Wetland Compliance Report for the proposed TETRA4 3-D Seismic Survey of Cluster 2 Project

Matjhabeng and Masilonyana Local Municipalities, Lejweleputswa District Municipality, Free State Province, South Africa

2/24/2026

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Report Name	**Wetland Compliance Report for the proposed TETRA4 3-D Seismic Survey of Cluster 2 Project**
Specialist Theme	Aquatic Biodiversity Theme
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Environmental Assessment Practitioner	EIMS ENVIRONMENTAL IMPACT MANAGEMENT SERVICES
Technical Support	Charlie-Bruce-Beylefeld de Kock (Can. Sci. Nat. 145121)[1]
Responsible Specialist	Divan van Rooyen (Pr. Sci. Nat. 151272)
Declaration	The Biodiversity Company and its associates act as independent consultants in accordance with the requirements of the South African Council for Natural Scientific Professions. We confirm that we have no affiliation with, or vested financial interest in, the proponent, other than remuneration for professional services rendered in terms of the Environmental Impact Assessment Regulations. We have no conflicting interest in the proposed activity or any secondary developments arising from the authorisation of the project, and our work has been undertaken objectively and in accordance with accepted scientific principles.

[1] All work was undertaken under the guidance and supervision of a registered professional Divan van Rooyen (Pr. Sci. Nat. 151272)

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1 Introduction

1.1 Background

The Biodiversity Company (TBC) was appointed to undertake a wetland compliance statement for the proposed TETRA4 3-D Seismic Survey of Cluster 2 Project located near Virginia, in the Free State province (Figure 1-1). A 500 m area has been demarcated for the project to facilitate the identification of wetlands within the regulatory zone; this area 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) and GN 1150 (30 October 2020) in terms of NEMA, dated 20 March and 30 October 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).

This report, after taking into consideration the findings and recommendations provided by the specialist herein, should inform and guide the Environmental Assessment Practitioner (EAP) and regulatory authorities, enabling informed decision making with regards to the ecological viability of the proposed development and related activities.

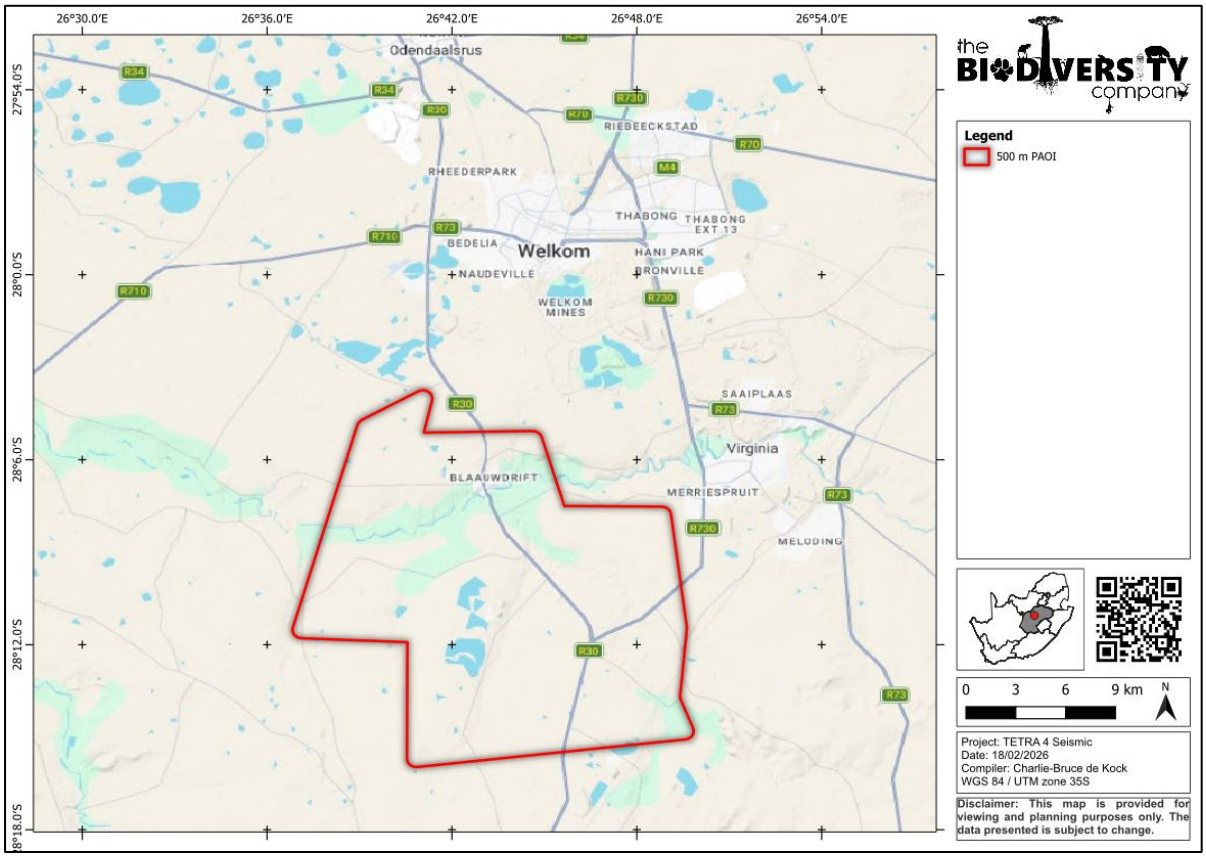


Figure 1-1 Location of the proposed project

1.2 Scope of Work

The following tasks were completed in fulfilment of the terms of reference for this assessment:

- A desktop assessment of available and related datasets to provide context of the freshwater biodiversity of the project area and to indicate potential wetland areas;
- A field survey to identify potential wetland areas;
- The delineation, classification and assessment of wetlands within 500 m of the project area;
- The provision of recommendations relevant to associated impacts; and
- Report compilation detailing the baseline findings.

1.3 Project Description and Technical Information

Tetra4 proposes to undertake a 3D seismic survey within the Cluster 2 application area, located in the Free State Province near Welkom. The project area is primarily situated within the Matjhabeng Local Municipality, with a minor portion extending into the Masilonyana Local Municipality. The survey covers approximately 27,500 ha and partially overlaps with the Cluster 1 area within/around the approved production right area.

The proposed survey will be conducted using the vibroseis method (i.e., using vibrator trucks as a seismic source rather than explosives). Seismic data will be collected along planned survey lines through a combination of source activation points and receiver deployment, with the final positioning informed by on-ground constraints and environmental sensitivities.

Seismic energy will be generated using vibrator trucks, including a 30-ton truck fitted with M26 vibrators in areas with suitable access and a 12-ton truck fitted with minivibrators for more sensitive or difficult-to-access areas. Vibrations are generated at designated source points as the vibroseis vehicle stops briefly and lowers the vibrator plate to the ground.

Seismic receivers (geophones) will be placed on the soil surface ahead of acquisition and removed once data capture for the relevant area is complete. Data are consolidated during operations and processed off-site.

Source lines are indicated as being spaced at approximately 240 m, with source activation undertaken at intervals of approximately 30 m along the lines. The survey is anticipated to take approximately three months to complete, with an indicative productivity of approximately 425 source points per day (noting that actual rates may vary depending on access conditions and constraints).

The project indicates that existing infrastructure and environmental sensitivities will be taken into account during the final placement of source and receiver points. This compliance assessment further considers freshwater features (wetlands) identified within the broader project area to ensure that appropriate avoidance and operational controls are applied during survey implementation.

The proposed project layout is presented in Figure 1-2.

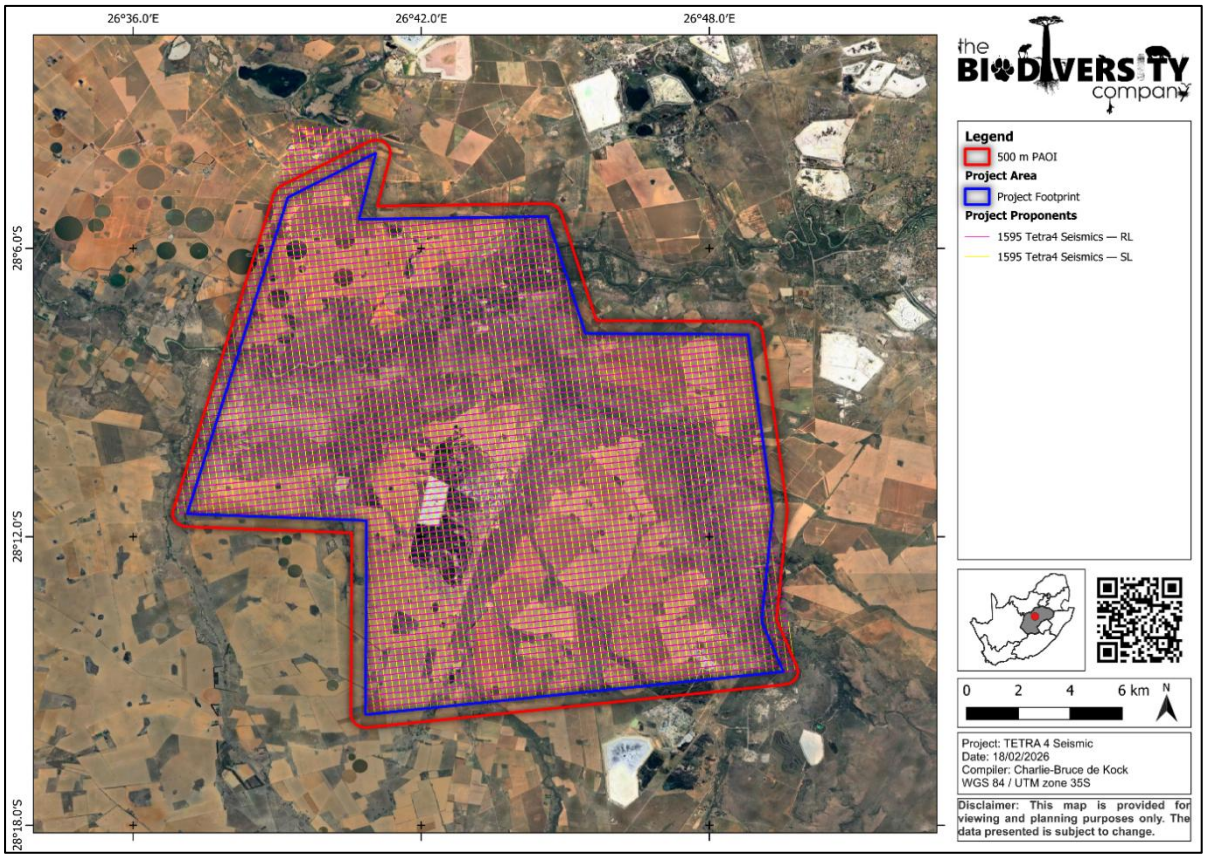


Figure 1-2 Proposed project layout components and project area of influence

1.4 Assumptions and Limitations

The following assumptions and limitations are applicable for this assessment:

- It has been assumed that the spatial files provided to the specialist are accurate;
- Apart from the infrastructure components as indicated in the layout map, no other relevant spatial information in terms of the structure design was provided in relation to the proposed development at the time report preparation;
- Representative sampling within the assessment area was conducted and by its nature would result in some areas of the assessment area not being covered on foot. However, the results derived were sufficient to derive a meaningful baseline of the study area in the context of freshwater ecosystems;
- Delineations for areas within a 500 m distance from the site were undertaken from a desktop perspective with limited field verification for accessible areas;
- The seasonality of the surveys is not considered to be a limiting factor with regard to the identification and delineation of wetlands, the only limitation in this regard would be the identification of certain plant species. The results of the assessment are considered conclusive in the opinion of the specialist;
- Only natural features were considered for the ecological components of this assessment; and

- The GPS used for water resource delineations is accurate to within five metres. Therefore, the wetland delineation plotted digitally may be offset by a maximum of five metres to either side.

1.5 Key Legislative Requirements

The legislation, policies and guidelines listed below in Table 1-1 are applicable to the current project. The list below, although extensive, may not be complete and other legislation, policies and guidelines may apply in addition to those listed below.

Table 1-1 A list of key legislative requirements

Region	Legislation / Guideline	Comment
National	National Environmental Management Act (Act No. 107 of 1998) (NEMA)	To provide for the effective protection and controlled utilisation of the environment and for matters incidental thereto.
	NEMA: Environmental Impact Assessment Regulations (2014) (GNR 326, 7 April 2017), Appendix 6 requirements	Minimum content for specialist reports.
	NEMA: Government Notices (GN) 320 (20 March 2020) and GN 1150 (30 October 2020)	The minimum criteria for reporting. Protocol for the specialist assessment and minimum report content requirements.
	The National Environmental Management: Biodiversity Act (Act No. 10 of 2004) (NEMBA), Threatened or Protected Species Regulations	The protection of species and ecosystems that warrant protection.
	National Environmental Management: Waste Act (Act No. 59 of 2008)	The regulation of waste management to protect the environment.
	National Water Act (Act No. 36 of 1998) (NWA)	To provide for the regulation of water uses.
	NWA: Government Notice (GN) 4167 (previously GN 509 of 2016 and GN 3139 of 2023)	Water Use Licence (WUL) in terms of Section 21 (c) & (i) water uses and the provision to apply for a General Authorisation subject to usage and outcome of the Risk Assessment Matrix.
	NEMBA: Alien and Invasive Species Regulations (2014) (GN R598, 1 August 2014)	The regulation and management of alien invasive species.
	Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983) (CARA)	To provide for control over the utilisation of the natural agricultural resources, including the vegetation and the combating of weeds and invader plants.
Provincial	Free State Province Biodiversity Plan: Technical Report v1.0 (2016)	A spatial tool comprising of a set of maps of biodiversity priority areas accompanied by contextual information and land-use guidelines for use in land-use and development planning, environmental assessment and regulation, and natural resource management.

1.6 National Water Act (NWA, 1998)

The DWS is the custodian of South Africa's water resources and therefore assumes public trusteeship of water resources, which includes watercourses, surface water, estuaries, or aquifers. The National Water Act (Act No. 36 of 1998) (NWA) allows for the protection of water resources, which includes:

- The maintenance of the quality of the water resource to the extent that the water resources may be used in an ecologically sustainable way;
- The prevention of the degradation of the water resource; and
- The rehabilitation of the water resource.

A watercourse means:

- A river or spring;
- A natural channel in which water flows regularly or intermittently;
- A wetland, lake or dam into which, or from which, water flows; and
- Any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse, and a reference to a watercourse includes, where relevant, its bed and banks.

The NWA recognises that the entire ecosystem and not just the water itself, constitutes a resource and as such needs to be conserved. No activity may therefore take place within a watercourse unless it is authorised by the DWS. Any area within a wetland or riparian zone is therefore excluded from development unless authorisation is obtained from the DWS in terms of Section 21 (c) and (i).

1.7 National Environmental Management Act (NEMA, 1998)

The National Environmental Management Act (NEMA) (Act 107 of 1998) and the associated Regulations as amended in April 2017, states that prior to any development taking place within a wetland or riparian area, an environmental authorisation process needs to be followed. This could follow either the Basic Assessment Report (BAR) process or the Environmental Impact Assessment (EIA) process depending on the scale of the impact.

1.8 Legislative Framework

In line with the protocol for the specialist assessment and minimum report content requirements for environmental impacts on freshwater 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:
    - “very high sensitivity” for aquatic biodiversity, must submit an Aquatic Biodiversity Specialist Assessment;
    - “low sensitivity” for aquatic biodiversity, must submit an Aquatic Biodiversity Compliance Statement;
- Where the information gathered from the site sensitivity verification differs from the screening tool designation of “very high” aquatic biodiversity sensitivity, and it is found to be of a “low” sensitivity, an Aquatic Biodiversity Compliance Statement must be submitted;
- Similarly, where the information gathered from the site sensitivity verification differs from the screening tool designation of “low” aquatic biodiversity sensitivity, and it is found to be of a “very high” sensitivity, an Aquatic Biodiversity Specialist Assessment must be submitted.

Given that wetlands were identified within proximity of the Assessment Area, a Specialist Assessment Report was completed for the project.

An Aquatic / Freshwater Biodiversity Specialist Assessment Report must contain the information as presented in Table 1-2 below.

Table 1-2 Aquatic Biodiversity Specialist Assessment 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
The assessment must be prepared by a specialist registered with the South African Council for Natural Scientific Professionals (SACNASP) with expertise in the field of aquatic sciences	7.4
Contact details of the specialist, their SACNASP registration number, their field of expertise and a curriculum vitae	7.4
A signed statement of independence by the specialist(s)	7.3
The assessment must be undertaken on the preferred site and within the proposed development footprint	1.3
A baseline description of the aquatic biodiversity and ecosystems on the site, including: aquatic ecosystem types; presence of aquatic species, and composition of aquatic species communities, their habitat, distribution and movement patterns.	3.1.4
The threat status of the ecosystem and species as identified by the screening tool	3.4.1
An indication of the national and provincial priority status of the aquatic ecosystem, including a description of the criteria for the given status (i.e. if the site includes a wetland or a river freshwater ecosystem priority area or sub catchment, a strategic water source area, a priority estuary, whether or not they are free-flowing rivers, wetland clusters, a critical biodiversity or ecologically sensitivity area)	3.1.4
A description of the ecological importance and sensitivity of the aquatic ecosystem including: (a) the description (spatially, if possible) of the ecosystem processes that operate in relation to the aquatic ecosystems on and immediately adjacent to the site (e.g., movement of surface and subsurface water, recharge, discharge, sediment transport, etc.); and (b) the historic ecological condition (reference) as well as present ecological state of rivers (in- stream, riparian and floodplain habitat), wetlands and/or estuaries in terms of possible changes to the channel and flow regime (surface and groundwater)	-
The assessment must identify alternative development footprints within the preferred site which would be of a "low" sensitivity as identified by the screening tool and verified through the site sensitivity verification and which were not considered appropriate	3.2.1
Related to impacts, a detailed assessment of the potential impacts of the proposed development on the following aspects must be undertaken to answer the following questions: Is the proposed development consistent with maintaining the priority aquatic ecosystem in its current state and according to the stated goal? Is the proposed development consistent with maintaining the resource quality objectives for the aquatic ecosystems present? How will the proposed development impact on fixed and dynamic ecological processes that operate within or across the site? This must include: (a) impacts on hydrological functioning at a landscape level and across the site which can arise from changes to flood regimes (e.g. suppression of floods, loss of flood attenuation capacity, unseasonal flooding or destruction of floodplain processes); (b) will the proposed development change the sediment regime of the aquatic ecosystem and its sub-catchment (e.g. sand movement, meandering river mouth or estuary, flooding or sedimentation patterns); (c) what will the extent of the modification in relation to the overall aquatic ecosystem be (e.g. at the source, upstream or downstream portion, in the temporary / seasonal / permanent zone of a wetland, in the riparian zone or within the channel of a watercourse, etc.); and (d) to what extent will the risks associated with water uses and related activities change.	-
How will the proposed development impact on the functioning of the aquatic feature? This must include: (a) base flows (e.g., too little or too much water in terms of characteristics and requirements of the system); (b) quantity of water including change in the hydrological regime or hydroperiod of the aquatic ecosystem (e.g., seasonal to temporary or permanent; impact of over -abstraction or instream or off stream impoundment of a wetland or river); (c) change in the hydrogeomorphic typing of the aquatic ecosystem (e.g., change from an unchannelled valley-bottom wetland to a channelled valley -bottom wetland);	-

(d) quality of water (e.g., due to increased sediment load, contamination by chemical and/or organic effluent, and/or eutrophication); (e) fragmentation (e.g., road or pipeline crossing a wetland) and loss of ecological connectivity (lateral and longitudinal); and (f) the loss or degradation of all or part of any unique or important features associated with or within the aquatic ecosystem (e.g., waterfalls, springs, oxbow lakes, meandering or braided channels, peat soils, etc.)	
How will the proposed development impact on key ecosystems regulating and supporting services especially: (a) flood attenuation; (b) streamflow regulation; (c) sediment trapping; (d) phosphate assimilation; (e) nitrate assimilation; (f) toxicant assimilation; (g) erosion control; and (h) carbon storage?	-
How will the proposed development impact community composition (numbers and density of species) and integrity (condition, viability, predator-prey ratios, dispersal rates, etc.) of the faunal and vegetation communities inhabiting the site?	-
A statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment	2.1
The methodology used to undertake the site inspection and the specialist assessment, including equipment and modelling used, where relevant	7.1
A description of the assumptions made, any uncertainties or gaps in knowledge or data	1.4
The location of areas not suitable for development, which are to be avoided during construction and operation, where relevant	3.4
Additional environmental impacts expected from the proposed development	-
Any direct, indirect and cumulative impacts of the proposed development on site	4.1
The degree to which impacts and risks can be mitigated	4.1 & 4.2
The degree to which the impacts and risks can be reversed	7.2.2
The degree to which the impacts and risks can cause loss of irreplaceable resources	7.2.2
A suitable construction and operational buffer for the aquatic ecosystem, using the accepted methodologies	-
Proposed impact management actions and impact management outcomes for inclusion in the Environmental Management Programme (EMPr)	4.2
A motivation must be provided if there were development footprints identified as having a “low” aquatic biodiversity sensitivity and that were not considered appropriate	1.8
A substantiated statement, based on the findings of the specialist assessment, regarding the acceptability or not of the proposed development and if the proposed development should receive approval or not; and	5.1
Any conditions to which this statement is subjected	5.1

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

2 Fieldwork

2.1 Freshwater Biodiversity Field Assessment

A field survey for the area was undertaken from the 2nd to the 3rd of February 2026 (summer), which is a wet-season survey, to identify the presence of freshwater features (wetlands) and to delineate their spatial extents. Furthermore, to determine vegetation composition of the identified features and the likelihood of features to be used as habitat for fauna. The seasonality is not considered to be a limiting factor to the assessment, and the results of this assessment are conclusive.

3 Results & Discussion

3.1 Desktop Dataset Assessment

3.1.1 Climate

The climate for the predominant vegetation type, namely, the Vaal-Vet Sandy Grassland, was used to draw inferences about the climate for the region vegetation. The climate for the region is characterised by a warm-temperate summer rainfall climate with the average annual precipitation being approximately 530 mm (Figure 3-1). High summer temperatures are common for this region with severe frost occurring throughout the winter (on average 37 days per year) (Mucina & Rutherford, 2006).

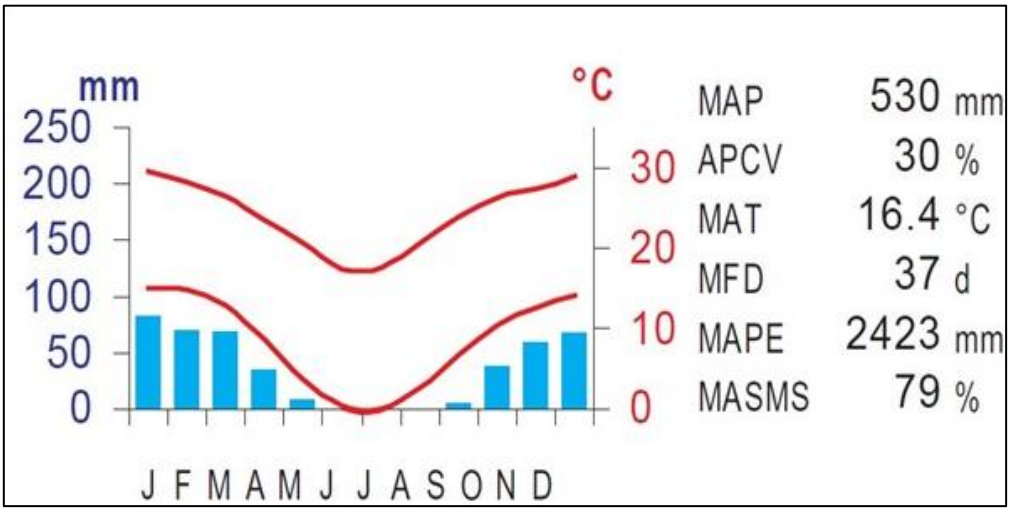


Figure 3-1 Climate for the project area based on the Vaal-Vet Sandy Grassland (Mucina & Rutherford, 2006)

3.1.2 Soils and Geology

The geology of the Vaal-Vet Sandy Grassland is characterised by aeolian and colluvial sand which overlies mudstone, sandstone and shale of the Karoo Supergroup. Older Ventersdorp Supergroup basement gneiss and andesite is located to the north. Soil forms associated with the project area includes the Bd, Bc, Ae and Ba land types, which correlates with the findings from the land type database (Mucina and Rutherford, 2006).

According to the land type database (Land Type Survey Staff, 1972 - 2006), the project area is predominantly characterised by two different land types namely Bd 20 and Dc 8 land types. The Bd land type consists of plinthic catena. Upland duplex and margalitic soils are rare and eutrophic and/or mesotrophic red soils are not widespread. The Dc land type is characterised by prismacutanic and/or pedocutanic diagnostic horizons with the addition of one or more of the following; Vertic, melanic and red structured diagnostic horizons.

3.1.3 Hydrological Characteristics

The PAOI falls within the Highveld Ecoregion, within the Vaal-Orange Water Management Area (WMA). At a finer scale, within the C42K, C42L and C43B quaternary catchments. The fine scale hydrological features are presented in the following section.

3.1.3.1 Topographical River Lines and Inland Water Areas

The topographical inland and river line data for the “2826” quarter degree indicated multiple perennial and non-perennial streams within the 500 m PAOI. Multiple inland water areas were also identified within the PAOI, ranging from natural pans and dams to sewerage works (Figure 3-2).

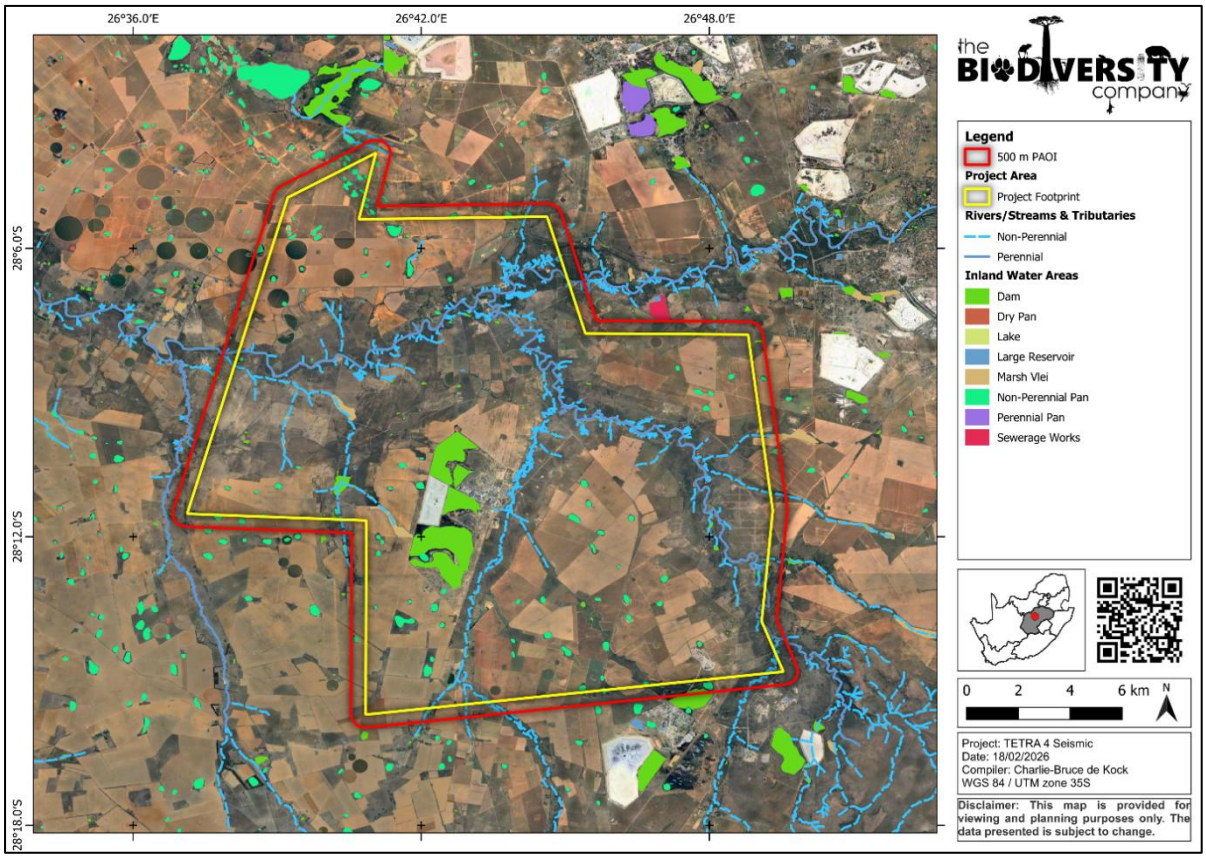


Figure 3-2 Topographical inland water areas and river lines that intersect the project area of influence

3.1.4 Ecologically Important Landscape Features

The GIS analysis pertaining to the relevance of the proposed project to ecologically important landscape features is summarised in Table 3-1. Only features that were identified to be relevant to the proposed project were further discussed.

Table 3-1 Summary of relevance of the proposed project to ecologically important landscape features

Desktop Information Considered	Relevant/Irrelevant	Section
South African Inventory of Inland Aquatic Ecosystems (SAIIAE)	Relevant – PAOI overlaps with SAIIAE wetlands.	3.1.4.1
National Freshwater Ecosystem Priority Area	Relevant – PAOI overlaps with NFEPA wetlands.	3.1.4.2
Provincial Conservation Plan	Relevant – PAOI overlaps with CBA and ESA areas.	3.1.4.3
Strategic Water Source Areas	Irrelevant – PAOI does not overlap with a SWSA.	-

3.1.4.1 South African Inventory of Inland Aquatic Ecosystems

Two wetland types were identified within the PAOI, classified as numerous depressions and multiple channelled valley-bottoms (Figure 3-3). The depressions were listed as “Least Concern” and “Poorly Protected” and classified as ranging between “A/B – Good” to “D/E/F – Heavily Modified”.

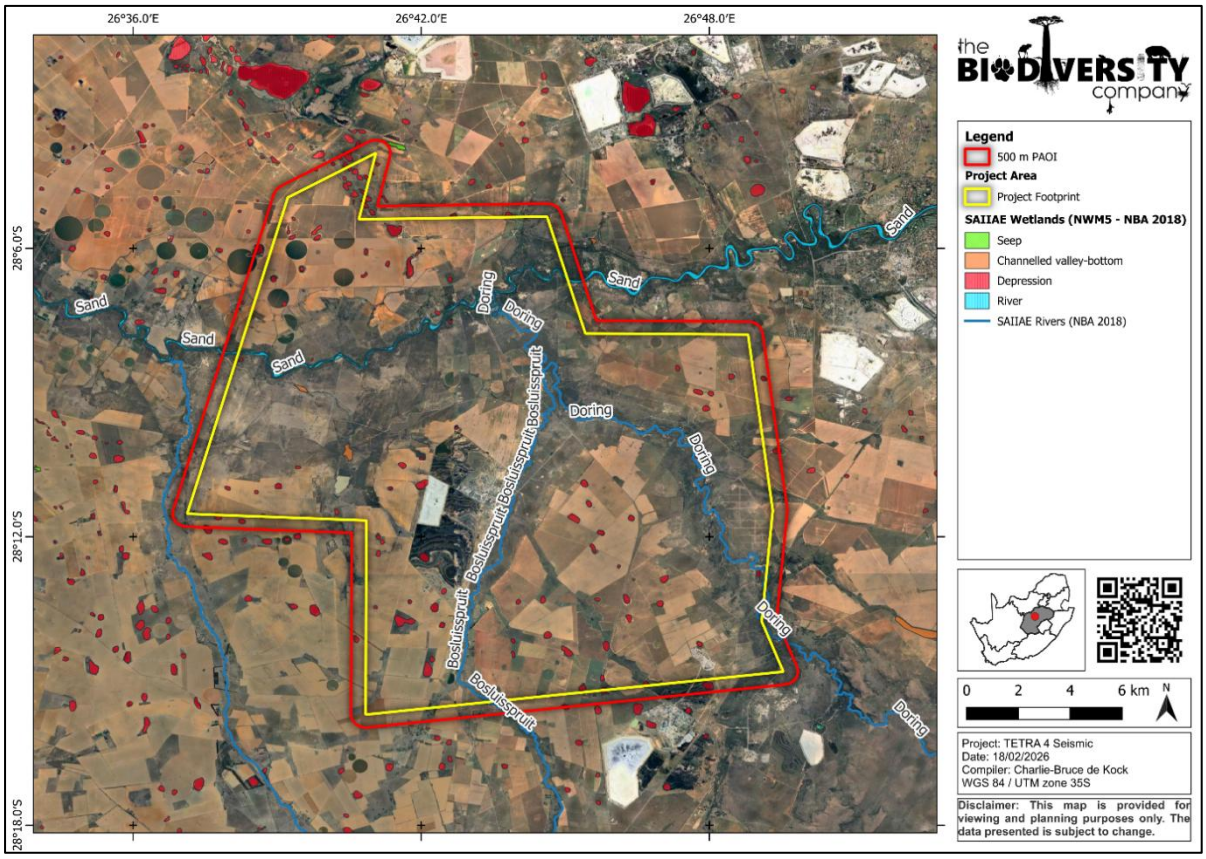


Figure 3-3 Wetland features identified within the project area of influence according to the South African Inventory of Aquatic Ecosystems dataset

3.1.4.2 National Freshwater Ecosystem Priority Areas

Multiple wetland types have been identified within the PAOI, namely channelled valley-bottoms, unchannelled valley-bottoms, flats, seeps, depressions and a floodplain (Figure 3-4). According to the dataset, all some of the identified channelled valley-bottoms, unchannelled valley-bottoms and depressions have been classified as “Priority” systems, while majority of the wetlands were identified as “Non-Priority” systems.

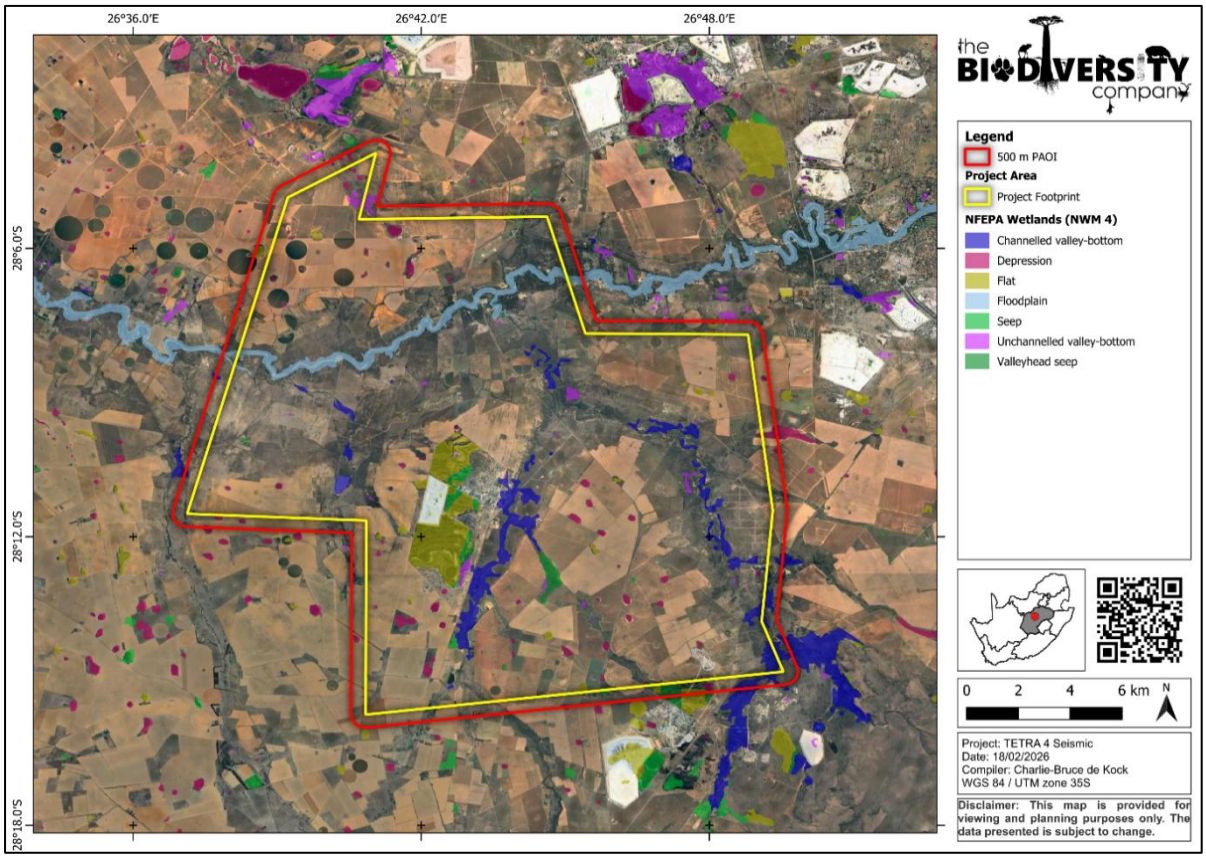


Figure 3-4 Wetland features identified within the project area of influence according to the National Freshwater Ecosystem Priority Areas dataset

3.1.4.3 Free State Terrestrial Biodiversity Sector Plan

According to the Free State Biodiversity Sector Plan for terrestrial ecosystems, the PAOI overlaps with Critical Biodiversity Areas (CBA 1 and 2), Ecological Support Areas (ESA 1 and 2), Degraded Areas and Other Natural Areas (ONAs) (Figure 3-5).

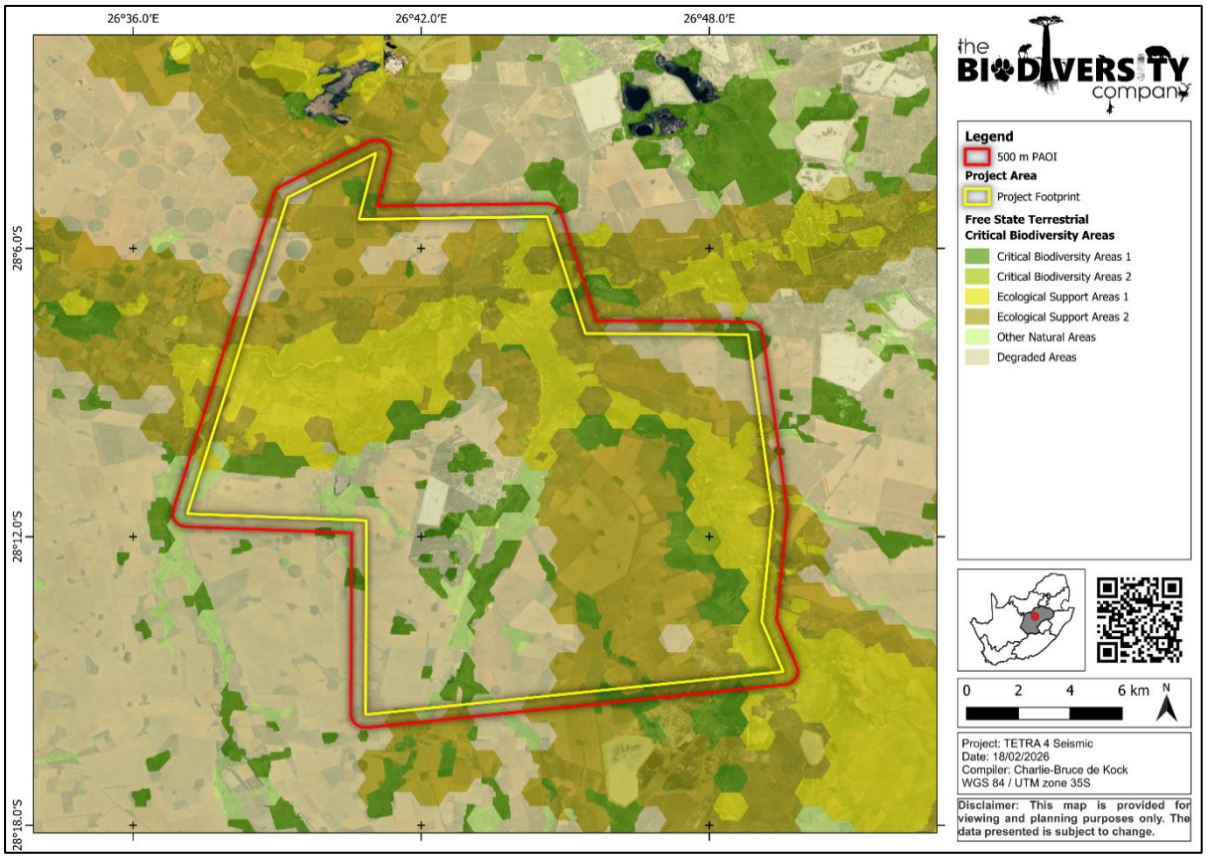


Figure 3-5 Free State Terrestrial Biodiversity Sector Plan overlay for the project area of influence

3.2 Wetland Field Survey

3.2.1 Delineation

Wetland units have been grouped based on the Hydrogeomorphic (HGM) type and ecological condition. It is assumed that systems of the same type and that are positioned in a similar landscape setting are likely to provide similar ecological services.

Four (4) HGM types were identified within the PAOI (Figure 3-6), namely, channelled valley-bottoms (CVB), unchannelled valley-bottoms (UVB), seeps and depression wetlands.

In addition to these, non-perennial drainage lines were identified within the PAOI. These features are referred to as an 'A' Section channel that conveys surface runoff immediately after a storm event and is not associated with a baseflow (DWAF, 2005).

Along with these natural features, multiple artificial features, namely dams and artificial wetlands, were identified within the PAOI. According to Ollis *et al.,* (2013) a dam is classified as 'an artificial body of water formed by the unnatural accumulation of water behind an artificial barrier that has been constructed across a river channel or an unchannelled valley-bottom wetland'. Although these systems do not classify as a natural wetland system it is important to note where the dams are for any planned development in the area.

A functional description has been provided for the natural wetland systems located and/or proximal to the proposed project footprint.

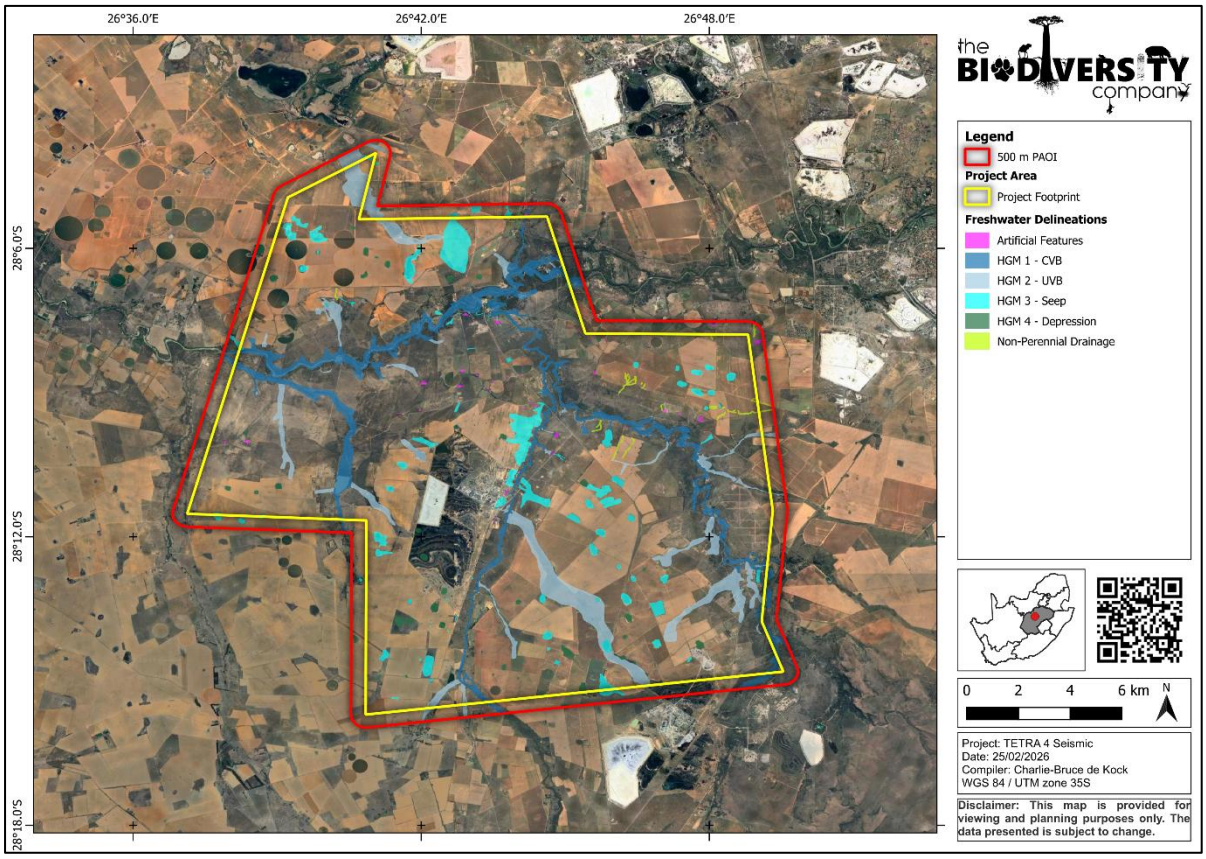


Figure 3-6 Delineation of wetlands and artificial features within the project area of influence

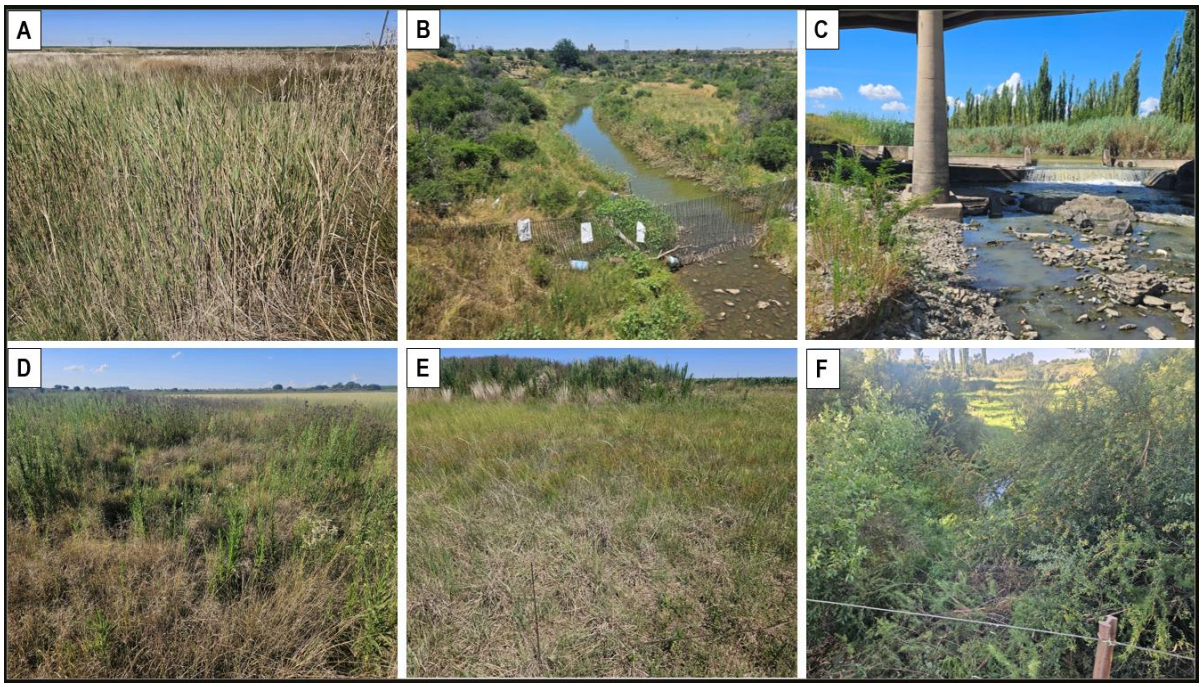


Figure 3-7 Representative photographs of the different water features within the project area of interest. A) UVB; B – C) Actively flowing CVB; D) Depression; E) Seep and F) CVB

3.2.2 Classification and Description

The wetland classification as per SANBI guidelines (Ollis *et al.,* 2013) is presented in Table 3-2.

Table 3-2 Wetland classification as per SANBI guideline (Ollis et al., 2013)

Wetland Unit	Level 1	Level 2		Level 3	Level 4		
	System	DWS Ecoregion/s	NFEPA Wet Veg Group/s	Landscape Unit	4A (HGM)	4B	4C
HGM 1	Inland	Highveld	Dry Highveld Grassland Group 3	Valley Bottom	CVB	N/A	N/A
HGM 2				Valley Bottom	UVB	N/A	N/A
HGM 3				Bench	Seep	Without channelled outflow	N/A
HGM 4				Bench	Depression	Endorheic	Without outflow

A channelled valley-bottom wetland, is a wetland ecosystem located along a valley floor, characterised by the presence of a river channel running through it (Ollis *et al.,* 2013). These wetlands are distinct from floodplain wetlands due to the absence of characteristic floodplain features and the presence of a defined river channel. The landscape setting of a channelled valley-bottom wetland typically involves a valley floor where the wetland receives water inputs from the river channel, either as surface flow during flooding or as subsurface flow, and from adjacent valley side-slopes through overland flow or interflow. The hydrodynamics of these wetlands are influenced by the river channel, which provides a concentrated flow of water, contributing to the wetland's ecological functions such as sediment trapping, nutrient cycling, and habitat provision. This setting makes channelled valley-bottom wetlands crucial for maintaining the ecological integrity of riverine systems and supporting biodiversity. Figure 3-8 presents a diagram of a typical channelled valley bottom, showing the dominant movement of water into, through and out of the system.

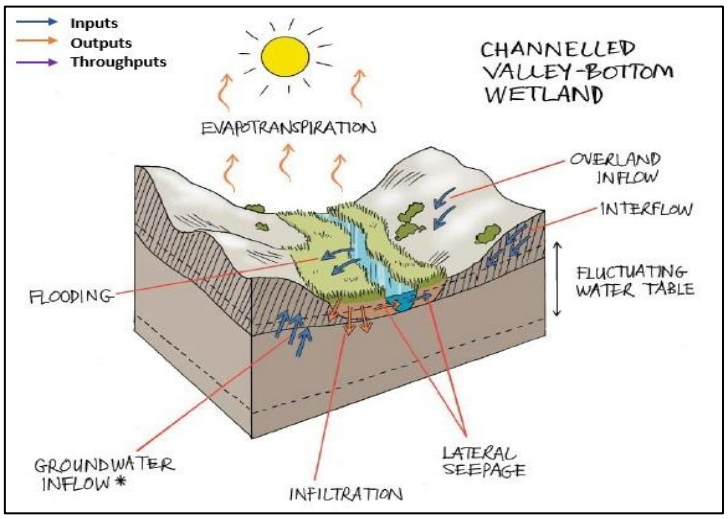


Figure 3-8 Amalgamated diagram of a typical channelled valley bottom, highlighting the dominant water inputs, throughputs and outputs, SANBI guidelines (Ollis et al. 2013)

An unchannelled valley-bottom wetland, is a wetland located on a valley floor, characterised by the absence of a distinct river channel (Ollis *et al.,* 2013). These wetlands are defined by their diffuse water flows, which are not confined within channel banks, allowing water to spread across the valley floor. The primary water inputs for unchannelled valley-bottom wetlands include diffuse surface and subsurface flows from upstream channels that lose confinement, as well as seepage from adjacent valley side-slopes. The hydrodynamics of these wetlands are dominated by horizontal, unidirectional, diffuse surface flow, although infiltration and evapotranspiration can also be significant. This setting

allows unchannelled valley-bottom wetlands to function as important sites for sediment deposition, water filtration, and habitat provision, supporting a diverse range of plant and animal species. Their unique hydrological and geomorphological characteristics make them vital components of the landscape, contributing to the overall ecological health of the valley systems in which they occur. Figure 3-9 presents a diagram of a typical unchannelled valley-bottom wetland, showing the dominant movement of water into, through and out of the system.

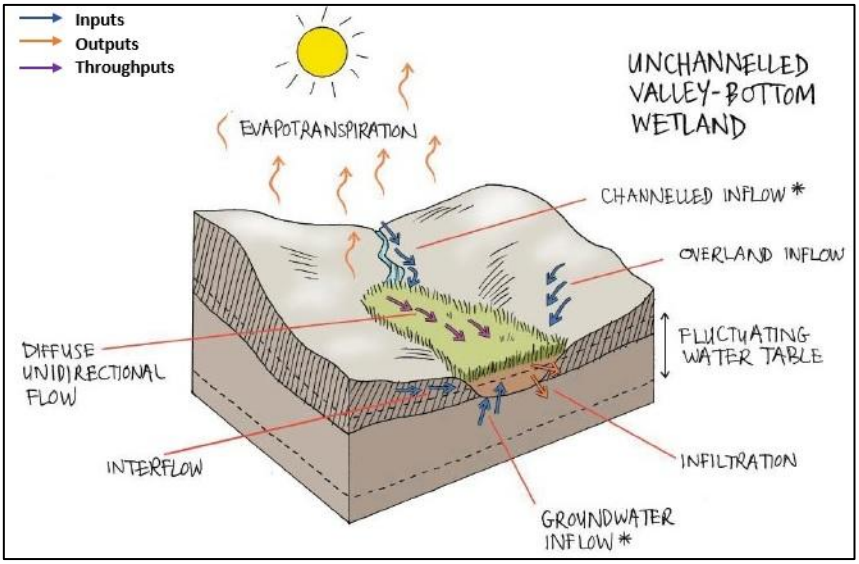


Figure 3-9 Amalgamated diagram of a typical unchannelled valley bottom, highlighting the dominant water inputs, throughputs and outputs, SANBI guidelines (Ollis et al. 2013)

A seep wetland is typically located on gently to steeply sloping land and is characterised by the colluvial, unidirectional movement of water and material down-slope (Ollis *et al.,* 2013). Seeps are often found on the side-slopes of a valley but do not usually extend onto the valley floor. The primary water inputs for seeps are subsurface flows from an up-slope direction, with water movement through the seep mainly occurring as interflow. During and after rainfall events, diffuse overland flow, known as sheetwash, can also be significant. Seeps are associated with geological formations and topographic positions that either cause groundwater to discharge to the land surface or rain-derived water to seep down-slope as subsurface interflow. This unique hydrological setting allows seeps to support specific vegetation adapted to these conditions, contributing to their ecological significance in the landscape. Figure 3-10 illustrates a diagram of the hillslope seeps, showing the dominant movement of water into, through and out of the system.

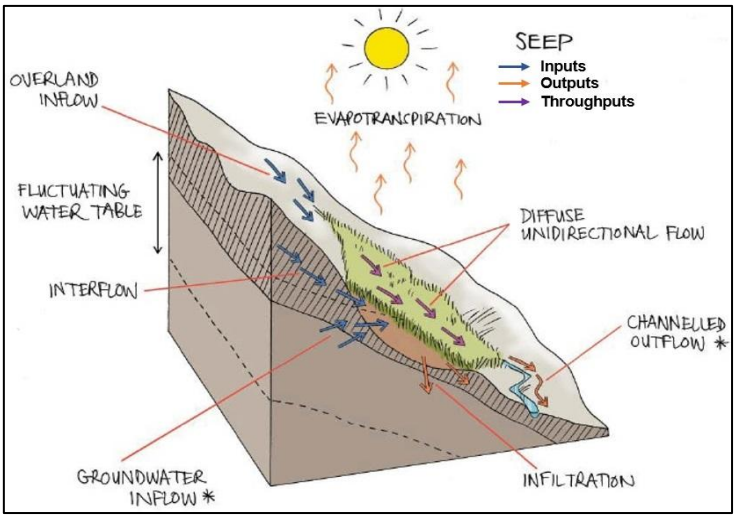


Figure 3-10 Amalgamated diagram of a typical hillslope seep, highlighting the dominant water inputs, throughputs and outputs, SANBI guidelines (Ollis et al. 2013)

A depression wetland is characterised by its distinct geomorphological features (Ollis *et al*., 2013). These wetlands are defined by closed or near-closed elevation contours, which increase in depth from the perimeter to a central area of greatest depth, where water typically accumulates. Depressions may be flat-bottomed, often referred to as pans, or round-bottomed, and can have various combinations of inlets and outlets or lack them entirely. The hydrodynamics of a depression are typically dominated by vertical water level fluctuations, with water inputs primarily from precipitation, groundwater discharge, interflow, and diffuse or concentrated overland flow. The classification system further categorizes depressions based on their outflow drainage characteristics as exorheic (outward-draining), endorheic (inward-draining), or dammed, and by their inflow drainage characteristics as with or without channelled inflow. This detailed classification helps in understanding the ecological functions and management needs of depression wetlands in South Africa. Figure 3-11 presents a diagram of a typical depression wetland, showing the dominant movement of water into, through and out of the system.

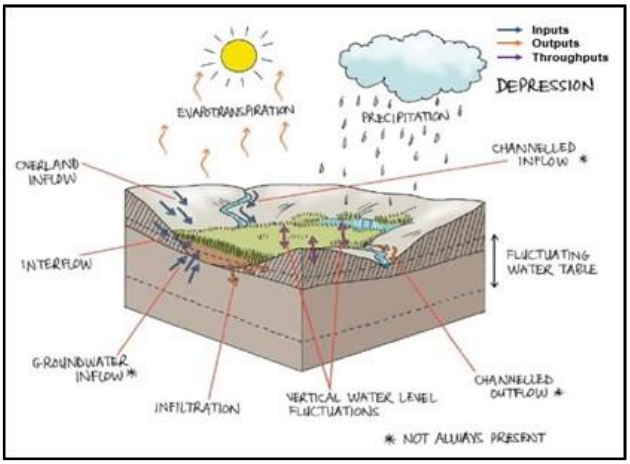


Figure 3-11 Amalgamated diagram of a typical depression wetland, highlighting the dominant water inputs, throughputs and outputs, SANBI guidelines (Ollis et al. 2013)

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 3-12). 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.

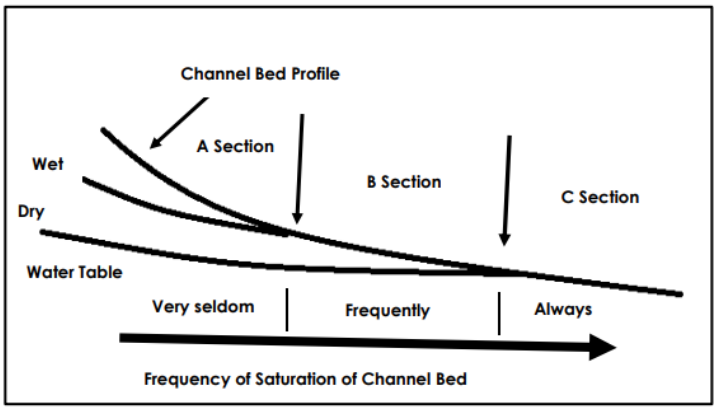


Figure 3-12 The watercourse classifications (DWAF, 2005)

3.3 Wetland Functional and Ecological Assessment

Based on the nature of the proposed 3D seismic survey activities (temporary, mobile operations with no permanent infrastructure) and the current project design, no wetlands are anticipated to be directly impacted by the proposed works. Accordingly, a detailed wetland ecological and functional assessment was not considered necessary for this project, and the wetland compliance input is therefore limited to confirming the absence of direct wetland impacts and specifying avoidance and good-practice management measures to ensure this outcome.

3.3.1 Regulation Zones

Table 3-3 presents the legislated zones of regulation that would be applicable to the wetland areas.

In accordance with Government Notice (GN) 4167 of 2023 as it relates to the NWA (1998), the regulated area of a watercourse for Section 21 (c) and 21 (i) of the NWA (1998) must be considered if the proposed development and associated infrastructure fall within the applicable zones of regulation as defined in the Act.

Listed activities in terms of the NEMA (1998), (Act 107 of 1998) EIA Regulations as amended in April 2017 must be taken into consideration if any infrastructure is to be placed within the applicable zone of regulation.

Both of the abovementioned authorisations are applicable to the proposed project given that the projected development footprint falls within the relevant regulated areas for watercourses identified.

Table 3-3 Legislated zones of regulation

Regulatory authorisation required	Zone of applicability
Water Use License Application in terms of the National Water Act, 1998 (Act No. 36 of 1998). GN 4167 as published in the Government Gazette 49833 of 2023.	In accordance with GN4167 of 2023 as it relates to the National Water Act, 1998 (Act 36 of 1998), a regulated area of a watercourse in terms of water uses as listed in Section 21c and 21i is defined as: the outer edge of the 1 in 100 year flood line and/or delineated riparian habitat, whichever is the greatest distance, measured from the middle of the watercourse of a river, spring, natural channel, lake or dam; in the absence of a determined 1 in 100 year flood line or riparian area the area within 100 m from the edge of a watercourse where the edge of the watercourse is the first identifiable annual bank fill flood bench; or a 500 m radius from the delineated boundary (extent) of any wetland or pan in terms of this regulation.
Environmental Authorisation in terms of the Listed activities of the National Environmental Management Act, 1998 (Act No. 107 of 1998). EIA Regulations (2014), as amended.	Activity 12 of Listing Notice 1 (GN 327) of the National Environmental Management Act, 1998 (Act No.107 of 1998) EIA regulations, 2014 (as amended) states that: The development of: (xii) Infrastructure or structures with a physical footprint of 100 square metres or more; Where such development occurs— Within a watercourse; In front of a development setback; or If no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse. Activity 19 of Listing Notice 1 (GN 327) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) EIA regulations, 2014 (as amended) states that: "The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse."

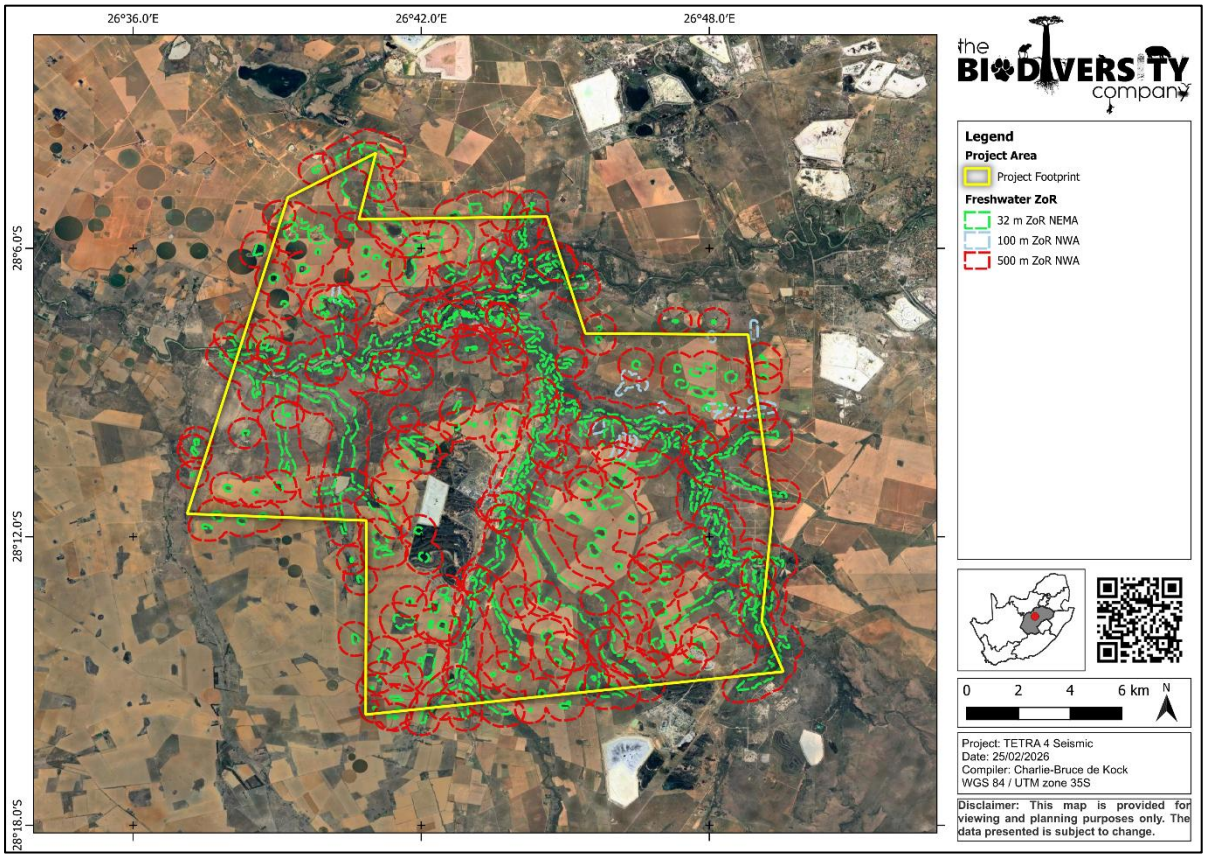


Figure 3-13 The Zones of Regulations in relation to the delineated systems

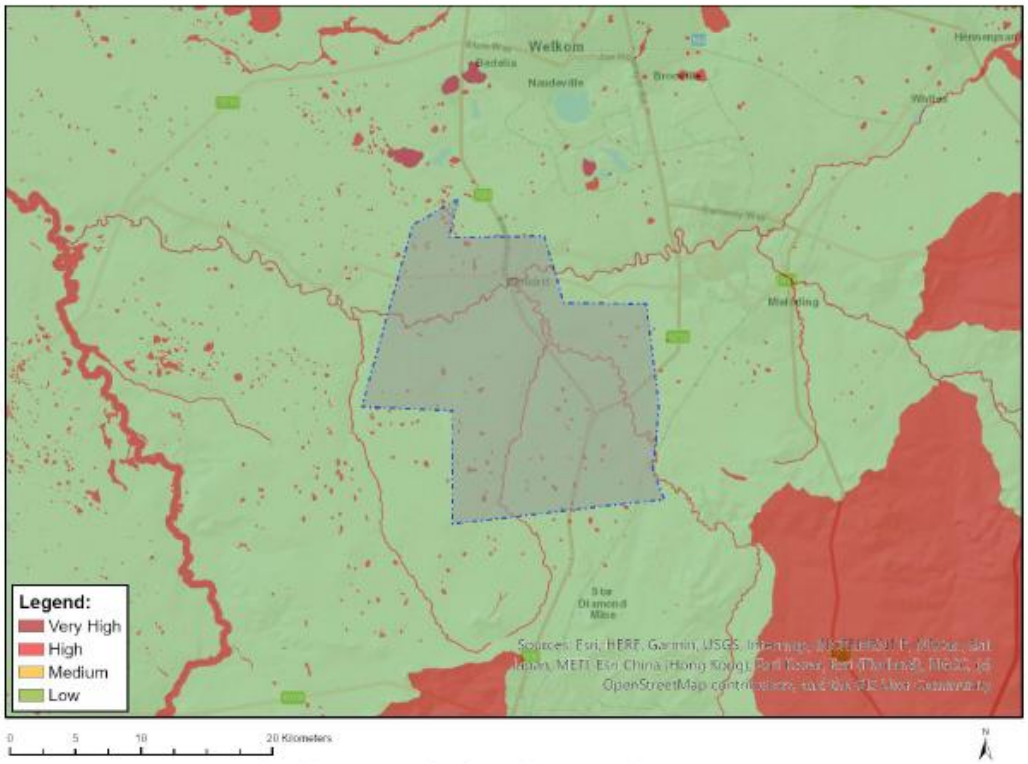
3.4 Site Sensitivity Verification

3.4.1 Desktop Ecological Sensitivity

The following is deduced from the National Web-based Environmental Screening Tool (Regulation 16(1)(v) of the Environmental Impact Assessment Regulations 2014, as amended):

- Aquatic Biodiversity Theme sensitivity as “Low” for the majority of the project footprint with areas of “Very High” sensitivity assigned for the presence of wetlands and rivers (Figure 3-14).

MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity
Very High	Wetlands_Channelled valley-bottom
Very High	Wetlands_Depression
Very High	Wetlands_River
Very High	Rivers

Figure 3-14 Aquatic Biodiversity Theme Sensitivity for the project area of influence

3.4.2 Screening Tool Comparison

The allocated sensitivities for each of the relevant themes are either disputed or validated for the assessed areas in Table 3-4 below. A summative explanation for each result is provided as relevant. The specialist-assigned sensitivity ratings are informed by desktop screening and field verification,

including observed wetland indicators and habitat characteristics, and consideration is given to any observed or likely presence of sensitive fauna and flora. The sensitivities are displayed in Figure 3-15.

Table 3-4 Summary of the screening tool vs specialist assigned sensitivities

Features	Screening Tool Theme	Environmental Screening Tool Sensitivity	Specialist Sensitivity	Tool Validated or Disputed by Specialist - Reasoning
HGM 1 – 4	Aquatic Biodiversity Theme	Low	High	Disputed – Field verification confirmed that these features are permanently to seasonally inundated wetlands with evident surface saturation and hydrophytic vegetation. While these wetlands occur within a modified landscape (historical agriculture and mining), they retain measurable wetland habitat and functional value.
		Very High	High	
Drainage Feature		Low	Low	Validated – These features within agricultural fields and secondary grasslands are rated as having low sensitivity for freshwater biodiversity because their simplified structure, unstable flow, and poor water quality – often impacted by agricultural/mining runoff – provide limited habitat for aquatic life. These conditions support only a few tolerant species and contribute little to the conservation of freshwater biodiversity.
Artificial Features		Low	Low	Validated – These are artificial features that provide limited/no ecological benefit to downstream watercourses. These features are predominantly fed by artificial sources such as mining activities and are therefore compromised in their water quality and ecological benefits. Therefore, a 'Low' sensitivity has been assigned to these areas in relation to freshwater biodiversity.
		Very High	Low	Disputed – The Screening Tool identifies this feature as Very High sensitivity, most likely on the basis of historic wetland mapping layers. Field and desktop verification confirmed that the area is now occupied by artificial mining-related infrastructure (e.g. pollution control dams/return water dams) with no remaining natural wetland habitat. These waterbodies are predominantly fed by artificial sources associated with mining activities, and water quality and ecological integrity are severely compromised, supporting only a limited suite of tolerant biota.
Remaining Area		Low	Low	Validated – Much of the area has been historically modified through agricultural and mining activities or other disturbances. The proposed activities are not anticipated to significantly modify the hydrological characteristics of the wetlands in proximity and in the local catchment; therefore a "Low" sensitivity has been assigned for these areas in relation to freshwater biodiversity.

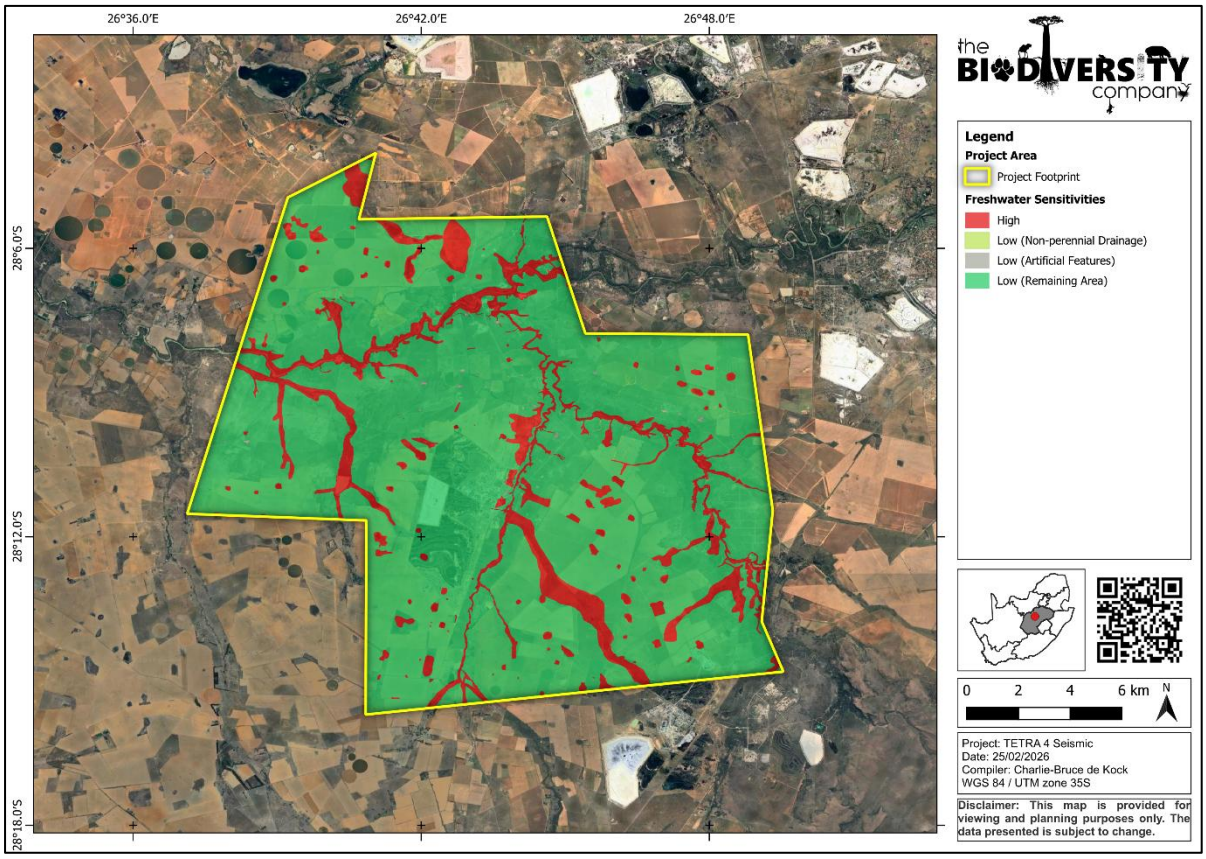


Figure 3-15 Freshwater Sensitivity for the project area of influence

4 Risk and Impact Assessment

4.1 Impact Assessment and Cumulative Considerations

The proposed 3D seismic survey is anticipated to result in localised, predominantly temporary disturbance within the project footprint, primarily associated with vehicle movement along the planned transect lines and related field activities. The principal freshwater-related risk is that ground disturbance – particularly under wet conditions – may lead to rutting/compaction, vegetation disturbance and the development of localised erosion hotspots, with the potential for increased sediment and contaminant mobilisation toward wetlands and drainage features. Although direct impacts to wetlands are not anticipated based on an avoidance approach, inappropriate routing, wet-weather access or uncontrolled driving could result in incidental encroachment into sensitive wetland areas.

The potential impacts associated with the proposed activities were assessed using the EIMS impact assessment methodology, and the results are summarised in Table 4-1. The assessment focuses on the operational phase of the seismic survey. For each impact, significance was determined for the pre- and post-mitigation scenarios in accordance with the prescribed EIMS procedure. The results indicate that, provided the recommended mitigation measures are implemented, residual impacts on freshwater features are anticipated to be of low negative significance, with temporary disturbance during operations representing the primary residual risk.

Table 4-1 Summative results of the Impact Assessment conducted for the proposed project

Impact	Phase	Pre-mitigation ER	Post-mitigation ER	Final score
Wet-IA01 - Indirect loss, disturbance and degradation of wetlands	Operation	-6	-2	-2.25
Mitigation • Micro-site transect lines to avoid delineated wetlands (HGM 1–3), and demarcate no-go areas before operations. • Depressions (HGM 4): Vehicle access may be permitted only during the dry season and only when depressions are confirmed dry, with rerouting required if wetness/saturation is observed. • Keep vehicles to existing tracks and approved routes; no ad hoc detours or route widening near wet areas. • Prefer dry-season operations and stop/reroute if soils are wet/saturated to prevent rutting and compaction. • Use single, pre-approved crossing points only where unavoidable, applying low-impact measures (no blading/excavation of wetland soils).				
Wet-IA02 - Degradation of wetland vegetation and the introduction and spread of alien and invasive vegetation	Operation	-6	-3.5	-3.94
Mitigation • Restrict vehicle movement to approved routes and avoid delineated wetlands (HGM 1–3); only allow access through dry depressions (HGM 4) during the dry season when confirmed dry. • Minimise disturbance by keeping the operational footprint as small as practicable and prohibiting unnecessary vegetation disturbance/clearing. • Inspect and clean vehicles/equipment (wheels, undercarriages) before entering the site and when moving between properties to reduce weed seed transfer. • Monitor disturbed areas and access routes for alien/invasive plant establishment during and after operations, and remove/eradicate infestations as they arise (mechanical/hand removal or appropriate treatment). • Rehabilitate any disturbed areas promptly (re-profile, stabilise and re-vegetate as required using locally appropriate indigenous species or an agreed pasture mix, in consultation with the landowner).				
Wet-IA03 - Contamination of wetlands with hydrocarbons due to machinery leaks and other waste	Operation	-6	-3.5	-3.94
Mitigation • Prohibit refuelling, servicing/maintenance and hazardous substance handling within wetlands (HGM 1–3); undertake these activities only at designated areas located away from freshwater features. • Ensure fuels, oils and hazardous substances are stored and handled with secondary containment (e.g., bunding/drip trays) and that vehicles are regularly inspected for leaks (repair leaks before re-entry to the field). • Maintain good housekeeping: no dumping/burying/burning of waste; store waste securely and remove regularly to licensed facilities; prevent litter accumulation and collect windblown litter promptly. • Keep spill kits available on all relevant vehicles/teams, and ensure staff are trained to respond to leaks/spills.				

- Implement spill response procedures: stop source, contain, clean up and dispose of contaminated material appropriately, and record/report incidents in accordance with site requirements; any spill near a freshwater feature triggers immediate escalation and remediation.
- Prevent discharge of contaminated water to the environment; manage any contaminated runoff/wash water via appropriate containment and disposal (no release to drainage lines/wetlands).

4.2 Proposed Impact Management

The following table sets out the proposed mitigation and impact management measures for the wetland features associated with the seismic survey project, including responsibilities, monitoring requirements and performance indicators.

The mitigation approach prioritises avoiding traversing all delineated wetlands where feasible and, where crossings cannot be avoided, using designated, pre-approved existing crossing points only to traverse valley-bottom wetlands or riparian areas. Where necessary, depression wetlands may be traversed during the dry season only, and only where the depression is confirmed to be dry at the time of access (i.e., no standing water, surface saturation, or other wetness indicators). If wetness indicators are observed, the route must be re-aligned to avoid the feature.

Table 4-2 Proposed impact management measures for freshwater features associated with the seismic survey

No.	Mitigation / Management Measure	Phase	Timeframe	Responsible Party for Implementation	Monitoring Party (Frequency)	Target (Outcome)	Performance Indicators (Monitoring Tool)
Wetlands and Drainage Features							
Wet01	Demarcate all delineated wetlands as no-go areas before site establishment, with exception to depression wetlands confirmed as being dry during the dry season	Planning, Operation	Pre-operations route planning and demarcation; throughout operations and maintained for life of project.	Project Manager; Environmental Officer; Contractor	ECO / Environmental Officer (weekly during construction; quarterly during operation)	No unauthorised disturbance within HGM 1 – 3.	Approved layout plan; physical demarcation (fencing / danger tape / signage) on site; ECO inspection reports show zero encroachment incidents.
Wet02	Minimise vegetation disturbance by restricting driving to approved transect lines/routes and existing tracks where practicable, with no unnecessary clearing. Avoid wetlands (HGM 1–3); only allow access through HGM 4 depressions when confirmed dry in the dry season. Apply basic vehicle hygiene to limit seed transfer, monitor disturbed areas for alien/invasive plants, and rehabilitate any disturbance promptly to encourage re-vegetation.	Planning, Operation	Pre-operations route planning and demarcation; throughout operations; rehabilitation progressively as disturbance occurs (and at demobilisation).	Environmental Officer; Contractor	ECO / Environmental Officer (weekly during operations; and at demobilisation; follow-up inspection post-operations if required)	No unauthorised vegetation disturbance within wetlands (HGM 1–3); disturbance footprint restricted to approved routes with effective natural recovery/rehabilitation; no establishment/spread of alien/invasive plants attributable to the survey.	Approved layout/routes and demarcation records; ECO inspection checklists and photo records; evidence of route compliance (no off-route driving); vehicle hygiene records (where applied); rehabilitation/close-out notes; alien/invasive monitoring observations and removal records (if applicable).

Wet03	Implement pollution-prevention measures for hydrocarbons, chemicals and concrete, including bunded storage, designated refuelling areas and spill-response procedures away from wetlands and the drainage feature.	Planning, Operation	Pre-operations route planning and demarcation; throughout operations; rehabilitation progressively as disturbance occurs (and at demobilisation).	Environmental Officer; Contractor	ECO / Environmental Officer (weekly; after any spill incident)	Zero uncontrolled hydrocarbon/chemical/concrete spills reaching wetlands.	Presence of bunded storage and designated refuelling areas; spill register; incident reports confirm no contamination of wetlands.

5 Conclusion

During the site assessment, four natural HGM units were identified and delineated within the project area, comprising a channelled valley-bottom wetland (HGM 1), an unchannelled valley-bottom wetland (HGM 2), a seep wetland (HGM 3) and depression wetlands (HGM 4). In addition, associated drainage features were also identified within and adjacent to the proposed seismic survey footprint.

The National Environmental Screening Tool identified numerous wetlands and river areas as having Very High aquatic biodiversity sensitivity, with all remaining areas in the PAOI classified as Low sensitivity. Based on field and desktop verification, the specialist assessment assigned a High sensitivity to the river areas and High sensitivities to all wetlands. The drainage features were assessed as having Low sensitivity, reflecting its highly modified condition within intensively cultivated agricultural land and the influence of surrounding activities.

Given the nature of the proposed project (a temporary, vehicle-based seismic survey) and the application of the recommended avoidance and impact management measures, no direct impacts to wetlands are anticipated, provided that wetlands (HGM 1–3) are avoided during final routing and field operations. Depression wetlands (HGM 4) may be traversed only during the dry season and only where confirmed dry at the time of access, with re-routing required if wetness or saturation is observed. With these measures in place, the residual freshwater-related risks are expected to be low, with the primary residual risks relating to inadvertent wet-weather access and hydrocarbon leaks/spills, which are addressed through the prescribed compliance controls and monitoring.

5.1 Specialist Opinion

Considering the assessment findings and the assumption that the recommended mitigation measures will be fully implemented, no fatal flaws are evident for the proposed project at this stage.

In the opinion of the specialist, and subject to strict adherence to the recommended mitigation measures, the project may be favourably considered for authorisation.

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7 Appendix Items

7.1 Appendix A – Methodology

7.1.1 Desktop Dataset Assessment

The desktop assessment was undertaken using Geographic Information System (GIS) to access, view and overlay the latest available related datasets with the project area. The information represented within the datasets was used to develop the relevant digital maps used to identify potentially environmentally sensitive areas. These datasets and their respective dates of publishing are provided below:

- Vegetation Types - Vegetation Map of South Africa, Lesotho and Swaziland (SANBI, 2018 & Mucina and Rutherford 2006);
- Soils and Geology - Land Types Database (Land Type Survey Staff, 1972 - 2006); and
- Topographical Inland Water Areas and River Lines (based on the 1994 1:500 000 topographic maps as per the Chief Directorate of the National Geo-spatial Information).

7.1.1.1 Vegetation Types - Vegetation Map of South Africa, Lesotho and Swaziland

The Vegetation Map of South Africa, Lesotho and Swaziland (SANBI, 2018) is the latest and updated version of the maps published in earlier time such as those presented by Mucina and Rutherford (2006) and those presented in the National Biodiversity Assessment (2011). The map provides spatial details on the representative vegetation of South Africa and is complemented in this report using information from Strelitzia (Mucina & Rutherford, 2006) to provide insight on the landscape features, biogeography, climate, geology, and soils of the project area.

7.1.1.2 Soils and Geology - Land Type Database

The Land Type Survey provides information on the soils, terrain, climate, and geology of areas within South Africa. The data includes the pedological classification of soils and is used in this report to provide insight on the common soil forms associated with aquatic or freshwater systems of a particular area.

7.1.1.3 Topographical River Lines and Inland Water Areas

Topographical Inland Water Areas and River Lines for South Africa are based on the topographic maps dated 1994 as per the National Geo-spatial Information. These datasets are used in this report to provide insight on potential wetland areas and serves to highlight the location and extent of drainage features, dams, wetlands, reservoirs and other relevant inland waterbodies.

7.1.1.4 Ecologically Important Landscape Features

The datasets listed below were incorporated to establish the relation between the project and ecologically important or sensitive freshwater entities. Emphasis was placed around the following spatial datasets:

- South African Inventory of Inland Aquatic Ecosystems (SAIIAE), NBA 2018 Rivers and Wetlands (Van Deventer *et al.,* 2019);
- National Freshwater Priority Areas, Rivers and Wetlands, 2011 (Nel *et al.,* 2011); and
- Strategic Water Source Areas, 2021 (Lötter & Le Maitre, 2021).

7.1.1.4.1 The South African Inventory of Inland Aquatic Ecosystems

The South African Inventory of Inland Aquatic Ecosystems (SAIIAE) was established during the 2018 NBA, the SAIIAE is a collection of spatial data layers that represent the extent of river and inland wetland ecosystem types as well as the pressures on these systems. The same two headline indicators, and their associated categorisations, are applied with the terrestrial ecosystem NBA, namely Ecosystem Threat Status and Ecosystem Protection Level. The Ecosystem Threat Status of river and wetland ecosystem types are based on the extent to which each ecosystem type had been altered from its natural condition.

7.1.1.4.2 National Freshwater Ecosystem Priority Areas, Rivers and Wetlands

In an attempt to better conserve aquatic ecosystems, South Africa has categorised its inland aquatic systems according to set ecological criteria (i.e., ecosystem representation, water yield, connectivity, unique features, and threatened taxa) to identify Freshwater Ecosystem Priority Areas (FEPAs). The FEPAs are intended to be conservation support tools and it is envisioned that they will guide the effective implementation of measures to achieve the National Environment Management: Biodiversity Act's biodiversity conservation goals (Nel *et al.,* 2011).

7.1.1.4.3 Strategic Water Source Areas

SWSAs are defined as areas of land that supply a disproportionate quantity of mean annual surface water runoff in relation to their size, and therefore contribute considerably to the overall water supply of the country, as well as national aquatic and terrestrial biodiversity resources. These are considered key ecological infrastructure assets and the effective protection of SWSAs is vital for national security because a lack of water security will compromise national security and human wellbeing on all levels.

7.1.2 Wetland Field Survey

7.1.2.1 Identification and Mapping

The wetland areas were delineated in accordance with the DWAF (2005) guidelines, a cross section is presented in Figure 7-1. 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 practise the soil wetness indicator tends to be the most important, and the other three indicators are used in a confirmatory role.

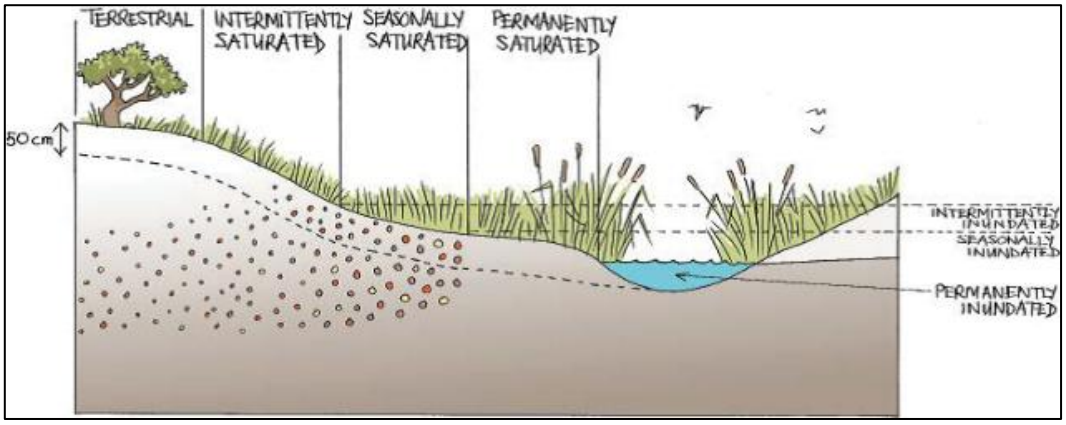


Figure 7-1 Cross section of a wetland, indicating how the soil wetness and vegetation indicators respond to changes in topography (Ollis et al. 2013)

7.1.2.2 Delineation

The wetland indicators described above are used to determine the boundaries of the wetlands within the project area. These delineations are then illustrated by means of maps accompanied by descriptions.

7.1.2.3 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).

7.1.3 Site Sensitivity Verification

The baseline aquatic / freshwater sensitivity of the project area was obtained using the National Web-based Environmental Screening Tool (Regulation 16(1)(v) of the Environmental Impact Assessment Regulations 2014, as amended). The allocated sensitivities for each of the relevant themes are either disputed or validated for the assessed areas based on the specialist assigned Ecological Importance and Sensitivity of the different systems (where applicable), with consideration been given to the presence of observed or likely sensitive fauna and flora.

7.2 Appendix B – Risk and Impact Assessment

7.2.1 Risk Assessment

Potential environmental impacts were assessed using the EIMS impact assessment methodology. For each identified impact, significance ratings were assigned for both pre-mitigation (unmitigated) and post-mitigation (mitigated) scenarios, following the EIMS scoring parameters and calculation steps. The results are presented in the EIMS impact assessment tables and reported as final impact significance scores for each impact.

7.2.2 EIMS Full Impact Assessment Table

Table 3 EIMS Impact Assessment for the proposed project

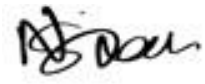
Identifier	Discipline	Impact	Alternative	Phase	Event	Pre-Nature	Pre-Extent	Pre-Duration	Pre-Magnitude	Pre-Reversibility	Consequence	Pre-Probability	Pre-Mitigation Significance Score	Pre-Mitigation Significance	Post-Nature	Post-Extent	Post-Duration	Post-Magnitude	Post-Reversibility	Consequence2	Post-Probability	Post-mitigation Significance	Post-Mitigation Significance	Confidence	Cumulative Impact	Irreplaceable loss	Priority Factor	Final score	Final Significance
Wet-IA01	Biodiversity & Habitat Loss	Indirect loss, disturbance and degradation of wetlands	Proposed Project	Operation	Normal operations or events	-1	2	2	2	2	-2	3	-6	Medium to low -	-1	1	1	1	1	-1	2	-2	Low -	High	2	1	1.13	-2.25	Low -
Wet-IA02	Biodiversity & Habitat Loss	Degradation of wetland vegetation and the introduction and spread of alien and invasive vegetation	Proposed Project	Operation	Normal operations or events	-1	2	2	2	2	-2	3	-6	Medium to low -	-1	2	1	2	2	-1.75	2	-3.5	Low -	High	2	1	1.13	-3.94	Low -
Wet-IA03	Water Resources & Drainage	Contamination of wetlands with hydrocarbons due to machinery leaks and eutrophication of wetland systems with human sewerage and other waste.	Proposed Project	Operation	Normal operations or events	-1	2	2	2	2	-2	3	-6	Medium to low -	-1	2	1	2	2	-1.75	2	-3.5	Low -	High	2	1	1.13	-3.94	Low -

7.3 Appendix C – Specialist Declaration of Independence

Declaration

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

February 2026

7.4 Appendix D – Specialist CVs

Divan Van Rooyen

Pr Sci Nat 151272 +27 83 265 8776 divan@thebiodiversitycompany.com

PROFILE SUMMARY

Divan van Rooyen is an aquatic ecologist (Pri. Sci. Nat. 151272) with 4 years of experience in wetland identification and delineations. Divan completed his Ph.D. in environmental science at the North-West University Potchefstroom Campus. Divan has been part of wetland studies for seismic surveys, battery energy storage systems, renewable energy (wind and solar) and bulk services infrastructure development and part of aquatic biomonitoring studies for WWTW's and Mines.

PERSONAL INFO

Nationality: South African

Date of birth: 20 December 1993

EXPERIENCE

Environmental Impact Assessments (EIA)

Environmental Management Programmes (EMP)

Project Management

SKILLS

- ✓ Wetland functional assessments
- ✓ Ecology
- ✓ Rehabilitation
- ✓ Aquatic Biomonitoring
- ✓ Monitoring & Management Plans

LANGUAGES

English – Proficient

Afrikaans – Proficient

Signed: Divan van Rooyen

ACADEMIC QUALIFICATIONS

North-West University of Potchefstroom (2022): DOCTOR OF PHILOSPHY (PhD) – Environmental Science (Aquatic Ecosystem Health):
Title: The role of the Usuthu River as refuge for the aquatic biodiversity of the lower Phongolo floodplain system

North-West University of Potchefstroom (2018): MASTER OF SCIENCE (MSc) – Environmental Science:
Title: Ecotoxicity of CdTe and its functional groups on *Enchytraeus albidus*

North-West University of Potchefstroom (2015): HONOURS BACHELOR OF SCIENCE (Hons) – Environmental Science (Ecological Remediation and Sustainable Management)

PROFESSIONAL EXPERIENCE

Mar 2024 – Present	**The Biodiversity Company** Freshwater Ecologist
Dec 2022 – Feb 2024	**Nitai Consulting** Aquatic and Environmental Consultant
Mar 2022 – Nov 2022	**Enviroworks** Aquatic and Environmental Consultant
Jan 2022 – Feb 2022	**ABS-Africa** Environmental Intern
Jan 2017 – Apr 2021	**North-West University** Research Assistant

INTERNATIONAL EXPERIENCE

South Africa