench backfilled with lower horizons first and ending with the topsoil layer on top.

### 8.3. Statement and Opinion of the Specialist(s)

The authors confirm that for the Plant Theme, Animal Theme and Terrestrial Biodiversity Theme, there are no concerns regarding the sensitivity of the WSS and associated infrastructure, and that no significant impacts will result from the proposed development. It is therefore the opinion of the specialists that the proposed development may be authorised.



## Section 9. References

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DEDEAT Eastern Cape Biodiversity Conservation Plan (2019). Hawley, Desmet and Berliner, online: <https://bgis.sanbi.org/Projects/Detail/233>

DFFE National Screening Tool:

<https://screening.environment.gov.za/screeningtool/#/pages/welcome>

Red List of Threatened Ecosystems (RLE, 2022). Full citation: National Environmental Management: Biodiversity Act (10/2004): revised national list of ecosystems that are threatened and in need of protection. Government notice 47526 and published in Skowno, A and Monyeki, M. (2021). South Africa's Red List of Terrestrial Ecosystems (RLEs). Land Volume 10. <https://doi.org/10.3390/land10101048>.

SANBI (2013). Grasslands Ecosystem Guidelines: landscape interpretation for planners and managers. Compiled by Cadman, M., de Villiers, C., Lechmere-Oertel, R. and D. McCulloch. South African National Biodiversity Institute, Pretoria. 139 pages.

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SANBI (2016) Lexicon of Biodiversity Planning in South Africa. Beta Version, June 2016. South African National Biodiversity Institute, Pretoria. 72 pp.

SANBI (2020). Species Environmental Assessment Guideline. Guidelines for the implementation of the Fauna and Flora Species Protocols for environmental impact assessments in South Africa. South African National Biodiversity Institute, Pretoria. Version 2.1 2021.

South African National Biodiversity Institute & Department of Environment, Forestry and Fisheries (2021) Red List of Terrestrial Ecosystems of South Africa June 2021. South African National Biodiversity Institute. Pretoria, South Africa.

## Appendix A Compliance with minimum requirements

The contents of this specialist report comply with the legislated requirements as described in the Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts for the Plant and Animal Theme (GN 1150 of 2020, as amended in 2023) and on Terrestrial Biodiversity (GN R. 320 of 2020).

SPECIALIST REPORT REQUIREMENTS ACCORDING TO GN R. 1150			SECTION OF REPORT
5.3	The Terrestrial <b>Plant and Animals Species</b> Specialist Assessment Report must contain, as a minimum, the following information:		
	5.3.1	Contact details of the specialist, their SACNASP registration number, their field of expertise and a curriculum vitae;	Page 2; Appendix C
	5.3.2	A signed statement of independence by the specialist;	✓
	5.3.3	A statement of the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;	N/A
	5.3.4	A description of the methodology used to undertake the site verification and impact assessment and site inspection, including equipment and modelling used, where relevant;	N/A
	5.3.5	Where required, proposed impact management actions and outcomes or any monitoring requirements for inclusion in the EMPr;	Section 8.2
	5.3.6	A description of the assumptions made and any uncertainties or gaps in knowledge or data;	Section 2.4
	5.3.7	A description of the mean density of observations/number of samples sites per unit area of site inspection observations;	N/A
	5.3.8	Any conditions to which the compliance statement is subjected.	Section 8.2
	A signed copy of the assessment must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.		
SPECIALIST REPORT REQUIREMENTS ACCORDING TO GN R. 320			SECTION OF REPORT
4.3	The Terrestrial Biodiversity Specialist Assessment Report must contain, as a minimum, the following information:		
	4.3.1	Contact details of the specialist, their SACNASP registration number, their field of expertise and a curriculum vitae;	Page 2; Appendix C
	4.3.2	A signed statement of independence by the specialist;	✓
	4.3.3	A statement of the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;	N/A
	4.3.4	A baseline profile description of biodiversity and ecosystems of the site;	Section 3, 4, 5 and 7
	4.3.5	A description of the methodology used to undertake the site verification and impact assessment and site inspection, including equipment and modelling used, where relevant;	N/A
	4.3.6	In the case of a linear activity, confirmation from the terrestrial biodiversity specialist that, the land can be returned to the current state within two years of completion of the construction phase;	N/A
	4.3.7	where required, proposed impact management outcomes or any monitoring requirements for inclusion in the EMPr;	Section 8
	4.3.8	A description of the assumptions made and any uncertainties or gaps in knowledge or data as well as a statement of the timing and intensity of site inspection observations;	Section 2.4
	4.3.9	Any conditions to which this statement is subjected	
4.4	A signed copy of the assessment must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.		✓

## Appendix B Site Ecological Importance Criteria

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**Table A.1 Criteria for establishing Site Ecological importance and description of criteria**

Criteria	Description
Conservation Importance (CI)	<i>The importance of a site for supporting biodiversity features of conservation concern present e.g. populations of Threatened and Near-Threatened species (CR, EN, VU &amp; NT), Rare, range-restricted species, globally significant populations of congregatory species, and areas of threatened ecosystem types, through predominantly natural processes.</i>
Functional Integrity (FI)	<i>A measure of the ecological condition of the impact receptor as determined by its remaining intact and functional area, its connectivity to other natural areas and the degree of current persistent ecological impacts.</i>
Biodiversity Importance (BI) is a function of Conservation Importance (CI) and the Functional Integrity (FI) of a receptor.	
Receptor Resilience (RR)	<i>The intrinsic capacity of the receptor to resist major damage from disturbance and/or to recover to its original state with limited or no human intervention.</i>
Site Ecological Importance (SEI) is a function of Biodiversity Importance (BI) and Receptor Resilience (RR)	

**Appendix C Curriculum Vitae**

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