Site Sensitivity Verification Report

Aquatic Biodiversity Theme

Benya Solar Photovoltaic (PV) and Electrical Grid Connection Infrastructure Project

Prepared by:

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Project Title	**Benya Solar Photovoltaic (PV) and Electrical Grid Connection Infrastructure Project**	
Report Name	Site Sensitivity Verification Report	
Specialist Theme	Aquatic Biodiversity Theme	
Project Reference	SSVR – Benya PV	
Date	26 June 2025	
Fieldwork & Report Writer	Khume Mtshweni (SACNASP 138592)	
Reviewer	Namitha Singh (SACNASP 157927)	
Declaration	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 interests 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.	

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1 Introduction

The Biodiversity Company was appointed by WKN Windcurrent SA (Pty) Ltd to undertake an Aquatic Biodiversity wetland Site Sensitivity Verification (SSV) report for the proposed Benya Solar Photovoltaic (PV) and Electrical Grid Connection Infrastructure Project. The proposed Project Area of Influence (PAOI) is located approximately 21 km West of Dwaalboom within the Thabazimbi Local and Waterberg District Municipalities, in the Limpopo Province, South Africa (Figure 1-1). The PAOI consists of a 500 m area around the proposed project sites as provided in Figure 1-2.

The applicant, WKN Windcurrent SA (Pty) Ltd, is proposing the construction and operation of an up to 500MW Solar Photovoltaic (PV) Development and associated infrastructure, including associated Electrical Grid Infrastructure (Power line and Substation) and Battery Energy Storage System (BESS). The key infrastructure associated with the Benya Solar PV Development includes the following:

- PV modules and mounting structures, up to 8m in height.
- Inverters and transformers.
- Operation and Maintenance buildings (up to 6m in height), including a gate house, ablution facilities, security building, control centre, offices, warehouses and workshops for storage and maintenance.
    - An area of up to 10ha will be occupied by buildings.
- Temporary and permanent laydown areas, situated within the assessed development footprint.
    - Temporary laydown areas will occupy up to 10ha, while 1ha will remain in place for the permanent laydown area, as required for facility operation.
- Site and internal access roads (between 6m and 8m wide). Existing internal roads will be used as far as possible.
- Perimeter fencing up to 6m in height.
- Battery Energy Storage System (BESS), up to 4ha in extent. The infrastructure will be located within the assessed development footprint.
- Associated Electrical Grid Connection Infrastructure, including:
    - 33kV cabling between the project components and the on-site facility substation;
    - A 33kV/132kV Independent Power Producer (IPP) Step-up Substation, up to 1.5ha in extent
    - A 132kV Eskom Switching Substation, up to 1.5ha in extent; and
    - A 132kV overhead power line (up to 40m in height) connecting the on-site switching substation to one (1) of the nearby 132kV Eskom overhead power lines, via a Loop In – Loop Out (LILO) connection.

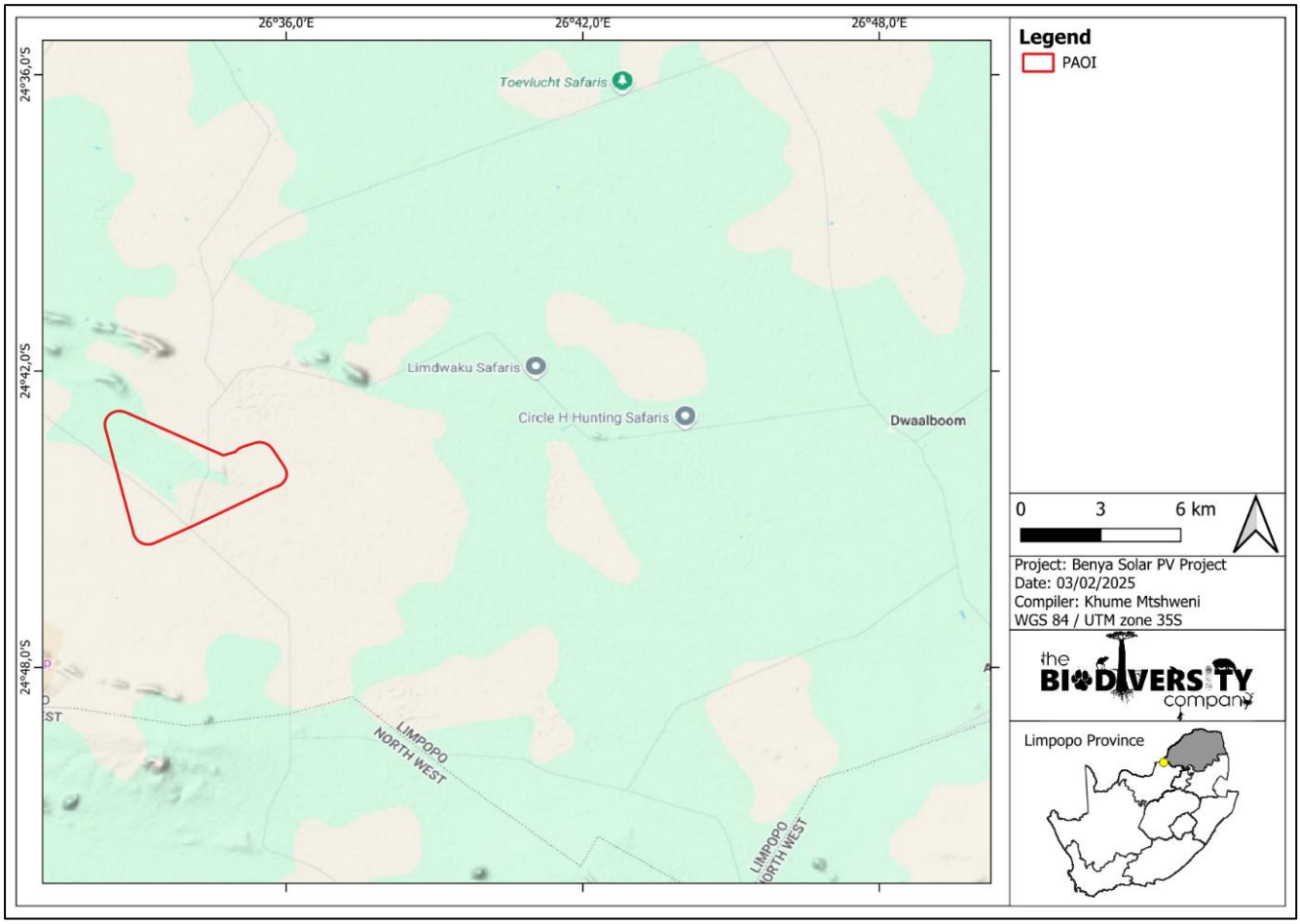


Figure 1-1 Proposed location of the project area in relation to the nearby towns

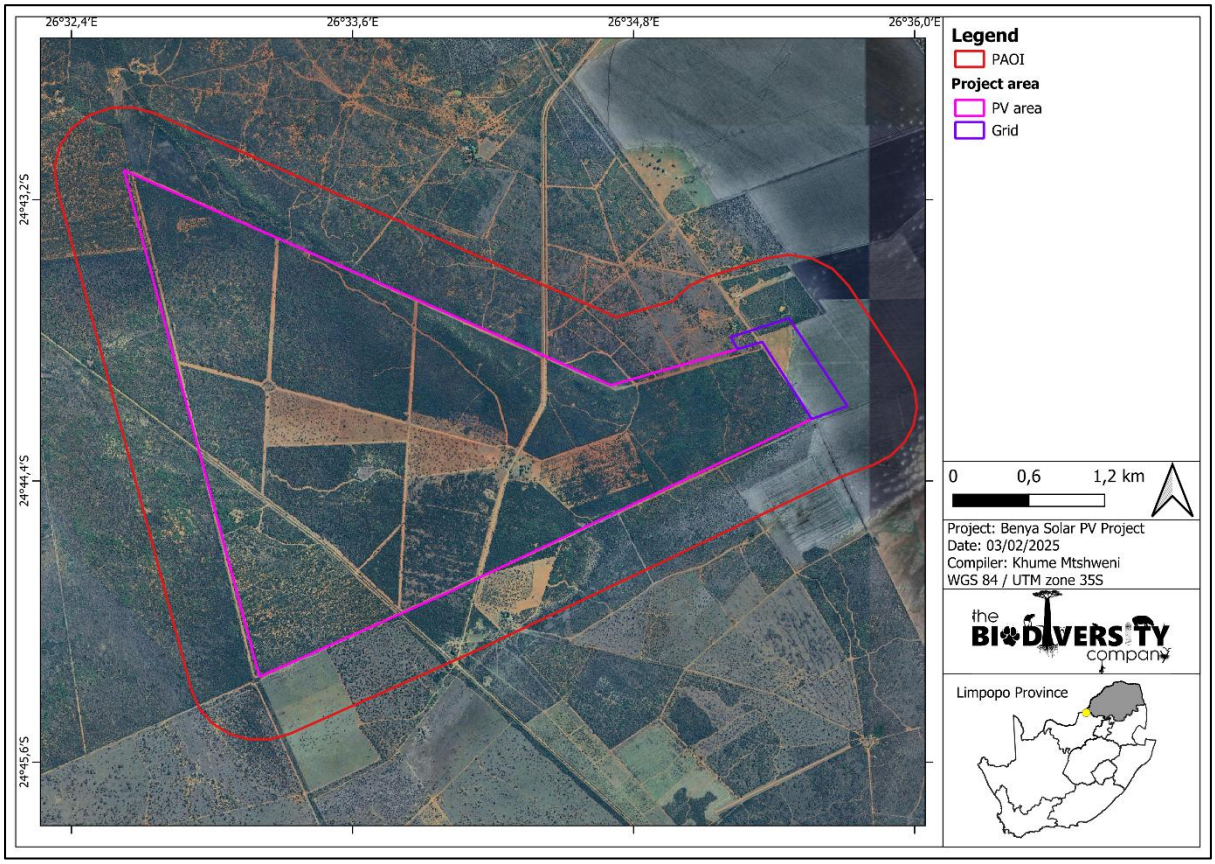


Figure 1-2 Project area of influence and proposed sites

1.1 Legal Framework

In accordance with GN 320 of Government Gazette 43110 (20 March 2020) the minimum reporting requirements for a site sensitivity verification is presented in Table 1-1 below.

Table 1-1 Aquatic Biodiversity site sensitivity verification 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 site sensitivity verification must be undertaken by an environmental assessment practitioner or a specialist.	7.1 and 7.2
The site sensitivity verification must be undertaken through the use of: (a) a desk top analysis, using satellite imagery; (b) a preliminary on-site inspection; and (c) any other available and relevant information	2 and 3.1
The outcome of the site sensitivity verification must be recorded in the form of a report that: (a) confirms or disputes the current use of the land and the environmental sensitivity as identified by the screening tool, such as new developments or infrastructure, the change in vegetation cover or status etc; and (b) contains a motivation and evidence (e.g. photographs) of either the verified or different use of the land and environmental sensitivity.	3.1

The SSVR must be submitted together with the relevant assessment report prepared in accordance with the requirements of the Environmental Impact Assessment Regulations.

1.2 Scope of Work

In accordance with the 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 NEMA, 1998, when applying

for environmental authorisation the current use of the land and the environmental sensitivity of the site under consideration as identified by the National Web-Based Environmental Screening Tool, must be confirmed by undertaking a site sensitivity verification.

The outcome of this SSV is to:

- Confirm or dispute the current use of the land and the environmental sensitivity as identified by the screening tool; and
- Motivate and provide evidence of either the verified or different use of the land and environmental sensitivity of the site.

2 Approach

A field survey for the area was undertaken from the 27th to the 29th of January 2025, which is a wet-season survey, to determine the presence of surface aquatic features (wetlands). Specialist declarations and a Curriculum Vitae (CV), including the SACNASP registration numbers, are provided in Appendix A and Appendix B, respectively. A site sensitivity verification report has been prepared in accordance with the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Aquatic Biodiversity (Government Notice 320, dated 20 March 2020).

2.1 Assumptions and Limitations

The following is applicable:

- The seasonality of the survey is not considered to be a limiting factor with regard to identifying and delineating wetland features;
- 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 of the assessment were sufficient to derive a meaningful baseline of the freshwater ecosystems identified;
- Areas within a 500 m distance from the site were included for informative purposes and the delineation of the potential wet areas within this 500 m was undertaken from a desktop perspective wherever they could not be physically accessed;
- No ecological assessments were conducted for the delineated wetlands as the intent of the SSV is to identify the presence of aquatic features (wetlands); and
- The Global Positioning System (GPS) used for delineations is accurate to within five meters. Therefore, the delineation plotted digitally may be offset by at least five meters to either side.

3 Results & Discussion

3.1 Survey Results

The following sections discuss the results from the field survey that was conducted to verify the aquatic biodiversity theme sensitivity of the site. A delineation map with the location of representative sample points is provided in Figure 3-1 and described in Table 3-1.

During the site visit one (1) hydrogeomorphic unit was identified and delineated, this system was classified as a depression wetland. Furthermore, several dams (off-channel), and a sand quarry was identified.

A 32 m watercourse buffer, which is also the regulated area of a watercourse according to the National Environmental Management Act, is recommended for wetlands. Off-channel dams and artificial features do not qualify for a wetland buffer as they are not representative of natural freshwater resources and sensitivity.

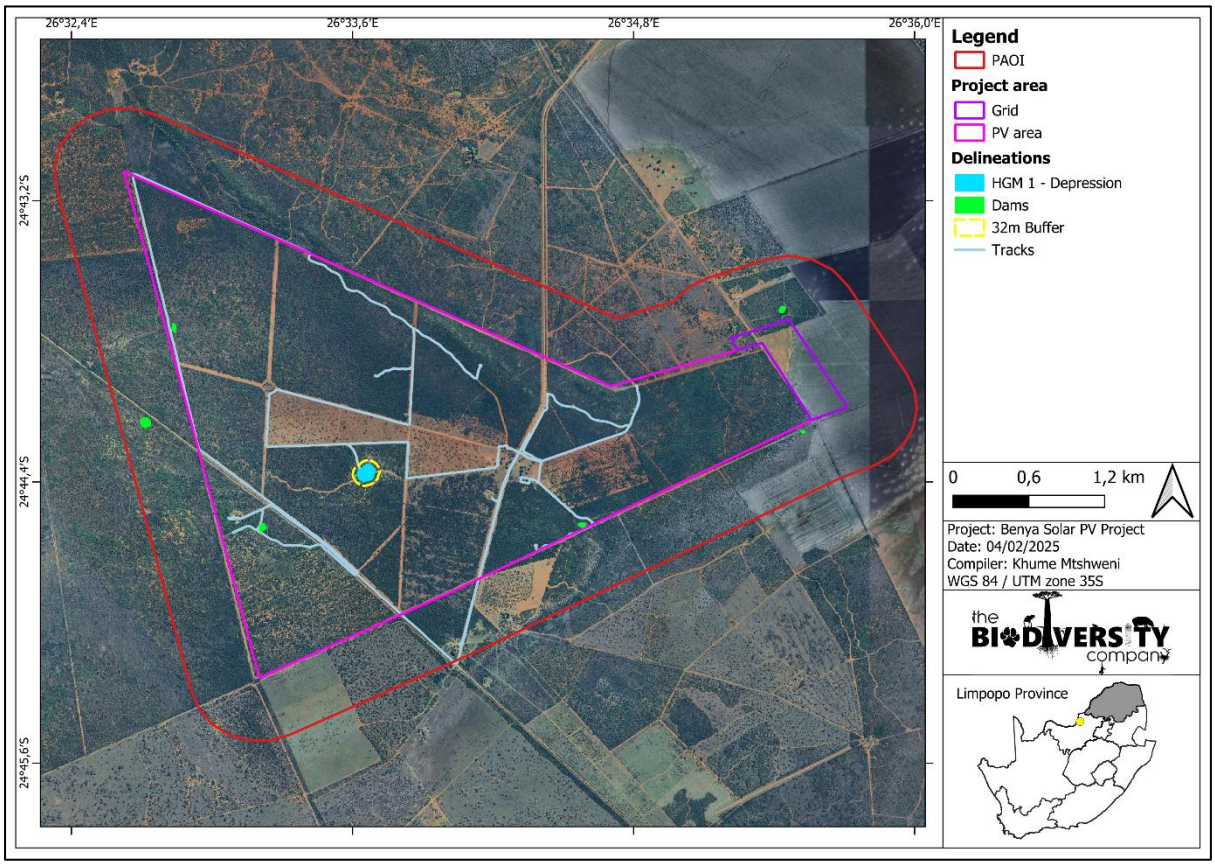


Figure 3-1 Survey tracks and identified wetlands in relation to the proposed sites

Table 3-1 Spatially Representative survey sites

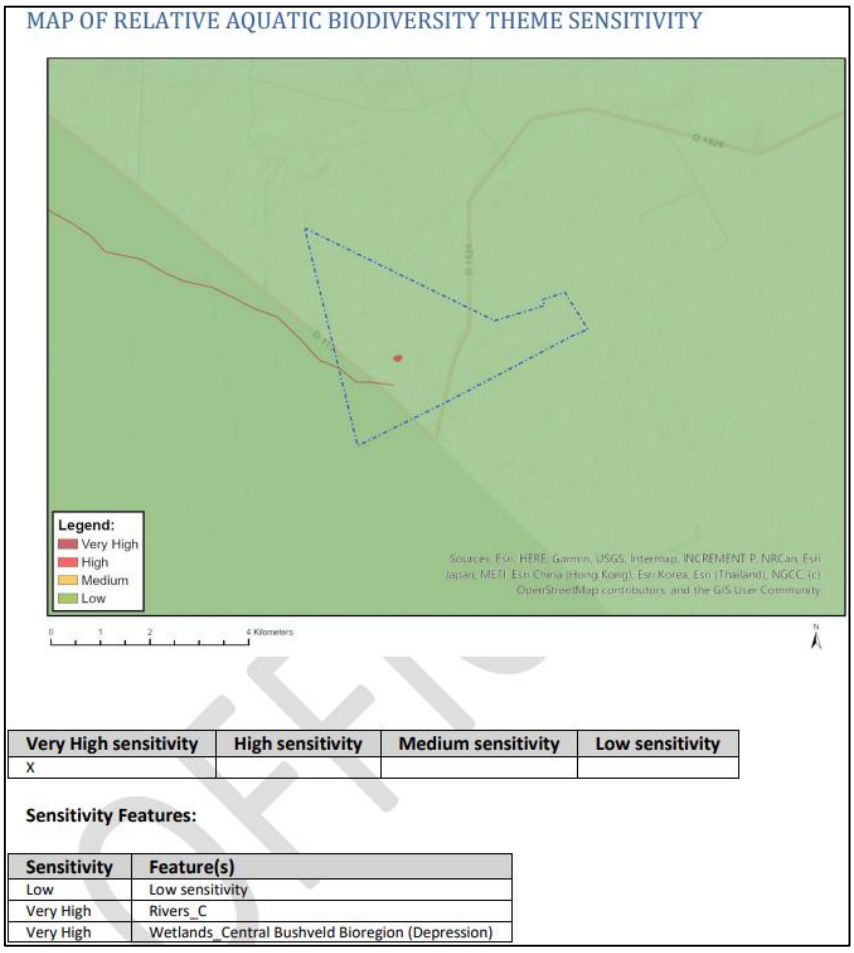
Survey Point	Description	Photographs
Site GPS Reference: Depression Date: 17-19/12/2024 GPS Coordinates: 24°44'22.35"S 26°33'39.20"E	1 HGM 1 - Depression	
Site GPS Reference: Off channel Dam Date: 17-19/12/2024 GPS Coordinates: 24°44'35.15"S 26°34'35.07"E	2 Dam	
Site GPS Reference: Off channel Dam Date: 17-19/12/2024 GPS Coordinates: 24°44'35.79"S 26°33'13.22"E	3 Dam	

Site GPS Reference: Sand Quarry Date: 17-19/12/2024 GPS Coordinates: 24°44'27.23"S 26°34'10.96"E	4 Sand Quarry	

3.1.1 Desktop Ecological Senstivity

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 “Very High” for the Project Site, due to the presence of a River and a Depression wetland.



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity
Very High	Rivers_C
Very High	Wetlands_Central Bushveld Bioregion (Depression)

Figure 3-2 Aquatic Biodiversity Theme Sensitivity for the proposed assessment area

3.1.2 Screening Tool Comparison

The allocated sensitivities for each of the relevant themes are either disputed or validated for the assessed areas in Table 3-2 below. A summative explanation for each result is provided as relevant. The specialist-assigned sensitivity ratings are based largely on the presence or absence of wetlands and is presented in Figure 3-3.

Table 3-2 Summary of the screening tool vs specialist assigned sensitivities

Aspect	Screening Tool Theme	Screening Tool	Specialist Finding	Tool Validated or Disputed by Specialist - Reasoning
Wetland	Aquatic Biodiversity Theme	**Very High**	**Medium**	**Disputed** – This area is representative of a natural wetland and is of Medium sensitivity, attributed to the presence of charismatic aquatic dependent species, and an intact natural buffer. It is also of Medium sensitivity due to the reliance of organisms in the area on it. This includes, breeding, drinking and feeding.
Off-channel dams and sand quarry		**Low**	**Low**	**Validated** – These areas are not representative of natural wetlands, although they do have wetland characteristics that have been anthropogenically introduced.
32m Buffer		**Low / Very High**	**Medium**	**Disputed** – This area is representative of the wetland periphery and, is of Moderate sensitivity attributed to its importance in terms of preventing disturbance to the wetland.
Remaining Area		**Low**	**Low**	**Validated** – These areas are not representative of natural wetlands and lack typical wetland indicators.

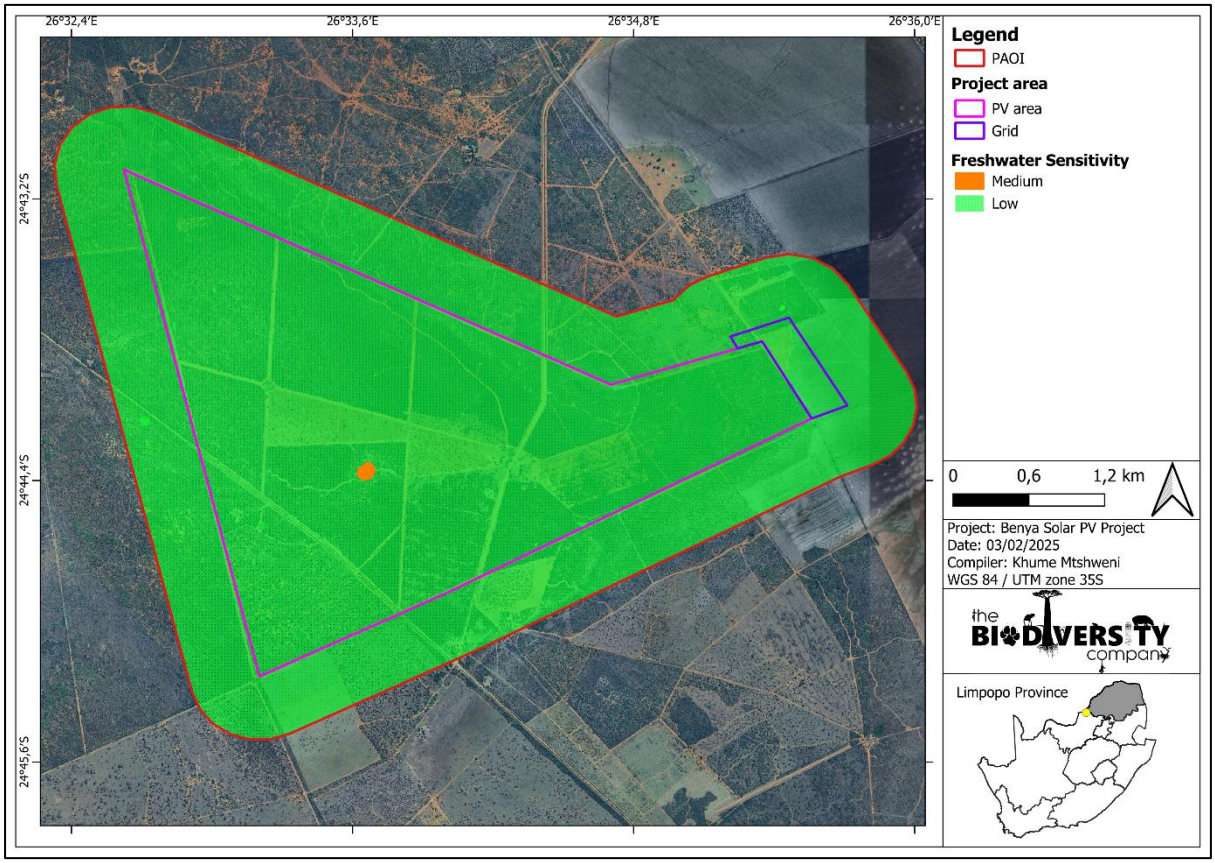


Figure 3-3 Sensitivity map for the project sites and project area of influence

4 Potential Impact & Management Measures

Two (2) phases were considered for the identification of potential impacts, with the infrastructure assumed to be permanent (> 20 years) and no decommissioning phase required:

- Construction Phase; and

- Operational Phase.

The following impacts were considered for the respective phases:

- Loss, disturbance and degradation of the wetland area;
- Loss or degradation in ecosystem services;
- Altered hydrological regimes;
- Increase in erosion and sedimentation of receiving system;
- Introduction and spread of alien and invasive vegetation; and
- Impaired water quality.

The aim of the management outcomes (below) is to present the mitigation measures in such a way that they can be incorporated into the Environmental Management Programme (EMPr) for the project, allowing for more successful implementation and auditing of the mitigations and monitoring guidelines.

Table 4-1 presents the prescribed mitigation measures for construction phase for the assessment. Table 4-2 presents the prescribed mitigation measures for operational phase for the assessment.

Table 4-1 The project management measures for the aquatic biodiversity during the construction phase

Environmental Theme: Aquatic **Impact Management Outcome: Protection of the wetland to ensure adequate ecological functioning** **Phase: Construction**						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	**Method of implementation**	**Timeframe for implementation**	**Responsible person**	**Frequency**	**Evidence of compliance**
Avoid wetland area and NEMA 32m buffer.	Contractor/ Environmental Officer	Design engineer to consider this for final layout	Construction Phase	Environmental Officer	Throughout phase	Avoided features
Cleared areas must be stabilized to avoid impacts to adjacent wetland and buffer areas	Contractor/ Environmental Officer	Implement a rehabilitation plan	Construction Phase	Environmental Officer	Throughout phase	Rehabilitation implemented
Restrict the disturbance footprint and the clearing of vegetation for the authorized area only.	Engineer/Contractor/ Environmental Officer	Design engineer to consider this for final layout	Construction Phase	Environmental Officer	Throughout phase	Disturbance minimised
Make use of existing access routes as much as possible, before new routes are considered. Any selected "new" route must be authorized, minimizing disturbances to the wetland area.	Contractor	Design engineer to consider this for final layout	Construction Phase	Environmental Officer	Throughout phase	All routes authorised
Promptly remove all alien and invasive plant species that may emerge during construction (i.e. weedy annuals and other alien forbs) must be removed	Environmental Officer	Implement an alien vegetation management plan	Construction Phase	Environmental Officer	Throughout phases	Implement alien vegetation management plan
Limit soil disturbance	Contractor/ Environmental Officer	Clear/disturb soil on a need basis only	Construction Phase	Environmental Officer	Throughout phase	Soil disturbance is reduced
Keep excavation and soil heaps neat and tidy	Contractor	Separate topsoil and sub-soil	Construction Phase	Environmental Officer	Throughout phase	Soil heaps are managed
Lightly till any disturbed soil around the development footprint to avoid compaction.	Contractor/ Environmental Officer	Implement a rehabilitation plan	Construction Phase	Environmental Officer	Throughout phase	Plan is implemented
Ensure soil stockpiles are sufficiently safeguarded against rain wash	Contractor/ Environmental Officer	Implement soil management plan	Construction Phase	Environmental Officer	Throughout phase	Plan is implemented
Mixing of concrete must under no circumstances take place the wetland or its buffer	Contractor/ Environmental Officer	Only permissible in designated working area	Construction Phase	Environmental Officer	Throughout phase	Avoidance of wetlands and buffer area
No machinery should be allowed to be parked in the wetland or buffer area	Contractor/	Demarcate buffer area	Construction Phase	Environmental Officer	Throughout phases	Avoided buffer area

Minimize unnecessary clearing of vegetation beyond the development footprints	Contractor/ Environmental Officer	Visibly demarcate authorised working areas	Construction Phase	Environmental Officer	Throughout phase	Clearance is minimised
The use of herbicides is not recommended in or near the wetland (opt for mechanical removal).	Contractor/ Environmental Officer	Demarcate buffer area	Construction Phase	Environmental Officer	Throughout phase	Avoided buffer area
Make sure all excess consumables are removed from site and deposited at an appropriate waste facility	Contractor/ Environmental Officer	Restrict to designated working/storage/service areas	Construction Phase	Environmental Officer	Throughout phase	Restricted to demarcated area
Appropriately contain any generator diesel storage tanks, machinery spills (e.g. accidental spills of hydrocarbons oils, diesel etc.) or construction materials on site (e.g. concrete) in such a way as to prevent them leaking and entering the wetland or buffer areas	Contractor/ Environmental Officer	Restrict to designated working/storage/service areas	Construction Phase	Environmental Officer	Throughout phase	Restricted to demarcated area
Provide appropriate sanitation facilities for workers during construction and service them regularly	Contractor	Provide service ablution for contractors/labour	Construction Phase	Environmental Officer	Throughout phase	Ablution facilities provided and serviced
The Contractor must supply sealable and properly marked domestic waste collection bins and all solid waste collected must be disposed of at a licensed disposal facility	Contractor	Implement waste management plan	Construction Phase	Environmental Officer	Throughout phase	Plan is implemented
The Contractor must be in possession of an emergency spill kit that must be complete and available at all times on site	Contractor	Implement spill response plan	Construction Phase	Environmental Officer	Throughout phase	Plan is implemented
Any possible contamination of topsoil by hydrocarbons must be avoided. Any contaminated soil must be treated in situ or be placed in containers and removed from the site for disposal in a licensed facility	Contractor	Implement spill response plan	Construction Phase	Environmental Officer	Throughout phase	Plan is implemented

Table 4-2 The project management measures for the aquatic biodiversity during the operational phase

Environmental Theme: Aquatic **Impact Management Outcome: Protection of the wetland to ensure adequate ecological functioning** **Phase: Operational**						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	**Method of implementation**	**Timeframe for implementation**	**Responsible person**	**Frequency**	**Evidence of compliance**
Promptly remove all alien and invasive plant species that may emerge during operation (i.e. weedy annuals and other alien forbs) must be removed	Environmental Officer	Implement an alien vegetation management plan	Operational Phase	Environmental Officer	Throughout phases	Implement alien vegetation management plan
No machinery must be allowed to be parked in the wetland or buffer areas	Contractor	Demarcate buffer area	Operational Phase	Environmental Officer	Throughout phases	Avoided wetland and buffer area
Ensure successful rehabilitation of areas disturbed during construction and these areas are to be stabilized to avoid future impacts.	Contractor/ Environmental Officer	Implement spill rehabilitation plan	Operational Phase	Environmental Officer	Quarterly during first two years of operation.	Plan is implemented

4.1 Cumulative Impacts

The quantitative isolated impact on aquatic biodiversity is anticipated to be “Low” for the proposed project, due to the wetlands being potentially indirectly impacted on even if avoided (Table 4-3). The cumulative impact of the proposed project on aquatic biodiversity is anticipated to be “Moderate” in consideration of the interconnectivity of the wetlands within the region and mainly in relation to increasing the input to the systems. The wetland is presently disturbed to some degree and adherence to the prescribed mitigation measures will alleviate potential impacts.

Table 4-3 Cumulative Impacts associated with the proposed project

Component	Status	Cumulative Effect	Impact Significance	Impact Rating	Can impact be mitigated?	Is the impact acceptable?
Proposed Solar and EGI Facility	Impact in isolation	1	8	Low (26-50)	Yes	Yes
	Cumulative impact	2	42	Moderate (51-76)		

5 Conclusion

The aquatic biodiversity theme sensitivity for the project sites is characterised by:

- Areas of “Medium” sensitivity are attributed to the presence of a wetland, and the reliance of organisms on it;
- Areas of “Medium” sensitivity are attributed to their importance in terms of preventing disturbance to the wetland; and
- Areas of “Low” sensitivity attributed to the absence of natural wetlands.
- The screening tool findings of “Very High” were disputed for the PAOI as only “Low” and “Medium” sensitivities were confirmed.

Areas of “Low” sensitivity are favourable for development. Areas of “Moderate” sensitivity should ideally be avoided by the proposed development. It is the opinion of the specialist that the project can be favourably considered, given that the layout is informed by the sensitivities presented herein.

6 References

National Environmental Screening Tool. 2025. National Environmental Screening Tool, 2025. Available from the Department of Forestry, Fisheries and the Environmental website: https://screening.environment.gov.za/screeningtool/index.html#/pages/welcome.

7 Appendix Items

7.1 Appendix A – Specialist Declaration of Independence

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

Ecologist

The Biodiversity Company

February 2025

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 2025

7.2 Appendix B – Specialist CV

Khume Mtshweni

M.Sc. Aquatic Health (*Pr Sci Nat*)

Cell: +27 63 772 7501
Email: 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

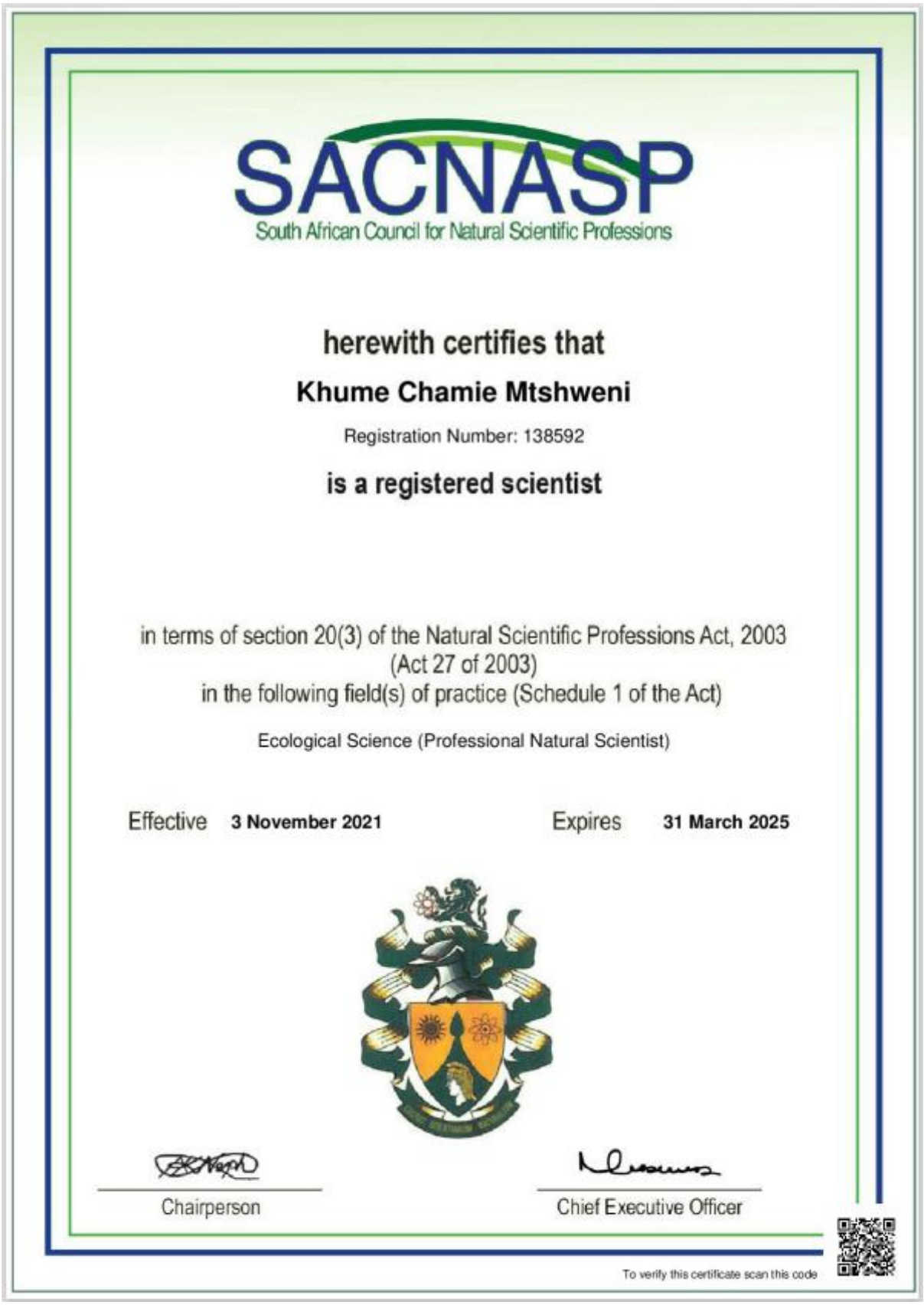
Sesotho – Proficient

Setswana – Proficient

Tsonga - Conversational

Qualifications

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



SACNASP
South African Council for Natural Scientific Professions

herewith certifies that

Khume Chamie Mtshweni

Registration Number: 138592

is a registered scientist

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

Ecological Science (Professional Natural Scientist)

Effective **3 November 2021** Expires **31 March 2025**

Chairperson

Chief Executive Officer

To verify this certificate scan this code