



**THE AQUATIC BIODIVERSITY COMPLIANCE  
STATEMENT FOR THE PROPOSED DELPHI  
SUBSTATION EXPANSION PROJECT**

**Enoch Mgijima Local Municipality, Chris Hani  
Municipality, Eastern Cape Province, South Africa**

**20/06/2024**

**Prepared by:**

**The Biodiversity Company**

Cell: +27 81 319 1225

Fax: +27 86 527 1965

info@thebiodiversitycompany.com

www.thebiodiversitycompany.com

<b>Report Name</b>	<b>THE AQUATIC BIODIVERSITY COMPLIANCE STATEMENT FOR THE PROPOSED DELPHI SUBSTATION EXPANSION PROJECT</b>	
<b>Specialist Theme</b>	Aquatic Biodiversity Theme – Compliance Statement	
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<b>Environmental Assessment Practitioner</b>		
<b>Fieldwork &amp; Report Assessment and Writer</b>	Khume Mtshweni ( <i>Cand Sci Nat</i> 138592)	
<b>Report Reviewer</b>	Namitha Singh ( <i>SACNASP Pr. Sci. Nat.</i> 157927)	
<b>Declaration</b>	<p>The Biodiversity Company and its associates operate as independent consultants under the auspice of the South African Council for Natural Scientific Professions. We declare that we have no affiliation with or vested financial interests in the proponent, other than for work performed under the Environmental Impact Assessment Regulations, Amended. We have no conflicting interests in the undertaking of this activity and have no interest in secondary developments resulting from the authorisation of this project. We have no vested interest in the project, other than to provide a professional service within the constraints of the project (timing, time and budget) based on the principals of science.</p>	

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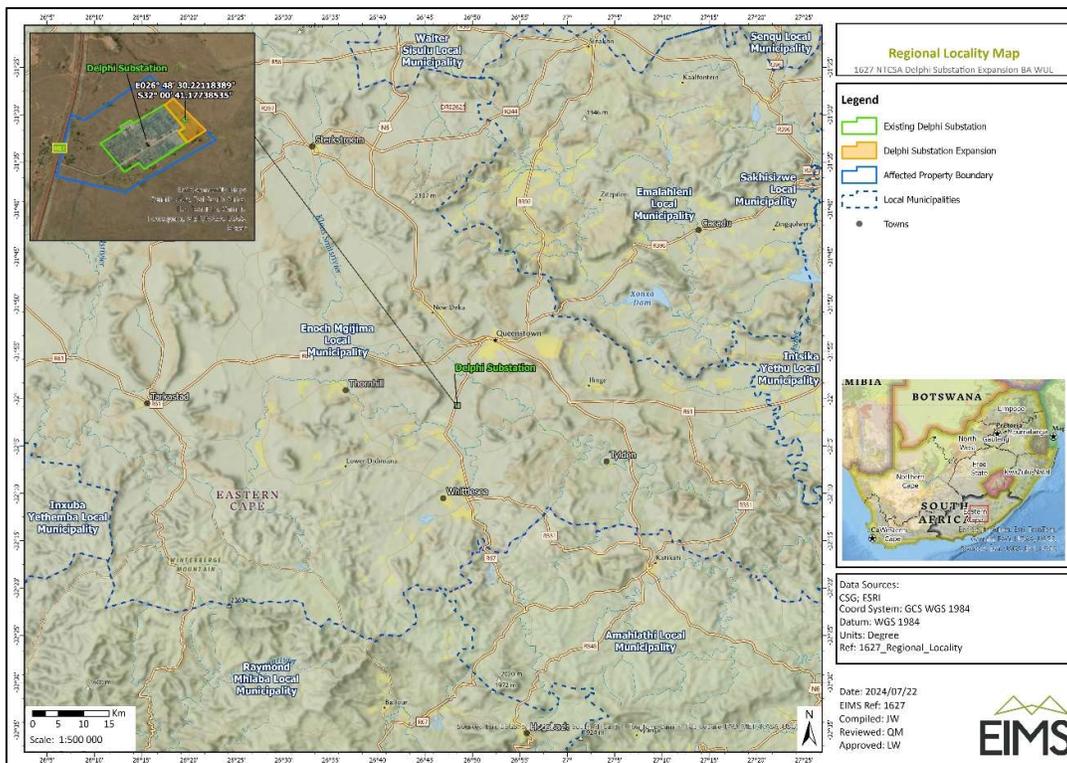
# 1 Introduction

## 1.1 Background

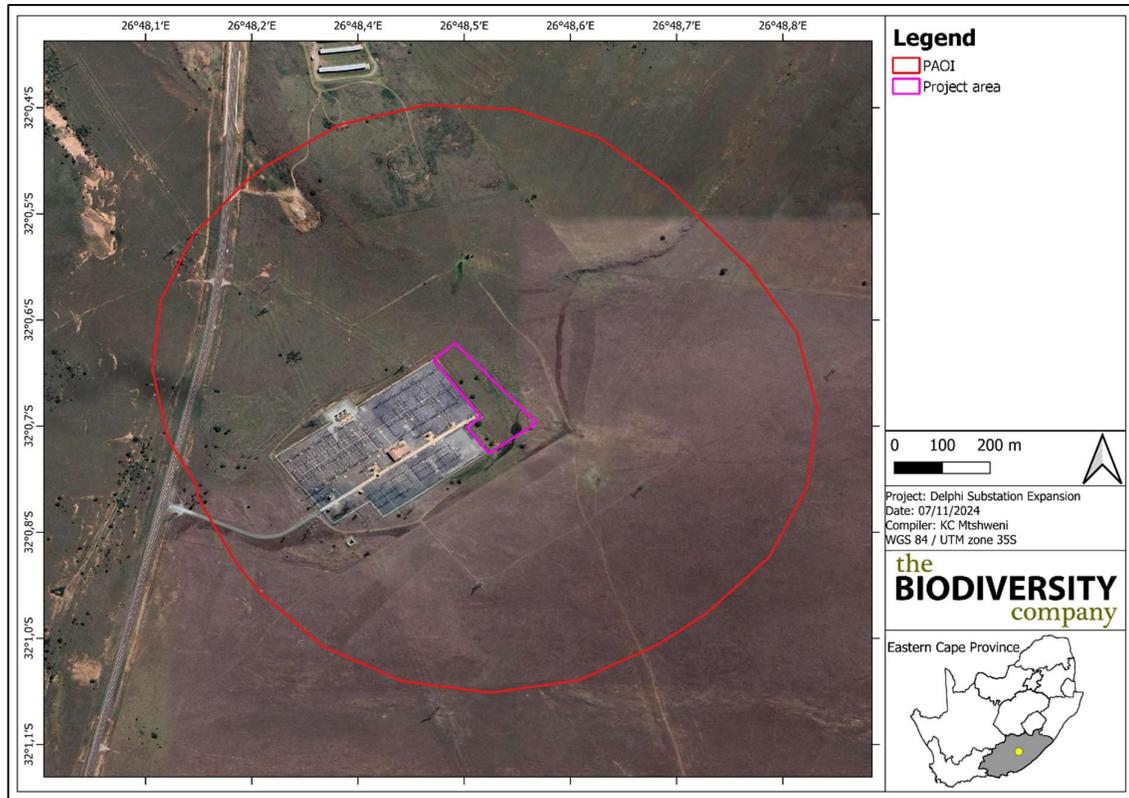
The Biodiversity Company was appointed to undertake an aquatic biodiversity baseline and impact assessment for the proposed Delphi Substation Expansion project. The proposed development is approximately 14 km south west of the town Komani in the Eastern Cape Province. The proposed Project Area is found within the Enoch Mgijima Local Municipality and in the Chris Hani District. A 500 m radius around the proposed area of development was generated to identify sensitive receptors and is referred to as the Project Area of Influence (PAOI).

This assessment was conducted in accordance with the amendments to the Environmental Impact Assessment Regulations, 2014 (GNR 326, 7 April 2017) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA). The approach has taken cognisance of the recently published Government Notices (GN) 320 (20 March 2020): “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, 1998, when applying for Environmental Authorisation” (Reporting Criteria). The National Web based Environmental Screening Tool has characterised the aquatic theme sensitivity as “Low” for the PAOI (Figure 1-3) due to the absence of freshwater features.

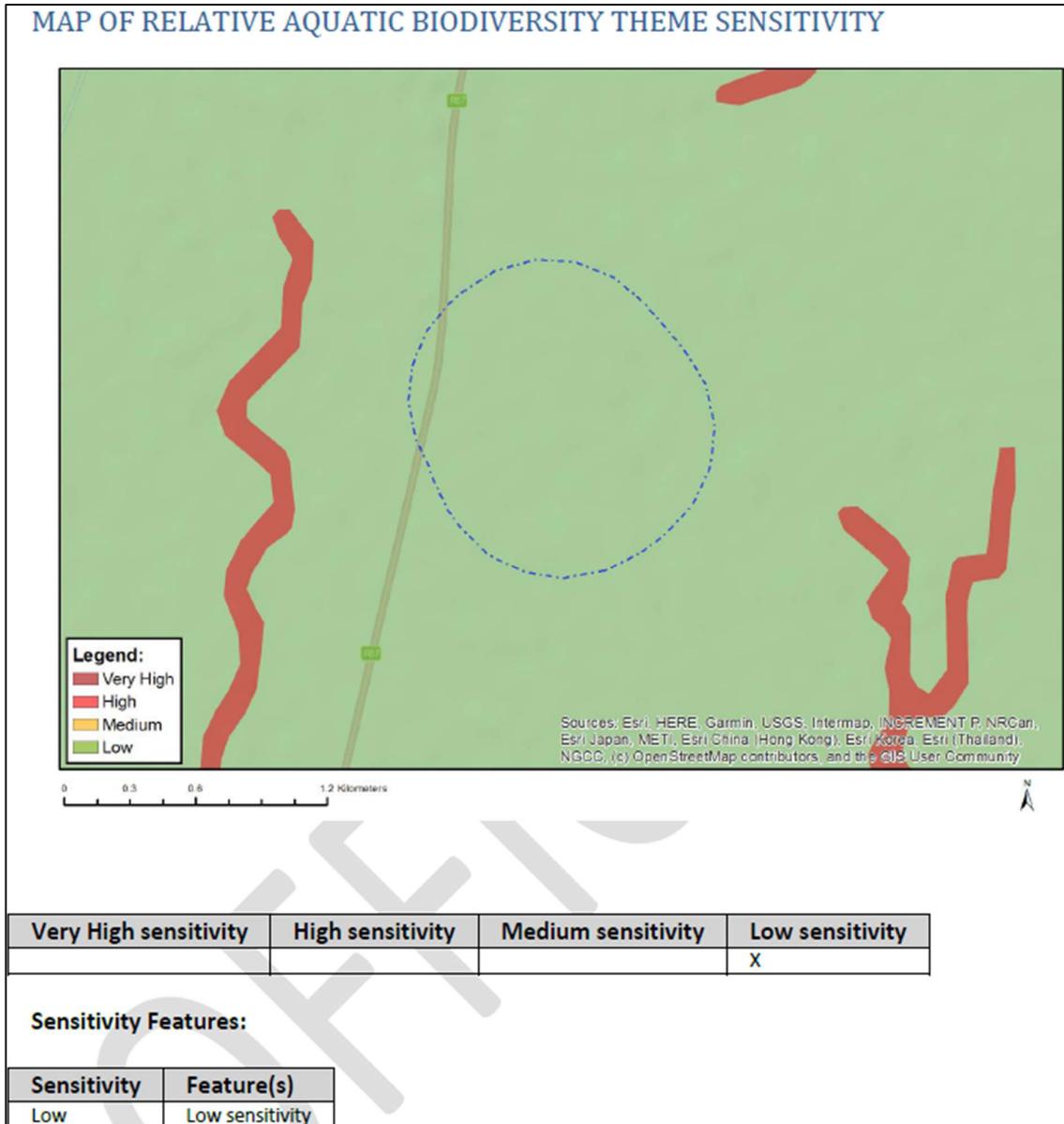
The purpose of conducting the specialist study is to provide relevant input into the overall Environmental Authorisation application process, with a focus on the proposed project activities and their associated impacts. This report, after taking into consideration the findings and recommendations provided by the specialist herein, should inform and guide the Registered Environmental Assessment Practitioner (EAP) and regulatory authorities, enabling informed decision making as to the ecological viability of the proposed project.



**Figure 1-1** The Project Area of Influence in proximity to the nearby towns as provided by EIMS



**Figure 1-2**     *The proposed project area and layout*



**Figure 1-3 The aquatic biodiversity theme sensitivity**

**1.2 Project Description**

Details pertaining the scope of work, as received from EIMS, is listed below:

The proposed works to be undertaken by National Transmission Company of South Africa entails the expansion of Delphi substation.

400 kV Yard:

- Extend the 400 kV in the North Easterly direction by one bay.
- Equip 1 x 400 kV transformer bay.
- Install 1 x 400/132 kV 500 MVA transformer.

- Equip 400 kV B/B 1 B/S 1.
- Equip 400 kV B/C B.

132 kV Yard:

- Extend the 132 kV B/B in the NE by 7 bays.
- Equip 1 x 132 kV transformer bay.
- Equip 132 kV B/B 1 B/S 1.
- Equip 132 kV B/C B in a new position.

Civil/Structural Requirements:

- Fence, yard terrace and road extension.
- Oil dam relocation.
- Special earthworks.
- Deviation of the existing storm water drainage.

### 1.3 Alternatives Assessment

No alternative sites were provided at this stage of the project. The assessed area is taken as the preferred site for the proposed development.

### 1.4 Legislative Framework

In line with the protocol for the specialist assessment and minimum report content requirements for environmental impacts on terrestrial biodiversity, as per Government Notice 320 published in terms of NEMA, dated 20 March 2020: “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, 1998, when applying for Environmental Authorisation” – the following has been assumed:

- 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:
  - “Low sensitivity” for aquatic biodiversity, must submit an Aquatic Biodiversity Compliance Statement.

An Aquatic Biodiversity Compliance Statement must contain the information as presented in Table 1-1 below.

**Table 1-1** *Aquatic Biodiversity Compliance Statement information requirements as per the relevant protocol, including the location of the information within this report*

Information to be Included (as per GN 320, 20 March 2020)	Report Section
contact details of the specialist, their SACNASP registration number, their field of expertise and a curriculum vitae	7.2
a signed statement of independence by the specialist	7.1

Delphi Substation Expansion Project

a statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment	2.8
a baseline profile description of biodiversity and ecosystems of the site	3
the methodology used to verify the sensitivities of the aquatic biodiversity features on the site including the equipment and modelling used where relevant;	2
in the case of a linear activity, confirmation from the aquatic biodiversity specialist that, in their opinion, based on the mitigation and remedial measures proposed, the land can be returned to the current state within two years of completion of the construction phase	-
where required, proposed impact management outcomes or any monitoring requirements for inclusion in the EMPr	-
a description of the assumptions made as well as any uncertainties or gaps in knowledge or data	2.8
any conditions to which this statement is subjected	5.2

A signed copy of the compliance statement must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.

## 2 Methodology

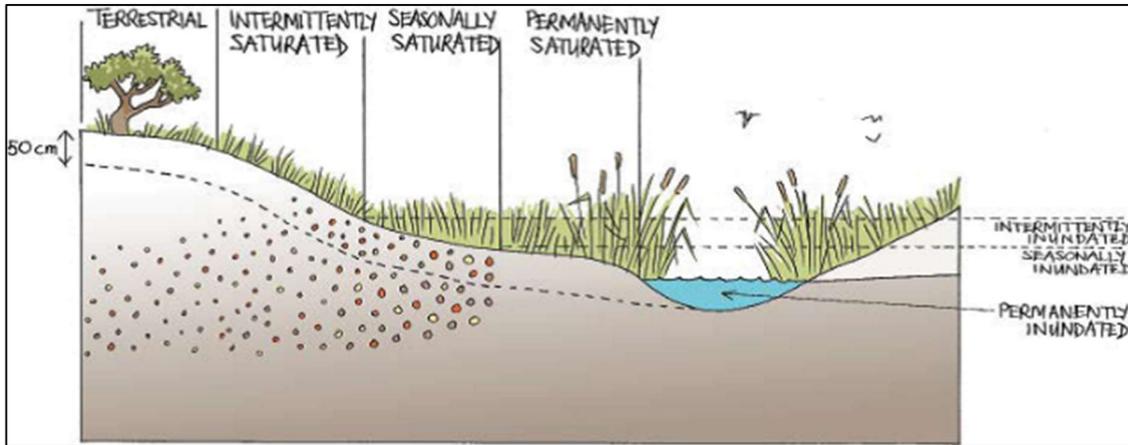
A site visit was conducted on the 23<sup>rd</sup> of May 2024, which is considered an early-dry season survey.

### 2.1 Identification and Mapping

The wetland areas were delineated in accordance with the DWAF (2005) guidelines, a cross section is presented in Figure 2-1. The outer edges of the wetland areas were identified by considering the following four specific indicators:

- The Terrain Unit Indicator helps to identify those parts of the landscape where wetlands are more likely to occur;
- The Soil Form Indicator identifies the soil forms, as defined by the Soil Classification Working Group (1991), which are associated with prolonged and frequent saturation.
  - The soil forms (types of soil) found in the landscape were identified using the South African soil classification system namely; Soil Classification: A Taxonomic System for South Africa (Soil Classification Working Group, 1991);
- The Soil Wetness Indicator identifies the morphological "signatures" developed in the soil profile as a result of prolonged and frequent saturation; and
- The Vegetation Indicator identifies hydrophilic vegetation associated with frequently saturated soils.

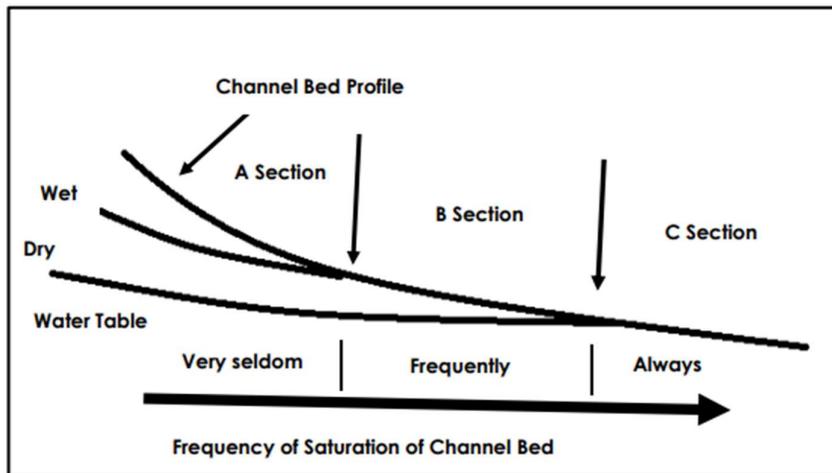
Vegetation is used as the primary wetland indicator. However, in practice the soil wetness indicator tends to be the most important, and the other three indicators are used in a confirmatory role.



**Figure 2-1** Cross section through a wetland, indicating how the soil wetness and vegetation indicators change (Ollis et al. 2013)

The DWAF (2005) manual separates the classification of watercourses into three (3) separate types of channels or sections defined by their position relative to the zone of saturation in the riparian area (Figure 2-1). The classification system separates channels into:

- those that do not have baseflow ('A' Sections);
- those that sometimes have baseflow ('B' Sections) or non-perennial; or
- those that always have baseflow ('C' Sections) or perennial.



**Figure 2-2** The watercourse classifications (DWAF, 2005)

## 2.2 Ecological Classification and Description

The National Wetland Classification Systems (NWCS) developed by the South African National Biodiversity Institute (SANBI) will be considered for this study. This system comprises a hierarchical classification process of defining a wetland based on the principles of the hydrogeomorphic (HGM) approach at higher levels, and then also includes structural features at the lower levels of classification (Ollis et al., 2013).

### 2.3 Functional Assessment

Wetland Functionality refers to the ability of wetlands to provide healthy conditions for the wide variety of organisms found in wetlands as well as humans. Ecosystem services serves as the main factor contributing to wetland functionality.

The assessment of the ecosystem services supplied by the identified wetlands was conducted per the guidelines as described in WET-EcoServices (Kotze *et al.*, 2008). An assessment was undertaken that examines and rates the following services according to their degree of importance and the degree to which the services are provided (Table 2-1).

**Table 2-1** *Classes for determining the likely extent to which a benefit is being supplied*

Score	Rating of likely extent to which a benefit is being supplied
< 0.5	Low
0.6 - 1.2	Moderately Low
1.3 - 2.0	Intermediate
2.1 - 3.0	Moderately High
> 3.0	High

### 2.4 Present Ecological Status

The overall approach is to quantify the impacts of human activity or clearly visible impacts on wetland health, and then to convert the impact scores to a Present Ecological Status (PES) score. This takes the form of assessing the spatial extent of impact of individual activities/occurrences and then separately assessing the intensity of impact of each activity in the affected area. The extent and intensity are then combined to determine an overall magnitude of impact. The Present State categories are provided in Table 2-2.

**Table 2-2** *The Present Ecological Status categories (Macfarlane *et al.*, 2008)*

Impact Category	Description	Impact Score Range	PES
None	Unmodified, natural	0 to 0.9	A
Small	Largely Natural with few modifications. A slight change in ecosystem processes is discernible and a small loss of natural habitats and biota may have taken place.	1.0 to 1.9	B
Moderate	Moderately Modified. A moderate change in ecosystem processes and loss of natural habitats has taken place, but the natural habitat remains predominantly intact.	2.0 to 3.9	C
Large	Largely Modified. A large change in ecosystem processes and loss of natural habitat and biota has occurred.	4.0 to 5.9	D
Serious	Seriously Modified. The change in ecosystem processes and loss of natural habitat and biota is great, but some remaining natural habitat features are still recognizable.	6.0 to 7.9	E
Critical	Critical Modification. The modifications have reached a critical level and the ecosystem processes have been modified completely with an almost complete loss of natural habitat and biota.	8.0 to 10	F

### 2.5 Ecological Importance and Sensitivity

The Ecological Importance and Sensitivity of water resources is determined to establish resources that provide higher than average ecosystem services, biodiversity support functions or are particularly sensitive to impacts. The mean of the determinants is used to assign the Importance and Sensitivity (IS) category as listed in Table 2-3.

**Table 2-3 Description of Importance and Sensitivity categories**

IS Category	Range of Mean	Recommended Ecological Management Class
Very High	3.1 to 4.0	A
High	2.1 to 3.0	B
Moderate	1.1 to 2.0	C
Low Marginal	< 1.0	D

**2.6 Recommended Ecological Category and Recommended Management Objective**

The Recommended Ecological Category (REC) and Recommended Management Objective (RMO) was determined based on the results obtained from the PES and ecological EIS of the assessed wetlands, with the objective of recommending how a water resource should be managed. This is achieved by either maintaining or improving the ecological integrity of the wetland in order to ensure continued ecological functionality (DWA, 1999).

**Table 2-4 Recommended Ecological Category (REC) and Recommended management objectives (RMO) scores**

		Ecological Importance and Sensitivity				
		Very High	High	Moderate	Low	
PES	A	Pristine	A Maintain	A Maintain	A Maintain	A Maintain
	B	Natural	A Improve	A/B Improve	B Maintain	B Maintain
	C	Good	A Improve	B/C Improve	C Maintain	C Maintain
	D	Fair	C Improve	C/D Improve	D Maintain	D Maintain
	E/F	Poor	D Improve	E/F Improve	E/F Maintain	E/F Maintain

**2.7 Buffer Requirements**

The “Preliminary Guideline for the Determination of Buffer Zones for Rivers, Wetlands and Estuaries” (Macfarlane et al., 2014) was used to determine the appropriate buffer zone for the proposed activity.

**2.8 Assumptions and Limitations**

The following limitations should be noted for the assessment:

- The assessment area was based on the spatial file provided by the client and any alterations to the development area may affect the results;
- Ground truthing in the extended 500 m regulated area was limited to accessible areas; and
- The seasonality of the site survey is not considered to be a limiting factor for this project.

**3 Receiving Environment**

**3.1 South African Inventory of Inland Aquatic Ecosystems**

The South African Inventory of Inland Aquatic Ecosystems (SAIIAE) wetland dataset is a recent outcome of the National Biodiversity Assessment (NBA, 2018) and, was a collaborative project by the South African National Biodiversity Institute (SANBI) and the Council for Scientific and Industrial Research (CSIR). The SAIIAE dataset provides further insight into wetland occurrences and extents

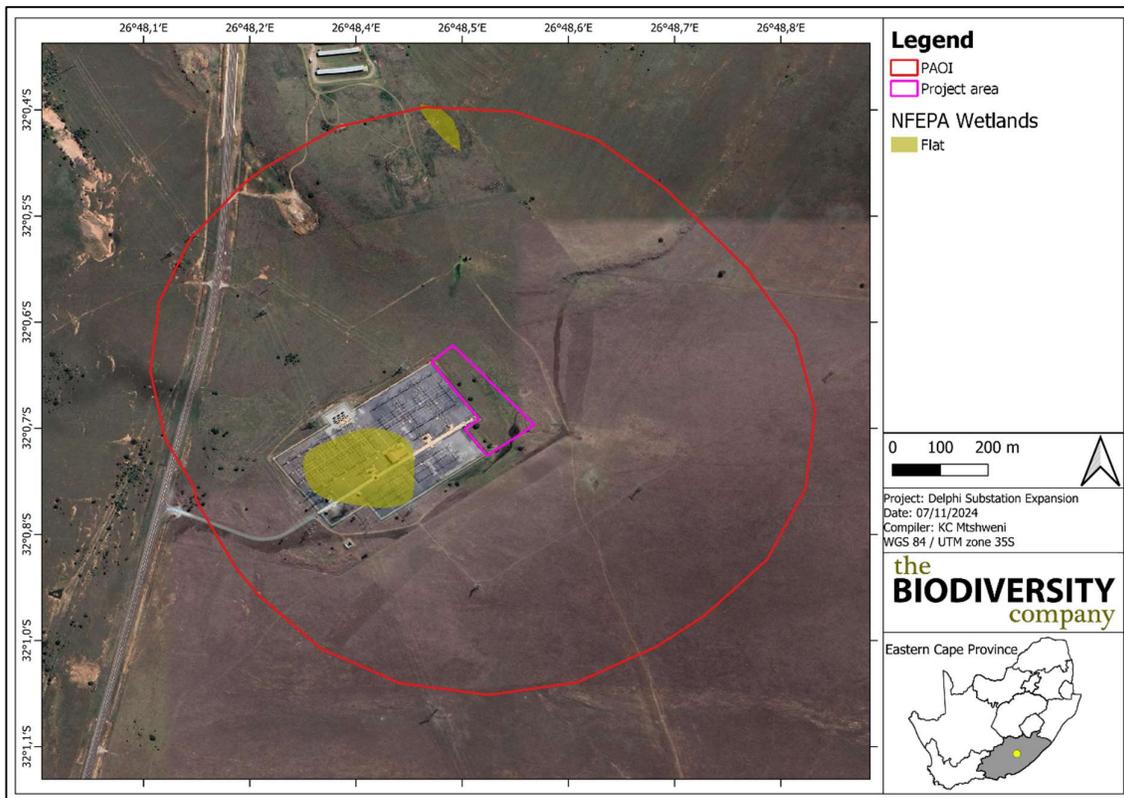
building on the information from the National Freshwater Ecosystem Priority Areas (NFEPA), as well as other datasets.

No systems were identified within the PAOI.

### 3.2 National Freshwater Ecosystem Priority Areas

The National Freshwater Ecosystem Priority Areas (NFEPA) database forms part of a comprehensive approach to the sustainable and equitable development of South Africa’s scarce water resources. This database provides guidance on how many rivers, wetlands and estuaries, and which ones, should remain in a natural or near-natural condition to support the water resource protection goals of the National Water Act (Act 36 of 1998) (NWA). This directly applies to the NWA, which feeds into Catchment Management Strategies, water resource classification, reserve determination, and the setting and monitoring of resource quality objectives (Nel et al., 2011). The NFEPA’s are intended to be conservation support tools and envisioned to guide the effective implementation of measures to achieve the biodiversity goals of the National Environment Management Biodiversity Act (NEM:BA) (Act 10 of 2004), informing both the listing of threatened freshwater ecosystems and the process of bioregional planning provided for by this Act (Nel et al., 2011).

According to Nel et al. (2011), one wetland type is expected to overlap with the 500 m PAOI. These are flat wetlands (Figure 3-1). All of these wetlands were classified to be artificial as per the dataset.



**Figure 3-1 NFEPA wetlands relative to the PAOI**

### 3.3 Strategic Water Source Areas (SWSA)

The PAOI did not overlap with any surface or ground Strategic Water Source Area.

### 3.4 Survey Results

An artificial wetland, along with three non-wetland watercourses, namely a canal, oil dams and a reservoir, were identified within the PAOI (Figure 3-4). Although these systems do not classify as natural wetland systems, it is important to note where these systems are for any planned development in the area.

It must be noted that the artificial wetland system presented wetland characteristics in the form of soil moisture (inundation) and vegetation (hydrophytes). Further investigation of the system revealed that it presented no hydromorphic soil characteristics, deeming it not to be a true wetland. The images below (Figure 3-2 and Figure 3-3) further presented evidence of when the wetland was created within the PAOI. Google Earth imagery was used to show that the artificial wetland appeared between 2005 and 2008 during the initial expansion of the substation.

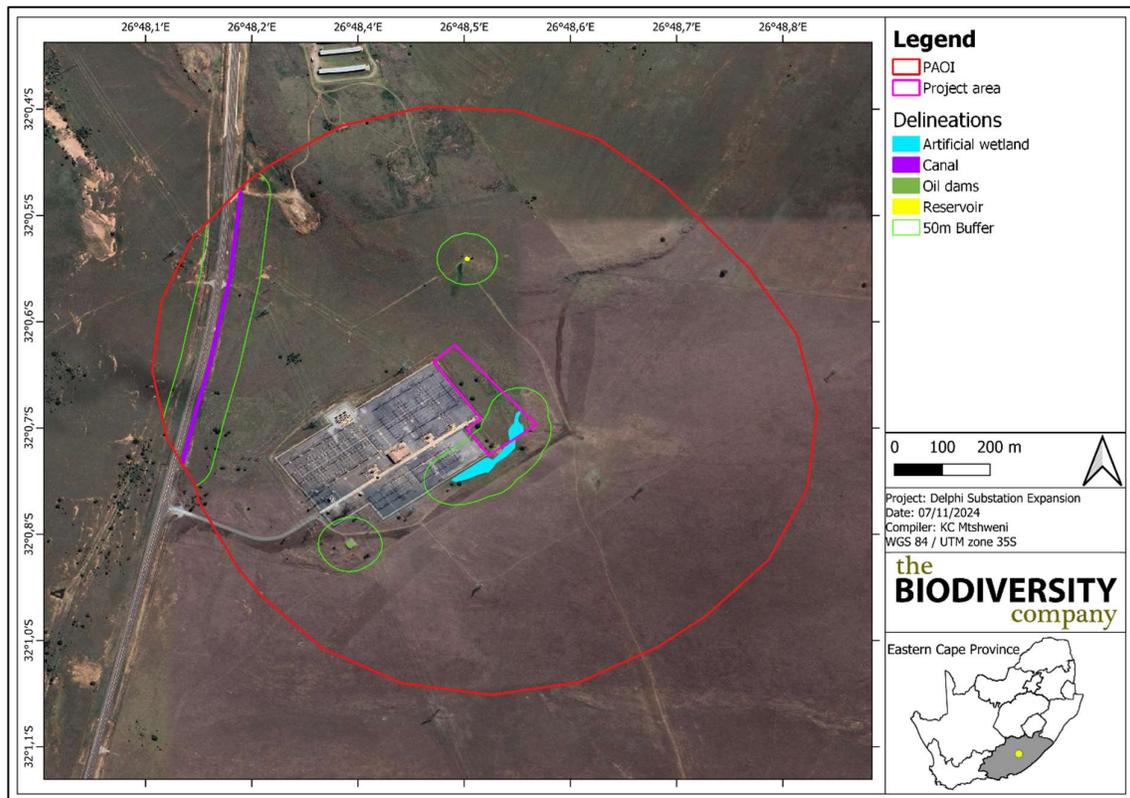
This artificial wetland was noted to be inundated at the time of the assessment. This can be attributed to storm water drains observed around the existing substation, that feed this system with water. It was also observed that earthworks may have been conducted in the area, forming a ditch and berm that allows water to accumulate in the area.



**Figure 3-2** A 2005 Google earth image of the project area illustrating the absence of any watercourse.



**Figure 3-3** A 2008 Google earth image of the project area illustrating the presence of an artificially created watercourse.



**Figure 3-4** Delineation of watercourses within the PAOI

Due to no natural watercourses being identified within the 500 m PAOI. No ecological assessments were undertaken for the proposed project in relation to freshwater resources.

### 3.5 Ecological Sensitivity

The National Web based Environmental Screening Tool has characterised the aquatic theme sensitivity of the PAOI as “Low” sensitivity.

Table 3-1 provides a comparison between the Environmental Screening Tool and the specialist determined Site Ecological Importance (SEI) of the project. The specialist-assigned sensitivity ratings are based largely on the SEI process.

**Table 3-1 Summary of the Screening Tool Sensitivity versus the Specialist assigned Site Ecological Importance (SEI) for the Field Survey Area of the Project Area**

Screening Tool Theme	Screening Tool	Aspect	Specialist	Tool Validated or Disputed by Specialist - Reasoning
Aquatic Biodiversity Theme	Low	Substation expansion	Low	Validated – No natural freshwater resources were identified within the proposed site. The development is proposed to take place surrounding an existing substation, which is considered to be disturbed and unrepresentative of natural environmental sensitivity with regards to aquatic resources.

## 4 Impact Assessment

Attributed to the absence of natural water resources within the proposed development area, no impact assessments were conducted for the proposed project in relation to freshwater resources as no perceivable risks were identified.

## 5 Conclusions

The development area was traversed on foot, with several checks being undertaken to identify any soil wetness indicators, and to determine the local soil forms.

No natural wetlands were identified within the proposed development area; therefore, no ecological and impact assessments were conducted for the proposed project. The ecological sensitivity of the site is described in the table below.

**Table 5-1 Summary of Ecological Sensitivity for the proposed site**

Screening Tool Theme	Screening Tool	Feature	Specialist	Tool Validated or Disputed by Specialist - Reasoning
Aquatic Biodiversity Theme	Low	Substation expansion	Low	Validated – No natural freshwater resources were identified within the proposed site. The development is proposed to take place surrounding an existing substation, which is considered to be disturbed and unrepresentative of natural environmental sensitivity with regards to aquatic resources.

### 5.1 Specialist Statement

The proposed project is not anticipated to have any impact on the aquatic biodiversity of the area as no natural freshwater resources were identified within the proposed development area. Therefore, the proposed development can be favourably considered for authorisation.

### 5.2 Statement Conditions

The conclusion of this assessment on the acceptability of the proposed project and the recommendation for its approval is not subject to any conditions.

## 6 References

Department of Water Affairs and Forestry (DWAF). 2005a. A Practical Field Procedure for Identification and Delineation of Wetlands and Riparian Areas.

Kotze, D.C., Marneweck, G.C., Batchelor, A.L., Lindley, D.C., and Collins, N.B. 2009. A Technique for rapidly assessing ecosystem services supplied by wetlands, Mondi Wetland Project.

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## 7 Appendix Items

### 7.1 Appendix A – Specialist Declaration of Independence

I, Namitha Singh, declare that:

- I act as the independent specialist in this application;
- 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 Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- 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 form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of Section 24F of the Act.



Namitha Singh

Ecologist

The Biodiversity Company

June 2024

### Declaration

I, Khume Mtshweni, declare that:

- I act as the independent specialist in this application;
- 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 Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- 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 form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of Section 24F of the Act.



Khume Mtshweni

Freshwater and Terrestrial Ecologist

The Biodiversity Company

March 2024

**7.2 Appendix B – Specialist CVs**

## Namitha Singh

BSc. (Hons) Environmental Science  
(*Cum Laude*) (*Pr Sci Nat*)

Cell: +27 63 684 1752

Email: [namitha@thebiodiversitycompany.com](mailto:namitha@thebiodiversitycompany.com)

Identity Number: 9509260335089

Date of birth: 26 September 1995



### Profile Summary

Working experience in 7 provinces of South Africa.

Specialist experience within construction and development (residential/commercial/mixed-use/solar), wastewater infrastructure and agriculture.

Specialist expertise includes wetland resource management and rehabilitation, estuary and coastal management and, hydroponology.

### Areas of Interest

Water Resource Management, Mining, Renewable Energy, Infrastructure Development, Agriculture, Land contamination, Sustainability and Conservation.

### Key Experience

- Wetland Delineation and Functional Assessments
- Hydroponology Assessments
- Wetland Rehabilitation
- Coastal and Estuarine Assessments

### Country Experience

South Africa

### Nationality

South African

### Languages

English – Proficient

Afrikaans – Basic

### Qualifications

- BSc. Honours – Environmental Science (*Cum Laude*)
- BSc. Environmental Science and Life Science

# Khume Mtshweni

## M.Sc Aquatic Health (Cand Sci Nat)

Cell: +27 63 772 7501

Email: [khume@thebiodiversitycompany.com](mailto:khume@thebiodiversitycompany.com)

Identity Number: 9408065020089

Date of birth: 06 August 1994



### Profile Summary

Working experience throughout South Africa.

Specialist experience in prospecting, mining, agriculture, private sector and renewable energy.

Experience with faunal and floral permit applications and public participation.

Specialist expertise include Freshwater and Terrestrial Ecology.

### Areas of Interest

Wetland ecology.

Biological Carbon Sequestration.

Project management.

### Key Experience

- Surface and Ground water biomonitoring
- Environmental Management Programmes (EMP)
- Wetland delineations and ecological assessments
- Rehabilitation Plans and Monitoring
- Faunal and Floral assessments
- The use of macroinvertebrates and sediment to determine water quality
- Aquatic Ecological Assessments

### Country Experience

South Africa

Angola

### Nationality

South African

### Languages

English – Proficient

Afrikaans – Proficient

Sepedi – Proficient

IsiNdebele – Proficient

Isizulu – Proficient

Siswati – Conversational

Sesotho – Proficient

Setswana – Proficient

Tsonga - Conversational

### Qualifications

- MSc (University of Johannesburg) – Aquatic Health.
- BSc Honours (University of Johannesburg) – Zoology
- BSc Environmental Sciences
- Cand Sci Nat (138592)
- Certificate of Competence: Wetland introduction and Delineation course
- Certificate of Competence: Wetland Legislation and Rehab Course