



THE PROPOSED CONSTRUCTION OF INKOSI PHALANE SHOPPING CENTRE AND FUEL SERVICES STATION ON FARM RUTH NEAR ESIKHAWINI, WITHIN THE UMHLATHUZE LOCAL MUNICIPALITY, KWAZULU-NATAL, SOUTH AFRICA

TERRESTRIAL BIODIVERSITY COMPLIANCE STATEMENT

20 March 2023

Prepared by:

Prepared for:





DECLARATION

I, Bryan Walter Paul, declare that -

- I act as the independent specialist in this matter;
- I do not have and will not have any vested interest (either business, financial, personal or other) in the undertaking of the proposed activity, other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2014;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the National Environmental Management Act (Act 107 of 1998) (NEMA), regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the NEMA Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity; and
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing any decision to be taken with respect to the application by the competent authority; and the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority; all the particulars furnished by me in this report are true and correct.

Signature of the specialist:



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INDEMNITY

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SPECIALIST REPORT REQUIREMENTS

Specialist reports are required to be undertaken in line with Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of Sections 24(5)(A) and (H) and 44 of the National Environmental Management Act (NEMA; Act No 107 of 1998) when Applying for Environmental Authorisation, dated 20 March 2020. The Protocol for the specialist assessment and impacts on terrestrial biodiversity applies.

1 INTRODUCTION

1.1 Background and Project Specifications

The property boundary on which the site is located is approximately 920, 4780 hectares (Ha) in extent, with approximately 27.59 Ha being used for the proposed development. The site is currently used as a commercial timber plantation, with majority of the site being occupied by *Eucalyptus* spp., common grasses (predominantly *Cynodon dactylon*) and scatter pioneering tree species on the outskirts of the plantation.

The project falls within the uMhlathuze Local Municipality under King Cetshwayo District Municipality, KwaZulu–Zulu, almost adjacent to the P535 road from N2 towards Esikhaleni township. The centre-point co-ordinates for the site were recorded as follows: 29o 42' 57.11"S; 30o 22' 28.48"E with the locality of the site being demonstrated in Figure 1 below.

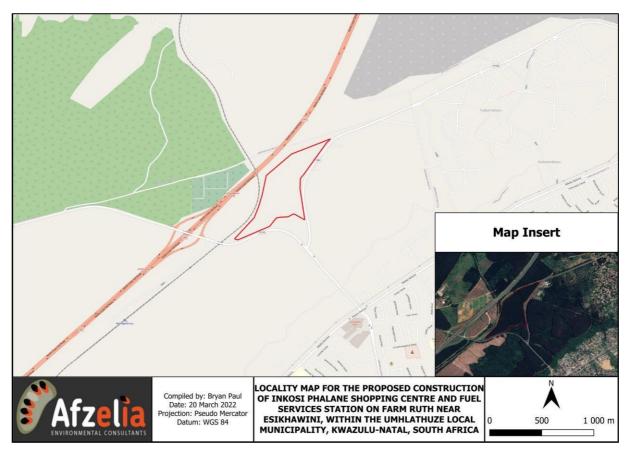


Figure 1: Locality map of the study area.

The project entails the construction of Inkosi Philane Shopping Centre with anchor shop, line shops and restaurents.

1.2 Scope of Work

The objectives of this report are too:

- Review the available project related information;
- Undertake a desktop assessment of the study area;
- Conduct a site verification to confirm the site sensitivity;
- Produce a Terrestrial Biodiversity Compliance Statement which either collaborates with the findings of the Department of Forestry, Fisheries and Environmental Affairs (DFFE) online screening report; or
- Produce a Terrestrial Biodiversity Compliance Statement, which provides an updated site sensitivity statement for the study area.

1.3 Assumptions and Limitations

- A 25m Project Area of Influence (PAOI) has been determined for the nature and scale of this project.
- No wetland or riparian habitat has been found within the development footprint.
- A once-off survey was conducted on the 21st November 2022 to verify the sensitivity of the site.
- To accurately record the species on site, long-term field assessments would have to be conducted to consider seasonal and temporal variations and provide more accuracy.

1.4 Applicable Legislation and Policies

The following legislation, outlined in Table 1 below, has been deemed applicable to the proposed development.

Table 1: Legislation deemed applicable to the proposed development.

Legislation	Definition		
KwaZulu-Natal Nature	This act amends the KwaZulu-Natal Nature Conservation Management Act in a wide variety of		
Conservation	matters relating to the establishment and powers and functions of the KwaZulu-Natal Nature		
Management	Conservation Board, the organization of the KwaZulu-Natal Conservation Services, powers of		
Amendment Act, 1999	honorary officers, protected area and other aspects such as hunting.		
(KZN CMAA; Act No.			
5 of 1999).			
Conservation of	This act provides a legal framework to control the utilization of natural agricultural resources of the		
Agricultural	Republic in order to promote the conservation of the soil, the water sources and the vegetation and		
Resources Act	the combating of weeds and invader plants, and for matters connected therewith.		

(CARA; Act No. 43 of			
1983)			
Threatened or	These regulations, made under the National Environmental Management Biodiversity Act, 2004,		
Protected Species	provide for the protection and conservation of threatened species (including marine plants and		
Regulations (2015)	animals).		
National	This Act seeks to manage and conserve biodiversity within the framework of the National		
Environmental	Environmental Management Act, 1998. The developer has a responsibility for limiting the loss of		
Management	biodiversity and ecosystems by adhering to the following legislation and restricted activities. The		
Biodiversity Act	following legislation may be consulted throughout the various phases of the proposed development:		
(NEM:BA) (No. 10 of	• GNR 324 of Government Gazette No. 37596 of 2014 provides the Amendment to the		
2004 as amended)	Threatened or Protected Species Regulations.		
(DEA, 2004)	• GNR 1002 of Government Gazette No. 34809 of 2011, provides a national list of terrestrial ecosystems that are threatened and in need of protection.		
	GNR 151 of Government Gazette No. 29657 of 2007 and GNR 1187 in Government Gazette		
	30568 of 2007 provides a list of critically endangered, endangered, vulnerable and protected species.		
	GNR 988 of Government Gazette No. 41919 of 2018 provides amendments to the alien and		
	invasive species list as well as the critically endangered, endangered, vulnerable and protected species.		
	GNR 599 of Government Gazette No. 37886 of 2014 and GNR 864 of Government Gazette		
	No. 40166 of 2016 provides a list of invasive and alien plant species		
	GNR 598 of Government Gazette No. 37885 of 2014 provides the Alien and Invasive Specific Control of the Co		
	Regulations. GNR 112 of Government Gazzette No. 41445 of 2018 provides the draft a		
	and invasive species regulations in terms of categories, potential eradication and control techniques and the requirements for the application of permits.		
	GNR 529 of Government Gazette No. 40889 of 2017 provides the most updated amendments		
	to the Regulations on the Convention of International Trade in Endangered Species (CITES)		
	of wild fauna and flora.		
	Section 76 of the NEM:BA (No. 10 of 2004) provides guidelines for monitoring, control and		
	eradication plans for species listed as invasive in terms of Section 70 of this Act.		
KwaZulu-Natal Nature	This is the relevant statute in KwaZulu-Natal, which aims to manage the removal and destruction		
Conservation	of rare and endangered species. Whilst this ordinance is in need of an update, it provides specialists		
Ordinance No. 15 of	with a basic tool to highlight both protected and specifically protected species which will require		
1974	permits to relocate.		

2 METHODOLOGY

The Terrestrial Biodiversity Specialist undertook the site verification on the 21st of November 2022. During this assessment it was found that the study differs from the designation of "Medium" Plant Species Sensitivity and "Medium" Animal Species

Sensitivity within the screening tool. As such a terrestrial biodiversity (faunal and floral) compliance statement has been undertaken in line within the "Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of Sections 24(5)(A) and 44 of the National Environmental Management Act (NEMA; Act No 107 of 1998) when Applying for Environmental Authorisation, dated 20 March 2020".

The following is description of the methodology used to verify the sensitivities of the terrestrial biodiversity features of the site.

2.1 Desktop Assessment

Available desktop information was assessed to best contextualize the site, and several databases and mapping tools were used. The following is a summary of the desktop information sources used:

- Google Earth imagery was used to determine the current land cover and existing land uses.
- Conservation Planning Tools such as the "List of Ecosystems that are Threatened and in Need of Protection",
 Wetlands dataset (NFEPA) and the KwaZulu-Natal Biodiversity Plan were mapped for the study area.
- A list of possible Species of Conservation Concern (SCC) was provided by the POSA list of plant species recorded
 in the greater study area which is checked against both international, national and provincial lists of SCC species
 and/ or protected species:
 - The National Red Data List for Amphibians;
 - The National Red Data List for Mammals;
 - The National Red Data List for Avifauna;
 - The Provincial Protected Plant Species List (Nature Conservation Ordinance No. 15 of 1974;
 - o National Protected Tree List (Government Gazette Vol. 593, 21 November 2014, No. 38215); and
 - The National Protected Species List or TOPS (R 1187 of 2007).
- The National Vegetation Map developed by Mucina and Rutherford (2018) was consulted to determine the expected vegetation type.
- The Department of Forestry, Fisheries and the Environment (DFFE) Online Environmental Screening Report.
- National Biodiversity Assessment (NBA, 2018) which provides a threat status as well as protection level for the vegetation occurring within the project area (Skowno et al. 2019).
- The South African Protected Areas Database (DFFE, 2022) and South African Conservation Areas Database (SACAD, 2020).
- The National Protected Area Expansion Strategy (NPAES, 2010).

2.2 Ecological Survey

The specialist conducted a site verification on 21st of November 2022. This assessment was used to verify the presence or absence of species predicted to occur on the site and record any habitat which may occur within the study area. The

assessment has been carried out during an ideal season (spring) and after notable rainfall had fallen within this region, stimulating growth. The survey was undertaken in cool conditions from the morning until mid-day.

The site was first surveyed at a desktop level, using Google Earth imagery and then divided into areas of specific vegetation communities as per stratified random sampling methodology. Each of these vegetation communities were assessed during the field assessment. For sampling of flora and fauna, timed meanders were used until no new species were recorded within each community as guided by rapid assessment best practise. The entire site was accessible on foot, and therefore no access related limitations were recorded. For the purposes of this study, faunal data collected during the field assessment makes use of opportunistic sightings as well as evidence of faunal activity (where applicable):

- Spoor (tracks);
- Dung;
- Burrows; and
- Alarm and/or breeding calls.

The lack of suitable habitat in conjunction with the absence of animal spoor and as the site is location within an existing timber plantation, the specialist is confident that passive monitoring techniques (such as camera traps) are not required or would reveal improved results. No additional monitoring has been recommended.

2.3 Site Ecological Importance (SEI) – Combined (Flora and Fauna)

SEI is considered to be a function of the biodiversity importance (BI) of the receptor (e.g. species of conservation concern, the vegetation / fauna community or habitat type present on the site) and its resilience to impacts (receptor resilience {RR}). The site sensitivity has been assessed according the "Species Environmental Assessment Guidelines" produced in 2020 by SANBI. The habitats and species of conservation concern in the project area were assessed based on their conservation importance, functional integrity and receptor resilience. The combination of these three criteria produces the rating of SEI and interpretation of mitigation requirements based on the ratings, as expressed in Table 2 below.

Table 2: Description of the sensitivity classes applied to the study area

CLASS	Criteria		
Very High	Avoidance mitigation no destructive development activities should be considered. Offset mitigation not acceptable/ not possible (i.e. last remaining populations of species, last remaining good condition patches of ecosystems/ unique species assemblages). Destructive impacts for species/ecosystems where persistence target remains.		
High	Avoidance mitigation wherever possible. Minimisation mitigation changes to project infrastructure design to limit the amount of habitat impacted; limited development activities of low impact acceptable. Offset mitigation may be required for high impact activities.		
Medium	Minimisation and restoration mitigation development activities of medium impact acceptable followed by appropriate restoration activities.		

Low	Minimisation and restoration mitigation development activities of medium to high impact acceptable followed by appropriate restoration activities.
Very Low	Minimisation mitigation development activities of medium to high impact acceptable and restoration activities may not be required.

3 DESKTOP ASSESSMENT

3.1 National and Provincial Conservation Planning

Ezemvelo KZN Wildlife's Systematic Conservation Assessment (SCA) identifies area that varies in terms of conservation importance as identified and mapped under the KwaZulu-Natal (KZN) biodiversity spatial planning terms and processes (EKZNW, 2016). According to this assessment, areas within KZN are subdivided into Planning Units (PUs) of varying spatial scales each associated with biodiversity features (e.g. vegetation types, ecosystems and species of conservation importance etc.).

The SCA classifies area of biodiversity value/ importance using two main categories, namely Critical Biodiversity Area's (CBA's) and Ecological Support Areas (ESA's). CBAs comprise of two subcategories, as described by EKZNW (2016), namely CBA: Irreplaceable and CBA: Optimal. ESA's other hand are not subdivided, but represent areas that support and sustain the ecological functioning of the CBAs thereby ensuring the persistence and maintenance of biodiversity patterns and ecological processes.

Table 3: Description of the CBA categories, which have been used within this report.

Critical Biodiversity Area Category	Critical Biodiversity Area Category Explanation		
CBA: Irreplaceable	Represent the only localities where conservation targets for specific biodiversity features can be met under the current conservation planning scenario. From a conservation perspective, these areas are considered "irreplaceable" in terms of maintaining biodiversity targets and should ideally be avoided.		
CBA: Optimal	Represent the best localities that provide critical linkages for CBA: Irreplaceable areas.		
Ecological Support Areas (ESAs)	These areas represent portions of the study area which are functional, but are not necessarily regarded as areas which are naturally intact. They are however required to ensure the persistence and maintenance of biodiversity patterns and ecological processes within Critical Biodiversity Areas.		

According to Figure 2 below the site is not located within any CBAs or Ecological Support Areas. The nearest CBA is located approximately 200 m from the boundary of the site, in a southerly direction and is associated with forest habitat. The proposed development will have no direct impact on this habitat and therefore will not be discussed further.

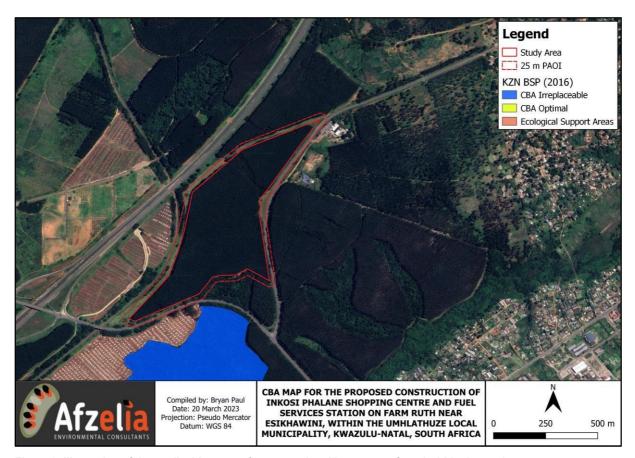


Figure 2: Illustration of the applicable areas of conservational importance found within the study area

The following maps (Figures 3 to 5) provide a visual illustration of the animal, plant and terrestrial biodiversity theme sensitivities for the proposed amended footprint.

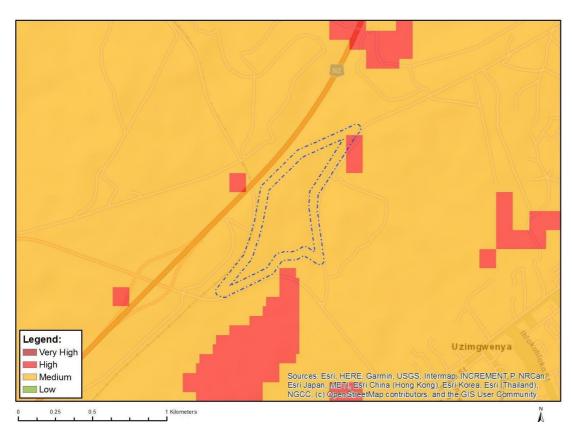


Figure 3: Illustration of the relative animal species theme sensitivity.

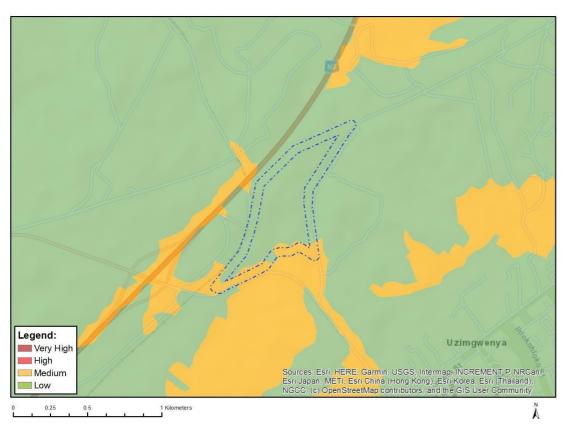


Figure 4: Illustration of the relative plant species theme sensitivity.

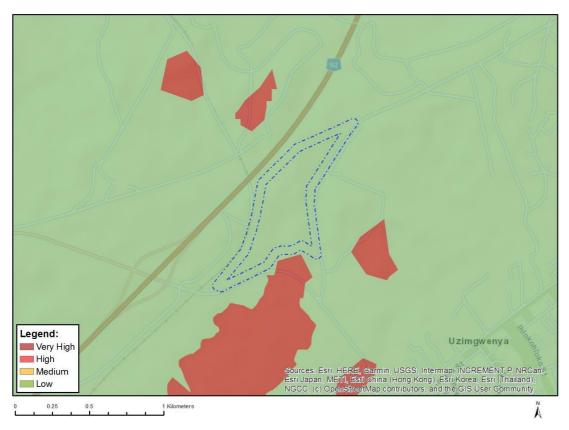


Figure 5: Illustration of the relative terrestrial biodiversity species theme sensitivity.

The following table (Table 4) provides a summary of the relative sensitivities and identified features identified within the DFFE screening report.

Table 4: Summary of the environmental sensitivities listed within the National Screening Tool Report (DFFE, 2022)

Theme	Sensitivity Rating	Feature	
	High	Circaetus fasciolatus	
		Hyperolius pickersgilli	
		Halcyon senegaloides	
		Stephanoaetus coronatus	
		Dendrohyrax arboreus	
	Deloneura millari millari Pelusios rhodesianus Sensitive species 8 Arytropteris basalis Lolaus diametra natalica	Deloneura millari millari	
Animal Species Theme		Pelusios rhodesianus	
		Sensitive species 8	
		Arytropteris basalis	
		Lolaus diametra natalica	
		Pomatonota dregii	
		Physophorina livingstonii	
		Teriomima zuluana	

	Low	Low Sensitivity
		Sensitive species 1252
		Aspalathus gerrardii
		Thesium polygaloides
		Fimbristylis aphylla
		Pachycarpus concolor subsp. arenicola
		Nidorella tongensis
Plant Species Theme	Medium	Senecio ngoyanus
		Wolffiella denticulata
		Cassipourea gummiflua var. verticillata
		Oxygonum dregeanum subsp. streyi
		Pavonia dregei
		Sensitive species 649
		Sensitive species 1221
		Sensitive species 191
Terrestrial Biodiversity Theme	Low	Low

In terms of the Best Practise Reporting guidelines, species listed above which have been referred to as "sensitive species with their unique identifies" have been excluded from this report.

The National Biodiversity Assessment (Skowno *et. al* 2018) recognises four (4) key threat status, which have been listed below:

- Critically Endangered (CR);
- Endangered (EN);
- Vulnerable (VU); or
- Least Concern (LC)

The main purpose of listing Threatened ecosystems is to reduce the rate of ecosystem and species extinction and includes the prevention of further degradation and loss of structure, function and composition of Threatened Ecosystems.

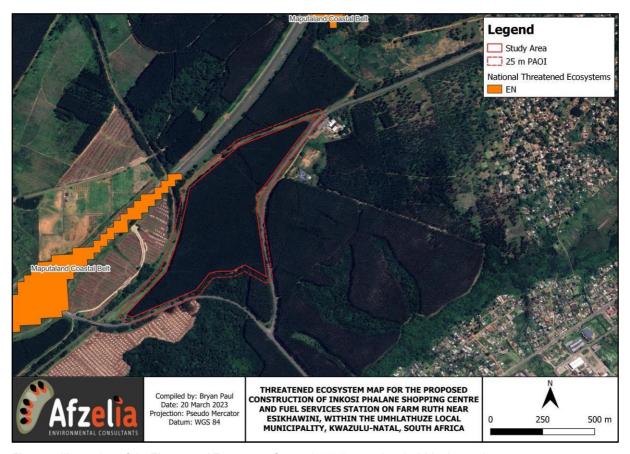


Figure 6: Illustration of the Threatened Ecosystem Status (v2022) associated within the study area

According to the Figure 6 above, the site does not fall within any National Threatened Ecosystems (DFFE, 2022).

3.2 Protected Areas and Important Bird and Biodiversity Areas (IBAs)

Important Bird and Biodiversity Areas (IBAs), as defined by BirdLife International, constitute a global network of over 13 500 sites, of which 112 sites are found in South Africa. IBAs are sites of global significance for bird conservation, identified nationally through multi-stakeholder processes using globally standardised, quantitative and scientifically agreed criteria. Essentially, these are the most important sites for conserving.

According to Figure 7 below, proposed development footprint does not overlap with any formally protected areas, or areas of conservation concern (such IBAs or NPAES Focus Areas). However, further analysis of the 10 km radius established around the site boundary confirms that the uThukela Marine Protected Area falls within 10 km of the site (approximately 7 Km). The Umlalazi Nature Reserve (12 km) and The Richards Bay Game Reserve (11.5 km) found within the Figure 7 above are located more than 10 km away.

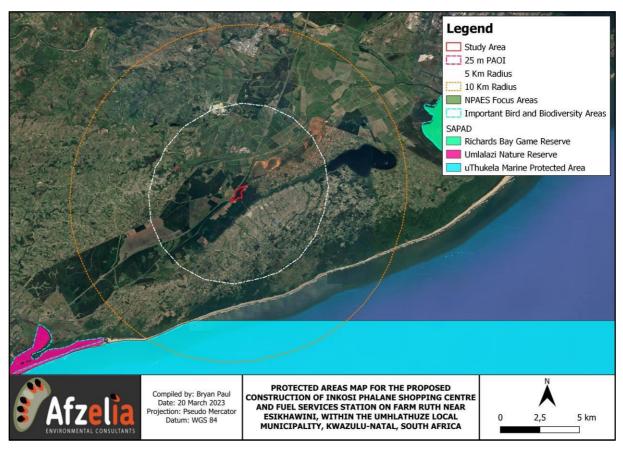


Figure 7: illustration of nationally protected areas and IBBAs within 5 and 10 km of study area.

3.3 Vegetation Types

Plant species are often affiliated to specific habitats based on their morphological and physiological traits (Coles-Ritchie et al., 2007). Hence, spatial and temporal variability of habitats is often represented in changes to vegetation. The National Vegetation Map of South Africa (VEGMAP), developed by Mucina and Rutherford (2018), is a geographical classification of plant communities across South Africa that is constantly updated to keep record of changes to the boundaries of vegetation units and their threat status, which is often determined by land use.

According to Figure 8 below, the study area contains only one of the national vegetation types, namely the Maputaland Coastal Belt. According to the latest National Biodiversity Assessment (Skowno *et. al* 2018), this ecosystem has been afforded a threat status of "Endangered". Mucina and Rutherford (2006) states that this vegetation type occurs along a flat coastal plain originally probably densely forested in places with a wide range of interspersed non-forest plant communities including dry grasslands (which include palm veld where special conditions prevail), hygrophilous grasslands and thicket groups. Today the vegetation landscape is composed of pockets of various forest types (separated into different vegetation units), thickets, primary and secondary grasslands, extensive timber plantations and cane fields. The belt of the IOCB immediately inland (only a few kilometres wide) and parallel to the line of Northern Coastal Forest has a characteristic appearance of very irregular dunes with generally open vegetation and *Syzygium cordatum* dotted prominently on the dunes, with many irregular dune slacks interspersed. There is little to suggest that this part of the vegetation, e.g. between Lake

Sibaya and Kosi Lake, is secondary.

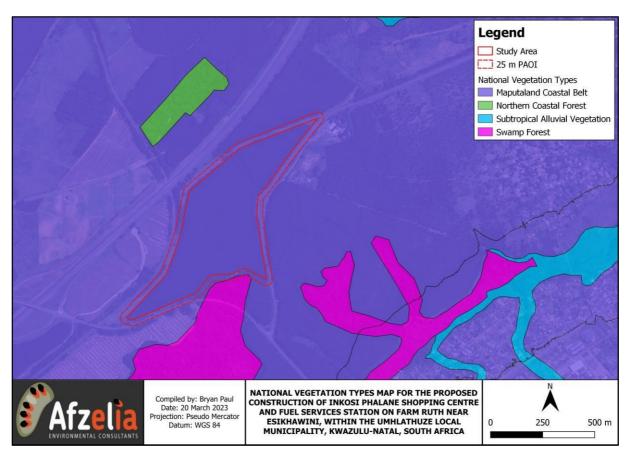


Figure 8: National Vegetation types associated with the study area (Mucina and Rutherford, 2018)

The following table (Table 5) provides additional key characteristics of the dominant vegetation type for the study area (Maputaland Coastal Belt)

Table 5: Unique features that define the impacted vegetation type (Mucina & Rutherford, 2011)

Feature	Description
	KwaZulu-Natal Province (and continuing also in southern Mozambique): Up to 35 km broad strip along the
Distribution	coast of the Indian Ocean stretching from the Mozambique border in the north to Mtunzini in the south. Altitude
	varies from about 20–120 m.
	Low Shrubs:
	Agathisanthemum bojeri, Helichrysum kraussii, Tephrosia longipes.
Important Tayo	Small Trees & Tall Shrubs:
Important Taxa	Syzygium cordatum, Acacia natalitia, Annona senegalensis, Apodytes dimidiata, Bridelia cathartica, Canthium
	inerme, Chrysanthemoides monilifera subsp. rotundata, Euclea natalensis subsp. natalensis, Ficus burtt-
	davyi, Kraussia floribunda, Phoenix reclinata, Rhus natalensis, Sclerocroton integerrimum, Strychnos spinosa.

Woody Climbers:

Abrus precatorius subsp. africanus, Smilax anceps.

Herbs:

Achyranthes aspera, Centella asiatica, Chamaecrista plumosa, Hermbstaedtia odorata var. aurantiaca, Vernonia centaureoides, V. oligocephala.

Graminoids:

Diheteropogon amplectens, Eragrostis sclerantha, Ischaemum fasciculatum, Themeda triandra, Urelytrum agropyroides, Aristida stipitata subsp. graciliflora, Cymbopogon pospischilii, Elionurus muticus, Eragrostis inamoena, E. lappula, Sporobolus subulatus, Trachypogon spicatus, Trichoneura grandiglumis, Tristachya leucothrix.

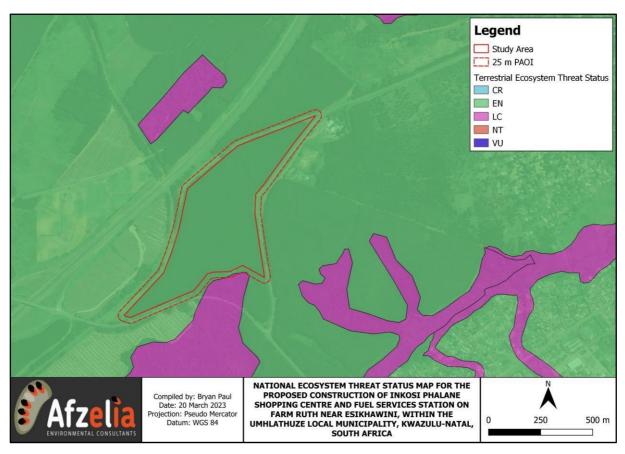


Figure 9: Terrestrial Ecosystem Threat Status (Skowno et al., 2018).

3.4 Desktop Hydrological Features

The assessment of the hydrology within this report is based on information available at a desktop level, and observation made during the field assessment (mostly from a vegetation perspective). No soil sampling / augering was conducted by the specialist, and the wetland study produced for this application should be consulted for further information on any freshwater

ecosystems that may be found within the 500m regulated area.

According to Figure 10 below, no hydrological features were found within 500 m of the development boundary. However, the wetland report compiled for this application confirmed that one (1) Seep Wetland occurs within the proposed development footprint, and at least an additional three (3) seeps occur within the 500 m regulated area.

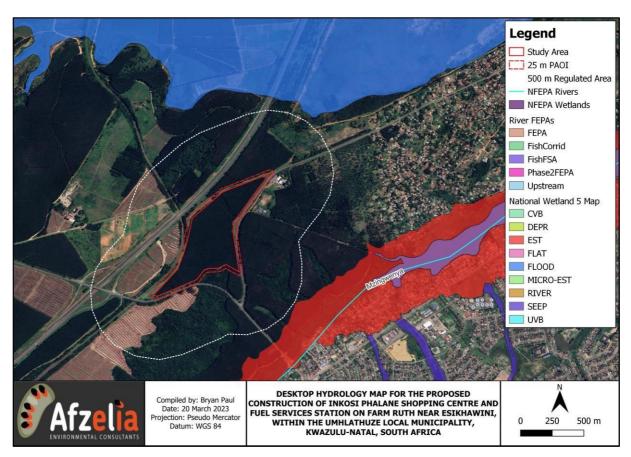


Figure 10: Illustration of the possible desktop hydrological features within the regulated area.

4 RESULT OF THE SITE INVESTIGATION

The findings of this study are based on the site verification conducted by the specialist on the 21st of November 2022 where the entire study area was traversed on foot.

4.1 Plant Species Assessment

The Plants of Southern Africa (POSA) search was conducted for the study area and 5 km radius of the site. More than 500 individual species were recorded, with most of the species coming the Aizoaceae, Rubiaceae and Poaceae families. Although not found within the study area, the following SCC were included in the database search.

- Asclepias gordon-grayae (EN);
- Atalaya natalensis (NT);

- Cryptocarya wyliei (NT);
- Dierama sertum (NT);
- Freesia laxa subsp. azurea (VU);
- Kniphofia littoralis (NT);
- Raphia australis (VU); and
- Thesium polygaloides (VU).

According to the DFFE Screening Report produced for this project, the site has been afforded two (2) sensitivities, namely "Low" (throughout most of the study area) and "Medium" along the southernmost tip of the site boundary. During the field assessment it was confirmed that the entire proposed development footprint fall within an existing timber plantation (refer to Appendix A), with no remaining natural habitat present. As such, the site verification concluded that the **entire site would** have a "low" plant species sensitivity, and the specialist disputes the presence of "medium" sensitivity along the southern boundary.

4.2 Faunal Species Assessment

According to the DFFE Screening Report produced for this project, the entire study area has been classified as having a medium sensitivity. During the site verification, it was found that proposed development footprint occurs within a highly modified area, with no natural habitat present within the immediate study area.

The following table provides a summary of the faunal species identified within the DFFE Screening Tool and the result of the faunal species verification:

Table 6: Summary of the faunal species listed within the DFFE Screening Tool Report.

Species	Sensitivity	Likelihood of Observation	Conservation Status	Habitat Preferences and Findings
Circaetus fasciolatus Southern banded snake eagle	High	Low	CR	Southern Banded Snake Eagle occur in coastal lowlands below 500 masl with a preference for Sand Forest thickets, lowland Coastal Dune Forest margins interspersed with clearings and coastal grasslands. It has been known to make use of exotic plantations. It is a resident species but immature birds appear to wander in search of breeding territories (Chittenden 2005).
Stephanoaetus coronatus Crowned Eagle	Medium	Low-Medium	VU	The species is found mostly in forest, including gallery and riverine forest, but also occurs in woodland and forested gorges in savannah and grassland (Simmons 2005). Crowned Eagles are readily found in plantations of exotic trees. As mentioned above, this species may be found within plantations, and therefore chance finds are possible. However, during the site verification the specialist actively searched for nests of this species, which no findings being reported.

Hyperolius pickersgilli Pickersgill's Reed Frog	Low	EN	The species is a habitat specialist occurring primarily in Indian Ocean Coastal Belt Vegetation Group 2, which is Critically Endangered and poorly protected. It requires perennial wetlands comprised of very dense reed beds at low altitudes (Raw 1982, Armstrong 2001, Bishop 2004). It also requires an understory of thick vegetation, such as Snakeroot (<i>Persicaria attenuata</i>), from which males call and taller broad-leaved vegetation, including the Common Reed (<i>Phragmites australis</i>), Bulrushes (<i>Typha capensis</i>), and sedges (including <i>Cyperus dives, C. latifolius and C. papyrus</i>) on which to lay its eggs (Raw 1982, Bowman 2011, Tarrant and Armstrong 2013). It is associated with deeper areas of water within wetland systems (20-80 cm) (Trenor 2014). It is seldom found at the same breeding sites as the abundant <i>Hyperolius marmoratus</i> . No wetland habitat was found on site during the site verification. It is therefore not possible that this species will occur within the confines of the site.
Dendrohyrax arboreus Eastern Tree Dassie	Low	EN	Tree Hyraxes occur in Afromontane, scarp and coastal forests of the KwaZulu-Natal and Eastern Cape provinces. At the western coastal limit, they occur in milkwood-dominated coastal forests between Alexandria and the Sundays River, as milkwoods (<i>Mimosops caffra</i> and <i>Sideroxylon inerme</i>) are ideal den and forage trees (Gaylard 1994).
Sensitive species 8	Low	VU	No suitable habitat present within the study area. No suitable habitat and / or foraging opportunities that would attract this species into the study area from adjacent forest habitat.
Arytropteris basalis Flat-necked Shieldback	Low	VU	This species occurs only within coastal forest and thicket mosaics of KwaZulu-Natal Province, a region which naturally constitutes <0.1% of South Africa's surface area (~1000 km2). This biome is under anthropogenic pressure by cultivation, mining and tourism.
Pomatonota dregii East Coast Katydid	Low	VU	No suitable habitat present within the study area. No information on population sizes or trends is available, but this species occurs only in suitable indigenous forest patches of the KwaZulu-Cape Coastal Forest Mosaic, and its populations are therefore severely fragmented. No suitable habitat present within the study area.
Physophorina livingstonii Bladder grasshopper	Low	EN	This species is a forest dwelling species, although its host plant is unknown. The extent of forest habitat is observed to be declining within the range of the species.
Teriomima zuluana	Low	VU	No suitable habitat present within the study area. The butterfly is found in small colonies and it is very slow flying and sedentary. Specimens are found in coastal lowland forest, on the edges, or in the understory, of forest/thicket in the Indian Ocean

			Coastal Belt.
Lolaus diametra natalica Natal yellow-banded sapphire	Low	Rare	Savanna and forest at low to medium altitudes, with some records from further inland at higher altitudes (Weenen and the Tugela Valley).
Pelusios rhodesianus Mashona Hinged Terrapin	Low	VU	Occurs in temporary pans and semi-permanent, well-vegetated water bodies in sandy coastal regions (Bourquin 2004). Although the species feeds largely on molluscs and aquatic insects, they also consume parts of aquatic plants.
Halcyon senegaloides Mangrove Kingfisher	Low	EN	Breeds in coastal riverine forest, typically remaining within 30 m of rivers and estuaries (Boon 2000). Spends the non-breeding season in mangrove forests, where crabs and small fish abound; also eats lizards, prawns and insects

The overall lack of suitable habitat within the study area has led the specialist to **dispute the sensitivity of medium**, and rather assign a sensitivity of "low" for the entire site. However, the presence of forest habitat along the southern boundary must also be considered. It is therefore recommended that a biodiversity buffer of 40 m is established between the nearby forest habitat and the boundary line of the proposed development. A further 100 m buffer must be established between the forest habitat found within the CBA area nearby and the proposed development. As the proposed site already exists outside of this biodiversity buffer, there should be no significant restrictions in this regard, and the irreplaceable resources identified within these areas will continue to persist without an influence from the proposed development.

4.3 Terrestrial Biodiversity Assessment

According to the DFFE Screening Report produced for this project, the entire study area has been classified as having a "low" sensitivity. The site verification conducted on the 21st of November 2022 confirmed that the site does not contain any terrestrial areas of sensitivity, and as such the specialist collaborates with the low sensitivity.

4.4 Plant Species of Conservation Concern (SCC)

During the field assessment, the specialist observed no plant SCC. However, three (3) provincially protected species were observed and have been summarised below in Table 7.

Table 7: Summary of the protected plant species located within the study area.

Family Name	Species Name	Common Name	Conservation Status	Approx. Frequency
Iridaaaa	Dietes iridioides	Wild iris	LC (Protected in terms of	<10
Iridaceae	Freesia laxa	Rooipypie	the Natal Conservation	<30
Amaryllidaceae	Scadoxus puniceus	Snake Lily	Ordinance.	<50

Prior to the removal of any of the species listed above, the Contractor or Applicant must submit an application to Ezemvelo KZN Wildlife and request a permit to remove and translocated these species to a suitable location nearby.



Figure 11: Protected plant species found within the study area.

5 SITE ECOLOGICAL IMPORTANCE AND SENSITIVITY

Vegetation has been used as a common biological indicator to identify the Present Ecological State (PES) or ecological health of ecosystems, given their overall ability to respond rapidly to disturbance. Conservative plant species are the most commonly affected species given their high conservatism status, high sensitivity, narrow distribution ranges and low tolerance to disturbance, these species are the first to be eradicated in disturbed conditions (Rocchio, 2007).

The following table (Table 8) provides a summary of the Site Ecological Importance (SEI), which was assessment using the latest assessment methodology prescribed by SANBI (2020).

Table 8: Summary of the Site Ecological Importance (SEI) assessment

Habitat	Conservation Importance (CI)	Functional Integrity (FI)	Biodiversity Importance (BI)	Receptor Resilience (RR)	Site Ecological Importance (SEI)
Secondary Vegetation	High	Low	Medium	High	Low
Transformed	Low	Low	Low	Very High	Very Low
Swamp Forest	High	High	High	Medium	High

The following sensitivity map (Figure 12 below) has been produced using the outcome of the impact assessment provided in Table 8 above.

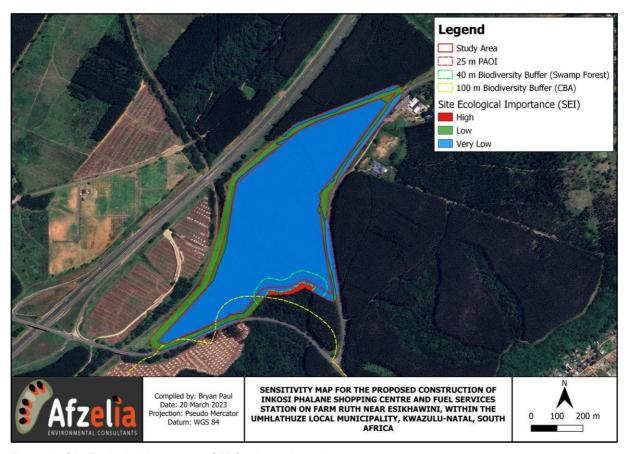


Figure 12: Site Ecological Importance (SEI) for the study area)

6 Potential Impact of the Proposed Development

The proposed development will entail mass vegetation clearing and soil removal activities, which may have a significant impact on the surrounding (bordering) terrestrial environment, if not carefully managed and controlled through the application of site-specific mitigation techniques. Clearing activities have been proposed within an existing timber plantation and therefore will not have any significant floral impacts, with the exception of the removal of provincial protected plant species. Nearby faunal impacts may stem from surrounding swamp forest, in terms of increased noise, decreased water quality and increased dust creation. The forest patch located along the southern boundary of the site however is already heavily fragmented, as a result of a nearby main road, and the plantation located on either site of the ecosystem. In order to buffer the effects of the proposed development, a 40 m biodiversity buffer (white) has been recommended, which will not only maintain connectivity between this ecosystem and the proposed development, but also assist in dust and noise screening during the construction phase of the project. A further 100 m biodiversity buffer (yellow) was recommended, and whilst this will not fall within the project area or PAOI, it should be considered for future developments / phases nearby to prevent further losses in ecological connectivity and fragmentation of an important faunal corridor for the area.

6.1 Recommended Mitigation Technique and Management Outcomes

The following is a summary of the recommended mitigation techniques and the management outcomes for each to be

included within the site specific Environmental Management Programme (EMPr).

Table 9: Mitigation Measures and Management Outcomes

Management Outcomes: Loss of Vegetation Communities				
Management Action	Responsible Party	Phase	Monitoring Frequency	
The construction and operational footprint of the				
development must not extend past the footprint				
demonstrated within the proposed development plan.	Applicant and	Construction and	Ongoing	
All construction laydown areas should be placed within	Contractor	Operational Phases	Ongoing	
existing disturbed areas and not within any sensitive				
habitat located nearby.				
All access to the proposed development must be		Dra construction		
limited to existing access roads and pathways where	Applicant and	Pre-construction		
possible. No adhoc roadways should be permitted,	Contractor	Phase and	Ongoing	
without first being authorised by the ECO and the CA.		Construction		
Rehabilitation must take place as soon as possible	A I'	0.000		
and include the both the development footprint and	Applicant and	Construction and	Ongoing	
impacted sections of the PAOI.	Contractor	Rehabilitation Phase		
Management Outc	omes: Loss of Protected	d Plant Species		
No protected plant species should be harvested or				
removed from site without approval of the relevant	Contractor / Applicant	All phases	Ongoing	
authority (E.g. Permit from Ezemvelo KZN Wildlife).	/ ECO			
The Contractor must conduct a brief pre-construction				
walkthrough with the ECO, to ensure that all of the		Pre-construction	Once	
protected species located within the footprint are				
identified, and translocated outside of the	Contractor and ECO			
development footprint and into suitable habitat located				
nearby.				
Management Outcomes: Permanent lo	ss or displacement of fa	unal species within the	study area	
No killing of fauna must be tolerated.	Contractor / Applicant			
	/ ECO	All phases	Ongoing	
A pre-construction walk-through must be conducted				
by the ECO to ensure that no new nests from any SCC				
(specifically Stephanoaetus coronatus) have been	ECO	Pre-construction	Ongoing	
established within the development footprint.				
Environmental awareness training must be conducted				
by the ECO before any new staff commence with work	===			
on site. This must include the adequate identification		Construction	Ongoing	
of the following species:				

Ctanhanasatus savanatus (O-sum ad Es-1-)		T	
Stephanoaetus coronatus (Crowned Eagle);			
Any recorded sightings of this species must			
immediately be reported to the ECO immediately			
inimediately be reported to the ECO infinediately			
Any recorded motalities of the aforementioned species			
should be report to the CA and the incident must be			
investigated immediately by the ECO.			
Any excavations or holes must be checked regularly			
for fauna that may have either occupied the area or			
may fallen in accidentally. The design of deep	Contractor	Construction	Ongoing
excavations should consider nearby fauna (especially			
reptiles).			
Construction should not take place during the evening			
and should be restricted between 07h00 and 17h00.	Contractor	Construction	Ongoing
Any lighting must not point outwards toward any			
natural habitat and should be focus downwards or	Contractor	All Phases	Ongoing
towards the development.			
All biodiversity buffer areas must be excluded from the			
overall development plan and considered no-go areas,			
unless for:	Contractor / Applicant	All Phases	Ongoing
- Maintenance purposes;	/ ECO	All FlidSeS	Origoing
- Rehabilitation; and / or			
- Emergencies.			
Management Outcomes: Permanent	loss of ecosystem func	tion and fragmentation o	of habitat.
All biodiversity buffers must be considered no-go			
areas and where possible, rehabilitation should extent	Applicant and	All Phases	Once
into these areas to improve their ecological function	Contractor	All I Hases	Once
(e.g. alien invasive plant species removal).			
Rehabilitation must extend into the PAOI and areas	Contractor	Construction	Ongoing
directly affected by the proposed development.	CONTRACTOR	CONSTRUCTION	Ongoing
Management Outcomes: Invasion of Alien Plant Species			
A brief alien invasive management plan must be			
compiled for this project, and must include both	Applicant	Construction and	Ongoing
developed and non-developable areas of the property	Applicant	Operational Phases	Ongoing
owned by the Applicant.			
No dumping of cleared alien vegetation must be		Construction and	
allowed on site. All cleared material must be	Contractor	Operational Phases	Ongoing
appropriately disposed of at a registered landfill.		Operational Filases	

Alien invasive plant control regimes must include the	Applicant / Developer	Construction and	According to
entire site and affected areas of the PAOI.	Applicant / Developer	Operation Phases	Rehabilitation Plan

7 CONDITIONS TO BE INCLUDED IN THE ENVIRONMENTAL AUTHORISATION

- Any animal fatalities (intentional or accidental) must be reported to the ECO and an incident report compiled.
- An ECO must be appointed during both the pre-construction and construction phase to ensure that the conditions
 of the Environmental Authorisation are sufficiently complied with.
- The appointed Contractor responsible for completing the development must be legally responsible for complying with the approved EMPr and EA.
- The Contractor must include environmental topics within the toolbox talks at least once a month, and should be made aware of the protected plant species located nearby.
- A botanical pre-construction walk must be conducted by the Contractor and ECO prior to the start of construction to ensure that any protected plant species are identified and adequately translocated in suitable habitat nearby.
- A brief alien invasive management plan must be compiled for this project.
- All biodiversity buffers must be excluded from the development plan and considered no-go areas.
- No construction activities should take place during the evening.
- No pesticides should be used by the Contractor, and a mechanical removal approach should be prioritised by the Contractor. If pesticides are required, the ECO must advise on the best approach to be adopted by the Contractor.

8 CONCLUSION AND IMPACT STATEMENT

A site verification was undertaken by the specialist on the 21st of November 2022. During the verification it was confirmed that the sensitivity illustrated within the DFFE Screening Tool Report is not collaborated with in its entirety and the following revised sensitivities have been allocated to the micro-habitats present within the study area:

Table 10: Summary of the revised site sensitivities identified within the study area.

Micro-habitat	Revised Sensitivity	
Secondary Vegetation	Low	
Transformed Areas	Very Low	
Swamp Forest	High	

During the desktop assessment, it was identified that the proposed development footprint would not impact CBAs, Ecological Support Areas or Threatened Ecosystems. Although the one (1) vegetation type recorded within the study area has a national and provincial threat status of "Endangered", no natural habitat will be directly affected and therefore the conservation goals and objectives set out for this ecosystem will remain unaffected. Furthermore, the plant and faunal species listed within DFFE screening report were not identified on site during the vertification, and it was determined that the site was, as result of its modified state, would have a low to very low probability of housing these species. However it

was noted that *Stephanoaetus coronatus* frequently nests within plantation forests, and therefore specific mitigation measures have been recommended to avoid impacting this species.

It was determined therefore, that the proposed development would have a **low impact** on the receiving environment, with no fatal flaws being identified by the specialist. This statement is only valid however, if the Applicant:

- Acknowledges the recommended biodiversity buffers of 40 and 100 m are established by the Applicant in order to safeguard more sensitive ecosystems located outside of the development footprint; and
- Implements the recommended mitigation techniques throughout the project life-cycle.

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10 APPENDIX A: SITE PHOTOGRAPHS



Plate 1: Typical view of the existing commercial timber being grown within the study area within minimum grass / herb development.



Plate 2: Secondary vegetation (secondary grassland) located just outside of the development footprint within the 25 m PAOI. Note the dense stands of Chromolaena odorata behind the concrete structure.



Plate 3: View of the study area along the western boundary.



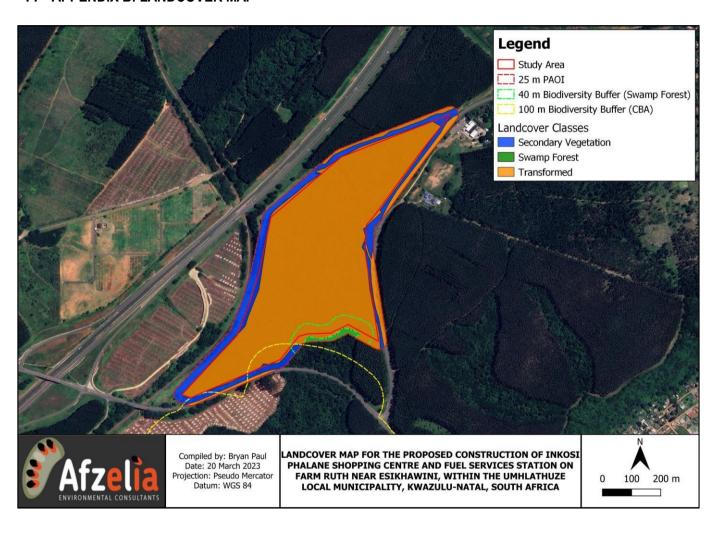
Plate 4: Existing pipeline servitude positioned within a drainage line or at the base of an embankment which traverses the site.



Plate 5: Active African pygmy kingfisher (*Ispidina picta*) burrow found just outside of the site boundary.



11 APPENDIX B: LANDCOVER MAP





12 APPENDIX C: CV OF THE SPECIALIST



BRYAN PAUL

Terrestrial Ecologist

PROFILE

As an organised and experienced individual, I am well suited to work in a dynamic and demanding work environment. The knowledge that I have gained from working for over ten (10) years has equipped me to work effectively as part of a team, as team leader or on my own

CONTACT

Bpenviros@gmail.com

Email

072 528 5956 *Phone Number*

Glen Hills, Durban Place of Residence

CONTACTABLE REFERENCES

Patricia Nathaniel (KSEMS) 082 885 60 27

Fatima Peer (1World Consultants) **082 640 4900**

EDUCATION

South African Council for Natural Professions (SACNASP)

Botany (*Cert.Sci.Nat* (119552)) Environmental Science (Pr. Sci.Nat) Ecological Science (Pr. Sci.Nat)

University of South Africa January 2010 – December 2014

Bachelor of Science Degree – Zoology and Botany (with Geography Stream)

University of South Africa January 2015 – December 2016

Bachelor of Science Degree (Honours) – Environmental Management

Northwood High School Matriculated in 2009 Passed (Bachelor Pass)

WORK EXPERIENCE

Afzelia Environmental Consultants (Pty) Ltd

September 2021 - Current

I am employed as a Dual EAP / Specialist at Afzelia with the core function of conducting Terrestrial Ecological Assessments, whilst offering EAP Services

Key Skills: Environmental Impact Assessment | Environmental Compliance Monitoring | Project Management | Tendering | Invoicing | Botanical Assessments | Ecological Assessments | GIS Mapping

BP Environmental Solutions (Self Employed)

July 2020 – September 2021

I am currently self-employed as an EAP, Botanical Specialist and ECO. At BP Environmental Solutions I am responsible for the success of being an independent environmental consultant, from managing project budgets to ensuring delivery of completed work.

Key Skills: Environmental Impact Assessment | Environmental Compliance Monitoring | Project Management | Tendering | Invoicing | Botanical Assessments | Ecological Assessments | GIS Mapping

KSEMS Environmental Consulting (Pty) Ltd

January 2019 - June 2020

I was employed as a Dual EAP / Specialist at KSEMS with the core function of conducting EIAs, whilst offering botanical and ecological specialist services.

Key Skills: Environmental Impact Assessment | Environmental Compliance Monitoring | Project Management | Tendering | Invoicing | Botanical Assessments | Ecological Assessments | Mentoring of Juniors | GIS Mapping | Marketing

HOBBIES

- Bird Watching
- Kayak Fishing
- Diving
- Surf Life Saving "Boaties"
- Lawn Bowls

BEST QUALITIES

- Loyal
- Honest
- Dedicated
- Compassionate
- Logical and analytical
- Confident

ASPIRATIONS

- Highly successful working career.
- To be an involved family figure.
- Achieve my professional registration in two categories (Botany and Environmental Science).

AFFILIATIONS

- SACNASP (119552)
- IAIASA (5239)
- LARSA
- Botanical Society of South Africa
- Marine Life Saving Club

PERSONAL PARTICULARS

23 April 1991

Date of Birth

South African

Nationality

CONTINUED...

1World Consultants (Pty) Ltd

January 2015 - December 2018

I was employed as a Dual EAP / Specialist at KSEMS with the core function of conducting EIAs, whilst offering botanical and ecological specialist services.

Key Skills: Environmental Impact Assessment | Environmental Compliance Monitoring | Project Management | Tendering | Invoicing | Botanical Assessments | GIS Mapping

The Umgeni River Bird Park

January 2011 - December 2014

At the Umgeni River Bird Park, I was employed as a Manager of the Free-Flight Bird Show. My core duties consisted of managing a team of employees which ensuring the success of my Department.

Key Skills: Environment Education | Botanical Science and Horticulture | Animal Training | Administration | Training and supervision | Parasitology | Animal Husbandry | Budget Planning | Budget Management

Babanango Valley Environmental Adventures / Lodge

January 2010 - December 2010

At the Babanango Valley Environmental Adventures / Lodge I was appointed as a Team Leader and Lodge Host of a four (4) star country lodge. My core duties consisted of managing facilitators, conducting environmental education / game walks and hosting guests staying at the lodge.

Key Skills: Environment Education / Botanical Science and Horticulture / Administration / Training and supervision / Budget Planning / Budget Management / Compiling educational programmes / Game walks through the 4 000 ha game reserve / Game drives through the Hluhluwe Game Reserve



herewith certifies that Bryan Walter Paul

Registration Number: 119552

is a registered scientist

in terms of section 20(3) of the Natural Scientific Professions Act, 2003
(Act 27 of 2003)
in the following fields(s) of practice (Schedule 1 of the Act)

Botanical Science (Certificated Natural Scientist)
Environmental Science (Professional Natural Scientist)
Ecological Science (Professional Natural Scientist)

Effective 1 October 2018

Expires 31

31 March 2023



Chairperson

Chief Executive Officer

