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Site Sensitivity Verification Report and Environmental Management Programme for the Proposed Battery Energy Storage System Project Booysendal South, located in Thaba Chweu Local Municipality, Ehlanzeni District Municipality, Mpumalanga Province, South Africa

Report

Version – Final

15 May 2026

GCS Project Number: 25-0607 BS BESS

Client Reference: BS BESS

GCS Environment South Africa (Pty) Ltd **Reg No:** 2002/028494/07
Offices: **Johannesburg**
Directors: DA Kriel (Managing) | AC Johnstone | W Sherriff | T Isaac | A Theunissen

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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;

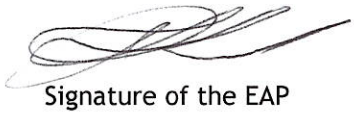
Signature of the EAP

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.



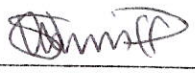
Signature of the EAP

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 S 20 26 and that the administering oath complied with the regulations contained in Goverment 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 South (BS) Battery Energy Storage System (BESS) Project, located on Portion 8 of Farm Sterkfontein No. 53JT, near Mashishing, within the Thaba Chweu Local Municipality, Ehlanzeni District Municipality, Mpumalanga 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 BS 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 BS 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, hydropedology, 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 BS BESS Facility will occupy a footprint of approximately 2 900 m^2 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 200 m at 11 kv) connecting the facility to the existing BS 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 animal species, palaeontology and plant species, High to Very High sensitivity for agricultural resources, aquatic biodiversity, terrestrial biodiversity and civil aviation, and Low sensitivity for 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

Detailed specialist assessments confirmed that the proposed BS BESS footprint is located within an existing disturbed mining environment and that the higher screening sensitivities are, in several instances, not representative of the site specific conditions within the development area.

The agricultural assessment found that the site is dominated by Hutton, Mispah and Johannesburg soil forms, with shallow to moderately deep profiles, low clay content, rocky substrates and severe climatic limitations. The site falls within Land Capability Classes III, VI and VIII and Land Potential Levels 6, 7 and 8, indicating very restricted to very low agricultural potential. The verified agricultural sensitivity of the footprint is therefore Low to Medium.

The terrestrial biodiversity assessment confirmed that the broader area contains Rocky Grassland (Ridge), Disturbed Grassland, Alien Stand and Modified habitat. However, the proposed development footprint is situated entirely within already degraded and disturbed habitat associated with the operational mining area. The more sensitive Rocky Grassland (Ridge) habitat occurs outside the footprint and is avoided together with the recommended buffer. No flora or fauna Species of Conservation Concern (SCC) were recorded within the development footprint. The specialist therefore confirmed that the footprint itself is located within habitat of low ecological integrity and limited biodiversity value.

The aquatic biodiversity assessment confirmed that no wetlands, drainage lines, rivers,

hydromorphic soils or freshwater ecosystem features occur within the proposed development footprint. Although the screening result reflected Very High sensitivity at regional scale, this was found to relate to the broader Freshwater Ecosystem Priority Area and Ecological Support Area context rather than to any aquatic feature within the site itself. The verified aquatic sensitivity of the proposed footprint is therefore Low.

The avifauna assessment found that the footprint comprises disturbed habitat of Low to Very Low avifaunal sensitivity. Although avifauna SCC may occur within the wider regional landscape, no SCC were recorded within the proposed development footprint, and the site does not represent important breeding, nesting or foraging habitat.

The hydropedology assessment confirmed that the Project area is located within a hillslope system dominated by recharge-type hydropedological soils, primarily associated with the Mispah soil form. The assessment found that the majority of hydrological input to nearby watercourses originates from upstream catchments and that even under a worst-case scenario the reduction in moisture contribution associated with the proposed development would be less than 1% of the total catchment water regime. Hydropedological impacts are therefore expected to be minimal and acceptable.

The heritage assessment, including palaeontology, confirmed that no archaeological sites, graves, burial grounds, structures older than 60 years, or other heritage resources occur within the proposed footprint. A stonewalled feature was recorded in the wider area, but it lies outside the footprint and will not be affected. The South African Heritage Resources Information System Palaeontological Sensitivity Map classifies the geology as having low palaeontological sensitivity, and no fossil material was observed during the field survey.

Overall, the specialist findings confirm that the proposed Project footprint is located within areas of Low to Medium environmental sensitivity and therefore satisfies the key site sensitivity requirement of the BESS Exclusion Norm.

Impact Assessment

Potential impacts associated with the proposed Project were assessed for the construction, operational and decommissioning phases.

During the construction phase, the main potential impacts relate to localised vegetation clearing, soil disturbance, compaction, erosion, stormwater contamination, dust generation, temporary disturbance to fauna, avifaunal interaction with infrastructure, and the accidental discovery of heritage resources during earthworks. Given the disturbed nature of the footprint and the absence of significant environmental constraints within the development area, these impacts are generally of low significance prior to mitigation, reducing to very low to low significance after mitigation. The main exception is the accidental disturbance of previously unidentified heritage resources, which is conservatively rated higher before mitigation due to the irreversible nature of such loss, but reduces to very low significance with implementation of a Chance Find Procedure.

During the operational phase, the principal potential impacts relate to stormwater management, hydrocarbon or hazardous material spills, waste handling, alien invasive plant spread, maintenance vehicle disturbance, lighting effects, bird collision or electrocution risk, and minor heritage risks associated with future maintenance excavations. These impacts are largely localised and manageable. Following mitigation, the operational phase impacts are generally reduced to very low significance, with some residual impacts remaining low significance where ongoing management and monitoring are required.

The decommissioning phase is expected to involve dismantling and removal of infrastructure, removal of concrete works, ripping of compacted areas, application of ameliorated soil and topsoil, and rehabilitation of the site. If properly managed in accordance with the closure plan, decommissioning impacts are expected to be temporary and reversible, and the site can be restored to a stable, non-polluting condition compatible with the surrounding post-mining landscape.

Cumulative Impacts

Cumulative impacts were assessed within a 50 km radius of the proposed Project and over the anticipated life of the mine. The cumulative assessment considered the combined effects of the proposed Project and other existing or reasonably foreseeable future developments in the area.

The cumulative assessment found that the proposed Project is not expected to result in significant cumulative impacts. This is primarily because the development is located within an existing disturbed mining footprint, does not intersect aquatic features, avoids the most sensitive terrestrial habitat, is not expected to materially alter catchment scale hydropedological functioning, and will not affect known heritage resources.

The most relevant cumulative issues relate to broader regional patterns of land disturbance, habitat degradation, alien invasive species spread, and incremental avifaunal disturbance associated with infrastructure expansion. However, within the context of the existing mining landscape, these impacts are considered localised, manageable and acceptable.

Environmental Management Programme

A comprehensive Environmental Management Programme (EMPr) has been developed for the proposed Project to guide the management, mitigation and monitoring of environmental impacts during the construction, operational and decommissioning phases. The EMPr gives effect to the findings of the specialist studies and sets out the specific measures required to ensure that the Project is implemented in an environmentally responsible manner and remains compliant with relevant legislative requirements.

The EMPr addresses all key environmental aspects associated with the Project, including site demarcation, vegetation clearing controls, habitat protection, alien invasive plant management, soil handling, erosion and sediment control, stormwater management, spill prevention and response, hydrocarbon and hazardous materials management, waste management, dust and noise control,

avifauna and fauna protection, heritage resource management, rehabilitation and closure. It also includes requirements for environmental induction, site inspections, incident reporting, corrective action and ongoing compliance monitoring.

During construction, the EMPr focuses on limiting disturbance to the approved footprint, protecting surrounding habitat, managing erosion and runoff risks, preventing pollution, and safeguarding heritage resources through the implementation of a Chance Find Procedure. During operation, the EMPr provides for the ongoing management of stormwater, waste, hazardous substances, invasive species, lighting and bird interaction risks. During decommissioning, the EMPr requires the controlled removal of infrastructure and rehabilitation of disturbed areas to a stable and non-polluting condition in accordance with the closure objectives for the site.

The EMPr assigns clear implementation responsibilities, monitoring requirements and evidence of compliance for each management action. Provided that these measures are implemented in full, the potential environmental impacts associated with the Project can be effectively managed and maintained within acceptable residual significance levels.

Public Participation Process

A Public Participation Process (PPP) was undertaken for the BS 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 were made available at accessible public locations, while electronic copies were available on the GCS Website, ensuring that stakeholders are able to access the information in a manner that is convenient to them.

Stakeholders are invited to submit written comments during the public review period; 25 March to 6 May 2026. All comments received are recorded in a Comments and Responses Report, together with corresponding responses from the Project Team. Where applicable, comments were 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 BS 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
BS	Booysendal South
BS BESS Project	The proposed Booysendal South 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
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
EO	Environmental Officer
ESA	Ecological Support Areas
FRDCP	Final Rehabilitation, Decommissioning, and Mine Closure Plan
FEPA	National Freshwater Ecosystem Priority Areas
GN	Government Notice
GN R	Government Notice Regulation
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
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
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

Booysendal Platinum Proprietary Limited, a subsidiary of Northam Platinum Limited (Northam), proposes the development of the Booysendal South (BS) Battery Energy Storage System (BESS) Project at the existing BS mining operation located in the Limpopo Province of South Africa (hereafter referred to as the proposed Project). The BS mining right was issued by the Department of Mineral and Petroleum Resources (DMPR) under reference number MP 30/5/1/2/3/2/1 (127) (10333) 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 BS 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 BS 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).

[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.

2 LEGAL FRAMEWORK

2.1 National Environmental Management Act, 1998

The NEMA provides the overarching legislative framework for environmental management in South 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	Battery Energy Storage Systems (BESS) may involve hazardous materials and therefore may trigger this activity; however, exclusion may apply where the

[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.

Listing Notice	Activity Number	Listed Activity Description	Applicability of BESS Exclusion Norm
		capacity of 80 m^3 or more but not exceeding 500 m^3.	BESS Exclusion Norm conditions are satisfied.

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.

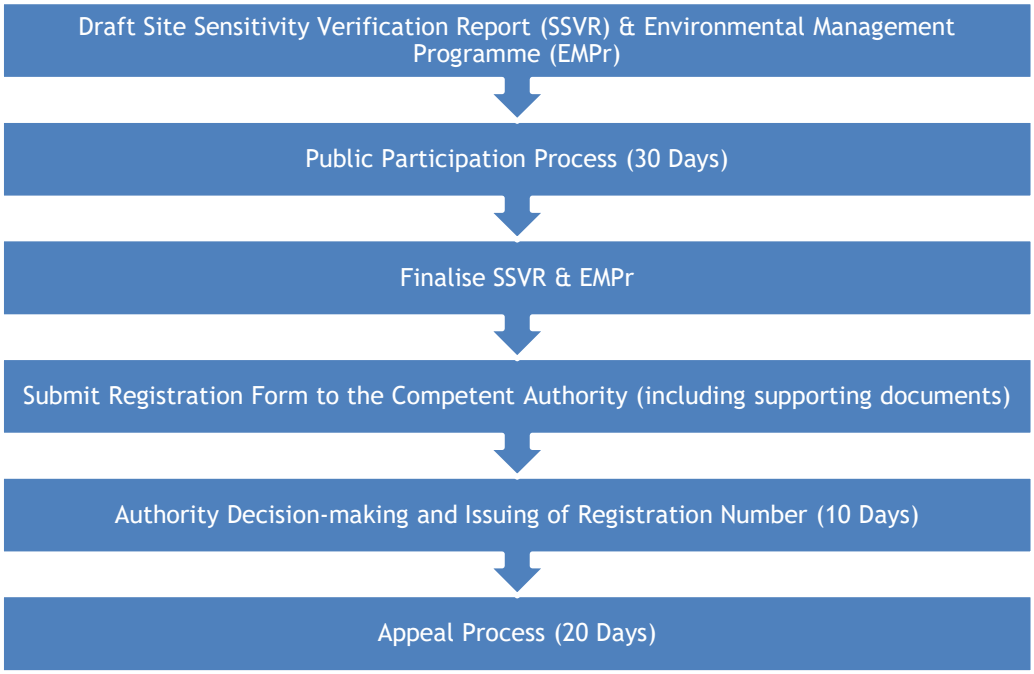


Figure 2-1: Battery Energy Storage System Exclusion Norm Registration Process

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 uses, which require authorisation 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

BS Mine currently operates under an approved WUL No. 06/841G/ABCFGIJ/15901 issued by the Department of Water and Sanitation (DWS). The proposed Project will be developed within the existing BS 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.

3.1 Applicant

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

Table 3-1: Contact Details of the Applicant

Company Name:	Booysendal Platinum (Pty) Ltd 2002/016771/07
Postal Address:	Postnet Suite #199 Private Bag X20097 Lydenburg, 1120 South Africa
Physical Address:	Farm Booysendal 43JT Greater Tubatse Municipality, South Africa
Contact Person:	Mr Zacharia Tsotetsi General Manager
Telephone No.:	+27 87 158 6850
Email Address:	zacharia.tsotetsi@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 Past 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.
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.

Specialist Study	Specialist Detail
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 BS BESS Project is located on Portion 8 of Farm Sterkfontein No. 53JT, near Mashishing, within the Thaba Chweu Local Municipality, which forms part of the Ehlanzeni District Municipality in the Mpumalanga Province, South Africa. The proposed Project site lies approximately 30 kilometres (km) west of Mashishing and is accessed via the R577 regional road.

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 BS BESS Project within the broader regional setting and within the local Mine area.

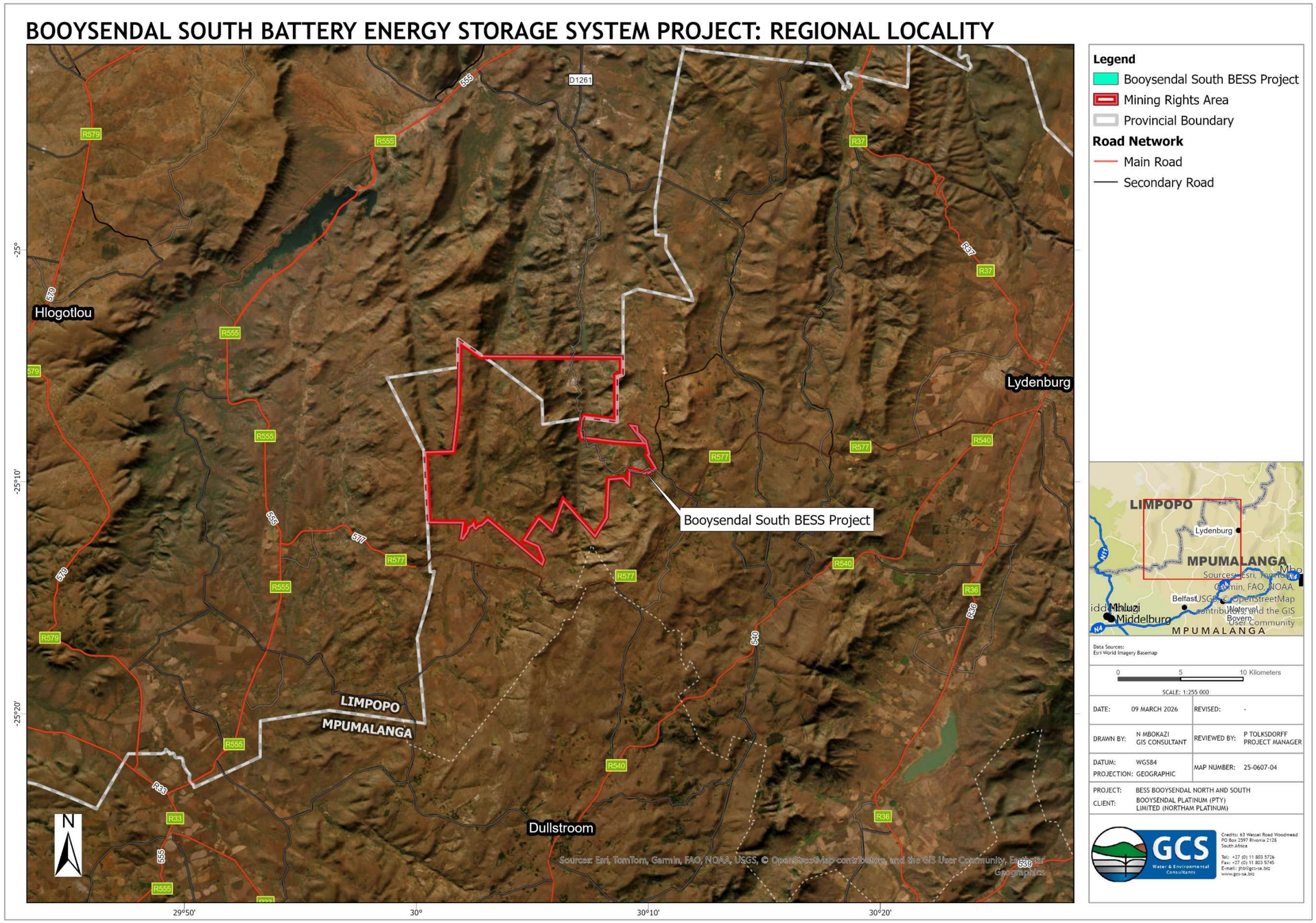


Figure 4-1: Regional Locality indicating the proposed Booysendal South Battery Energy Storage System Project

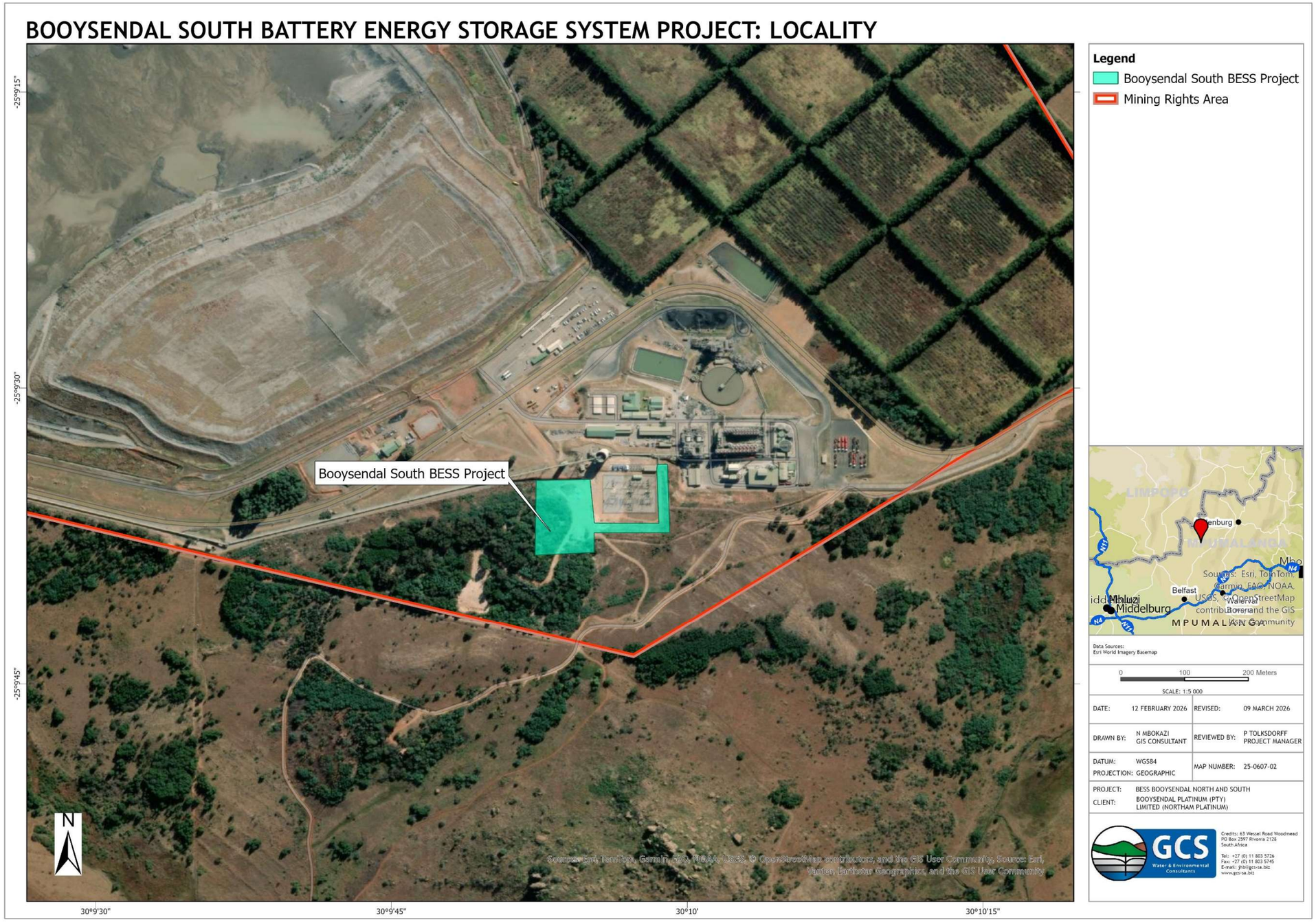


Figure 4-2: Locality of the proposed Booysendal South Battery Energy Storage System Project

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 BS 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 BS 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, battery energy storage systems 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 BS 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 BS Mine, reduce vulnerability to load shedding and support sustained mining operations. This will contribute to employment security and economic stability within the Thaba Chweu Local Municipality and the broader Ehlanzeni District Municipality, a region characterised by limited economic diversification and a high dependence on mining-related activities.

The proposed BS 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 BS 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 2900 square metres (m^2) and has been designed to integrate fully with the Mine's established electrical and operational infrastructure.

The proposed BS 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 BS 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 BS BESS Facility is illustrated in **Figure 4-3**.

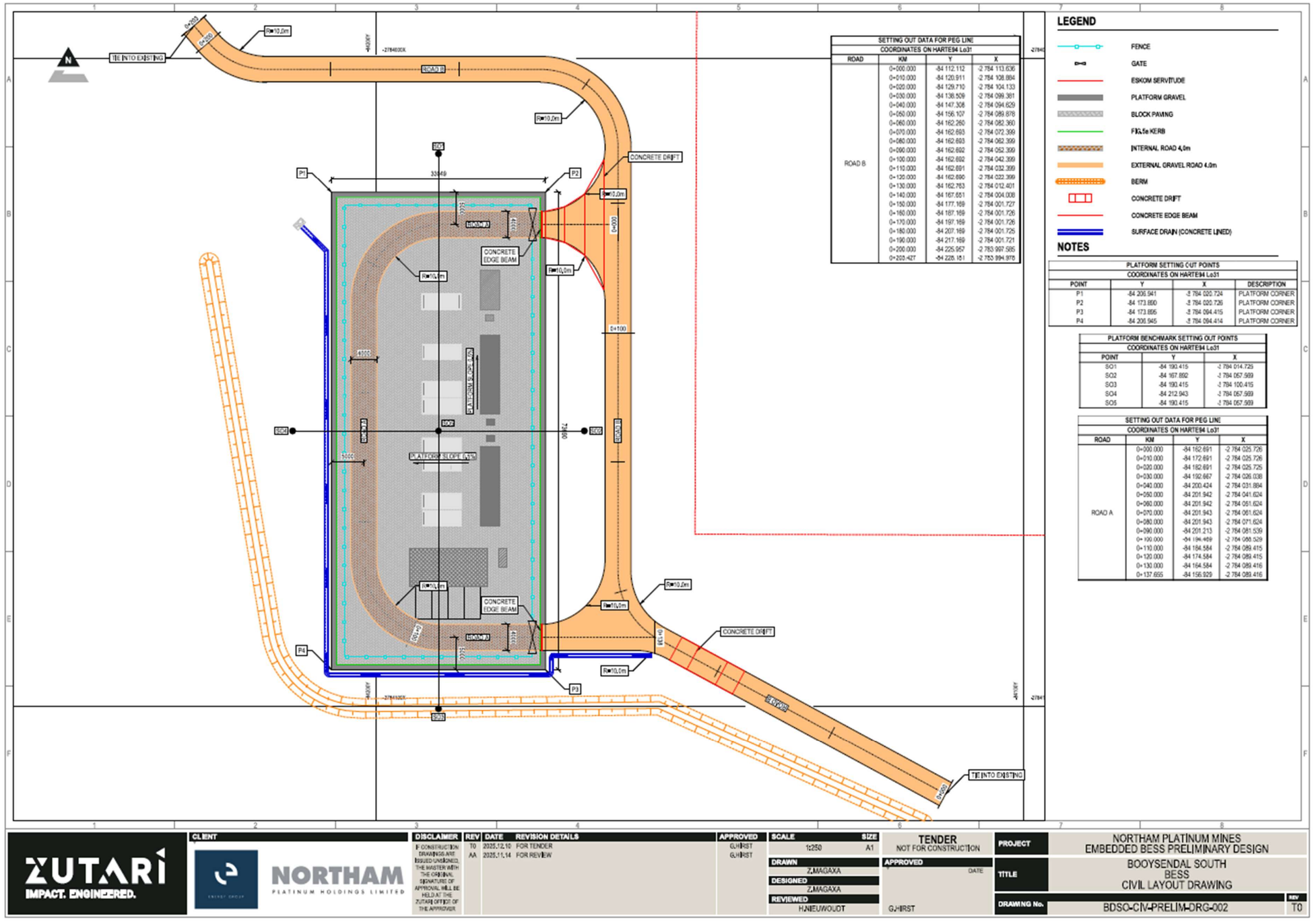


Figure 4-3: Preliminary Civil Layout of the proposed Booysendal South Battery Energy Storage System Project (Zutari, 2025)

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 BS 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 metres (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 BS 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 BS BESS Facility and the existing BS consumer substation will be achieved via approximately 200 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 BS 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 BS 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 BS 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 m^3 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 fuels, oils, 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 licenced 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 licenced 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 BS BESS Project will connect directly to the existing BS 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 12 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		
Animal Species Theme			X	
Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme				X
Civil Aviation Theme		X		
Defence Theme				X
Palaeontology Theme			X	
Plant Species Theme			X	
Terrestrial Biodiversity Theme	X			

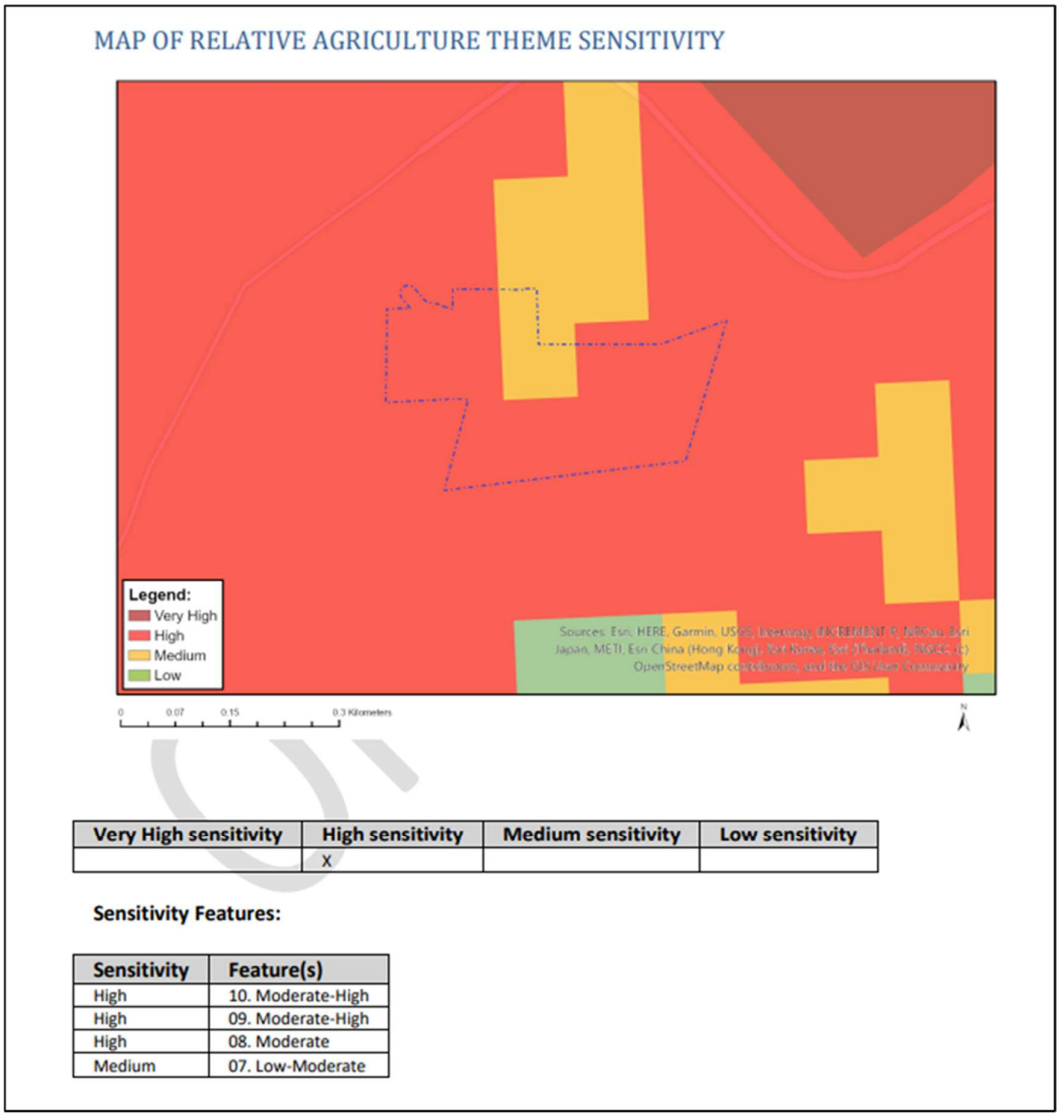
6 ENVIRONMENTAL SENSITIVITY ASSESSMENT

6.1 Agricultural Theme Site Sensitivity Verification

An agricultural assessment was conducted by The Biodiversity Company and documented in the Agriculture Site Sensitivity Verification Report for the Proposed Booysendal South 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 High sensitivity, with isolated areas of Medium sensitivity occurring within the surrounding landscape (**Figure 6-1**). The High sensitivity classification is associated with features rated Moderate to Moderate-High agricultural potential, while Medium sensitivity areas correspond to Low-Moderate potential.



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	10. Moderate-High
High	09. Moderate-High
High	08. Moderate
Medium	07. Low-Moderate

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 Global Positioning System (GPS) tracks recorded during the specialist field inspection.

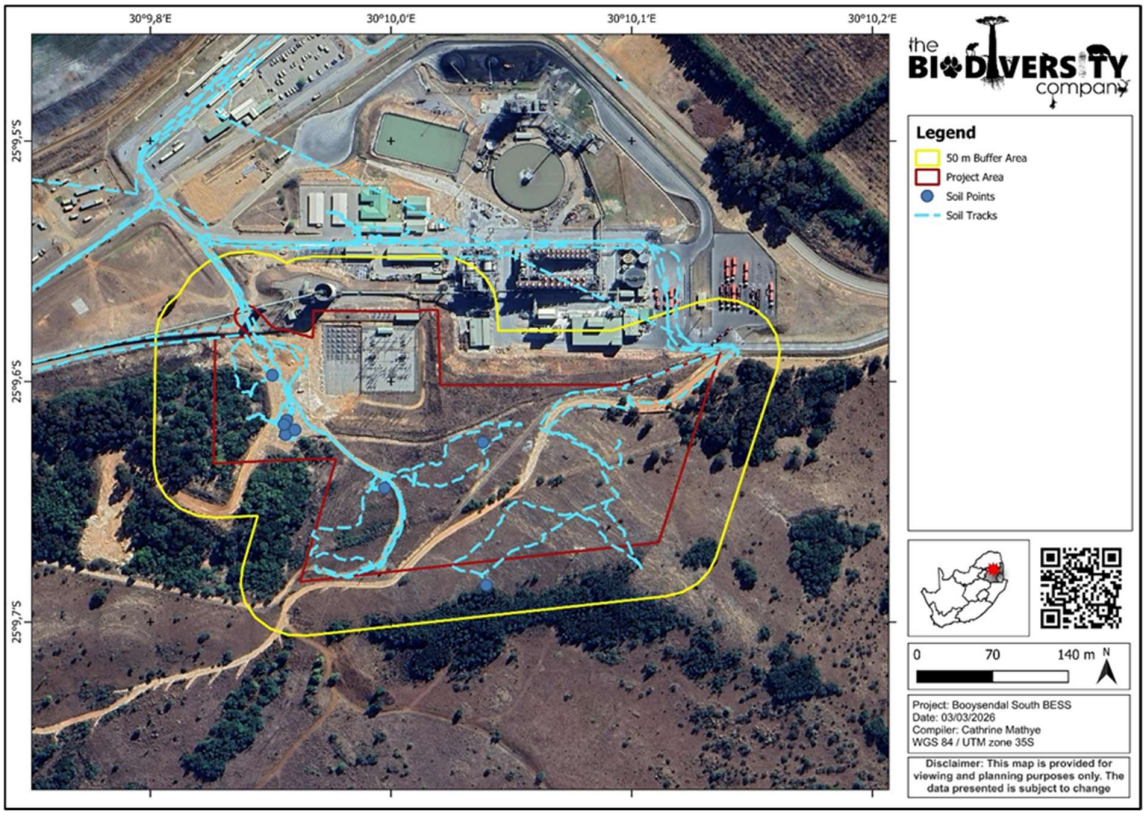


Figure 6-2: Map illustrating the Global Positioning System tracks of the specialist during the Agriculture field survey (The Biodiversity Company, 2026a)

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, resulting in partial alteration of natural soil profiles through earthworks, infrastructure development and vegetation disturbance.

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

Soil Forms Identified

Three dominant soil forms were identified within the proposed Project area, namely Hutton, Mispah and Johannesburg soils. These soils generally exhibit shallow to moderately deep profiles with low clay content and limited soil development.

- Hutton soil form – moderately deep soils with topsoil depths of approximately 0–300 mm and subsoil horizons extending to around 1200 mm, with low clay content and no signs of wetness.
- Mispah soil form – very shallow soils with topsoil depths typically less than 50 mm, often associated with rocky substrates and limited soil development.
- Johannesburg soil form – shallow soils with topsoil depths typically less than 50 mm,

frequently associated with disturbed or transformed landscapes and higher rock content.

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

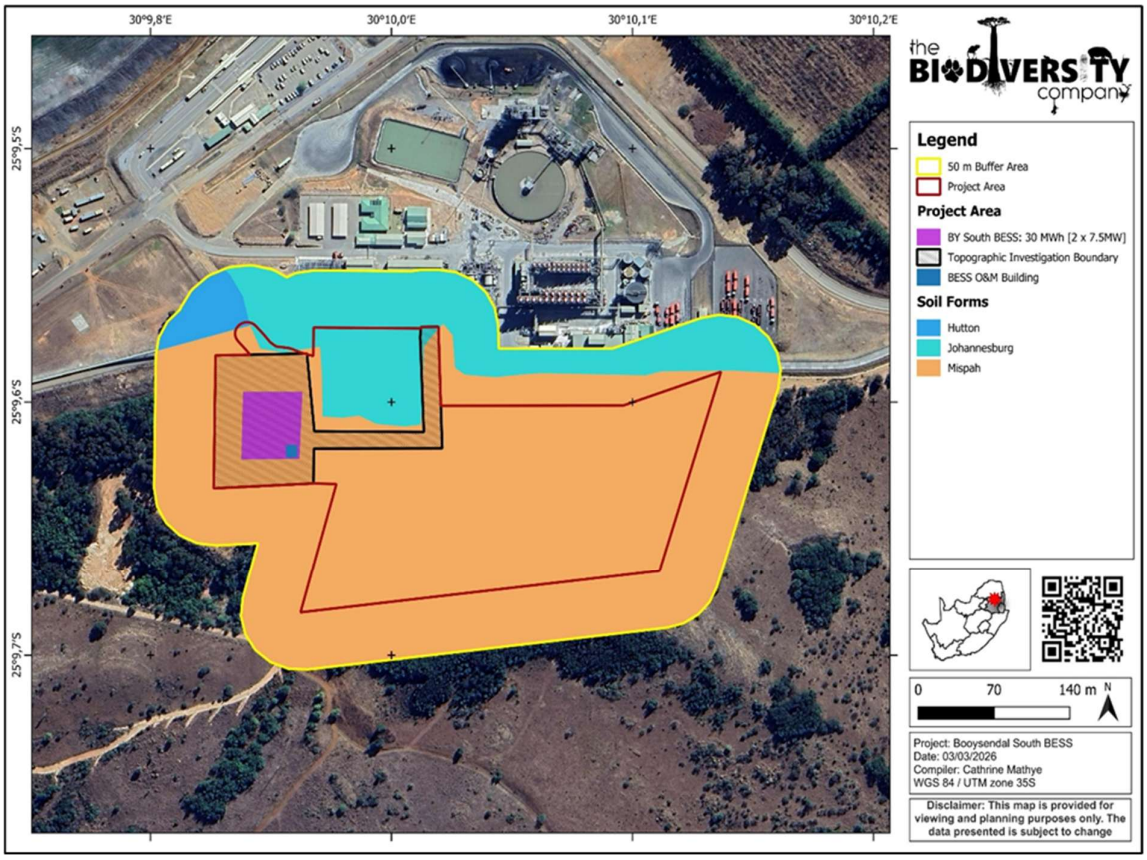


Figure 6-3: Dominant soil forms distribution identified in the proposed Booysendal South Battery Energy Storage System Project area during the site assessment (The Biodiversity Company, 2026a)

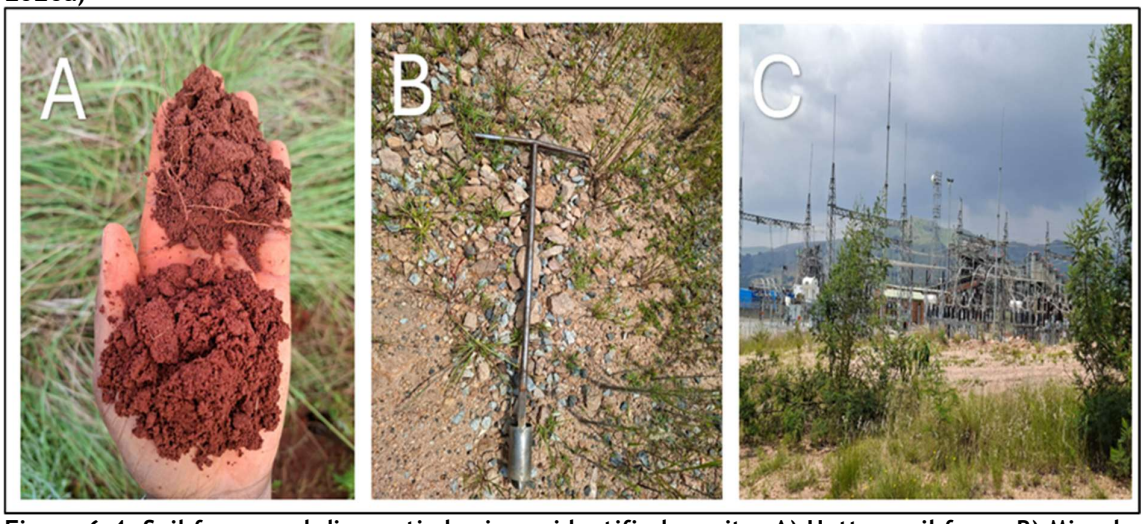


Figure 6-4: Soil forms and diagnostic horizons identified on-site: A) Hutton soil form; B) Mispah soil form; and c) Johannesburg soil form (Substation) (The Biodiversity Company, 2026a)

Agricultural Potential

Agricultural potential within the proposed Project area was evaluated based on soil, terrain and climatic characteristics, which determine the long-term suitability of land for rain-fed crop production.

Climate Capability

The Project area occurs within the Sekhukhune Montane Grassland region, with a Mean Annual Precipitation of approximately 688 mm and Mean Annual Potential Evaporation of approximately 1983 mm. The resulting evaporation ratio places the area within Climatic Capability Class C8, indicating very severe climatic limitations for crop production due to heat and moisture stress.

Land Capability

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

- Class III – moderate limitations with some erosion risk; suitable for limited cultivation under conservation practices.
- 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, representing very restricted to very low agricultural potential and predominantly non-arable conditions.

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

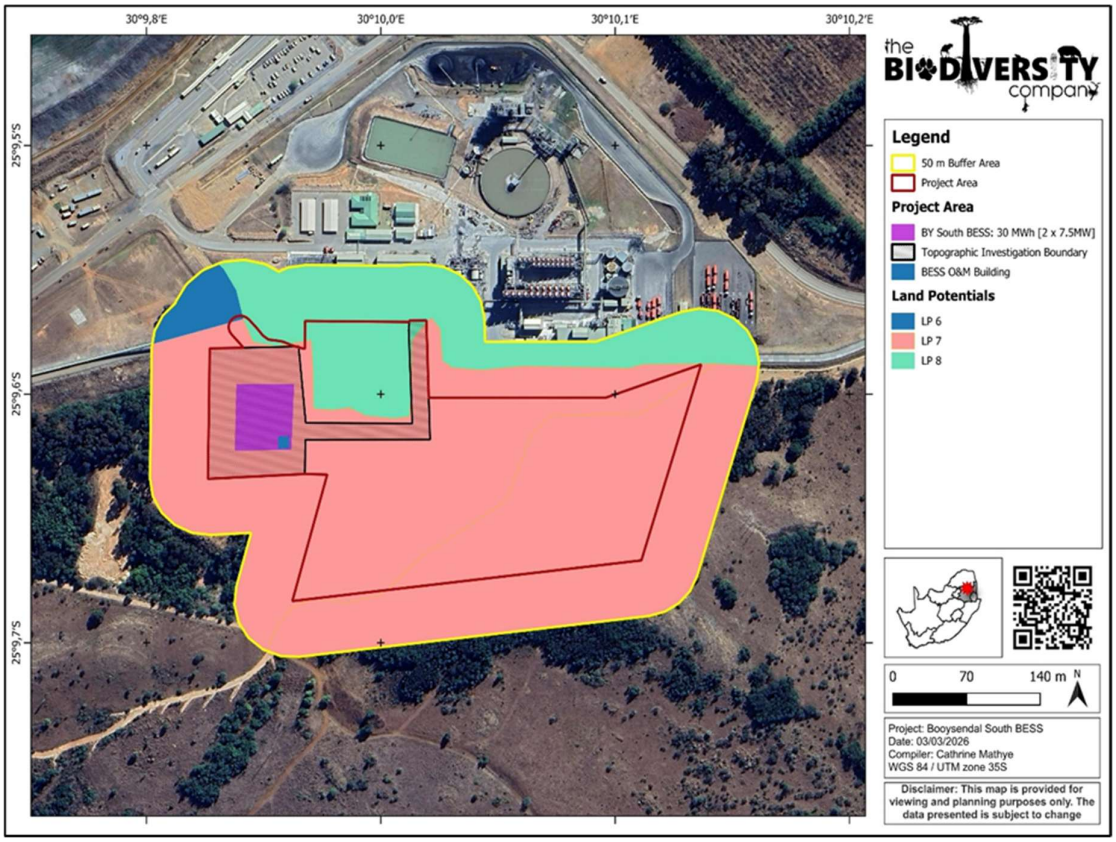


Figure 6-5: Land Potential within the 50 m Buffer area of the proposed Project area (The Biodiversity Company, 2026a)

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 Hutton, Mispah, and Johannesburg soil forms.
- The soils are generally shallow to moderately deep with low clay content, with some areas characterised by rocky substrates and limited soil development.
- The climatic capability of the area was determined as Climatic Capability Class C8, indicating very severe climatic limitations for crop production due to heat and moisture stress.
- The identified soils correspond to Land Capability Classes III, VI, and VIII, indicating moderate to extremely severe limitations for cultivation.
- Based on the climatic and land capability classifications, 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 occurs within a disturbed mining environment, where soils, vegetation and landforms have already been modified by historical and ongoing mining

activities.

Based on these findings, the overall sensitivity of the proposed Project area is predominately low sensitive, with areas ranging from between Low to Medium sensitivities.

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 horizon and areas transformed by mining infrastructure. These factors significantly 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 moderately deep soils, such as the Hutton soil form, which may support limited agricultural use under appropriate management practices.
- The occurrence of shallow soils with low agricultural potential, including the Mispah and Johannesburg soil forms, which are associated with rocky substrates and limited soil development.
- Severe climatic constraints, classified as Climatic Capability Class C8, which impose significant limitations on rain-fed crop production due to heat and moisture stress.
- Shallow soil profiles, low clay content and limiting soil characteristics, which restrict agricultural productivity.
- The disturbed mining landscape, where soils, vegetation and landforms have already been modified by historical and ongoing mining activities.

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	Feature	Screening Tool	Specialist	Tool Validated or Disputed by Specialist - Reasoning
Agricultural Theme	**Moderate-High (LC 9-10)**	**High**	**Medium**	Disputed – Low-Moderate Land Capability. The presence of medium potential soil such as Hutton soil form within the 50 m Buffer area of the proposed Project area.

Screening Tool Theme	Feature	Screening Tool	Specialist	Tool Validated or Disputed by Specialist - Reasoning
	Moderate-High (LC 9-10)	**High**	**Low**	Disputed – Very Low to Low Land Capability. The presence of low potential soils such as Mispah and Johannesburg soi forms. These soils have restrictive substratum which limit crop production.
	Moderate (LC 8)	**High**	**Low**	Disputed – Very Low to Low Land Capability. The presence of low potential soils such as Johannesburg soil form.
	Moderate (LC 8)	**High**	**Medium**	Disputed – Low-Moderate Land Capability. The presence of medium potential soil such as Hutton soil form within the 50 m Buffer area of the proposed Project area.
	Low-Moderate (6-7)	**Medium**	**Low**	Disputed - Very Low to Low Land Capability. The presence of low to very low potential soils such as Mispah and Johannesburg soil forms, respectively.

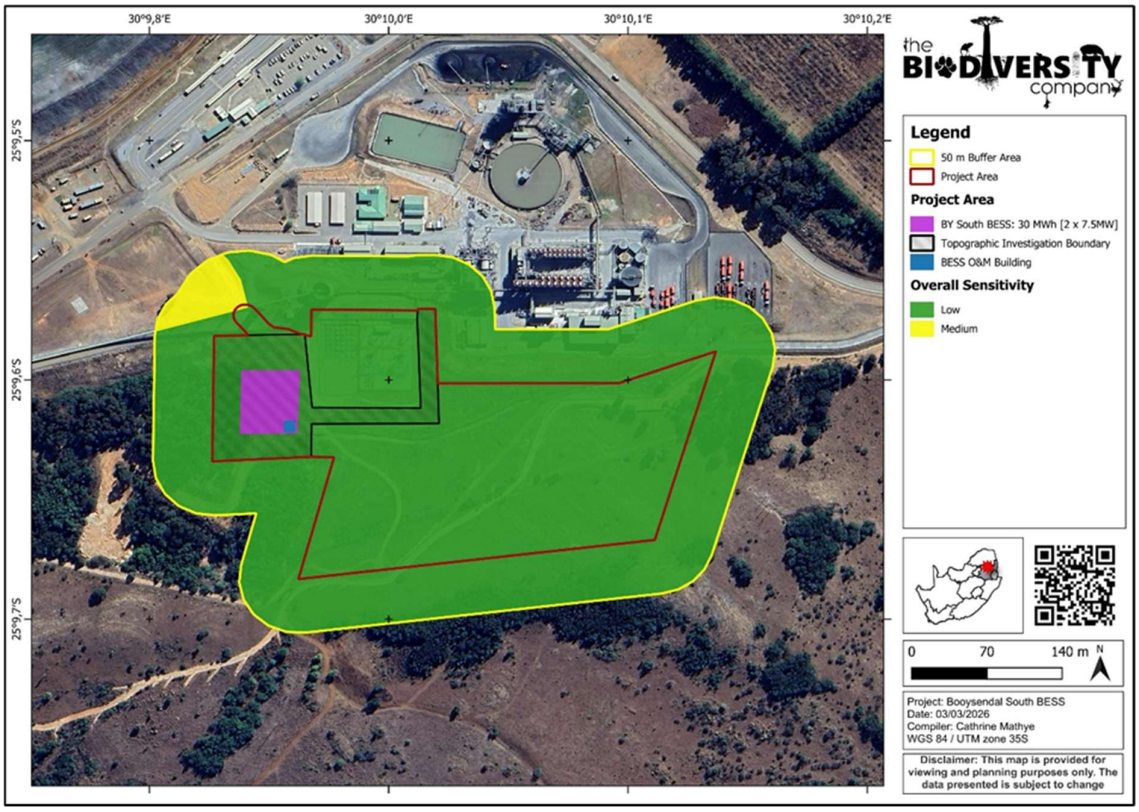


Figure 6-6: Overall Agricultural sensitivity of the proposed Booysendal South Battery Energy Storage System Project area (The Biodiversity Company, 2026a)

6.1.5 Conclusion

The agriculture SSV confirms that the proposed BS 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.

Three soil forms were identified within the proposed Project area, namely Hutton, Mispah and Johannesburg soils. These soils are generally shallow to moderately deep with low clay content, with the Hutton soil form representing the deepest soils within the site. The remaining soil forms are

characterised by shallow profiles, rocky substrates and restrictive soil conditions, which limit agricultural use.

The proposed Project area falls within Climatic Capability Class C8, indicating very severe climatic limitations for crop production due to heat and moisture stress. The soils correspond to Land Capability Classes III, 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.

The results for the proposed BS BESS indicate a predominately Low land capability sensitivity in areas dominated by Mispah and Johannesburg soil forms, and marginal Medium sensitivity in areas associated with the Hutton soil form. Based on the desktop assessment and field verification survey, the overall agricultural sensitivity of the proposed Project area ranges from Low to Medium, reflecting the site specific soil characteristics and existing land transformation within the mining footprint.

6.2 Terrestrial Biodiversity Site Sensitivity Verification

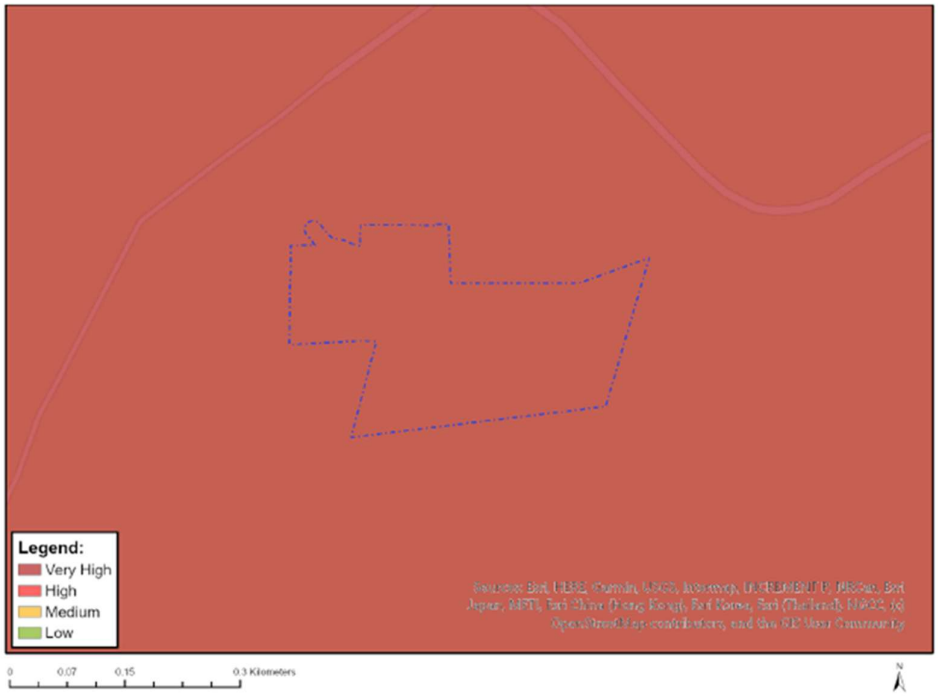
A terrestrial biodiversity assessment was conducted by The Biodiversity Company and documented in the Terrestrial Biodiversity Site Sensitivity Verification Report for the Proposed Booysendal South Battery Energy Storage System Project (The Biodiversity Company, 2026b) attached as **APPENDIX D**. The 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 Medium sensitivity, based on the potential presence of six medium sensitivity mammal species and one medium sensitivity avifauna species within the area. The Plant Species Theme was classified as Medium sensitivity due to the potential presence of five medium sensitivity flora species.

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.

MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY



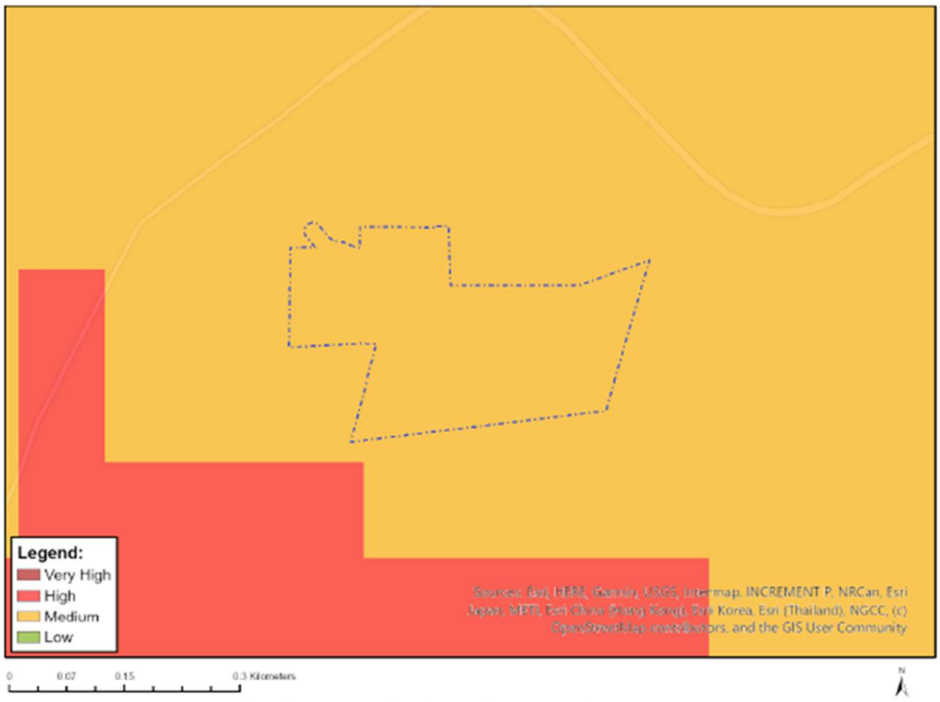
Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Very High	FEPA Subcatchment
Very High	National Protected Area Expansion Strategy (NPAES)

Figure 6-7: Terrestrial Biodiversity Screening Tool Sensitivity

MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY



Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

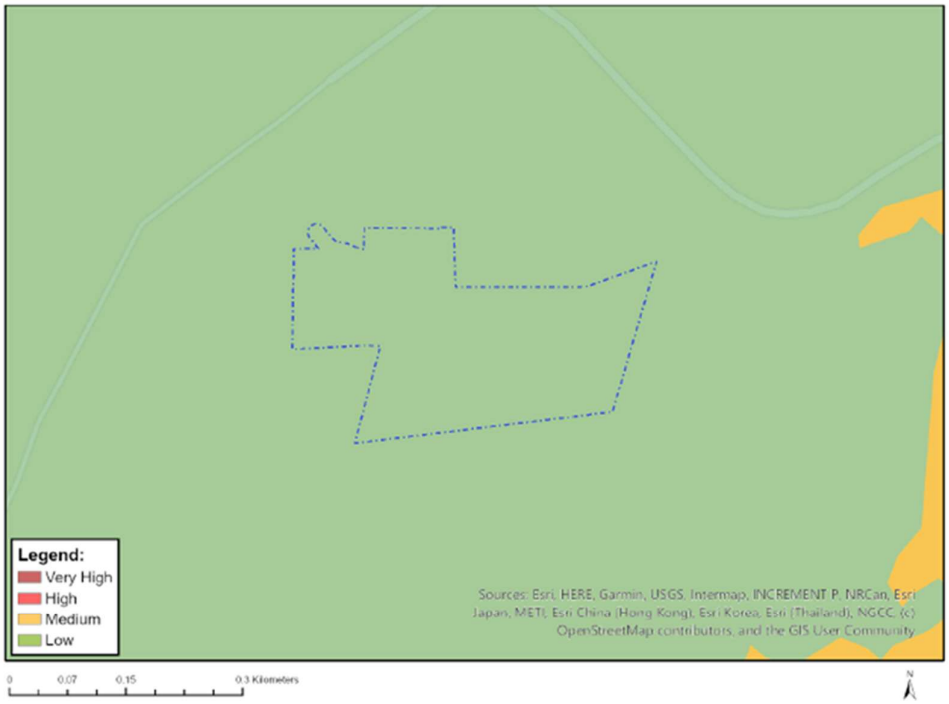
Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Medium	Aves-Eupodotis senegalensis
Medium	Mammalia-Amblysomus robustus
Medium	Mammalia-Chrysospalax villosus
Medium	Mammalia-Crocidura maquassiensis
Medium	Mammalia-Dasymys robertsii
Medium	Mammalia-Hydrictis maculicollis
Medium	Mammalia-Ourebia ourebi ourebi

Figure 6-8: Animal Species Theme Screening Tool Sensitivity

MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY



Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity
Medium	Sensitive species 1167
Medium	Sensitive species 264
Medium	Sensitive species 691
Medium	Sensitive species 998
Medium	Sensitive species 1086

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 BS 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 conversation 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.

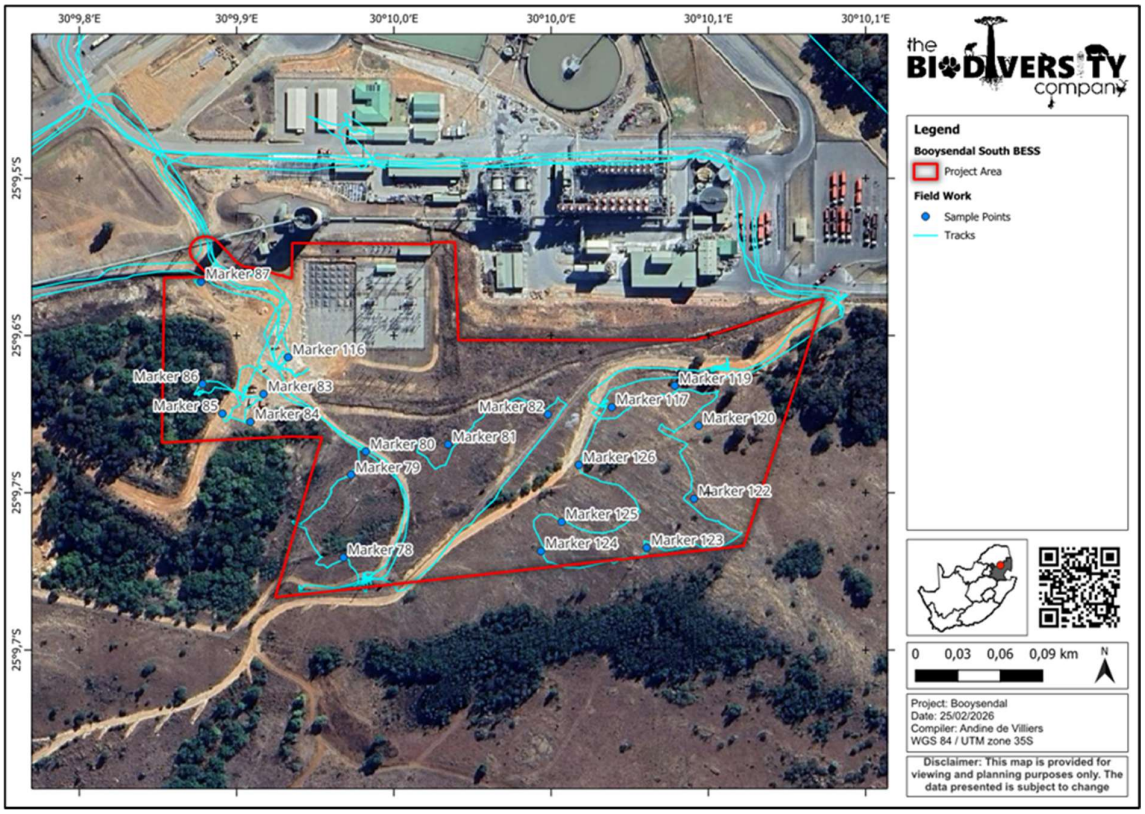


Figure 6-10: Map illustrating the Global Positioning System tracks of the specialist during the Terrestrial Biodiversity field survey (The Biodiversity Company, 2026b)

6.2.2.3 Field Survey Findings

The proposed Project area occurs within an existing disturbed mining landscape associated with the BS 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

Four terrestrial habitat types were identified within the proposed Project area, namely Rocky Grassland (Ridge), Disturbed Grassland, Alien Stand, and Modified habitat.

The Rocky Grassland (Ridge) habitat consists of rocky outcrops within degraded grassland areas. These areas provide microhabitats for geophytes, succulents, and reptile species. Some common flora observed include *Selaginella dregei, Myrothamnus flabellifolius, Crassula swaziensis, Pellaea calomelanos*, and *Protea welwitschii*. No flora or fauna SCC were observed, although the habitat

could potentially support some SCC.

The Disturbed Grassland habitat represents degraded Sekhukhune Grassland affected by edge effects from nearby mining operations, widespread alien and invasive species, and ingress. Ecological functioning remains, supporting common indigenous flora and fauna species such as *Craterostigma wilmsii, Helichrysum rugulosum, Tricanthecium natalense, Wahlenbergia undulata*, and *Aristida congesta*. No SCC were observed or are expected.

The Alien Stand habitat is dominated by invasive species, primarily Acacia mearnsii. Some ecological functioning remains, mainly soil stabilisation and foraging opportunities for common fauna species, but no SCC were observed or expected.

The Modified habitat comprises areas highly transformed by mining activities, including roads and cleared zones. Very little to no natural vegetation remains, and ecosystem functioning is largely absent.

Faunal Species of Conservation Concern

The Screening Tool indicated that some fauna SCC could potentially occur within the broader Project area. However, due to the disturbed and fragmented nature of the habitats, the likelihood of occurrence is considered low. No SCC were observed during the field survey.

Habitat Condition and Disturbance

The habitats within the proposed Project area are affected by varying levels of disturbance from existing mining infrastructure and related activities. Rocky Grassland retains some ecological functionality through microhabitats, while Disturbed Grassland and Alien Stands remain partially functional despite degradation. Modified habitats are highly transformed, with ecosystem services largely lost.

Site Ecological Importance

The habitats were assigned Site Ecological Importance (SEI) categories based on ecological integrity, biodiversity value, presence of SCC, and receptor resilience. Rocky Grassland was assigned a High SEI, reflecting its potential to support sensitive species despite some disturbance. Disturbed Grassland was assigned a Medium SEI, Alien Stand a Low SEI, and Modified habitat a Very Low SEI, reflecting their relative levels of degradation and ecological functioning.

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
Rocky Grassland	**Medium** > 50% of receptor contains natural habitat with potential to support Species of Conservation Concern (SCC).	**Medium** Only narrow corridors of good habitat connectivity or larger areas of poor habitat connectivity and a busy used road network between intact habitat patches. Mostly minor current negative ecological impacts, with some major impacts and a few signs of minor past disturbance.	**Medium**	**Very Low** Habitat that is unable to recover from major impacts.	**High** Avoidance mitigation wherever possible. Minimisation mitigation – changes to Project infrastructure design to limit the amount of habitat impacted, limited development activities of low impact acceptable. Offset mitigation may be required for high impact activities.
Disturbed Grassland	**Medium** > 50% of receptor contains natural habitat with potential to support SCC.	**Medium** Only narrow corridors of good habitat connectivity or larger areas of poor habitat connectivity and a busy used road network between intact habitat patches. Mostly minor current negative ecological impacts, with some major impacts and a few signs of minor past disturbance.	**Medium**	**Medium** Will recover slowly (~ more than 10 years) to restore > 75% of the original species composition and functionality of the receptor functionality.	**Medium** Minimisation and restoration mitigation – development activities of medium impact acceptable followed by appropriate restoration activities.
Alien Stand	**Low** < 50% of receptor contains natural habitat with limited potential to support SCC	**Low** Several minor and major current negative ecological impacts.	**Low**	**Medium** Will recover slowly (~ more than 10 years) to restore > 75% of the original species composition and functionality of the receptor functionality.	**Low** Minimisation and restoration mitigation – development activities of medium to high impact acceptable followed by 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.	**Very Low** Minimisation mitigation – development activities of medium to high impact acceptable and restoration activities may not be required.

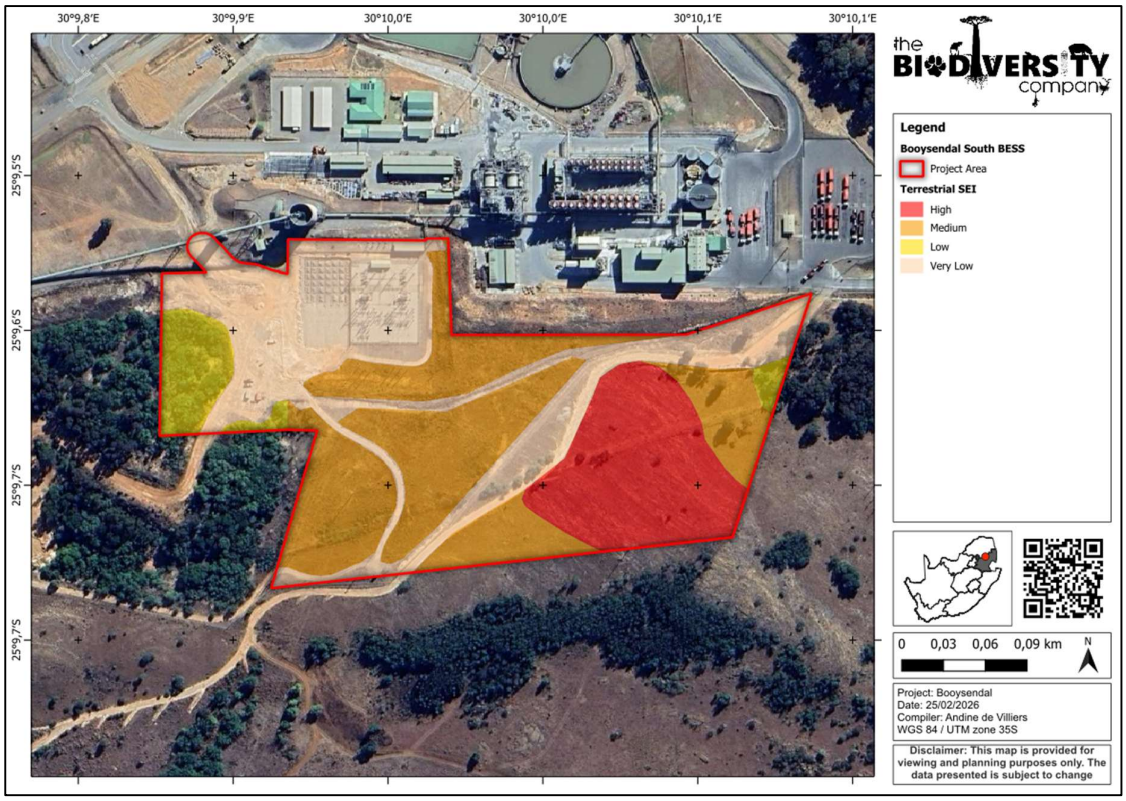


Figure 6-11: Site Ecological Importance of habitats (The Biodiversity Company, 2026b)

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
Site GPS Reference: Marker 83 Date: 28/01/2026 GPS Coordinates: 25° 9'37.34"S 30° 9'54.62"E	**Modified** This habitat has been completely transformed from the natural state due to the ongoing disturbances related to the mining operations. It consists of cleared areas and roads. Very little to no natural vegetation remains, thus the ecological functioning is greatly reduced. No flora or fauna Species of Conservation Concern (SCC) observed, and none are expected.	

Survey Point	Habitat	Photographs
		
Site GPS Reference: Marker 86 Date: 28/01/2026 GPS Coordinates: 25° 9'37.11"S 30° 9'53.22"E	**Alien Stand** This habitat is dominated by alien and invasive flora species, mostly by *Acacia mearnsii*. Some ecological functioning remains and this habitat may support common fauna species. No flora or fauna SCC were observed and none are expected.	 
Site GPS Reference: Marker 81 Date: 28/01/2026 GPS Coordinates: 25° 9'38.49"S 30° 9'58.84"E	**Disturbed Grassland** This habitat consists of Sekhukhune Grassland that has been degraded over time due to ongoing disturbances, including edge effects from the nearby Mine, widespread alien and invasive flora species, and ingress. Ecological functioning remains and this habitat supports common indigenous fauna and flora species. Some of the species observed include *Craterostigma wilmsii, Helichrysum rugulosum, Tricanthecium natalense, Wahlenbergia undulata,* and *Aristida congesta.* No fauna or flora SCC were observed, and none are expected.	 

Survey Point	Habitat	Photographs
Site GPS Reference: Marker 78 Date: 28/01/2026 GPS Coordinates: 25° 9'41.08"S 30° 9'56.45"E	**Disturbed Grassland** This habitat consists of Sekhukhune Grassland that has been degraded over time due to ongoing disturbances, including edge effects from the nearby Mine, widespread alien and invasive flora species, and ingress. Ecological functioning remains and this habitat supports common indigenous fauna and flora species. No fauna or flora SCC were observed, and none are expected.	 
Site GPS Reference: Marker 120 Date: 28/01/2026 GPS Coordinates: 25° 9'38.06"S 30°10'4.58"E	**Rocky Grassland (Ridge)** This habitat consists of rocky outcrops and rocky areas nestled in the Degraded Grassland habitat. The fine-scale variation provides microhabitats for fauna and flora species, especially geophytes, succulents, and reptile species. Some of the flora species observed include *Selaginella dregei*, *Myrothamnus flabellifolius*, *Crassula swaziensis*, *Pellaea calomelanos*, and *Protea welwitschii*. No flora or fauna SCC were observed. Some flora and fauna SCC could occur within this habitat.	 
Site GPS Reference: Marker 123 Date: 28/01/2026 GPS Coordinates: 25° 9'40.86"S 30°10'3.39"E	**Rocky Grassland (Ridge)** This habitat consists of rocky outcrops and rocky areas nestled in the Degraded Grassland habitat. The fine-scale variation provides microhabitats for fauna and flora species, especially geophytes, succulents, and reptile species. No flora or fauna SCC were observed. Some flora and fauna SCC could occur within this habitat.	

Survey Point	Habitat	Photographs
		

6.2.3 Key Findings

The Screening Tool classified the proposed Project area as having Very High sensitivity for the Terrestrial Biodiversity Theme, Medium sensitivity for the Animal Species Theme, and Medium 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 some fauna SCC may potentially occur within the broader Project area, while some sensitive flora species could occur within suitable microhabitats. No amphibian or reptile SCC were predicted to occur within the proposed Project area.

The proposed Project area is located entirely within a previously disturbed mining landscape. Field verification confirmed that the site is characterised by four habitat types, namely Rocky Grassland (Ridge), Disturbed Grassland, Alien Stand and Modified habitat.

The SEI assessment confirmed that the Rocky Grassland (Ridge) habitat is assigned a High SEI, reflecting the presence of sensitive microhabitats that may support flora and fauna SCC, while the Disturbed Grassland habitat is assigned a Medium SEI, Alien Stand a Low SEI, and Modified habitat a Very Low SEI, reflecting substantially transformed areas with limited ecological functionality.

Overall, the field verification confirmed that the proposed Project footprint is located entirely within disturbed and degraded areas of the operational mining landscape, with low ecological integrity and limited habitat value for sensitive terrestrial biodiversity. The footprint avoids all High SEI habitats, including the Rocky Grassland (Ridge) and its prescribed buffer. Accordingly, the terrestrial biodiversity within the development footprint is 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, the Plant

Species Theme as Medium, and the Animal Species Theme as Medium, the proposed Project footprint 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 footprint is Very Low to High, depending on the specific habitat type, as described in **Table 6-4**.

This verified sensitivity rating reflects:

- The high sensitivity of Rocky Grassland (Ridge), which provides microhabitats capable of supporting some flora and fauna SCC.
- The degraded nature of Disturbed Grassland, which remains partially functional but is affected by edge effects, alien and invasive plant species, and fragmentation.
- The limited ecological value of Alien Stand and Modified habitats due to substantial transformation and degradation.
- The absence of observed SCC within the Project footprint.

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	Rocky Grassland (Ridge)	High	Disputed – The nature of this habitat provides sensitive microhabitats that may support certain flora and fauna species. Some flora and fauna Species of Conservation Concern (SCC) may occur, although none were observed.
		Disturbed Grassland	Medium	Disputed – Even though disturbed, the ecological integrity, importance and functioning of these areas play a role as a habitat for various fauna and flora. This area is representative of the Sekhukhune Grassland vegetation type, although in a very degraded condition. This habitat will continue to degrade without intervention and active rehabilitation.
		Alien Stand	Low	Disputed – Limited natural vegetation remains due to dense alien infestations, however some ecological functioning, most importantly soil stabilisation and foraging opportunity for common species, remains.
		Modified	Very Low	Disputed – Highly modified habitat.
Plant Theme	Medium	Rocky Grassland (Ridge)	Medium	Validated – No flora SCC were observed, but some may occur within the Rocky Grassland habitat specifically.
		All other habitats	Low	Disputed – No flora SCC were observed and none are expected due to the modified and degraded nature.
Animal Theme	Medium	Rocky Grassland (Ridge)	Medium	Validated – The habitat is largely intact and provides microhabitats and niche habitats that may be utilised by fauna SCC.

Screening Tool Theme	Screening Tool	Habitat	Specialist	Tool Validated or Disputed by Specialist - Reasoning
		All other habitats	Low	Disputed – The habitat is small, predominantly 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 BS BESS Project confirmed that the proposed footprint is dominated by degraded, modified, and disturbed 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, Medium for Plant Species, and Medium for Animal Species, these ratings reflect the regional conservation importance of FEPA sub-catchments, 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. Rocky Grassland (Ridge) habitats retain some ecological integrity and high sensitivity due to microhabitats capable of supporting flora and fauna SCC, while Disturbed Grassland, Alien Stands, and Modified habitats are largely degraded, fragmented, and invaded by alien species.

Based on the results of the specialist assessment, the actual terrestrial biodiversity sensitivity of the proposed Project footprint ranges from Very Low to High, 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

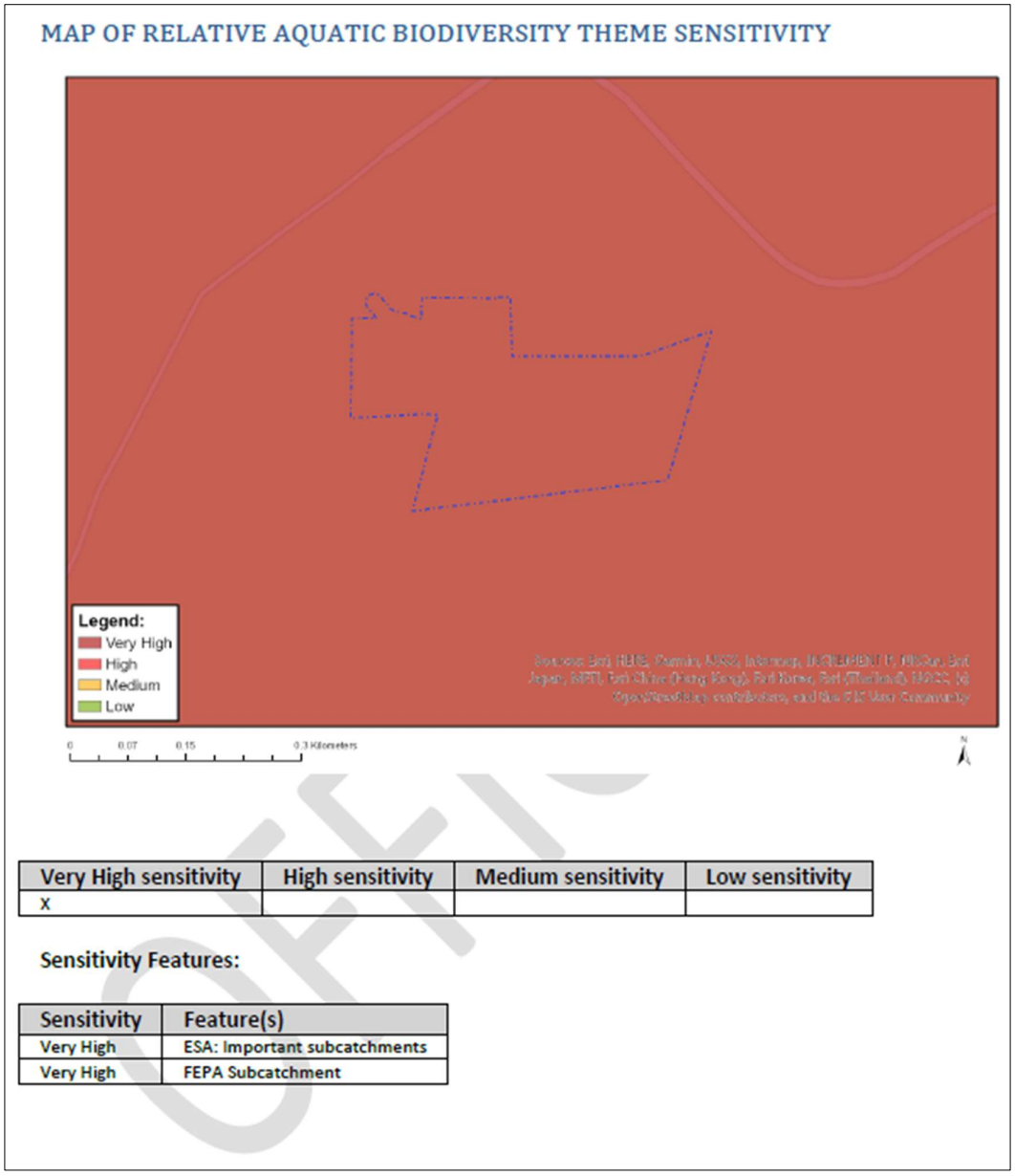
An aquatic biodiversity assessment was conducted by The Biodiversity Company and documented in the Aquatic Biodiversity Site Sensitivity Verification Report for the Proposed Booysendal South Battery Energy Storage System Project (The Biodiversity Company, 2026c) attached as **APPENDIX E**. The purpose 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 Very High sensitivity for the Aquatic Biodiversity Theme. This classification is primarily associated with the location of the site within a FEPA sub-catchment and the presence of Ecological Support Areas (ESA), which represent important sub-catchments within the broader landscape.

FEPAs are strategic river catchments identified through the NFEPA programme, which aims to prioritise the protection of freshwater ecosystems that are critical for maintaining ecological functioning and water resource sustainability at a national scale. As a result, areas within FEPA sub-catchments may receive high sensitivity ratings from the Screening Tool even where no aquatic features are directly present 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, showing the Project area within a catchment of high conservation importance due to its association with the broader FEPA network.



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Very High	ESA: Important subcatchments
Very High	FEPA Subcatchment

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 BS 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.
- Mpumalanga Provincial Conservation Plan.
- 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 survey included a systematic inspection of the Project area and surrounding landscape to identify any wetlands, watercourses, or drainage features.

During the field investigation, the specialist assessed environmental indicators typically associated with freshwater ecosystems, including:

- Hydromorphic soils, indicating prolonged saturation or periodic waterlogging.
- Wetland vegetation communities associated with saturated soils.
- Surface water drainage patterns, such as defined channels or flow paths.
- Topographic depressions that may facilitate the accumulation of surface water.
- Evidence of seasonal water flow, including sediment deposition, scouring, or vegetation alignment.

Field observations indicated that the Project area consists predominantly of disturbed terrestrial environments, including cleared areas, rocky landscapes, and vegetation affected by historical development and invasive species. No natural or artificial watercourse features, wetlands, or drainage systems were identified within the Project footprint.

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

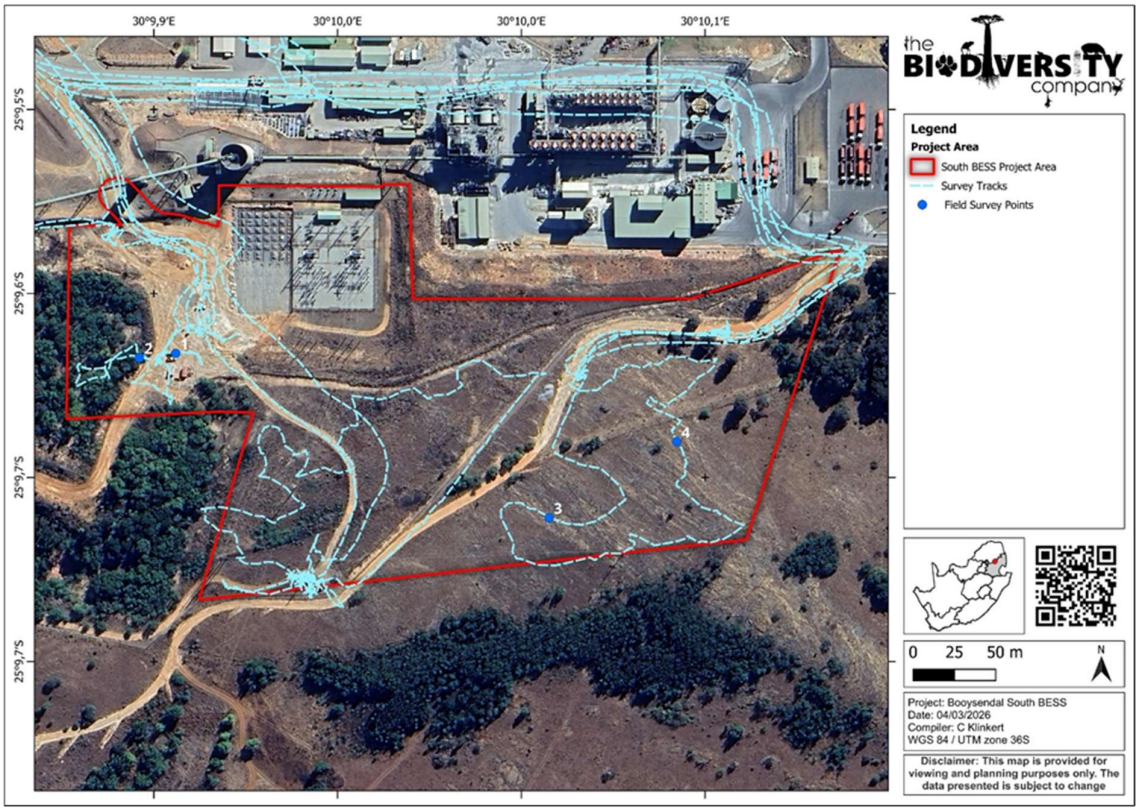


Figure 6-13: Map illustrating the Global Positioning System tracks of the specialist during the Aquatic Biodiversity field survey (The Biodiversity Company, 2026c)

6.3.2.3 Field Survey Findings

Hydromorphic Soils

Soil profiles were inspected to identify indicators of prolonged saturation typically associated with wetlands, such as mottling, gleying or iron staining. No hydromorphic soil characteristics were observed. The soils within the site are consistent with well-drained terrestrial soils associated with disturbed upland environments.

Wetland Vegetation Communities

Vegetation within the Project area consists primarily of disturbed terrestrial vegetation, with some areas affected by historical clearing and invasive species. No hydrophytic vegetation communities

indicative of wetland conditions were recorded.

Surface Hydrology and Drainage Patterns

The field survey did not identify any defined drainage channels, flow paths or geomorphological features associated with surface water movement. No natural or artificial watercourse features occur within the proposed Project footprint.

Topographic Characteristics

The site does not contain low-lying depressions or landforms that would facilitate the accumulation of surface water. The terrain is largely characterised by previously disturbed areas and rocky landscapes associated with existing mining activities.

Evidence of Seasonal Hydrological Activity

No evidence of seasonal or episodic water movement, such as sediment deposition, scouring or vegetation alignment, was observed during the field survey.

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: 28/01/2026 GPS Coordinates: 25° 9'37.33"S 30° 9'54.42"E	Disturbed terrestrial environment.	

Survey Point	Description	Photographs
Area GPS Reference: Photo 2 Date: 28/01/2026 GPS Coordinates: 25° 9'37.65"S 30° 9'53.45"E	Disturbed environment with exotic invasive tree species present.	
Area GPS Reference: Photo 3 Date: 28/01/2026 GPS Coordinates: 25° 9'37.96"S 30° 9'59.28"E	Rocky landscape presenting disturbed terrestrial vegetation.	
Area GPS Reference: Photo 4 Date: 28/01/2026 GPS Coordinates: 25° 9'40.58"S 30°10'1.69"E	Rocky landscape presenting disturbed terrestrial vegetation.	

6.3.3 Key Findings

The aquatic biodiversity assessment undertaken for the proposed BS BESS 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 substantially altered.

The elevated aquatic sensitivity identified by the Screening Tool reflects the broader regional context associated with the FEPA sub-catchment and ESA, 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 and associated ESA, the proposed Project footprint itself does not contain any wetlands, watercourses, or drainage systems that contribute to freshwater ecosystem functioning, as described in **Table 6-6** and **Figure 6-14**.

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 and modified nature of the site, which forms part of the existing mining landscape.
- 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 largely representative of cleared and transformed land, with areas of terrestrial vegetation. The area did not present any natural or artificial watercourse features, in addition to portions of the Project area and its surroundings having experienced partial vegetation clearance from existing developments. The development is not anticipated to alter the hydrological regime of the landscape, as such, the area has been rated with a “Low” aquatic sensitivity.

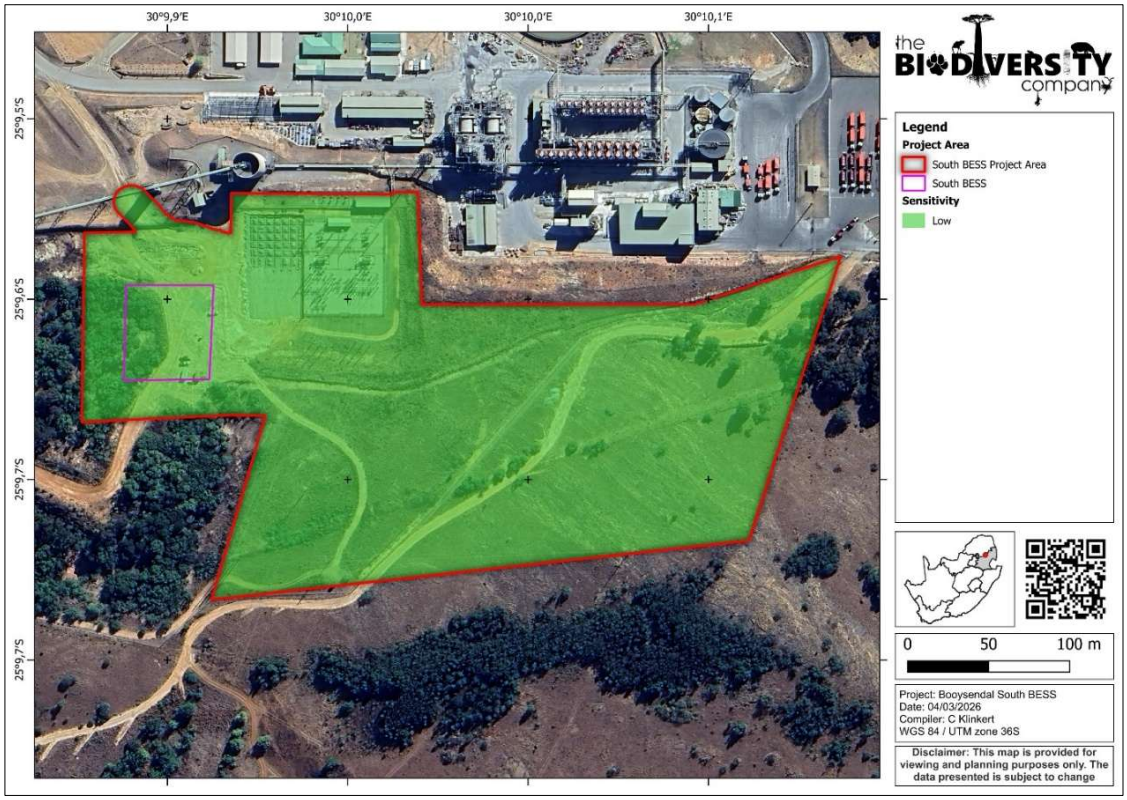


Figure 6-14: Specialist-Verified Aquatic Biodiversity Sensitivity Map (The Biodiversity Company, 2026c)

6.3.5 Conclusion

The aquatic biodiversity assessment undertaken for the proposed BS BESS Project confirmed that no wetlands, watercourses, drainage lines, or other freshwater ecosystem features occur within the proposed Project 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 associated with the FEPA sub-catchment and ESA 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 and hydrological functioning are largely absent.

Based on the results of the specialist assessment, the actual aquatic biodiversity sensitivity of the proposed Project footprint is Low, reflecting the absence of natural watercourse features within the site.

The proposed Project is therefore not expected to result in direct impacts on freshwater ecosystems, and the entire Project footprint is considered suitable for development. Cumulative impacts on freshwater resources are anticipated to be Low, as the Project does not intersect with any

freshwater ecosystem features. The site is therefore considered suitable for development under the BESS Exclusion Norm, subject to the implementation of general environmental best practice measures during construction and operation.

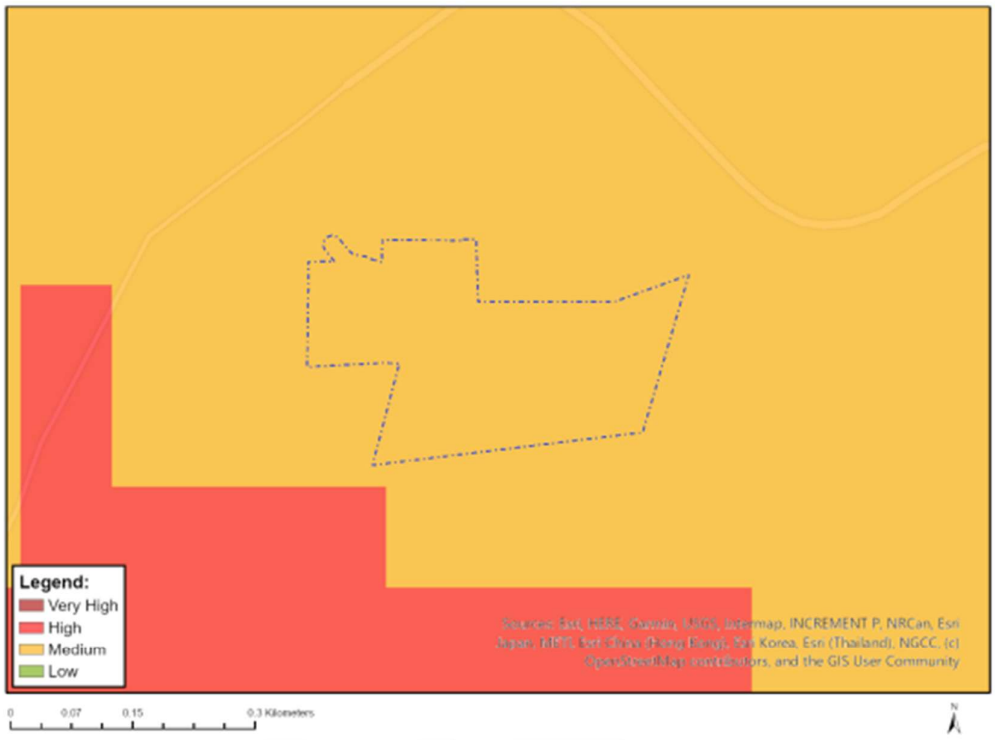
6.4 Avifauna Site Sensitivity Verification

An avifauna assessment was conducted by The Biodiversity Company and documented in the Avifauna Site Sensitivity Verification Report for the Proposed Booysendal South 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 Medium sensitivity for the Animal Species Theme, which includes avifauna (**Figure 6-15**). This classification reflects the broader ecological context of the region and the potential presence of avifauna SCC within the surrounding landscape.

MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY



Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Medium	Aves-Eupodotis senegalensis
Medium	Mammalia-Amblysomus robustus
Medium	Mammalia-Chrysospalax villosus
Medium	Mammalia-Crocidura maquassiensis
Medium	Mammalia-Dasymys robertsii
Medium	Mammalia-Hydrictis maculicollis
Medium	Mammalia-Ourebia ourebi ourebi

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)[6], conservation status information from the International Union for Conservation of Nature Red List[7], and relevant national biodiversity datasets.

The desktop analysis indicated that approximately 354 bird species may occur within the broader Project area and surrounding landscape. Of these, 40 species are classified as SCC, including several threatened or near threatened raptors, cranes, bustards, and water-associated species.

However, due to the disturbed and modified nature of the site, the likelihood of these species occurring within the proposed Project footprint is considered Low to Moderate, and no avifauna SCC were observed during the field survey.

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**).

[6] Bird Atlas Project (SABAP2), 2022. Southern African Bird Atlas Project 2. Available at: http://vmus.adu.org.za/ [Accessed 5 February 2026]
[7] IUCN, 2025. The IUCN Red List of Threatened Species. Available at: https://www.iucnredlist.org [Accessed 5 February 2026]

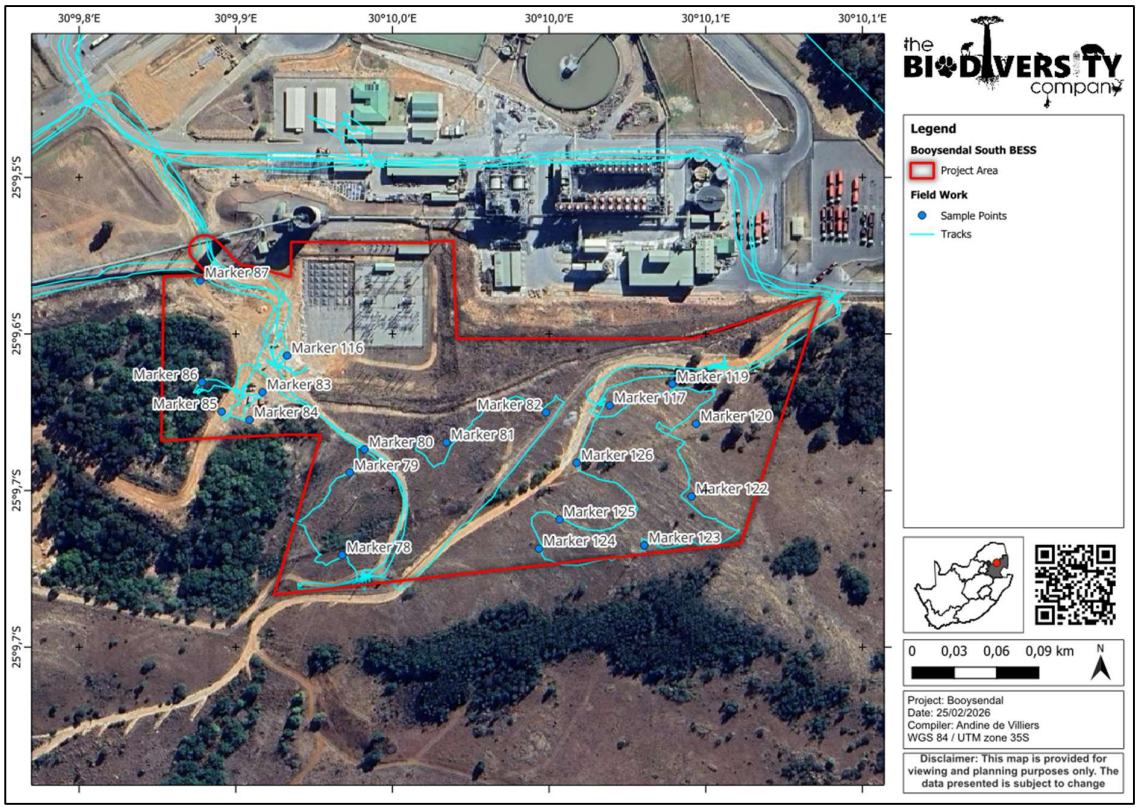


Figure 6-16: Map illustrating the Global Positioning System tracks of the specialist during the Avifauna field survey (The Biodiversity Company, 2026d)

6.4.2.3 Field Survey Findings

The field assessment confirmed that the proposed Project area is located within an existing mining environment that has been substantially transformed by ongoing mining activities and associated infrastructure.

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

- Rocky Grassland (Ridge), consisting of rocky outcrops and rocky areas within degraded grassland that provide microhabitats and may support some avifauna species.
- Disturbed Grassland, representing degraded Sekhukhune Grassland affected by edge effects from nearby mining operations, the spread of alien and invasive species, and ongoing disturbance.
- Alien Stand, dominated by invasive plant species, primarily *Acacia mearnsii*, where limited ecological functioning remains and the habitat may support common fauna species.
- Modified habitat, where natural vegetation has largely been transformed due to ongoing mining activities, including cleared areas and access roads.

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

sensitive avifauna species, although some SCC may sporadically occur in less disturbed habitats such as Rocky Grassland (Ridge) and Disturbed Grassland.

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
Site GPS Reference: Marker 83 Date: 28/01/2026 GPS Coordinates: 25° 9'37.34"S 30° 9'54.62"E	**Modified** This habitat has been completely transformed from the natural state due to the ongoing disturbances related to the mining operations. It consists of cleared areas and roads. Very little to no natural vegetation remains, thus the ecological functioning is greatly reduced. No avifauna Species of Conservation Concern (SCC) observed, and none are expected.	 
Site GPS Reference: Marker 86 Date: 28/01/2026 GPS Coordinates: 25° 9'37.11"S 30° 9'53.22"E	**Alien Stand** This habitat is dominated by alien and invasive flora species, mostly by *Acacia mearnsii*. Some ecological functioning remains and this habitat may support common fauna species. No avifauna SCCs observed, and none are expected.	 
Site GPS Reference: Marker 81 Date: 28/01/2026 GPS Coordinates: 25° 9'38.49"S 30° 9'58.84"E	**Disturbed Grassland** This habitat consists of Sekhukhune Grassland that has been degraded over time due to ongoing disturbances, including edge effects from the nearby Mine, widespread alien and invasive flora species, and ingress.	

Survey Point	Habitat	Photographs
	Ecological functioning remains, and this habitat supports common indigenous fauna and flora species. No avifauna SCCs were observed. Some avifauna SCC could occur within this habitat.	
Site GPS Reference: Marker 78 Date: 28/01/2026 GPS Coordinates: 25° 9'41.08"S 30° 9'56.45"E	**Disturbed Grassland** This habitat consists of Sekhukhune Grassland that has been degraded over time due to ongoing disturbances, including edge effects from the nearby Mine, widespread alien and invasive flora species, and ingress. No avifauna SCCs were observed. Some avifauna SCC could occur within this habitat.	 
Site GPS Reference: Marker 120 Date: 28/01/2026 GPS Coordinates: 25° 9'38.06"S 30°10'4.58"E	**Rocky Grassland (Ridge)** This habitat consists of rocky outcrops and rocky areas nestled in the Degraded Grassland habitat. No avifauna SCCs were observed. Some avifauna SCC could occur within this habitat.	 

Survey Point	Habitat	Photographs
Site GPS Reference: Marker 123 Date: 28/01/2026 GPS Coordinates: 25° 9'40.86"S 30°10'3.39"E	**Rocky Grassland (Ridge)** This habitat consists of rocky outcrops and rocky areas nestled in the Degraded Grassland habitat. No avifauna SCCs were observed. Some avifauna SCC could occur within this habitat.	 

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 potential presence of SCC.

Four habitat types were delineated within the proposed Project area, namely Rocky Grassland (Ridge), Disturbed Grassland, Alien Stand, 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
Alien Stand	**Medium** Confirmed or highly likely occurrence of populations of NT species, threatened species (CR, EN, VU) listed under Criterion A only and which have more than 10 locations or more than 10 000 mature individuals	**Low** Several minor and major current negative ecological impacts.	**Low**	**Medium** 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 remaining at a site even when a disturbance or impact is occurring, or species that have a	**Low** Minimisation and restoration mitigation - development activities of medium to high impact acceptable followed by appropriate restoration activities.

Habitat Type	Conservation Importance	Functional Integrity	Biodiversity Importance	Receptor Resilience	Site Ecological Importance Guidelines
				moderate likelihood of returning to a site once the disturbance or impact has been removed.	
Rocky Grassland	**Medium** Confirmed or highly likely occurrence of populations of NT species, threatened species (CR, EN, VU) listed under Criterion A only and which have more than 10 locations or more than 10 000 mature individuals	**Medium** Mostly minor current negative ecological impacts with some major impacts and a few signs of minor past disturbance. Moderate rehabilitation potential.	**Medium**	**High** Habitat that can recover relatively quickly (~ 5–10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a high likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a high likelihood of returning to a site once the disturbance or impact has been removed.	**Low** Minimisation and restoration mitigation - development activities of medium to high impact acceptable followed by appropriate restoration activities.
Disturbed Grassland	**Medium** Confirmed or highly likely occurrence of populations of NT species, threatened species (CR, EN, VU) listed under Criterion A only and which have more than 10 locations or more than 10 000 mature individuals	**Medium** Mostly minor current negative ecological impacts with some major impacts and a few signs of minor past disturbance. Moderate rehabilitation potential.	**Medium**	**High** Habitat that can recover relatively quickly (~ 5–10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a high likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a high likelihood of returning to a site once the disturbance or impact has been removed.	**Low** Minimisation and restoration mitigation - development activities of medium to high impact acceptable followed by 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	**Very Low** Minimisation mitigation - development activities of medium to high impact

Habitat Type	Conservation Importance	Functional Integrity	Biodiversity Importance	Receptor Resilience	Site Ecological Importance Guidelines
				receptor functionality, or species that have a very high likelihood of remaining at 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.	acceptable and restoration activities may not be required.

6.4.3 Key Findings

The Screening Tool classified the proposed Project area as having Medium sensitivity for the Animal Species Theme, primarily reflecting the broader regional biodiversity context and the potential presence of avifauna SCC within the surrounding landscape rather than site specific conditions.

Desktop analysis indicates that several avifauna SCC may occur within the wider landscape. SABAP2 data show that approximately 354 avifauna species may occur within the broader Project area, of which 40 species are considered SCC. However, the proposed Project area occurs within a disturbed mining environment, characterised by ongoing mining activities, cleared areas, access roads, alien vegetation, and habitat degradation.

Field verification confirmed that the site contains Rocky Grassland (Ridge), Disturbed Grassland, Alien Stand, and Modified habitat, all of which are affected by varying levels of disturbance. No avifauna SCC were observed during the field survey.

6.4.4 Verified Sensitivity

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

The following specialist-verified sensitivity ratings were assigned:

- Rocky Grassland (Ridge): Low sensitivity.
- Disturbed Grassland: Low sensitivity.
- Alien Stand: Low sensitivity.
- Modified habitat: Very Low sensitivity.

These ratings reflect:

- The disturbed and degraded condition of much of the vegetation within the proposed Project area.

- The dominance of alien and invasive plant species in certain habitat types.
- The absence of suitable breeding or nesting habitat for sensitive species.
- The absence of recorded avifauna SCC during the field survey.
- The already transformed nature of the mining landscape, where ecological functioning has been significantly altered by ongoing mining activities.

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	**Medium**	**Alien Stand**	**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 but would not be considered an important habitat for the mentioned SSC.
		Rocky Grassland	**Low**	Disputed – Habitat has been severely altered but still has the potential to support avifauna, including SCCs, but would not be considered an important habitat for the mentioned SSC.
		Disturbed Grassland	**Low**	Disputed – Habitat has been severely altered but still has the potential to support avifauna, including SCCs, but would not be considered an important habitat for the mentioned SSC.
		Modified	**Very Low**	Disputed – Habitat has been severely altered and has limited potential to support SCC.

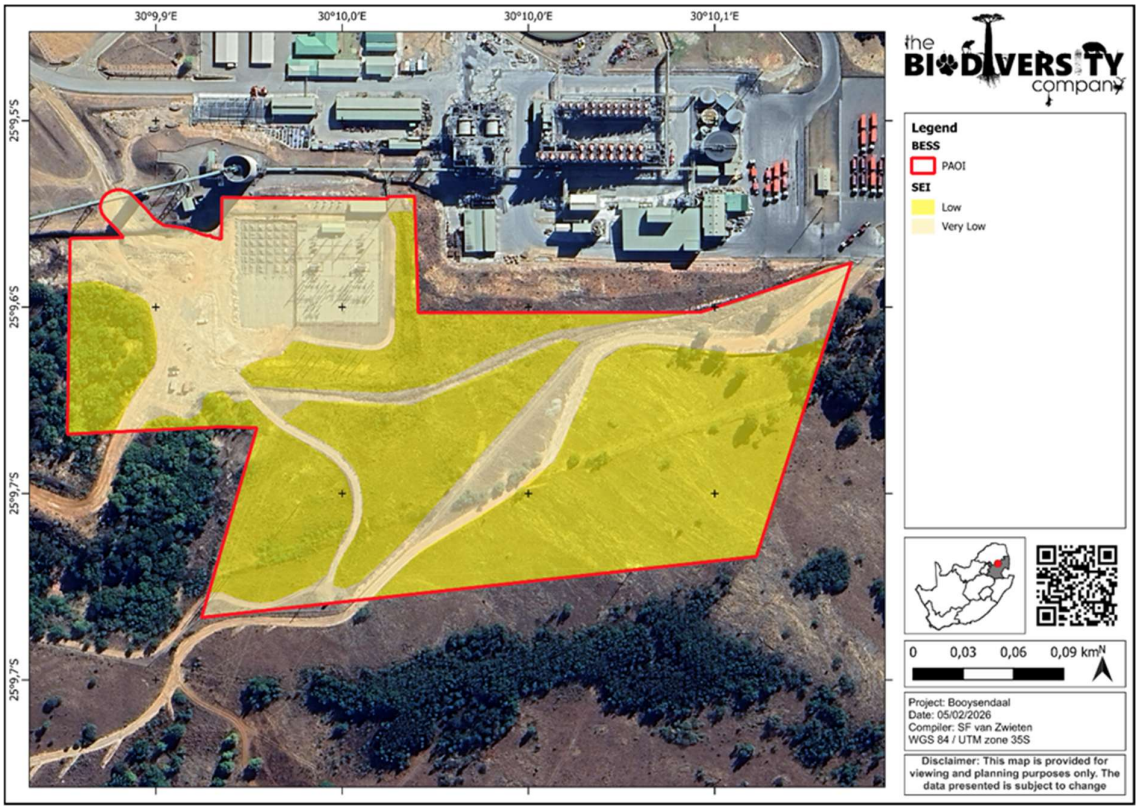


Figure 6-17: Specialist-Verified Avifauna Sensitivity Map (The Biodiversity Company, 2026d)

6.4.5 Conclusion

The avifauna SSV for the BS BESS confirmed that no avifauna SCC were recorded within the development footprint during the field assessment. The footprint consists of disturbed habitat and was verified as Low to Very Low avifaunal sensitivity. SCC are therefore not confirmed for the footprint and are not expected to occur there on a regular or significant basis.

Given the limited ecological functionality of the identified habitats and the absence of significant avifaunal constraints, the proposed Project may proceed under the BESS Exclusion Norm for SSV. With the implementation of the recommended mitigation measures, the development is not expected to result in any irreplaceable loss of avifauna biodiversity.

7 STATEMENTS

7.1 Hydropedology Statement

A hydropedology assessment was conducted by The Biodiversity Company and documented in the Hydropedology Statement for the Proposed Booysendal South 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 the review of regional land type information, hydropedological modelling, and evaluation of hillslope transects to assess the hydropedological characteristics of the site and 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, which is classified as shallow 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 the identified wetlands in relation to the proposed Project footprint is illustrated in **Figure 7-1** below.

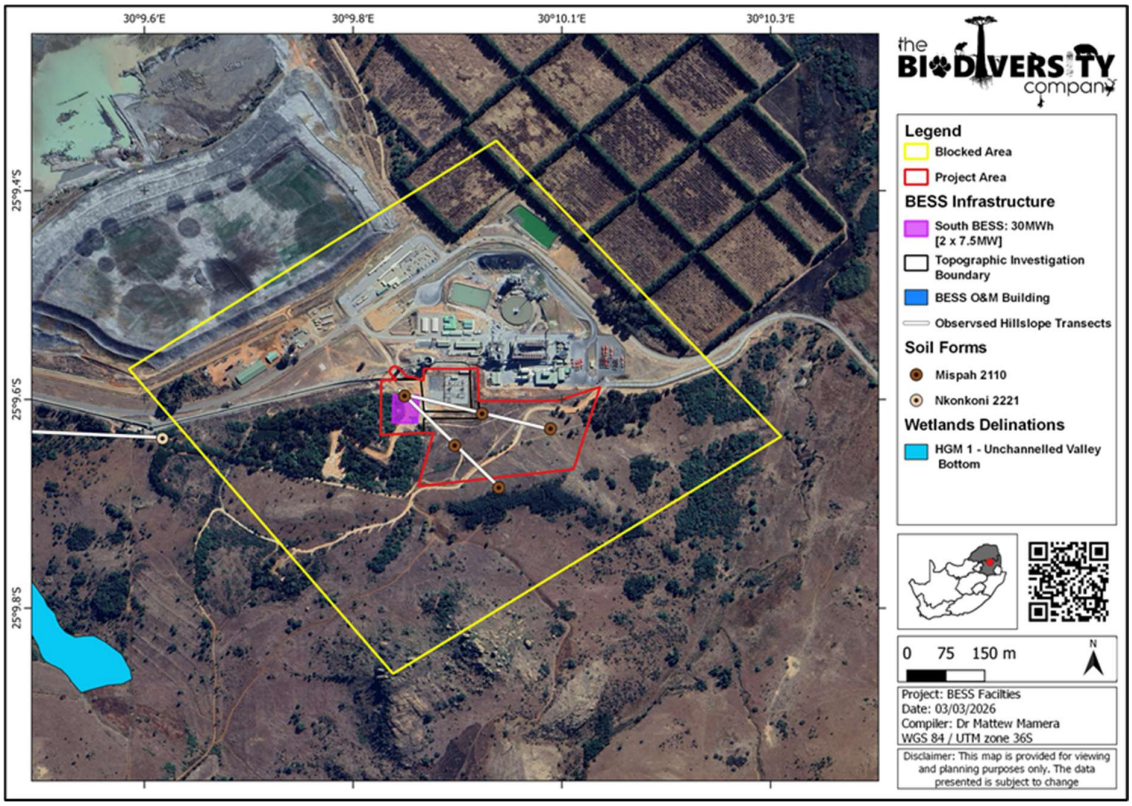


Figure 7-1: The identified wetlands in relation to the proposed Booysendal South Battery Energy Storage System Project (The Biodiversity Company, 2026e)

One main hillslope hydropedological pattern was identified within the catchment influencing the proposed Project area. This 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 assessed hillslope transects and hydropedological patterns associated with the proposed Project

are illustrated in **Figure 7-2**.

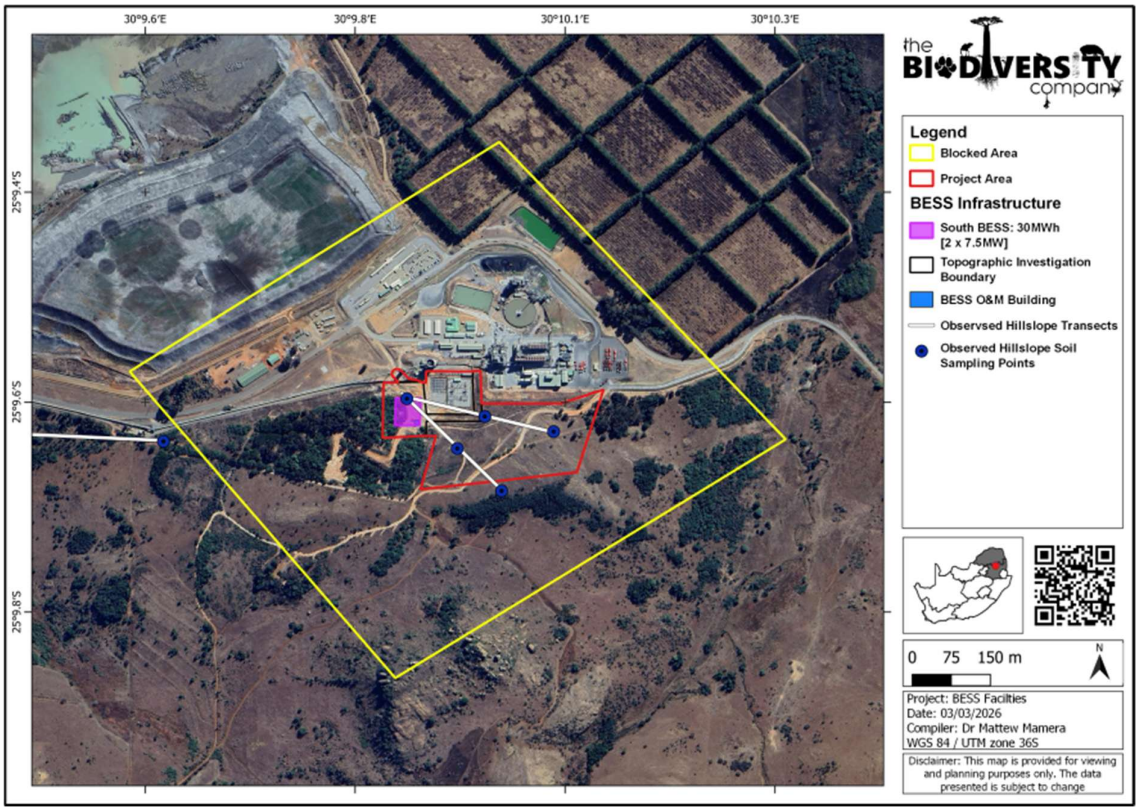


Figure 7-2: The assessed hillslope transects hydropedological patterns regarding the proposed Booysendal South Battery Energy Storage System Project (The Biodiversity Company, 2026e)

Hydrological modelling and catchment analysis indicate that the majority of water contributing to nearby watercourses originates from upstream catchment areas located to the north-west and north-east of the proposed Project area. These areas are also characterised by shallow recharge soils, which contribute both surface and subsurface flows that sustain moisture levels within downstream watercourses such as the Kafferskraalspruit.

Although development infrastructure associated with the proposed Project may intercept minor shallow lateral soil moisture flows along hillslopes, these impacts are expected to be localised and limited. Vertical recharge processes and upstream catchment inputs remain the dominant sources of groundwater recharge and water availability within the system. In some areas, infrastructure such as impermeable surfaces or cable trenches may temporarily redirect shallow lateral flows, potentially promoting minor surface return flows, particularly in areas with exposed rocky soils. However, the hillslope system is expected to continue functioning through dominant vertical flow paths that recharge groundwater stores.

When the size of the proposed Project footprint is compared with the combined sub-basins responsible for supplying moisture to nearby unchannelled valley bottom wetlands and watercourses, modelling results indicate that even under a worst-case scenario, the potential reduction in moisture

contribution to these systems 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 hydropedological impacts are therefore considered minimal and acceptable within the context of the surrounding catchment, and the findings support the conclusion that the proposed Project may proceed as planned without significant hydropedological 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 Project is not anticipated to result 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 BS BESS Project will be developed within the existing BS 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 PALAEONTOLOGY

A HIA was conducted by Digby Wells Environmental and documented in the Heritage Impact Assessment Report for the Proposed Booysendal 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 an established mining landscape and is located south-west of the BS Processing Plant. The surrounding environment is characterised by existing mining infrastructure, including gravel access roads utilised by Mine personnel and local farmers, fencing infrastructure, and a substation comprising concrete platforms and power transformers. The broader area therefore reflects a high degree of anthropogenic disturbance associated with mining activities and related infrastructure.

From a biophysical perspective, vegetation within the proposed Project area reflects both natural and introduced elements typical of disturbed landscapes. The eastern portion of the site is characterised by clustered stands of Eucalyptus spp., while the western portion, extending toward the conveyor belt infrastructure, is dominated by black and silver wattle. These species are commonly associated with transformed or modified environments, and their presence indicates previous disturbance and vegetation alteration.

Access to portions of the area containing dense black and silver wattle stands was restricted due to operational safety considerations. However, the accessible sections were surveyed, and visibility was considered sufficient to assess the heritage potential within the proposed Project footprint.

The physical environment is directly relevant to the heritage assessment. Vegetation density influences 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 Booysendal North Battery Energy Storage System development footprint (Digby Wells Environmental, 2026)

	
Overhead powerlines in the proposed Project study area	Substation bordering the proposed Project footprint
	
Gravel access roads in the proposed Project study area	Dense vegetation in the proposed Project study area (limited access to the area)

8.1.1 Specialist Field Verification

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

8.1.2 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.

8.1.3 Field Verification Survey

A field verification survey was undertaken on 2 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**).

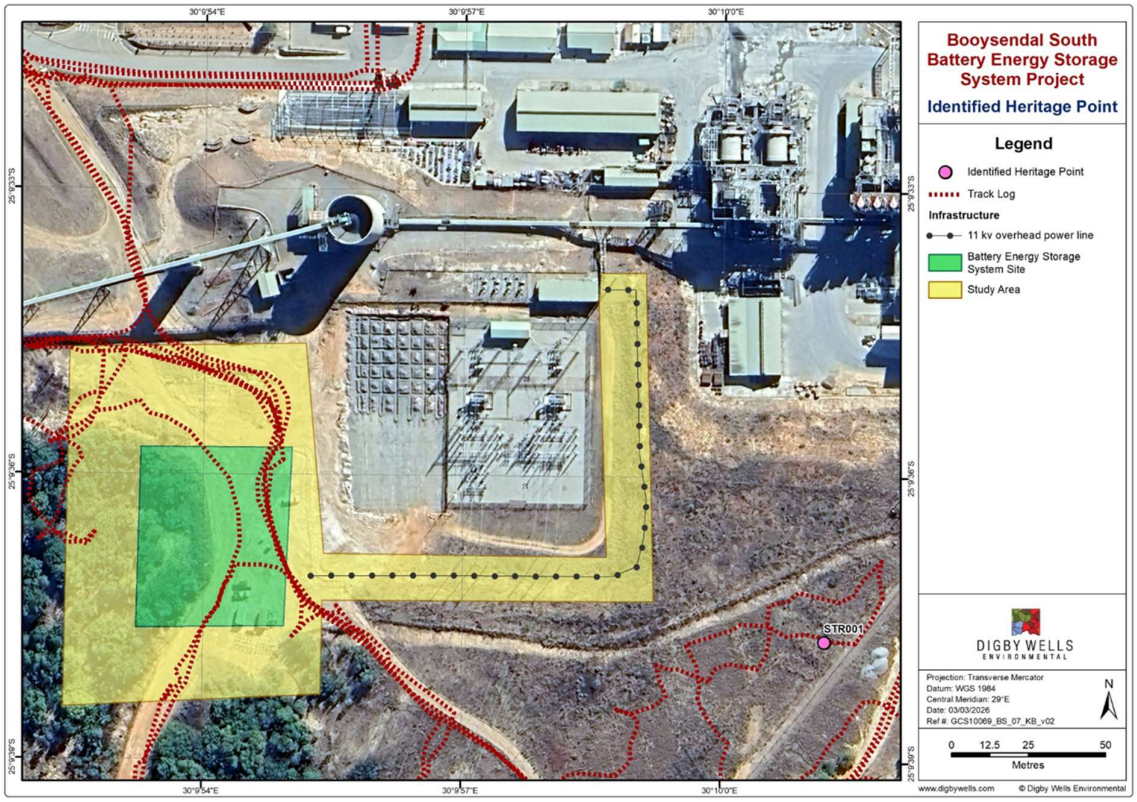


Figure 8-1: Map illustrating the Global Positioning System tracks of the specialist during the Heritage field survey (Digby Wells Environmental, 2026)

8.1.4 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 National Heritage Resources Act (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 low palaeontological sensitivity. No fossil material or palaeontological indicators were observed during the field assessment. In accordance with best practice and statutory requirements, a Chance Finds Procedure (CFP) will be implemented during the construction, operation and decommissioning phases to manage any unexpected fossil discoveries.

Archaeological Resources

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

Built Environment (Section 34)

The remnants of a rectangular stonewalled structure were recorded at 25° 9'37.30"S; 30° 10'1.13"E, located south-west of the BS Processing Plant (**Table 8-2**). The feature consists of ephemeral foundation remains and occurs outside the proposed Project footprint. As the structure falls beyond the proposed Project footprint, no impacts are anticipated and it was therefore not subject to further assessment.

Table 8-2: Remnants of Structure (Digby Wells Environmental, 2026)

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 (GSSA) database and previous heritage assessments confirmed that recorded cemeteries in the broader area are located outside the defined impact zone. No impacts on burial grounds or graves are therefore anticipated.

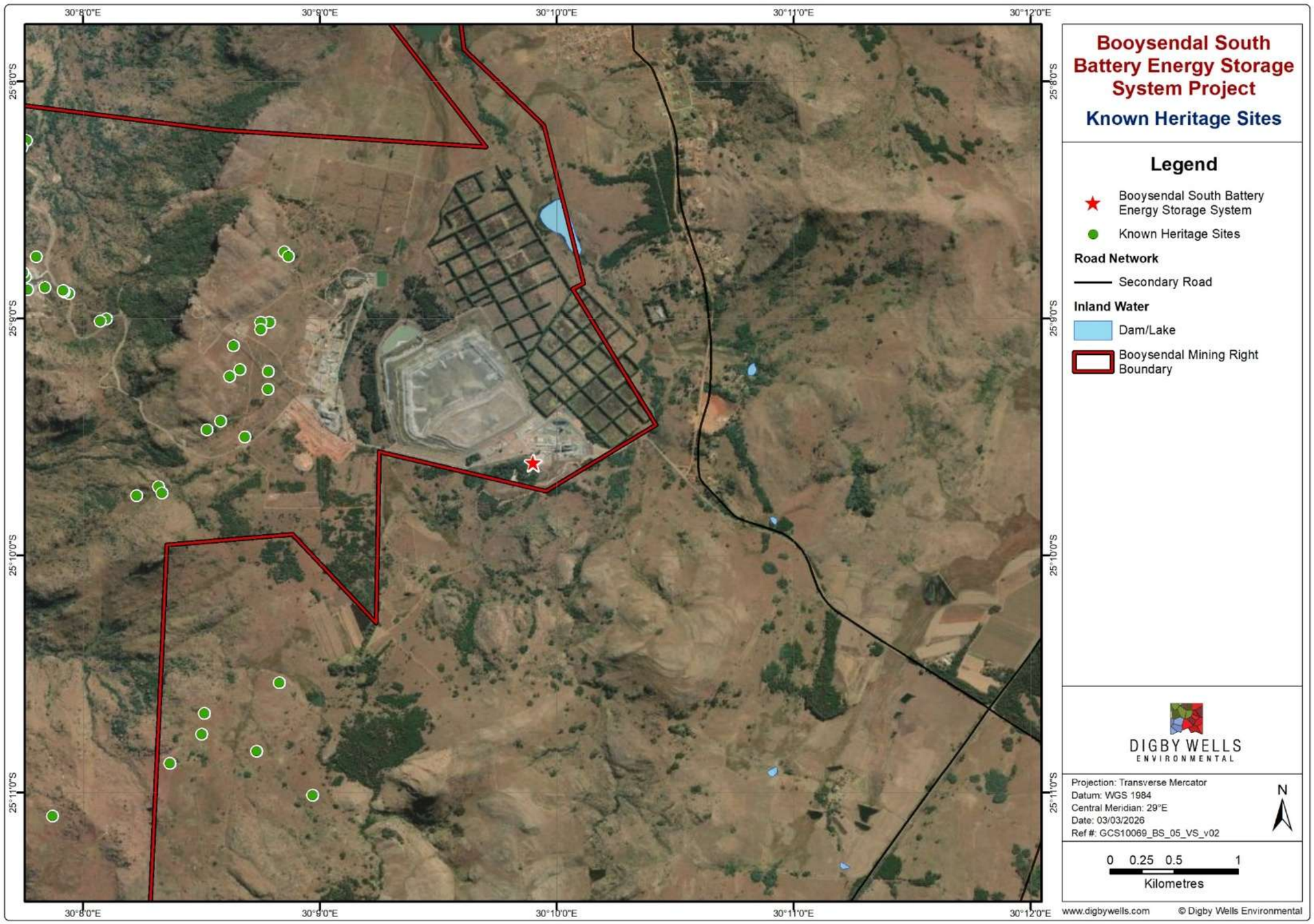


Figure 8-2: Heritage Resources in the Wider Area (Digby Wells Environmental, 2026)

8.2 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 during the field survey.
- Previous heritage surveys conducted in the wider Booysendal mining area have recorded numerous heritage sites, including Stone Age artefacts, Iron Age stonewalled settlements and historical features, demonstrating the long-term occupation of the region.
- A rectangular stonewalled structure was recorded south-west of the BS Processing Plant. However, the feature occurs outside the proposed Project footprint 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 low 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 GSSA cemetery database and previous heritage assessments confirmed that recorded cemeteries in the broader area are located several kilometres from the proposed Project footprint and will not be affected by the development.
- The proposed Project area occurs within an existing disturbed mining landscape, where historical land use, agricultural activities and mining development have already substantially 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.

8.3 Conclusion

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

The broader Dwarsrivier Valley forms part of a culturally significant landscape that reflects Stone Age and Iron Age occupation, and numerous heritage resources have previously been recorded in the wider region. These include Stone Age artefacts, Iron Age stonewalled settlements, and historical features documented during earlier heritage studies undertaken within the Booysendal mining area.

However, none of these resources occur within the proposed Project footprint. A rectangular stonewalled structure recorded south-west of the BS Processing Plant occurs outside the proposed Project footprint and will therefore not be affected by the proposed development.

With regard to palaeontological resources, the SAHRIS Palaeontological Sensitivity Map classifies the underlying geology of the Project area as having low 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 land use, agricultural activities, and ongoing mining development. As such, the development is not expected to materially alter the integrity or character of the broader cultural landscape, which is currently defined by its industrial and mining-related context.

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 SAHRA and the implementation of a CFP during the construction, operation, and decommissioning phases of the proposed Project.

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 Booysendal South 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.

9.1 Closure Vision and Post Closure Land Use

According to the 2010 Booysendal Environmental Management Programme (Amec Foster Wheeler, 2018), 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 SSVR for the agricultural theme (The Biodiversity Company, 2026a) confirms that the soils within the proposed Project footprint are predominantly Mispah soil form, with very shallow usable soil layer 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 Hydropedology 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 systematic 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 licenced waste management facilities in accordance with applicable waste management requirements.

All concrete infrastructure, including platforms, culverts and associated access roads, will be mechanically demolished and removed from the site. Following the removal of infrastructure, compacted areas will be ripped to a depth of approximately 600 mm, along contour lines, to alleviate soil compaction and minimise erosion risk.

The site will then be covered with ameliorated soil and topsoil sourced from approved stockpiles to facilitate vegetation establishment. Rehabilitation efforts will aim to restore vegetation cover consistent with the surrounding environment as far as reasonably practicable.

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 reseeding 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 Resource and Energy (DMRE) Master Rates, with additional estimates derived from comparable industry Projects where required.

Where new technologies or infrastructure components were not included within the Master Rates framework, demolition and removal costs were applied based on comparable industry projects.

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

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

SUM of Closure Components			R1,073,377.43
SUB TOTAL 1 (DMRE Weighting Factor 2)		1.1	**R1,180,715.17**
12%	Preliminary and General		R141,685.82
10%	Contingency		R118,071.52
SUB-TOTAL 2 (Preliminary and General + Contingency)			R259,757.34
SUB TOTAL 3 (Excluding VAT)			R1,440,472.51
15%	VAT@15%		R216,070.88
GRAND TOTAL			**R1,656,543.38**

9.3 Conclusion

The Final FRDCP for the proposed Project footprint outlines the technical requirements necessary to achieve responsible decommissioning and rehabilitation of the facility at the end of its operational life. The plan identifies key closure activities, including the dismantling and removal of infrastructure, the demolition of concrete platforms, culverts and access roads, and the management of waste through recycling, return to OEMs, or disposal at licenced waste management facilities.

Following infrastructure removal, compacted areas within the development footprint will be ripped to a depth of approximately 600 mm along contour lines to alleviate soil compaction and reduce the potential for erosion. The site will then be covered with ameliorated soil and topsoil sourced from approved stockpiles to support vegetation establishment and facilitate rehabilitation.

The financial provision 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.

Successful implementation of the rehabilitation measures will result in a site that is physically stable, non-polluting, and capable of supporting sustainable vegetation cover consistent with the surrounding environment. The rehabilitated area will be monitored and maintained for a period of

five years, during which the success of rehabilitation will be assessed and reseeding implemented where vegetation establishment is insufficient.

Provided that the decommissioning, rehabilitation and monitoring measures are implemented as outlined, the proposed Project is expected to achieve sustainable closure outcomes aligned with South African environmental legislation and recognised Mine rehabilitation best practice.

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:

Consequence = (Duration + Extent + Irreplaceability of resource) × Severity

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

Significance = Consequence × 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.
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)	
	Extremely beneficial (25 to 33)	
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.

Criteria	Rating Scales	Notes
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 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 reseeding 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

Criteria	Explanation
	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 BS 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 an existing disturbed mining landscape where soils, vegetation and landforms have already been substantially altered by historical and ongoing mining activities, infrastructure development and associated surface disturbance. The agricultural specialist

confirmed that the site is characterised by Hutton, Mispah and Johannesburg soil forms, which are generally shallow to moderately deep, have low clay content, and in many areas are associated with rocky substrates and limited soil development. These soils correspond to Land Capability Classes III, VI and VIII and Land Potential Levels 6, 7 and 8, indicating very restricted to very low agricultural potential and predominantly non-arable conditions.

In addition, the site occurs within a climatic regime classified as Climatic Capability Class C8, reflecting severe climatic limitations for crop production due to heat and moisture stress. The baseline condition of the receiving environment therefore already reflects low agricultural value, limited arable potential, and a reduced capacity to provide meaningful agricultural ecosystem services.

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;
- Stockpiling and handling of topsoil and spoil material; and
- Localised disturbance of soil structure through foundation preparation and vehicle movement.

These activities may result in localised degradation of soil structure, increased susceptibility to erosion, and the temporary loss of topsoil resources. However, given the already low agricultural potential of the site and its disturbed mining context, 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 of disturbance and the low sensitivity of the receiving environment. The implementation of mitigation measures as outlined in the EMPr, including:

- Restricting disturbance to the demarcated development footprint;
- Implementing erosion control measures such as geotextiles, erosion control mats, contouring and sediment barriers;
- Appropriate stripping, stockpiling and protection of topsoil;
- Locating stockpiles away from drainage pathways;
- Restricting vehicle movement to approved access routes; and
- Rehabilitating disturbed areas not required for permanent infrastructure using suitable 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, localised and reversible within the context of the existing mining landscape.

10.2.1.2 Terrestrial Biodiversity

The proposed Project footprint is situated within a disturbed operational mining landscape where natural habitat has already been fragmented and modified by infrastructure, access roads, vegetation clearing and the spread of alien invasive plant species. The terrestrial biodiversity specialist identified four habitat types within the broader site, namely Rocky Grassland (Ridge), Disturbed Grassland, Alien Stand and Modified habitat. Of these, Rocky Grassland (Ridge) was assigned a higher SEI due to the presence of microhabitats that may support flora and fauna SCC. However, the proposed development footprint is located within already disturbed and degraded habitat and avoids the higher sensitivity ridge habitat and its associated buffer.

No flora or fauna SCC were recorded within the proposed Project footprint during the specialist field survey. The footprint is therefore considered to have low ecological integrity, limited habitat value, and minimal potential to support sensitive terrestrial biodiversity on a regular basis.

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

- Vegetation clearing and grubbing;
- Disturbance of habitat through general construction activity;
- Creation of unnecessary temporary access routes;
- Excessive clearing outside the approved footprint;
- Failure to rehabilitate temporary disturbance areas; and
- Spread of alien invasive plant species through soil disturbance and stockpiling.

These activities may result in localised habitat loss, degradation of already disturbed vegetation, and further decline in habitat integrity if not properly managed. Given the disturbed nature of the footprint and the absence of SCC within the development area, the magnitude of direct biodiversity impact is limited. The greatest potential risk relates to the spread of alien invasive species, which may further degrade surrounding habitat if left unmanaged.

Prior to mitigation, vegetation loss, habitat disturbance and unnecessary access-related impacts are assessed as low significance, while the spread of alien invasive plants is assessed as moderate significance due to the potential for ongoing secondary degradation. The implementation of mitigation measures as outlined in the EMPr, including:

- Clearly demarcating the approved development footprint prior to construction;

- Restricting all construction activities and vehicle access to authorised areas only;
- Using existing disturbed access routes wherever possible;
- Limiting vegetation clearing to the minimum area required;
- Prohibiting off-road driving and unnecessary disturbance outside the footprint;
- Monitoring and removing alien invasive plant species on an ongoing basis; and
- Rehabilitating temporary disturbance areas through recontouring, stabilisation and re-vegetation;

will reduce the extent, duration and severity of impacts.

Post-mitigation, the residual impact on terrestrial biodiversity is reduced to very low significance for direct habitat disturbance and low significance for alien invasive plant spread, with high confidence. No significant loss of sensitive habitat is anticipated within the authorised footprint, and impacts are considered acceptable within the context of the existing mining environment.

10.2.1.3 Aquatic Biodiversity

Although the Screening Tool identified the broader Project area as having Very High aquatic biodiversity sensitivity, the specialist field verification confirmed that this rating reflects the regional context associated with the FEPA sub-catchment and ESA, rather than the presence of aquatic features within the proposed Project footprint itself. The field survey confirmed that no wetlands, drainage lines, rivers, hydromorphic soils, wetland vegetation communities, or other freshwater ecosystem features occur within the development footprint.

The site is instead characterised by disturbed terrestrial conditions, including cleared areas, rocky surfaces and vegetation modified by historical development and invasive species. The verified aquatic biodiversity sensitivity of the development footprint is therefore Low, and the potential for direct impacts on aquatic ecosystems is limited.

During construction, potential impacts on aquatic biodiversity may arise indirectly through:

- Sediment runoff from exposed soils and earthworks;
- Uncontrolled stormwater runoff from disturbed surfaces;
- Pollution of stormwater through hydrocarbons, chemicals or construction materials;
- Cement mixing, wash water and concrete-related contamination; and
- Improper storage or handling of hazardous substances and waste.

These activities could potentially affect the surrounding receiving environment if runoff or contaminants are not appropriately managed. However, because no aquatic features occur within the footprint, no direct loss of freshwater habitat is anticipated, and the potential impacts are

indirect and localised in nature.

Prior to mitigation, sediment runoff and stormwater-related impacts are assessed as low significance, while pollution-related impacts associated with hydrocarbons, chemicals and construction materials are assessed as moderate significance due to the risk of contamination if controls are not in place. The implementation of mitigation measures as outlined in the EMPr, including:

- Installing and maintaining silt fences, sediment traps and other erosion control measures;
- Implementing stormwater controls that maintain natural drainage patterns where possible;
- Stabilising exposed soils and disturbed surfaces as soon as practicable;
- Isolating hydrocarbon storage, waste storage and other pollution sources from stormwater pathways;
- Restricting cement mixing, washdown and refuelling to designated contained areas;
- Storing hazardous substances in bunded areas with appropriate spill containment; and
- Ensuring proper waste storage, collection and disposal at licenced facilities;

will reduce the extent, duration and severity of impacts.

Post-mitigation, the residual impact is reduced to very low significance for sediment and runoff-related impacts and low significance for contamination-related impacts, with high confidence. No direct impact on aquatic biodiversity is anticipated, and the indirect impacts are considered acceptable and manageable within the context of the disturbed mining landscape.

10.2.1.4 Avifauna

The avifauna specialist confirmed that the proposed Project area occurs within an existing mining environment that has already been substantially transformed by ongoing mining activities, infrastructure, access roads and alien vegetation. Although desktop analysis indicated that a large number of bird species may occur within the broader landscape, including several avifauna SCC, no avifauna SCC were recorded within the proposed Project footprint during the field survey. The identified habitat types within the broader area include Rocky Grassland (Ridge), Disturbed Grassland, Alien Stand and Modified habitat, but the actual development footprint is characterised by disturbed conditions with limited suitability for breeding, nesting or foraging by sensitive avifauna species.

The specialist therefore verified the footprint as having Low to Very Low avifaunal sensitivity, and confirmed that the site does not represent important avifaunal habitat of high conservation value.

During construction, potential impacts on avifauna may arise through:

- Disturbance of birds during vegetation clearing;

- Noise, vibration and increased human activity during construction;
- Installation of electrical infrastructure that may create electrocution risk;
- Installation of perimeter fencing that may result in bird collisions; and
- Artificial lighting associated with construction security and night-time work.

These impacts may temporarily disturb birds using the broader area and may create localised risks if infrastructure is not appropriately designed. However, given the disturbed condition of the site, the low habitat value of the footprint, and the absence of recorded SCC, the overall magnitude of impact is limited.

Prior to mitigation, disturbance to birds during vegetation clearing is assessed as low significance, while bird electrocution and bird collision risks associated with new infrastructure are also assessed as low significance. The implementation of mitigation measures as outlined in the EMPr, including:

- Inspecting areas prior to vegetation clearing to confirm that no active nests are present;
- Obtaining specialist input should nests be encountered;
- Incorporating nest-proofing and anti-perch devices on relevant electrical infrastructure where required;
- Installing visibility markers on fencing where necessary to reduce bird collision risk;
- Minimising and directing artificial lighting away from surrounding habitat; and
- Prohibiting hunting, trapping or harming of birds and other fauna by construction personnel;

will reduce the extent, duration and severity of impacts.

Post-mitigation, the residual impact is reduced to very low significance, with high confidence. No irreplaceable loss of avifauna habitat or biodiversity is anticipated, and impacts are considered acceptable within the context of the existing disturbed mining environment.

10.2.1.5 Hydropedology

The hydropedology assessment confirmed that the proposed Project area occurs within a catchment dominated by recharge-type hydropedological soils, primarily associated with the Mispah soil form, which is classified as shallow recharge soil. These soils typically occur in hillslope settings where rainfall infiltration and vertical recharge processes dominate and contribute to groundwater recharge and downstream moisture regimes. The specialist identified a single dominant hillslope hydropedological pattern extending from the crest to the valley bottom, where vertical infiltration remains the primary hydrological process.

The assessment further confirmed that the majority of moisture contributing to nearby wetlands and watercourses originates from upstream catchment areas located to the north-west and north-east of the proposed Project area. Although the proposed development may intercept minor shallow lateral

soil moisture flows, modelling showed that even under a worst-case scenario the reduction in moisture contribution to downstream systems would be less than 1% of the total catchment water regime. The anticipated hydropedological influence of the Project is therefore considered negligible at catchment scale.

During construction, potential impacts on hydropedology may arise through:

- Excavation, trenching and foundation works that disturb shallow recharge soils;
- Soil compaction and hardstand creation that may alter infiltration characteristics;
- Interception or redirection of shallow lateral soil moisture movement;
- Increased surface runoff from exposed or compacted areas; and
- Contamination of soils and runoff through hydrocarbons, chemicals or other construction-related substances.

These activities may result in localised changes to runoff patterns and minor disturbance to near-surface moisture dynamics. However, because the footprint forms only a very small part of the broader contributing catchment, and because vertical recharge and upstream inflows remain the dominant hydropedological drivers, the magnitude of impact is limited.

Prior to mitigation, hydropedology-related impacts associated with uncontrolled runoff are assessed as low significance, while contamination-related impacts are assessed as moderate significance due to the risk of localised pollution if hazardous materials are not properly managed. The implementation of mitigation measures as outlined in the EMPr, including:

Limiting disturbance to the authorised footprint only;

- Maintaining natural drainage patterns where possible;
- Installing and maintaining appropriate stormwater and erosion control measures;
- Minimising unnecessary compaction of surrounding soils;
- Storing hydrocarbons and hazardous materials in bunded areas away from drainage pathways;
- Providing spill kits and immediate spill response capacity on-site; and
- Rehabilitating disturbed surfaces promptly to restore stable surface conditions and infiltration capacity where possible;

will reduce the extent, duration and severity of impacts.

Post-mitigation, the residual impact is reduced to very low to low significance, with high confidence. The Project is not expected to result in significant impacts on groundwater recharge processes, soil moisture movement, or downstream watercourse functioning, and the hydropedological impacts are

considered acceptable within the context of the broader catchment.

10.2.1.6 Heritage Assessment, Including Palaeontology

The heritage specialist confirmed that the proposed Project area is located within an existing disturbed mining landscape characterised by roads, fencing, substation infrastructure and vegetation altered by historical land use and ongoing mining activity. Both the desktop review and field verification survey confirmed that no archaeological sites, historical structures, burial grounds, graves, or other heritage resources as defined in Section 3 of the NHRA occur within the proposed Project footprint. Although the broader Dwarsrivier Valley reflects evidence of Stone Age, Iron Age and historical occupation, no such resources were identified within the development area itself.

A rectangular stonewalled structure was recorded south-west of the BS Processing Plant, but this feature occurs outside the proposed Project footprint and will not be affected by the development. In addition, the SAHRIS Palaeontological Sensitivity Map classifies the underlying geology as having low palaeontological sensitivity, and no fossil material or palaeontological indicators were observed during the field survey.

During construction, the primary potential impact on heritage resources may arise through:

- Earthworks, excavations and foundation construction that could expose previously unidentified subsurface heritage material; and
- Accidental damage to any unrecorded archaeological, burial or palaeontological resources that may be encountered during construction.

Although no heritage resources were identified within the footprint, the possibility of accidental discovery during excavation cannot be entirely excluded. Because damage to such resources would be irreversible if it were to occur, the impact is treated conservatively.

Prior to mitigation, the impact is assessed as high significance, not because identified heritage constraints are present on-site, but because any destruction of previously unidentified cultural heritage resources would be permanent in nature. The implementation of mitigation measures as outlined in the EMPr, including:

- Implementing a formal CFP throughout the construction phase;
- Inducting construction personnel on heritage awareness and reporting obligations;
- Requiring work to cease immediately should any heritage material, graves, human remains or fossil material be encountered; and
- Notifying the relevant heritage authority and specialist before work resumes in the affected area;

will reduce the likelihood and severity of impact substantially.

Post-mitigation, the residual impact is reduced to very low significance, with high confidence. No direct or indirect impacts on known heritage resources are anticipated, and the Project is considered acceptable from a heritage and palaeontological perspective, subject to implementation of the CFP.

10.2.2 Operational Phase

10.2.2.1 Agricultural

The proposed Project is located within a disturbed mining landscape where soils, land capability and surface conditions have already been substantially altered by historical and ongoing mining activities, infrastructure development, compaction and vegetation disturbance. As confirmed by the agricultural specialist, the site is characterised by Hutton, Mispah and Johannesburg soil forms, which are generally shallow to moderately deep, rocky in places, and associated with low clay content and limited soil development. These soils correspond to Land Capability Classes III, VI and VIII and Land Potential Levels 6, 7 and 8, indicating very restricted to very low agricultural potential and predominantly non-arable conditions.

The site also falls within Climatic Capability Class C8, which reflects severe climatic limitations for crop production due to high evapotranspiration relative to rainfall. The baseline agricultural value of the receiving environment is therefore already low, with limited capacity for meaningful agricultural production or the provision of agricultural ecosystem services.

During operation, potential impacts on agricultural resources may arise through:

- Long-term occupation of the footprint by hardstand and associated infrastructure;
- Ongoing compaction from maintenance vehicle access;
- Uncontrolled stormwater runoff from hardened surfaces;
- Localised soil contamination from hydrocarbons, chemicals or refuelling activities; and
- Pollution associated with poor waste storage or disposal practices.

These activities may result in localised degradation of soil quality and further reduce the limited agricultural functionality of already disturbed land. However, because the site is located within a transformed mining environment and does not comprise high-value agricultural land, the magnitude of impact remains limited and largely confined to indirect effects on soil quality and surface stability.

Prior to mitigation, the operational phase impact on agricultural resources is assessed as moderate significance, primarily due to the potential for localised soil contamination, poor runoff management and continued disturbance over the life of the Project. The implementation of mitigation measures as outlined in the EMPr, including:

- Maintaining stormwater controls associated with hardstands and drainage infrastructure;
- Restricting vehicle movement to designated access routes;

- Undertaking refuelling only in designated areas with spill containment;
- Storing hydrocarbons and hazardous materials in bunded areas away from stormwater pathways;
- Implementing a Waste Management Plan and segregating waste streams appropriately; and
- Removing all waste from site for disposal at licenced facilities;

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 operational phase impacts on agricultural resources are considered acceptable, localised and manageable within the context of the existing mining landscape.

10.2.2.2 Terrestrial Biodiversity

The proposed Project footprint is situated within an existing disturbed mining environment where natural habitat has already been fragmented and modified by infrastructure, roads, previous vegetation clearing and alien invasive plant encroachment. The terrestrial biodiversity specialist confirmed that the footprint falls within already degraded habitat types, including Modified habitat, Alien Stand and Disturbed Grassland, and avoids the more sensitive Rocky Grassland (Ridge) habitat and associated buffer. No flora or fauna SCC were recorded within the proposed Project footprint during the field survey.

The footprint is therefore considered to have low ecological integrity, limited habitat value and minimal potential to support sensitive terrestrial biodiversity on a regular basis. Nevertheless, operational activities may contribute to further habitat degradation if invasive species, vehicle access and human disturbance are not properly managed over the life of the facility.

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

- Ongoing vegetation management around infrastructure;
- Spread of alien invasive plant species within and around disturbed areas;
- Maintenance vehicle access causing localised soil compaction and vegetation damage;
- Human presence during routine inspections and maintenance; and
- General operational disturbance to common fauna species.

These activities may result in continued degradation of already disturbed terrestrial habitat and may reduce the rehabilitation potential of adjacent areas if not properly controlled. The most notable risk during operation is the spread of alien invasive species, which may persist over the life of the Project if active control measures are not maintained.

Prior to mitigation, the spread of alien invasive plants is assessed as high significance, while

vegetation damage and disturbance associated with vehicle access and human activity are assessed as moderate significance. The implementation of mitigation measures as outlined in the EMPr, including:

- Monitoring and removing alien invasive plant species regularly;
- Applying mechanical removal methods and safely disposing of invasive plant material;
- Avoiding herbicide use unless specifically approved;
- Restricting vehicle movement to designated access routes only;
- Prohibiting off-road driving outside authorised areas;
- Limiting vegetation disturbance during routine maintenance activities; and
- Providing environmental awareness training that prohibits the hunting, trapping or harming of fauna;

will reduce the extent, duration and severity of impacts.

Post-mitigation, the residual impact is reduced to low significance in relation to alien invasive plant spread and very low significance for maintenance-related disturbance, with high confidence. No significant loss of sensitive habitat is anticipated, and operational phase impacts on terrestrial biodiversity are considered acceptable within the context of the existing disturbed mining environment.

10.2.2.3 Aquatic Biodiversity

Although the Screening Tool identified a higher aquatic biodiversity sensitivity within the broader landscape, the aquatic specialist confirmed during field verification that no wetlands, rivers, drainage lines, hydromorphic soils, wetland vegetation communities or other freshwater ecosystem features occur within the proposed Project footprint. The verified aquatic biodiversity sensitivity of the footprint is therefore Low, and no direct loss of aquatic habitat is anticipated during operation.

The main operational risks to aquatic biodiversity are indirect and relate to the potential for polluted runoff or contaminants to migrate from the site into the surrounding receiving environment if stormwater, waste and hazardous materials are not appropriately managed. Given the absence of aquatic features within the footprint itself, the receiving environment is not considered highly sensitive to direct operational disturbance, but indirect water quality impacts remain relevant over the life of the facility.

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

- Uncontrolled stormwater runoff from hardstands and compacted surfaces;
- Pollution of runoff by hydrocarbons, chemicals or hazardous materials;
- Blockage of drainage channels and stormwater infrastructure by debris or sediment;

- Poor waste storage leading to contamination of surrounding land and runoff; and
- Improper disposal of general or hazardous waste.

These activities may result in localised reductions in water quality and the contamination of runoff leaving the site. However, because no aquatic features occur within the development footprint, and because impacts are indirect in nature, the anticipated magnitude of impact remains limited provided that operational controls are maintained.

Prior to mitigation, runoff, drainage and contamination-related impacts are assessed as moderate significance. The implementation of mitigation measures as outlined in the EMPr, including:

- Maintaining all stormwater management infrastructure in good working order;
- Inspecting and clearing stormwater drains and channels regularly to remove debris, waste and sediment;
- Isolating potential pollution sources from stormwater pathways;
- Storing hydrocarbons and hazardous materials in bunded areas away from drainage lines;
- Containing runoff from contaminated areas;
- Implementing a Waste Management Plan and separating general, recyclable and hazardous waste streams; and
- Ensuring that all waste is removed from site and disposed of at licenced facilities, with disposal records retained;

will reduce the extent, duration and severity of impacts.

Post-mitigation, the residual impact is reduced to very low significance, with high confidence. No direct impact on aquatic biodiversity is anticipated, and the indirect operational phase impacts are considered acceptable and manageable within the context of the disturbed mining landscape

10.2.2.4 Avifauna

The avifauna specialist confirmed that the proposed Project area is located within an existing mining landscape that has already been substantially transformed by infrastructure, roads, vegetation disturbance and alien plant invasion. No avifauna SCC were recorded within the development footprint during the field survey, and the footprint was verified as having Low to Very Low avifaunal sensitivity. The site does not provide important breeding, nesting or foraging habitat for sensitive bird species, and its habitat value is limited by the disturbed condition of the receiving environment.

During operation, the main avifaunal risks relate not to habitat loss, but to bird interactions with infrastructure, including electrical equipment, perimeter fencing and operational lighting. These impacts are localised but may persist for the life of the Project if not appropriately managed.

During operation, potential impacts on avifauna may arise through:

- Bird electrocution associated with electrical infrastructure;
- Bird collisions with perimeter fencing;
- Disturbance to birds and other fauna caused by artificial lighting; and
- General maintenance activity and human presence in the operational area.

These impacts may affect individual birds moving through or occasionally using the broader area, but are unlikely to result in significant habitat loss or population-level effects given the low avifaunal sensitivity of the footprint and the already disturbed context of the site.

Prior to mitigation, bird electrocution and bird collision impacts are assessed as low significance, while disturbance associated with artificial lighting is assessed as moderate significance. The implementation of mitigation measures as outlined in the EMPr, including:

- Incorporating nest-proofing and anti-perch devices on relevant electrical infrastructure where necessary;
- Installing visibility markers on security fencing where required to improve visibility and reduce collisions;
- Designing and limiting external lighting to minimise impacts on birds and other fauna;
- Directing lighting away from surrounding habitat and sensitive areas; and
- Avoiding lighting types with higher ecological disturbance potential where feasible;

will reduce the extent, duration and severity of impacts.

Post-mitigation, the residual impact is reduced to very low significance, with medium confidence. No irreplaceable avifaunal habitat will be lost during operation, and the anticipated impacts on birds are considered localised, manageable and acceptable within the context of the existing mining environment.

10.2.2.5 Hydropedology

The hydropedology assessment confirmed that the proposed Project area is dominated by recharge-type hydropedological soils, primarily associated with shallow Mispah soil forms, where vertical infiltration and groundwater recharge are the dominant hydrological processes. The broader hillslope system contributes to downstream moisture movement, but the specialist concluded that the proposed development footprint contributes only a very small proportion of the total catchment input. Even under a worst-case scenario, the reduction in moisture contribution to downstream systems was estimated to be less than 1% and was therefore considered negligible at catchment scale.

The receiving environment is already disturbed by mining-related land transformation, and the operational footprint does not contain hydromorphic soils or wetland features. Operational phase

hydropedological risks are therefore largely associated with altered runoff behaviour from hardened surfaces and the possibility of soil or runoff contamination if hazardous materials are not appropriately managed.

During operation, potential impacts on hydropedology may arise through:

- Continued runoff from hardstands and compacted surfaces;
- Alteration of local infiltration characteristics within the footprint;
- Blockage or poor maintenance of drainage infrastructure;
- Storage and handling of hydrocarbons and hazardous materials; and
- Accidental spills during equipment maintenance or refuelling.

These activities may result in localised modification of near-surface hydrological processes and contamination of soils or runoff if not properly managed. However, because the Project footprint represents a very small part of the broader hydrological system, and because upstream recharge remains the dominant driver of downstream moisture conditions, the overall magnitude of impact remains limited.

Prior to mitigation, hydropedology-related impacts associated with runoff, drainage and contamination are assessed as moderate significance. The implementation of mitigation measures as outlined in the EMPr, including:

- Maintaining stormwater infrastructure and ensuring the continued functioning of drains and channels;
- Clearing debris and sediment build-up from drainage systems regularly;
- Storing hydrocarbons and hazardous materials in bunded areas away from drainage pathways;
- Providing spill kits on-site at all times;
- Training personnel in spill response procedures;
- Cleaning up spills immediately; and
- Restricting refuelling to designated contained areas with appropriate spill control measures;

will reduce the extent, duration and severity of impacts.

Post-mitigation, the residual impact is reduced to very low significance, with high confidence. The Project is not expected to materially affect groundwater recharge processes, soil moisture movement or downstream hydrological functioning, and operational phase hydropedological impacts are considered acceptable within the context of the broader disturbed catchment.

10.2.2.6 Heritage Assessment, Including Palaeontology

The heritage specialist confirmed that no archaeological sites, graves, burial grounds, historical structures or palaeontological resources were identified within the proposed Project footprint. Although the broader area contains evidence of earlier settlement and use, no heritage resources as defined in Section 3 of the NHRA were recorded within the actual development area, and the only identified stonewalled structure lies outside the footprint and will not be affected. The SAHRIS Palaeontological Sensitivity Map further classifies the underlying geology as having low palaeontological sensitivity.

Accordingly, the operational phase does not present any anticipated direct impact on known heritage resources. The only relevant operational risk relates to the accidental discovery or disturbance of previously unidentified subsurface heritage or palaeontological resources during routine inspections, preventative maintenance, repair works or future minor excavations associated with the BESS infrastructure.

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

- Routine maintenance activities involving localised excavation or disturbance;
- Preventative maintenance or repair works within previously disturbed ground; and

Accidental damage to previously unidentified archaeological, burial or palaeontological material.

Although this risk is considered low in likelihood, any destruction of unidentified heritage resources would be irreversible if it were to occur. For this reason, the impact is treated conservatively.

Prior to mitigation, the operational phase heritage impact is assessed as high significance, not because known heritage constraints occur within the footprint, but because any damage to unidentified resources would be permanent in nature. The implementation of mitigation measures as outlined in the EMPr, including:

- Implementing a formal CFP throughout the operational life of the Project;
- Requiring work to cease immediately if any heritage material, graves, human remains or fossil material are discovered;
- Securing the affected area and notifying the relevant specialist and heritage authority; and
- Allowing work to resume only once the find has been assessed and the necessary authorisation has been obtained;

will reduce the likelihood and severity of impact substantially.

Post-mitigation, the residual impact is reduced to very low significance, with high confidence. No impacts on known heritage resources are anticipated during operation, and the Project is considered acceptable from a heritage and palaeontological perspective, subject to implementation of the CFP.

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 BS 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 licenced 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: • 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: • 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: • 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: • 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 to failure to	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: • Recontouring disturbed surfaces.	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	
	rehabilitate disturbed areas	site rehabilitation								• 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 • 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: • 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: • 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	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: • 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	Washdown 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 licenced 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: • 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 • 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 licenced waste disposal facilities. Waste disposal documentation must be retained.	4	1	1	-2	-12	1	-12 Very low	High

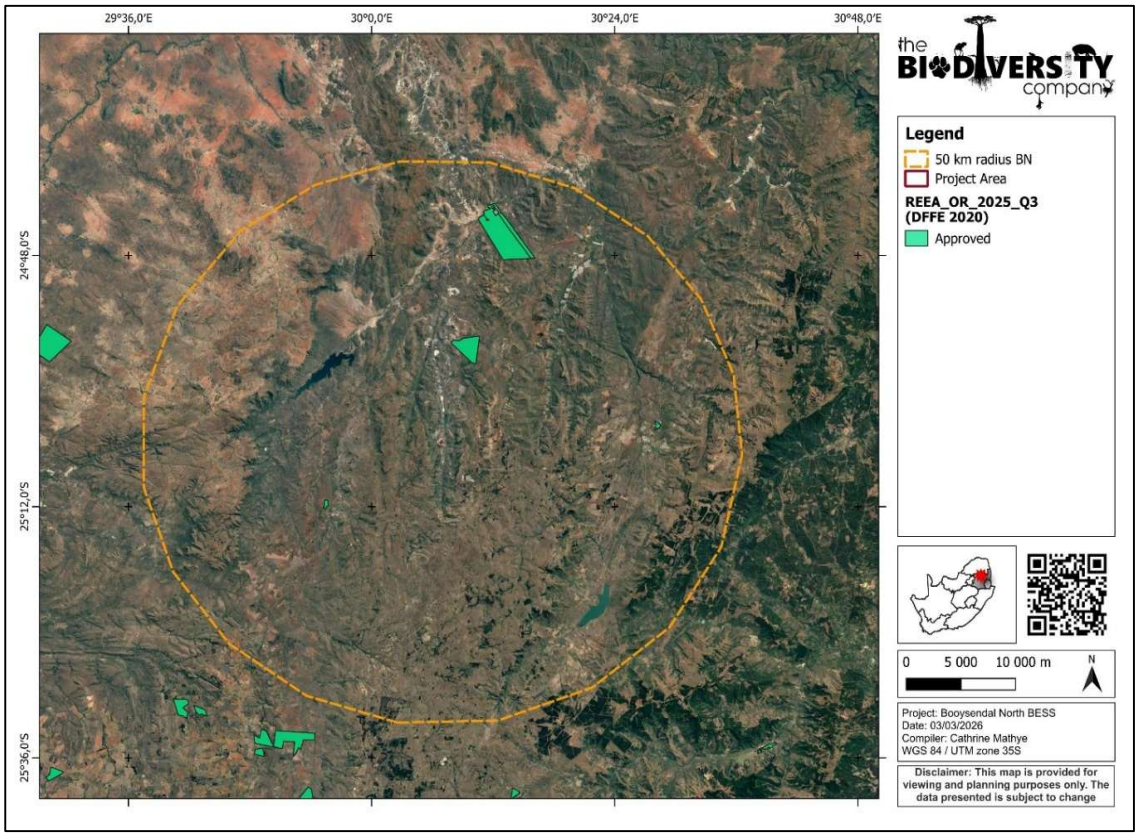
Component Being Impacted On	Activity Which May Cause the Impact	Activity	Pre- Mitigation							Recommended Mitigation Measures	Post- Mitigation							Confidence
			Duration	Extent	Potential for impact on irreplaceable resources	Severity	Consequence	Probability	Significance		Duration	Extent	Potential for impact on irreplaceable resources	Severity	Consequence	Probability	Significance	
	improper waste disposal																	
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

11 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 11-1**).

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 projects[8] in the area of evaluation.



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

Figure 11-1: Cumulative impacts map for the proposed Booysendal North Battery Energy Storage System Project area (The Biodiversity Company, 2026a)

11.1 Agricultural

The cumulative agricultural impact associated with the proposed Project is expected to remain limited, owing to the already disturbed nature of the receiving environment and the generally low agricultural potential of the surrounding landscape. The agricultural specialist confirmed that the site is dominated by Mispah and Johannesburg soil forms, with limited areas of Hutton soils. These soil forms are associated with predominantly Low to Medium land capability, while the broader mining landscape has already been altered through historic and ongoing land disturbance, infrastructure development, vegetation clearing and soil compaction.

From a cumulative perspective, the main potential impacts relate to the combined effect of the proposed Project and other existing or future developments on land capability, soil structure, erosion risk and the continued reduction of already limited agricultural functionality within the wider area. These cumulative effects are most likely to arise where multiple developments result in repeated vegetation clearing, topsoil stripping, compaction from vehicle movement, stormwater concentration and localised contamination from fuels or hazardous substances.

The agricultural specialist assessed the cumulative agricultural impact as medium before mitigation, reducing to low after mitigation **(Table 11-1**), noting that the area within the 50 km radius has already undergone modification and that no highly sensitive or high-value agricultural land occurs within the proposed footprint. The specialist further concluded that, with implementation of the prescribed management measures, the agricultural productivity of the area is not expected to deteriorate further as a result of the proposed Project, and no irreplaceable agricultural resources are anticipated to be lost.

Mitigation of cumulative agricultural impacts must focus on strict footprint control, appropriate topsoil handling, erosion prevention, containment of hydrocarbon risks, stormwater management and progressive rehabilitation of disturbed areas. With these measures in place, the cumulative impact on agricultural resources is considered acceptable and of low residual significance within the context of the existing mining landscape.

11.2 Terrestrial Biodiversity

The cumulative impact on terrestrial biodiversity must be considered within the context of a landscape that has already been substantially transformed by historical and current mining-related activities, access roads, infrastructure expansion, fragmentation and alien invasive plant encroachment. The terrestrial biodiversity specialist confirmed that the proposed Project footprint is located within a largely disturbed environment comprising Modified habitat, Alien Stand and Disturbed Grassland, while the more sensitive Rocky Grassland (Ridge) habitat occurs outside the proposed footprint and is to be avoided together with a recommended 10 m buffer.

Potential cumulative terrestrial biodiversity impacts relate to the combined effects of the proposed Project and other developments in the surrounding area on habitat fragmentation, ongoing vegetation loss, alien invasive species spread, reduced habitat connectivity and disturbance to fauna. These effects may be amplified where multiple projects contribute incrementally to the degradation of remaining natural habitat patches within the broader mining landscape.

Despite this broader context, the terrestrial biodiversity specialist concluded that the cumulative impact of the proposed Project on terrestrial biodiversity is anticipated to be low **(Table 11-1**), primarily because the footprint is already disturbed, no flora or fauna SCC were recorded within the development area, and the layout avoids the habitat of highest ecological importance. The specialist further concluded that, following implementation of mitigation, the integrity and functionality of the remaining natural habitat are not expected to deteriorate further as a result of the proposed development, and no irreplaceable loss of terrestrial biodiversity is anticipated.

Mitigation of cumulative terrestrial biodiversity impacts must include continued avoidance of the Rocky Grassland (Ridge) habitat, strict demarcation of the approved footprint, prevention and active control of alien invasive plant species, restriction of vehicle movement to authorised routes only, and rehabilitation of temporary disturbance areas. On this basis, the cumulative impact on terrestrial biodiversity is considered acceptable and of low residual significance.

11.3 Aquatic Biodiversity

The aquatic biodiversity specialist confirmed that no wetlands, drainage lines, rivers, hydromorphic soils or other freshwater ecosystem features occur within the proposed Project footprint. Although the Screening Tool identified higher aquatic sensitivity at regional scale due to the presence of broader FEPA and Ecological Support Area features, field verification confirmed that these sensitivities do not translate into direct aquatic constraints within the actual development area.

In cumulative terms, the proposed Project is therefore not expected to contribute meaningfully to broader freshwater ecosystem loss or fragmentation, as no aquatic features will be directly impacted by the development. The only potential cumulative aquatic effects would arise indirectly through the combined influence of multiple developments on stormwater quality, sediment transport and pollution risk within the wider landscape, particularly where construction and operational runoff are poorly managed.

However, given the absence of watercourse features within the footprint, the aquatic specialist concluded that no impacts on freshwater resources are anticipated from the proposed Project in isolation, and that the cumulative impact on freshwater resources is expected to be low **(Table 11-1**). The specialist further noted that no theme-specific mitigation is required in relation to freshwater systems, although implementation of general environmental best practice during construction and operation remains advisable.

Accordingly, the cumulative aquatic biodiversity impact is considered low and acceptable, provided

that standard good housekeeping measures, stormwater controls and pollution prevention practices are maintained throughout the life of the Project.

11.4 Avifauna

The cumulative avifaunal impact of the proposed Project must be considered within the context of an already disturbed mining landscape where habitat transformation, infrastructure development, alien vegetation and human activity have reduced the ecological value of the area for sensitive bird species. The avifauna specialist confirmed that the footprint comprises predominantly disturbed or modified habitat with Low to Very Low avifaunal sensitivity, and that no avifauna SCC were recorded within the development footprint during the field assessment.

Potential cumulative impacts on avifauna may arise through the combined effect of the proposed Project and other developments on habitat disturbance, increased infrastructure-related collision and electrocution risks, artificial lighting effects and the incremental reduction of suitable habitat within the wider area. These impacts are particularly relevant where multiple mining or energy-related projects introduce fencing, electrical infrastructure and operational lighting into the landscape.

Notwithstanding these broader pressures, the avifauna specialist concluded that the cumulative impact of the proposed Project on avifauna is anticipated to be low **(Table 11-1**), given the already disturbed nature of the site, the absence of confirmed SCC within the footprint, and the limited habitat value of the development area. The specialist further indicated that, with implementation of mitigation, the integrity and functionality of avifaunal habitat are not expected to deteriorate further as a result of the proposed Project.

Mitigation of cumulative avifaunal impacts should include pre-construction checks for nesting activity where relevant, appropriate design of electrical infrastructure to reduce electrocution risk, installation of visibility enhancement measures on fencing where required, minimisation and shielding of artificial lighting, and the prohibition of hunting or disturbance of fauna by site personnel. With these measures in place, the cumulative avifaunal impact is considered acceptable and of low residual significance.

11.5 Hydropedology

The hydropedology assessment confirmed that the proposed Project area is characterised predominantly by shallow recharge soils, particularly the Mispah soil form, within a hillslope system where vertical infiltration and recharge to groundwater stores are the dominant hydropedological processes. The specialist found that the adjacent water resources derive most of their moisture from upstream catchments to the north-west and north-east, rather than from the limited local footprint of the proposed Project.

In cumulative terms, the primary concern is the potential combined effect of the proposed Project and other existing or future developments on infiltration capacity, shallow lateral flow paths, surface

runoff generation and the moisture regime of downstream valley bottom systems. Such impacts may arise where multiple hardstand areas, excavations, trenches or compacted surfaces cumulatively reduce infiltration and alter natural hillslope water movement.

However, the hydropedology specialist concluded that the proposed development will have an acceptable and minimal impact on recharge and lateral soil water movement within the local catchment. Even under a worst-case scenario, the potential reduction in moisture contribution to downstream valley bottom wetlands or watercourses was estimated to be less than 1% of the total catchment water regime. The specialist therefore concluded that negligible losses of total streamflow and groundwater recharge are expected at catchment scale **(Table 11-1**).

Mitigation of cumulative hydropedological impacts should focus on proper stormwater management, minimising unnecessary compaction, ensuring suitable design and management of trenches and impermeable surfaces, and preventing ponding, uncontrolled runoff and drainage concentration. On this basis, the cumulative hydropedological impact is considered very low to negligible, and acceptable within the broader catchment context.

11.6 Heritage Assessment, Including Palaeontology

The heritage findings indicate that no archaeological, historical, burial or palaeontological resources were identified within the proposed Project footprint. Although the broader Dwarsrivier Valley and surrounding Booysendal area contain evidence of Stone Age, Iron Age and historical period occupation, these resources occur outside the development footprint and will not be directly affected by the proposed Project. The underlying geology is also classified by the SAHRIS Palaeontological Sensitivity Map as having low palaeontological sensitivity, and no fossil material or palaeontological indicators were recorded during the field assessment.

From a cumulative perspective, the main potential impact would relate to the incremental loss of undiscovered subsurface heritage resources where multiple developments in the broader mining landscape involve repeated excavation and land disturbance. However, in the case of the proposed Project, no heritage resources have been identified within the footprint, and the development is located within an already disturbed mining area. The Project is therefore not expected to contribute materially to cumulative heritage loss in the wider landscape **(Table 11-1**).

Provided that a CFP is implemented during construction, operation and decommissioning, any previously unidentified archaeological, burial or palaeontological material encountered during earthworks can be appropriately managed. On this basis, cumulative impacts on heritage and palaeontological resources are expected to be very low, and the Project is considered acceptable from a heritage perspective.

11.6.1 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.

11.6.2 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 11-1: 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

12 ENVIRONMENTAL MANAGEMENT PROGRAMME

The EMPr provides a structured framework for managing and monitoring the environmental aspects associated with the proposed BS 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 12-1: 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	All personnel must undergo Mine induction, including environmental training before commencing work on-site. The environmental site specific training must include: • 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.	Project Team Contractor	Induction and environmental training compliance	Prior to site entry and periodically	Signed training registers
Environmental non-compliance due to lack of environmental supervision	An Environmental Officer (EO) must monitor compliance with the EMPr. The EO must: • 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	Environmental signage must be installed on-site indicating: • 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
Vegetation loss caused by clearing outside the approved footprint	Development areas must be clearly demarcated prior to construction using fencing, tape or markers. Clearing of vegetation must occur strictly within the	Project Team Contractor	Vegetation disturbance	Ongoing	Site inspection records

Potential Impact / Source of Impact	Impact Management Actions (Mitigation Measures)	Responsible Party	Monitoring Aspect	Frequency	Evidence of Compliance
	authorised footprint. No disturbance of indigenous vegetation outside the development area may occur.				
Habitat disturbance due to uncontrolled construction activities	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.	Project Team Contractor	Habitat disturbance	Throughout construction	Inspection reports
Habitat disturbance caused by creation of unnecessary access routes	Existing access routes must be used wherever possible. If new access routes are required, they must: • Be approved, by the Mine, prior to construction. • Follow existing disturbed corridors where possible. • Avoid sensitive vegetation areas.	Project Team Contractor	Access route disturbance	Ongoing	Site inspection records
Excessive vegetation clearing during site preparation	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.	Project Team Contractor	Vegetation clearance	Ongoing	Photographic evidence
Habitat degradation due to failure to rehabilitate disturbed areas	Areas disturbed during construction that are not required for permanent infrastructure must be rehabilitated. Rehabilitation measures must include: • Recontouring disturbed surfaces. • Stabilising soils. • Re-establishing vegetation using indigenous species where possible.	Project Team Contractor	Rehabilitation success	Periodic	Rehabilitation monitoring records
Spread of alien invasive plants due to soil disturbance	Alien invasive plants must be monitored and removed regularly. Control measures must include • 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
Soil erosion caused by vegetation removal and earthworks	Soil disturbance must be minimised and erosion control measures implemented where necessary. Measures include:	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
	• 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	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.	Project Team Contractor	Sediment control	Throughout construction	Inspection reports
Uncontrolled stormwater runoff from disturbed surfaces	Stormwater management measures must be implemented including: • 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	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.	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	Dust suppression measures must be implemented including: • 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	Washdown 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	Washdown 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 licenced 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 12-2: 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: • 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 • 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 and 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 licenced 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 12-3: 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

13 DETAILS OF THE PUBLIC PARTICIPATION PROCESS FOLLOWED

13.1 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 Booysendal 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 Booysendal, 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).

13.2 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.

13.3 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.

13.3.1 Development of Stakeholder Database

An existing stakeholder database obtained from Booysendal 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.**

13.3.2 Public Participation Media

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

13.3.2.1 Publication of Newspaper Advertisement

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**

13.3.2.2 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.**

13.3.2.3 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**.

13.3.2.4 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 13-1** 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 13-1: 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, Limpopo
Ngwaabe Home Based Care	Ga-Rantho/Ga-Masha, Ngwaabe area, Limpopo
Bakoni Ba Phetla Royal Kraal*	Ga-Phetla Village, Sticskop Makgotheng, Fetakgomo Tubatse Local Municipality
Chrome Valley Lodge*	Tweefontein Farm, Tweefontein Road, Steelpoort, 1133 ***Reports are available at this venue Monday to Friday 08h00 to 16h00.***
Electronic copies:	
GCS Website	https://www.gcs-sa.biz/public-documents/

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

13.3.2.5 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**.

13.3.2.6 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 of **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**.

13.3.2.7 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 Appendix G of **APPENDIX J.**

***13.3.3** 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 **Table 13-2** below.

Table 13-2: 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
Booysendal 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
Booysendal 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
Booysendal 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**.

13.3.4 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.

13.3.5 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.
  - 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 licenced 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 13-1** for the locations where the Draft SSVR and EMPr were made available, additional locations have been added.

13.3.6 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.

14 CONCLUSION

The proposed BS BESS Project has been assessed in accordance with the requirements of the BESS Exclusion Norm, the relevant provisions of NEMA, and accepted environmental assessment practice. The assessment confirms that the proposed development footprint is located within an existing disturbed mining environment and that the site specific environmental sensitivities within the footprint are Low to Medium.

The specialist investigations confirmed that the footprint does not contain wetlands, drainage lines, or other freshwater ecosystem features; does not support confirmed flora, fauna or avifauna SCC within the development area; and does not contain archaeological, burial, historical or palaeontological resources. The development also avoids the higher sensitivity terrestrial habitat identified in the broader area, while the hydropedology assessment confirmed that the Project is unlikely to materially affect groundwater recharge, soil moisture movement or downstream watercourse functioning.

The impact assessment found that the potential environmental impacts associated with the construction, operation and decommissioning phases are predominantly low in significance prior to mitigation and can be reduced to very low or low residual significance through implementation of the prescribed mitigation and management measures. No fatal flaws or material environmental constraints were identified that would preclude the development of the proposed Project.

The cumulative impact assessment similarly found that, within the context of the broader disturbed mining landscape, the Project is not expected to result in unacceptable cumulative effects. In addition, the Final Rehabilitation, Decommissioning and Mine Closure Plan provides for the removal of infrastructure, rehabilitation of disturbed areas, and restoration of the site to a stable, non-polluting condition compatible with the surrounding post-mining environment.

Based on the findings of this SSVR and EMPr, the proposed Project is considered environmentally acceptable and compliant with the requirements of the BESS Exclusion Norm. It is therefore recommended that the Project proceed to registration with the competent authority, subject to the implementation of the mitigation, monitoring and rehabilitation measures set out in this report.

15 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: AGRICULTURAL 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 PALAEONTOLOGY

APPENDIX I: FINAL REHABILITATION, DECOMMISSIONING AND MINE CLOSURE PLAN

APPENDIX J:PUBLIC PARTICIPATION REPORT