

DRAFT SITE VERIFICATION REPORT

FOR THE PROPOSED ADDITION OF THREE SYNCHRONOUS CONDENSERS TO THE EXISTING GAMMA SUBSTATION AND ITS ASSOCIATED INFRASTRUCTURES WITHIN JURISDICTION OF THE UBUNTU LOCAL MUNICIPALITY, UNDER THE PIXLEY KA SEME DISTRICT MUNICIPALITY, IN THE NORTHERN CAPE PROVINCE.

Prepared For:

National Transmission Company South Africa SOC (Ltd)
2 Maxwell Drive, Megawatt Park, Sunninghill, Sandton, 2157

Prepared By:

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July 2026

DOCUMENT SYNOPSIS

Item	Description		
Proposed development and location	For the proposed addition of three synchronous condensers to the existing Gamma substation and its associated infrastructures within the jurisdiction of the Ubuntu Local Municipality, under the Pixley Ka Seme District Municipality, in the Northern Cape Province.		
Purpose of the study	Site Verification Report for the Amendment of the Environmental Authorisation reference: 12/12/20/873 and its amendment (Ref. No.: 12/12/20/873/AM) for the proposed addition of three synchronous condensers to the existing Gamma substation and its associated infrastructures within the jurisdiction of the Ubuntu Local Municipality, under the Pixley Ka Seme District Municipality, in the Northern Cape Province.		
Municipalities	Ubuntu Local Municipality		
Predominant land use of the surrounding area	Electricity transmission grid, Wind and Solar energy plants		
Applicant	National Transmission Company South Africa SOC (Ltd)		
Prepared for:	National Transmission Company South Africa SOC (Ltd) 2 Maxwell Drive, Megawatt Park, Sunninghill, Sandton, 2157		
Prepared by:	QEMS Management and Business Solutions cc 7 Munnik Avenue, Sterkpark, Polokwane, 0699		
Date of Report	July 2026		
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Date: 02 July 2026	Signature: 	Signature: 	Signature: 

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TABLE OF CONTENTS	
CONFIDENTIALITY CLAUSE	iii
LIST OF FIGURES	v
LIST OF TABLES	v
SECTION ONE: EXECUTIVE SUMMARY	1
1.1 INTRODUCTION AND OUTLINE.....	1
1.2 PURPOSE OF THE REPORT	2
1.3 TERMS OF REFERENCES	2
1.4 ASSUMPTIONS AND LIMITATIONS	3
1.5 METHODOLOGY	4
SECTION TWO: ENVIRONMENTAL ASSESSMENT PRACTITIONERS	4
2.1 DETAILS OF THE EAP	4
2.2 EXPERTISE OF THE EAP	4
SECTION THREE: THE PROPOSED DEVELOPMENT/PROJECT	5
3. DESCRIPTION OF PROPOSED AMENDMENTS	5
3.1. ENVIRONMENTAL FEATURES	5
3.1.1 Vegetation.....	5
3.2.1 Geology and Soils.....	6
3.2.1 Climate	7
3.3.1. Land use	8
3.2. HISTORICAL IMAGES	10
3.3. SITE PHOTOGRAPHS	11
SECTION FOUR: PROJECT LEGAL REQUIREMENTS	13
4.1 NEMA	13
4.2 LISTED ACTIVITIES TRIGGERED.....	15
4.3 NWA	15
SECTION FIVE: DFFE SCREENING TOOL REPORT (STR) FINDINGS	16
5.1 STR FINDINGS	16
5.1.2 Environmental Themes that are sensitive to the development	16
5.2 VERIFICATION OF STR FINDINGS	16
5.2.1 STR Findings, Environmental sensitivity theme, Desktop analysis results, and EAP comments.....	17
SECTION SIX: POTENTIAL IMPACTS FROM THE PROPOSED DEVELOPMENT	26
6.1 INTRODUCTION	26
6.3. SPECIALIST STUDIES RECOMMENDED BY THE STR	28

6.4. SPECIALIST STUDIES COMMISSIONED (DEEMED NECESSARY)	29
SECTION EIGHT: ANY FATAL FLAWS	29
SECTION NINE: ASSUMPTIONS AND LIMITATIONS	29
SECTION TEN: CONCLUSIONS	30

LIST OF FIGURES

Figure 1: Vegetation map of the site	6
Figure 2: Geology Map	7
Figure 3: Gamma Substation site temperatures and rainfall between 2012 and 2022 (NASA).	8
Figure 4: Landuse Map	9
Figure 5: Historical image showing vegetation cover during 2017	10
Figure 6: Historical image showing vegetation cover during 2021	10
Figure 7: Historical image showing vegetation cover during 2026	11
Figure 8: Gamma substation	11
Figure 9: Current vegetation on site	12
Figure 10: Access Road	12
Figure 11: Part 2 Amendment Process	14

LIST OF TABLES

Table 1: Triggered listed activities	15
Table 2: Water Use Activities Triggered under NWA	15
Table 3: STR Specified Environmental Themes and required specialist studies	16
Table 4: Sensitivity Theme 1: Agricultural	17
Table 5: Sensitivity Theme 2: Animal Species	18
Table 6: Sensitivity Theme 2: Aquatic Biodiversity	19
Table 7: Sensitivity Theme 4: Archaeological and Cultural Heritage	20
Table 8: Sensitivity Theme 5: Civil Aviation	21
Table 9: Sensitivity Theme 6: Defence	22
Table 10: Sensitivity Theme 7: Palaeontology	23
Table 11: Sensitivity Theme 7: Plant Species	24
Table 12: Sensitivity Theme 8: Terrestrial Biodiversity	25

SECTION ONE: EXECUTIVE SUMMARY

1.1 INTRODUCTION AND OUTLINE

Quality Environmental and Business Management Solution cc (QEMS) has been appointed by The National Transmission Company South Africa (NTCSA) to prepare and submit an application for the amendment of the Environmental Authorisation. This amendment application is undertaken in accordance with the provisions of Chapter 5, Part 2 (Regulations 31–32) of the Environmental Impact Assessment Regulations, 2014, promulgated under the National Environmental Management Act, 1998 (Act No. 107 of 1998). The amendment pertains to the proposed installation of synchronous condensers and the development of associated infrastructure at the Gamma Substation.

Eskom Holdings SOC Ltd, South Africa's state-owned power company, has historically relied on large coal-fired power stations and a few hydro plants for electricity generation. The national grid, primarily consisting of 400 kV and 765 kV overhead lines, transmits power across the country.

To enhance grid reliability amid growing renewable energy adoption, the National Transmission Company South Africa SOC Ltd (NTCSA), a subsidiary of Eskom, plans to implement Synchronous Condensers. These devices will provide auxiliary services, increase rotating inertia, and compensate for the decommissioning of coal power stations, improving grid stability. Currently, seven substations have been identified for this initiative. Gamma Substation is one of the identified. To achieve this NTCSA intends to add the Synchronous Condensers (SynCons) with the purpose to provide the stability to the transmission grid effectively allowing the utility to increase the amount of power to the existing Gamma Substation and its associated infrastructures.

Section 24(5)(h) of the NEMA and regulation 16 (1)(b)(v) of the EIA Regulations of 2014 also requires the submission of national web based environmental screening tool report (GNR. 960 / 05 July 2019), when applying for an environmental authorisation in terms regulation 19 and 21 of the EIA Regulations of 2014. The Screening Tool Report (STR) is generated from the DFFE's national online GIS-based 'National web-based Environmental Screening Tool' and provides detail on the environmental sensitivity, restriction, exclusion or prohibition zones and specific requirements, including specialist studies that are applicable to a proposed

development site, based on the national sector classification and the environmental sensitivity of the site.

Before commencing with the application for an EA amendment and specialist assessments, the current land use and environmental sensitivity of the site under consideration, as identified in the STR, must be confirmed by undertaking site sensitivity verification. A Site Sensitivity Verification Report (SVR) is then required in response to the STR through the 'Protocols for Assessment and Minimum Report Content Requirements for Environmental Themes for Activities requiring Environmental Authorisation published in Government Notice Regulation 320 of 20 March 2020 under Section 24 (5)(a), (h) and 4 of the NEMA.

This is the SVR which verifies the data contained in the DFFE STR compiled for the proposed development project.

1.2 PURPOSE OF THE REPORT

This report provides an overview of the following:

- Project location, description and required services;
- DFFE Screening Tool outcomes and identified environmental sensitivity themes related to the project site and type;
- Desktop based analysis of available GIS Databases;
- Motivation and evidence (photos) of either the verified / different use of the land and environmental sensitivity identified in the STR;
- A confirmation / refute on the need for the various specialist study inputs required by STR; and
- Any potential fatal flaws that may render the development undesirable at the project location.

1.3 TERMS OF REFERENCES

The general requirements for site sensitivity verification for activities requiring environmental authorisation have been published in Government Notice Regulation 320 of 20 March 2020 under Section 24 (5)(a), (h) and 4 of the NEMA.

GNR 320 requires that prior to commencing with any specialist assessment for the EIA Study, the current land use and the environmental sensitivity of the site under consideration as identified by the national web based environmental screening tool (screening tool), must be

confirmed by undertaking a site sensitivity verification. The site sensitivity verification must be undertaken by an environmental assessment practitioner or a specialist.

The site sensitivity verification must be undertaken through the use of:

- a) A desktop analysis, using satellite imagery or any available means;
- b) A Preliminary on-site inspection; and
- c) Any other relevant information.

The outcome of the site verification must be recorded in the form of a report that:

- a) Confirms or disputes the current use of land and the environmental sensitivity as identified by the screening tool, such as new developments or infrastructure, the change in vegetation cover or status etc.;
- b) Contains a motivation and evidence (e.g. photographs) of either the verified or different use of the land and environmental sensitivity; and
- c) Is submitted with the relevant assessment report in accordance with the requirements of the EIA Regulations.

1.4 ASSUMPTIONS AND LIMITATIONS

The spatial data contained in the National web-based Environmental Screening Tool' used to generate the STR, according to DFFE has been collected as accurately as possible. Although the greatest care has been taken to ensure that the data is up to date and spatially accurate, the Department of Forestry, Fisheries and the Environment (DFFE) formerly known as the Department of Environmental Affairs (DEA) and its entities give no warranty, express or implied, as to the accuracy, reliability, utility or completeness of this data.

The spatial data used for the environmental screening purposes, used to generate the STR, has been collected from various data sets and sources and its correctness cannot be guaranteed. The data base is updated over time and can change without notice. Given the limitation, it is essential to independently verify the data contained in the report on-site. Discrepancies have been identified between the STR and the onsite verification and are detailed in the sections below.

1.5 METHODOLOGY

QEMS conducted a desktop analysis; using satellite imagery of the project site including the GIS historical vegetation covers for specific years (2017, 2021 and 2026) and generating a STR for the project site. The findings of the STR have been verified through a site inspection on 20 January 2026.

SECTION TWO: ENVIRONMENTAL ASSESSMENT PRACTITIONERS

2.1 DETAILS OF THE EAP

The on-site sensitivity verification was undertaken by Dr Patrick Sithole on the 20 January 2026, Adivhaho Vhulahani prepared the Site Verification Report (SVR) for the site. The details are provided below:

QEMS Management and Solutions cc

7 Munnik Avenue, Sterpark

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2.2 EXPERTISE OF THE EAP

A Registered natural scientific professional (SACNASP – Environmental and Chemical scientist), Registered Environmental Assessment Practitioner (EAPASA), social and sustainability expert with 22 years of experience. Patrick Sithole specialises in Strategic Environmental, Social and Sustainable Development projects, Climate Change and Health, Environmental Management issues and Construction Supervision of all infrastructural projects. Dr Sithole is also involved in vegetation clearance and pest control projects along infrastructural projects e.g. roads, railway lines, power lines, golf courses and buildings like complexes, houses, malls, etc. Patrick has a very strong business development mindset that has seen him winning and working on projects across Africa and in Europe. His key experience includes the following areas; Environmental (Natural Resource) Management; Environmental Compliance; Social Facilitation and Consultation; Compensation of Land Claims; Climate Change; Climate (Change) and Human Health; Air Quality Management; Renewable Energy; Waste Management; Land Rehabilitation; Water Quality/Demand Management; Strategic Environmental Assessment; Waste Water (sewer) Treatment; Project Management; ISO 9001 and ISO14001; Vegetation Control Bush Clearance (Invasive plants).

SECTION THREE: THE PROPOSED DEVELOPMENT/PROJECT

3. DESCRIPTION OF PROPOSED AMENDMENTS

The current Environmental Authorisation (EA) for the Gamma Substation was originally approved on 09 November 2007 (Ref. No.: 12/12/20/873). The EA was subsequently amended in 2023 (Ref. No.: 12/12/20/873/AM3) to accommodate the construction of the 400/132 kV yard and associated powerline infrastructure. This amendment included updates to the substation layout and associated powerline turn-in infrastructure to facilitate the integration of renewable energy into the substation. The 400/132 kV development footprint was assessed as part of the powerline and grid connection infrastructure associated with the following authorised projects:

- Umsinde Emoyeni Wind Energy Facility (DFFE Ref. No.: 14/12/16/3/3/2/686)
- Khangela Emoyeni Wind Energy Facility (DFFE Ref. No.: 14/12/16/3/3/2/687)
- Ishwati Emoyeni Wind Energy Facility (DFFE Ref. No.: 12/12/20/2351)

To enhance grid reliability in response to the increasing integration of renewable energy, NTSCA now proposes the addition of three Synchronous Condensers and their associated infrastructure at the Gamma Substation. These components were not included in the activities authorised under the original EA dated 09 November 2007, nor in the subsequent amendment(s).

Accordingly, NTSCA seeks to amend the existing Environmental Authorisations to include the proposed Synchronous Condensers. The proposed change constitutes a Part 2 Amendment in terms of the Environmental Impact Assessment Regulations 2014, as it involves the expansion of previously authorised infrastructure and the inclusion of activities not covered under the existing authorisation.

3.1. ENVIRONMENTAL FEATURES

3.1.1 Vegetation

The existing Gamma Substation and the proposed areas for the addition of the synchronous Condensers fall within the Eastern Upper Karoo vegetation types (Figure 1) of Nama Karoo

Biome (SANBI, VEGMAP, 2018). Eastern Upper Karoo it is one of the key ecological regions in the arid interior of the country, found in the Eastern Cape, Northern Cape, and Free State provinces it covers large parts of the Upper Karoo plateau. The dominant vegetation are mainly low shrubs and grasses adapted to dry conditions. Common shrubs are: *Pentzia incana* (Karoobossie), *Eriocephalus ericoides* (Kapokbos) and *Rosenia humilis*. Common grasses are: *Stipagrostis ciliata*, *Aristida diffusa* and *Themeda triandra* (Red Grass, in better soils).

This implies that even though the proposed expansion site is dominated by the shrubs and grasses, they are not highly sensitive to the proposed development. In terms of the conservation, some areas are threatened by overgrazing leading to desertification in some areas and climate change affecting rainfall and vegetation cover.

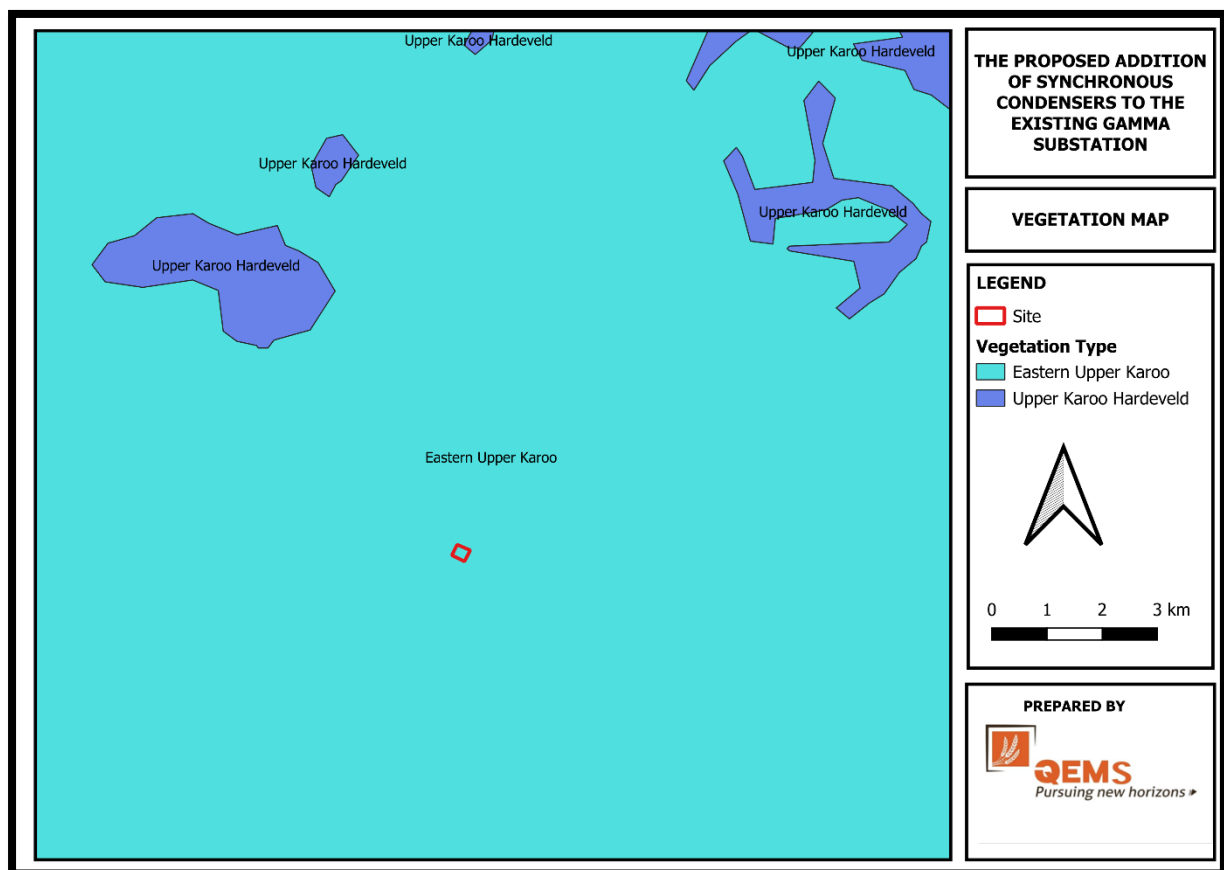


Figure 1: Vegetation map of the site

3.2.1 Geology and Soils

The proposed area falls within the Middleton Formation group and is characterized by a distinct lithological composition that prominently features brownish-red and greenish-grey mudstone (Figure 4) The soils in the vicinity of the Gamma Substation are typically derived from the

Middleton Formation are Clay-rich soils due to mudstone weathering, Shallow well-drained soils on rocky outcrops, Moderate fertility but prone to erosion if disturbed and Dark-coloured Vertisols may form in low-lying areas. The Middleton Formation has paleontological significance as it contains fossils of early therapsids (mammal-like reptiles), and it is important for studying Permian-Triassic extinction events. For geotechnical aspects the clay-rich soils can expand and shrink, affecting building foundations, however they have moderate stability for construction but requires proper drainage.

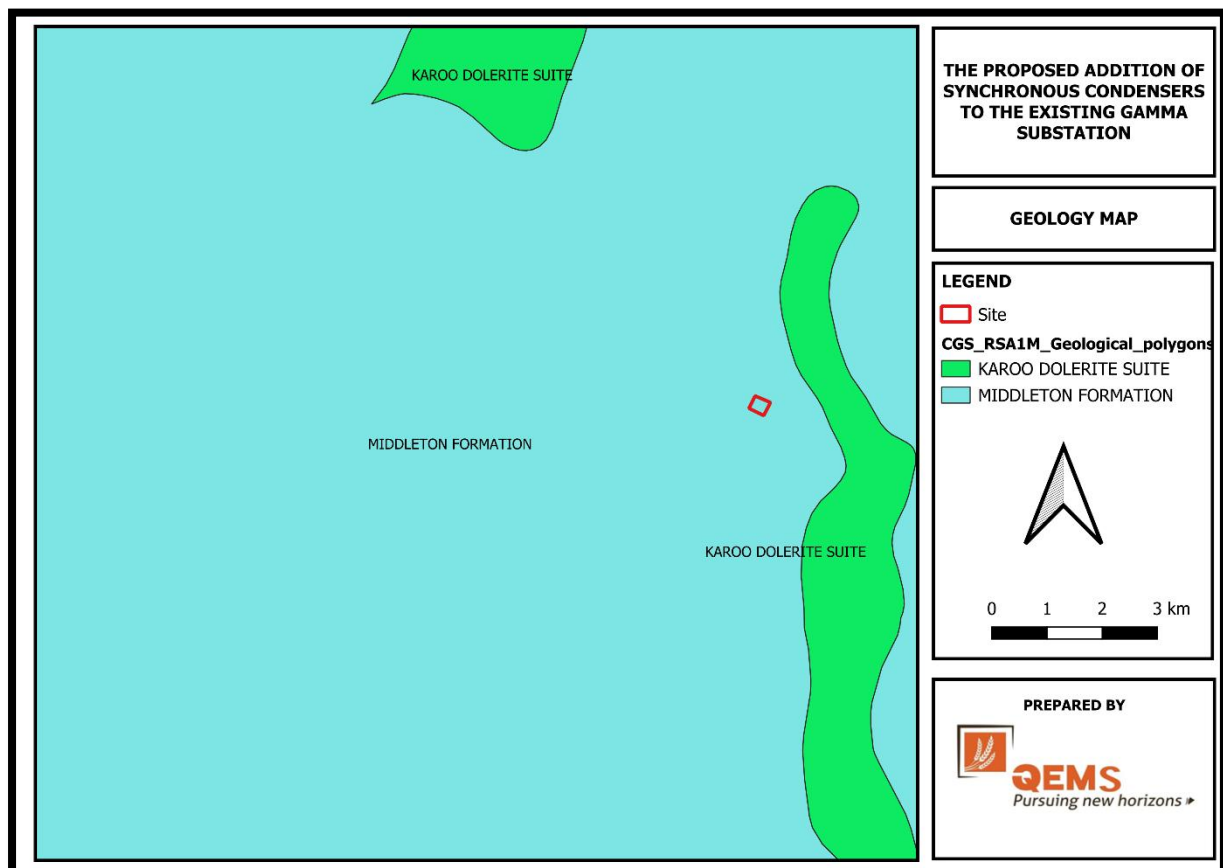


Figure 2: Geology Map

3.2.1 Climate

The Gamma Substation is situated in the Northern Cape province of South Africa, a region characterized by an arid to semi-arid climate. The area receives minimal rainfall, averaging less than 300 millimeters per annum. This scarcity of precipitation contributes to the province's arid conditions. Temperature variations are notable, with summer highs frequently exceeding 30°C (86°F) and occasionally surpassing 40°C (104°F). Winters are typically frosty and clear, with southern areas sometimes experiencing bitter cold.

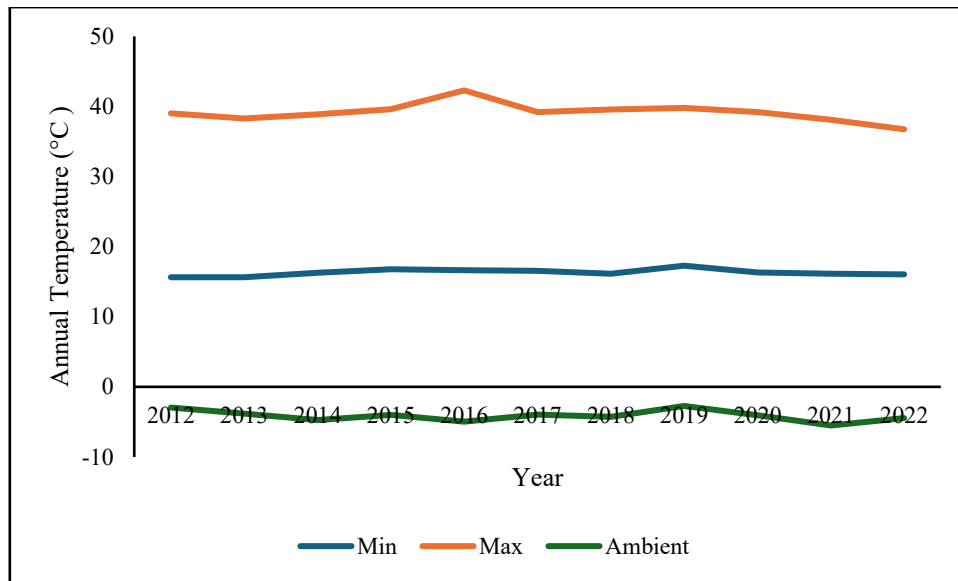


Figure 3: Gamma Substation site temperatures and rainfall between 2012 and 2022 (NASA).

3.3.1. Land use

The proposed area is dominated by low shrub (Nama Karoo) with few patches of natural grassland and bare surface (Figure 6) (DFFE South African National Land Cover, 2022). Furthermore, the area is occupied by transmission powerlines emerging from the existing Gamma Substation.

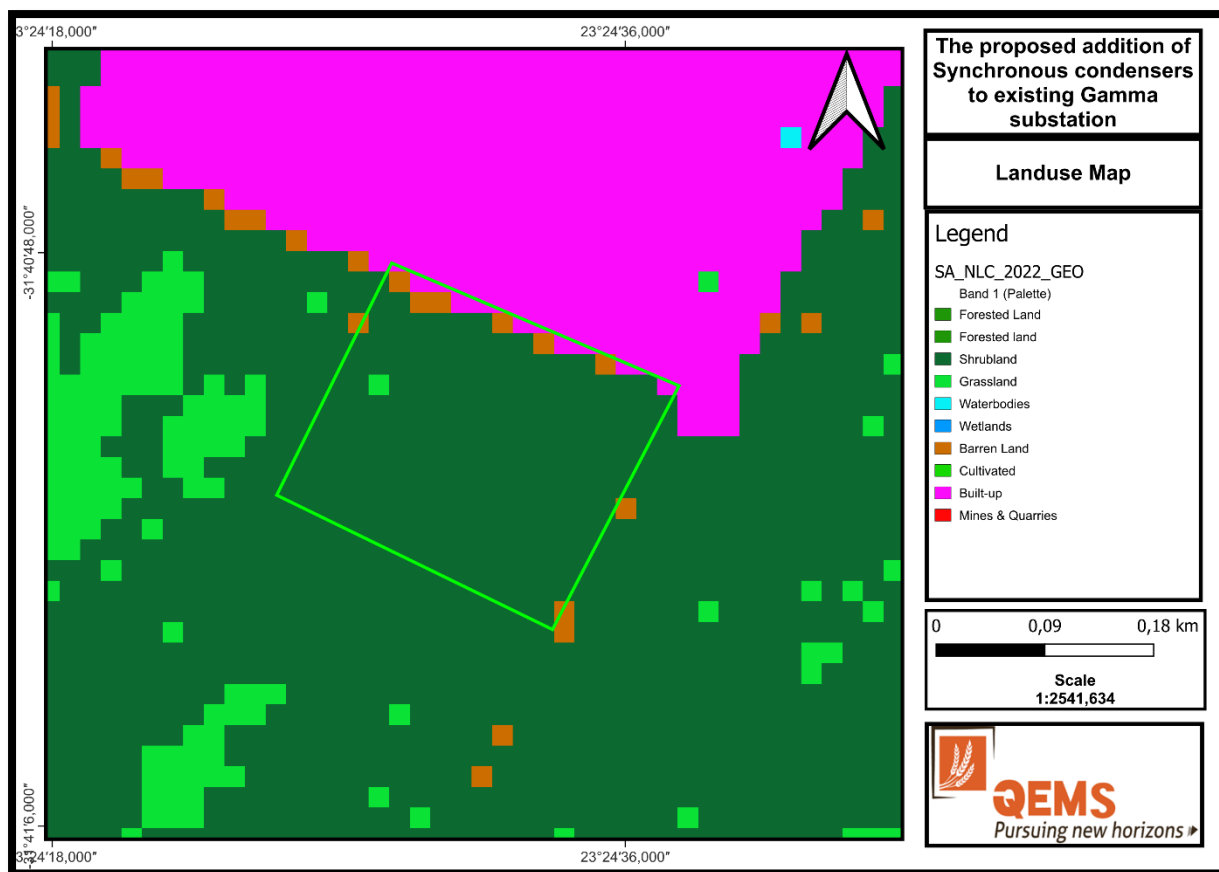


Figure 4: Landuse Map

3.2. HISTORICAL IMAGES

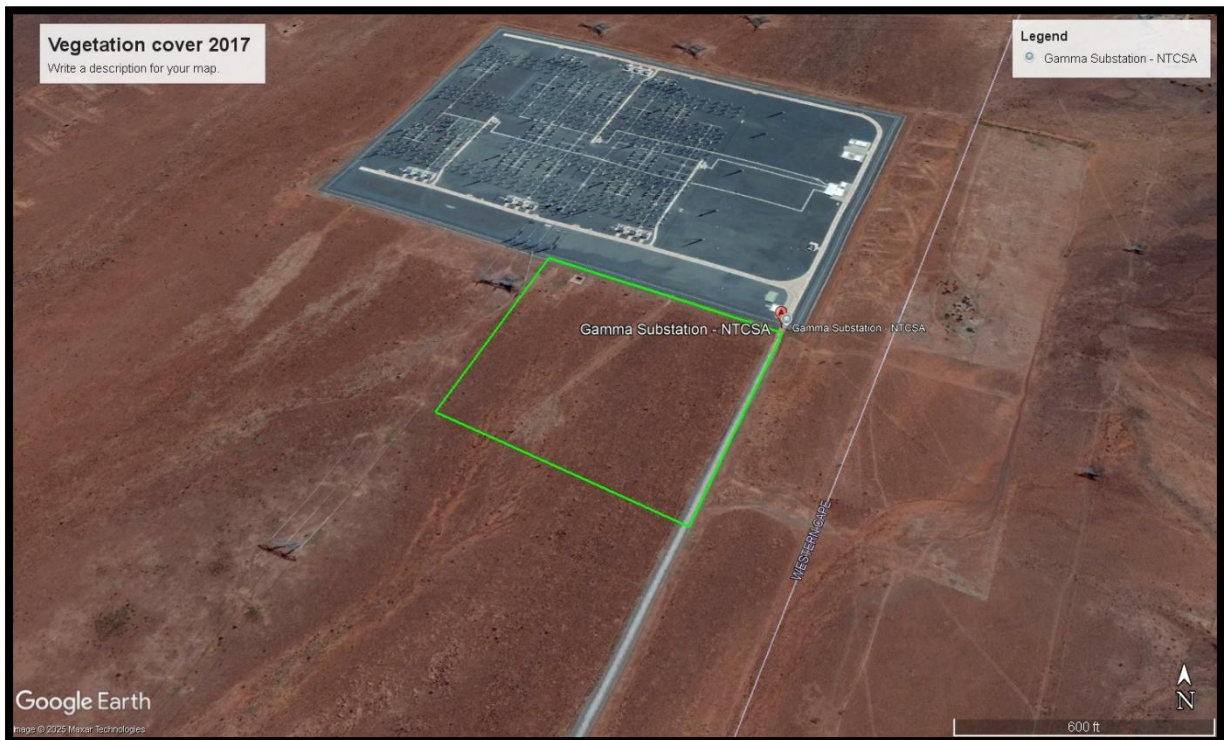


Figure 5: Historical image showing vegetation cover during 2017



Figure 6: Historical image showing vegetation cover during 2021



Figure 7: Historical image showing vegetation cover during 2026

3.3. SITE PHOTOGRAPHS



Figure 8: Gamma substation



Figure 9: Current vegetation on site



Figure 10: Access Road

SECTION FOUR: PROJECT LEGAL REQUIREMENTS

4.1 NEMA

The proposed amendment will be applied for as per the EIA Regulations 2014 (As amended) as promulgated under the National Environmental Management Act (NEMA, Act No. 107 of 1998, as amended). Section 31 and 32 of these regulations outline a Part 2 Amendment (amendments where a change in scope occurs) and require the new scope of the development to be assessed from an environmental perspective. As such, the proposed changes to the approved development require an application for an amendment to the existing EAs, prior to commencement of construction and operation. The process of the Part 2 Amendment is outlined in Figure 11.

In compliance with the requirements of a Part 2 Amendment in terms of Section 32(1) of the Environmental Impact Assessment Regulations, 2014 (as amended), the potential impacts associated with the proposed addition of the Synchronous Condensers and their associated infrastructure need to be identified and assessed as part of this amendment process. Where necessary, specialist studies will be required to be undertaken, and the findings need to be incorporated into the relevant assessment reports.

The competent authority for this application is the Department of Forestry, Fisheries and the Environment (DFFE), which issued the original Environmental Authorisation (EA) and its EA amendment for the construction of the Gamma Substation.

Section 32 (1) of the 2014 EIA Regulations (as amended) requires that a report reflecting the details of the amendment is submitted to the competent authority within 90 days of acknowledgement of the application form, which includes the following:

- (i) An assessment of all impacts related to the proposed change;
- (ii) Advantages and disadvantages associated with the proposed change; and
- (iii) Measures to ensure avoidance, management, and mitigation of impacts associated with such proposed change; and
- (iv) Any changes to the Environmental Management Programme (EMPr).

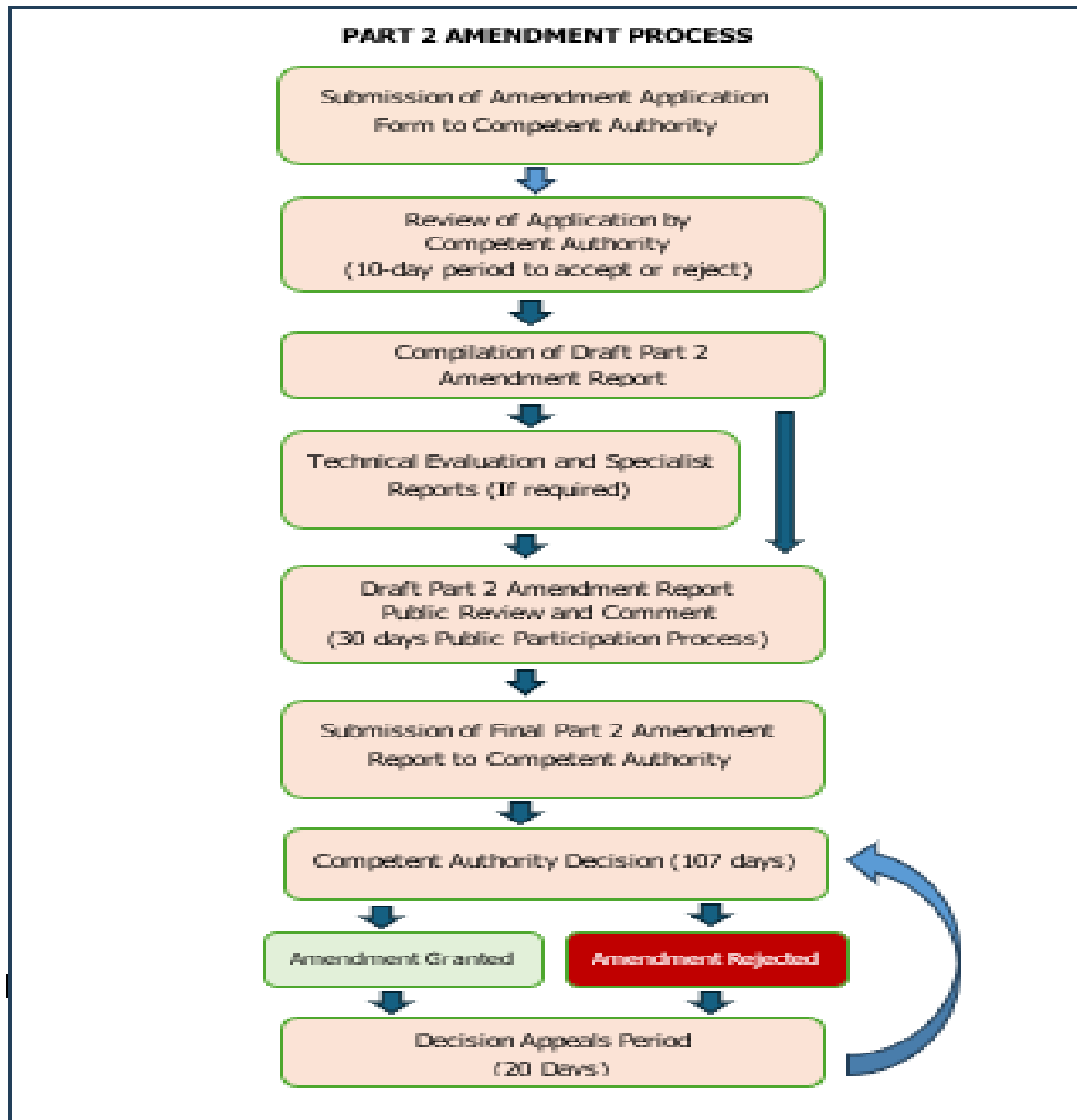


Figure 11: Part 2 Amendment Process

4.2 LISTED ACTIVITIES TRIGGERED

The following table provides the listed activities triggered.

Table 1: Triggered listed activities

Listing Notice and Activity Number	Description	Relevance
Listing Notice 1 Activity 27	The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for— i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	The proposed development entails the clearance of approximately 6 hectares of indigenous vegetation.

4.3 NWA

The developer intends to drill a borehole; a formal water use license application (WULA) will be lodged to the Department of Water and Sanitation in terms of Section 21 of the National Water Act (Act No 36 of 1998). The WULA Procedure is regulated under the ‘Procedural Requirements for WaterUse License Applications and Appeals (GNR 267, 24 March 2017) published in terms of the NWA.

Table 2: Water Use Activities Triggered under NWA

WULA Triggered Activity	Description	Relevance
Section 21(a)	Taking water from a water resource	Abstraction of underground water through a borehole

SECTION FIVE: DFFE SCREENING TOOL REPORT (STR) FINDINGS

5.1 STR FINDINGS

The site sensitivity verification has been undertaken by Dr Patrick Sithole.

5.1.2 Environmental Themes that are sensitive to the development

Table 3: STR Specified Environmental Themes and required specialist studies

Environmental Sensitivity Themes	Sensitivity	Motivation for sensitivity
Agricultural Theme	Medium	05. Low 06. Low-Moderate
Animal Species Theme	High	Aves-Neotis ludwigii Mammalia-Bunolagus monticularis
Aquatic biodiversity Theme	Low	Low sensitivity
Archaeological and Cultural Heritage Theme	Low	Low sensitivity
Civil Aviation Theme	Low	Low sensitivity
Defence Theme	Low	Low sensitivity
Paleontology Theme	Very high	Features with a Very High paleontological sensitivity.
Plant Species Theme	Medium	Isolepis expallescens Hereroa concava
Terrestrial biodiversity Theme	Low	Low Sensitivity

Based on the information gathered through the desktop study (GIS based spatial tools) and the site inspection undertaken on the 20 January 2026 for the proposed development, not all of the identified sensitivities are expected to apply.

5.2 VERIFICATION OF STR FINDINGS

This section of the SVR serves to:

- Verify the land use and sensitivities identified in the STR;
- Confirm/refute the need for various specialist inputs called for in terms of the STR; and

Motivation and evidence of either the verified or different use of land and environmental sensitivity.

The verification findings are presented in a table overleaf.

5.2.1 STR Findings, Environmental sensitivity theme, Desktop analysis results, and EAP comments

The environmental sensitivity themes identified through the STR, including the EAP comments and desktop analysis, are summarised below in Tables 3 to 11.

Sensitivity Themes

Table 4: Sensitivity Theme 1: Agricultural

Environmental Theme	Sensitivity				STR Motivation	Relevant (Yes/No)	STR Specialist Study Required
	High	High	Medium	Low			
Agricultural			X		Low and Low-Moderate	NO	YES
(a) EAP Comments based on Site Visit Findings							
There is no evidence of active agricultural activities currently taking place on the site. The agricultural sensitivity is considered low. The site is already disturbed, and the proposed installation of synchronous condensers will be located between the substation and the powerline, with works occurring in and around the existing substation infrastructure. Therefore, the agricultural sensitivity of the site is confirmed to be low.							
(b) Desktop Analysis							
The STR findings show low and low-moderate features, and the area falls within the strategic Transmission corridor and Transmission Substation							

Table 5: Sensitivity Theme 2: Animal Species

Environmental Theme	Sensitivity				STR Motivation	Relevant (Yes/No)	STR Specialist Study Required
	High	High	Medium	Low			
Animal Species		X			Aves-Neotis ludwigii and Mammalia- Bunolagus monticularis	NO	YES
(a) EAP Comments based on Site Visit Findings							
No animal species were observed during the site visit. Ongoing construction activities at the substation may have caused fauna to migrate, and the area is already disturbed by existing powerline and substation infrastructure. However, a Terrestrial Impact Assessment will be undertaken.							
(b) Desktop Analysis							
The STR shows that there's a high sensitivity of Aves-Neotis ludwigii and Mammalia-Bunolagus monticularis features							

Table 6: Sensitivity Theme 2: Aquatic Biodiversity

Environmental Theme	Sensitivity				STR Motivation	Relevant (Yes/No)	STR Specialist Study Required
	Very high	High	Medium	Low			
Aquatic Biodiversity				X	Low Sensitivity	NO	YES
(a) EAP Comments based on Site Visit Findings							
There is no aquatic biodiversity within the 500m buffer of the proposed site. Therefore, the sensitivity rating for aquatic biodiversity is accepted.							
(b) Desktop Analysis							
The STR findings show low sensitivity							

Table 7: Sensitivity Theme 4: Archaeological and Cultural Heritage

Environmental Theme	Sensitivity				STR Motivation	Relevant (Yes/No)	STR Specialist Study Required
	Very high	High	Medium	Low			
Archaeological and Cultural Heritage Theme				X	Low Sensitivity	YES	YES
(a) EAP Comments based on Site Visit Findings							
There are no important cultural elements identified on the proposed site. However, during the construction phase, archaeological artefacts can be dug up and destroyed, if any artefacts are encountered, construction works should cease immediately, and SAHRIS and LIHRA should be notified within 24 hours of the findings. However, a specialist will be commissioned as per NHRA 25 of 1999. The STR finding is therefore accepted.							
(b) Desktop Analysis							
The STR findings show low sensitivity							

Table 8: Sensitivity Theme 5: Civil Aviation

Environmental Theme	Sensitivity				STR Motivation	Relevant (Yes/No)	STR Specialist Study Required
	Very high	High	Medium	Low			
Civil Aviation				X	Low sensitivity	NO	NO
(a) EAP Comments based on Site Visit Findings							
No airport or any airspace infrastructure was observed within a 7km radius during the site visit, and the project would not affect any civil aviation. The STR finding is therefore accepted.							
(b) Desktop Analysis							
The STR findings show Low Sensitivity							

Table 9: Sensitivity Them 6: Defence

Environmental Theme	Sensitivity				STR Motivation	Relevant (Yes/No)	STR Specialist Study Required
	Very high	High	Medium	Low			
Defence				X	Low Sensitivity	NO	NO
(a) EAP Comments based on Site Visit Findings							
No military base was identified within 5km of the proposed development; thus, the development poses no threat to the South African Defence Force. The STR finding is therefore accepted.							
(b) Desktop Analysis							
The STR findings show Low Sensitivity							

Table 10: Sensitivity Theme 7: Palaeontology

Environmental Theme	Sensitivity				STR Motivation	Relevant (Yes/No)	STR Specialist Study Required
	Very high	High	Medium	Low			
Palaeontology	X				Features with a Very High paleontological sensitivity	NO	YES
(a) EAP Comments based on Site Visit Findings							
During the site assessment, no evidence of palaeontological resources was identified, such as fossiliferous rock formations, exposed sedimentary layers, or fossil remains within the proposed development footprint. Furthermore, none of these were encountered during the construction of the substation and pylons. The STR findings are therefore refuted							
(b) Desktop Analysis							
The STR identifies the site as having areas of high palaeontological sensitivity. Previous studies indicate that the area is underlain by the Hoedemaker Member and Jurassic dolerite. Most of the substation and grid connections are underlain by potentially fossiliferous Lower Beaufort sedimentary rocks, with a smaller portion underlain by unfossiliferous Jurassic dolerite. During a 2022 winter walkdown, a few weathered vertebrate fossils were recorded, which is consistent with the surrounding area being known for high fossil occurrence, with nearly 2,000 fossils previously collected by research teams.							

Table 11: Sensitivity Theme 7: Plant Species

Environmental Theme	Sensitivity				STR Motivation	Relevant (Yes/No)	STR Specialist Study Required
	Very high	High	Medium	Low			
Plant Species			X		Isolepis expallescens and Hereroa concava	YES	YES
(a) EAP Comments based on Site Visit Findings							
No protected or threatened species were observed onsite. The site is dominated by dwarf microphyllous shrubs, with ‘white’ grasses of the genera Aristida and Eragrostis, STR finding is therefore accepted. A terrestrial biodiversity impacts study will be undertaken.							
(b) Desktop Analysis							
The STR shows that there’s medium Sensitivity Isolepis expallescens and Hereroa concava							

Table 12: Sensitivity Theme 8: Terrestrial Biodiversity

Environmental Theme	Sensitivity				STR Motivation	Relevant (Yes/No)	STR Specialist Study Required
	Very high	High	Medium	Low			
Terrestrial				X	Low Sensitivity	YES	YES
(a) EAP Comments based on Site Visit Findings							
No protected or threatened species were recorded during the site assessment. The proposed area is located within a low Terrestrial Biodiversity sensitivity theme. However, a terrestrial biodiversity study has been undertaken. The STR finding is therefore accepted.							
(b) Desktop Analysis							
The STR indicates that the site falls within areas Low Sensitivity.							

SECTION SIX: POTENTIAL IMPACTS FROM THE PROPOSED DEVELOPMENT

6.1 INTRODUCTION

The following are the possible potential impacts of the proposed project in the area during the construction and operation phases. The mitigating measures will be included in the EIR and the EMPr.

Direct impacts: The main potential environmental impacts associated with the construction and operation phase of the proposed activity are as follows:

a. Dust impact

Construction Phase

Dust from construction activities will be from construction vehicles, the dust will be below the regulated standards, and it can be easily managed through dust suppression measures.

Operational Phase

Dust may be generated from the movement of operational vehicles. These pollutants can affect the air quality and health of workers and neighbours. However, dust will be managed or mitigated by using dust suppression measures.

b. Traffic impact

Construction Phase

During the construction phase, construction vehicles will be moving in and out of the site. These vehicles will have a speed limit of 40km/hr and have the potential of causing traffic congestion. However, it is advised that the heavy vehicles and construction machinery be in motion before 7 am and after 6 pm so that they do not disturb daily road users.

Operational Phase

During the operational phase, the proposed development is expected to have less traffic.

c. Noise

Construction Phase

High levels of construction noise from the movement of heavy construction vehicles and machinery may be produced; however, to mitigate or manage construction noise, construction vehicles can be fitted with noise suppressing equipment such as noise barriers, mufflers, and silencers, as well as limit the operating hours and frequency of noisy activities. In addition, there will also be noise emissions from rotating machinery and cooling systems of the synchronous condensers.

Operational Phase

During the operational phase, noise generated by the proposed development is expected to remain below regulated limits. Most of the noise during this phase will result from operating machinery.

To ensure continued compliance and minimise potential impacts, the following mitigation measures should be implemented:

- Install acoustic enclosures around major noise-generating equipment.
- Use low-noise cooling fans and machinery where feasible.
- Maintain equipment regularly to prevent excessive noise due to wear and tear.
- Conduct periodic noise monitoring to ensure compliance with applicable standards

d. Potential Soil Contamination

Construction Phase

Construction vehicles may release hazardous waste, which can contaminate the soil; however, this can be managed effectively by making use of drip trays on site.

Operational Phase

Operation vehicles may release hazardous waste, which can contaminate the soil; however, this can be managed effectively by making use of drip trays on site.

e. Socio-economic impacts

Construction Phase

During the construction phase, job opportunities will arise, which will attract a lot of people seeking employment to flood the area in search of job opportunities.

Operational Phase

The proposed development will have positive impacts during the operational phase as it will help in addressing the issue of job creation and poverty. Additionally, the addition of the synchronous condensers will enhance grid stability by providing reactive power support and improving voltage in weak grid areas, thereby reducing the risk of voltage instability and potential grid collapse.

f. Potential water contamination

Construction Phase

No potential water contamination is anticipated during the construction phase.

Operational Phase

No potential water contamination is anticipated during this phase.

g. Archaeological, Heritage, and cultural resources

Construction

No heritage or cultural sites were found on the project site. However, during the construction phase. Archaeological artefacts can be exhumed and destroyed if any artefacts are encountered construction works should cease immediately; SAHRIS and should be notified within 24hrs of the findings.

Operation

No impacts are anticipated during the operational phase.

6.3. SPECIALIST STUDIES RECOMMENDED BY THE STR

1. Agricultural Impact Assessment
2. Archaeological and Cultural Heritage Impact Assessment
3. Paleontology Impact Assessment
4. Terrestrial Biodiversity Impact Assessment
5. Aquatic Biodiversity Impact Assessment
6. Geotechnical Assessment
7. Plant Species Assessment
8. Animal Species Assessment

6.4. SPECIALIST STUDIES COMMISSIONED (DEEMED NECESSARY)

- ❖ Terrestrial Biodiversity Impact Assessment
- ❖ Aquatic And Wetland Compliance Statement report
- ❖ Archaeological and Cultural Heritage Impact Assessment

SECTION EIGHT: ANY FATAL FLAWS

In conducting this environmental screening and site verification, no major concerns considered fatal were identified. The specialist studies results did not identify any fatal flaws.

SECTION NINE: ASSUMPTIONS AND LIMITATIONS

The findings of this SVR are based on the available project information, the site verification conducted on 20 January 2026, and GIS-based desktop information available for the project site. This report was conducted based on the desktop studies, particularly the DFFE Screening Tool and the preliminary site visit. It should be noted that the DFFE screening tool provides descriptions based on spatial data from various datasets. It is therefore essential to verify the data contained in the DFFE screening report on-site. Some of the discrepancies were identified between the DFFE screening report and the onsite verification and are detailed in the sections above. Furthermore, the findings discussed in this report may change as further studies are undertaken.

SECTION TEN: CONCLUSIONS

This SVR was prepared for the proposed addition of three Synchronous Condensers to the existing Gamma Substation and its associated infrastructures within the jurisdiction of Ubuntu Local Municipality, under the Pixley Ka Seme District Municipality, in the Northern Cape Province. The environmental screening and verification exercise was conducted based on available project information, the site inspection conducted on 20 January 2026, and a desktop analysis of the project site.

The proposed EA amendment should be authorized to ensure compliance with environmental laws and regulations. The expansion of the Gamma Substation footprint, through the addition of three synchronous condensers each with a capacity of (+300 / -200 MVar), will significantly enhance electricity network stability, voltage control, and overall system reliability. The environmental assessment identified potential impacts primarily associated with the construction and operational phases; however, these impacts are expected to be localized and can be effectively managed through the implementation of appropriate mitigation measures. In addition, the project will contribute positively to infrastructure development and create short-term employment opportunities.

Based on the assessment findings, the benefits of the project outweigh the potential environmental impacts. It is therefore recommended that Environmental Authorisation be granted, subject to the implementation of the proposed mitigation and environmental management measures