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Site Sensitivity Verification Report and Environmental Management Programme for the Proposed Battery Energy Storage System Project Booyseendal North, located in Fetakgomo Tubatse Local Municipality, Sekhukhune District Municipality, Limpopo Province, South Africa

Report

Version - Final

15 May 2026



GCS Project Number: 25-0607 BN BESS

Client Reference: BN BESS



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Proposed Battery Energy Storage System Project Booyesdal North, located in Fetakgomo
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DECLARATION OF INDEPENDENCE BY THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

NORM FOR THE EXCLUSION OF IDENTIFIED ACTIVITIES ASSOCIATED WITH THE DEVELOPMENT AND EXPANSION OF BATTERY STORAGE FACILITIES IN AREAS OF LOW OR MEDIUM ENVIRONMENTAL SENSITIVITY

I, Paula Tolksdorff, declare that -

- I act as the independent Environmental Assessment Practitioner (EAP) in the registration process in terms of the Norm for the Exclusion of Identified Activities Associated with the Development and Expansion of Battery Storage Facilities in areas of Low or Medium environmental sensitivity;
- I have expertise in conducting environmental impact assessments and specialist assessments, including knowledge of the Act; the Norm for the Exclusion of Identified Activities Associated with the Development and Expansion of Battery Storage Facilities in areas of Low or Medium environmental sensitivity, guidelines that have relevance to the proposed activity and professional knowledge in the relevant environmental themes for which I am the EAP;
- I have complied with the Act, the Norm for the Exclusion of Identified Activities Associated with the Development and Expansion of Battery Storage Facilities in areas of Low or Medium environmental sensitivity and all other applicable legislation related to my area of expertise;
- I have performed the work relating to the registration process required in terms of the Norm for the Exclusion of Identified Activities Associated with the Development and Expansion of Battery Storage Facilities in areas of Low or Medium environmental sensitivity, in an objective manner;
- I have taken into account, to the extent possible, the requirements of the Norm for the Exclusion of Identified Activities Associated with the Development and Expansion of Battery Storage Facilities in areas of Low or Medium environmental sensitivity, matters listed in regulation 13(1) of the Environmental Impact Assessment Regulations, 2014 (as amended), read in the context of the Norm, when fulfilling the sensitivity verification requirements, the consultation process and preparing the reports relating to this registration process;
- I have disclosed to the Applicant all material information in my possession that reasonably has or may have the potential of influencing this registration process; and the objectivity of any sensitivity verification, report, plan or document to be prepared by myself to support the registration process, unless access to that information is protected by law, in which case, I have indicated that such information exists and will be provided to the competent authority as part of the registration process; and
- I have performed all obligations as expected from an EAP in terms of the registration process in terms of the Norm for the Exclusion of Identified Activities Associated with the

Development and Expansion of Battery Storage Facilities in areas of Low or Medium environmental sensitivity.

Disclosure of Vested Interest

I do not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Norm for the Exclusion of Identified Activities Associated with the Development and Expansion of Battery Storage Facilities in areas of Low or Medium environmental sensitivity;



Signature of the EAP

Name of Company: GCS Environment South Africa (Pty) Ltd

Date: 15 May 2026

Undertaking under Oath or Affirmation

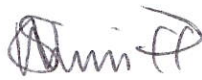
I, Paula Tolksdorff, swear under oath / affirm that all the information submitted or to be submitted for the purposes of this registration is true and correct.



Signature of the EAP

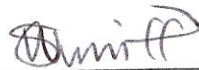
Name of Company: GCS Environment South Africa (Pty) Ltd

Date: 15 May 2026



Signature of the Commissioner of Oaths:

Date: 15 May 2026



COMMISSIONER OF OATHS (RSA)
Wendy Sherriff CA(SA)
63 Wessel Road, Woodmead
Johannesburg

I certify that the DEPONENT has acknowledged that he/she knows and understands the contents of this affidavit, that he/she does not have any objection to taking the oath, and that he/she considers it to be binding on his/her conscience, and which was sworn to and signed before me

at Rivonia on this the 15 day of 5 2026
and that the administering oath complied with the regulations contained in Government Gazette No. R1258 of 21 July 1972, as amended.

DECLARATION OF INDEPENDENCE BY SPECIALISTS

The declarations of independence by the appointed independent specialists are included within each respective specialist report appended to this Site Sensitivity Verification Report. The specialist studies and their corresponding appendices are listed below:

Specialist Studies	Appended as
Agriculture Site Sensitivity Verification Report	APPENDIX C
Terrestrial Biodiversity Site Sensitivity Verification Report	APPENDIX D
Aquatic Biodiversity Site Sensitivity Verification Report	APPENDIX E
Avifauna Site Sensitivity Verification Report	APPENDIX F
Hydropedology Statement	APPENDIX G
Heritage Impact Assessment, including Palaeontology	APPENDIX H

EXECUTIVE SUMMARY

Project Overview

This Site Sensitivity Verification Report (SSVR) and Environmental Management Programme (EMPr) has been prepared for the proposed Booysendal North (BN) Battery Energy Storage System (BESS) Project, located on Portion 0 of the Farm Booysendal No. 43JT within the Fetakgomo Tubatse Local Municipality, Sekhukhune District Municipality, Limpopo Province.

The Project is proposed by Booysendal Platinum Proprietary Limited, a subsidiary of Northam Platinum Limited, and forms part of the Mine's broader energy resilience strategy aimed at improving operational continuity, reducing reliance on the national electricity grid, and enhancing long-term cost efficiency and sustainability.

The BN BESS Project comprises the development of a utility-scale, containerised battery energy storage facility with an installed capacity of up to 25 megawatts and an energy storage capacity of up to 50 megawatt-hours. The system is designed to store electrical energy during periods of low demand or excess supply and discharge stored energy during peak demand, grid instability, or load shedding events. In doing so, the Project will improve load management, stabilise power supply to critical mining infrastructure, and reduce exposure to peak electricity tariffs and supply disruptions.

The proposed Project is strategically located entirely within an existing, operational mining footprint, which has been historically transformed by mining-related activities. This siting approach is fundamental to minimising incremental environmental disturbance and supports the applicability of the Adoption of the Norm for the Exclusion of Identified Activities Associated with the Development and Expansion of Battery Storage Facilities in Areas of Low or Medium Environmental Sensitivity and the Exclusion of Identified Activities from the Requirement to obtain an Environmental Authorisation (Government Notice (GN) No. 4557, 27 March 2024) (BESS Exclusion Norm)¹, published in terms of Section 24(2)(d) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA).

Purpose, Scope and Assessment Approach

This SSVR has been prepared in accordance with the BESS Exclusion Norm. The scope of this report includes:

- Verification of environmental sensitivities using the Department of Forestry, Fisheries and the Environment National Web-Based Environmental Screening Tool (Screening Tool) as a baseline and refining these through specialist-led Site Sensitivity Verification (SSV);
- Identification and assessment of potential environmental impacts associated with the

¹ National Environmental Management Act, 1998 (Act No. 107 of 1998): Adoption of the Norm for the Exclusion of Identified Activities Associated with the Development and Expansion of Battery Storage Facilities in Areas of Low or Medium Environmental Sensitivity and the Exclusion of Identified Activities from the Requirement to obtain an Environmental Authorisation. Government Notice No. 4557, Government Gazette No. 50387, 27 March 2024.

construction, operation, and decommissioning phases;

- Assessment of cumulative impacts within defined spatial (50 km radius) and temporal (life of mine) boundaries; and
- Development of a detailed Environmental Management Programme (EMPr) to guide mitigation, monitoring, and compliance.

The assessment follows a structured methodology aligned with GN 320 and GN 1150, incorporating:

- Desktop review of spatial and environmental datasets;
- Field verification surveys undertaken by suitably qualified specialists;
- Sensitivity validation or refinement based on-site specific conditions; and
- Impact significance rating based on standardised criteria, including extent, duration, intensity, probability, and reversibility.

The outcome of this process informs whether the Project qualifies to proceed under the BESS Exclusion Norm registration process, thereby avoiding the need for an Environmental Authorisation.

Legislative and Policy Context

The assessment is underpinned by NEMA, which establishes the principles of sustainable development and requires that environmental impacts be avoided, minimised, or mitigated. The Environmental Impact Assessment (EIA) Regulations, 2014 (as amended)², identify listed activities that would ordinarily require authorisation.

The proposed BN BESS Project triggers listed activities, including the storage of hazardous substances and energy infrastructure development. However, the BESS Exclusion Norm provides a legally recognised alternative pathway for such developments, provided that:

- The development footprint is located within areas of Low or Medium environmental sensitivity;
- Sensitivity is verified through specialist assessment;
- A compliant EMPr is prepared; and
- The development is registered with the competent authority prior to commencement.

Additional legislation considered includes the National Heritage Resources Act, 1999 (Act No. 25 of 1999), and the National Water Act, 1998 (Act No. 36 of 1998). The assessment confirmed that no additional authorisations are required under these Acts, as no watercourses are impacted and no significant heritage resources are present within the development footprint.

² Environmental Impact Assessment Regulations, 2014, promulgated under Chapter 5 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), published in Government Notice No. R.982, Government Gazette No. 38282 of 4 December 2014, as amended.

Project Team and Specialist Inputs

The SSVR and EMPr were prepared by GCS Environment South Africa (Pty) Ltd, with Paula Tolksdorff acting as the independent Environmental Assessment Practitioner (EAP). The EAP has extensive experience in environmental assessment, compliance auditing, and environmental management across the mining and infrastructure sectors.

A multidisciplinary team of independent specialists was appointed to undertake detailed assessments across key environmental themes, including agriculture, terrestrial biodiversity, aquatic biodiversity, avifauna, hydrogeology, and heritage.

All specialists are suitably qualified and registered with the South African Council for Natural Scientific Professions or relevant professional bodies. The specialist studies were conducted in accordance with the requirements of GN 320 and GN 1150, ensuring that the findings are scientifically credible and defensible.

Project Description and Design Considerations

The proposed BN BESS Facility will occupy a footprint of approximately 2 900 m² and will be developed within an existing disturbed mining area. The design philosophy prioritises minimal environmental disturbance, efficient land use, and operational safety.

The facility will consist of:

- Modular, containerised Lithium Iron Phosphate battery units, selected for their enhanced thermal stability, reduced fire risk, and long cycle life;
- Power Conversion Systems with integrated transformers to convert stored direct current electricity into alternating current suitable for use within the Mine network;
- Medium-voltage electrical cabling (approximately 150 m at 11 kv) connecting the facility to the existing BN consumer substation;
- Reinforced concrete foundations and hardstand areas designed to accommodate operational loads and site specific geotechnical conditions; and
- Integrated fire detection, suppression, and thermal management systems designed in accordance with South African National Standard and international standards.

Construction activities will include site preparation, foundation construction, installation of battery containers and electrical infrastructure, and commissioning. The operational phase will be largely automated, with minimal human intervention and no routine water use or wastewater generation.

The decommissioning phase has been considered upfront, with provision made for the removal of infrastructure, recycling or disposal of battery components through authorised service providers, and rehabilitation of the site to a stable condition.

Screening Tool Outcomes and Sensitivity Triggers

The Screening Tool was utilised as the initial step in the environmental assessment process to identify potential environmental sensitivities associated with the broader Project area. The Screening Tool provides a precautionary, national scale assessment based on available spatial datasets and is intended to guide the scope and level of specialist investigations required.

The Screening Tool identified a range of environmental sensitivities within the Project area, including Medium sensitivity for agricultural resources and palaeontology, High to Very High sensitivity for terrestrial biodiversity, aquatic biodiversity, and animal species, and Low sensitivity for plant species, heritage, and defence-related features.

These sensitivity ratings are based on regional datasets and do not necessarily reflect site specific conditions within the proposed development footprint. As such, the Screening Tool outputs triggered the requirement for specialist-led SSV to confirm or refine these sensitivities through detailed desktop analysis and field-based investigations.

Importantly, the identification of High or Very High sensitivity at a screening level does not preclude development but rather indicates the need for more detailed assessment to determine whether such sensitivities are present within the actual footprint of the proposed activity. In this case, the Screening Tool outputs were used to inform the Terms of Reference for specialist studies and to ensure that all potentially sensitive environmental themes were appropriately assessed.

Environmental Sensitivity Verification

A comprehensive SSV process was undertaken by a multidisciplinary team of specialists to validate and refine the Screening Tool outputs. This process combined high-resolution spatial analysis with targeted field surveys to assess the actual environmental characteristics of the proposed development footprint.

The agricultural assessment confirmed that the site is characterised by shallow, rocky soils derived from underlying geological formations, including Swartland, Mispah, Johannesburg, and Witbank soil forms. These soils exhibit low clay content, limited depth, and restricted water-holding capacity, which significantly constrain their agricultural potential. The area falls within Climatic Capability Class C8 and Land Capability Classes IV, VI, and VIII, indicating severe limitations for cultivation and grazing. The assessment further confirmed that the site has been extensively disturbed by historical and ongoing mining activities, resulting in modified soil profiles and reduced agricultural functionality. As a result, agricultural sensitivity within the footprint was verified as Low to Medium.

The terrestrial biodiversity assessment initially identified Very High sensitivity based on the presence of regional conservation planning features, including Freshwater Ecosystem Priority Areas and National Protected Area Expansion Strategy areas. However, field verification demonstrated that the proposed development footprint is located within a disturbed mining environment characterised by altered vegetation structure, fragmented habitats, and reduced ecological integrity. The site does not provide suitable habitat for Species of Conservation Concern, and no such species were recorded

during field surveys. Consequently, terrestrial biodiversity sensitivity within the footprint was downgraded and considered Low to Medium.

The aquatic biodiversity assessment confirmed that no rivers, wetlands, drainage lines, or other watercourses occur within the proposed development footprint. The absence of aquatic features, combined with the limited extent of the development and the implementation of appropriate stormwater management measures, indicates that no direct or indirect impacts on aquatic systems are anticipated.

The avifauna assessment considered the potential presence of sensitive bird species within the broader region, including species associated with open grassland and mountainous habitats. However, the disturbed nature of the site, coupled with the absence of key habitat features such as intact vegetation and water bodies, limits its suitability for such species. The assessment concluded that the site has Low avifaunal sensitivity and that potential impacts are unlikely to be significant.

The heritage assessment confirmed that no archaeological, palaeontological, or cultural heritage resources of significance occur within the development footprint. The study did not identify any features that would trigger permitting requirements in terms of the National Heritage Resources Act. A Chance Find Procedure will nevertheless be implemented as a precautionary measure during construction.

Collectively, the findings of the specialist studies confirm that the environmental sensitivities within the proposed development footprint are Low to Medium across all assessed themes. This verification is a critical requirement of the BESS Exclusion Norm and confirms that the Project is eligible to proceed under the exclusion registration process.

Impact Assessment

A comprehensive impact assessment was undertaken to evaluate the potential environmental effects associated with the construction, operation, and decommissioning phases of the Project. The assessment applied a standardised impact rating methodology, considering the extent, duration, intensity, probability, and reversibility of each impact, both before and after the implementation of mitigation measures.

During the construction phase, potential impacts include localised vegetation disturbance, soil compaction, dust generation, noise emissions, and the generation of general and hazardous waste. These impacts are inherently temporary, spatially confined to the development footprint, and reversible. With the implementation of appropriate mitigation measures, such as dust suppression, controlled site clearing, waste management, and environmental supervision, all construction-related impacts are reduced to Low significance.

Operational phase impacts are minimal due to the nature of the Project. The facility will operate as a closed system with no routine emissions to air, no wastewater discharge, and negligible water use. Potential impacts are largely limited to low-level noise from equipment and the presence of infrastructure within an already transformed landscape. These impacts are considered Low and not

significant.

Decommissioning impacts are similarly low and relate primarily to the dismantling and removal of infrastructure, as well as the management of waste materials, including battery units. These activities will be undertaken in accordance with applicable waste management legislation and industry best practice, ensuring that impacts remain low and manageable.

Cumulative impacts were assessed within a defined spatial boundary of approximately 50 km and over the anticipated lifespan of the Project. The assessment considered existing mining activities and other planned developments in the region. Given the small footprint and limited environmental interaction of the Project, cumulative impacts are considered low and do not contribute meaningfully to regional environmental degradation.

Environmental Management Programme

The EMPr provides a detailed and structured framework for managing environmental impacts across all phases of the Project. The EMPr translates the findings of the impact assessment into practical mitigation and monitoring measures that are enforceable and auditable.

Key management measures include:

- Mandatory environmental induction and awareness training for all personnel prior to site access;
- Implementation of site specific controls to minimise vegetation disturbance and protect any remaining natural features;
- Comprehensive waste management procedures, including the segregation, storage, and disposal of waste through licensed service providers;
- Spill prevention and response measures to manage the risk of contamination from fuels, oils, and other hazardous substances; and
- Ongoing monitoring and reporting to ensure compliance with environmental requirements and licence conditions.

Roles and responsibilities are clearly defined within the EMPr, and monitoring frequencies and performance indicators are specified to facilitate effective implementation and compliance verification.

Public Participation Process

A Public Participation Process (PPP) was undertaken for the BN BESS Project in accordance with the requirements of the BESS Exclusion Norm, read together with the principles of public participation contained in the EIA Regulations, 2014.

The PPP was designed to ensure that Interested and Affected Parties are provided with a reasonable opportunity to participate in the process, access relevant information, and raise comments or

concerns regarding the proposed Project.

A stakeholder database was compiled to include affected landowners and occupiers, local communities, ward councillors, traditional authorities, relevant government departments, and other interested stakeholders. This database is updated as new stakeholders register during the process.

Stakeholders were notified of the Project and the availability of the Draft SSVR and EMPr through a combination of communication methods, including emails, SMS notifications, and site notices. Hard copies of the reports have been made available at accessible public locations, while electronic copies were made available on the GCS Website, ensuring that stakeholders were able to access the information in a manner that is convenient to them.

Stakeholders were invited to submit written comments during the public review period; 25 March to 6 May 2026. All comments received were recorded in a Comments and Responses Report, together with corresponding responses from the Project Team. Where applicable, comments have been used to inform refinements to the SSVR and EMPr.

Following the close of the public review period, the SSVR and EMPr were finalised and submitted to the Competent Authority, namely the Department of Mineral and Petroleum Resources (DMPR), for registration in terms of the BESS Exclusion Norms. In addition, the final SSVR and EMPr were uploaded to the GCS website, and Interested and Affected Parties were notified accordingly. Stakeholders will be informed of the outcome of the application process once a decision has been issued by the DMPR.

Conclusion and Recommendation

The BN BESS Project has been assessed in accordance with applicable legislative requirements and best practice environmental assessment methodologies. The Project is located within an existing disturbed mining footprint, and detailed specialist assessments have confirmed that environmental sensitivities within the development footprint are Low to Medium.

All potential impacts associated with the Project have been identified, assessed, and determined to be low and manageable through the implementation of the EMPr. No fatal flaws have been identified that would preclude the development of the Project.

The proposed Project therefore meets the requirements of the BESS Exclusion Norm and is considered environmentally acceptable. It is recommended that the Project proceed to registration with the competent authority, subject to the implementation of the mitigation measures outlined in this report.

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LIST OF ABBREVIATIONS

Abbreviation	Description
BESS	Battery Energy Storage System
BESS Exclusion Norm	National Environmental Management Act, 1998 (Act No. 107 of 1998): Adoption of the Norm for the Exclusion of Identified Activities Associated with the Development and Expansion of Battery Storage Facilities in Areas of Low or Medium Environmental Sensitivity and the Exclusion of Identified Activities from the Requirement to obtain an Environmental Authorisation. Government Notice No. 4557, Government Gazette No. 50387, 27 March 2024
BID	Background Information Document
BN	Booyesdal North
BN BESS Project	The proposed Booyesdal North Battery Energy Storage System Project described in this report
CFP	Chance Finds Procedure
CRR	Comments and Responses Report
DFFE	Department of Forestry, Fisheries and the Environment
DMPR	Department of Mineral and Petroleum Resources
DMRE	Department of Mineral Resources and Energy
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EIA Regulations, 2014	Environmental Impact Assessment Regulations, 2014, promulgated under Chapter 5 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), published in Government Notice No. R.982, Government Gazette No. 38282 of 4 December 2014, as amended
EMPr	Environmental Management Programme
ESA	Ecological Support Areas
EO	Environmental Officer
FEPA	National Freshwater Ecosystem Priority Areas
FRDCP	Final Rehabilitation, Decommissioning, and Mine Closure Plan
GN	Government Notice
GPS	Global Positioning System
HIA	Heritage Impact Assessment
I&APs	Interested and Affected Parties
LFP	Lithium Iron Phosphate
MR	Mining Right
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEMWA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
NFEPA	National Freshwater Ecosystem Priority Areas
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
Northam	Northam Platinum Limited
NPAES	National Protected Area Expansion Strategy
NWA	National Water Act, 1998 (Act No. 36 of 1998)
OEM	Original Equipment Manufacturer
PCS	Power Conversion System
PhD	Doctor of Philosophy
PHRA	Provincial Heritage Resources Authority
PPP	Public Participation Process
SABAP2	Southern African Bird Atlas Project 2
SACNASP	South African Council for Natural Scientific Professions
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
SANS	South African National Standard
SCC	Species of Conservation Concern
Screening Tool	The Department of Forestry, Fisheries and the Environment National Web-Based Environmental Screening Tool
SEI	Site Ecological Importance
SSV	Site Sensitivity Verification
SSVR	Site Sensitivity Verification Report

Abbreviation	Description
WUL	Water Use Licence

UNITS OF MEASUREMENT

Unit of Measure	Description
ha	Hectare
km	Kilometre
kV	Kilovolt
m	Metre
m ²	Square metre
m ³	Cubic metre
mm	Millimetre
MW	Megawatt
MWh	Megawatt-hour

1 INTRODUCTION

Booyesendal Platinum Proprietary Limited, a subsidiary of Northam Platinum Limited (Northam), proposes the development of the Booyesendal North (BN) Battery Energy Storage System (BESS) Project at the existing BN mining operation located in the Limpopo Province of South Africa (hereafter referred to as the proposed Project). The BN mining right was issued by the Department of Mineral and Petroleum Resources (DMPR) under reference number LP 30/5/1/3/2/1 (188) MR.

The proposed Project forms part of Northam's broader strategy to enhance energy security, operational resilience, and power supply stability, while reducing reliance on the national electricity grid. The BN BESS Project entails the construction, operation, and eventual decommissioning of a utility-scale, behind-the-metre battery energy storage facility with an installed capacity of up to 25 megawatts (MW) and an energy storage capacity of up to 50 megawatt-hours (MWh).

The facility will store electrical energy during periods of lower electricity demand or surplus generation and discharge the stored energy during periods of peak demand, grid instability, or load shedding events. The proposed development will be located entirely within the existing BN mining footprint and will connect directly to the Mine's established electrical infrastructure.

This Site Sensitivity Verification Report (SSVR) has been prepared in accordance with the Adoption of the Norm for the Exclusion of Identified Activities Associated with the Development and Expansion of Battery Storage Facilities in Areas of Low or Medium Environmental Sensitivity and the Exclusion of Identified Activities from the Requirement to obtain an Environmental Authorisation (Government Notice (GN) No. 4557, 27 March 2024) (BESS Exclusion Norm)³, published in terms of Section 24(2)(d) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA).

The purpose of this report is to verify the environmental sensitivity of the proposed Project footprint based on the outputs of the Department of Forestry, Fisheries and the Environment (DFFE) National Web-Based Environmental Screening Tool (Screening Tool) and to confirm whether the proposed Project area falls within areas of Low or Medium environmental sensitivity. This verification is required to determine whether the proposed Project qualifies for the application of the BESS Exclusion Norm rather than requiring a Environmental Authorisation (EA) process in terms of the Environmental Impact Assessment (EIA) Regulations, 2014 (as amended)⁴ (EIA Regulations, 2014).

2 LEGAL FRAMEWORK

2.1 National Environmental Management Act, 1998

The NEMA provides the overarching legislative framework for environmental management in South

³ National Environmental Management Act, 1998 (Act No. 107 of 1998): Adoption of the Norm for the Exclusion of Identified Activities Associated with the Development and Expansion of Battery Storage Facilities in Areas of Low or Medium Environmental Sensitivity and the Exclusion of Identified Activities from the Requirement to obtain an Environmental Authorisation. Government Notice No. 4557, Government Gazette No. 50387, 27 March 2024.

⁴ Environmental Impact Assessment Regulations, 2014, promulgated under Chapter 5 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), published in Government Notice No. R.982, Government Gazette No. 38282 of 4 December 2014, as amended.

Africa. In terms of Section 24 of NEMA, activities that may significantly affect the environment require an EA from the competent authority prior to commencement. For the proposed Project, the competent authority is the DMPR.

The requirement for EA is implemented through EIA Regulations, 2014, which identify listed activities that require environmental assessment prior to authorisation. However, NEMA also provides for alternative regulatory mechanisms, including the application of formally gazetted norms and standards (refer to Section 2.2), through which certain activities may be excluded from the requirement to obtain an EA.

2.2 Battery Storage Exclusion Norm, 2024

In terms of Section 24(2)(d) of NEMA, the Minister may identify activities that may be excluded from the requirement to obtain an EA where such activities comply with prescribed norms and standards. Accordingly, the BESS Exclusion Norm provides a regulatory mechanism whereby BESS developments may proceed through an exclusion process, rather than an EA process. In order to qualify for exclusion under the BESS Exclusion Norm, the following requirements must be met:

- The development footprint must be located within areas classified as Low or Medium environmental sensitivity, as identified by the Screening Tool.
- A Site Sensitivity Verification (SSV) must be undertaken by suitably qualified specialists to confirm or dispute the Screening Tool sensitivity ratings.
- A compliant Environmental Management Programme (EMPr) must be prepared.
- The development must be registered with the competent authority prior to the commencement of listed activities.

2.2.1.1 Applicability to the Proposed Project

The listed activity that will be triggered by the proposed Project, but which may qualify for exclusion under the BESS Exclusion Norm, is summarised in Table 2-1 below.

Table 2-1: Potentially Triggered Activity and Applicability of the Battery Energy Storage System Exclusion Norm

Listing Notice	Activity Number	Listed Activity Description	Applicability of BESS Exclusion Norm
Listing Notice 1 ⁵	Activity 14	The development and related operation of facilities or infrastructure for the storage, or storage and handling, of dangerous goods where such storage occurs in containers with a combined capacity of 80 m ³ or more but not exceeding 500 m ³ .	Battery Energy Storage Systems (BESS) are considered to be hazardous and therefore trigger this activity; however, exclusion may apply where the requirements of the BESS Exclusion Norm are satisfied.

Based on the findings of the specialist studies, including the agricultural, terrestrial biodiversity,

⁵ Listing Notice 1: Activities requiring a Basic Assessment, published in Government Notice Regulation 983 in Government Gazette No. 38282 of 4 December 2014, in terms of the Environmental Impact Assessment Regulations, 2014, promulgated under the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

aquatic biodiversity and avifauna (refer to Section 6, 7, and 8), the proposed Project footprint occurs within areas that meet the environmental sensitivity requirements of the BESS Exclusion Norm. Accordingly, the proposed Project qualifies to proceed under the BESS Exclusion Norm registration process, subject to compliance with the applicable requirements.

2.2.2 Battery Energy Storage System Exclusion Norm Registration Process

The registration process in terms of the BESS Exclusion Norm requires the preparation and submission of supporting documentation demonstrating that the proposed development complies with the provisions of the Norm. This includes confirmation that the development footprint is located within areas classified as Low or Medium environmental sensitivity, as identified by the National Web-Based Environmental Screening Tool and verified through specialist SSV.

Key supporting documentation required for registration includes a SSVR and a compliant EMPr. The SSVR provides independent specialist verification of the environmental sensitivity classifications generated by the Screening Tool, while the EMPr outlines the environmental management, mitigation and monitoring measures that will be implemented during the construction, operation and decommissioning phases of the proposed Project.

The Draft SSVR and EMPr are made available for a Public Participation Process (PPP), during which Interested and Affected Parties (I&APs) are provided with an opportunity to review the documentation and submit comments. Following completion of the PPP, the SSVR and EMPr are finalised, taking into consideration any comments received during the stakeholder engagement process.

The final documentation, together with the required registration form and supporting information, is then submitted to the competent authority for consideration. The competent authority reviews the submission to confirm that the proposed Project complies with the requirements of the BESS Exclusion Norm. Where the authority is satisfied that the requirements have been met, a registration number is issued, allowing the development to proceed in accordance with the provisions of the Norm. An appeal period then applies during which I&APs may lodge an appeal in terms of NEMA.

As illustrated in **Figure 2-1**, the BESS Exclusion Norm registration process follows a structured sequence of steps.

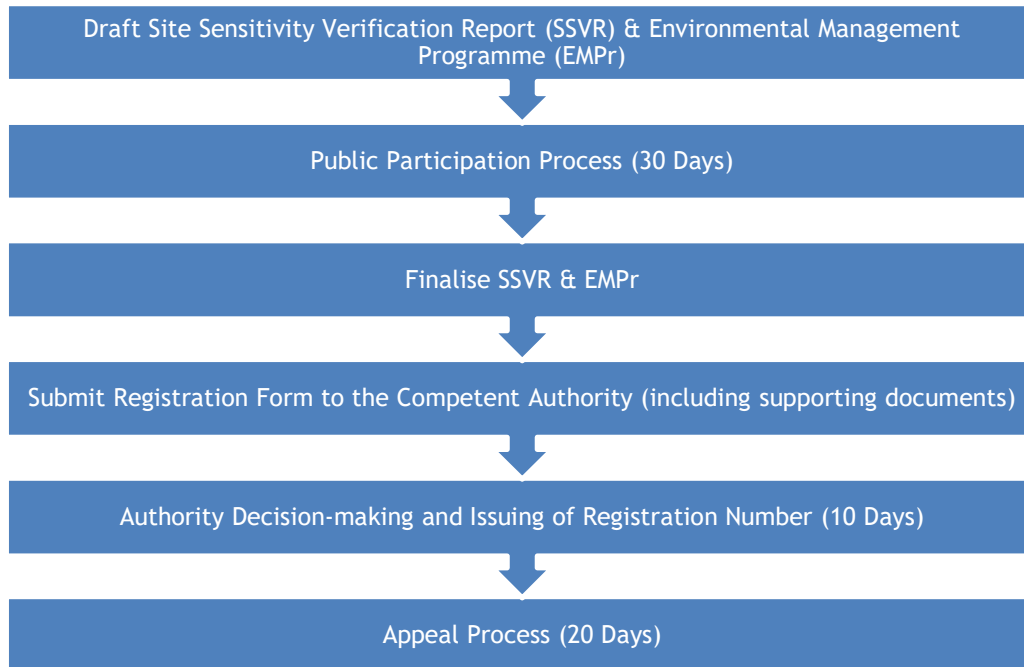


Figure 2-1: Battery Energy Storage System Exclusion Norm Registration Process

2.3 Department of Forestry, Fisheries and the Environment Screening Tool

The Screening Tool is used to identify and spatially map environmental sensitivities associated with a proposed project site. The tool provides an initial screening of environmental constraints by assigning sensitivity ratings to a project site across a range of environmental themes. For each theme, the Screening Tool assigns a sensitivity rating of Very High, High, Medium, or Low based on national environmental spatial datasets.

These themes include, *inter alia*:

- Agriculture Theme*.
- Terrestrial Biodiversity Theme*.
- Plant Species Theme*.
- Animal Species Theme*.
- Aquatic Biodiversity Theme*.
- Archaeological and Cultural Heritage Theme.
- Palaeontology Theme.
- Civil Aviation Theme.
- Defence Theme.

Note: The themes marked with an asterisk* must be classified as Low or Medium environmental

sensitivity in order for the BESS Exclusion Norm to apply.

The Screening Tool results inform the scope of specialist assessments required and the environmental assessment process applicable to the proposed development. Where a project relies on the BESS Exclusion Norm, the Screening Tool outputs provide the baseline environmental sensitivity classification for the proposed Project footprint.

In such cases, the sensitivity ratings must be independently verified through a SSV undertaken by suitably qualified specialists to confirm or dispute whether the identified sensitivities are accurate and whether any environmental constraints occur within the proposed Project footprint.

2.4 Government Notice 320 and 1150: Assessment and Reporting Requirements

The preparation of this SSVR has been undertaken in line with the procedures and reporting requirements prescribed under NEMA for environmental specialist assessments and site sensitivity verification.

2.4.1 Government Notice 320

GN 320, published under NEMA, sets out the procedures and minimum reporting requirements for environmental specialist assessments. These requirements provide guidance on the preparation of specialist reports, including the assessment methodology, identification of environmental sensitivities, evaluation of potential impacts, and the provision of clear conclusions and recommendations.

Although the present assessment supports an exclusion process rather than a EA application, the principles and reporting standards set out in GN 320 have been applied to ensure that the assessment is scientifically sound and transparent.

2.4.2 Government Notice 1150

The assessment has also been undertaken with due regard to GN 1150, which prescribes the procedures and minimum criteria for SSV undertaken in support of exclusion norms issued in terms of Section 24(2)(d) of NEMA.

GN 1150 provides guidance on the verification of environmental sensitivities identified by the Screening Tool, particularly for terrestrial biodiversity themes such as animal and plant species. In accordance with these requirements, suitably qualified specialists have reviewed the Screening Tool outputs to confirm the environmental sensitivity classification of the proposed Project footprint.

2.5 Other Applicable Legislation

2.5.1 National Heritage Resources Act, 1999

The National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA) provides the legislative framework for the protection and management of South Africa's cultural heritage resources. The Act establishes the South African Heritage Resources Agency (SAHRA) and Provincial Heritage Resources Authorities (PHRAs), which are responsible for the management and protection of heritage resources.

Heritage resources protected under the NHRA include archaeological and palaeontological sites, historical structures, graves and burial grounds, and cultural landscapes. The Act prohibits the disturbance, alteration, or destruction of protected heritage resources without the necessary permit from the relevant heritage authority.

Section 38 of the NHRA identifies categories of development that may require the submission of a Heritage Impact Assessment (HIA) where proposed developments may affect heritage resources.

2.5.1.1 Applicability to the Proposed Project

The proposed Project does not trigger the development thresholds listed in Section 38(1) of the NHRA that would automatically require the submission of a HIA. However, the provisions of the NHRA remain applicable.

Based on the outcomes of the Screening Tool, the heritage theme required specialist verification. A heritage specialist assessment was therefore undertaken to determine whether any archaeological, palaeontological, historical, or cultural heritage resources occur within the proposed Project footprint and whether any additional consultation or permitting requirements may be required prior to development.

2.5.2 National Water Act, 1998

The National Water Act, 1998 (Act No. 36 of 1998) (NWA) provides the legislative framework for the protection, use, and management of South Africa's water resources. The Act regulates water use through the identification of specific water uses⁶, which require authorisation⁷ in the form of a Water Use Licence (WUL), General Authorisation, existing lawful use, or Schedule 1 use.

2.5.2.1 Applicability to the Proposed Project

BN Mine currently operates under an approved WUL No. 06/B41G/AJBEICG/7110 issued by the Department of Water and Sanitation (DWS). The proposed Project will be developed within the existing BN mining footprint and will utilise the Mine's established infrastructure and services.

The proposed Project footprint does not intersect rivers, wetlands, or other watercourses, and the development is not expected to trigger any Section 21 water uses. Water required during construction will be sourced from existing authorised Mine water supplies. Based on the nature and scale of the proposed Project, no amendment to the existing WUL or separate water use authorisation is anticipated.

3 PROJECT TEAM

This section provides the details of the Applicant, Environmental Assessment Practitioner (EAP) and Specialist Team.

⁶ Section 21 - Defines water uses that are regulated under the Act.

⁷ Section 22 - Specifies the requirement for authorisation to use water.

3.1 Applicant

Table 3-1 below provides the contact details of the Applicant.

Table 3-1: Contact Details of the Applicant

Company Name:	Booyensdal Platinum (Pty) Ltd 2002/016771/07
Postal Address:	Postnet Suite #199 Private Bag X20097 Lydenburg, 1120 South Africa
Physical Address:	Farm Booyensdal 43JT Greater Tubatse Municipality South Africa
Contact Person:	Mr. Willem Sterrenberg Otto van Heerden General Manager
Telephone No.:	+27 87 158 6851
Email Address:	Otto.VanHeerden@norplats.co.za

3.2 Environmental Assessment Practitioner

Table 3-2 below provides the contact details of the EAP. The EAP's Curriculum Vitae and qualifications are attached in **APPENDIX A**.

Table 3-2: Contact Details of the Environmental Assessment Practitioner

Name of Environmental Assessment Practitioner:	Paula Tolksdorff
Professional Affiliation / Registration:	Registered Environmental Assessment Practitioner (Environmental Assessment Practitioners Association of South Africa): 2019/509. Registered Professional Natural Scientist (South African Council for Natural Scientific Professions): (152904). International Association for Impact Assessment - South Africa Membership: 1745. International Association for Public Participation Membership: IAP2SA014.
Company Name:	GCS Environment South Africa (Pty) Ltd
Physical Address:	63 Wessels Road Rivonia, 2128
Postal Address:	P.O. Box 2597 Rivonia 2128
Telephone No.:	+27 (0)11 803 5726
Facsimile No.:	+27 (0)11 803 5745
Email Address:	paulat@gcs-sa.biz

3.2.1 Expertise of the Environmental Assessment Practitioner

This section provides the qualifications and experience of the EAP.

3.2.1.1 The Qualifications of the Environmental Assessment Practitioner

Paula Tolksdorff holds a Baccalaureus Technologiae (B-Tech): Civil Engineering - Urban and Rural Development, University of the Witwatersrand, 1997.

3.2.1.2 Summary of the Environmental Assessment Practitioner's Experience

Paula Tolksdorff has over 30 years of experience in the environmental sector, working across mining, industrial and commercial development projects throughout Africa. As an EAP and Professional Natural Scientist, she has extensive experience in environmental and social impact assessments,

environmental management programmes, compliance auditing and stakeholder engagement.

Her experience includes the development and implementation of environmental management systems for both construction and operational phases, as well as oversight of regulatory compliance in accordance with South African legislation and international best practice. She also has significant experience in water and waste management, environmental due diligence, and project management for complex projects.

3.3 Specialists

Table 3-3 below provides details of the specialist team. The specialist's Curricula Vitae and declaration are attached to each specialist's report.

Table 3-3: Details of the Specialist Team

Specialist Study	Specialist Detail
Agricultural Site Sensitivity Verification Report	
The Biodiversity Company	
Full name:	Dr Matthew Mamera.
Title / position:	Soil Hydropedologist.
Highest qualification:	Doctor of Philosophy (PhD) - Soil Science / Hydropedology - University of the Free State, 2021
Years of experience:	10 years
Registration(s):	Registered Professional Natural Scientist - South African Council for Natural Scientific Professions (SACNASP) No. 116356.
Terrestrial Biodiversity Site Sensitivity Verification Report	
The Biodiversity Company	
Full name:	Andine de Villiers.
Title / position:	Terrestrial Ecologist.
Highest qualification:	Magister Scientiae (MSc) - Zoology (with Distinction) - University of Pretoria, 2020.
Years of experience:	2 years
Registration(s):	Registered Professional Natural Scientist -SACNASP No. 164894.
Full name:	Candyce Areington.
Title / position:	Terrestrial Ecologist.
Highest qualification:	PhD Biological Sciences, University of KwaZulu-Natal, 2023
Years of experience:	10 years
Registration(s):	Registered Professional Natural Scientist -SACNASP No. 167868.
Aquatic Biodiversity Site Sensitivity Verification Report	
The Biodiversity Company	
Full name:	Rian Pienaar.
Title / position:	Ecologist.
Highest qualification:	Master of Science (MSc) in Environmental Sciences (Cum Laude) - North-West University, 2020
Years of experience:	5 years
Registration(s):	Registered Professional Natural Scientist -SACNASP No. 135544.
Heritage Impact Assessment, including Palaeontology	
Digby Wells Environmental	
Full name:	Nhlaluko Mabehle.
Title / position:	Heritage Consultant.
Highest qualification:	Master of Science (Archaeology), 2023
Years of experience:	4 years
Registration(s):	Professional Member - Association of Southern African Professional Archaeologists No. 640.

Specialist Study	Specialist Detail
Avifauna Site Sensitivity Verification Report	
The Biodiversity Company	
Full name:	Dr Lindi Steyn.
Title / position:	Responsible Avifauna Specialist.
Highest qualification:	PhD in Biodiversity and Conservation - University of Johannesburg, 2018
Years of experience:	8 years
Registration(s):	Registered Professional Natural Scientist -SACNASP No. 119992.
Hydropedology Statement	
The Biodiversity Company	
Full name:	Dr Matthew Mamera.
Title / position:	Soil Hydropedologist.
Highest qualification:	Doctor of Philosophy (PhD) - Soil Science / Hydropedology - University of the Free State, 2021
Years of experience:	10 years
Registration(s):	Registered Professional Natural Scientist -SACNASP No. 116356.
Final Rehabilitation, Decommissioning and Mine Closure Plan	
Natural Evolution Group	
Full name:	Anja Van Deventer.
Title / position:	Environmental Specialist (Rehabilitation and mine closure).
Highest qualification:	Master of Environmental Science in Sustainable Rehabilitation, 2004
Years of experience:	21 years
Registration(s):	Land Rehabilitation Society of Southern Africa. Council of Minerals and Energy Ministers of South Africa. Registered Professional Natural Scientist -SACNASP No. 145156.

4 PROJECT DESCRIPTION

4.1 Project Location and Site Context

The proposed BN BESS Project is located on Portion 0 of Farm Booyensdal No. 43JT, within the Fetakgomo Tubatse Local Municipality, which falls under the Sekhukhune District Municipality in the Limpopo Province. The proposed Project site lies approximately 35 kilometres (km) west of Mashishing and is accessed via the R577 regional road, followed by established Mine access roads.

The regional and local context of the proposed Project is illustrated in **Figure 4-1** and **Figure 4-2**, which show the location of the proposed BN BESS Project within the broader regional setting and within the local Mine area.

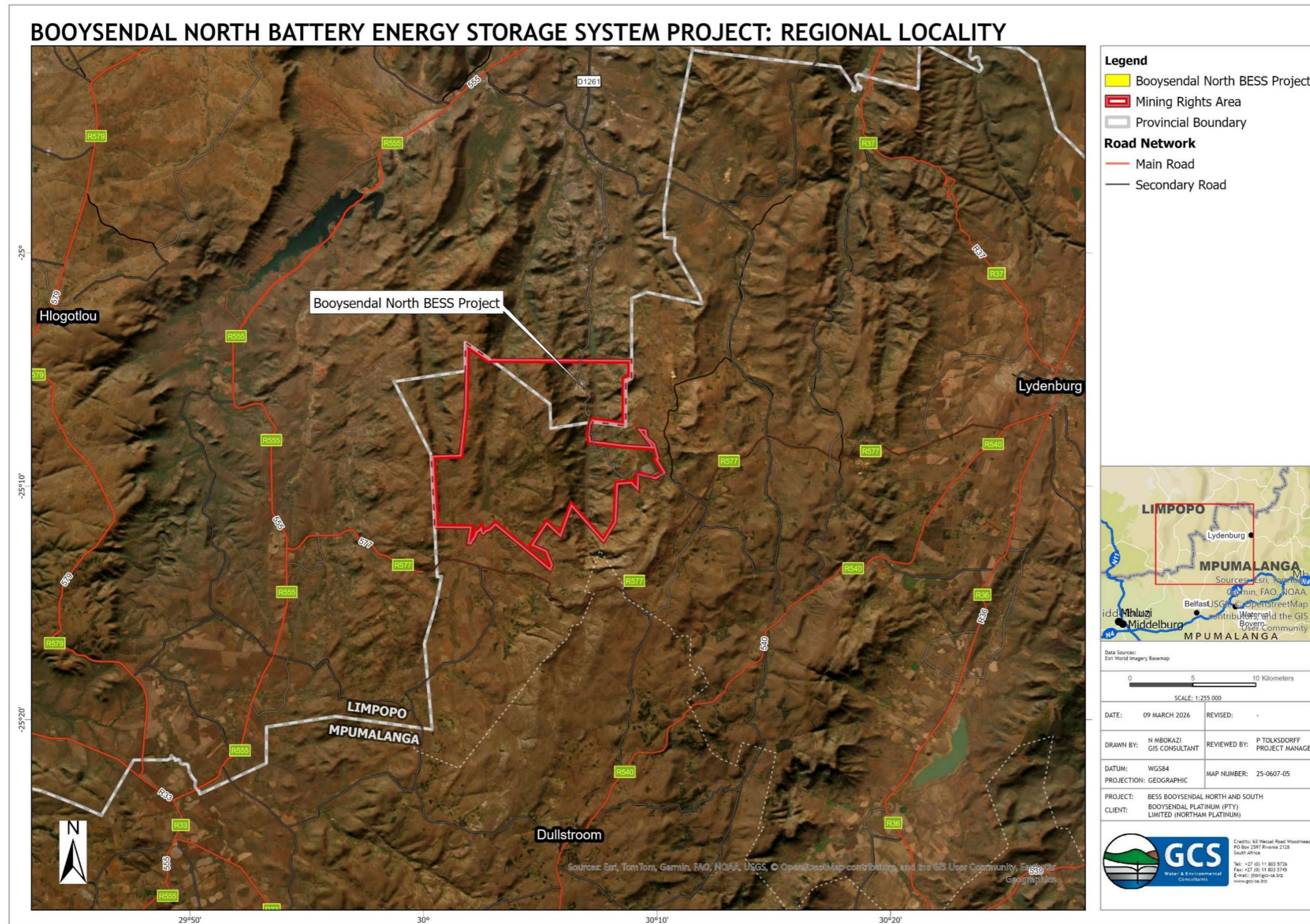


Figure 4-1: Regional Locality indicating the proposed Booyesendal North Battery Energy Storage System Project

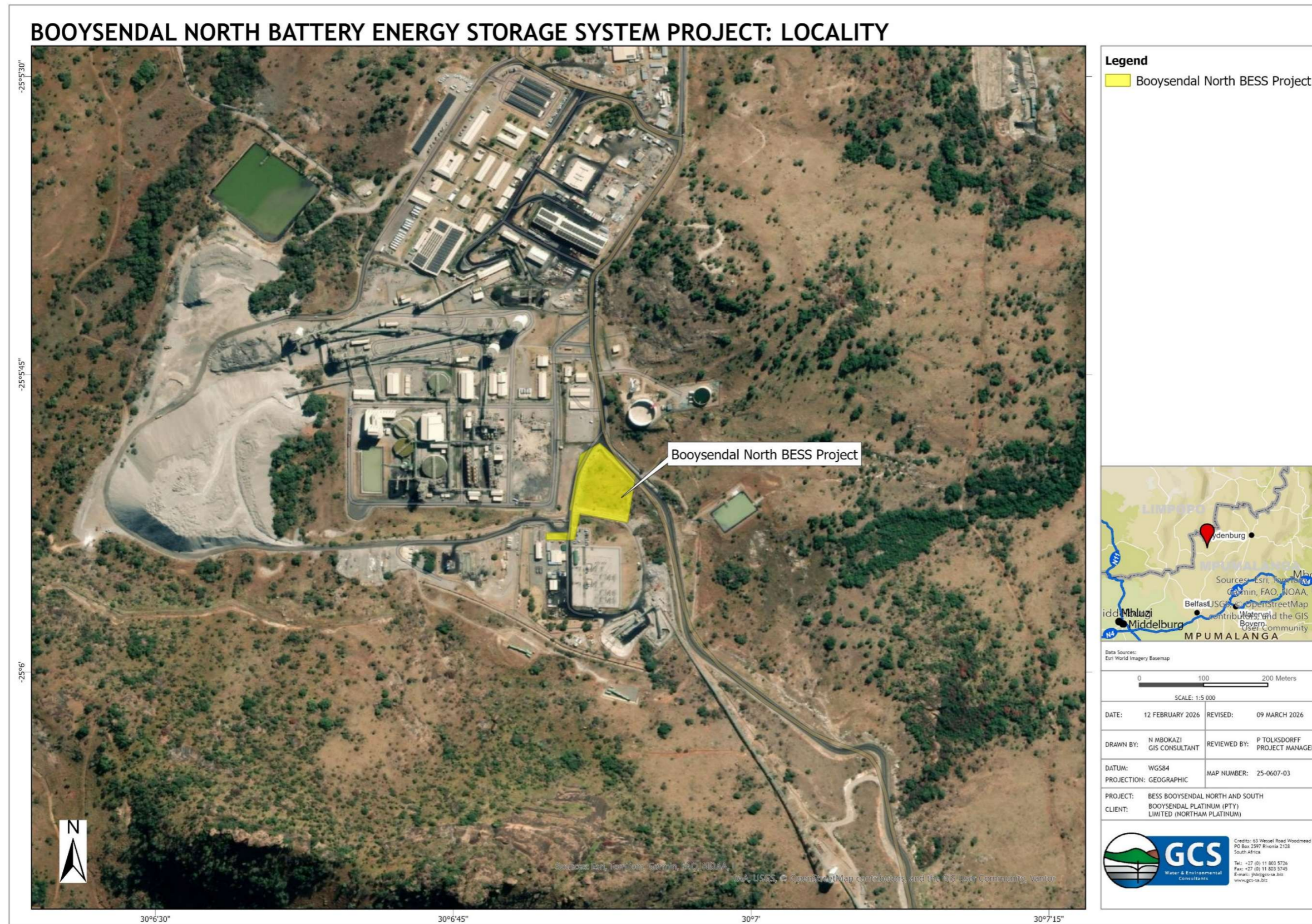


Figure 4-2: Locality of the proposed Booyesendal North Battery Energy Storage System Project

4.2 Project Background

South Africa's electricity sector has experienced persistent challenges over the past decade, including limited generation capacity, ageing infrastructure, increasing electricity demand and ongoing constraints within the national transmission network. These factors have contributed to reduced grid reliability, frequent electricity supply interruptions and sustained escalation in electricity tariffs.

For energy-intensive industries such as mining, electricity supply instability presents significant operational, safety and financial risks. Interruptions to power supply can adversely affect production continuity, equipment integrity and worker safety, while rising electricity costs place increasing pressure on long-term operational viability.

In response to these challenges, the Applicant has adopted a long-term energy resilience strategy aimed at improving the reliability and security of electricity supply across its operations. This strategy focuses on diversifying energy supply options, enhancing on-site energy management capabilities and reducing exposure to grid-related disruptions, while supporting Northam's broader sustainability and emissions-reduction objectives.

The proposed BN BESS Project forms an integral component of this strategy. By introducing on-site electricity storage capacity, the Project will enable improved load management, peak demand support and backup power availability at the Mine

4.3 Need and Desirability

The need for the proposed BN BESS Project arises from a combination of national energy sector challenges and site specific operational requirements associated with electricity-intensive mining activities.

At a national level, South Africa continues to experience structural electricity supply constraints driven by limited generation capacity, ageing infrastructure and increasing demand. These challenges have resulted in reduced grid reliability, frequent load shedding and growing pressure on the national electricity system. Within this context, BESSs are widely recognised as enabling infrastructure for improving grid resilience, facilitating peak load management, supporting demand-side response initiatives and enabling the effective integration of renewable energy technologies.

BESS is further identified as a key component of South Africa's long-term energy transition, supporting national objectives aimed at reducing greenhouse gas emissions, diversifying the energy mix and improving overall system flexibility. The development of utility-scale energy storage capacity is therefore aligned with national energy planning frameworks and climate change mitigation commitments.

At a local and site specific level, the Mine is highly dependent on continuous and reliable electricity supply to support safe and efficient operations. Electricity supply interruptions and grid instability present material risks to production continuity, equipment performance and occupational safety.

The proposed BN BESS Project will provide on-site energy storage capacity, enabling improved load management, peak demand support and backup power availability during periods of grid disturbance.

The Project will enhance operational resilience at the BN Mine, reduce vulnerability to load shedding and support sustained mining operations, thereby contributing to employment security and economic stability within the Sekhukhune District Municipality, a region characterised by limited economic diversification and a high dependence on mining-related activities.

The proposed BN BESS Project is therefore considered desirable as it supports national energy security objectives, contributes to the stability of critical industrial operations, promotes socio-economic sustainability at a local level and aligns with South Africa's broader development, energy and climate policy priorities.

4.4 Description of the Proposed Development

4.4.1 Overview of the Facility

The proposed BN BESS Project comprises the development of a containerised battery energy storage facility located within the existing operational footprint of the Mine. The facility will occupy a total fenced development area of approximately 2 900 m² and has been designed to integrate fully with the Mine's established electrical and operational infrastructure.

The proposed BN BESS Facility will operate as a behind-the-metre energy storage installation, providing electrical storage capacity for exclusive on-site use. Stored electrical energy will be discharged directly to Mine infrastructure through a dedicated medium-voltage electrical connection to the existing BN consumer substation.

The Project has been purposefully designed to minimise environmental disturbance through the use of modular, containerised infrastructure and by situating the development entirely within an established industrial mining area. This approach limits additional land transformation, avoids encroachment into undeveloped or environmentally sensitive areas, and enables efficient construction, operation and eventual decommissioning of the facility.

The preliminary layout of the proposed BN BESS Facility is illustrated in **Figure 4-3**.

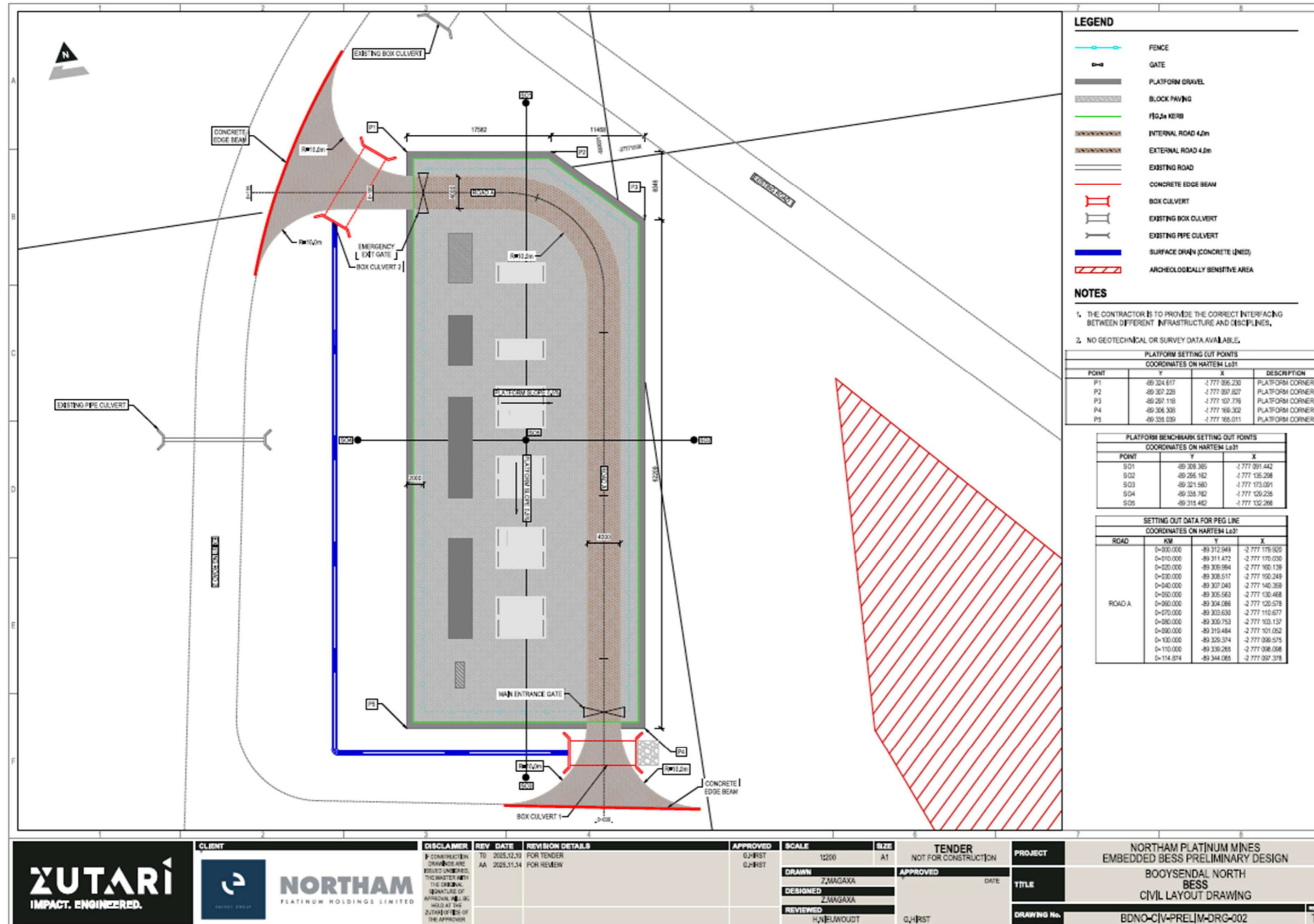


Figure 4-3: Preliminary Civil Layout of the proposed Booyensdal North Battery Energy Storage System Project (Zutari, 2025)

4.4.2 Installed Capacity

The proposed Project will have an installed power capacity of up to 25 MW and an energy storage capacity of up to 50 MWh.

The BESS will supply electricity during peak demand periods to reduce the Mine's reliance on expensive Eskom peak Time-of-Use tariffs. In addition, the system will manage short-term load fluctuations and provide reliable backup capacity during periods of grid instability or electricity supply interruption.

4.4.3 Battery Technology

The proposed BN BESS Project will utilise Lithium Iron Phosphate (LFP) battery technology. This battery chemistry has been selected based on its proven performance, operational reliability and enhanced safety characteristics when compared with alternative lithium-ion technologies.

LFP batteries are characterised by high thermal stability and a significantly reduced risk of thermal runaway, which is a critical consideration for large-scale stationary energy storage applications. The chemistry exhibits strong resistance to overheating and fire propagation, thereby reducing potential safety risks to personnel, infrastructure and the surrounding environment.

In addition to its safety advantages, LFP technology offers a longer operational cycle life, high charge-discharge efficiency and stable performance under frequent cycling conditions. These attributes make LFP batteries particularly suitable for behind-the-metre industrial applications where daily load shifting, peak shaving and backup power functions are required.

LFP battery systems are widely deployed internationally in utility-scale and industrial energy storage facilities, including mining operations, due to their durability, predictable performance characteristics and reduced environmental risk profile over the Project lifecycle.

4.5 Battery Containers

The BESS facility will comprise containerised battery storage units. The modular containerised configuration allows for efficient installation, operational flexibility and simplified maintenance throughout the life of the Project.

Each battery container will have approximate external dimensions of:

- Length: 6.058 m
- Width: 2.438 m
- Height: 2.896 m

The containers will be purpose-designed for stationary energy storage applications and will house battery modules, thermal management systems, fire detection and suppression equipment, and internal monitoring and protection systems.

All battery containers will be installed on dedicated reinforced concrete plinths engineered to accommodate operational loads, wind loading, seismic considerations and site specific environmental

conditions. The plinths will also provide adequate separation from ground surfaces to protect equipment integrity, facilitate drainage and support long-term structural stability.

The containerised design enables controlled factory assembly, reduced on-site construction requirements and simplified decommissioning at the end of the Project lifespan, thereby minimising environmental disturbance across the full lifecycle of the facility.

4.5.1 Power Conversion System

Electrical power conversion for the proposed BN BESS Project will be undertaken through dedicated medium-voltage Power Conversion System (PCS) units. The PCS enables the conversion of direct current electricity stored within the battery units into alternating current electricity suitable for distribution within the Mine's electrical network.

The PCS infrastructure will comprise containerised units of varying capacity. These units will regulate voltage, frequency and power quality to ensure stable and reliable integration of stored energy with existing Mine electrical systems. The PCS will also enable controlled charging and discharging of the battery units in response to operational demand, grid conditions and system protection requirements.

Step-up transformers will be integrated within the PCS skids, eliminating the need for separate transformer bays or standalone transformer infrastructure. This integrated design reduces the overall spatial footprint of the facility, minimises additional civil works and improves operational efficiency while maintaining compliance with applicable electrical safety standards.

4.5.2 Electrical Cabling and Connection Infrastructure

Electrical connection between the proposed BN BESS Facility and the existing BN consumer substation will be achieved via approximately 150 m of 11 kilovolt (kV) medium-voltage electrical cabling.

Where practicable, electrical cables will be installed on elevated cable racks to allow for ease of inspection, maintenance access and improved protection against mechanical damage. In areas where cable racking is not feasible due to layout constraints, cabling will be installed underground or within reinforced concrete culverts in accordance with mine engineering specifications, electrical design standards and safety requirements.

All cabling will be appropriately rated for medium-voltage operation and designed to withstand site specific environmental conditions, including temperature variations, dust exposure and operational loading.

4.6 Civil Infrastructure

The civil infrastructure associated with the proposed BN BESS Project has been designed to support the safe installation, operation and long-term stability of all battery storage and electrical components, while minimising additional land disturbance within the existing mining area. Civil works will be limited and will comprise foundations, hardstand areas and access infrastructure required for construction, routine maintenance and emergency response. All civil design will be undertaken in accordance with applicable engineering standards, mine specifications and site specific environmental conditions.

4.6.1 Foundations and Structural Works

All BESS containers, PCS units and associated electrical equipment will be supported on reinforced concrete foundations and plinths engineered to accommodate operational loads, dynamic loading conditions and long-term structural performance requirements. Foundation design will be informed by site specific geotechnical conditions, including soil characteristics, bearing capacity and drainage considerations, and will ensure structural stability under operational conditions such as wind loading, vibration and thermal expansion. Preliminary foundation layouts and structural details are provided in the civil engineering drawings prepared for the proposed Project. Final foundation designs will be confirmed during the detailed design phase prior to construction.

4.6.2 Access Roads and Hardstands

Existing Mine access roads will be utilised to the greatest extent possible. Where required, minor upgrades or strengthening works may be undertaken to accommodate heavy vehicle movements during construction, including delivery of battery containers and electrical equipment. Hardstand areas will be constructed adjacent to the BESS containers and electrical infrastructure to provide stable working surfaces for maintenance activities, equipment replacement and emergency response access, and will be designed to support vehicular loading and safe personnel movement under all weather conditions.

4.7 Cooling and Thermal Management

Thermal management of the battery cells will be achieved through a closed-loop liquid cooling system designed to maintain optimal operating temperatures and prevent overheating. The cooling system will operate without routine water discharge, thereby minimising operational water demand. Heating, Ventilation and Air Conditioning systems will be designed in accordance with the National Building Regulations and Building Standards Act, 1977 (Act No. 103 of 1977), specifically South African National Standard (SANS) 10400: The Application of the National Building Regulations - Part O: Lighting and Ventilation.

4.8 Fire Detection, Suppression and Safety Systems

Fire detection and suppression systems will be designed in accordance with recognised national and international standards, including SANS 10139: Fire Detection and Alarm Systems for Buildings, SANS 369: Fire Alarm Control and Indicating Equipment, National Fire Protection Association Standard 855: Standard for the Installation of Stationary Energy Storage Systems, and Underwriters Laboratories 9540A large-scale fire testing protocols. Fire suppression systems will consist of either aerosol-based or water-mist systems, selected based on the final battery technology and system configuration, and supported by manufacturer certification and test data demonstrating effective thermal runaway mitigation and fire propagation control. All fire detection, alarm and suppression systems will be integrated with the BESS Supervisory Control and Data Acquisition system and monitored from the Mine's central control facilities to enable early detection, automated response and coordinated emergency management.

4.9 Construction Phase

Construction of the proposed BN BESS Project will comprise site establishment and preparation, earthworks, construction of reinforced concrete foundations and plinths, delivery and placement of containerised battery and electrical equipment, installation of electrical and control systems, and final commissioning and testing. Construction is anticipated to occur over approximately 12 months, subject to final engineering design and sequencing. At peak construction, a workforce of approximately 50 personnel is expected, comprising skilled and semi-skilled labour, including civil, electrical and commissioning teams. Existing Mine laydown areas, access roads and storage facilities will be utilised to the greatest extent possible, and construction activities will be undertaken in accordance with approved environmental management procedures, health and safety requirements and site specific method statements.

4.10 Operational Phase

The operational lifespan of the proposed BN BESS Project is anticipated to be approximately 15 years, subject to equipment performance, technological advancements and operational requirements. The facility will operate as an unmanned installation with automated control, monitoring and protection systems. Routine inspections, preventative maintenance and performance monitoring will be undertaken at scheduled intervals by trained and authorised personnel in accordance with approved operational procedures and Original Equipment Manufacturer (OEM) specifications. Operational activities will be limited in scale and frequency, with no continuous staffing, process water use or wastewater generation anticipated during normal operation.

4.11 Water Requirements

Water will be required during the construction phase primarily for dust suppression, concrete batching and general construction activities. Total construction phase water consumption is estimated at approximately 500 m³ over the construction period. All construction water will be sourced from existing Mine water supplies, and no new water abstraction infrastructure is proposed. Water use will be managed in accordance with the Mine's approved procedures to ensure efficient utilisation and prevent wastage. No routine water consumption is anticipated during the operational phase, as the BESS will operate as a closed system with no process water requirements and no wastewater generation during normal operation.

4.12 Waste Management

Waste generated during construction will primarily comprise general construction waste, including packaging materials, scrap metal, construction off-cuts and minor quantities of hazardous waste such as hydrocarbons, lubricants and contaminated materials. These waste streams will be managed in accordance with the Mine's approved waste management procedures. During operation, waste generation is expected to be minimal and largely limited to maintenance-related waste streams, including small quantities of general and hazardous waste. At decommissioning, waste is anticipated to include dismantled infrastructure, scrap metal, concrete material and end-of-life battery units. All hazardous waste generated during any phase of the Project lifecycle will be stored, handled, transported and disposed of by appropriately licensed service providers at authorised waste

management facilities, in compliance with the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (NEMWA), its associated regulations, and recognised industry best practice standards.

4.12.1 Battery Handling and End-of-Life Management

Battery handling, storage, operation and maintenance will be undertaken in accordance with applicable occupational health and safety legislation, hazardous substances requirements and recognised industry best practice. Battery installation, inspection and maintenance activities will be performed by suitably trained, competent and authorised personnel in accordance with approved site procedures, OEM technical manuals and emergency response protocols. The OEM will retain responsibility for the removal, repair, refurbishment and replacement of battery components during the operational life of the facility in terms of applicable warranties and service agreements. At end-of-life, battery units and associated hazardous materials will be removed by the OEM or an authorised service provider and transported to appropriately licensed facilities for recycling or compliant disposal, in accordance with NEMWA and relevant hazardous waste management standards.

4.13 Access, Traffic and Logistics

Access to the Project site will be via the R577 regional road and existing Mine access roads. Battery containers, each weighing approximately 40 tonnes, will be transported using standard flatbed trucks and offloaded using mobile cranes. No abnormal road upgrades are required.

4.14 Grid Connection

The BN BESS Project will connect directly to the existing BN consumer substation. Eskom will remain the grid operator. No new substations, overhead powerlines or transmission infrastructure are required.

5 DEPARTMENT OF FORESTRY, FISHERIES AND THE ENVIRONMENT SCREENING TOOL REPORT

In undertaking the screening assessment for the proposed Project, the Screening Tool was accessed through the DFFE's official online platform. The geographic coordinates of the proposed development site were entered into the system, and the tool generated a Screening Tool Report on 9 March 2026. The Screening Tool Report is included in **APPENDIX B** of this report. The outcomes of the Screening Tool assessment for the proposed Project are summarised in **Table 5-1** below.

Table 5-1: Department of Forestry, Fisheries and the Environment Screening Tool Report Outcome

Theme	Very High	High	Medium	Low
Agriculture Theme			X	
Terrestrial Biodiversity Theme	X			
Animal Species Theme		X		
Plant Species Theme				X
Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme				X
Palaeontology Theme			X	
Civil Aviation Theme		X		
Defence Theme				X

6 ENVIRONMENTAL SENSITIVITY ASSESSMENT

6.1 Agricultural Site Sensitivity Verification

An agricultural assessment was conducted by The Biodiversity Company and documented in the Agriculture Site Sensitivity Verification Report for the Proposed Booyesendal North Battery Energy Storage System Project (The Biodiversity Company, 2026a) attached as **APPENDIX C**. The purpose of the study was to independently verify the agriculture sensitivity identified in the Screening Tool and to determine whether soils of high agricultural potential or other agriculturally important soil resources occur within the proposed Project footprint. The findings of this specialist assessment are summarised below.

6.1.1 Screening Tool Sensitivity

The Screening Tool classified the proposed Project area as having Medium sensitivity for the Agricultural Theme (**Figure 6-1**). This sensitivity classification reflects the agricultural land capability and soil potential of the broader landscape, including the occurrence of soils with Low to Low-Moderate agricultural potential within the wider area.

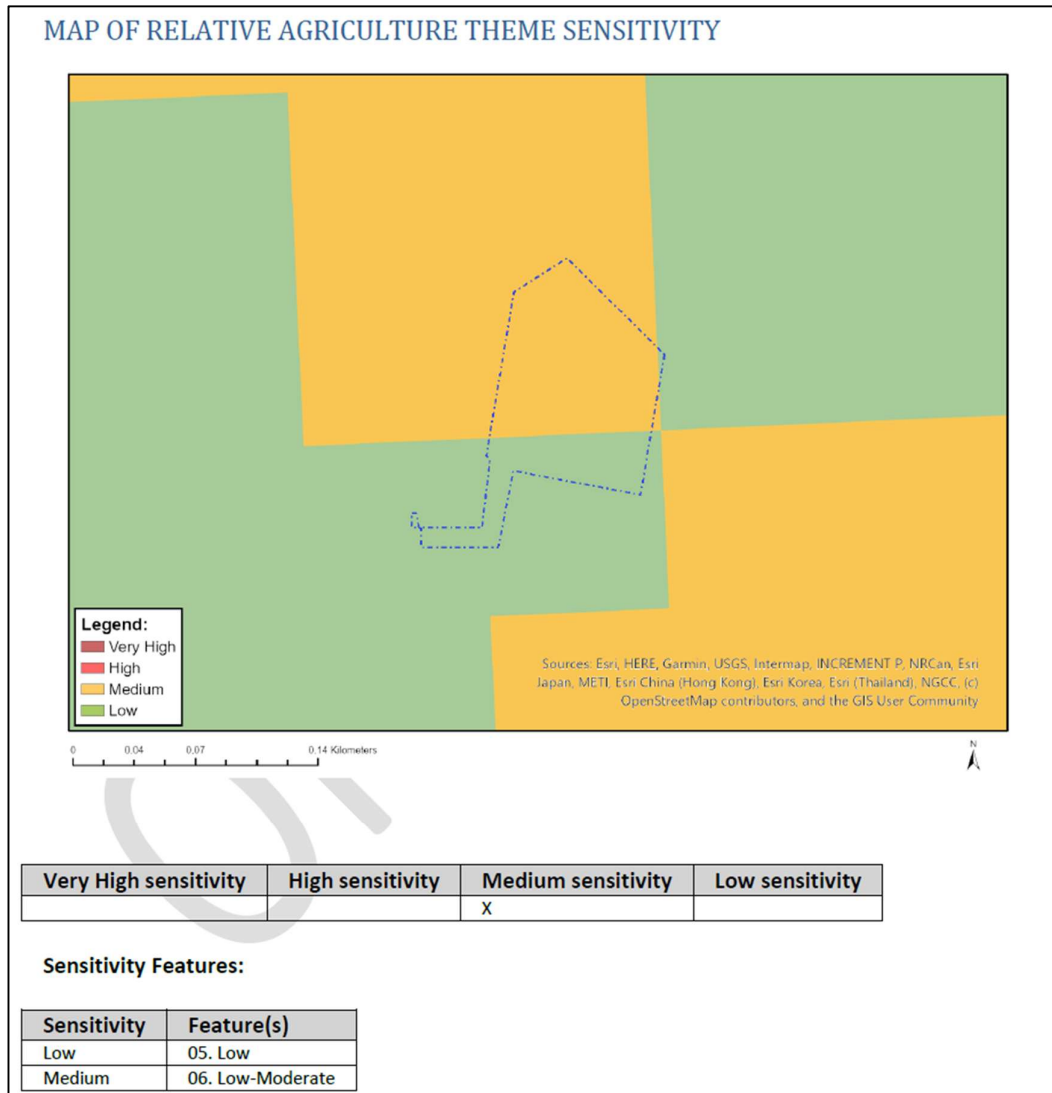


Figure 6-1: Agriculture Theme Screening Tool Sensitivity

6.1.2 Specialist Field Verification

The assessment included both desktop analysis and field verification surveys undertaken in accordance with applicable environmental assessment protocols.

6.1.2.1 Desktop Assessment

The desktop assessment involved reviewing available spatial datasets and environmental information to identify agricultural soil resources and land capability within and around the proposed Project footprint. Key datasets considered included:

- National land capability datasets, which classify land according to its suitability for agricultural production.
- Land Type Survey data, providing information on dominant soil patterns and soil properties across South Africa.

- Soil classification information, used to identify soil forms and their agricultural potential.
- Topographic mapping and aerial imagery, used to assess landscape characteristics such as slope, land use patterns and disturbance.
- Screening Tool outputs, which provide the baseline environmental sensitivity classification for the Agricultural Theme.

The desktop review was used to identify areas that may contain soils of higher agricultural potential or land capability, and to guide the focus of the field verification survey.

6.1.2.2 Field Verification Survey

A field verification survey was undertaken to confirm soil characteristics and land capability within the proposed Project footprint. The field survey included inspection of the site and surrounding areas, with particular focus on locations where soils of higher agricultural potential or limiting soil conditions may occur.

During the field investigation, the specialist assessed key soil and landscape indicators relevant to agricultural potential, including:

- Soil depth and profile characteristics; and
- Dominant soil forms identified in accordance with the national soil classification system.

The spatial coverage of the field survey is illustrated in **Figure 6-2**, which presents the GPS tracks recorded during the specialist field inspection.

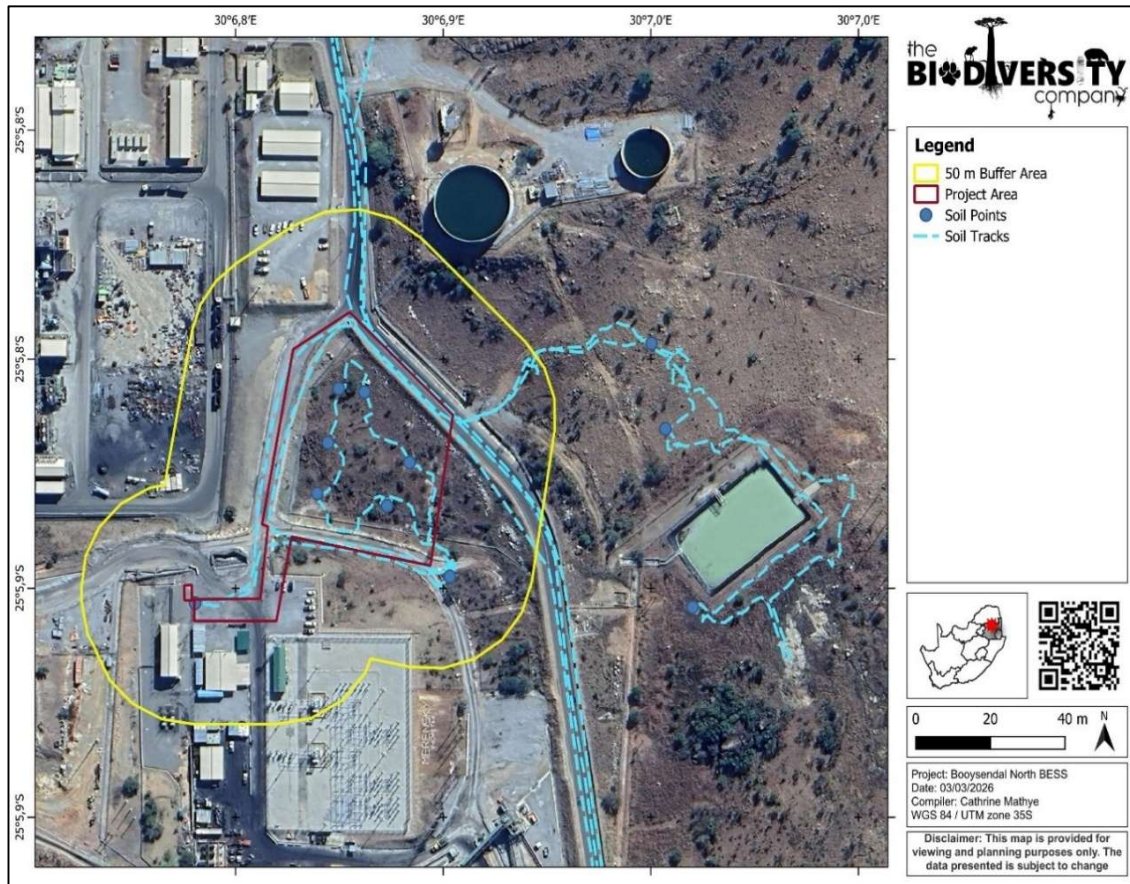


Figure 6-2: Map illustrating the Global Positioning System tracks of the specialist during the Agriculture field survey (The Biodiversity Company, 2026a)

6.1.2.3 Field Survey Findings

The proposed Project area occurs within a landscape that has been modified by historical and ongoing mining activities associated with the BN mining operations. As a result, natural soil profiles and surface conditions have been partially altered by earthworks, infrastructure development, and vegetation disturbance.

During the field survey, the specialist assessed soil characteristics such as soil depth, clay content, rock percentage, and diagnostic horizons to identify the dominant soil forms and evaluate the agricultural potential of the site.

Soil Forms Identified

Four soil forms were identified within the proposed Project area, namely Swartland, Mispah, Johannesburg, and Witbank. These soils generally have shallow to moderately deep profiles with low clay content in the topsoil horizons.

- Swartland soil form - the deepest soils recorded on-site, with topsoil depths of approximately 0-150 mm and subsoil horizons extending to around 650 mm.
- Mispah soil form - shallow soils with topsoil depths typically less than 50 mm, often associated

with rocky substrates and exposed bedrock.

- Johannesburg and Witbank soil forms - shallow and weakly developed soils commonly associated with disturbed or transformed landscapes.

The spatial distribution of these soils within the proposed Project area is illustrated in **Figure 6-3**, while representative soil horizons and land uses are presented in **Figure 6-4**.

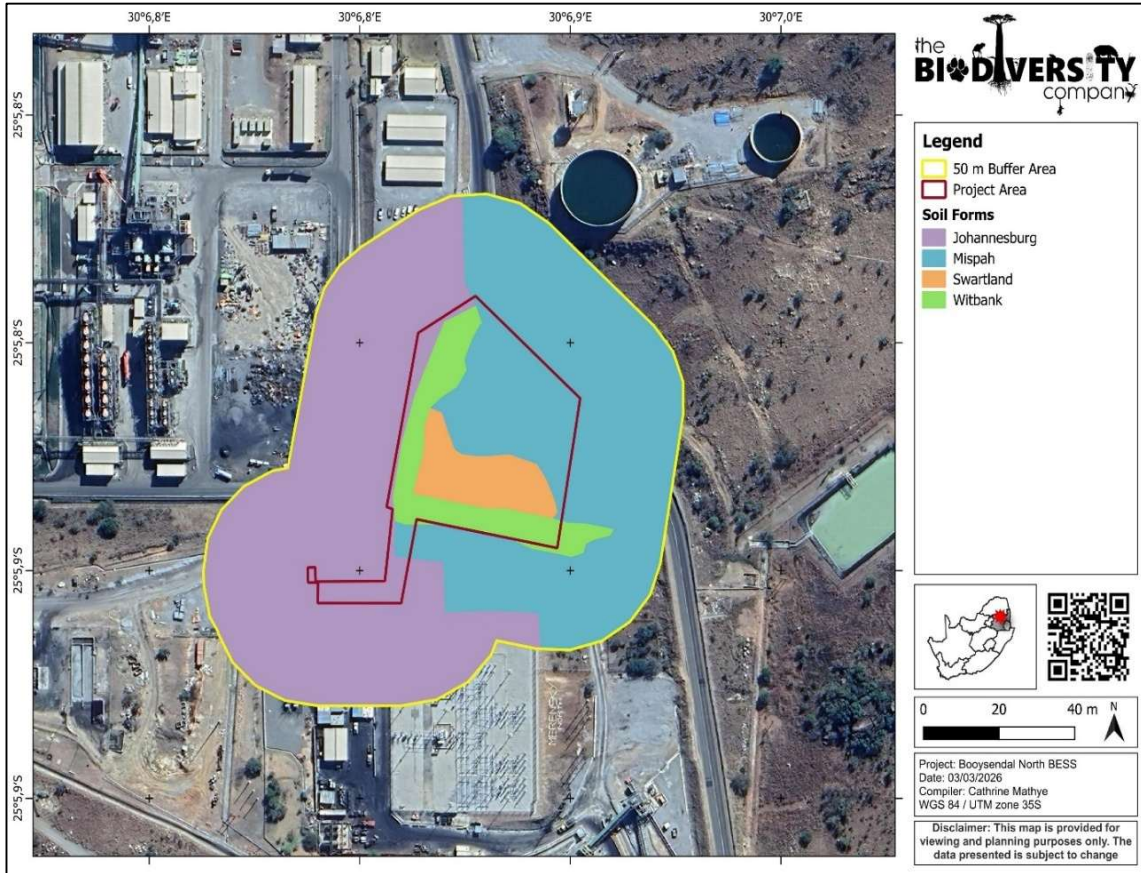


Figure 6-3: Dominant soil forms distribution identified in the proposed Booyesendal North Battery Energy Storage System Project area during the site assessment (The Biodiversity Company, 2026a).

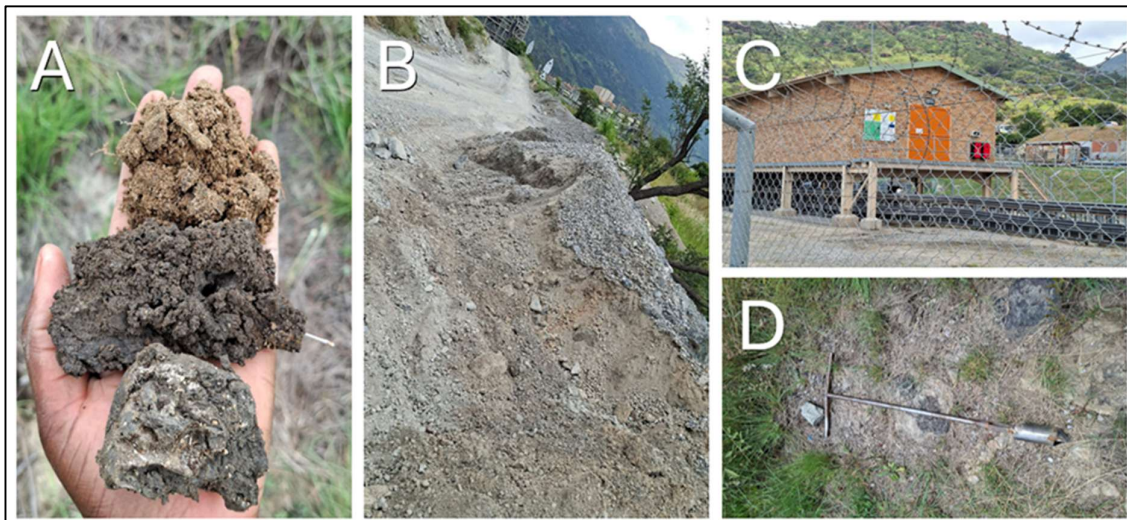


Figure 6-4: Diagnostic horizon of dominant soils identified within the proposed Project area and different land uses; A) Swartland soil form (Orthic/pedocutanic/Gleylic); B) Witbank soil form; C) Johannesburg soil form (Mining infrastructure); and D) Mispah soil form (Bare rock) (The Biodiversity Company, 2026a)

Agricultural Potential

Agricultural potential within the proposed Project area was evaluated based on soil characteristics, terrain, and climatic conditions. These factors determine the suitability of land for sustainable crop production under rain-fed conditions.

Climate Capability

The proposed Project area occurs within the Sekhukhune Mountain Bushveld region, with a Mean Annual Precipitation of approximately 609 mm and Mean Annual Potential Evaporation of approximately 2043 mm. The resulting evaporation ratio places the area within Climatic Capability Class C8, indicating severe climatic limitations for crop production due to high evaporation and moisture stress. As the climatic capability falls within Class C8, no further climatic refinement was undertaken.

Land Capability

The soils identified within the proposed Project area correspond to Land Capability Classes IV, VI, and VIII, indicating varying limitations for agricultural use:

- Class IV: Severe limitations for cultivation with high erosion risk.
- Class VI: Unsuitable for cultivation but may support perennial vegetation such as natural veld or pasture.
- Class VIII: Extremely severe limitations and generally unsuitable for grazing or agriculture.

Land Potential

Land potential was determined by combining climatic capability and land capability classifications. Due to the severe climatic limitations (Class C8), the identified soils correspond to Land Potential

Levels 6, 7, and 8, which represent very restricted to very low agricultural potential.

Overall, the soils within the proposed Project area are non-arable and characterised by shallow profiles, rocky substrates, and climatic constraints. The spatial distribution of land potential within the proposed Project area and the surrounding 50 m buffer is illustrated in **Figure 6-5**.

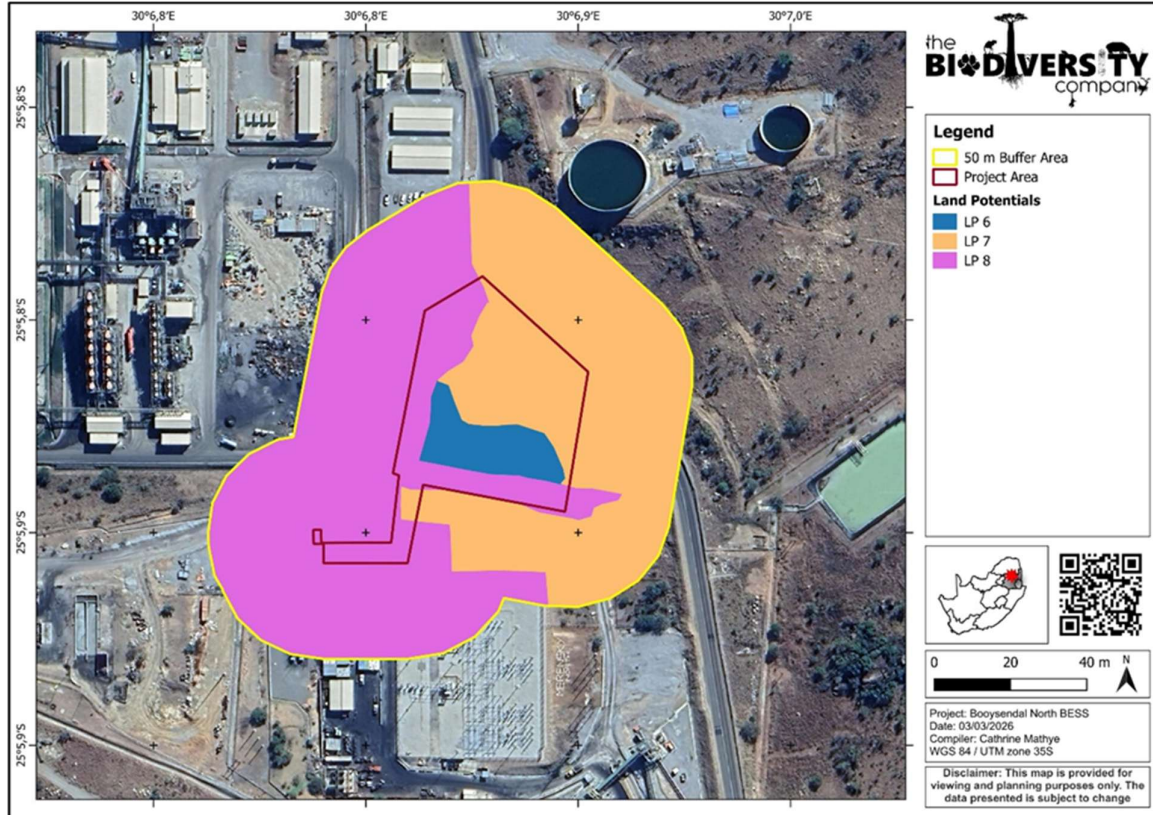


Figure 6-5: Land Potential within the 50 m Buffer area of the proposed Project area (The Biodiversity Company, 2026a)

6.1.3 Key Findings

The agricultural potential assessment for the proposed Project identified the following key findings:

- The dominant soil forms within the Project area are Swartland, Mispah, Johannesburg, and Witbank.
- The soils are generally shallow to moderately deep with low clay content, and in some areas are associated with rocky substrates and limited soil development.
- No indicators of prolonged soil wetness were observed, indicating that the soils are well-drained terrestrial soils.
- The proposed Project area falls within Climatic Capability Class C8, reflecting severe climatic limitations for crop production due to high evaporation and moisture stress.
- The soils correspond to Land Capability Classes IV, VI, and VIII, indicating significant limitations for cultivation.

- Land Potential Levels 6, 7, and 8 were identified, reflecting very restricted to very low agricultural potential and largely non-arable conditions.
- The proposed Project area is located within an existing disturbed mining environment, where soils and landforms have already been modified by mining activities.

Based on these findings, the agricultural sensitivity of the proposed Project area ranges from Low to Medium, with the overall sensitivity considered predominantly Low.

6.1.4 Verified Sensitivity

Based on the desktop assessment and field verification survey, the agricultural specialist concluded that the Screening Tool agricultural sensitivity is only partially representative of the actual site conditions within the proposed Project footprint.

Although the Screening Tool identifies areas of Medium agricultural sensitivity, the field verification confirmed that much of the site is characterised by shallow soils, restrictive substratum horizons, and areas transformed by mining infrastructure, which limit agricultural capability. As a result, the verified agricultural sensitivity within the proposed Project area ranges between Low and Medium, depending on the soil forms present.

This verified sensitivity reflects:

- The presence of medium potential soils such as the Swartland soil form.
- The occurrence of low to very low potential soils, including Mispah, Johannesburg and Witbank soil forms.
- Shallow soil profiles and restrictive substratum horizons that limit crop production.
- The transformed and fragmented mining landscape, where land has already been modified for industrial use.

The Screening Tool sensitivities were therefore validated or disputed based on the soil survey and land capability assessment, including the identification of dominant soil forms, soil depth, and limiting soil characteristics. The comparison between Screening Tool sensitivities and specialist-verified sensitivities is presented in **Table 6-1**, while the overall agricultural sensitivity associated with the proposed Project area is illustrated in **Figure 6-6**.

Table 6-1: Summary of Screening Tool and Specialist-Verified Agriculture Sensitivity (The Biodiversity Company, 2026a)

Screening Tool Theme	Screening Tool	Feature	Specialist	Tool Validated or Disputed by Specialist - Reasoning
Agriculture Theme	Medium	Low-Moderate (LC 6)	Medium	Validated - Low-Moderate land capability. The presence of medium potentials soil such as Swartland soil form.
		Low-Moderate (LC 6)	Low	Disputed -Very Low to Low land capability. The presence of shallow soils and the Urban Technosols. Moreover, the presence of low potential soil such as Mispah, Johannesburg and Witbank soil forms. These soils have as restrictive substratum horizon which restrict crop production.
		Low (LC 5)	Medium	Disputed - Low-Moderate land capability. The

Screening Tool Theme	Screening Tool	Feature	Specialist	Tool Validated or Disputed by Specialist - Reasoning
				presence of medium potentials soil such as Swartland soil form.
		Low (LC 5)	Low	Validated - Very Low to Low land capability. The presence of land fragmentation, and transformation of the land use to industrial practices. Moreover, the presence of low to very low soil forms such as Mispah and Johannesburg.

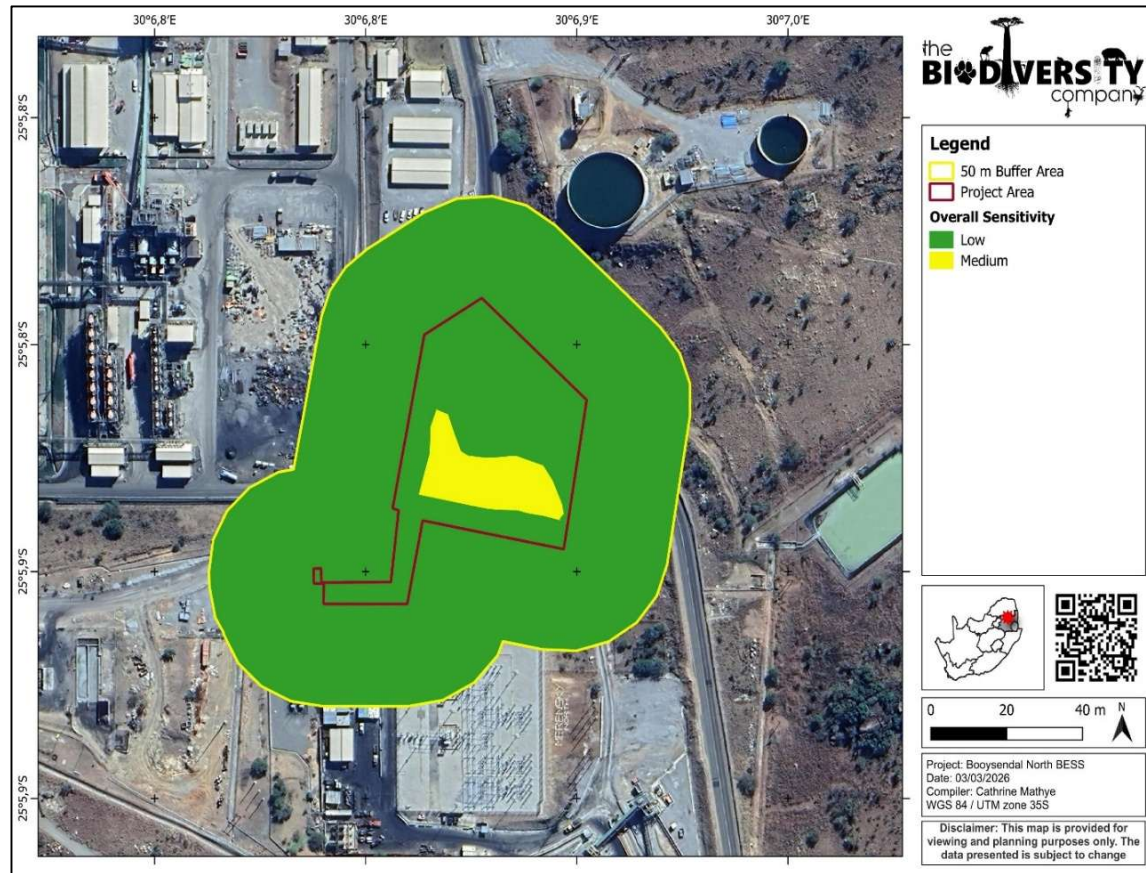


Figure 6-6: Overall Agricultural sensitivity of the proposed Booyensdal North Battery Energy Storage System Project area (The Biodiversity Company, 2026a)

6.1.5 Conclusion

The agriculture SSV confirms that the proposed BN BESS Project area occurs within a previously disturbed mining landscape, where soil profiles and land surface conditions have been modified by historical and ongoing mining activities.

Four soil forms were identified within the proposed Project area, namely Swartland, Mispah, Johannesburg and Witbank. These soils are generally shallow with low clay content, with the Swartland soil form representing the deepest soils within the site. The remaining soil forms are characterised by shallow profiles and restrictive conditions, limiting agricultural use.

The proposed Project area falls within Climatic Capability Class C8, indicating severe climatic limitations for crop production. The soils correspond to Land Capability Classes IV, VI and VIII, which

translate to Land Potential Levels 6, 7 and 8, indicating very restricted to very low agricultural potential and largely non-arable conditions.

Based on the desktop assessment and field verification survey, the verified agricultural sensitivity of the proposed Project area ranges from Low to Medium. These ratings reflect the site specific soil characteristics and existing land transformation within the mining footprint.

6.2 Terrestrial Biodiversity Site Sensitivity Verification

A terrestrial biodiversity assessment was conducted by The Biodiversity Company and documented in the Terrestrial Biodiversity Site Sensitivity Verification Report for the Proposed Booyesendal North Battery Energy Storage System Project (The Biodiversity Company, 2026b) attached as **APPENDIX D**. The purpose of the study was to independently verify the terrestrial biodiversity sensitivity identified in the Screening Tool and to assess the likelihood of Species of Conservation Concern (SCC), the presence of ecologically important habitats, vegetation communities and species within the proposed Project footprint. The key findings of this specialist assessment are summarised below.

6.2.1 Screening Tool Sensitivity

The Screening Tool classified the proposed Project area as having Very High sensitivity for the Terrestrial Biodiversity Theme. This sensitivity classification reflects the overlap of the proposed Project area with a Freshwater Ecosystem Priority Area (FEPA) sub-catchment and the National Protected Area Expansion Strategy (NPAES) within the broader Project area. The Animal Species Theme was classified as High sensitivity, based on the potential presence of three medium sensitivity mammal species and one high sensitivity avifauna species within the area. The Plant Species Theme was classified as Low sensitivity, indicating that no significant plant species sensitivities were identified for the proposed Project area.

The sensitivities were assessed during the specialist study and either validated or disputed where necessary based on the results of the desktop assessment and field verification survey. The sensitivity associated with terrestrial, animal and plant sensitivities of the proposed Project area is illustrated in **Figure 6-7**, **Figure 6-8** and **Figure 6-9** respectively.

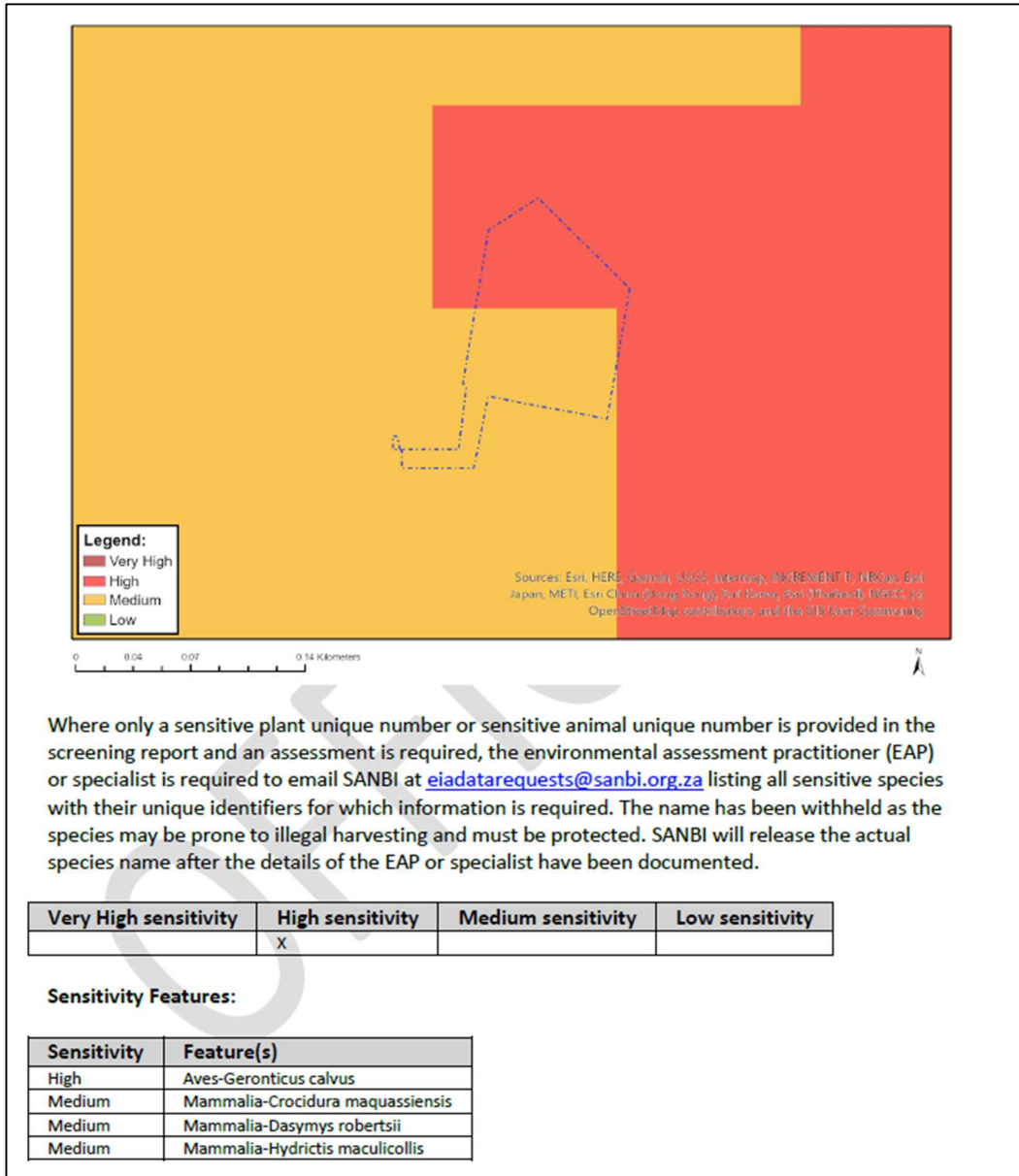


Figure 6-8: Animal Species Theme Screening Tool Sensitivity

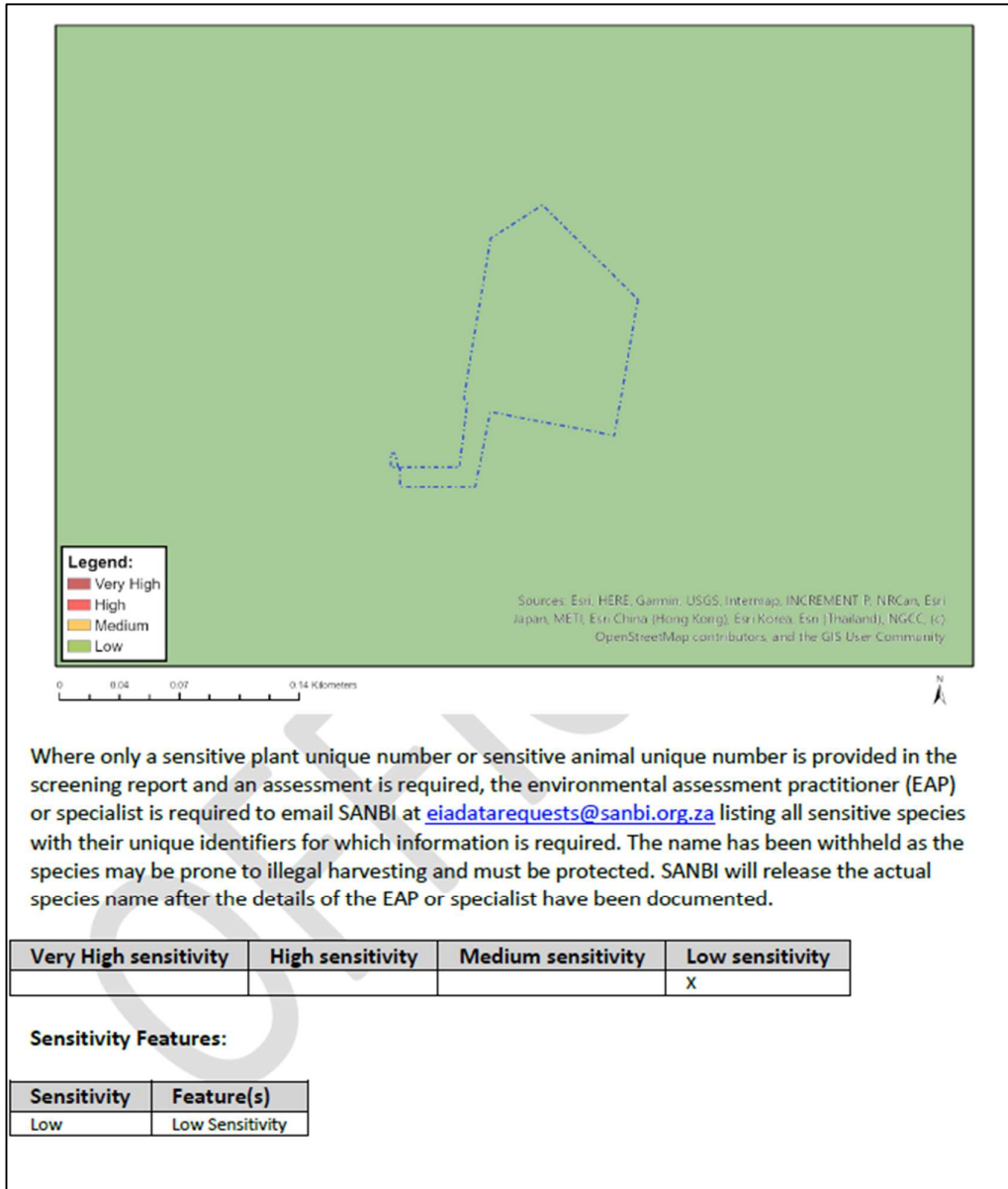


Figure 6-9: Plant Theme Screening Tool Sensitivity

6.2.2 Specialist Field Verification

To verify the Screening Tool sensitivity ratings for the Terrestrial Biodiversity, Animal Species, and Plant Species themes, a specialist terrestrial biodiversity investigation was undertaken for the proposed BN BESS Project. The assessment comprised a comprehensive desktop review followed by field-based verification, undertaken between 26 and 30 January 2026. Conducting the field survey during this period allowed the specialist to assess vegetation characteristics, habitat conditions, and potential species presence within the proposed Project area.

6.2.2.1 Desktop Assessment

The desktop component of the assessment involved the review and analysis of several spatial datasets and environmental information sources in order to identify any terrestrial biodiversity features,

habitats, and SCC that may occur within or adjacent to the proposed Project footprint. The datasets reviewed included:

- FEPA datasets, which identify river catchments and ecosystems of national conservation importance within the broader landscape.
- NPAES datasets, which identify areas considered important for future conservation expansion.
- Species distribution datasets, used to identify potential occurrence of animal and plant species.
- Screening Tool outputs, which provide the baseline environmental sensitivity classifications for the Terrestrial Biodiversity, Animal Species and Plant Species themes.

These datasets were analysed to determine whether any sensitive terrestrial habitats, areas of conservation importance, or SCC intersect with the proposed Project area.

6.2.2.2 Field Verification Survey

Following the desktop review, a field verification survey was undertaken to confirm the terrestrial biodiversity characteristics within the proposed Project footprint. The field survey involved an inspection of the proposed Project footprint and the immediate surrounding landscape, focusing on areas where sensitive habitats, vegetation communities, or SCC could potentially occur based on the desktop analysis and landscape characteristics of the site.

During the field investigation, the specialised assessed environmental indicators that are typically associated with terrestrial biodiversity sensitivity. These indicators included:

- Habitat type and condition, including the presence of natural, degraded, or modified habitats and the extent of disturbance within the landscape.
- Vegetation composition and structure, including the presence of indigenous plant species and the occurrence of alien and invasive vegetation.
- Potential habitat suitability for fauna SCC identified during the desktop assessment.
- The degree of habitat fragmentation and anthropogenic disturbance associated with existing mining infrastructure and related activities.

The spatial coverage of the field survey is illustrated in **Figure 6-10**, which presents the GPS tracks recorded during the specialist field inspection. The figure demonstrates the extent of the areas surveyed by the specialist within the proposed Project footprint and the surrounding landscape.

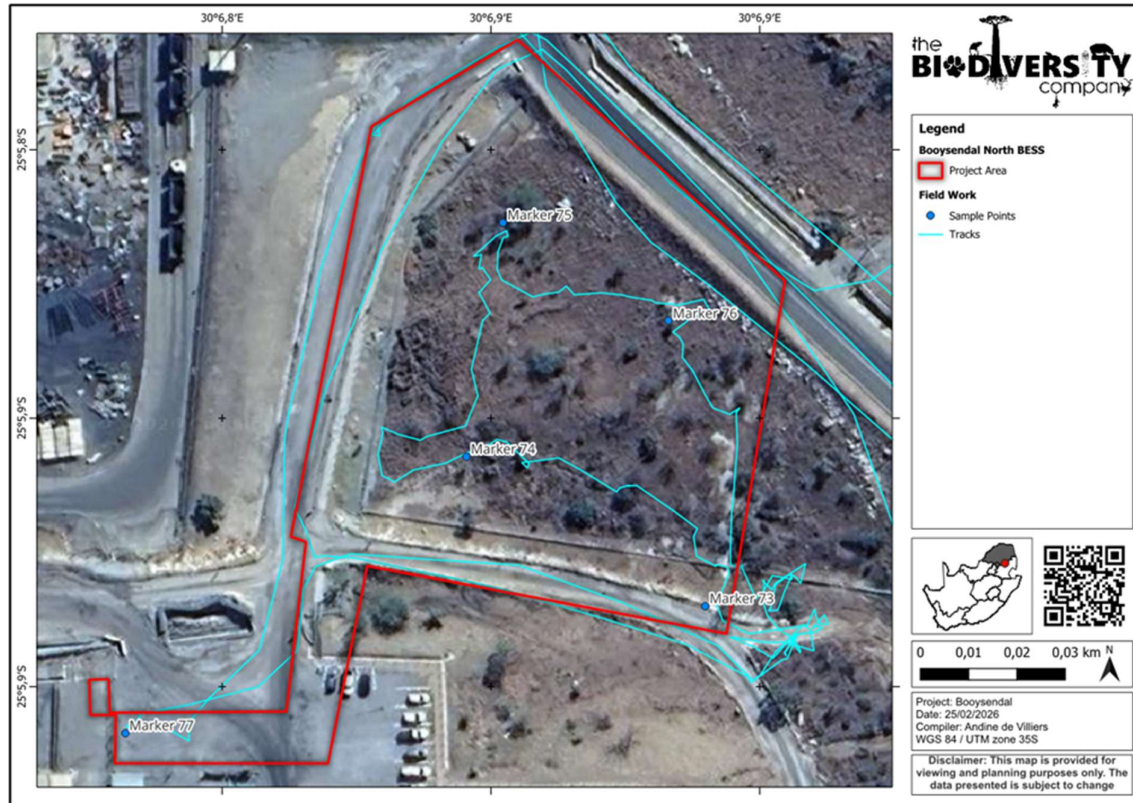


Figure 6-10: Map illustrating the Global Positioning System tracks of the specialist during the Terrestrial Biodiversity field survey (The Biodiversity Company, 2026b)

6.2.2.3 Field Survey Findings

The proposed Project area occurs within an existing disturbed mining landscape associated with the BN mining operations, where historical and ongoing mining activities have altered natural vegetation and habitat conditions. As a result, the ecological integrity typically associated with natural terrestrial ecosystems has been reduced within the proposed Project footprint.

During the field investigation, the specialist evaluated several environmental indicators used to assess terrestrial biodiversity and habitat condition. These indicators included habitat type, vegetation composition, the potential presence of SCC, and the level of disturbance associated with existing mining activities.

Habitat Types

Two terrestrial habitat types were identified within the proposed Project area, namely Degraded Bushveld and Modified habitat.

The Degraded Bushveld habitat consists of bushveld vegetation that has become degraded over time due to ongoing disturbances associated with mining activities, nearby roads, existing pipelines, dumping, dust, and edge effects. The spread of alien and invasive species and habitat fragmentation have also contributed to the degraded condition of this habitat. Despite these disturbances, some common indigenous plant species remain present. Observed species include *Melinis repens*, *Eragrostis*

gummiflua, *Rhoicissus tridentata*, *Barleria ovata*, *Oenothera rosea*, *Plantago lanceolata*, *Hypoxis rigidula*, and *Cheilanthes viridis*. Alien and invasive species observed within this habitat include *Lantana camara*, *Zinnia peruviana*, and *Campuloclinium macrocephalum*.

The Modified habitat represents areas that have been transformed from their natural state by ongoing activities associated with mining operations, including roads, pipelines, dust, and other edge effects. In these areas, very little to no indigenous vegetation remains.

Faunal Species of Conservation Concern

The Screening Tool indicates that three mammalian SCC may potentially occur within the Project area. These species include the Makwassie Musk Shrew (*Crocidura maquassiensis*), Robert's Shaggy Rat (*Dasymys robertsii*), and the Spotted-necked Otter (*Hydrictis maculicollis*).

However, the likelihood of these species occurring within the Project area is considered low due to the high levels of disturbance and the lack of suitable habitat conditions. The presence of SCC is unlikely due to the small, fragmented and disturbed nature of the area.

Habitat Condition and Disturbance

The habitats within the proposed Project area are characterised by varying levels of disturbance associated with existing mining infrastructure and related activities. Degraded Bushveld areas remain partially functional but are affected by disturbance, edge effects, invasive plant species, and fragmentation. In contrast, Modified habitats have been substantially transformed, with ecosystem functioning and services greatly reduced or absent.

Overall, the field survey confirmed that the habitats within the proposed Project footprint are degraded and disturbed, with no flora or fauna SCC observed during the site inspection.

Site Ecological Importance

The different habitat types within the Project area were delineated and identified based on observations during the field assessment and available satellite imagery. These habitats were assigned Site Ecological Importance (SEI) categories based on their ecological integrity, conservation value, the likely presence of SCC, and ecosystem functioning.

The Degraded Bushveld habitat was assigned a Medium SEI, reflecting the presence of degraded natural habitat that remains partially functional but is affected by ongoing disturbance, edge effects, the spread of alien and invasive plant species, and fragmentation.

The Modified habitat was assigned a Very Low SEI, as the habitat has been transformed from its natural state and ecosystem functioning and services are greatly reduced or largely absent.

The SEI and the corresponding mitigation guidelines are summarised in **Table 6-2**. The spatial distribution of the delineated habitat sensitivities within the Project area is illustrated in **Figure 6-11**.

Table 6-2: Summary of habitat types delineated within the field assessment area (The Biodiversity Company, 2026b)

Habitat Type	Conservation Importance	Functional Integrity	Biodiversity Importance	Receptor Resilience	Site Ecological Importance Guidelines
Degraded Bushveld	<u>Low</u> < 50% of receptor contains natural habitat with limited potential to support Species of Conservation Concern (SCC).	<u>Low</u> Several minor and major current negative ecological impacts.	Low	<u>Low</u> Habitat that is unlikely to be able to recover fully after a relatively long period: > 15 years required to restore - less than 50% of the original species composition and functionality of the receptor functionality.	<u>Medium</u> Minimisation and restoration mitigation - development activities of medium impact acceptable followed by appropriate restoration activities.
Modified	<u>Very Low</u> No natural habitat remaining.	<u>Very Low</u> Several major current negative ecological impacts.	Very Low	<u>Very High</u> Habitat that can recover rapidly (~ less than 5 years) to restore > 75% of the original species composition and functionality of the receptor functionality.	<u>Very Low</u> Minimisation mitigation - development activities of medium to high impact acceptable and restoration activities may not be required.

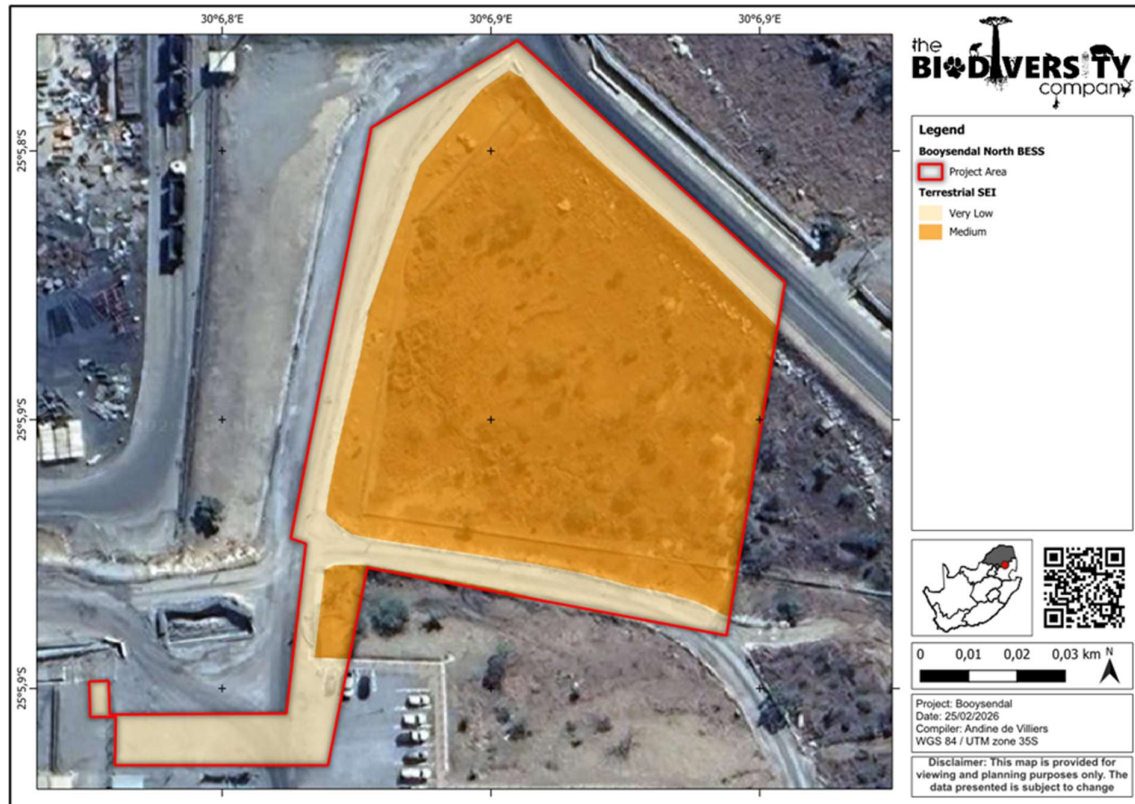







Figure 6-11: Site Ecological Importance of habitats (The Biodiversity Company, 2026b)

Spatially Representative Survey Sites

Representative survey locations recorded during the field investigation are presented in **Table 6-3**. These points illustrate the typical site conditions observed within the proposed Project footprint during the terrestrial biodiversity field survey.

Table 6-3: Spatially Representative Terrestrial Biodiversity Field Survey Locations (The Biodiversity Company, 2026b)

Survey Point	Habitat	Photographs
<p>Site GPS Reference: Marker 74 Date: 28/01/2026 GPS Coordinates: 25° 5'51.26"S 30° 6'52.04"E</p>	<p>Degraded Bushveld</p> <p>This habitat consists of bushveld that has become degraded over time due to ongoing disturbances, such as nearby roads, existing pipelines, dumping, and dust, from the mining operations, edge effects, the spread of alien and invasive species, and fragmentation.</p> <p>No flora or fauna Species of Conservation Concern (SCC) observed, and none are expected.</p>	
<p>Site GPS Reference: Marker 75 Date: 28/01/2026 GPS Coordinates: 25° 5'49.69"S 30° 6'52.28"E</p>	<p>Degraded Bushveld</p> <p>This habitat consists of bushveld that has become degraded over time due to ongoing disturbances from the mining operations, edge effects, the spread of alien and invasive species, and fragmentation. Some common indigenous species remains.</p> <p>No flora or fauna SCC were observed and none are expected.</p>	
<p>Site GPS Reference: Marker 73 Date: 28/01/2026 GPS Coordinates: 25° 5'52.26"S 30° 6'53.64"E</p>	<p>Modified</p> <p>This habitat has been transformed from its natural state by ongoing activities, including roads, pipelines, dust, and edge effects from the mining activities. Very little to no indigenous flora remains.</p>	

Survey Point	Habitat	Photographs
	<p>No flora or fauna SCC observed, and none are expected.</p>	
<p>Site GPS Reference: Marker 77 Date: 28/01/2026 GPS Coordinates: 25° 5'53.11"S 30° 6'49.75"E</p>	<p>Modified</p> <p>This habitat has been transformed from its natural state by ongoing activities, including roads, pipelines, dust, and edge effects from the mining activities. Very little to no indigenous flora remains.</p> <p>No flora or fauna SCC observed, and none are expected.</p>	

6.2.3 Key Findings

The Screening Tool classified the proposed Project area as having Very High sensitivity for the Terrestrial Biodiversity Theme, High sensitivity for the Animal Species Theme, and Low sensitivity for the Plant Species Theme. These sensitivity classifications reflect the broader ecological context of the region and the potential presence of SCC within the wider landscape, rather than the specific ecological conditions within the proposed Project footprint.

Desktop analysis of available biodiversity datasets, including Screening Tool outputs, indicates that three mammalian SCC may potentially occur within the Project area, while no sensitive flora species are expected. No amphibian or reptile SCC are predicted to occur within the Project footprint.

The proposed Project area is located entirely within the existing BN mining footprint. Field verification confirmed that the site is characterised by two habitat types, namely Degraded Bushveld and Modified habitat, both of which have been substantially altered by mining activities and associated disturbances.

The SEI assessment confirmed that the Degraded Bushveld habitat is assigned a Medium SEI, reflecting partially functional but disturbed habitat, while the Modified habitat is assigned a Very Low SEI, reflecting substantially transformed areas with minimal ecological functionality.

Overall, the field verification confirmed that the proposed Project area is located entirely within a

disturbed operational mining area, with low ecological integrity and limited habitat value for sensitive terrestrial biodiversity. The terrestrial biodiversity within the footprint is therefore considered degraded, with minimal potential to support SCC.

6.2.4 Verified Sensitivity

Based on the results of the desktop analysis and field verification survey, the terrestrial biodiversity specialist concluded that the Screening Tool sensitivity ratings are not fully representative of the actual environmental conditions present within the proposed Project area.

Although the Screening Tool classified the Terrestrial Biodiversity Theme as Very High and the Animal Species Theme as High, the proposed Project area itself is largely characterised by degraded and modified habitats that have been substantially altered by historical and ongoing mining activities.

The specialist therefore determined that the actual terrestrial biodiversity sensitivity of the proposed Project area is Low to Medium, depending on the specific habitat type, as described in Table 6-4.

This verified sensitivity rating reflects:

- The degraded nature of the Degraded Bushveld habitat, which remains partially functional but is affected by disturbance, edge effects, the spread of alien and invasive flora species and fragmentation.
- The transformed condition of the Modified habitat, where ecosystem functioning and services are greatly reduced or largely absent.
- The absence of flora or fauna SCC within the Project footprint.
- The small, fragmented, and disturbed nature of the site, which limits the ecological value for animal species, with only sporadic occurrence possible during movement or foraging.

Table 6-4: Summary of Screening Tool and Specialist-Verified Terrestrial Biodiversity Sensitivity (The Biodiversity Company, 2026b)

Screening Tool Theme	Screening Tool	Habitat	Specialist	Tool Validated or Disputed by Specialist - Reasoning
Terrestrial Biodiversity Theme	Very High	Degraded Bushveld	Medium	Disputed - This habitat is largely degraded due to ongoing disturbance, edge effects, the spread of alien and invasive flora species, and fragmentation. However, the habitat is still partially functional ecologically, providing habitat and resources for common flora and fauna species.
		Modified	Very Low	Disputed - This habitat has been transformed from the natural state. Ecosystem functioning and services are greatly reduced and/or non-existent.
Plant Theme	Low	All habitats	Low	Validated - No flora Species of Conservation Concern (SCC) were observed and none are expected due to the overall degraded and disturbed state of the habitat.
Animal Theme	High	All habitats	Low	Disputed - The habitat is small, degraded, and fragmented. No fauna SCC were observed and none are expected to be resident. Sporadic occurrence during movement or foraging could occur.

6.2.5 Conclusion

The terrestrial biodiversity assessment undertaken for the proposed BN BESS Project confirmed that

the proposed footprint is dominated by degraded and modified habitats, with no flora or fauna SCC observed within the site.

Although the Screening Tool initially classified the broader Project area as Very High for Terrestrial Biodiversity and High for Animal Species, these ratings reflect the regional conservation importance of the FEPA sub-catchment, NPAES areas, and the potential presence of species within the wider landscape rather than the ecological conditions within the proposed Project footprint.

The specialist field verification confirmed that the proposed Project area occurs within a disturbed mining environment where natural terrestrial ecosystem functioning is largely reduced or absent, with habitat degradation, fragmentation and the spread of alien and invasive plant species.

Based on the results of the specialist assessment, the actual terrestrial biodiversity sensitivity of the proposed Project footprint ranges from Low to Medium, depending on habitat type. The proposed Project is therefore not expected to result in direct impacts on terrestrial biodiversity, and the site is considered suitable for development under the BESS Exclusion Norm, subject to the implementation of appropriate environmental management measures during construction and operation.

6.3 Aquatic Biodiversity Site Sensitivity Verification

An aquatic biodiversity assessment was conducted by The Biodiversity Company and documented in the Aquatic Biodiversity Site Sensitivity Verification Report for the Proposed Boysendal North Battery Energy Storage System Project (The Biodiversity Company, 2026c) attached as APPENDIX E. The purpose of the study was to independently verify the aquatic biodiversity sensitivity identified by the Screening Tool and to determine whether wetlands, drainage features, or other freshwater ecosystem components occur within the proposed Project footprint. The findings of this specialist assessment are summarised below.

6.3.1 Screening Tool Sensitivity

The Screening Tool identified the proposed Project area as having a Very High sensitivity for the Aquatic Biodiversity Theme. This classification is primarily associated with the location of the broader site within a FEPA sub-catchment.

A FEPA represent strategic river catchments identified through the National Freshwater Ecosystem Priority Areas (NFEPAs) programme, which aims to prioritise the protection of freshwater ecosystems that are important for maintaining ecological functioning and water resource sustainability at a national scale. As a result, areas located within FEPA catchments may be assigned high sensitivity ratings by the Screening Tool even where aquatic features are not present directly within the proposed Project footprint.

The regional aquatic biodiversity sensitivity associated with the proposed Project area is illustrated in **Figure 6-12**, which presents the Screening Tool outputs for the Aquatic Biodiversity Theme. The figure shows that the Project area falls within a catchment that has been classified as having high conservation importance due to its association with the broader FEPA network.

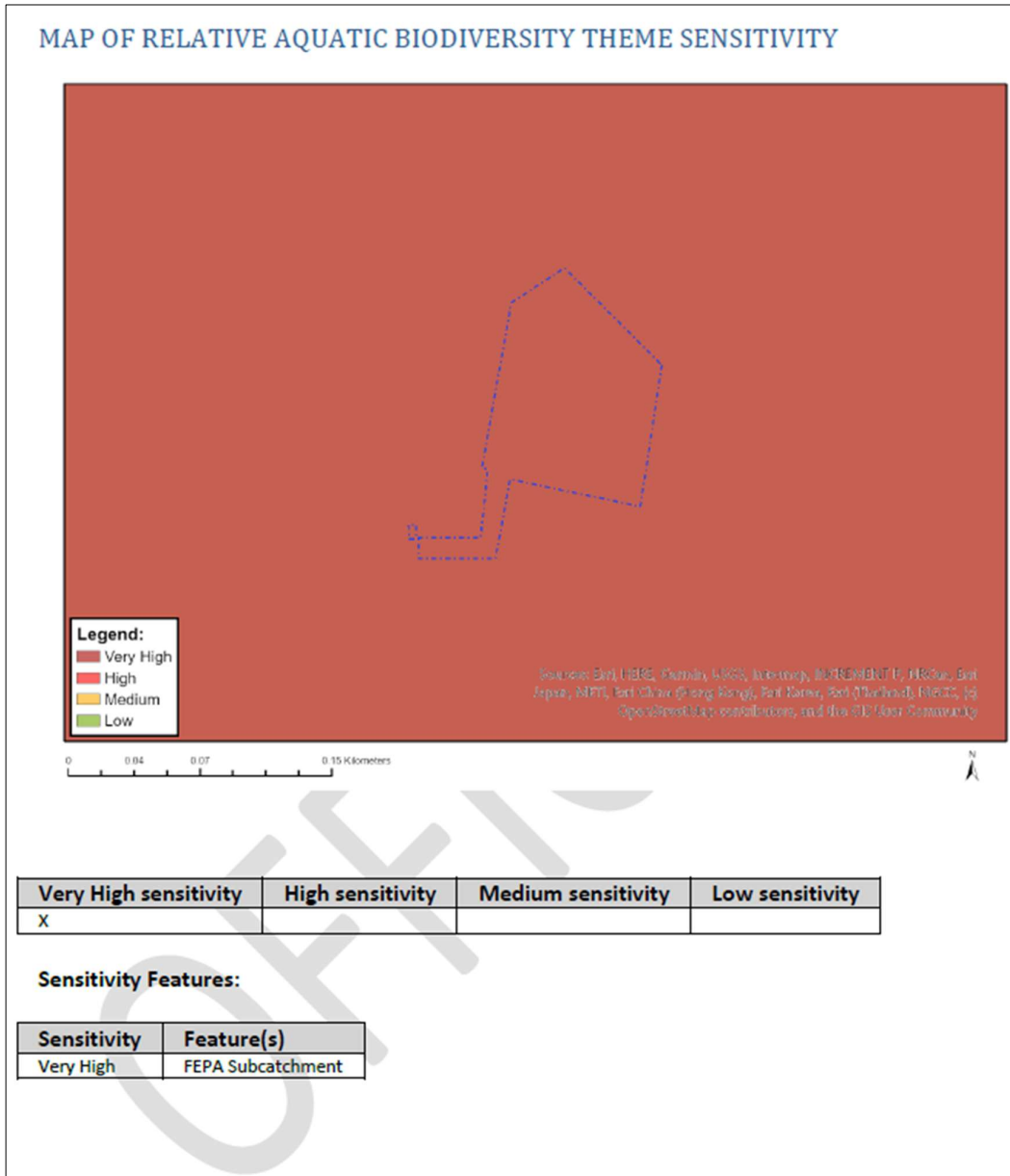


Figure 6-12: Aquatic Biodiversity Theme Screening Tool Sensitivity

6.3.2 Specialist Field Verification

In order to verify the Screening Tool sensitivity rating for the Aquatic Biodiversity Theme, a specialist aquatic biodiversity investigation was undertaken for the proposed BN BESS Project. The assessment comprised a comprehensive desktop review followed by field-based verification, undertaken during the wet season between 26 and 30 January 2026. Conducting the field survey during the wet season allows for improved identification of aquatic ecosystem indicators, as hydrological processes, vegetation characteristics, and soil moisture conditions associated with wetlands and drainage features are typically more evident during this period.

6.3.2.1 Desktop Assessment

The desktop component of the assessment involved the review and analysis of several spatial datasets and environmental information sources in order to identify any potential freshwater ecosystem features that may occur within or adjacent to the proposed Project footprint. The datasets reviewed included:

- NFEPA datasets, which identify river catchments and freshwater ecosystems of national conservation importance.
- Hydrological and drainage network mapping, including mapped rivers, drainage lines, and catchment boundaries.
- National wetland datasets, which provide spatial representations of potential wetland systems based on remote sensing and hydrological modelling.
- Topographic mapping and aerial imagery, used to identify landscape depressions, drainage pathways, and potential areas of surface water accumulation.
- Screening Tool outputs, which provide the baseline environmental sensitivity classification for the Aquatic Biodiversity Theme.

These datasets were analysed in order to determine whether any mapped wetlands, drainage lines, rivers, or other hydrological features intersect with the proposed Project footprint or occur in close proximity to the Project area. The desktop analysis also assisted in identifying areas that may require closer inspection during the field verification survey.

6.3.2.2 Field Verification Survey

Following the desktop review, a field verification survey was undertaken to confirm the presence or absence of aquatic ecosystem features within the proposed Project footprint. The field survey involved a systematic inspection of the proposed Project footprint and the immediate surrounding landscape, focusing on areas where aquatic features could potentially occur based on the desktop analysis and topographic characteristics of the site.

During the field investigation, the specialist assessed a range of environmental indicators that are typically associated with wetlands, watercourses, and drainage systems. These indicators included:

- Hydromorphic soils, which are soils that show evidence of prolonged saturation or periodic waterlogging, typically characterised by mottling, gleying, or other redoximorphic features.
- Wetland vegetation communities, including plant species or vegetation assemblages typically associated with saturated soils or wetland habitats.
- Surface water drainage patterns, including the presence of defined drainage channels, flow paths, or erosional features indicative of water movement.
- Topographic depressions or landscape features that may facilitate the accumulation or concentration of surface water.

- Evidence of seasonal water flow, including sediment deposition, scouring, vegetation alignment, or other indicators of periodic hydrological activity.

In addition to these indicators, the broader landscape context, vegetation structure, and degree of anthropogenic disturbance were considered in order to assess the ecological functionality of the site in relation to aquatic ecosystems.

The spatial coverage of the field survey is illustrated in **Figure 6-13**, which presents the Global Positioning System (GPS) tracks recorded during the specialist field inspection. The figure demonstrates the extent of the areas surveyed by the specialist within the proposed Project footprint and the surrounding landscape.

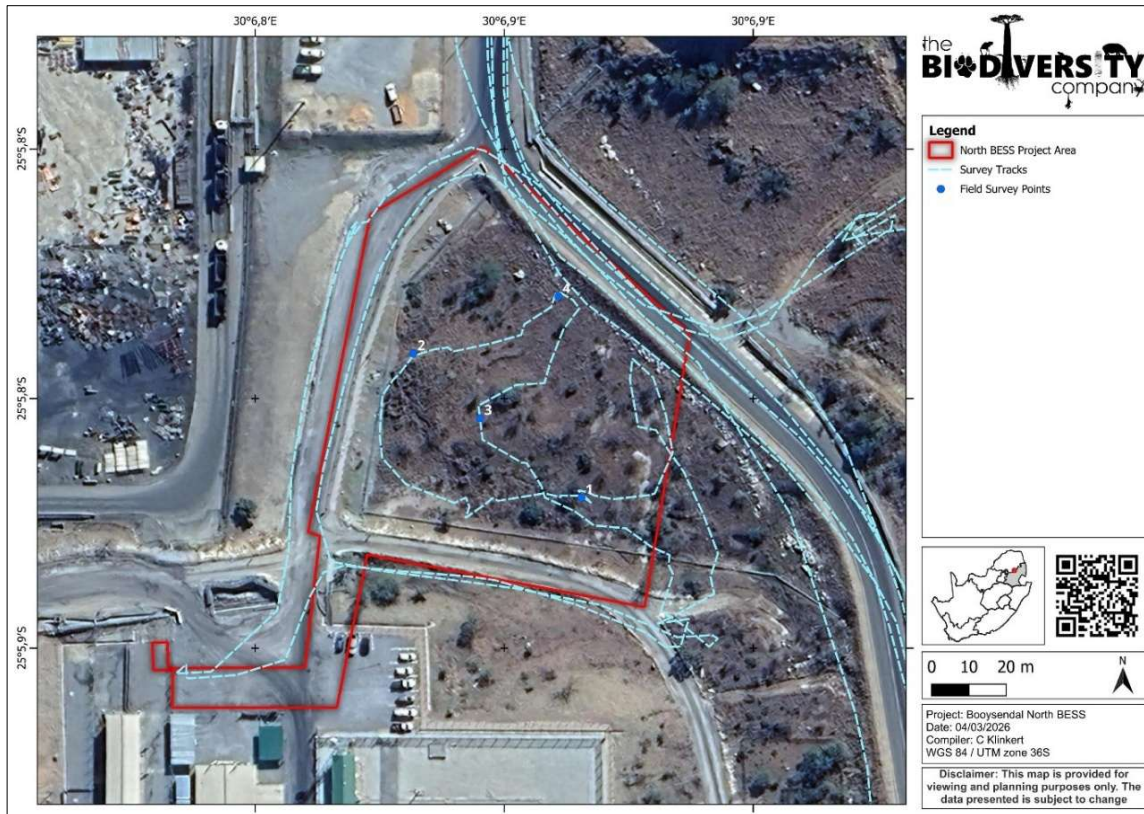


Figure 6-13: Map illustrating the Global Positioning System tracks of the specialist during the Aquatic Biodiversity field survey (The Biodiversity Company, 2026c)

6.3.2.3 Field Survey Findings

The proposed Project area occurs within an existing disturbed mining landscape associated with the BN mining operations, where historical and ongoing mining activities have altered natural landforms, vegetation cover, and soil conditions. As a result, the ecological functionality typically associated with natural aquatic ecosystems has been significantly reduced within the proposed Project footprint.

During the field investigation, the specialist evaluated several key environmental indicators used to identify wetlands and aquatic ecosystems. These indicators included soil characteristics, vegetation

composition, hydrological features, and geomorphological characteristics.

Hydromorphic Soils

Soil profiles across the proposed Project footprint were inspected to determine whether hydromorphic soil indicators were present. Hydromorphic soils typically develop in environments where soils remain saturated for extended periods and are commonly associated with wetland systems. These soils are generally characterised by redoximorphic features, including mottling, gleying, and iron or manganese staining.

No hydromorphic soil characteristics were identified within the Project footprint. Instead, soils observed within the site were consistent with well-drained terrestrial soils associated with disturbed upland environments, indicating that prolonged soil saturation does not occur within the development footprint.

Wetland Vegetation Communities

Vegetation within the proposed Project footprint was assessed to determine whether hydrophytic vegetation communities occur within the site. Wetland vegetation communities typically consist of plant species adapted to saturated soils and seasonal inundation.

The vegetation recorded during the field survey consisted primarily of disturbed terrestrial vegetation associated with the surrounding mining environment. No vegetation assemblages indicative of wetland conditions were observed within the proposed Project footprint.

Surface Hydrology and Drainage Patterns

The field survey also assessed surface hydrology and drainage patterns to determine whether the site supports surface water flow or ephemeral drainage features.

No defined drainage channels, surface flow paths, or geomorphological features indicative of water movement were identified within the development footprint. The terrain within the Project area does not support the formation of drainage systems or ephemeral watercourses.

Topographic Characteristics

Topographic conditions within the site were evaluated to determine whether landscape depressions or geomorphological features conducive to wetland formation occur within the proposed Project footprint.

The site inspection confirmed that the proposed Project footprint does not contain low-lying depressions or landforms that would facilitate the accumulation of surface water. Instead, the terrain is characterised by previously disturbed land associated with mining infrastructure.

Evidence of Seasonal Hydrological Activity




Indicators associated with seasonal or episodic water movement were also evaluated during the field survey. Such indicators include sediment deposits, scouring patterns, vegetation alignment, and other geomorphological evidence of periodic water flow.


No evidence of seasonal water movement or temporary drainage systems was identified during the site inspection.

Spatially Representative Survey Sites

Representative survey locations recorded during the field investigation are presented **Table 6-5**. These points illustrate the typical site conditions observed within the proposed Project footprint during the aquatic biodiversity field survey.

Table 6-5: Spatially Representative Aquatic Biodiversity Field Survey Locations (The Biodiversity Company, 2026c)

Survey Point	Description	Photographs
Area GPS Reference: Photo 1 Date: 27/01/2026 GPS Coordinates: 25° 5'51.23"S 30° 6'52.05"E	Disturbed environment presenting with terrestrial vegetation.	
Area GPS Reference: Photo 2 Date: 27/01/2026 GPS Coordinates: 25° 5'50.15"S 30° 6'51.85"E	Disturbed environment presenting mostly as terrestrial vegetation with some opportunistic hydrophilic vegetation resulting from stormwater inputs into the area.	
Area GPS Reference: Photo 3 Date: 27/01/2026 GPS Coordinates: 25° 5'51.37"S 30° 6'52.91"E	Impact identified - Discarded soil surrounded by terrestrial vegetation.	

Survey Point	Description	Photographs
Area GPS Reference: Photo 4 Date: 27/01/2026 GPS Coordinates: 25° 5'50.53"S 30° 6'52.83"E	Disturbed environment presenting with terrestrial vegetation.	

6.3.3 Key Findings

The aquatic biodiversity assessment undertaken for the proposed Project confirmed the following key findings:

- No wetlands, drainage lines, rivers, or other freshwater ecosystem features occur within the proposed Project footprint.
- No hydromorphic soils or wetland vegetation communities were identified during the field survey.
- No surface drainage patterns or geomorphological indicators of water movement were observed within the site.
- The proposed Project area is located within a previously disturbed mining environment, where natural ecological functioning associated with freshwater ecosystems has been significantly altered.
- The elevated aquatic sensitivity identified by the Environmental Screening Tool reflects the regional catchment context associated with the FEPA sub-catchment, rather than the presence of aquatic ecosystem features within the proposed Project footprint.

The findings of the specialist investigation therefore indicate that the actual aquatic ecological value of the Project footprint is limited, and the site does not provide important habitat for freshwater ecosystems.

6.3.4 Verified Sensitivity

Based on the results of the desktop analysis and field verification survey, the aquatic biodiversity specialist concluded that the Screening Tool sensitivity rating is not representative of the actual environmental conditions present within the proposed Project footprint.

Although the broader catchment occurs within a FEPA sub-catchment, the proposed Project footprint itself does not contain any wetlands, watercourses, or drainage systems that contribute to freshwater ecosystem functioning.

The specialist therefore determined that the actual aquatic biodiversity sensitivity of the proposed Project footprint is Low.

This verified sensitivity rating reflects:

- The absence of freshwater ecosystem features within the proposed Project footprint;
- The disturbed nature of the site, which forms part of the existing mining landscape; and
- The fact that the proposed Project will not alter the hydrological regime or ecological functioning of nearby freshwater systems.

Table 6-6: Summary of Screening Tool and Specialist-Verified Aquatic Biodiversity Sensitivity (The Biodiversity Company, 2026c)

Aspect	Screening Tool Theme	Screening Tool	Specialist Finding	Tool Validated or Disputed by Specialist - Reasoning
Project area	Aquatic Biodiversity Theme	Very High	Low	Disputed - The area is representative of previously and current disturbances to the environment, surrounded by existing developments relating to the operations of the platinum mine. No natural or artificial watercourse features were identified within the Project area. The proposed Project is not anticipated to alter the hydrological regime of the landscape, as such, the area has been rated with a “Low” aquatic sensitivity.

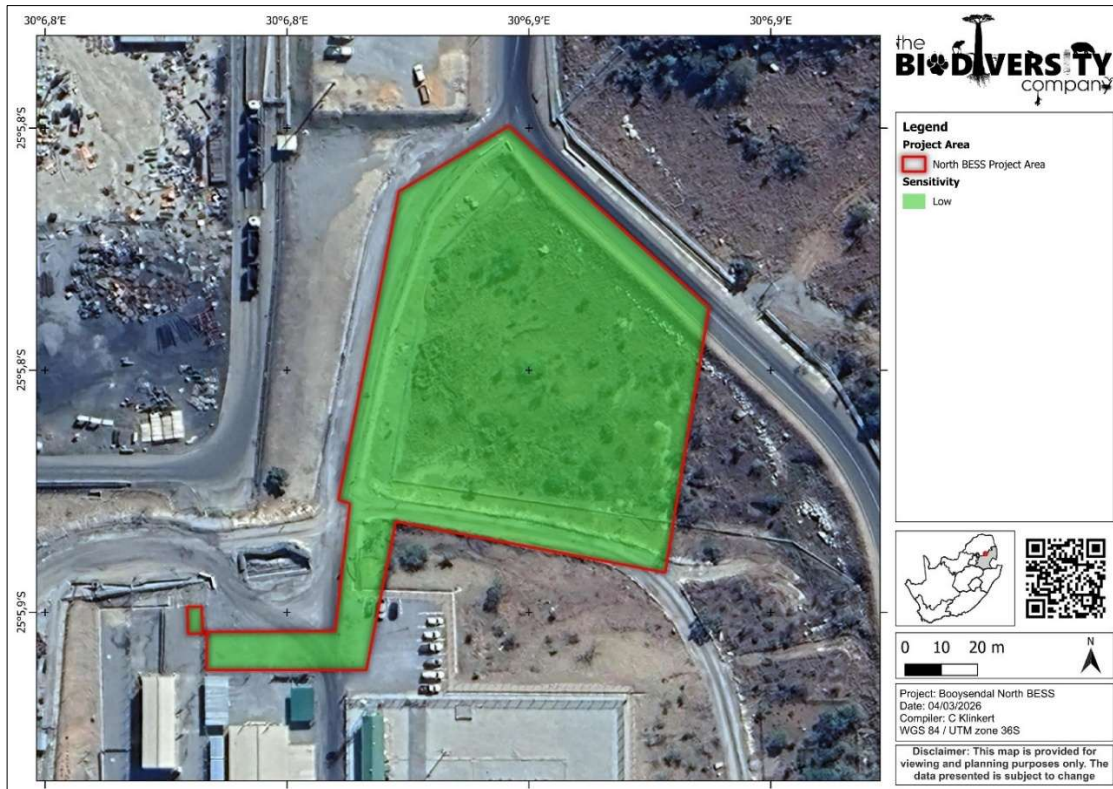


Figure 6-14: Specialist-Verified Aquatic Biodiversity Sensitivity Map (The Biodiversity Company, 2026c)

6.3.5 Conclusion

The aquatic biodiversity assessment undertaken for the proposed BN BESS Project confirmed that no wetlands, watercourses, drainage lines, or other freshwater ecosystem features occur within the proposed footprint.

Although the Screening Tool initially classified the broader Project area as having Very High aquatic biodiversity sensitivity, this rating reflects the regional conservation importance of the FEPA catchment rather than the presence of aquatic features within the proposed Project footprint.

The specialist field verification confirmed that the proposed Project area occurs within a disturbed mining environment where freshwater ecosystem processes are largely absent.

Based on the results of the specialist assessment, the actual aquatic biodiversity sensitivity of the proposed Project footprint is Low.

The proposed Project is therefore not expected to result in direct impacts on freshwater ecosystems, and the site is considered suitable for development under the BESS Exclusion Norm, subject to the implementation of appropriate environmental management measures during construction and operation.

6.4 Avifauna Site Sensitivity Verification

An avifauna assessment was conducted by The Biodiversity Company and documented in the Avifauna Site Sensitivity Verification Report for the Proposed Booyesendal North Battery Energy Storage System Project (The Biodiversity Company, 2026d) attached as **APPENDIX F**. The purpose of the study was to independently verify the animal species sensitivity identified by the Screening Tool, with specific reference to avifauna, and to determine whether suitable habitat for avifauna SCC or other important avifauna habitat features occur within the proposed Project footprint. The findings of this specialist assessment are summarised below.

6.4.1 Screening Tool Sensitivity

The Screening Tool classified the proposed Project area as having High sensitivity (**Figure 6-15**) for the Animal Species Theme, which includes avifauna. This classification reflects the broader ecological context of the region and the potential presence of avifauna SCC within the surrounding landscape.

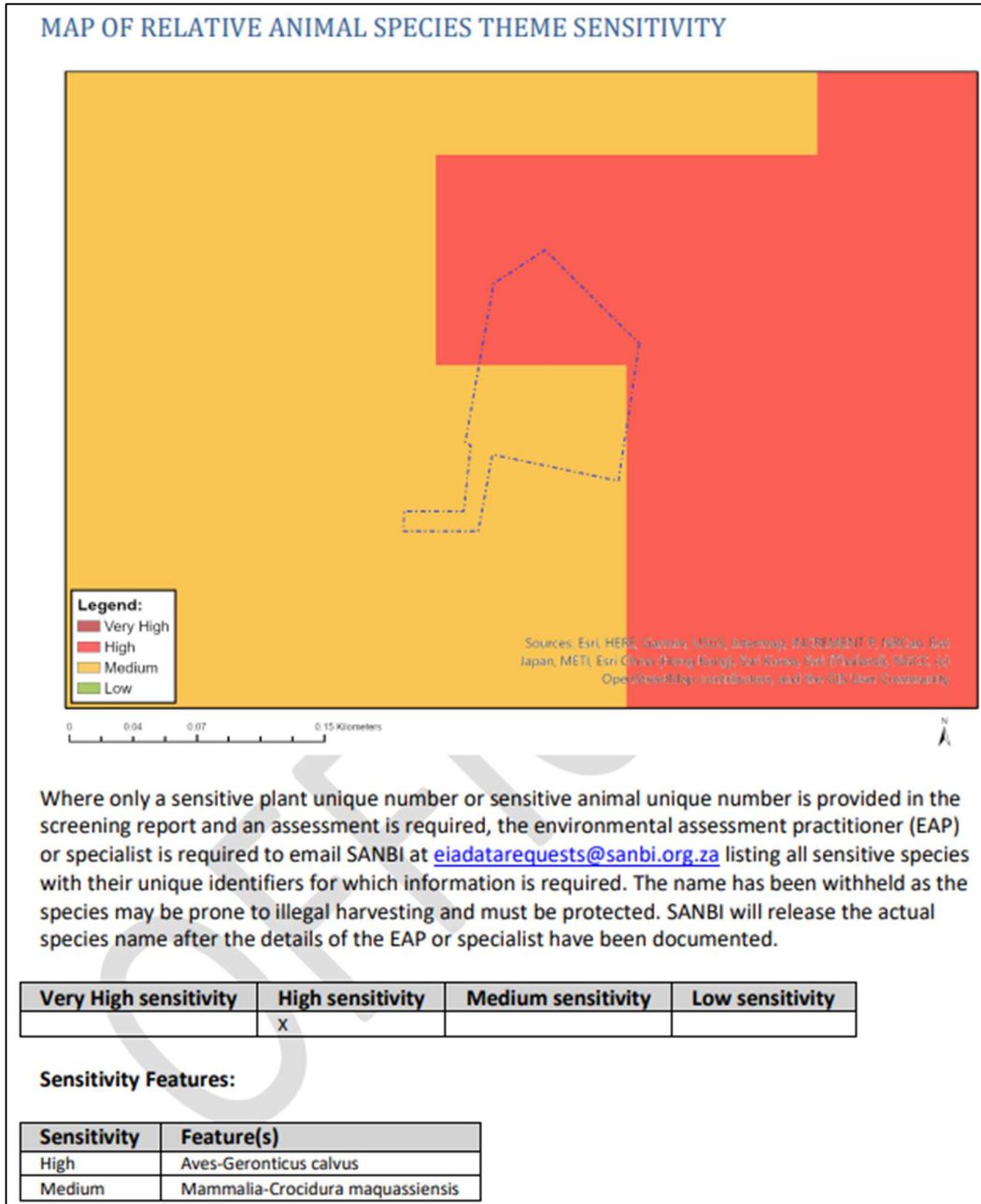


Figure 6-15: Animal Species Theme Screening Tool Sensitivity

6.4.2 Specialist Field Verification

The specialist assessment included both desktop analysis and field verification surveys undertaken in accordance with GN 320.

6.4.2.1 Desktop Assessment

The desktop assessment involved the review of available biodiversity datasets and spatial information relevant to avifauna within the proposed Project area and surrounding landscape. Sources included

data from the Southern African Bird Atlas Project 2 (SABAP2)⁸, conservation status information from the International Union for Conservation of Nature Red List⁹, and relevant national biodiversity datasets.

The desktop analysis indicated that approximately 352 bird species may occur within the broader Project area, of which 33 species are classified as SCC, including several threatened or near threatened raptors, cranes, bustards and water-associated species.

However, due to the disturbed nature of the site, the likelihood of these species occurring within the proposed Project footprint was considered Low to Moderate.

6.4.2.2 *Field Verification Survey*

A field verification survey was undertaken between 26 and 30 January 2026 during the wet season. The survey included site inspections, habitat observations and verification of environmental conditions within the proposed Project footprint.

The field investigation focused on confirming habitat conditions, identifying potential avifauna habitat features and determining whether SCC or sensitive avifauna habitats occur within the site. GPS tracks were recorded during the survey to demonstrate the spatial coverage of the field assessment (**Figure 6-16**).

⁸ Bird Atlas Project (SABAP2), 2022. Southern African Bird Atlas Project 2. Available at: <http://vmus.adu.org.za/> [Accessed 5 February 2026]

⁹ IUCN, 2025. The IUCN Red List of Threatened Species. Available at: <https://www.iucnredlist.org> [Accessed 5 February 2026].

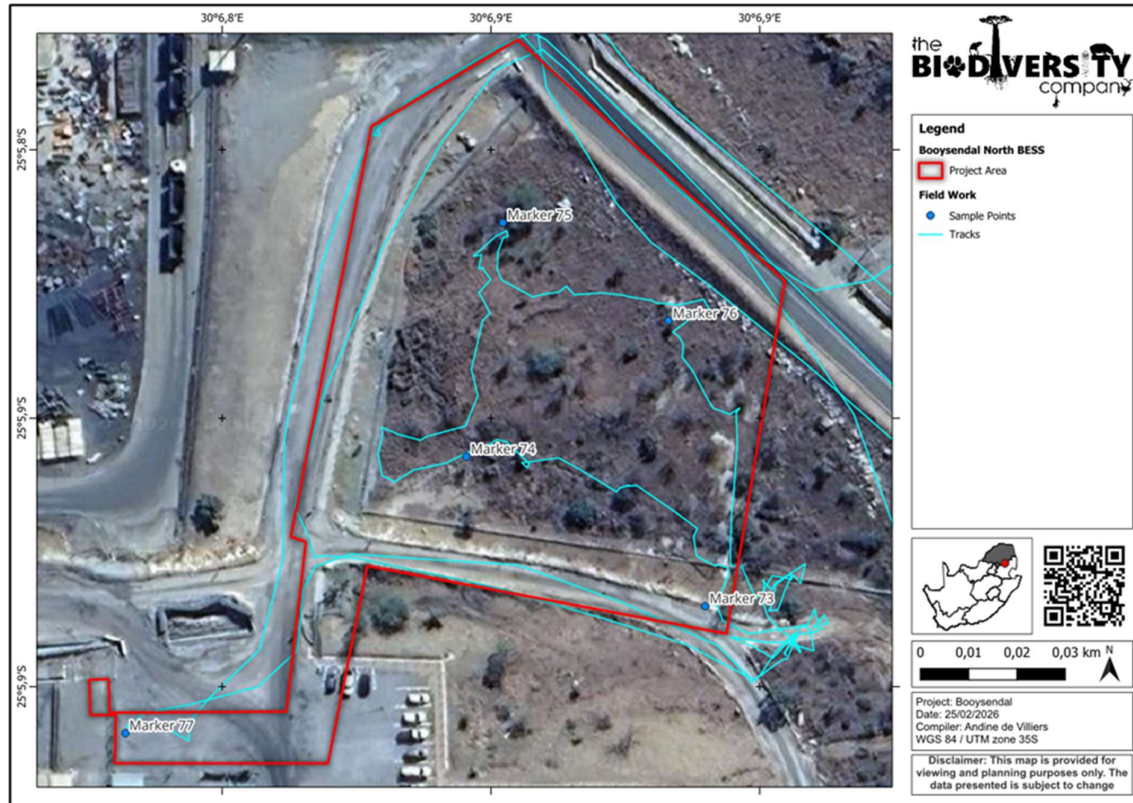


Figure 6-16: Map illustrating the Global Positioning System tracks of the specialist during the Avifauna field survey (The Biodiversity Company, 2026d)

6.4.2.3 Field Survey Findings




The field assessment confirmed that the proposed Project area is located entirely within the existing BN mining footprint, which has been substantially transformed by mining activities and associated infrastructure.



Two habitat types were identified within the proposed Project area (**Table 6-7**):

- Degraded Bushveld, affected by disturbances such as roads, pipelines, dust deposition, habitat fragmentation and the spread of alien species.
- Modified habitat, where natural vegetation has largely been transformed due to ongoing mining activities.

No avifauna SCC were recorded within the proposed Project footprint during the field survey. The disturbed habitat conditions provide limited suitability for breeding or foraging by sensitive avifauna species.

Table 6-7: Sensitivity summary of the Avifauna survey points and habitat types delineated within the proposed Project area (The Biodiversity Company, 2026d)

Survey Point	Habitat	Photographs
<p>Site GPS Reference: Marker 75 Date: 28/01/2026 GPS Coordinates: 25° 5'49.69"S 30° 6'52.28"E</p>	<p>Degraded Bushveld</p> <p>This habitat consists of bushveld that has become degraded over time due to ongoing disturbances, such as nearby roads, existing pipelines, dumping, and dust from the mining operations, edge effects, the spread of alien and invasive species, and fragmentation. Some common indigenous species remain.</p> <p>No avifauna Species of Conservation Concern (SCC) observed, and none are expected.</p>	
<p>Site GPS Reference: Marker 73 Date: 28/01/2026 GPS Coordinates: 25° 5'52.26"S 30° 6'53.64"E</p>	<p>Modified</p> <p>This habitat has been transformed from its natural state by ongoing activities, including roads, pipelines, dust, and edge effects from the mining activities. Very little to no indigenous flora remains.</p> <p>No avifauna SCC observed, and none are expected.</p>	
<p>Site GPS Reference: Marker 77 Date: 28/01/2026 GPS Coordinates: 25° 5'53.11"S 30° 6'49.75"E</p>	<p>Modified</p> <p>This habitat has been transformed from its natural state by ongoing activities, including roads, pipelines, dust, and edge effects from the mining activities. Very little to no indigenous flora remains.</p> <p>No avifauna SCC observed, and none are expected.</p>	

Survey Point	Habitat	Photographs
		
<p>Site GPS Reference: Marker 74 Date: 28/01/2026 GPS Coordinates: 25° 5'51.26"S 30° 6'52.04"E</p>	<p>Degraded Bushveld</p> <p>This habitat consists of bushveld that has become degraded over time due to ongoing disturbances from the mining operations, edge effects, the spread of alien and invasive species, and fragmentation. Some common indigenous species remains.</p> <p>No avifauna SCC were observed and none are expected.</p>	

6.4.2.4 Site Ecological Importance

The different habitat types within the proposed Project area were delineated and identified based on observations during the field assessment and available satellite imagery. These habitat types were assigned SEI categories based on their ecological integrity, conservation value, and the presence of SCC.

Two habitat types were delineated within the proposed Project area, namely the Degraded Bushveld and Modified habitat. Their respective SEI and the corresponding mitigation guidelines are summarised in **Table 6-8**.

Table 6-8: Summary of Avifaunal habitat types delineated within the field assessment area (The Biodiversity Company, 2026d)

Habitat Type	Conservation Importance	Functional Integrity	Biodiversity Importance	Receptor Resilience	Site Ecological Importance Guidelines
Degraded Bushveld	<p>Medium</p> <p>Confirmed or highly likely occurrence of populations of Near Threatened species, or threatened species classified as Critically Endangered, Endangered, or</p>	<p>Low</p> <p>Several minor and major current negative ecological impacts.</p>	<p>Low</p>	<p>Medium</p> <p>Will recover slowly (~ more than 10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a moderate likelihood of</p>	<p>Low</p> <p>Minimisation and restoration mitigation - development activities of medium to high impact acceptable followed by</p>

Habitat Type	Conservation Importance	Functional Integrity	Biodiversity Importance	Receptor Resilience	Site Ecological Importance Guidelines
	Vulnerable, listed under Criterion A only, and occurring at more than ten locations or comprising more than ten thousand mature individuals.			remaining at a site even when a disturbance or impact is occurring, or species that have a moderate likelihood of returning to a site once the disturbance or impact has been removed.	appropriate restoration activities.
Modified	Very Low No natural habitat remaining.	Very Low Several major current negative ecological impacts.	Very Low	Very High Habitat that can recover rapidly (~ less than 5 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a Very High likelihood of returning to a site even when a disturbance or impact is occurring, or species that have a Very High likelihood of returning to a site once the disturbance or impact has been removed.	Very Low Minimisation mitigation - development activities of medium to high impact acceptable and restoration activities may not be required.

6.4.3 Key Findings

The Screening Tool classified the proposed Project area as High sensitivity for the Animal Species Theme, primarily reflecting the broader regional biodiversity context rather than the site specific conditions within the mining footprint.

Desktop analysis indicates that several avifauna SCC occur within the wider landscape. However, the proposed Project area is located within a highly disturbed mining environment, characterised by infrastructure development, dust deposition and habitat fragmentation.

Field verification confirmed that the site contains Degraded Bushveld and Modified habitat, both of which provide limited ecological functionality and habitat value for avifauna. No SCC were observed during the field survey. The disturbed nature of the site significantly reduces the likelihood that the area supports important avifauna habitat features such as breeding territories or nesting sites.

6.4.4 Verified Sensitivity

Based on the combined findings of the desktop assessment, field verification survey and SEI evaluation, the specialist disputes the High sensitivity classification assigned by the Screening Tool for the Animal Species Theme.

The following specialist-verified sensitivity ratings were assigned:

- Degraded Bushveld: Low sensitivity.

- Modified habitat: Very Low sensitivity.

These ratings reflect:

- The degraded condition of the remaining vegetation.
- The absence of suitable breeding or nesting habitat for sensitive species.
- The absence of recorded SCC during the field survey.
- The already transformed nature of the mining landscape.

A comparison between the Screening Tool sensitivity and the specialist-verified sensitivity is summarised in Table 6-9, while the spatial distribution of the Screening Tool sensitivity is illustrated in Figure 6-17.

Table 6-9: Summary of Screening Tool and Specialist-Verified Avifaunal Sensitivity (The Biodiversity Company, 2026d)

Screening Tool Theme	Screening Tool	Habitat	Specialist	Tool Validated or Disputed by Specialist - Reasoning
Animal Theme	High	Degraded Bushveld	Low	Disputed - Habitat has been severely altered but still has the potential to support avifauna. Any Species of Conservation Concern (SCC) presence would be transient or temporary and would not be considered important habitat for the identified SCC.
		Modified	Very Low	Disputed - Habitat has been severely altered and has limited potential to support SCC.

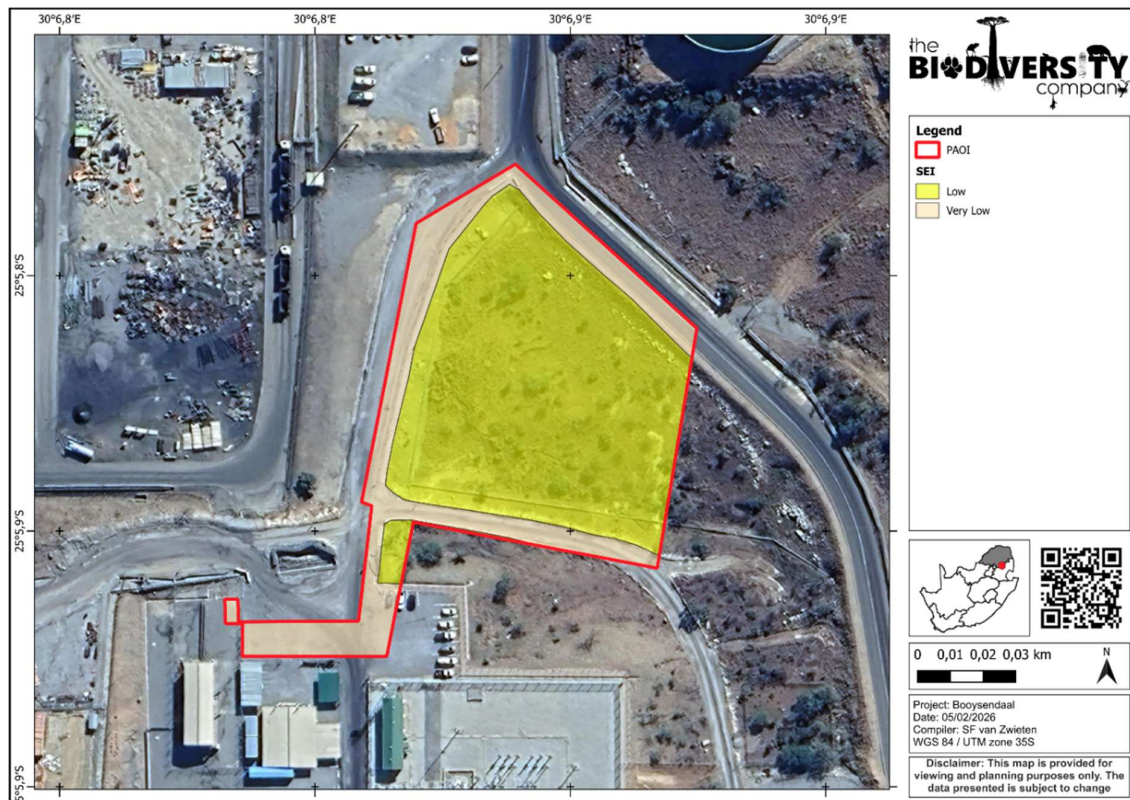


Figure 6-17: Specialist-Verified Avifauna Sensitivity Map (The Biodiversity Company, 2026d)

6.4.5 Conclusion

The avifauna assessment confirms that the proposed BN BESS Project area occurs within an already disturbed mining environment with limited habitat value for avifauna. Although several SCC may occur within the broader regional landscape, none were recorded within the proposed Project footprint and the site provides limited suitable habitat for sensitive species. Based on the desktop assessment, field verification survey and SEI evaluation, the verified avifauna sensitivity of the proposed Project area ranges from low to very low.

Provided that standard mitigation and management measures are implemented through the EMPr, the proposed Project is not expected to result in significant impacts on avifauna biodiversity. The site is therefore considered suitable for development within the context of the existing mining footprint and the BESS Exclusion Norm.

7 STATEMENTS

7.1 Hydropedology Statement

A hydropedology assessment was conducted by The Biodiversity Company and documented in the Hydropedology Statement for the Proposed Booyensdal North Battery Energy Storage System Project attached as APPENDIX G (The Biodiversity Company, 2026e). The purpose of the statement was to assess the hydropedological characteristics of the proposed Project area and to determine whether the proposed development may influence soil moisture movement, groundwater recharge processes, or adjacent watercourses within the surrounding catchment.

The specialist assessment was undertaken to inform the environmental assessment of the proposed Project and to support the BESS Exclusion Norm process. The assessment included a review of regional land type information, hydropedological modelling, and field verification of soil and hillslope conditions to evaluate potential impacts associated with the proposed Project.

The assessment confirmed that the Project area is located within a catchment dominated by recharge-type hydropedological soils, primarily associated with the Mispah soil form (shallow recharge soils) and, in some areas, the Swartland soil form (slow recharge soils). These soils typically occur within hillslope environments where rainfall infiltration and subsurface recharge processes contribute to groundwater recharge and downstream watercourse moisture regimes.

The location of drainage lines in relation to the proposed BN BESS Project footprint is illustrated in Figure 7-1 below.

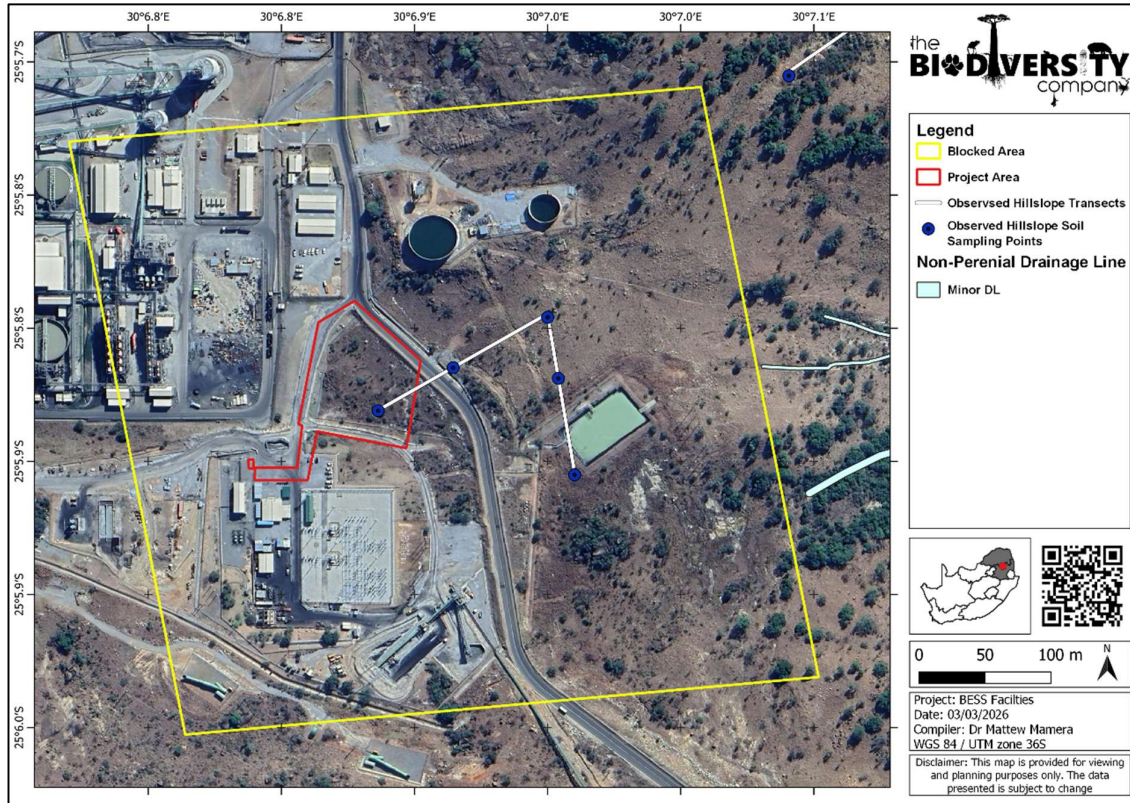


Figure 7-1: The identified drainage lines in relation to the proposed Booyesendal North Battery Energy Storage System Project (The Biodiversity Company, 2026e)

Two main hillslope hydrogeological patterns were identified within the catchment influencing the proposed Project area. The first pattern is characterised by shallow recharge soils extending from the crest through the midslope to the valley bottom, where vertical infiltration processes dominate and contribute to groundwater recharge before discharging toward adjacent watercourses. The second pattern includes areas where shallow recharge soils transition into slow recharge soils toward the lower midslope and valley bottom, allowing both vertical and lateral soil moisture movement before contributing to nearby drainage systems.

The assessed hillslope transects and hydrogeological patterns associated with the BN BESS Project are illustrated in **Figure 7-2**.

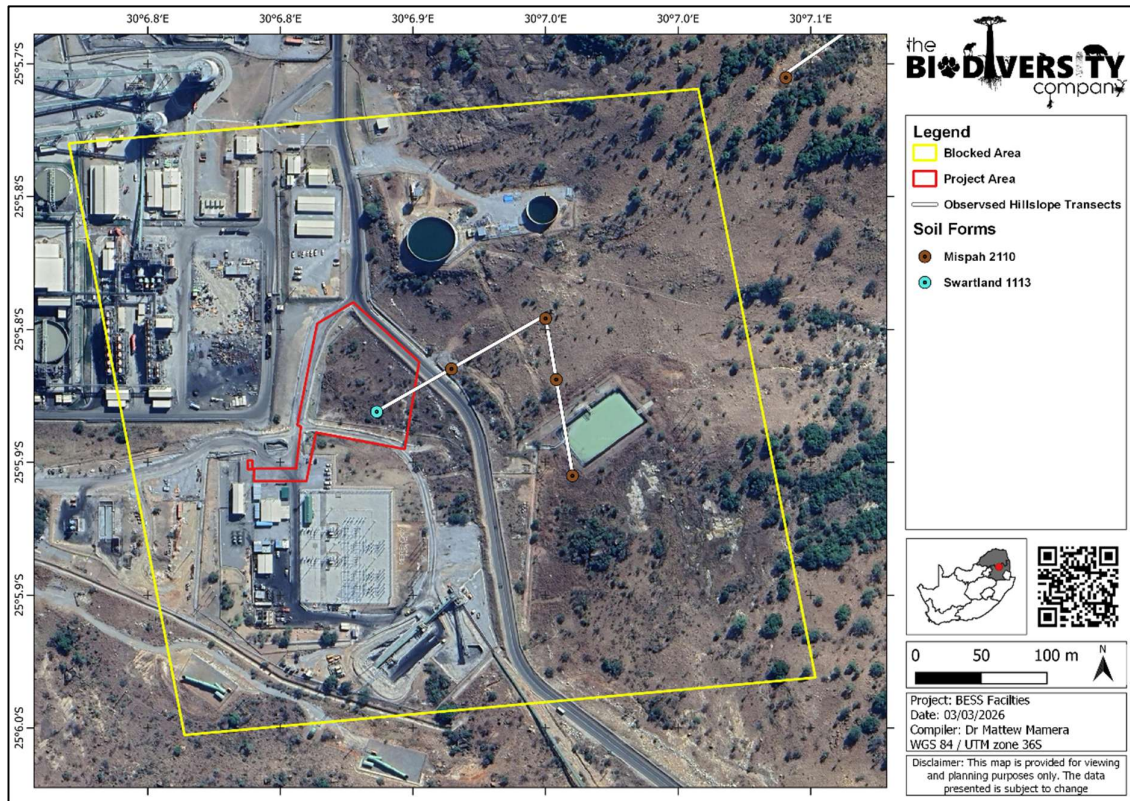


Figure 7-2: The assessed hillslope transects hydropedological patterns regarding the proposed Booysendal North Battery Energy Storage System Project (The Biodiversity Company, 2026e)

Hydrological modelling and catchment analysis indicate that the majority of water contributing to nearby drainage features originates from upstream areas of the catchment, particularly from areas located to the south and north-west of the proposed Project area. As a result, the relatively small footprint of the proposed Project represents only a minor component of the overall catchment hydrological system.

Although the development infrastructure may intercept minor shallow lateral soil moisture flows along hillslopes, these impacts are expected to be localised and limited, as vertical recharge processes and upstream catchment inputs remain the dominant sources of groundwater recharge and water availability within the system. Appropriate stormwater management and infrastructure design can further minimise any potential changes to surface runoff patterns or soil moisture distribution.

When the size of the proposed Project footprint is compared with the combined sub-basins responsible for supplying moisture to nearby watercourses, the modelling results indicate that even under a worst-case scenario, the potential reduction in moisture contribution to downstream drainage features would be less than 1% of the total catchment water regime. This reduction is considered negligible at the catchment scale, particularly given that the majority of hydrological inputs originate well upstream of the proposed Project area.

Based on these findings, the specialist concluded that the proposed Project is unlikely to result in significant impacts on groundwater recharge processes, soil moisture movement, or downstream

watercourse functioning. The anticipated hydrogeological impacts are therefore considered negligible and acceptable within the context of the surrounding catchment, and the findings support the conclusion that the proposed Project may proceed without significant hydrogeological constraints.

7.2 Civil Aviation Theme Statement

The Screening Tool identified the proposed Project area as having High sensitivity for the Civil Aviation Theme. This sensitivity classification is primarily associated with the presence of dangerous or restricted airspace within the broader region, as well as the proximity of the site to civil aviation aerodromes located within approximately 8 to 15 km of the proposed Project area. The High sensitivity classification reflects regional aviation safety considerations and the potential interaction between infrastructure development and aviation operations, particularly in areas where aircraft flight paths, controlled airspace, or aviation safety buffers may apply.

The proposed Project will consist of low-profile energy storage infrastructure, including battery containers, transformers and associated electrical infrastructure will not constitute tall vertical structures that could pose a significant obstacle to aviation operations. Furthermore, the development will occur within an existing operational mining environment that already contains established infrastructure, including buildings, roads and electrical infrastructure. As a result, the proposed Project is not expected to introduce new aviation hazards or materially alter existing aviation safety conditions within the surrounding area.

Based on the nature and scale of the proposed infrastructure, as well as the location of the development within an already disturbed mining area, the proposed BN BESS Project is not anticipated to result in insignificant impacts on civil aviation operations.

7.3 Defence Theme Statement

The Screening Tool identified the proposed Project area as having Low sensitivity for the Defence Theme, indicating that the site does not fall within areas associated with military bases, defence infrastructure, or strategic defence installations that could be affected by the proposed development.

The proposed BN BESS Project will be developed within the existing BN mining footprint, which is already an established industrial environment. The nature of the proposed infrastructure, consisting primarily of battery storage containers and associated electrical infrastructure, is not expected to result in any direct or indirect impacts on defence infrastructure, defence communication systems, or military operational areas.

Based on the Screening Tool outcome and the characteristics of the proposed Project, no defence-related constraints have been identified for the Project, and the proposed development is therefore considered compatible with the Defence Theme requirements.

8 HERITAGE ASSESSMENT, INCLUDING PALAEOLOGY

A HIA was conducted by Digby Wells Environmental and documented in the Heritage Impact Assessment Report for the Proposed Boysendal North Battery Energy Storage System Project (Digby

Wells Environmental, 2026) attached as **APPENDIX H**. The purpose of the study was to assess the presence of heritage resources within the proposed Project footprint and to determine whether any archaeological, historical, cultural heritage, or palaeontological resources occur within the area that may be affected by the proposed Project. The findings of this specialist assessment are summarised below.

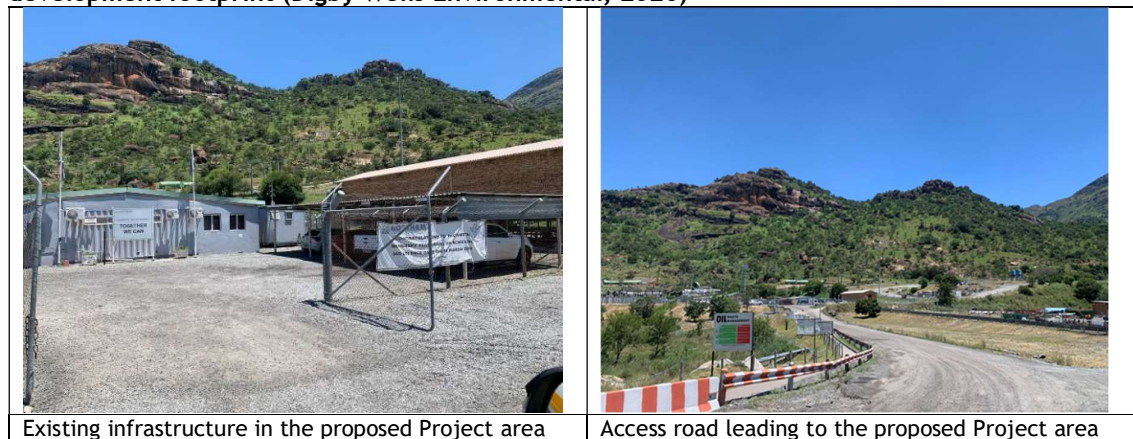
8.1 Description of the Physical Environment

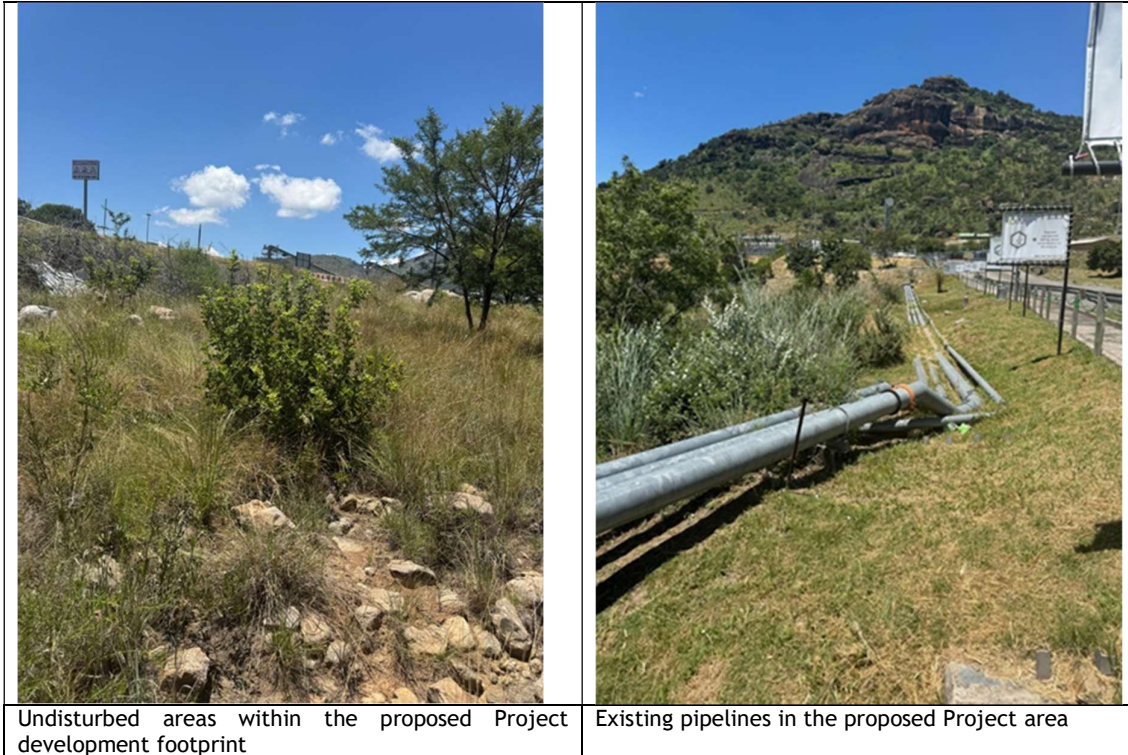
The proposed Project footprint is situated within the established mining landscape of the Booyesendal operations and is characterised by existing mining-related infrastructure, including offices, parking areas and associated facilities linked to BN. To the east of the proposed Project footprint, a reservoir, mining access road and pollution control dam are present. The broader area reflects a high degree of anthropogenic disturbance, including pipelines, overhead powerlines, formalised parking areas and evidence of previous excavations.

From a biophysical perspective, the site falls within the transition between Sekhukhune Mountain Bushveld, Lydenburg Montane Grassland and Sekhukhune Montane Grassland vegetation types. The wider terrain is generally rocky, with shallow soils and scattered outcrops. Vegetation comprises overgrown grasses and shrubs typical of montane grassland systems, with occasional mature trees.

The physical environment is directly relevant to the heritage assessment. Vegetation density affects survey visibility and the likelihood of identifying heritage resources. An understanding of the environmental context is therefore essential in evaluating both the probability of heritage occurrence and the potential impact of the proposed Project. A visual depiction of the physical environment can be seen in **Table 8-1**.

Table 8-1: Physical Environment of the proposed Booyesendal North Battery Energy Storage System development footprint (Digby Wells Environmental, 2026)





8.2 Specialist Field Verification

The specialist assessment included both desktop analysis and field verification surveys undertaken in accordance with GN 320.

8.2.1 Desktop Assessment

The desktop assessment involved a review of available literature and heritage information sources to establish a baseline heritage profile of the study area and to identify any known or potential heritage resources within and around the proposed Project footprint. Key information sources considered included:

- Academic peer-reviewed articles relating to the archaeology and history of the Limpopo Province.
- Published books and historical literature documenting the archaeological and cultural history of the region.
- Previous HIA conducted in the surrounding area and available on the South African Heritage Resources Information System (SAHRIS).

The desktop review was undertaken to gain an understanding of the cultural landscape within which the proposed Project is located and to identify any potential sensitive heritage areas, known heritage resources, or other cultural features that may require consideration during the field verification survey.

8.2.2 Field Verification Survey

A field verification survey was undertaken on 4 February 2026. The survey included site inspections and observations to verify the presence of any heritage resources within the proposed Project footprint. The survey was undertaken during the summer, when vegetation was high, limiting visibility in undeveloped areas.

The field investigation focused on identifying any archaeological, historical, cultural heritage, or palaeontological features that may occur within the site and determining whether any heritage resources of significance could potentially be affected by the proposed Project. GPS tracks were recorded during the survey to demonstrate the spatial coverage of the field assessment (**Figure 8-1**).

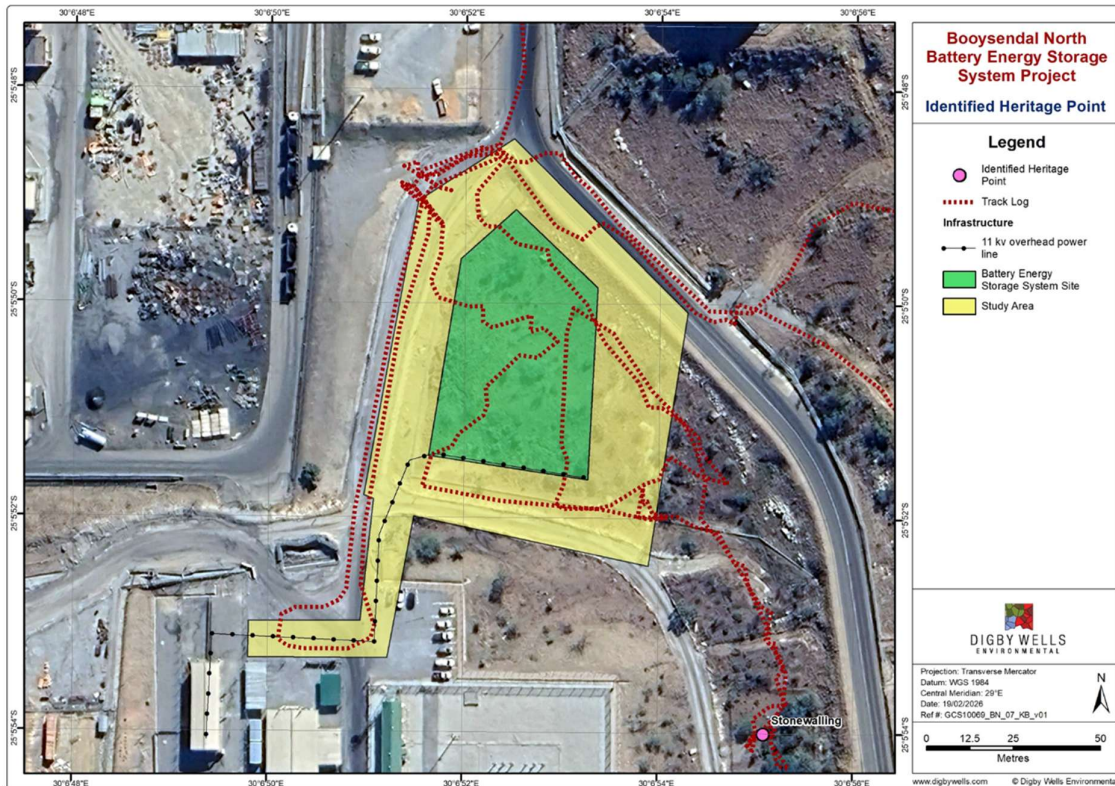


Figure 8-1: Map illustrating the Global Positioning System tracks of the specialist during the Heritage field survey (Digby Wells Environmental, 2026)

8.2.3 Field Survey Findings

The field assessment confirmed that the proposed Project footprint was surveyed and no heritage resources, as defined in Section 3 of the NHRA, were identified within the proposed Project footprint. The spatial relationship between the proposed Project footprint and previously recorded heritage resources in the wider landscape is illustrated in **Figure 8-2**.

The field assessment results are summarised according to the recognised heritage resource categories:

Palaeontological Resources

The SAHRIS Palaeontological Sensitivity Map classifies the underlying geology of the proposed Project area as having insignificant palaeontological sensitivity. No fossil material or palaeontological indicators were observed during the field assessment. A Chance Find Procedure (CFP) will be implemented during construction, operation and decommissioning to manage any unexpected fossil discoveries.

Archaeological Resources

No archaeological resources were identified within the proposed Project footprint during the field survey.

Built Environment

No buildings, structures or built environment features older than 60 years were identified within the proposed Project footprint. Desktop review confirmed that known historical structures in the wider area occur outside the development impact area.

Burial Grounds and Graves

No formal cemeteries, informal graves or burial features were identified within the proposed Project footprint during the field survey. Review of the Genealogical Society of South Africa database and previous heritage assessments confirmed that recorded cemeteries in the broader area are located outside the defined impact zone.

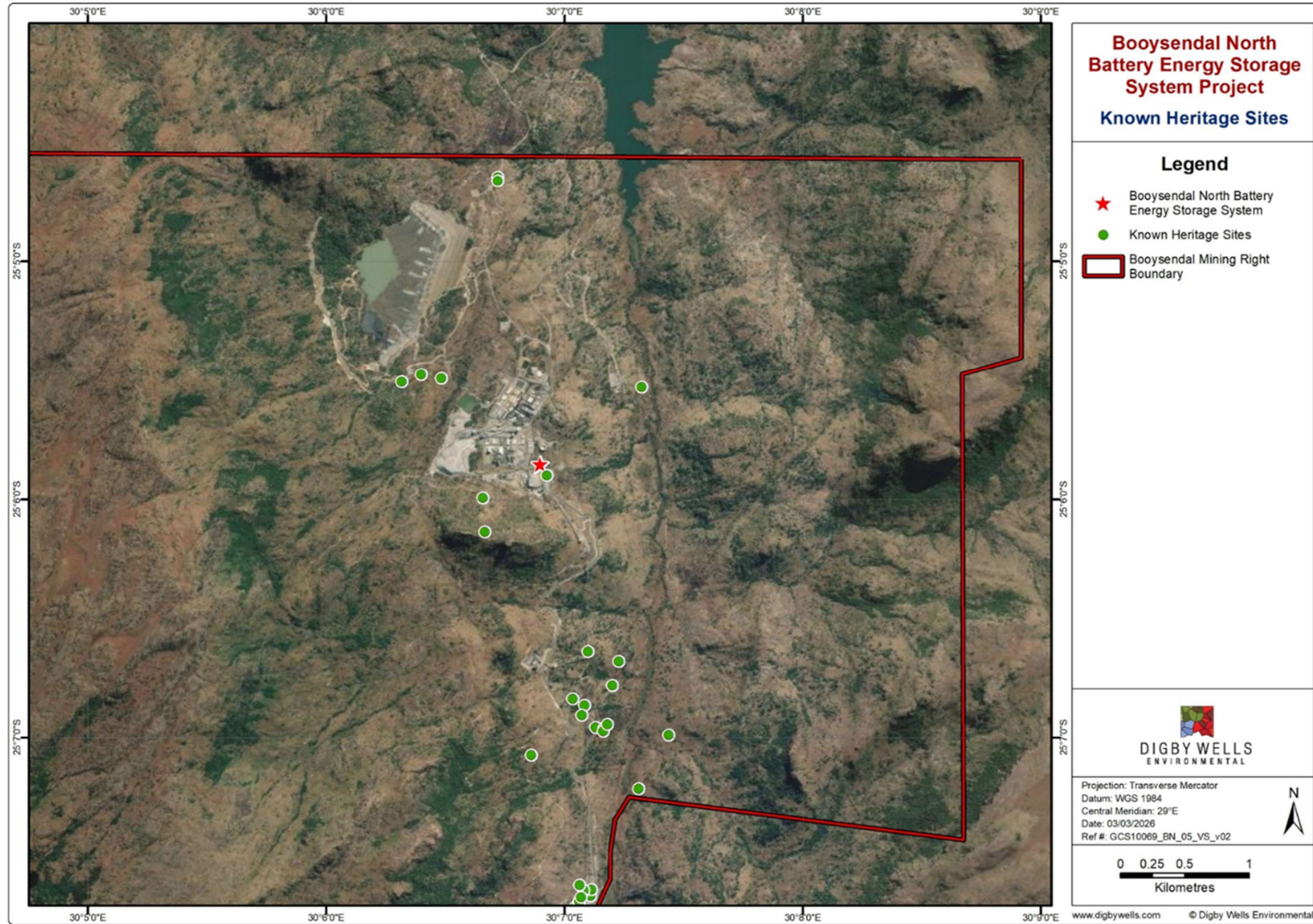


Figure 8-2: Heritage Resources in the Wider Area (Digby Wells Environmental, 2026)

8.3 Key Findings

The HIA undertaken for the proposed Project confirmed the following key findings:

- The broader study area reflects evidence of Stone Age, Iron Age and historical period occupation, although no heritage resources were identified within the proposed Project footprint.
- Previous heritage surveys in the wider region have recorded more than 240 heritage sites, including Stone Age artefacts, Iron Age settlements and historical features.
- An Iron Age stone walled site occurs approximately 63.44 m south-west of the proposed Project footprint. However, the site is fenced, falls outside the development area and will not be impacted by the proposed Project.
- The SAHRIS Palaeontological Sensitivity Map classifies the underlying geology of the proposed Project area as having insignificant palaeontological sensitivity.
- No fossil material or palaeontological indicators were observed during the field survey.
- No buildings or structures older than 60 years were identified within the proposed Project footprint.
- Review of the Genealogical Society of South Africa cemetery database and previous heritage assessments confirmed that recorded cemeteries in the broader area are located several kilometres from the proposed Project footprint.
- The proposed Project area occurs within an existing disturbed mining landscape associated, where historical land use and mining activities have already transformed the cultural landscape.

The findings of the specialist investigation therefore indicate that no heritage resources occur within the proposed Project footprint and no direct or indirect impacts on heritage resources are anticipated.

8.4 Conclusion

The HIA undertaken for the proposed Project concluded that no heritage resources occur within the proposed Project footprint. Both the desktop review and site verification confirmed the absence of archaeological sites, historical structures, burial grounds or other cultural heritage features within the proposed Project footprint.

The broader Dwarsrivier Valley forms part of a culturally significant landscape with evidence of Stone Age and Iron Age occupation, and numerous heritage resources have previously been recorded in the wider region. However, none of these occur within the proposed Project footprint. The Iron Age stone walled site, located approximately 63.44 m south-west of the proposed development area, falls outside the proposed Project footprint and will therefore not be affected by the proposed Project.

With regard to palaeontological resources, the SAHRIS Palaeontological Sensitivity Map classifies the

underlying geology of the Project area as having insignificant palaeontological sensitivity, and no fossil material or palaeontological indicators were observed during the field assessment.

The proposed Project will be located within an existing and actively mined environment, where the cultural landscape has already been substantially modified by historical and ongoing mining activities. As such, the development is not expected to materially alter the integrity or character of the broader cultural landscape.

Based on the findings of the specialist assessment, no direct or indirect impacts on heritage or palaeontological resources are anticipated and the proposed Project is considered suitable to proceed from a heritage perspective, subject to approval by the SAHRA and the implementation of a CFP and heritage awareness training for construction personnel.

9 FINAL REHABILITATION, DECOMMISSIONING AND MINE CLOSURE PLAN

Final Rehabilitation, Decommissioning, and Mine Closure Plan (FRDCP) was undertaken by Natural Evolution Group and is documented in the Final Rehabilitation, Decommissioning and Mine Closure Plan for the Proposed Booyesendal North Battery Energy Storage System Project (Natural Evolution Group, 2026) attached as **APPENDIX I**. The report outlines the framework and financial provisions for restoring the proposed Project footprint, aiming to return it to a safe, stable, and non-polluting condition compatible with surrounding land uses and long-term environmental objectives.

The proposed Project comprises critical infrastructure, including substations, transformers, steel and concrete structures, and access roads. This FRDCP details the decommissioning activities required, encompassing the safe dismantling of specialised electrical equipment, demolition of reinforced concrete structures, and rehabilitation of all disturbed areas to restore ecological and visual integrity.

9.1 Closure Vision and Post-closure Land Use

According to the 2010 Booyesendal EMPr (Ivuzi Environmental Consultants (Pty) Ltd, 2009), the Mine is committed to recovering all saleable infrastructure, ripping all compacted areas, and thereafter ameliorating and re-vegetating the disturbed land. All buildings and structures will be demolished as part of the closure process. A key component of the rehabilitation commitment is the post-closure maintenance of vegetation and the implementation of ongoing weed management.

One of the specialist studies supporting the EMPr, regarding soil and land capability and agricultural potential (Scientific Aquatic Services, 2009), prescribes that soil amelioration should involve restoring the site to pre-mining contours and aspect, as well as ripping the disturbed footprint to alleviate compaction. The ripped footprint must subsequently be covered with topsoil sourced from stockpiled material. The achievable soil depth following rehabilitation will determine the potential vegetative cover and the resulting land capability.

The most recent agricultural SSVR (The Biodiversity Company, 2026a) confirms that soils at the proposed Project footprint are predominantly Mispah soil form, with very shallow usable layers and limited agricultural potential. Historical mining impacts have already altered the site, reducing the risk of additional agricultural loss and supporting rehabilitation to conditions comparable with the

surrounding post-mining landscape.

Geohydrological information contained in the hydrogeology statement (The Biodiversity Company, 2026e) indicates that surface rehabilitation will be sufficient and will not adversely affect underlying aquifers.

9.2 Financial Liability Calculation

The financial provision for rehabilitation and closure has been calculated in accordance with the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) (MPRDA) to ensure sufficient funding for the decommissioning of infrastructure and the rehabilitation of the approximately 3 510 m² development footprint at the end of the facility's operational life.

End-of-life battery units will be managed by the OEM or authorised service providers to ensure compliant recycling or disposal in accordance with applicable environmental legislation and industry best practice.

9.2.1 Project Description for Decommissioning and Closure

The proposed Project footprint decommissioning phase will involve the dismantling and removal of all infrastructure within the facility footprint. Infrastructure components will be returned to the OEM where applicable, recycled where feasible, or disposed of at licensed waste management facilities in accordance with waste management requirements.

All concrete infrastructure, including platforms, culverts and access roads, will be demolished and removed. Compacted areas will be ripped to a depth of 600 mm along contour lines to alleviate compaction and reduce erosion risk. Additional erosion control measures, including the use of biodegradable erosion prevention technologies, will be implemented where required.

The rehabilitated surface will be covered with ameliorated soil and topsoil sourced from the Mine's approved topsoil stockpiles to support vegetation establishment. Rehabilitation efforts will aim to restore vegetation cover as close as possible to the surrounding natural vegetation.

The rehabilitated area will be maintained for a period of five years, during which the site will be assessed annually to evaluate the success of the rehabilitation measures. Provision has also been made for reseeded of the rehabilitated areas during the first two years, should vegetation establishment be insufficient.

9.2.2 Cost Breakdown

Table 9-1 presents the estimated closure cost breakdown summary for the proposed Project based on preliminary design information (Zutari, 2025). Costs were primarily calculated using the Department of Mineral Resources and Energy (DMRE) Master Rates, with additional estimates derived from comparable industry projects where required.

Where detailed specifications were unavailable, infrastructure dimensions were estimated using industry references, and costs were benchmarked against historical rehabilitation projects and adjusted for inflation.

Based on the available design information, the closure cost estimate has an accuracy of approximately $\pm 30\%$ (70% confidence level).

Table 9-1: Cost Breakdown Summary of the Booyensdal North Battery Energy Storage Facility (Natural Evolution Group, 2026)

SUM of Closure Components			R1,025,003.77
SUB TOTAL 1 (DMRE Weighting Factor 2)		1.1	R1,127,504.15
12%	Preliminary and General		R135,300.50
10%	Contingency		R112,750.42
SUB-TOTAL 2 (Preliminary and General + Contingency)			R248,050.91
SUB TOTAL 3 (Excluding VAT)			R1,375,555.07
15%	VAT@15%		R206,333.26
GRAND TOTAL			R1,581,888.33

9.3 Conclusion

The FRDCP for the proposed Project footprint provides a comprehensive and transparent assessment of the technical and financial requirements necessary to achieve responsible closure. By identifying specific decommissioning activities, including the dismantling of electrical infrastructure, transformers, and the removal of concrete structures and footings, the plan ensures that the physical footprint of the facility will be fully rehabilitated and stabilised at the end of its operational life.

The financial provision calculated in this report reflects a realistic estimate of the actual closure costs, including allowances for specialist assessments and post-closure monitoring. This approach ensures that sufficient financial resources are available to implement the rehabilitation strategy effectively, thereby preventing the externalisation of environmental costs to the public or the State.

In conclusion, the successful implementation of this plan will result in a site that is physically stable, chemically non-contaminating, and capable of supporting sustainable vegetation cover. Periodic review and updating of this plan will be required to account for inflationary adjustments to the DMRE Master Rates, as well as any potential changes to the operational scope of the proposed Project.

Provided that the mitigation measures and monitoring protocols outlined in the FRDCP are implemented as specified, the proposed Project is expected to achieve sustainable closure outcomes aligned with South African environmental legislation and recognised best practice in mine rehabilitation and closure planning.

10 IMPACT ASSESSMENT

10.1 Methodology Used in Determining the Significance of Environmental Impacts

The impacts of the proposed Project have been assessed and rated according to the methodology described below and which was developed to align with the requirements of Appendix 3 of the EIA Regulations, 2014. The assessment process will follow a structured approach comprising four key activities:

- Identification and assessment of potential impacts likely to result from the project activities.
- Prediction of the nature, magnitude, extent, and duration of these impacts, with specific

focus on those that may be significant.

- Identification of appropriate mitigation measures to reduce, avoid, or manage the severity or significance of the potential impacts.
- Evaluation of residual impacts to determine the significance of the impact after implementation of mitigation measures.

The assessment of significance was guided by a set of criteria, including:

- Cumulative impacts in the broader environmental and social context.
- Nature of the impact, i.e., whether it is positive, negative, direct, or indirect.
- Extent of the impact, ranging from localised to regional or national scale.
- Probability of occurrence of the impact.
- Reversibility of the impact, i.e., whether it can be restored to pre-impact conditions.
- Irreplaceability of affected resources, considering whether resources lost can be substituted or recovered.
- Potential for mitigation, i.e., the extent to which the impact can be avoided, minimised, or offset.

The evaluation of significance followed a consequence-probability approach:

$$\text{Consequence} = (\text{Duration} + \text{Extent} + \text{Irreplaceability of resource}) \times \text{Severity}$$

The overall significance of an impact was then determined using the formula:

$$\text{Significance} = \text{Consequence} \times \text{Probability}$$

A summary of the criteria used to assess the significance of impacts is provided in **Table 10-1**, with detailed explanations presented in **Table 10-2**.

Table 10-1: Criteria and Rating Scales to be used in the Assessment of the Potential Impacts

Criteria	Rating Scales	Notes
Nature	Positive (+)	An evaluation of the effect of the impact related to the proposed development.
	Negative (-)	
Duration	Temporary (1)	The duration of the activity associated with the impact will last 0 - 6 months.
	Short-term (2)	The duration of the activity associated with the impact will last 6-18 months.
	Medium-term (3)	The duration of the activity associated with the impact will last 18 months - 5 years.
	Long-term (4)	The duration of the activity associated with the impact will last more than 5 years.
Extent	Footprint (1)	The impact only affects the area in which the proposed activity will occur.
	Site (2)	The impact will affect only the development area.
	Local (3)	The impact affects the development area and adjacent properties.
	Regional (4)	The effect of the impact extends beyond municipal boundaries.
	National (5)	The effect of the impact extends beyond more than 2 regional/provincial boundaries.
	International (6)	The effect of the impact extends beyond country borders.

Criteria	Rating Scales	Notes
Severity	Low (1)	Where the impact affects the environment in such a way that natural, cultural, and social functions and processes are minimally affected.
	Moderate (2)	Where the affected environment is altered but natural, cultural, and social functions and processes continue albeit, in a modified way, and valued, important, sensitive, or vulnerable systems or communities are negatively affected.
	High (3)	Where natural, cultural, or social functions and processes are altered to the extent that the natural process will temporarily or permanently cease, and valued, important, sensitive, or vulnerable systems or communities are substantially affected.
Potential for impact on irreplaceable resources	No (0)	No irreplaceable resources will be impacted.
	Yes (1)	Irreplaceable resources will be impacted.
Consequence	Extremely detrimental (-25 to -33)	A combination of extent, duration, intensity, and the potential for impact on irreplaceable resources.
	Highly detrimental (-19 to -24)	
	Moderately detrimental (-13 to -18)	
	Slightly detrimental (-7 to -12)	
	Negligible (-6 to 0)	
	Slightly beneficial (0 to 6)	
	Moderately beneficial (13 to 18)	
	Highly beneficial (19 to 24)	
Probability (the likelihood of the impact occurring)	Improbable (0)	It is highly unlikely or less than 50% likely that an impact will occur.
	Probable (1)	It is between 50 and 70% certain that the impact will occur.
	Definite (2)	It is more than 75% certain that the impact will occur or the impact will occur.
Significance	Very High - negative (-49 to -66)	A function of Consequence and Probability.
	High - negative (-37 to -48)	
	Moderate - negative (-25 to -36)	
	Low - negative (-13 to -24)	
	Neutral - Very low (0 to -12)	
	Low positive (0 to 12)	
	Moderate-positive (13 to 24)	
	High-positive (37 to 48)	
Very High - positive (49 to 66)		

Table 10-2: Explanation of Assessment Criteria

Criteria	Explanation
Nature	This is an evaluation of the type of effect the construction, operation, and management of the proposed development would have on the affected environment. Will the impact of change on the environment be positive, negative, or neutral?
Extent or Scale	This refers to the spatial scale at which the impact will occur. The extent of the impact is described as footprint (affecting only the footprint of the development), site (limited to the site), and regional (limited to the immediate surroundings and closest towns to the site). The extent of scale refers to the actual physical footprint of the impact, not to the spatial significance. It is acknowledged that some impacts, even though they may be of a small extent, are of Very High importance, e.g., impacts on species of very restricted range. To avoid "double counting," specialists have been

Criteria	Explanation
	requested to indicate spatial significance under “intensity” or “impact on irreplaceable resources” but not under “extent” as well.
Duration	The lifespan of the impact is indicated as temporary, short, medium, and long-term.
Severity	This is a relative evaluation within the context of all the activities and the other impacts within the framework of the project. Does the activity destroy the impacted environment, alter its functioning, or render it slightly altered?
Impact on irreplaceable resources	This refers to the potential for an environmental resource to be replaced should it be impacted. A resource could be replaced by natural processes (e.g., by natural colonisation from surrounding areas), through artificial means (e.g., by reseeded disturbed areas or replanting rescued species) or by providing a substitute resource, in certain cases. In natural systems, providing substitute resources is usually not possible, but in social systems, substitutes are often possible (e.g., by constructing new social facilities for those who are lost). Should it not be possible to replace a resource, the resource is essentially irreplaceable, e.g., red data species that are restricted to a particular site or habitat to a very limited extent.
Consequence	The consequence of the potential impacts is a summation of the above criteria, namely the extent, duration, intensity, and impact on irreplaceable resources.
Probability of occurrence	The probability of the impact occurring is based on the professional experience of the specialist with environments of a similar nature to the site and/or with similar projects. It is important to distinguish between the probability of the impact occurring and the probability that the activity causing a potential impact will occur. Probability is defined as the probability of the impact occurring, not as the probability of the activities that may result in the impact.
Significance	Impact significance is defined to be a combination of the consequence (as described below) and the probability of the impact occurring. The relationship between consequence and probability highlights that the impact (or impact significance) must be evaluated in terms of the seriousness (consequence) of the impact, weighted by the probability of the impact occurring. In simple terms, if the consequence and probability of an impact are high, then the impact will have a high significance. The significance defines the level to which the impact will influence the proposed development and/or environment. It determines whether mitigation measures need to be identified and implemented and whether the impact is important for decision-making.
Degree of confidence in predictions	Specialists and the environmental team were required to indicate the degree of confidence (low, medium, or high) that there is in the predictions made for each impact based on the available information and their level of knowledge and expertise. The degree of confidence is not considered in the determination of consequence or probability.
Mitigation measures	Mitigation measures are designed to reduce the consequence or probability of an impact or to reduce both consequence and probability. The significance of impacts has been assessed both with mitigation and without mitigation.

10.1.1 Cumulative Assessment

In terms of the EIA Regulations, 2014, cumulative impacts refer to: *“The past, current and reasonably foreseeable future impact of an activity, considered together with the impact of activities associated with that activity, that in itself may not be significant, but may become significant when added to the existing and reasonably foreseeable impacts eventuating from similar or diverse activities.”*

The cumulative impact assessment for the proposed Project will be undertaken using a structured qualitative methodology, supported where possible by quantitative indicators and spatial analysis. The purpose of the assessment is to determine the extent to which the proposed Project may contribute to existing or future environmental pressures when considered together with other

developments occurring within the broader landscape.

The assessment will consider existing developments, authorised developments, and reasonably foreseeable future activities within the surrounding area that may interact with the proposed Project to create cumulative environmental effects.

10.2 The Potential Positive and Negative Impacts

The potential environmental impacts associated with the proposed BN BESS Project were identified and assessed using the significance rating methodology described in **Section 10.1**. The assessment considered the nature, duration, extent, severity, probability, and potential impact on irreplaceable resources for each identified impact. Significance ratings were calculated both prior to mitigation and following the implementation of recommended mitigation measures. The potential impacts per environmental aspect are discussed below.

10.2.1 Construction Phase

10.2.1.1 Agricultural

The proposed Project is located within a disturbed mining landscape where soil profiles, land capability and surface conditions have already been significantly altered by long-term mining activities, infrastructure development and vegetation disturbance. The agricultural sensitivity assessment confirmed that the site is characterised by shallow to moderately deep soils with low clay content and restrictive substratum horizons, including Swartland, Mispah, Johannesburg and Witbank soil forms. These soils correspond to Land Capability Classes IV, VI and VIII and Land Potential Levels 6 to 8, indicating very restricted to very low agricultural potential and largely non-arable conditions.

In addition, the climatic regime, classified as Climatic Capability Class C8, imposes severe limitations on agricultural productivity due to high evapotranspiration rates relative to precipitation. As such, the baseline condition of the receiving environment already reflects low agricultural value and limited ecosystem service provision in terms of food production.

During construction, potential impacts on soils and land capability may arise through:

- Vegetation clearing and topsoil stripping;
- Earthworks and compaction from heavy machinery;
- Soil erosion from exposed surfaces; and
- Stockpiling and handling of topsoil.

These activities may result in localised degradation of soil structure, increased erosion susceptibility, and loss of topsoil. However, given the already low agricultural potential and disturbed nature of the site, the magnitude of impact on agricultural resources is inherently limited.

Prior to mitigation, the impact is assessed as low significance, primarily due to the localised extent and low sensitivity of the receiving environment. The implementation of mitigation measures as outlined in the EMPr, including:

- Restricting disturbance to the demarcated footprint;
- Implementing erosion control measures (e.g. geotextiles, contouring, sediment barriers);
- Appropriate topsoil management and stockpile protection; and
- Rehabilitation of disturbed areas using indigenous vegetation;

will reduce the extent, duration and severity of impacts.

Post-mitigation, the residual impact is reduced to very low significance, with high confidence. No loss of high-value agricultural land is anticipated, and impacts are considered acceptable and reversible within the context of the existing mining landscape.

10.2.1.2 Terrestrial Biodiversity

The proposed Project is located within an existing disturbed mining landscape where natural habitat has been significantly altered by ongoing mining activities, infrastructure development, dust deposition and vegetation disturbance. The terrestrial biodiversity assessment confirmed that the Project footprint is characterised by Degraded Bushveld and Modified habitat, both of which exhibit reduced ecological integrity and limited habitat functionality. No flora or fauna SCC were recorded within the site, and habitat suitability for sensitive species is considered low.

The Degraded Bushveld habitat remains partially functional but is affected by fragmentation, edge effects and the presence of alien invasive species, while the Modified habitat has been substantially transformed, with little to no remaining natural vegetation. As such, the baseline condition reflects Low to Moderate ecological sensitivity at a site specific scale.

During construction, potential impacts on terrestrial biodiversity may arise through:

- Vegetation clearing and grubbing;
- Habitat disturbance from construction activities and vehicle movement;
- Creation of temporary access routes; and
- Spread of alien invasive species due to soil disturbance.

These activities may result in loss of remaining vegetation, further habitat degradation and increased fragmentation. However, given the already disturbed nature of the site and limited ecological value, the magnitude of impact is considered limited.

Prior to mitigation, the impact is assessed as Low to Moderate significance, with vegetation loss and habitat disturbance rated as low, and invasive species spread rated as moderate due to the potential for cumulative effects. The implementation of mitigation measures as outlined in the EMPr, including:

Demarcation of the construction footprint;

- Restricting all activities to authorised areas;
- Use of existing access routes;

- Implementation of alien invasive species control; and
- Rehabilitation of disturbed areas;

will reduce the extent and severity of impacts.

Post-mitigation, the residual impact is reduced to very low to low significance, with high confidence. Impacts are considered localised, manageable and reversible within the context of the existing mining environment.

10.2.1.3 Aquatic Biodiversity

The proposed Project is located within a broader FEPA sub-catchment; however, specialist field verification confirmed that no wetlands, drainage lines, watercourses or aquatic features occur within the Project footprint. The site is characterised by well-drained terrestrial soils and lacks hydromorphic indicators, wetland vegetation or surface water flow features.

The elevated sensitivity identified by the Screening Tool is therefore reflective of the regional catchment context rather than site specific conditions. The baseline aquatic sensitivity of the Project footprint is considered low.

During construction, potential impacts on the aquatic environment may arise through:

- Sediment runoff from exposed soils;
- Contamination of stormwater from hydrocarbons, chemicals or construction materials; and
- Alteration of local runoff patterns due to earthworks.

These activities may result in localised water quality impacts if not properly managed. However, no direct aquatic receptors are present within the footprint.

Prior to mitigation, the impact is assessed as Low to Moderate significance, particularly where pollution risks are associated with construction activities. The implementation of mitigation measures as outlined in the EMPr, including:

- Installation of sediment control structures;
- Implementation of stormwater management systems;
- Isolation of pollution sources from drainage pathways; and
- Controlled storage and handling of hazardous materials;

will prevent contamination and control runoff.

Post-mitigation, the residual impact is reduced to very low significance, with high confidence. Given the absence of aquatic features within the footprint and the limited hydrological contribution of the site, impacts are considered negligible at a catchment scale.

10.2.1.4 Avifauna

The proposed Project area is located within a disturbed mining landscape where habitat conditions

have been significantly altered by infrastructure development, dust deposition and vegetation disturbance. The avifauna assessment confirmed that the site comprises Degraded Bushveld and Modified habitat, both of which provide limited habitat suitability for avifauna. No SCC were recorded during the field survey. Although the broader region may support avifauna of conservation importance, the Project footprint itself does not provide suitable breeding, nesting or foraging habitat. The baseline sensitivity of the site is therefore low.

During construction, potential impacts on avifauna may arise through:

- Noise and disturbance from construction activities;
- Vegetation clearing; and
- Increased human presence and vehicle movement.

These activities may result in temporary displacement of common bird species.

Prior to mitigation, the impact is assessed as low significance, given the limited ecological value of the site. The implementation of mitigation measures as outlined in the EMPr, including:

- Restricting disturbance to the defined footprint;
- Minimising unnecessary vegetation clearing; and
- Rehabilitation of disturbed areas;

will reduce disturbance and habitat loss.

Post-mitigation, the residual impact is reduced to very low significance, with high confidence. Impacts are temporary, localised and reversible, and are considered negligible.

10.2.1.5 Hydropedology

The proposed Project is located within a catchment dominated by recharge-type soils, where hydrological processes are primarily driven by regional catchment dynamics rather than local site conditions. The hydropedological assessment confirmed that the Project footprint contributes minimally to groundwater recharge and soil moisture movement within the broader system.

The site is characterised by shallow recharge soils, including Mispah and Swartland forms, which facilitate vertical infiltration and limited lateral flow. The baseline sensitivity of the site is considered low.

During construction, potential impacts on hydropedological processes may arise through:

- Earthworks and soil disturbance;
- Surface compaction; and
- Alteration of local runoff patterns.

These activities may result in minor localised changes to soil moisture movement and infiltration.

Prior to mitigation, the impact is assessed as low significance, given the small footprint of the Project

relative to the catchment. The implementation of mitigation measures as outlined in the EMPr, including:

- Stormwater management controls;
- Maintaining natural drainage patterns; and
- Stabilisation of disturbed surfaces;

will minimise disruption to hydrological processes.

Post-mitigation, the residual impact is reduced to very low significance, with high confidence. Modelling indicates that impacts on catchment scale hydrology are negligible, and the impact is considered acceptable.

10.2.1.6 Heritage Assessment, Including Palaeontology

The proposed Project is located within a previously disturbed mining environment where the cultural landscape has already been significantly altered by historical and ongoing mining activities. The heritage assessment confirmed that no archaeological, palaeontological or cultural heritage resources occur within the Project footprint. Although heritage resources are present within the broader region, these occur outside the development area and will not be directly impacted.

Despite the absence of identified heritage resources, the potential risk remains that previously unidentified subsurface heritage material may be encountered during construction activities. The baseline sensitivity of the receiving environment is therefore considered low; however, the consequence of impacting unknown heritage resources is inherently high due to their irreplaceable nature.

During construction, potential impacts on heritage resources may arise through:

- Earthworks, excavations and foundation construction; and
- Accidental disturbance or destruction of previously unidentified heritage resources.

These activities may result in the irreversible loss of cultural heritage resources if present. Based on the impact assessment table, the impact is therefore rated as high significance prior to mitigation, reflecting the potential consequence associated with impacting irreplaceable resources.

The implementation of mitigation measures as outlined in the EMPr, including:

- Implementation of a CFP;
- Immediate cessation of work if heritage resources are discovered; and
- Notification of the relevant heritage authority for further instruction;

will ensure that any heritage resources encountered are appropriately managed and protected.

Post-mitigation, the residual impact is reduced to very low significance, with high confidence. The implementation of the CFP effectively mitigates the risk of irreversible impacts, and the overall impact is considered acceptable and manageable.

10.2.2 Operational Phase

10.2.2.1 Agricultural

The proposed Project will operate within a historically disturbed mining landscape where soil profiles, land capability and surface conditions have already been significantly altered by long-term mining activities, infrastructure development and vegetation disturbance. The agricultural sensitivity assessment confirmed that the site is characterised by soils of low agricultural potential, with limited capacity to support cultivation or grazing.

No additional disturbance of agricultural land is anticipated during the operational phase, as all infrastructure will be confined to the established development footprint. As such, the baseline condition of the receiving environment remains unchanged from the construction phase and reflects low agricultural value.

During operation, potential impacts on soils and land capability may arise through:

- Minor soil compaction associated with maintenance activities;
- Localised erosion resulting from poorly managed stormwater; and
- Continued disturbance of previously transformed areas.

These impacts are limited in extent and are associated with routine maintenance rather than large-scale disturbance.

Prior to mitigation, the impact is considered to be of low significance, given the limited extent of disturbance and the already degraded condition of the site. The implementation of mitigation measures as outlined in the EMPr, including:

- Maintenance of stormwater management infrastructure;
- Stabilisation of exposed surfaces; and
- Ongoing site maintenance and housekeeping;

will reduce the extent and duration of impacts.

Post-mitigation, the residual impact is reduced to very low significance, with high confidence. No loss of agricultural capability is anticipated, and impacts are considered negligible within the context of the existing mining landscape.

10.2.2.2 Terrestrial Biodiversity

The operational phase will take place within a disturbed environment characterised by Degraded Bushveld and Modified habitat, both of which have reduced ecological integrity and limited habitat functionality. No additional vegetation clearing or habitat transformation is anticipated beyond the established footprint.

The baseline condition reflects low ecological sensitivity at a site specific level, with limited suitability for SCC.

During operation, potential impacts on terrestrial biodiversity may arise through:

- Continued presence of infrastructure resulting in habitat exclusion;
- Disturbance associated with routine maintenance activities; and
- Ongoing risk of alien invasive species establishment and spread.

While habitat-related impacts are limited due to the absence of new disturbance, the potential spread of alien invasive species remains a key risk, particularly where ongoing soil disturbance or poor vegetation management occurs.

Prior to mitigation, the impact is considered to be of Low to Moderate significance, with habitat-related impacts assessed as low, and invasive species risks considered moderate due to their potential cumulative effects.

Mitigation measures as outlined in the EMPr include:

- Ongoing monitoring and control of alien invasive species;
- Restricting maintenance activities to existing disturbed areas; and
- Maintenance and rehabilitation of vegetated areas where feasible.

Post-mitigation, habitat-related impacts are reduced to very low significance, while invasive species impacts are reduced to low significance.

The residual impact is therefore considered low to very low, localised and manageable, with no measurable loss of ecological integrity at a broader scale.

10.2.2.3 Aquatic Biodiversity

Although the broader region falls within a sensitive catchment, no wetlands, drainage lines or aquatic features occur within the Project footprint. The site is characterised by well-drained terrestrial soils and does not directly support aquatic ecosystems.

The baseline sensitivity of the site is therefore low, with limited connectivity to surrounding water resources.

During operation, potential impacts on the aquatic environment may arise through:

- Contamination of stormwater from hydrocarbons, chemicals or equipment leaks; and
- Poorly maintained stormwater infrastructure leading to uncontrolled runoff.

While no direct aquatic receptors are present within the footprint, pollution risks remain important due to the potential for off-site migration of contaminants.

Prior to mitigation, the impact is considered to be of Low to Moderate significance, with general runoff impacts assessed as low and pollution-related risks considered moderate.

Mitigation measures include:

-
- Maintenance and inspection of stormwater infrastructure;
 - Implementation of spill prevention and response procedures;
 - Proper storage and handling of hazardous materials; and
 - Regular site inspections to identify and address potential contamination risks.

Post-mitigation, runoff-related impacts are reduced to very low significance, while pollution-related risks are reduced to low significance.

Given the absence of aquatic features within the footprint and the effectiveness of mitigation measures, the residual impact is considered negligible at a catchment scale.

10.2.2.4 Avifauna

The Project area is located within a disturbed mining environment with limited habitat suitability for avifauna. No additional habitat loss will occur during the operational phase, and the baseline sensitivity remains low.

During operation, potential impacts on avifauna may arise through:

- Disturbance associated with maintenance activities;
- Collision risks associated with infrastructure; and
- Effects of artificial lighting.

These impacts are generally localised and limited in duration.

Prior to mitigation, the impact is considered to be of low significance, given the degraded nature of the habitat and absence of sensitive species.

Mitigation measures include:

- Minimising and directing lighting to reduce disturbance;
- Incorporating bird-friendly design measures where required; and
- Limiting unnecessary disturbance during maintenance activities.

Post-mitigation, the residual impact is reduced to very low significance, with high confidence.

The impact is considered negligible and does not affect avifauna populations at a broader scale.

10.2.2.5 Hydropedology

The Project is located within a catchment dominated by recharge-type soils, where hydrological processes are primarily influenced by regional dynamics rather than localised site conditions. The operational footprint represents a small portion of the overall catchment.

No additional soil disturbance is anticipated during operation, and hydrological processes remain largely unchanged from the post-construction condition.

Potential impacts may arise through:

- Alteration of surface runoff patterns due to hardened surfaces; and
- Minor changes in infiltration within the developed footprint.

These impacts are limited to the immediate site and do not extend beyond the development area.

Prior to mitigation, the impact is considered to be of low significance.

Mitigation measures include:

- Maintenance of stormwater infrastructure;
- Ensuring proper drainage functionality; and
- Stabilisation of exposed areas to prevent erosion.

Post-mitigation, the residual impact is reduced to very low significance, with high confidence.

Impacts are considered negligible at a catchment scale and do not materially affect hydrogeological processes.

10.2.2.6 Heritage Assessment, Including Palaeontology

The proposed Project is located within a previously disturbed mining environment where the cultural landscape has been substantially altered by historical and ongoing mining activities. The heritage assessment confirmed that no archaeological, palaeontological or cultural heritage resources were identified within the Project footprint. The baseline sensitivity of the site is therefore considered low.

During the operational phase, activities are limited to routine inspections, preventative maintenance and performance monitoring of the BESS infrastructure. No large-scale excavation or expansion of the development footprint is anticipated. However, minor ground disturbance may still occur during maintenance activities, and the potential for previously unidentified subsurface heritage resources cannot be entirely excluded.

Potential impacts on heritage resources may therefore arise through:

- Routine maintenance activities involving minor ground disturbance; and
- Accidental disturbance of previously unidentified archaeological or palaeontological resources.

Although the likelihood of encountering heritage resources is low due to the disturbed nature of the site, the consequence of impacting such resources is inherently high, as heritage resources are non-renewable and irreplaceable. In line with the impact assessment, the potential impact is therefore assessed as high significance prior to mitigation.

Mitigation measures, as outlined in the EMPr, include:

- Implementation of a CFP;
- Immediate cessation of work in the event that heritage resources are encountered; and

- Notification of the relevant heritage authority for further instruction and management.

These measures ensure that any previously unidentified heritage resources are protected and managed in accordance with applicable legislation.

Post-mitigation, the residual impact is reduced to very low significance, with high confidence. The implementation of the CFP effectively reduces the probability of impact and ensures that any heritage resources are appropriately safeguarded.

The overall impact is therefore considered acceptable and manageable, with no anticipated loss of heritage resources during the operational phase.

10.2.2.7 Civil Aviation

The Screening Tool identified High sensitivity for the Civil Aviation Theme, which relates primarily to the proximity of aviation infrastructure within the broader region.

However, the proposed BN BESS Project comprises low-profile containerised infrastructure, typically less than 3 m in height, and does not involve tall structures, aviation lighting or infrastructure that may interfere with aviation navigation systems.

The development is located within an existing mining area where infrastructure already exists, and no impacts on aviation safety or navigation are anticipated. Consequently, the potential impact on civil aviation is considered negligible.

10.2.2.8 Defence

The Screening Tool classified the proposed Project area as Low sensitivity for the Defence Theme. No military installations, defence facilities or strategic infrastructure occur within the immediate vicinity of the proposed development.

The proposed Project does not involve infrastructure or activities that could interfere with defence operations or national security infrastructure. Accordingly, the proposed development is not expected to result in any impacts on defence-related infrastructure or operations.

10.2.3 Decommissioning Phase

The potential environmental impacts associated with the decommissioning phase of the proposed Project are expected to be similar in nature and magnitude to those identified for the construction phase, as decommissioning will involve comparable activities in reverse. These activities will primarily include the dismantling and removal of battery containers, electrical infrastructure, cabling, concrete plinths and ancillary infrastructure, as well as the rehabilitation of all disturbed areas.

Decommissioning activities may result in temporary impacts such as vegetation disturbance, soil disturbance, dust generation, waste generation, increased vehicle movement and potential pollution risks associated with the handling of hazardous materials. These impacts are anticipated to be short-term and localised in extent and will be effectively managed through the implementation of established environmental management measures.

Mitigation measures implemented during the construction phase will remain applicable during decommissioning and will include:

- Appropriate waste management, including removal and disposal at licensed facilities;
- Spill prevention and response measures for hazardous materials;
- Stormwater management and erosion control;
- Protection of biodiversity through controlled disturbance; and
- Implementation of the CFP for heritage resources.

Decommissioning will be undertaken in accordance with the FRDCP, ensuring alignment with defined closure objectives. These objectives include:

- The removal of all infrastructure and associated materials from the site;
- The rehabilitation of disturbed areas to a stable, non-polluting condition;
- The re-establishment of vegetation using appropriate indigenous species, where feasible;
- The prevention of ongoing pollution, erosion or environmental degradation; and
- The achievement of a post-closure land use that is compatible with the surrounding environment and existing mining landscape.

Rehabilitation will focus on restoring ecological functionality to the extent practicable within the context of the historically disturbed site. This will include recontouring, soil stabilisation and the re-establishment of vegetation cover to reduce erosion and promote long-term site stability.

Upon completion of decommissioning and rehabilitation activities, the site is expected to meet the defined closure objectives, with no residual infrastructure remaining and no ongoing sources of pollution. The site will be left in a condition that is safe, stable and environmentally sustainable, with impacts considered acceptable and reversible in the long-term.

Table 10-3: Construction Phase Impact Assessment Table

Component Being Impacted On	Activity Which May Cause the Impact	Activity	Pre- Mitigation							Recommended Mitigation Measures	Post- Mitigation							Confidence
			Duration	Extent	Potential for impact on irreplaceable resources	Severity	Consequence	Probability	Significance		Duration	Extent	Potential for impact on irreplaceable resources	Severity	Consequence	Probability	Significance	
General environmental management / compliance	Lack of environmental awareness resulting in environmental damage	Site establishment, contractor induction and mobilisation	3	2	1	-3	-18	2	-36 Moderate	All personnel must undergo Mine induction, including environmental training before commencing work on-site. The environmental site specific training must include: <ul style="list-style-type: none"> • Overview of the EMPr and legal obligations. • Identification of sensitive environmental features. • Waste management procedures. • Spill prevention and response procedures. • Biodiversity protection requirements. • Cultural heritage Chance Find Procedure. Refresher training must be conducted annually or when non-compliance is observed.	3	1	1	-3	-15	1	-15 Low	High
General environmental management / compliance	Environmental non-compliance due to lack of environmental supervision	Construction supervision and environmental control	3	2	1	-3	-18	2	-36 Moderate	An Environmental Officer (EO) must monitor compliance with the EMPr. The EO must: <ul style="list-style-type: none"> • Conduct routine site inspections. • Record environmental observations. • Identify non-compliance and recommend corrective actions. Provide environmental guidance to contractors.	3	1	1	-3	-15	1	-15 Low	High
General environmental management / compliance	Environmental damage due to lack of awareness of site rules	Contractor management and access control	3	2	1	-3	-18	2	-36 Moderate	Environmental signage must be installed on-site indicating: <ul style="list-style-type: none"> • No littering. • Sensitive environmental areas. • Waste disposal locations. • Spill reporting procedures. • Site speed limits. Signage must be maintained throughout the Project lifecycle.	3	1	1	-3	-15	1	-15 Low	High
Natural vegetation / terrestrial biodiversity	Vegetation loss caused by clearing outside the approved footprint	Vegetation clearing and grubbing	3	2	1	-2	-12	2	-24 Low	Development areas must be clearly demarcated prior to construction using fencing, tape or markers. Clearing of vegetation must occur strictly within the authorised footprint. No disturbance of indigenous vegetation outside the development area may occur.	3	1	1	-2	-10	1	-10 Very Low	High
Habitat integrity / terrestrial biodiversity	Habitat disturbance due to uncontrolled construction activities	General construction activities within the site	3	2	1	-2	-12	2	-24 Low	Construction areas must be clearly demarcated and access restricted to authorised footprint only. No construction vehicles or personnel may enter areas outside the approved footprint.	3	1	1	-2	-10	1	-10 Very Low	High
Habitat integrity / terrestrial biodiversity	Habitat disturbance caused by creation of unnecessary access routes	Establishment of temporary access routes and delivery access	3	2	1	-2	-12	2	-24 Low	Existing access routes must be used wherever possible. If new access routes are required, they must: <ul style="list-style-type: none"> • Be approved, by the Mine, prior to construction. • Follow existing disturbed corridors where possible. Avoid sensitive vegetation areas.	3	1	1	-2	-10	1	-10 Very Low	High
Natural vegetation / terrestrial biodiversity	Excessive vegetation clearing during site preparation	Site preparation and clearing	3	2	1	-2	-12	2	-24 Low	Vegetation clearing must be limited to the minimum area required for construction activities. Clearing must be undertaken in a controlled manner to prevent unnecessary disturbance of surrounding vegetation.	3	1	1	-2	-10	1	-10 Very Low	High
Disturbed areas / rehabilitation	Habitat degradation due	Construction completion and	3	2	1	-2	-12	2	-24 Low	Areas disturbed during construction that are not required for permanent infrastructure must be rehabilitated. Rehabilitation measures must include:	3	2	1	-2	-12	1	-12 Very Low	High

Component Being Impacted On	Activity Which May Cause the Impact	Activity	Pre- Mitigation							Recommended Mitigation Measures	Post- Mitigation							Confidence
			Duration	Extent	Potential for impact on irreplaceable resources	Severity	Consequence	Probability	Significance		Duration	Extent	Potential for impact on irreplaceable resources	Severity	Consequence	Probability	Significance	
	to failure to rehabilitate disturbed areas	site rehabilitation								<ul style="list-style-type: none"> Recontouring disturbed surfaces. Stabilising soils. Re-establishing vegetation using indigenous species where possible.								
Indigenous vegetation / invasive species control	Spread of alien invasive plants due to soil disturbance	Earthworks, stockpiling and disturbance of bare soils	3	2	1	-3	-18	2	-36 Moderate	Alien invasive plants must be monitored and removed regularly. Control measures must include <ul style="list-style-type: none"> Mechanical removal of invasive plants. Safe disposal of plant material. Avoiding herbicide use where possible unless approved.	3	2	1	-3	-18	1	-18 Low	High
Soils / land capability	Soil erosion caused by vegetation removal and earthworks	Vegetation removal, earthworks and foundation works	3	2	1	-2	-12	2	-24 Low	Soil disturbance must be minimised and erosion control measures implemented where necessary. Measures include: <ul style="list-style-type: none"> Installation of geotextiles or erosion control mats. Silt fences or sediment barriers. Contour shaping of slopes. Stabilisation of exposed soils.	3	1	1	-2	-10	1	-10 Very Low	High
Aquatic receiving environment / water quality	Sediment runoff entering surrounding areas	Earthworks and exposure of bare surfaces	3	2	1	-2	-12	2	-24 Low	Sediment control structures such as silt fences and sediment traps must be installed in areas where soil disturbance occurs. These structures must be inspected and maintained regularly.	3	1	1	-2	-10	1	-10 Very Low	High
Stormwater management / soils	Uncontrolled stormwater runoff from disturbed surfaces	Construction of foundations, hardstands and disturbed surfaces	3	2	1	-2	-12	2	-24 Low	Stormwater management measures must be implemented including: <ul style="list-style-type: none"> Maintaining natural drainage patterns where possible. Installation of stormwater channels or culverts where required. Stabilising exposed surfaces to prevent erosion.	3	1	1	-2	-10	1	-10 Very Low	High
Stormwater / water quality	Pollution of stormwater by hydrocarbons, chemicals or construction materials	Storage and handling of hydrocarbons, chemicals and construction materials	3	2	1	-3	-18	2	-36 Moderate	Potential pollution sources such as hydrocarbons storage areas, workshops and waste storage areas must be isolated from stormwater drainage paths. Runoff from contaminated areas must be contained.	3	1	1	-3	-15	1	-15 Low	High
Stormwater infrastructure / drainage	Blockage of stormwater infrastructure	Construction housekeeping and drainage control	3	2	1	-2	-12	2	-24 Low	Stormwater drains and channels must be inspected regularly and cleared of debris, waste and sediment build-up to ensure proper functioning.	3	1	1	-2	-10	1	-10 Very Low	High
Soils / stockpile management	Soil erosion caused by exposed stockpiles	Topsoil and spoil stockpiling	3	2	1	-2	-12	2	-24 Low	Soil stockpiles must be located in designated areas away from drainage lines and protected from erosion by covering or via vegetation.	3	1	1	-2	-10	1	-10 Very Low	High
Air quality / dust nuisance	Dust generation from construction activities	Site clearing, vehicle movement and earthworks	3	2	0	-2	-10	2	-20 Low	Dust suppression measures must be implemented including: <ul style="list-style-type: none"> Wetting exposed soil surfaces. Limiting vehicle speeds. Maintaining access roads where necessary.	3	2	0	-2	-10	1	-10 Very Low	High
Soil and water quality	Soil and water contamination caused by cement mixing	Concrete batching and mixing	3	2	1	-2	-12	2	-24 Low	Cement mixing must occur only in designated areas located away from drainage lines and watercourses. Mixing areas must be located on impermeable liners to prevent contamination.	3	1	1	-2	-10	1	-10 Very Low	High
Soil and water quality	Pollution caused by cement slurry and wash water	Concrete works, equipment cleaning and washout	3	2	1	-2	-12	2	-24 Low	Wash-down of concrete mixers and equipment must occur in designated wash areas where runoff can be contained. Concrete wash water must not be discharged into soil or stormwater systems.	3	1	1	-2	-10	1	-10 Very Low	High
Soil and water quality	Pollution caused by hydrocarbon storage and	Storage and handling of	3	2	1	-2	-12	2	-24 Low	Hydrocarbon and hazardous materials must be stored in bunded areas capable of containing potential spills.	3	1	1	-2	-10	1	-10 Very Low	High

Component Being Impacted On	Activity Which May Cause the Impact	Activity	Pre- Mitigation							Recommended Mitigation Measures	Post- Mitigation							Confidence
			Duration	Extent	Potential for impact on irreplaceable resources	Severity	Consequence	Probability	Significance		Duration	Extent	Potential for impact on irreplaceable resources	Severity	Consequence	Probability	Significance	
	hazardous materials	hazardous substances								Storage areas must be located away from drainage lines and watercourses.								
Soil quality	Soil contamination caused by hydrocarbon spills	Plant operation, maintenance and refuelling	3	2	1	-2	-12	2	-24 Low	Spill kits must be available at all times on-site. Personnel must be trained in spill response procedures and spills must be cleaned immediately.	3	1	1	-2	-10	1	-10 Very Low	High
General environment / waste management	Environmental pollution caused by poor waste management	General construction waste generation	3	2	1	-2	-12	2	-24 Low	A Waste Management Plan must be implemented. Waste must be segregated into general waste, recyclable waste and hazardous waste streams.	3	1	1	-2	-10	1	-10 Very Low	High
Soil and water quality / waste storage	Pollution caused by improper waste storage	Temporary waste storage	3	2	1	-2	-12	2	-24 Low	Waste must be stored in sealed and clearly labelled containers within designated waste storage areas to prevent windblown litter and contamination.	3	1	1	-2	-10	1	-10 Very Low	High
General environment / waste management	Environmental contamination caused by improper waste disposal	Waste transport and disposal	3	2	1	-2	-12	2	-24 Low	All waste must be removed from site and disposed of at licensed waste disposal facilities. Waste disposal documentation must be retained.	3	1	1	-2	-10	1	-10 Very Low	High
Soils / vegetation	Soil compaction and vegetation damage caused by vehicles	Vehicle movement, equipment delivery and crane operations	3	2	1	-2	-12	2	-24 Low	Vehicle movement must be restricted to designated access routes and construction areas. Off-road driving outside authorised areas is prohibited.	3	1	1	-2	-10	1	-10 Very Low	High
Soil and water quality	Soil and water contamination caused by refuelling activities	Refuelling of vehicles and plant	3	2	1	-2	-12	2	-24 Low	Refuelling must occur in designated refuelling areas equipped with spill containment measures and spill kits.	3	1	1	-2	-10	1	-10 Very Low	High
Fauna	Disturbance of wildlife caused by construction activities	Construction noise, movement and human presence	3	2	1	-2	-12	2	-24 Low	Environmental awareness training must emphasise protection of wildlife and prohibit hunting, trapping or harming animals.	3	1	1	-2	-10	1	-10 Very Low	High
Avifauna	Disturbance of birds during vegetation clearing	Vegetation clearing and construction disturbance	3	2	1	-2	-12	2	-24 Low	Areas must be inspected prior to vegetation clearing to ensure nests are not present. A specialist must be consulted if nests are found.	3	1	1	-2	-10	1	-10 Very Low	High
Avifauna	Bird electrocution caused by infrastructure	Installation of electrical connection infrastructure and equipment	3	1	1	-2	-10	2	-20 Low	Infrastructure must incorporate nest-proofing and anti-perch devices where necessary to reduce electrocution risk.	3	1	1	-2	-10	1	-10 Very Low	High
Avifauna	Bird collisions with fencing	Perimeter fencing installation	3	1	1	-2	-10	2	-20 Low	Security fencing must include visibility markers where necessary to improve visibility and reduce bird collisions.	3	1	1	-2	-10	1	-10 Very Low	High
Fauna / avifauna	Disturbance to fauna caused by artificial lighting	Construction security and task lighting	3	2	1	-2	-12	2	-24 Low	External lighting must be minimised and directed away from sensitive habitats. Lighting types that reduce ecological disturbance must be used where possible.	3	1	1	-2	-10	1	-10 Very Low	High
General environmental management / incident control	Environmental incidents not recorded or addressed	Incident management, inspection and reporting	3	2	1	-3	-18	2	-36 Moderate	All environmental incidents must be recorded in an Environmental Incident Register and corrective actions implemented.	3	1	1	-3	-15	1	-15 Low	High

Component Being Impacted On	Activity Which May Cause the Impact	Activity	Pre- Mitigation							Recommended Mitigation Measures	Post- Mitigation							Confidence
			Duration	Extent	Potential for impact on irreplaceable resources	Severity	Consequence	Probability	Significance		Duration	Extent	Potential for impact on irreplaceable resources	Severity	Consequence	Probability	Significance	
Unidentified Heritage Resources	Destruction of cultural heritage resources during earthworks	Earthworks, excavations and foundation construction	4	3	1	-3	-24	2	-48 High	A Chance Find Procedure must be implemented. Work must cease immediately if heritage resources are discovered and the relevant authority notified.	3	2	1	-1	-6	1	-6 Very low	High
Socio-economic environment / employment	Temporary employment opportunities created during construction	Site establishment, earthworks, civil works and installation activities	3	3	0	2	12	1	12 Low	Local labour must be employed where practicable. Recruitment processes should be transparent and aligned with Mine procurement and employment procedures. Preference should be given to suitably qualified local contractors and labour.	3	3	0	2	12	2	24 Moderate	High
Skills development / capacity building	Transfer of skills and experience to workers through construction activities	Contractor induction, equipment installation, electrical works and environmental compliance implementation	3	2	0	2	10	1	10 Low	On-site training must be provided to workers, including health and safety requirements, environmental awareness, waste management, spill response and specialist construction practices relevant to the installation.	3	2	0	2	10	2	20 Moderate	High
Local economy / procurement	Increased demand for local goods and services	Procurement of materials, transport, plant hire, accommodation and support services	3	3	0	2	12	1	12 Low	Procurement should prioritise local suppliers and service providers where feasible, provided they meet technical, commercial and safety requirements.	3	3	0	2	12	2	24 Moderate	High
Disturbed areas / rehabilitation	Improvement in site condition through clean-up and reinstatement of temporarily disturbed construction areas	Construction completion and site rehabilitation	3	2	0	2	10	1	10 Low	Temporary work areas not required for operation must be cleared of waste, re-profiled where necessary and rehabilitated to a stable condition. Disturbed surfaces should be stabilised and revegetated where feasible.	3	2	0	2	10	2	20 Moderate	High

Table 10-4: Operational Phase Impact Assessment Table

Component Being Impacted On	Activity Which May Cause the Impact	Activity	Pre- Mitigation							Recommended Mitigation Measures	Post- Mitigation							Confidence
			Duration	Extent	Potential for impact on irreplaceable resources	Severity	Consequence	Probability	Significance		Duration	Extent	Potential for impact on irreplaceable resources	Severity	Consequence	Probability	Significance	
General environmental management / compliance	Lack of environmental awareness resulting in environmental damage	Operation and maintenance activities	4	2	1	-3	-21	2	-42 High	All personnel must undergo Mine induction, including environmental training before commencing work on-site. Refresher training must be conducted annually.	4	1	1	-3	-18	1	-18 Low	High
General environmental management / compliance	Environmental damage due to lack of awareness of site rules	Routine inspections and maintenance	4	2	1	-3	-21	2	-42 High	Environmental signage must be installed on-site indicating: <ul style="list-style-type: none"> No littering. Sensitive environmental areas. Waste disposal locations. Spill reporting procedures. Site speed limits. Signage must be maintained throughout the project lifecycle.	4	1	1	-3	-18	1	-18 Low	High
General environmental management / compliance	Spread of alien invasive plants due to soil disturbance	Vegetation management around infrastructure	4	2	1	-3	-21	2	-42 High	Alien invasive plants must be monitored and removed regularly. Control measures must include <ul style="list-style-type: none"> Mechanical removal of invasive plants. Safe disposal of plant material. Avoiding herbicide use where possible unless approved.	4	1	1	-3	-18	1	-18 Low	High
Indigenous vegetation / invasive species control	Uncontrolled stormwater runoff from disturbed surfaces	Operation of hardstands and drainage infrastructure	4	2	1	-2	-14	2	-28 Moderate	Stormwater management measures must be maintained.	4	1	1	-2	-12	1	-12 Very low	High
Stormwater management / soils	Pollution of stormwater by hydrocarbon and chemicals	Storage and handling of hazardous materials	4	2	1	-2	-14	2	-28 Moderate	Potential pollution sources such as hydrocarbon storage areas, workshops and waste storage areas must be isolated from stormwater drainage paths. Runoff from contaminated areas must be contained.	4	1	1	-2	-12	1	-12 Very low	High
Stormwater / water quality	Blockage of stormwater infrastructure	Accumulation of debris in drainage systems	4	2	1	-2	-14	2	-28 Moderate	Stormwater drains and channels must be inspected regularly and cleared of debris, waste and sediment build-up to ensure proper functioning.	4	1	1	-2	-12	1	-12 Very low	High
Stormwater infrastructure / drainage	Pollution caused by hydrocarbon storage and hazardous materials	Equipment storage and maintenance	4	2	1	-2	-14	2	-28 Moderate	Hydrocarbon and hazardous materials must be stored in bunded areas capable of containing potential spills. Storage areas must be located away from drainage lines and watercourses.	4	1	1	-2	-12	1	-12 Very low	High
Soil and water quality	Soil contamination caused by hydrocarbon spills	Maintenance activities and equipment servicing	4	2	1	-2	-14	2	-28 Moderate	Spill kits must be available at all times on-site. Personnel must be trained in spill response procedures and spills must be cleaned immediately.	4	1	1	-2	-12	1	-12 Very low	High
Soil quality	Environmental pollution caused by poor waste management	Routine operational waste generation	4	2	1	-2	-14	2	-28 Moderate	A Waste Management Plan must be implemented. Waste must be segregated into general waste, recyclable waste and hazardous waste streams.	4	1	1	-2	-12	1	-12 Very low	High
General environment / waste management	Pollution caused by improper waste storage	Temporary waste storage	4	2	1	-2	-14	2	-28 Moderate	Waste must be stored in sealed and clearly labelled containers within designated waste storage areas to prevent windblown litter and contamination.	4	1	1	-2	-12	1	-12 Very low	High
Soil and water quality / waste storage	Environmental contamination caused by	Waste transport and disposal	4	2	1	-2	-14	2	-28 Moderate	All waste must be removed from site and disposed of at licensed waste disposal facilities.	4	1	1	-2	-12	1	-12 Very low	High

Component Being Impacted On	Activity Which May Cause the Impact	Activity	Pre- Mitigation							Recommended Mitigation Measures	Post- Mitigation							Confidence
			Duration	Extent	Potential for impact on irreplaceable resources	Severity	Consequence	Probability	Significance		Duration	Extent	Potential for impact on irreplaceable resources	Severity	Consequence	Probability	Significance	
	improper waste disposal									Waste disposal documentation must be retained.								
General environment / waste management	Soil compaction and vegetation damage caused by vehicles	Maintenance vehicle access	4	2	1	-2	-14	2	-28 Moderate	Vehicle movement must be restricted to designated access routes and construction areas. Off-road driving outside authorised areas is prohibited.	4	1	1	-2	-12	1	-12 Very low	High
Soils / vegetation	Soil and water contamination caused by refuelling activities	Refuelling of maintenance vehicles	4	2	1	-2	-14	2	-28 Moderate	Refuelling must occur in designated refuelling areas equipped with spill containment measures and spill kits.	4	1	1	-2	-12	1	-12 Very low	High
Soil and water quality	Disturbance of wildlife caused by construction activities	Human presence and occasional maintenance	4	2	1	-2	-14	2	-28 Moderate	Environmental awareness training must emphasise protection of wildlife and prohibit hunting, trapping or harming animals.	4	1	1	-2	-12	1	-12 Very low	High
Avifauna	Bird electrocution caused by infrastructure	Electrical infrastructure operation	4	1	1	-2	-12	2	-24	Infrastructure must incorporate nest-proofing and anti-perch devices where necessary to reduce electrocution risk.	4	1	1	-2	-12	1	-12 Very low	Medium
Avifauna	Bird collisions with fencing	Security fencing	4	1	1	-2	-12	2	-24	Security fencing must include visibility markers where necessary to improve visibility and reduce bird collisions.	4	1	1	-2	-12	1	-12 Very low	Medium
Fauna / avifauna	Disturbance to fauna caused by artificial lighting	Security and operational lighting	4	2	1	-2	-14	2	-28 Moderate	Outside lighting must be designed and limited to minimise impacts on fauna. All outside lighting should be directed away from highly sensitive areas. Fluorescent and mercury vapour lighting should be avoided, and sodium vapour (red/green) lights should be used.	4	1	1	-2	-12	1	-12 Very low	Medium
General environmental management / incident control	Environmental incidents not recorded or addressed	Incident management and reporting	4	2	1	-3	-21	2	-42 High	All environmental incidents must be recorded in an Environmental Incident Register and corrective actions implemented.	4	1	1	-3	-18	1	-18 Low	High
Unidentified Heritage Resources	Routine inspections, preventative maintenance and performance monitoring	Operation and maintenance of BESS infrastructure	4	3	1	-3	-24	2	-48 high	A Chance Find Procedure must be implemented. Work must cease immediately if heritage resources are discovered and the relevant authority notified.	3	2	1	-1	-6	1	-6 Very Low	High
Energy security	Improved electricity supply reliability	Operation of BESS facility	4	2	0	2	12	1	12 Low	Maintain operational efficiency and implement routine preventative maintenance of the BESS infrastructure to ensure reliable energy storage and supply.	4	2	0	2	12	2	24 Moderate	High
Mine operations	Reduced impact of load shedding	Electricity storage and discharge	4	3	0	2	14	1	14 Moderate	Optimise system operation to support peak demand periods and ensure efficient charging and discharge cycles aligned with Mine electricity demand.	4	3	0	2	14	2	28 High	High
Local economy	Employment for operational maintenance	Maintenance and monitoring activities	4	2	0	2	12	1	12 Low	Continue use of local labour where feasible for maintenance, monitoring and operational support activities in accordance with Mine procurement policies.	4	2	0	2	12	2	24 Moderate	Medium
Climate and sustainability	Reduction in reliance on grid electricity	Energy storage supporting energy efficiency	4	3	0	2	14	1	14 Moderate	Maintain system performance through routine inspections, preventative maintenance and implementation of an energy management strategy to maximise efficiency of stored renewable energy.	4	3	0	2	14	2	28 High	High

10.3 Potential Cumulative Impacts

The term "Cumulative Effect" has for the purpose of this report been defined as: the summation of effects over time which can be attributed to the operation of the Project itself, and the overall effects on the ecosystem of the site that can be attributed to the proposed Project and other existing and planned future projects.

The geographic area of evaluation is the spatial boundary in which the cumulative effects analysis was undertaken. The spatial boundary evaluated in these cumulative effects analysis generally includes the area within the 50 km radius surrounding the proposed Project (**Figure 10-1**).

A temporal boundary is the timeframe during which the cumulative effects are reasonably expected to occur. The temporal parameters for these cumulative effects analysis is the anticipated lifespan of the proposed Project, commencing in 2026 and extending for the life of the Mine, which is the minimum expected project life of the proposed Project. Where appropriate, particular focus is on near-term cumulative impacts of overlapping construction schedules for proposed projects¹⁰ in the area of evaluation.

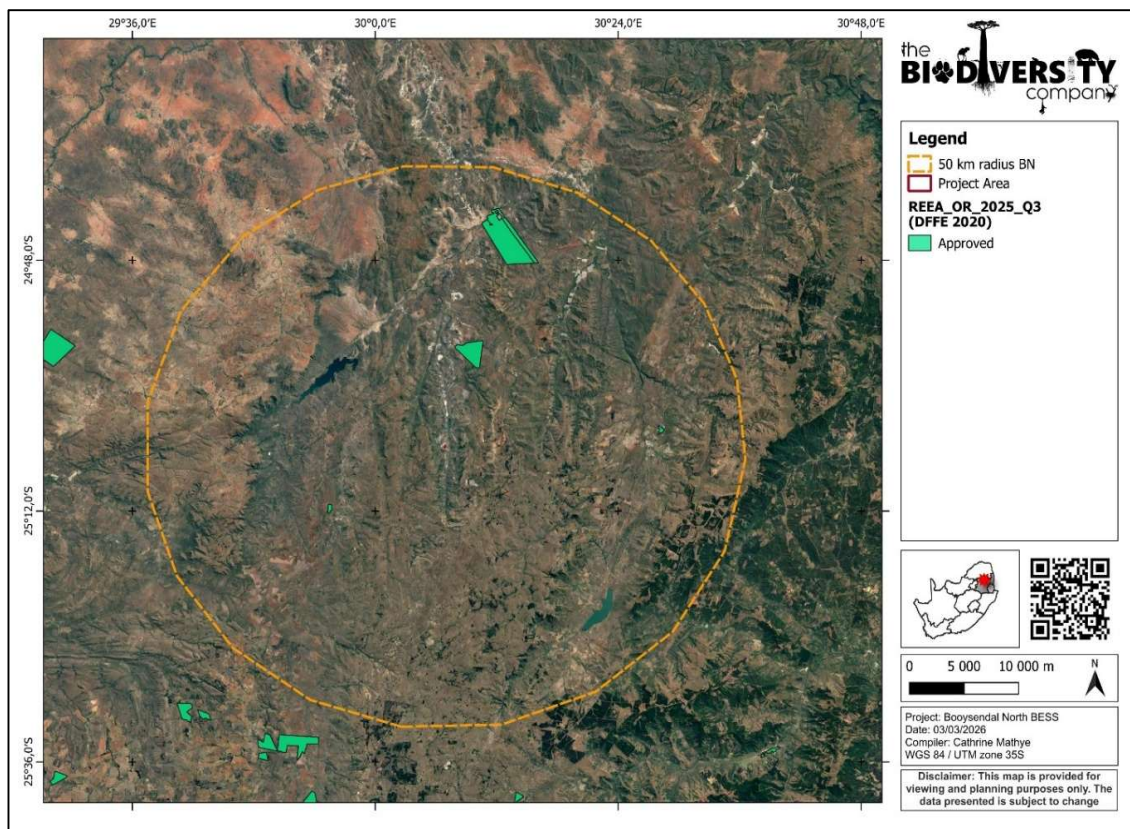


Figure 10-1: Cumulative impacts map for the proposed Booyesendal North Battery Energy Storage System Project area (The Biodiversity Company, 2026a)

¹⁰ Department of Forestry, Fisheries and Environment, 2020. South African Renewable Energy EIA Application Database (REEA_OR_2025_Q3).

10.3.1 Agricultural

From an agricultural and soil perspective, the baseline sensitivity of the area is predominantly low, with localised areas of medium sensitivity associated with the presence of Swartland soil forms, while the majority of the site comprises low potential soils such as Mispah, Johannesburg and Witbank forms. These soils are generally non-arable and are subject to significant climatic limitations, further reducing their agricultural value.

The cumulative impacts associated with the proposed Project are primarily related to:

- Incremental loss of land capability due to continued infrastructure development;
- Soil erosion and compaction resulting from repeated disturbance;
- Increased potential for contamination from hydrocarbons and hazardous materials; and
- Dust deposition and associated soil quality impacts.

When considered in isolation, the impact of the proposed Project on agricultural resources is assessed as low both prior to and after mitigation, reflecting the limited footprint of the development and the already disturbed nature of the site. However, when considered cumulatively with existing mining activities and other developments within the region, the overall impact increases due to the aggregation of disturbances over time.

Prior to mitigation, the cumulative impact (**Table 10-5**) is therefore considered to be of medium significance, driven primarily by the increased spatial extent and duration of disturbance associated with ongoing and future developments in the area.

Mitigation measures, as outlined in the EMPr and specialist recommendations, include:

- Restricting disturbance to the approved development footprint;
- Implementing effective erosion control and stormwater management measures;
- Managing and rehabilitating disturbed soils;
- Preventing contamination through appropriate handling of hazardous materials; and
- Implementing ongoing monitoring and maintenance programmes.

Following the implementation of these measures, the cumulative impact (**Table 10-5**) is reduced to low significance, as the Project does not introduce any new high-risk activities and does not result in the loss of high-value agricultural land.

Importantly, the specialist assessment confirms that the proposed BN BESS Project will not result in any irreplaceable loss of soil resources and will not materially reduce the agricultural productivity of the broader area. The development footprint is small relative to the surrounding landscape and is located within an already transformed mining environment.

The residual cumulative impact is therefore considered acceptable and manageable, with no anticipated long-term degradation of agricultural resources beyond existing conditions. The Project

does not contribute significantly to cumulative environmental degradation and is consistent with the existing land use and development context.

10.3.2 Terrestrial Biodiversity

From a terrestrial biodiversity perspective, the baseline sensitivity of the proposed Project area is low to very low, reflecting the highly disturbed nature of the site. The SSV confirmed that the Project footprint is located entirely within an existing mining area characterised by Modified habitat and Degraded Bushveld, both of which have been significantly altered by ongoing mining activities, infrastructure development, vegetation clearing, dust deposition and habitat fragmentation. These habitat types exhibit reduced ecological integrity, limited biodiversity functionality and a low capacity to support SCC.

The cumulative impacts associated with the proposed Project are primarily related to:

- Incremental loss and further degradation of already disturbed terrestrial habitat;
- Habitat fragmentation and reduction in ecological connectivity within the broader landscape;
- Soil disturbance and associated impacts on vegetation structure and composition;
- Increased potential for the spread of alien and invasive plant species; and
- Ongoing disturbance from human activity, noise and operational infrastructure.

When considered in isolation, the impact of the proposed Project on terrestrial biodiversity is assessed as low both prior to and after mitigation, reflecting the limited footprint of the development and the already transformed condition of the receiving environment. The affected habitats are of low ecological importance and do not represent intact or sensitive ecosystems.

However, when considered cumulatively with existing mining operations and other infrastructure developments within the region, the overall impact increases due to the aggregation of disturbances over time. The continued expansion of mining-related activities contributes to the progressive loss of natural habitat, further fragmentation of the landscape and a reduction in ecological resilience.

Prior to mitigation, the cumulative impact (**Table 10-5**) is therefore considered to be of medium significance, driven primarily by the increased spatial extent and duration of disturbance associated with ongoing and future developments within the mining landscape.

Mitigation measures, as outlined in the EMPr and specialist recommendations, include:

- Restricting disturbance to the approved development footprint;
- Demarcating sensitive or no-go areas to prevent unnecessary habitat loss;
- Implementing vegetation management and rehabilitation measures using indigenous species;
- Controlling and monitoring alien invasive plant species;
- Minimising unnecessary disturbance through effective site management and access control;
and

- Implementing ongoing environmental monitoring and maintenance programmes.

Following the implementation of these measures, the cumulative impact (**Table 10-5**) is reduced to low significance, as the Project does not introduce new high-risk activities and mitigation measures effectively limit further habitat degradation and promote rehabilitation of disturbed areas.

Importantly, the specialist assessment confirms that the proposed BN BESS Project will not result in any irreplaceable loss of terrestrial biodiversity or critical habitat. The Project footprint is confined to areas that are already transformed and of low ecological value, and no sensitive ecosystems or SCC are expected to be significantly impacted.

The residual cumulative impact is therefore considered acceptable and manageable, with no anticipated long-term degradation of terrestrial biodiversity beyond existing conditions. The Project does not contribute significantly to cumulative environmental degradation and is consistent with the current land use and development context of the mining area.

10.3.3 Aquatic Biodiversity

From an aquatic biodiversity perspective, the baseline sensitivity of the area is low, despite the Screening Tool initially classifying the site as “Very High” due to its location within a FEPA sub-catchment. The specialist SSV confirmed that this rating is not representative of actual site conditions, as no natural or artificial watercourse features, wetlands or drainage lines were identified within the Project footprint. The site is characterised by a disturbed terrestrial environment associated with existing mining activities, with no functional aquatic habitat present and no direct hydrological connectivity to surrounding freshwater systems.

The cumulative impacts associated with the proposed Project are therefore limited and primarily related to:

- Potential contamination of stormwater from hydrocarbons, chemicals or operational activities;
- Localised changes in surface runoff associated with hardened surfaces; and
- The cumulative influence of existing mining-related disturbances within the broader catchment.

When considered in isolation, the impact of the proposed Project on aquatic biodiversity is assessed as negligible, both prior to and after mitigation, due to the absence of aquatic features and the lack of impact pathways. Unlike the agricultural environment, where cumulative impacts increase due to the aggregation of land disturbance, the aquatic environment does not present a functional receptor within the Project footprint.

Prior to mitigation, the cumulative impact is therefore considered to be of low significance (**Table 10-5**), as no direct or indirect pathways exist through which the Project could meaningfully affect freshwater ecosystems.

Mitigation measures, although not specifically required for aquatic biodiversity, will include:

- Implementation and maintenance of stormwater management measures;
- Prevention of pollution through appropriate handling and storage of hazardous materials; and
- Ongoing site management and housekeeping practices.

Following the implementation of these measures, the cumulative impact remains low to negligible (**Table 10-5**), as the Project does not introduce any new risks to aquatic systems and does not contribute to the degradation of freshwater resources.

Importantly, the specialist assessment confirms that the proposed BN BESS Project will not result in any cumulative degradation of freshwater ecosystems and will not affect aquatic ecological integrity at a local or catchment scale. The absence of watercourses within the Project area is a key determining factor in limiting both direct and cumulative impacts.

The residual cumulative impact is therefore considered acceptable and manageable, with no anticipated long-term degradation of aquatic resources beyond existing conditions. The Project does not contribute significantly to cumulative environmental degradation and is consistent with the existing disturbed mining landscape.

10.3.4 Avifauna

From an avifaunal perspective, the baseline sensitivity of the area is low to very low, despite the Screening Tool classifying the site as “High” sensitivity. The specialist SSV confirmed that this rating is not representative of actual site conditions, as the Project footprint comprises Modified and Degraded Bushveld habitat that has been significantly transformed by ongoing mining activities.

No avifauna SCC were recorded within the Project footprint during field surveys, and the likelihood of occurrence is considered low due to the absence of suitable breeding, foraging or roosting habitat. The site is therefore characterised by low ecological importance and reduced habitat functionality for avifauna.

The cumulative impacts associated with the proposed Project are primarily related to:

- Incremental loss and disturbance of already degraded avifaunal habitat;
- Potential disturbance to birds from noise, lighting and human activity;
- Risk of bird collisions with infrastructure such as fencing; and
- Risk of electrocution associated with electrical infrastructure.

When considered in isolation, the impact of the proposed Project on avifauna is assessed as low both prior to and after mitigation, reflecting the limited development footprint and the already disturbed nature of the receiving environment. However, when considered cumulatively with existing mining activities and other disturbances within the broader landscape, the overall impact increases due to the aggregation of habitat transformation and ongoing disturbance.

Prior to mitigation, the cumulative impact (**Table 10-5**) is therefore considered to be of medium significance, driven primarily by the increased spatial extent and duration of disturbance and the

potential for interaction with infrastructure across the broader mining landscape.

Mitigation measures, as outlined in the EMPr and specialist recommendations, include:

- Demarcation of the development footprint to prevent unnecessary habitat disturbance;
- Pre-construction walk-throughs to identify any nests or avifauna species;
- Installation of anti-perch and nest-proofing devices on infrastructure;
- Use of bird-friendly lighting design to minimise disturbance;
- Installation of visibility markers on fencing to reduce collision risk; and
- Insulation or burial of electrical cables to reduce electrocution risk.

Following the implementation of these measures, the cumulative impact (**Table 10-5**) is reduced to low significance, as the Project does not introduce high-risk features and mitigation effectively reduces the likelihood of avifauna interaction with infrastructure.

Importantly, the specialist assessment confirms that the proposed BN BESS Project will not result in any irreplaceable loss of avifaunal habitat and will not compromise avifaunal populations within the broader area. The disturbed nature of the site and the absence of SCC within the footprint are key factors limiting cumulative impact.

The residual cumulative impact is therefore considered acceptable and manageable, with no anticipated long-term degradation of avifaunal resources beyond existing conditions. The Project does not contribute significantly to cumulative environmental degradation and is consistent with the existing mining land use context

10.3.5 Hydropedology

From a hydropedological perspective, the baseline sensitivity of the proposed Project area is low, reflecting the dominance of shallow recharge and slow recharge soil systems within an already disturbed mining landscape. The hydropedological assessment confirmed that the site is primarily characterised by Mispah soils associated with shallow recharge processes and Swartland soils associated with slow recharge dynamics. These soil types are typically linked to limited soil depth, moderate to low water retention capacity and relatively simple hillslope hydrological responses.

The catchment processes influencing the site are driven predominantly by vertical recharge and sub-dominant lateral flow contributions from surrounding upslope areas. Importantly, the majority of water contributing to local drainage features originates from areas upstream of the Project footprint, indicating that the site itself plays a relatively minor role in sustaining broader catchment hydrological functioning.

The cumulative impacts associated with the proposed Project are primarily related to:

- Localised disruption of shallow subsurface and lateral flow pathways;
- Minor alteration of hillslope hydrological processes due to infrastructure placement;

- Increased potential for surface runoff where impermeable surfaces are introduced;
- Localised changes in soil moisture dynamics and infiltration characteristics; and
- Potential cumulative reduction in recharge efficiency due to ongoing development within the catchment.

When considered in isolation, the impact of the proposed Project on hydrogeological processes is assessed as low both prior to and after mitigation. This reflects the small development footprint, the limited role of the site in contributing to catchment scale hydrology, and the dominance of external upstream inputs sustaining the local water regime.

However, when considered cumulatively with existing mining activities and infrastructure within the broader catchment, the overall impact increases due to the aggregation of surface disturbance and incremental modification of natural flow pathways. Continued development within the catchment may contribute to gradual changes in recharge patterns, surface runoff behaviour and localised drainage dynamics over time.

Prior to mitigation, the cumulative impact (**Table 10-5**) is therefore considered to be of medium significance, driven primarily by the increased spatial extent of disturbance and the potential for compounded effects on hillslope hydrological processes.

Mitigation measures, as outlined in the EMPr and supported by the hydrogeological assessment, include:

- Maintaining natural drainage patterns and avoiding unnecessary alteration of flow paths;
- Minimising the footprint of impermeable surfaces to reduce disruption of infiltration processes;
- Implementing appropriate stormwater management measures to control runoff;
- Managing surface water flows to prevent concentration and erosion;
- Avoiding placement of infrastructure within sensitive flow pathways where possible; and
- Monitoring and maintaining drainage systems to ensure continued functionality.

Following the implementation of these measures, the cumulative impact (**Table 10-5**) is reduced to low significance, as the Project does not substantially alter catchment scale hydrological processes and mitigation measures effectively manage localised flow disruptions.

Importantly, the specialist assessment confirms that the proposed Project will not result in a significant loss of groundwater recharge or surface water contribution at a catchment scale. The potential worst-case reduction in moisture contribution to local drainage features is estimated to be less than 1% of the total catchment water regime, which is considered negligible in the context of the broader hydrological system.

The residual cumulative impact is therefore considered acceptable and manageable, with no

anticipated long-term degradation of hydrogeological functioning beyond existing conditions. The Project does not significantly contribute to cumulative impacts on water resource sustainability and remains consistent with the existing mining land use and hydrological context.

10.3.6 Heritage Assessment, Including Palaeontology

From a heritage perspective, the baseline sensitivity of the proposed Project area is low, as confirmed by both the Environmental Sensitivity Assessment and the specialist HIA. The site is located within an existing, actively mined landscape, where extensive historical and ongoing mining activities, infrastructure development and ground disturbance have already significantly altered the cultural landscape and reduced the integrity of potential heritage contexts.

The specialist assessment confirmed that no heritage resources, including archaeological sites, historical structures, burial grounds or palaeontological material, were identified within the proposed Project footprint during both the desktop review and field verification survey. While the broader Dwaarsrivier Valley is recognised as a culturally significant landscape with known Stone Age and Iron Age occurrences, these resources occur outside of the proposed development footprint and will not be directly impacted by the Project.

The cumulative impacts associated with the proposed Project are primarily related to:

- Incremental alteration of the cultural landscape due to ongoing mining and infrastructure development;
- Progressive disturbance of previously undisturbed areas within the broader region;
- Increased potential risk to unknown or subsurface heritage resources due to repeated ground disturbance;
- Fragmentation of heritage context and reduction in sense of place over time; and
- Cumulative visual and physical transformation of the landscape associated with industrial activities.

When considered in isolation, the impact of the proposed Project on heritage resources is assessed as low, as no heritage resources occur within the footprint and the development is located within an already transformed environment. The Project does not introduce activities that would directly impact known heritage resources and does not alter the broader cultural landscape beyond its existing condition.

However, when considered cumulatively with existing mining operations, infrastructure expansion and other reasonably foreseeable developments within the region, the overall impact increases due to the incremental transformation of the cultural landscape and continued pressure on potential heritage resources. The aggregation of multiple developments over time contributes to the gradual erosion of heritage context and landscape integrity.

Prior to mitigation, the cumulative impact (**Table 10-5**) is therefore considered to be of moderate to high significance, primarily driven by the extent and duration of cumulative landscape transformation

and the potential risk to unidentified subsurface heritage resources.

Mitigation measures, as outlined in the EMPr and specialist recommendations, include:

- Implementation of a Chance Find Procedure during all phases of the Project;
- Immediate cessation of work and notification of the relevant heritage authority should any heritage resources be discovered;
- Environmental awareness training for all personnel regarding heritage resource protection;
- Avoidance of any previously identified heritage resources in the broader area; and
- Ongoing monitoring and compliance with heritage management requirements.

Following the implementation of these measures, the cumulative impact (**Table 10-5**) is reduced to low significance, as the risk to unidentified heritage resources is effectively managed and no direct impacts on known heritage resources occur.

Importantly, the specialist assessment confirms that the proposed Project will not result in the loss of any known heritage resources and will not materially alter the cultural landscape beyond the existing mining context. The Project footprint is small relative to the surrounding landscape and is located within an already disturbed area where heritage integrity has been substantially reduced.

The residual cumulative impact is therefore considered acceptable and manageable, with no anticipated long-term degradation of heritage resources beyond existing conditions. The proposed development is consistent with the current land use and does not contribute significantly to cumulative heritage impacts at a regional scale.

10.3.7 Civil Aviation

The Screening Tool identified High sensitivity for the Civil Aviation Theme due to the proximity of aviation infrastructure within the broader regional airspace.

However, the proposed Project consists of low-profile containerised infrastructure with a height of approximately 3 m, and the development does not involve tall structures, aviation lighting or infrastructure that could interfere with aviation navigation systems.

The development will occur within an existing mining area where infrastructure is already present, and therefore the proposed Project is not expected to introduce additional cumulative impacts on civil aviation safety or navigation.

10.3.8 Defence

The Screening Tool classified the proposed Project area as Low sensitivity for the Defence Theme. No military installations, defence facilities or strategic infrastructure occur within the immediate vicinity of the proposed development.

The proposed BESS facility does not involve infrastructure or activities that could interfere with defence operations, radar systems, communication infrastructure or national security installations.

Accordingly, no cumulative impacts on defence infrastructure or operations are anticipated.

Table 10-5: Cumulative Impacts associated with the proposed Project

Component Being Impacted On	Activity Which May Cause the Impact	Activity	Pre- Mitigation								Post- Mitigation								Confidence
			Duration	Extent	Potential for impact on irreplaceable resources	Severity	Consequence	Probability	Significance	Duration	Extent	Potential for impact on irreplaceable resources	Severity	Consequence	Probability	Significance			
Land capability and agricultural potential	Site clearing, earthworks, compaction, hydrocarbon risks	Impact in isolation	2	2	1	-2	-10	2	-20 Low	2	2	1	-1	-5	2	-10 Very Low	High		
		Cumulative impact	3	4	1	-2	-16	2	-32 Moderate	2	3	1	-1	-6	2	-12 Very Low	High		
Terrestrial biodiversity	Vegetation clearing, habitat disturbance, alien spread	Impact in isolation	4	3	0	-3	-21	1	-21 Low	4	2	0	-3	-18	1	-18 Low	High		
		Cumulative Impact	4	3	1	-3	-24	2	-48 High	4	2	1	-2	-16	2	-32 Moderate	High		
Aquatic biodiversity	Stormwater contamination, runoff changes	Impact in isolation	2	1	0	-1	-4	1	-4 Very Low	2	1	0	-1	-4	1	-4 Very Low	High		
		Cumulative Impact	2	2	0	-1	-6	1	-6 Very Low	2	1	0	-1	-4	1	-4 Very Low	High		
Avifauna	Habitat disturbance, noise, lighting, collisions, electrocution	Impact in isolation	4	3	0	-3	-21	1	-21 Low	4	2	0	-3	-18	1	-18 Low	Medium		
		Cumulative Impact	4	3	1	-3	-24	2	-48 High	4	2	1	-2	-16	2	-32 Moderate	Medium		
Hydropedology	Alteration of flow paths, increased runoff, infiltration changes	Impact in isolation	3	2	0	-2	-12	1	-12 Low	3	2	0	-2	-12	1	-12 Low	High		
		Cumulative Impact	4	3	0	-2	-14	2	-28 Moderate	3	2	0	-2	-12	1	-12 Low	High		
Cultural landscape / Heritage	Ongoing landscape transformation, disturbance of unknown resources	Cumulative Impact	4	3	1	-3	-24	2	-48 High	3	2	1	-1	-6	1	-6 Low	High		
Civil Aviation	Low-profile infrastructure	Cumulative Impact	1	1	0	0	0	1	0	1	1	0	0	0	1	0	High		
Defence	No interaction with defence infrastructure	Cumulative Impact	1	1	0	0	0	1	0	1	1	0	0	0	1	0	High		

11 ENVIRONMENTAL MANAGEMENT PROGRAMME

The EMPr provides a structured framework for managing and monitoring the environmental aspects associated with the proposed BN BESS Project throughout its lifecycle. The EMPr translates the mitigation measures identified during the assessment into specific management actions that must be implemented during the construction, operational and decommissioning phases of the Project.

The purpose of the EMPr is to ensure that the Project is implemented and operated in an environmentally responsible manner and that potential negative environmental impacts are avoided, minimised or managed effectively. The EMPr also promotes the enhancement of positive impacts associated with the Project, such as improved energy security and local economic benefits.

This EMPr has been developed in accordance with the requirements of the NEMA and the EIA Regulations, 2014. The programme outlines the environmental management measures, monitoring requirements, roles and responsibilities, and compliance verification procedures necessary to ensure that the proposed Project complies with applicable environmental legislation.

The EMPr is a dynamic document that must be implemented by the Project Team and all contractors involved in the development, operation and decommissioning of the facility. Compliance with the EMPr will be monitored through routine inspections, environmental reporting, and internal audits conducted by the appointed Environmental Officer (EO). Non-compliance incidents will be recorded and corrective actions implemented to ensure continual improvement in environmental performance.

The management measures contained in this section apply across the three phases of the Project lifecycle, namely the construction phase, operational phase, and decommissioning phase. The following tables present the key potential environmental impacts identified for each phase of the Project, together with the corresponding management actions, responsible parties, monitoring requirements and evidence of compliance necessary to demonstrate implementation of the EMPr.

Table 11-1: Environmental Management Programme for the Construction phase

Potential Impact / Source of Impact	Impact Management Actions (Mitigation Measures)	Responsible Party	Monitoring Aspect	Frequency	Evidence of Compliance
Lack of environmental awareness resulting in environmental damage	<p>All personnel must undergo Mine induction, including environmental training before commencing work on-site.</p> <p>The environmental site specific training must include:</p> <ul style="list-style-type: none"> • Overview of the EMPr and legal obligations. • Identification of sensitive environmental features. • Waste management procedures. • Spill prevention and response procedures. • Biodiversity protection requirements. • Cultural heritage Chance Find Procedure. <p>Refresher training must be conducted annually or when non-compliance is observed.</p>	<p>Project Team</p> <p>Contractor</p>	Induction and environmental training compliance	Prior to site entry and periodically	Signed training registers
Environmental non-compliance due to lack of environmental supervision	<p>An Environmental Officer (EO) must monitor compliance with the EMPr. The EO must:</p> <ul style="list-style-type: none"> • Conduct routine site inspections. • Record environmental observations. • Identify non-compliance and recommend corrective actions. • Provide environmental guidance to contractors. 	EO	Environmental compliance	Weekly or as required	EO monitoring reports
Environmental damage due to lack of awareness of site rules	<p>Environmental signage must be installed on-site indicating:</p> <ul style="list-style-type: none"> • No littering. • Sensitive environmental areas. • Waste disposal locations. • Spill reporting procedures. • Site speed limits. <p>Signage must be maintained throughout the Project lifecycle.</p>	<p>Project Team</p> <p>Contractor</p>	Environmental signage	Ongoing	Photographic records
Vegetation loss caused by clearing outside the approved footprint	<p>Development areas must be clearly demarcated prior to construction using fencing, tape or markers.</p> <p>Clearing of vegetation must occur strictly within the</p>	<p>Project Team</p> <p>Contractor</p>	Vegetation disturbance	Ongoing	Site inspection records

Potential Impact / Source of Impact	Impact Management Actions (Mitigation Measures)	Responsible Party	Monitoring Aspect	Frequency	Evidence of Compliance
	<p>authorised footprint.</p> <p>No disturbance of indigenous vegetation outside the development area may occur.</p>				
Habitat disturbance due to uncontrolled construction activities	<p>Construction areas must be clearly demarcated and access restricted to authorised footprint only.</p> <p>No construction vehicles or personnel may enter areas outside the approved footprint.</p>	<p>Project Team</p> <p>Contractor</p>	Habitat disturbance	Throughout construction	Inspection reports
Habitat disturbance caused by creation of unnecessary access routes	<p>Existing access routes must be used wherever possible. If new access routes are required, they must:</p> <ul style="list-style-type: none"> • Be approved, by the Mine, prior to construction. • Follow existing disturbed corridors where possible. • Avoid sensitive vegetation areas. 	<p>Project Team</p> <p>Contractor</p>	Access route disturbance	Ongoing	Site inspection records
Excessive vegetation clearing during site preparation	<p>Vegetation clearing must be limited to the minimum area required for construction activities.</p> <p>Clearing must be undertaken in a controlled manner to prevent unnecessary disturbance of surrounding vegetation.</p>	<p>Project Team</p> <p>Contractor</p>	Vegetation clearance	Ongoing	Photographic evidence
Habitat degradation due to failure to rehabilitate disturbed areas	<p>Areas disturbed during construction that are not required for permanent infrastructure must be rehabilitated. Rehabilitation measures must include:</p> <ul style="list-style-type: none"> • Recontouring disturbed surfaces. • Stabilising soils. • Re-establishing vegetation using indigenous species where possible. 	<p>Project Team</p> <p>Contractor</p>	Rehabilitation success	Periodic	Rehabilitation monitoring records
Spread of alien invasive plants due to soil disturbance	<p>Alien invasive plants must be monitored and removed regularly. Control measures must include</p> <ul style="list-style-type: none"> • Mechanical removal of invasive plants. • Safe disposal of plant material. • Avoiding herbicide use where possible unless approved. 	<p>Project Team</p> <p>Contractor</p>	Invasive species presence	Seasonal	Vegetation monitoring reports
Soil erosion caused by vegetation removal and earthworks	<p>Soil disturbance must be minimised and erosion control measures implemented where necessary. Measures include:</p>	Project Team	Soil erosion	Throughout Project	Inspection records

Potential Impact / Source of Impact	Impact Management Actions (Mitigation Measures)	Responsible Party	Monitoring Aspect	Frequency	Evidence of Compliance
	<ul style="list-style-type: none"> Installation of geotextiles or erosion control mats. Silt fences or sediment barriers. Contour shaping of slopes. Stabilisation of exposed soils. 	Contractor			
Sediment runoff entering surrounding areas	<p>Sediment control structures such as silt fences and sediment traps must be installed in areas where soil disturbance occurs.</p> <p>These structures must be inspected and maintained regularly.</p>	Project Team Contractor	Sediment control	Throughout construction	Inspection reports
Uncontrolled stormwater runoff from disturbed surfaces	<p>Stormwater management measures must be implemented including:</p> <ul style="list-style-type: none"> Maintaining natural drainage patterns where possible. Installation of stormwater channels or culverts where required. Stabilising exposed surfaces to prevent erosion. 	Project Team Contractor	Stormwater runoff	Ongoing	Inspection records
Pollution of stormwater by hydrocarbons, chemicals or construction materials	<p>Potential pollution sources such as hydrocarbons storage areas, workshops and waste storage areas must be isolated from stormwater drainage paths.</p> <p>Runoff from contaminated areas must be contained.</p>	Project Team Contractor	Stormwater contamination	Ongoing	Inspection records
Blockage of stormwater infrastructure	Stormwater drains and channels must be inspected regularly and cleared of debris, waste and sediment build-up to ensure proper functioning.	Project Team Contractor	Drainage infrastructure	Regular inspections	Inspection records
Soil erosion caused by exposed stockpiles	Soil stockpiles must be located in designated areas away from drainage lines and protected from erosion by covering or via vegetation.	Project Team Contractor	Stockpile stability	Ongoing	Inspection reports
Dust generation from construction activities	<p>Dust suppression measures must be implemented including:</p> <ul style="list-style-type: none"> Wetting exposed soil surfaces. Limiting vehicle speeds. Maintaining access roads where necessary. 	Project Team Contractor	Dust generation	As required	Dust monitoring records

Potential Impact / Source of Impact	Impact Management Actions (Mitigation Measures)	Responsible Party	Monitoring Aspect	Frequency	Evidence of Compliance
Soil and water contamination caused by cement mixing	Cement mixing must occur only in designated areas located away from drainage lines and watercourses. Mixing areas must be located on impermeable liners to prevent contamination.	Project Team Contractor	Cement mixing areas	Ongoing	Inspection records
Pollution caused by cement slurry and wash water	Wash-down of concrete mixers and equipment must occur in designated wash areas where runoff can be contained. Concrete wash water must not be discharged into soil or stormwater systems.	Project Team Contractor	Wash-down areas	Ongoing	Inspection records
Pollution caused by hydrocarbon storage and hazardous materials	hydrocarbon and hazardous materials must be stored in bunded areas capable of containing potential spills. Storage areas must be located away from drainage lines and watercourses.	Project Team Contractor	Hydrocarbon storage areas	Ongoing	Inspection records
Soil contamination caused by hydrocarbon spills	Spill kits must be available at all times on-site. Personnel must be trained in spill response procedures and spills must be cleaned immediately.	Project Team Contractor	Spill readiness	Ongoing	Spill kit inspection records
Environmental pollution caused by poor waste management	A Waste Management Plan must be implemented. Waste must be segregated into general waste, recyclable waste and hazardous waste streams.	Project Team Contractor	Waste management	Ongoing	Waste management records
Pollution caused by improper waste storage	Waste must be stored in sealed and clearly labelled containers within designated waste storage areas to prevent windblown litter and contamination.	Project Team Contractor	Waste storage	Ongoing	Inspection records
Environmental contamination caused by improper waste disposal	All waste must be removed from site and disposed of at licensed waste disposal facilities. Waste disposal documentation must be retained.	Project Team Contractor	Waste disposal	Ongoing	Disposal certificates
Soil compaction and vegetation damage caused by vehicles	Vehicle movement must be restricted to designated access routes and construction areas. Off-road driving outside authorised areas is prohibited.	Project Team Contractor	Vehicle movement	Ongoing	Inspection reports
Soil and water contamination caused by	Refuelling must occur in designated refuelling areas equipped with spill containment measures and spill kits.	Project Team	Refuelling areas	Ongoing	Inspection records

Potential Impact / Source of Impact	Impact Management Actions (Mitigation Measures)	Responsible Party	Monitoring Aspect	Frequency	Evidence of Compliance
refuelling activities		Contractor			
Disturbance of wildlife caused by construction activities	Environmental awareness training must emphasise protection of wildlife and prohibit hunting, trapping or harming animals.	Project Team Contractor	Wildlife disturbance	Ongoing	Training records
Disturbance of nesting birds during vegetation clearing	Areas must be inspected prior to vegetation clearing to ensure nests are not present. A specialist must be consulted if nests are found.	Project Team Contractor	Nest presence	During clearing	Inspection records
Bird electrocution caused by infrastructure	Infrastructure must incorporate nest-proofing and anti-perch devices where necessary to reduce electrocution risk.	Project Team Contractor	Bird electrocution incidents	Ongoing	Inspection records
Bird collisions with fencing	Security fencing must include visibility markers where necessary to improve visibility and reduce bird collisions.	Project Team Contractor	Bird collisions	Periodic	Monitoring records
Disturbance to fauna caused by artificial lighting	External lighting must be minimised and directed away from sensitive habitats. Lighting types that reduce ecological disturbance must be used where possible.	Project Team Contractor	Light pollution	Ongoing	Inspection records
Environmental incidents not recorded or addressed	All environmental incidents must be recorded in an Environmental Incident Register and corrective actions implemented.	Project Team Contractor	Incident register	Ongoing	Incident register
Destruction of cultural heritage resources during earthworks	A Chance Find Procedure must be implemented. Work must cease immediately if heritage resources are discovered and the relevant authority notified.	Project Team Contractor	Heritage discoveries	As required	Incident reports
Temporary employment opportunities created during construction	Local labour must be employed where practicable. Recruitment processes should be transparent and aligned with Mine procurement and employment procedures. Preference should be given to suitably qualified local contractors and labour.	Project Team Contractor	Local employment and recruitment records	Throughout construction	Employment records and procurement documentation
Transfer of skills and experience to workers through construction	On-site training must be provided to workers, including health and safety requirements, environmental awareness, waste management, spill response and	Project Team	Training and skills development	Throughout construction	Training registers and attendance records

Potential Impact / Source of Impact	Impact Management Actions (Mitigation Measures)	Responsible Party	Monitoring Aspect	Frequency	Evidence of Compliance
activities	specialist construction practices relevant to the installation.	Contractor			
Increased demand for local goods and services	Procurement should prioritise local suppliers and service providers where feasible, provided they meet technical, commercial and safety requirements.	Project Team Contractor	Local procurement	Throughout construction	Supplier records and procurement documentation
Improvement in site condition through clean-up and reinstatement of temporarily disturbed construction areas	Temporary work areas not required for operation must be cleared of waste, re-profiled where necessary and rehabilitated to a stable condition. Disturbed surfaces should be stabilised and revegetated where feasible.	Project Team Contractor	Site rehabilitation and reinstatement	At completion of construction and as required	Rehabilitation records and photographic evidence

Table 11-2: Environmental Management Programme for the Operational Phase

Potential Impact / Source of Impact	Impact Management Actions (Mitigation Measures)	Responsible Party	Monitoring Aspect	Frequency	Evidence of Compliance
Lack of environmental awareness resulting in environmental damage	All personnel must undergo Mine induction, including environmental training before commencing work on-site. Refresher training must be conducted annually.	Project Team Contractor	Environmental training compliance	Prior to site entry and periodically	Signed training registers
Environmental damage due to lack of awareness of site rules	Environmental signage must be installed on-site indicating: <ul style="list-style-type: none"> • No littering. • Sensitive environmental areas. • Waste disposal locations. • Spill reporting procedures. • Site speed limits. Signage must be maintained throughout the Project lifecycle.	Project Team Contractor	Environmental signage	Ongoing	Photographic records
Spread of alien invasive plants due to soil disturbance	Alien invasive plants must be monitored and removed regularly. Control measures must include <ul style="list-style-type: none"> • Mechanical removal of invasive plants. • Safe disposal of plant material. • Avoiding herbicide use where possible unless approved. 	Project Team Contractor	Invasive species presence	Seasonal	Vegetation monitoring reports
Uncontrolled stormwater runoff from disturbed surfaces	Stormwater management measures must be maintained.	Project Team Contractor	Stormwater runoff	Ongoing	Inspection records

Potential Impact / Source of Impact	Impact Management Actions (Mitigation Measures)	Responsible Party	Monitoring Aspect	Frequency	Evidence of Compliance
Pollution of stormwater by hydrocarbon chemicals	Potential pollution sources such as hydrocarbon storage areas, workshops and waste storage areas must be isolated from stormwater drainage paths. Runoff from contaminated areas must be contained.	Project Team Contractor	Stormwater contamination	Ongoing	Inspection records
Blockage of stormwater infrastructure	Stormwater drains and channels must be inspected regularly and cleared of debris, waste and sediment build-up to ensure proper functioning.	Project Team Contractor	Drainage infrastructure	Regular inspections	Inspection records
Pollution caused by hydrocarbon storage and hazardous materials	Hydrocarbon and hazardous materials must be stored in bunded areas capable of containing potential spills. Storage areas must be located away from drainage lines and watercourses.	Project Team Contractor	Hydrocarbon storage areas	Ongoing	Inspection records
Soil contamination caused by hydrocarbon spills	Spill kits must be available at all times on-site. Personnel must be trained in spill response procedures and spills must be cleaned immediately.	Project Team Contractor	Spill readiness	Ongoing	Spill kit inspection records
Environmental pollution caused by poor waste management	A Waste Management Plan must be implemented. Waste must be segregated into general waste, recyclable waste and hazardous waste streams.	Project Team Contractor	Waste management	Ongoing	Waste management records
Pollution caused by improper waste storage	Waste must be stored in sealed and clearly labelled containers within designated waste storage areas to prevent windblown litter and contamination.	Project Team Contractor	Waste storage	Ongoing	Inspection records
Environmental contamination caused by improper waste disposal	All waste must be removed from site and disposed of at licensed waste disposal facilities. Waste disposal documentation must be retained.	Project Team Contractor	Waste disposal	Ongoing	Disposal certificates
Soil compaction and vegetation damage caused by vehicles	Vehicle movement must be restricted to designated access routes and construction areas. Off-road driving outside authorised areas is prohibited.	Project Team Contractor	Vehicle movement	Ongoing	Inspection reports
Soil and water contamination caused by refuelling activities	Refuelling must occur in designated refuelling areas equipped with spill containment measures and spill kits.	Project Team Contractor	Refuelling areas	Ongoing	Inspection records
Disturbance of wildlife caused by construction activities	Environmental awareness training must emphasise protection of wildlife and prohibit hunting, trapping or harming animals.	Project Team Contractor	Wildlife disturbance	Ongoing	Training records

Potential Impact / Source of Impact	Impact Management Actions (Mitigation Measures)	Responsible Party	Monitoring Aspect	Frequency	Evidence of Compliance
Bird electrocution caused by infrastructure	Infrastructure must incorporate nest-proofing and anti-perch devices where necessary to reduce electrocution risk.	Project Team Contractor	Bird electrocution incidents	Ongoing	Inspection records
Bird collisions with fencing	Security fencing must include visibility markers where necessary to improve visibility and reduce bird collisions.	Project Team Contractor	Bird collisions	Periodic	Monitoring records
Disturbance to fauna caused by artificial lighting	Outside lighting must be designed and limited to minimise impacts on fauna. All outside lighting should be directed away from highly sensitive areas. Fluorescent and mercury vapour lighting should be avoided, and sodium vapour (red/green) lights should be used.	Project Team Contractor	Light pollution	Ongoing	Inspection records
Environmental incidents not recorded or addressed	All environmental incidents must be recorded in an Environmental Incident Register and corrective actions implemented.	Project Team Contractor	Incident register	Ongoing	Incident register
Improved electricity supply reliability	Maintain operational efficiency and implement routine preventative maintenance of the BESS infrastructure to ensure reliable energy storage and supply.	Mine Operations Team / Project Team	Operational performance of the BESS system	Continuous monitoring with periodic review	Operational monitoring reports and maintenance records
Reduced impact of load shedding	Optimise system operation to support peak demand periods and ensure efficient charging and discharge cycles aligned with Mine electricity demand.	Mine Operations Team	Energy storage and discharge performance	Continuous	Energy management system reports
Employment for operational maintenance	Continue use of local labour where feasible for maintenance, monitoring and operational support activities in accordance with Mine procurement policies.	Mine Management / Project Team	Local employment participation	Annually or as required	Employment records and contractor documentation
Reduction in reliance on grid electricity	Maintain system performance through routine inspections, preventative maintenance and implementation of an energy management strategy to maximise efficiency of stored renewable energy.	Mine Operations Team	Energy efficiency and system performance	Continuous monitoring with periodic review	Energy performance reports and maintenance logs

Table 11-3: Environmental Management Programme for the Decommissioning Phase

Potential Impact / Source of Impact	Impact Management Actions (Mitigation Measures)	Responsible Party	Monitoring Aspect	Frequency	Evidence of Compliance
Environmental incidents not recorded or addressed	All environmental incidents must be recorded in an Environmental Incident Register and corrective actions implemented.	ECO Contractor	Incident register	Ongoing	Incident register
Destruction of cultural heritage	A Chance Find Procedure must be implemented.	Project Team	Heritage discoveries	As required	Incident reports

Potential Impact / Source of Impact	Impact Management Actions (Mitigation Measures)	Responsible Party	Monitoring Aspect	Frequency	Evidence of Compliance
resources during earthwork activities	Work must cease immediately if heritage resources are discovered and the relevant authority notified.	Contractor			
Environmental impacts following Project closure	All infrastructure must be removed during decommissioning and disturbed areas rehabilitated and stabilised to prevent erosion and habitat degradation according to the Final Rehabilitation, Decommissioning, and Mine Closure Plan.	ECO Project Team Contractor	Rehabilitation success	During closure	Closure inspection reports

12 DETAILS OF THE PUBLIC PARTICIPATION PROCESS FOLLOWED

12.1 Objectives of the Public Participation Process

The PPP forms a critical component of the environmental regulatory process and aims to ensure that all relevant stakeholders are provided with meaningful opportunities to participate in the proposed Projects in a transparent, inclusive, and fair manner. The PPP is intended to facilitate the dissemination of information regarding the proposed development and to enable I&APs to raise concerns, provide comments, and contribute to the environmental decision-making process.

The objectives of the PPP are to ensure that stakeholders who may be affected by, or have an interest in, the proposed Projects are adequately informed of the proposed development and are provided with sufficient opportunity to review and comment on the Projects documentation.

The objectives of the PPP include, but are not limited to, the following:

- Identification and registration of I&APs and stakeholders who may have an interest in, or may be affected by, the proposed Projects.
- Providing stakeholders with accessible and accurate information regarding the nature, scope, and potential environmental impacts of the proposed Projects.
- Facilitating open and transparent consultation with stakeholders, including affected communities, authorities, and other relevant organisations.
- Ensuring that stakeholder concerns, comments, and issues are documented and communicated to Boysendal and the competent authority responsible for decision-making.
- Providing stakeholders with adequate opportunity to comment on the Draft SSVR, Draft EMPr and related documentation.
- Incorporating stakeholder input into the Comments and Responses Report (CRR) to demonstrate how stakeholder concerns have been considered during the environmental assessment process.
- Ensuring compliance with applicable environmental legislation and regulatory requirements, including the NEMA and the EIA Regulations, 2014.
- Promoting constructive engagement and positive relationships between Boysendal, regulatory authorities, and host communities throughout the environmental process.

Through the implementation of the PPP, the proposed Projects aims to ensure that stakeholder participation contributes meaningfully to the environmental assessment process and supports informed and transparent decision-making by the competent authority (in this case the DMPR).

12.2 Legal Framework

The legal framework governing public participation for the proposed Projects is guided by the provisions of Chapter 6 of the EIA Regulations, 2014, which were promulgated under the NEMA. Public participation is further undertaken in accordance with Sections 24(5) and 44 of NEMA, which

require that adequate opportunities be provided for stakeholder engagement during environmental assessment processes.

In accordance with these legislative requirements, the PPP was undertaken to ensure that stakeholders were informed of the proposed Projects and provided with opportunities to participate in the environmental process.

As part of the PPP, the following key actions were undertaken to ensure compliance with the relevant legislation:

- Identification and registration of relevant stakeholders representing different sectors of society who may have an interest in or may be affected by the proposed Projects.
- Dissemination of information regarding the proposed Projects through various communication channels, including the Background Information Document (BID), announcement and notification letters, newspaper advertisements, site notices, and electronic correspondence with registered I&APs.
- Provision of opportunities for stakeholders to review and comment on the Draft SSVR and EMPr.
- Documentation of all comments received from stakeholders and responses provided by the Project Team within a CRR.

12.3 PUBLIC PARTICIPATION ACTIVITIES

An integrated public participation approach was adopted whereby a combined PPP was conducted for both the BN BESS and BS BESS applications in order to ensure effective stakeholder engagement and avoid duplication of consultation processes.

12.3.1 Development of Stakeholder Database

An existing stakeholder database obtained from Booyseendal was reviewed, verified, and updated to ensure that all relevant stakeholders were included in the consultation process. The updated stakeholder database included I&APs grouped into the following categories:

- Authorities: National and Provincial Authorities responsible for environmental management, heritage resources, and regulatory oversight.
- District and Local Municipalities.
- Environmental Non-Governmental Organisations.
- Adjacent landowners, local residents, host community representatives and forums in the surrounding area.

The stakeholder database is included as Appendix A of **APPENDIX J**.

12.3.2 Public Participation Media

In compliance with NEMA, the following public participation media were employed during the

assessment:

12.3.2.1 Publication of Newspaper Advertisements

A newspaper advertisement was published in English and Sepedi to notify the public of the proposed Projects and to invite I&APs to register as I&APs and provide comments on the Draft SSVR and EMPr.

The advertisement was published in the Steelburger (Lydenburg) News on 19 February 2026 and informed I&APs of the proposed Projects, the environmental process being undertaken, and the opportunity to submit comments during the public review period.

Proof of the placement of the advertisement is provided in Appendix B of **APPENDIX J**.

12.3.2.2 Site Notices

Twenty site notices were placed at publicly accessible locations in and around the proposed Projects area between 16 February and 19 February 2026. The notices were prepared in English and Sepedi to ensure accessibility to local communities.

The purpose of the site notices was to inform members of the public about the proposed Projects and to encourage I&APs to register and participate in the PPP.

A table indicating the locations of the site notices is provided in Appendix C of **APPENDIX J**.

12.3.2.3 Background Information Document and Registration and Comment Form

A BID was prepared to provide stakeholders with an overview of the proposed Projects, the environmental process being undertaken, and the opportunities available for public participation. The BID serves as an introductory document that outlines key aspects of the proposed development and ensures that I&APs are provided with sufficient information to understand the nature and potential implications of the proposed Projects.

The BID included information relating to the location of the proposed Projects, a description of the proposed development, the applicable environmental regulatory process, and the mechanisms available for stakeholder participation. The document also informed stakeholders of the availability of the Draft SSVR and EMPr, the public review period, and the procedures for submitting comments or queries regarding the proposed Projects.

To ensure accessibility to local communities and stakeholders, the BID was prepared and made available in both English and Sepedi. The BID was distributed electronically via email to registered I&APs between 18 February and 19 February 2026. Stakeholders who expressed interest in the Projects were provided with the necessary documentation and information to enable their participation in the environmental process.

In addition, copies of the BID were made available and distributed during the Focus Group and Open Meetings, providing stakeholders attending these engagements with an opportunity to obtain further information about the proposed Projects and the PPP.

A Registration and Comment Form accompanied the BID to allow stakeholders to formally register as I&APs and to submit comments, concerns, or questions relating to the proposed Projects. The

form provided stakeholders with an opportunity to supply their contact details, indicate their interest in the Projects, and record any issues or comments they wished to raise.

The use of the Registration and Comment Form ensured that all stakeholder input received during the PPP could be systematically recorded, reviewed, and addressed as part of the environmental assessment process. All comments received were captured and responded to within the CRR.

Copies of the BID and the Registration and Comment Form are included in Appendix D of **APPENDIX J**.

12.3.2.4 Announcement of the Availability of the Draft Site Sensitivity Verification Report

Stakeholders were notified of the availability of the Draft SSVR and EMPr and the associated public participation opportunities through electronic notifications distributed at different stages of the process.

Between the 13 and 19 February 2026, stakeholders on the Project database were notified via email and SMS of the upcoming public meetings and the availability of the Draft SSVR and EMPr for public review. The notification informed I&APs of the proposed Projects, the environmental regulatory process being undertaken, and the opportunities available for stakeholder participation during the public review period.

A second notification was issued on 17 and 18 March 2026, reminding stakeholders of the public review period for the Draft SSVR and EMPr and inviting them to submit comments on the report. This follow-up notification served to ensure that all registered I&APs were aware of the availability of the Draft SSVR and EMPr and the timeframe within which comments could be submitted.

A third notification was issued on 2 April 2026, informing stakeholders of the extension of the public review period for the Draft SSVR and EMPr to 6 May 2026. This follow-up notification served to ensure that all registered I&APs were aware of the availability of the Draft SSVR and EMPr at the change in venues, as well as the revised timeframe within which comments could be submitted.

The Draft SSVR and EMPr were made available electronically on the GCS Website and in hard copy at publicly accessible locations within the Project area, as indicated in **Table 12-1** below. Stakeholders were encouraged to review the documentation and submit comments, queries, or concerns relating to the proposed Projects during the legislated public review period; 25 March to 6 May 2026.

Table 12-1: Locations Where the Draft Site Sensitivity Verification Report and Environmental Management Programme will be made available for Public Review

Place	Address
Hard copies:	
Lydenburg Public Library	46-52 Viljoen St, Mashishing, 1120
Maartenshoop Police Station	Maartenshoop, Lydenburg, 1120, Mpumalanga, South Africa
Thusong Centre	Mashishing, 1123
Kiwi Clinic	Kiwi Farm Lydenburg
Phasha Royal Kraal*	D1392 Road, Phasha Village Steelpoort
Batlokwa Ba Magolego Traditional Authority at Mapodile Thusong Centre*	Mapodile Village, Fetakgomo Tubatse Local Municipality, Limpopo
Maseven Clinic*	Maseven Village, Fetakgomo Tubatse Local Municipality,

Place	Address
	Limpopo
Ngwaabe Home Based Care	Ga-Rantho/Ga-Masha, Ngwaabe area, Limpopo
Bakoni Ba Phetla Royal Kraal*	Ga-Phetla Village, Stickskop Makgotheng, Fetakgomo Tubatse Local Municipality
Chrome Valley Lodge*	Tweefontein Farm, Tweefontein Road, Steelpoort, 1133 <i>Reports are available at this venue Monday to Friday 08h00 to 16h00.</i>
Electronic copies:	
GCS Website	https://www.gcs-sa.biz/public-documents/

Note: *Additional report locations added, post the Focus Group Meetings.

12.3.2.5 Invitation SMS

Invitation SMS notifications were distributed to stakeholders between 13 February and 19 February 2026 to inform them of the Focus Group Meetings scheduled as part of the PPP for the proposed Projects, as well as the availability of the Draft SSVR and EMPr for public review. Refer to Appendix E of **APPENDIX J**.

Following a change in the public review period and the addition of further report locations, additional SMS notifications were distributed on 17 March 2026 and 18 March 2026. Refer to Appendix K of **APPENDIX J**.

A third SMS was issued on 2 April 2026, informing stakeholders of the extension of the public review period to 6 May 2026. This follow-up notification served to ensure that all registered I&APs were aware of the availability of the Draft SSVR and EMPr at the change in venues, as well as the revised timeframe within which comments could be submitted. Refer to Appendix K of **APPENDIX J**.

12.3.2.6 Invitation Email

Invitation emails were distributed to stakeholders between 16 February and 18 February 2026 to inform them of the Focus Group Meetings scheduled as part of the PPP for the proposed Projects, as well as the availability of the Draft SSVR and EMPr for public review. Refer to Appendix F of **APPENDIX J**.

Following a change in the public review period and the addition of further report locations, additional email notifications were distributed on 17 March 2026 and 18 March 2026. Refer to Appendix L **APPENDIX J**.

A third notification was issued on 2 April 2026, informing stakeholders of the extension of the public review period to 6 May 2026. This follow-up notification served to ensure that all registered I&APs were aware of the availability of the Draft SSVR and EMPr at the change in venues, as well as the revised timeframe within which comments could be submitted. Refer to Appendix L of **APPENDIX J**.

12.3.2.7 Invitation Letters

Invitation letters were distributed to stakeholders between the 12 February and 16 February 2026 to notify them of the Focus Group Meetings scheduled as part of the PPP for the proposed Projects. The invitation letters informed stakeholders of the purpose of the meetings and encouraged I&APs to attend and participate in the discussions regarding the proposed Projects. Refer to Refer to

Appendix G of **APPENDIX J**.

12.3.3 Focus Group and Open Meetings

Focus Group and Open Meetings were held between 25 February 2026 and 6 March 2026 with various stakeholder groups, as indicated in the table below.

Table 12-2: Focus Group and Open Meetings

Focus Group and Open Meetings	Date and Venue
District and Local Municipality	25 February 2026 at Laske Nakke Lodge
Authorities - Department of Mineral and Petroleum Resources (DMPR), the Department of Water and Sanitation (DWS), the Department of Forestry, Fisheries and the Environment (DFFE), and the Mpumalanga Tourism and Parks Agency (MTPA)	25 February 2026 at Laske Nakke Lodge
Bakoni Ba- Phetla Community Property Association	26 February 2026 at Boeketlong Lodge
Open for Requested Meeting or Walk-ins	26 February 2026 at Boeketlong Lodge
Bakoni Ba Phetla Royal Family	27 February 2026 at Boeketlong Lodge
Commercial Agriculture and Adjacent Landowners	2 March 2026 at Akabeko Boutique Hotel
Booyesendal South Forum	2 March 2026 at Akabeko Boutique Hotel
District and Local Municipality	3 March 2026 at Thaba Moshate Hotel
Authorities - DMPR, DWS, DFFE and MTPA	3 March 2026 at Thaba Moshate Hotel
Booyesendal North Forum: Ngwaabe	4 March 2026 at Chrome Valley Lodge
Open for Requested Meeting or Walk-ins	4 March 2026 at Chrome Valley Lodge
Steelpoort Stakeholder Forum	5 March 2026 at Chrome Valley Lodge
North Farming Community	5 March 2026 at Chrome Valley Lodge
Booyesendal North Forum: Host Communities and Buttonshope Community	6 March 2026 at Boeketlong Lodge
Open for requested meeting or walk/in	6 March 2026 at Boeketlong Lodge

The purpose of these meetings was to inform stakeholders about the proposed Projects, present key aspects of the environmental assessment process, and provide an opportunity for I&APs to raise questions, concerns, and comments regarding the Projects.

The meetings also served to facilitate direct engagement between the Project Team and local stakeholders, ensuring that communities, local authorities, and other interested groups were able to obtain information about the proposed development and participate meaningfully in the PPP.

During these engagements, stakeholders were provided with an overview of the BN and BS BESS Projects, the SSV process, and the EMPr. Stakeholders were encouraged to provide comments and to register as I&APs where they had not already done so.

For a copy of the presentation, please refer to Appendix I of **APPENDIX J**. Attendance registers are included in Appendix J of **APPENDIX J**, and photographs of the meetings are provided in Appendix H of **APPENDIX J**.

12.3.4 Comments and Response Report

All comments received during the Focus Group and Open Meetings, other stakeholder engagement activities, and the public review period were captured in the Comments and Responses Report (CRR) (Appendix M of **APPENDIX J**). The CRR is appended to the Final SSVR and serves as a comprehensive record of the issues and concerns raised to date, together with the corresponding responses provided and an indication of how these matters have been considered and addressed within the environmental assessment process.

12.3.5 Summary of Key Issues Raised and Responses

During the PPP, a range of comments and questions were raised by stakeholders during Focus Group and Open Meetings, and through Registration and Comment Forms. The issues raised generally related to employment opportunities, project safety, environmental management, community impacts, and access to Project information.

The key issues raised and the responses provided are summarised below.

- Employment Opportunities and Skills Development.
 - Several stakeholders emphasised the importance of employment opportunities and skills development for local communities, particularly for young people and individuals who may not have prior mining experience. Additional concerns were raised regarding high levels of youth unemployment, limited access to opportunities, and perceived barriers associated with online application systems, which were viewed as inaccessible or ineffective for local participation.
 - In response, it was explained that temporary employment opportunities may arise during Project implementation, although the Projects are currently at an early stage of development and detailed recruitment strategies will be communicated at a later stage. The Mine confirmed that recruitment processes follow standard procedures and involve the Stakeholder Department to support local participation. Stakeholders were encouraged to utilise formal forums and engagement platforms to raise employment, skills development, and training requests, which will be addressed through relevant structures, including Human Resources and Enterprise and Supplier Development.
- Local Procurement and Community Benefits.
 - Stakeholders also raised concerns that local businesses and contractors are sometimes overlooked when procurement opportunities arise. Community members requested that the Mine prioritise local suppliers and service providers where possible. Concerns were also raised that businesses from outside the immediate area are benefiting, and that local communities are not experiencing tangible economic benefits.
 - The Project Team acknowledged these concerns and noted that local economic participation is an important consideration, although procurement processes will follow the Mine's established procurement policies and procedures. It was further indicated that procurement-related matters, including Small, Medium and Micro Enterprises participation and supplier development, can be addressed through existing stakeholder forums and Enterprise and Supplier Development initiatives to improve transparency and local inclusion.
- Project Safety and Battery Technology.

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- Questions were raised regarding the safety of the BESS, including the potential risk of explosions and the management of battery systems.
 - It was explained that the proposed BESS will utilise Lithium Iron Phosphate battery technology, which is widely regarded as one of the safest lithium-ion battery technologies due to its high thermal stability and lower risk of thermal runaway. The facility will include advanced battery management systems, automated monitoring systems, and safety controls designed to ensure safe and reliable operation. In addition, stakeholders were informed that batteries differ significantly from domestic units and are designed specifically for industrial applications with enhanced safety features.
 - Project Purpose and Energy Supply.
 - Stakeholders requested clarification on how the solar and battery energy projects will support mining operations and the broader electricity supply system.
 - The Project Team explained that the solar photovoltaic system will generate electricity from solar radiation, which will be stored in the battery system and used to support Mine operations such as machinery, ventilation, and lighting. The Projects will assist in reducing reliance on the national electricity grid and contribute to improved electricity stability. It was further noted that the Projects are intended to support mining operations over the life of mine and are not primarily designed for direct community electricity supply, although community-related benefits may be considered through formal programmes.
 - Environmental and Heritage Protection.
 - Concerns were raised regarding the protection of environmentally sensitive areas, graves, and heritage sites within the broader Project area. Community members also requested that local elders be involved in identifying cultural and heritage sites. Additional concerns were raised regarding perceived impacts on heritage sites and the need for recognition of cultural practices and access to sites of significance.
 - The Project Team indicated that environmental assessments will be undertaken to identify sensitive environmental and heritage features. Where necessary, Project infrastructure has been adjusted to avoid sensitive areas, and engagement with communities will continue to ensure that heritage resources are appropriately identified and protected. It was also confirmed that no recent relocations or grave disturbances have occurred, and that access to cultural sites can be arranged through the Mine's Stakeholder Department, with further engagement ongoing to resolve concerns.
 - Environmental Management and Monitoring.
 - Questions were raised regarding water management, land disturbance, and

environmental monitoring associated with the Project.

- Stakeholders were informed that the Mine operates ongoing monitoring programmes for water, dust, and emissions, and that environmental performance data is publicly available and reported annually. While concerns regarding community health were acknowledged, the Mine confirmed that it remains compliant with applicable regulatory requirements and will continue to implement monitoring and management measures to mitigate environmental impacts.
- **Waste Management.**
 - Stakeholders raised concerns regarding the disposal and management of battery and solar panel waste, particularly given that these materials may be classified as hazardous.
 - In response, it was indicated that multiple waste management options are available, including returning defective batteries to suppliers, recycling through third-party service providers, or disposal at licensed facilities. Solar waste will be managed in accordance with the waste management hierarchy, with opportunities for recycling and reuse also considered.
- **Stakeholder Engagement and Transparency.**
 - Stakeholders expressed concerns that engagement processes are not always meaningful, citing lack of feedback, limited transparency, and exclusion from decision-making processes.
 - The Mine acknowledged these concerns and confirmed its commitment to ongoing, meaningful engagement beyond compliance. Stakeholders were encouraged to utilise established forums and quarterly meetings, where issues will be addressed transparently, and project-related information, including statistics, will be shared to improve accountability.
 - Refer to **Table 12-1** for the locations where the Draft SSVR and EMPr were made available, additional locations have been added.

12.3.6 Conclusion

A comprehensive PPP was conducted for the proposed Projects, ensuring extensive efforts to inform and engage I&APs. The stakeholder database was regularly updated to maintain effective communication, and notifications and reports were disseminated through multiple channels. Stakeholders were also notified of the availability of the Final SSVR and EMPr on the GCS website for information and review purposes.

The process adhered to legal requirements and principles of transparency, providing all relevant stakeholders with an opportunity to contribute and be heard.

The DMPR will assess the Final SSVR and EMPr and make an informed decision on whether the

Projects should be registered. The decision will be communicated to I&APs as per the regulatory requirements

13 CONCLUSION

The SSV for the proposed Project has confirmed, through a combination of Screening Tool outputs, specialist desktop assessments and detailed field verification surveys, that the development footprint is located within an already transformed mining environment characterised by predominantly low to very low environmental sensitivity across all assessed themes.

While the Screening Tool identified higher sensitivity ratings for certain environmental themes, including biodiversity, aquatic systems and avifauna, the specialist assessments undertaken in accordance with GN 320 and GN 1150 have demonstrated that these ratings reflect the broader regional ecological context rather than the actual site specific conditions within the Project footprint. The field verification process has therefore refined these sensitivities to accurately reflect the disturbed and modified nature of the receiving environment.

From an agricultural and soil perspective, the baseline sensitivity of the site is low, with soils predominantly comprising low potential forms such as Mispah, Johannesburg and Witbank, and only limited occurrences of moderately sensitive Swartland soils. These soils are generally shallow, non-arable and subject to climatic limitations, which significantly reduces their agricultural value. The proposed development footprint is limited in extent and located within an already disturbed mining area, and will therefore not result in any irreplaceable loss of soil resources or any measurable reduction in agricultural productivity at a local or regional scale.

From a terrestrial biodiversity perspective, the Project footprint is entirely located within Modified habitat and Degraded Bushveld, both of which have been significantly altered by ongoing mining activities, infrastructure development, vegetation clearing, dust deposition and habitat fragmentation. These habitat types exhibit reduced ecological integrity, low biodiversity importance and limited ecological functionality, with a low capacity to support SCC. No sensitive ecosystems or SCC were recorded during the field surveys, and the likelihood of occurrence is considered low due to the absence of suitable habitat features.

From an aquatic biodiversity perspective, the specialist assessment confirmed the absence of wetlands, drainage lines or watercourses within the Project footprint. Although the Screening Tool classified the broader area as sensitive due to its location within a FEPA sub-catchment, this classification is not applicable at a site specific level. The absence of aquatic features effectively eliminates both direct and indirect impact pathways, and the Project will not result in any degradation of freshwater ecosystems or aquatic ecological integrity.

From an avifaunal perspective, the site provides limited suitable habitat due to its highly disturbed condition and lack of structural vegetation required for breeding, roosting or foraging by sensitive species. No avifauna SCC were recorded during the field verification survey, and the likelihood of occurrence within the Project footprint is considered low. Potential risks associated with

infrastructure, including collision and electrocution, are limited and can be effectively mitigated through standard design and management measures.

The hydrogeological assessment confirms that the site is dominated by shallow and slow recharge soil systems, with limited contribution to broader catchment hydrological functioning. Surface and subsurface flow processes are primarily influenced by upstream catchment inputs, and the Project footprint plays a minor role in sustaining local drainage dynamics. The proposed development will not result in any significant alteration of catchment scale hydrological processes, and any localised changes in infiltration or runoff can be effectively managed through appropriate stormwater design and maintenance.

From a heritage perspective, both the desktop assessment and field verification survey confirmed that no archaeological, historical or palaeontological resources occur within the Project footprint. The site is located within an already disturbed mining landscape where the integrity of potential heritage contexts has been substantially reduced. The potential risk to unknown subsurface heritage resources remains low and can be effectively managed through the implementation of a Chance Find Procedure.

Across all environmental themes, the potential impacts associated with the proposed Project are assessed as low when considered in isolation. This reflects the limited spatial footprint of the development, the absence of sensitive environmental receptors and the already transformed nature of the receiving environment. The proposed Project does not introduce high-risk activities and is consistent with the existing industrial land use.

When considered cumulatively with existing mining activities and reasonably foreseeable future developments within the region, the significance of impacts increases to medium prior to mitigation. This increase is driven primarily by the aggregation of disturbances over time, including continued land transformation, habitat fragmentation, soil disturbance and incremental modification of natural systems. However, it is important to emphasise that these cumulative impacts are characteristic of the broader mining landscape and are not driven by the proposed Project in isolation.

Following the implementation of mitigation measures, as outlined in the EMPr and supported by specialist recommendations, cumulative impacts are reduced to low significance across all environmental themes. These mitigation measures include restricting disturbance to the approved development footprint, implementing erosion and stormwater control measures, managing and rehabilitating disturbed areas, preventing contamination through appropriate handling of hazardous materials, controlling alien invasive species, and ensuring ongoing environmental monitoring and maintenance.

Importantly, the specialist assessments confirm that the proposed Project will not result in any irreplaceable loss of environmental resources, including biodiversity, soil capability, hydrological function or heritage features. The development footprint is small relative to the surrounding landscape and is located within an already transformed environment where ecological and cultural

integrity has been substantially reduced.

The residual impacts are therefore considered acceptable and manageable, with no anticipated long-term degradation of environmental resources beyond existing conditions. The Project does not contribute significantly to cumulative environmental degradation at a local or regional scale and remains consistent with the current land use and development context.

Based on the above, the proposed Project is considered environmentally acceptable and suitable for development, subject to the implementation of the recommended mitigation and management measures. The findings of the SSV confirm that the Project meets the requirements of the BESS Exclusion Norm and may proceed within the applicable regulatory framework.

In conclusion, the proposed BN BESS Facility represents a low-impact infrastructure development within an existing mining landscape, supporting energy security and operational efficiency, without resulting in significant adverse environmental or cumulative impacts.

14 REFERENCES

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APPENDIX A: ENVIRONMENTAL ASSESSMENT PRACTITIONER CURRICULUM VITAE AND QUALIFICATIONS

**APPENDIX B: DEPARTMENT OF FORESTRY, FISHERIES AND THE ENVIRONMENT SCREENING
TOOL REPORT**

APPENDIX C: AGRICULTURE SITE SENSITIVITY VERIFICATION REPORT

APPENDIX D: TERRESTRIAL BIODIVERSITY SITE SENSITIVITY VERIFICATION REPORT

APPENDIX E: AQUATIC BIODIVERSITY SITE SENSITIVITY VERIFICATION REPORT

APPENDIX F: AVIFAUNA SITE SENSITIVITY VERIFICATION REPORT

APPENDIX G: HYDROPEDOLOGY STATEMENT

APPENDIX H: HERITAGE IMPACT ASSESSMENT, INCLUDING PALAEOLOGY

APPENDIX I: FINAL REHABILITATION, DECOMMISSIONING AND MINE CLOSURE PLAN

APPENDIX J: PUBLIC PARTICIPATION REPORT