T-N003-03 Kohler

Pre-application Scoping Report

THE PROPOSED KOHLER RENEWABLE SOLAR PV ENERGY GENERATION PLANT AND ELECTRIC TRUCK CHARGING FACILITY ON A PORTION OF THE REMAINING EXTENT OF THE FARM ROOIRAND NO. 990, OFF THE N3 HIGHWAY, NEAR VREDE, FREE STATE PROVINCE

APPLICATION FOR:

Environmental Authorisation

PREPARED FOR:

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Environmental Management and Impact Assessment | Omgewingsbestuur en Impakbeoordeling

SITE CODE: T-N003-03

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PRE-APPLICATION SCOPING REPORT AND PLAN OF STUDY

DESTEA REF: To be provided

November 2024

N3 ELECTRIC HIGHWAY CO.

T-N003-03 KOHLER

EXECUTIVE SUMMARY

N3 Electric Highway Co. is proposing the development of the Kohler solar photovoltaic renewable energy generation plant and electric truck charging facility on the Remaining Extent of the Farm Rooirand No. 990, off the N3 highway, near Roadside, Free State. The facility will include a solar photovoltaic (PV) energy generation facility connected to the electric vehicle and truck charging facilities via a distribution line with a capacity of approximately 33 kV. Additional infrastructure includes the development of a battery energy storage system, overnight parking, a wash bay, a stormwater pond, water tanks, a lounge area with a kitchen, ablution facilities with a septic tank, a shop, offices and associated infrastructure.

The proposed site is located off the N3, at the corner of the N3 and Reitz / Roadside Road (S589) intersection (107 turnoff), approximately 32km south-west of Vrede, 33km north of Warden, and 61km south of Villiers, in the Thabo Mofutsanyana District Municipality, Free State. An area of approximately 84 ha will be considered and assessed.

The development will cover an area of approximately 63.5 hectares (ha), with the solar PV array occupying about 50.8 hectares. This configuration will allow for an installed capacity of up to 50.08 megawatt-peak (MWp), which measures the maximum output of power from the solar array.

Site coordinates (approximate central point): 27°33’50.8’’ S ; 28°50’16.80’’ E

The applicant - N3 Electric Highway Co. who will undertake the activity should it be approved, appointed EnviroAfrica CC as the independent Environmental Assessment Practitioner (EAP) to undertake the relevant EIA and the Public Participation Process required in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA).

A scoping exercise is being undertaken to present the proposed activities to the I&APs and to identify environmental issues discussed in this report and concerns raised as a result of the proposed development alternatives to date. The issues and concerns were raised by I&APs, authorities, the project team as well as specialist input, based on baseline studies undertaken.

This pre-application Scoping Report, being undertaken in terms of NEMA, summarises the process undertaken, the alternatives presented, and the issues and concerns raised. As a result of the above, the need for the following specialist studies, have been identified:

- Biodiversity Assessment
- Freshwater Assessment
- Heritage Impact Assessment
- Socio-economic Impact Assessment
- Visual Impact Assessment
- Agricultural Potential Assessment
- Avifauna Impact Assessment

These specialist studies have been conducted and some have been concluded. The findings of some the studies have already been included in this report, however, the studies will be finalised and the findings included during the EIA phase.

Any further issues raised as a result of the Public Participation Process will be dealt with during the EIA phase. The significance of the impacts associated with the alternatives proposed will be assessed in these specialist studies, as part of the EIA. Once all the specialist studies have been completed, they

will be summarised in an Environmental Impact Report (EIR), which integrates the findings of the assessment phase of the EIA.

Based on the significance of the issues raised during the ongoing Public Participation Process and Scoping Phase, it is evident that an Environmental Impact Assessment (EIA) is required. ***It is therefore recommended that authorisation for the commencement of an EIA for the proposed development is granted.*** Should the EIA process be authorised, the issues raised in the process to date will be addressed and the specialist studies noted in this report, will be undertaken.

PRELIMINARY RECOMMENDATIONS / CONDITIONS FOR AUTHORISATION

- Drainage lines, wetlands, and dams provide important habitat for fauna and are usually areas of high biodiversity. The small drainage line and dam just to the north of the site are considered highly sensitive. Therefore, the drainage line in the north-western corner of the site must be avoided by the development by the buffers specified by the wetland specialist.

- Rocky areas are considered highly sensitive as they increase local habitat heterogeneity and species diversity. Therefore, the rocky outcrop in the southern section of the site must be avoided by the proposed development by a minimum buffer of 50m.

- Although disturbed by grazing cattle, the grassland covering the majority of the site is natural and provides the main habitat for the fauna found in the area. This habitat is considered to be of medium sensitivity. This area will be unavoidable; therefore impacts must be minimised and strict mitigation and restoration required

- Good fencing is required during construction and operation to prevent animals on the site.

- In cases where there is not a significant impact on agricultural land, a diversification of income sources should be considered by the landowner(s). Through establishing an agreement between the applicant and the landowner(s); landowner(s) will be enabled to share in the profit generated from the charging facility, thereby offsetting their probable financial loss sustained through the loss of agricultural land (utilised or grazing mainly) over the development area.

DOCUMENT CONTROL

Version	Name	Role / Responsibility	Date
AA	Lian Roos	Author / First draft for review	10 June 2024
BB	Clinton Geyser	Technical reviewer	20 June 2024
CC	Lian Roos	Second draft for review	27 June 2024
DD	Lian Roos	Third draft for review	21 October 2024
EE			
Final			

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ACRONYMS

BGIS	Biodiversity Geographic Information System
CBA	Critical Biodiversity Area
DFFE	Department of Forestry, Fisheries and the Environment
DWS	Department of Water and Sanitation
DESTEA	Department of Small Business Development, Tourism and Environmental Affairs
EAP	Environmental Assessment Practitioner
ECA	Environment Conservation Act (Act No. 73 of 1989)
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EMP	Environmental Management Programme
ESA	Ecological Support Area

EV	Electric Vehicle
EWR	Environmental Water Requirements
HIA	Heritage Impact Assessment
I&APs	Interested and Affected Parties
MWp	Megawatt peak
NEMA	National Environmental Management Act (Act No. 107 of 1998)
NEMBA	National Environmental Management: Biodiversity Act (Act No. 10 of 2004)
NHRA	National Heritage Resources Act (Act No. 25 of 1999)
NID	Notice of Intent to Develop
NWA	National Water Act
OESA	Other Ecological Support Area
PV	Photovoltaic
SAHRA	South African Heritage Resources Agency
SANBI	South African National Biodiversity Institute
SEF	Solar PV Energy Generation Facility
VIA	Visual Impact Assessment
WULA	Water Use Licence Application

1 INTRODUCTION

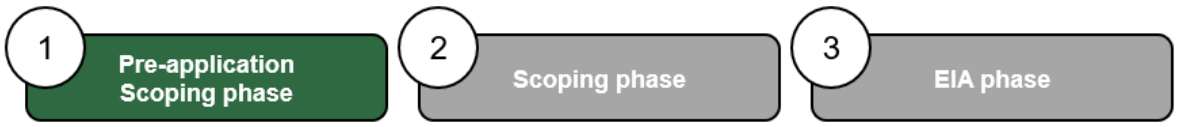
1.1 BACKGROUND

N3 Electric Highway Co. is proposing the development of the Kohler solar photovoltaic renewable energy generation plant and electric truck charging facility on the Remaining Extent of the Farm Rooirand No. 990, off the N3 highway, near Roadside, Free State. The facility will include a solar photovoltaic (PV) energy generation facility connected to the electric vehicle and truck charging facilities via a distribution line with a capacity of approximately 33 kilovolts kV. Additional infrastructure includes the development of a battery energy storage system, overnight parking, a wash bay, a stormwater pond, water tanks, a lounge area with a kitchen, ablution facilities with a septic tank, a shop, offices and associated infrastructure.

The proposed site is located off the N3, at the corner of the N3 and Reitz / Roadside road (S589) intersection (107 turnoff), approximately 32km south-west of Vrede, 33km north of Warden, and 61km south of Villiers in the Thabo Mofutsanyana District Municipality, Free State. An area of approximately 84 ha will be considered and assessed.

Site coordinates (approximate central point): 27°33'50.8'' S ; 28°50'16.80'' E

The applicant - N3 Electric Highway Co. who will undertake the activity should it be approved, appointed EnviroAfrica CC as the independent Environmental Assessment Practitioner (EAP) responsible for undertaking the relevant EIA and the Public Participation Process required in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA).



This pre-application Scoping Report falls within the pre-application Scoping phase which will be submitted to the Department of Small Business Development, Tourism and Environmental Affairs (DESTEA)(Free State) for consideration, and forms part of the Scoping & EIA process. The purpose of this pre-application Scoping Report is to describe the proposed project, the process followed to date, to present alternatives and to list issues identified for further study and comment by specialists.

Should the Scoping & Plan of Study for EIA process be authorised by DESTEA, the Specialist Studies (noted in Section 8) will be undertaken, and the issues (noted in Section 6) will be investigated and assessed during the next phase of the process (Scoping phase).

1.2 DESCRIPTION OF THE PROPOSED ACTIVITY

N3 Electric Highway Co. is proposing the development of the Kohler solar photovoltaic renewable energy generation plant and electric truck charging facility on the Remaining Extent of the Farm Rooirand No. 990, off the N3 highway, near Roadside, Free State. The facility will include a solar photovoltaic (PV) energy generation facility connected to the electric vehicle and truck charging facilities via a distribution line with a capacity of approximately 33 kV. Additional infrastructure includes the development of a battery energy storage system, overnight parking, a wash bay, a stormwater pond, water tanks, a lounge area with a kitchen, ablution facilities with a septic tank, a shop, offices and associated infrastructure.

The solar PV plant will be connected to the electric vehicle and truck charging facilities via a distribution line with a capacity of approximately 33 kV. The development will cover an area of approximately 63.5 hectares (ha), with the solar PV array occupying about 50.8 hectares. This configuration will allow for an installed capacity of up to 50.8 megawatt-peak (MWp), which measures the maximum output of power from the solar array.

In addition to the solar PV installation, the facility will include a battery energy storage system. A key component of the facility will be a battery energy storage system specifically designed to support electric vehicle and truck charging. This system will store the generated energy ensuring a reliable and continuous power supply for the charging stations, particularly during times of high demand.

In addition to the solar PV installation and battery storage, the development will incorporate several support structures. These will include overnight parking areas for vehicles, a wash bay for cleaning, and a stormwater pond to manage runoff. Rainfall on the site will be harvested for reuse, and any surplus or flood event stormwater will be managed and released in a controlled manner. Stormwater will be collected via pipes and drainage channels, then directed to an attenuation pond (stormwater), where excess water is stored and gradually released to prevent flooding. Elevated PV panels will have gutters to collect runoff, which will also be directed to the pond; the collected water will be treated for reuse.

To support staff and visitors, the facility will feature a lounge area with a kitchen, as well as ablution facilities equipped with a septic tank. Additionally, there will be a shop and office spaces to facilitate the operation and management of the facility and its services.

Vehicle and truck access to the site will be via an access point located approximately 350 meters south-west of the N3 and Reitz / Roadside Road (S589) intersection (107 turnoff), along the Reitz / Roadside Road (S589), adjacent to the Sasol N3 West - Truck Stop.

Figure 1: Google Earth image showing the locality of the proposed site (indicated by the red dot)

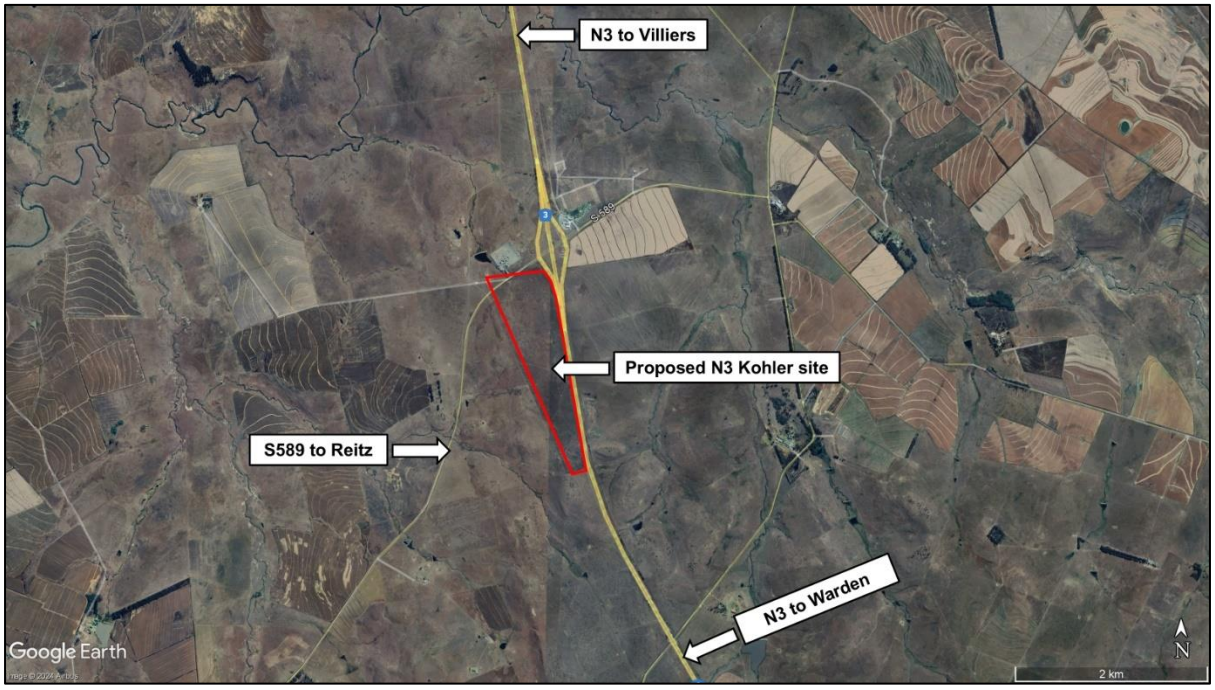


Figure 2: Google Earth image (1) of the proposed property and the development footprint (red polygon)

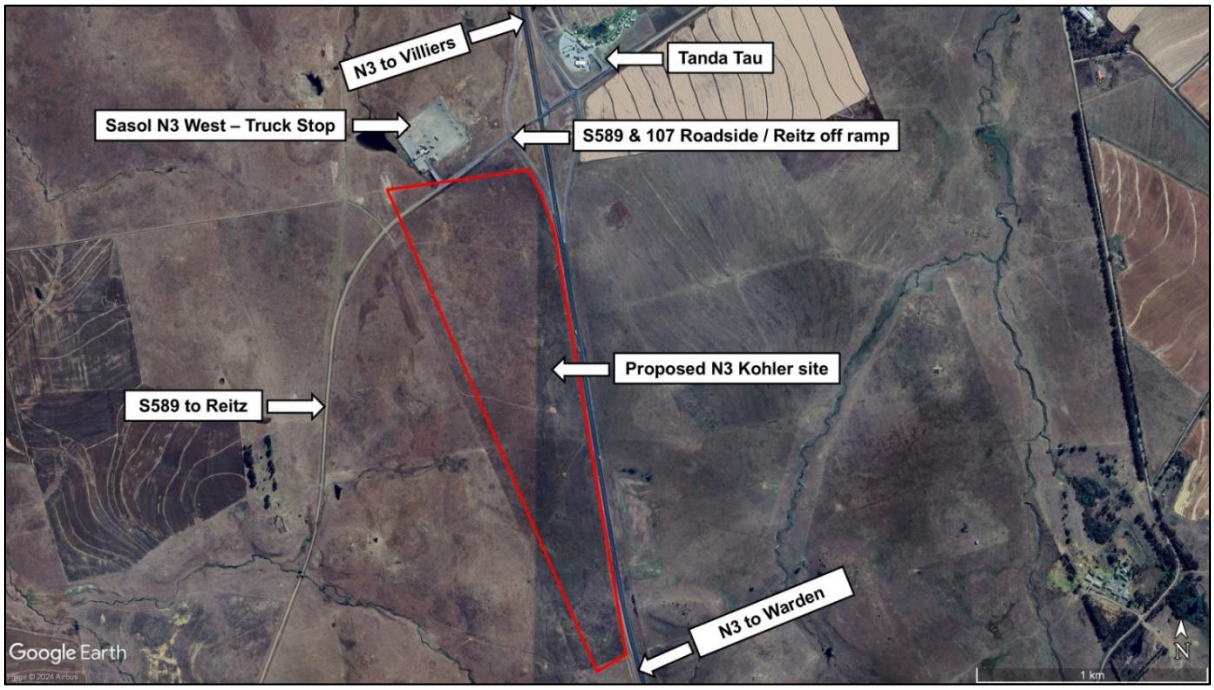


Figure 3: Google Earth image (2) of the proposed property and the development footprint (red polygon)

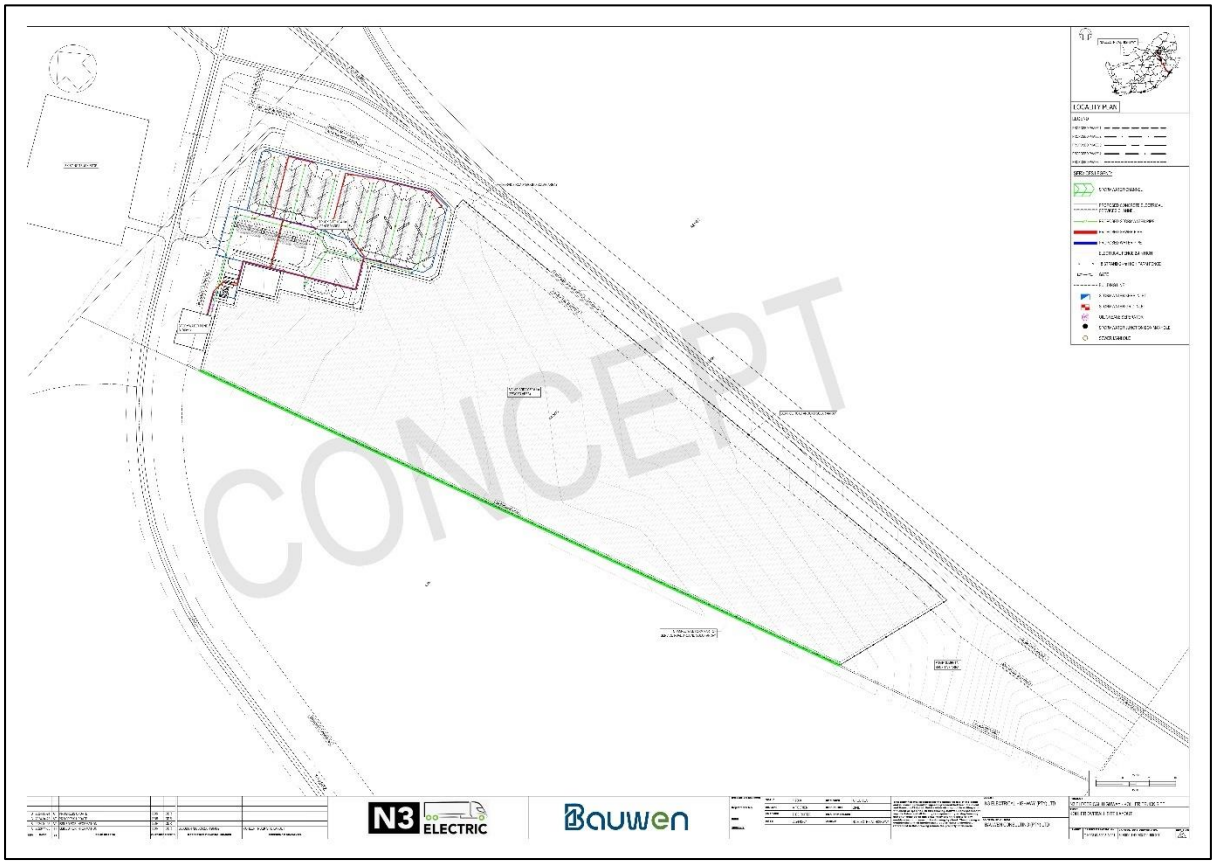


Figure 4: Overall layout

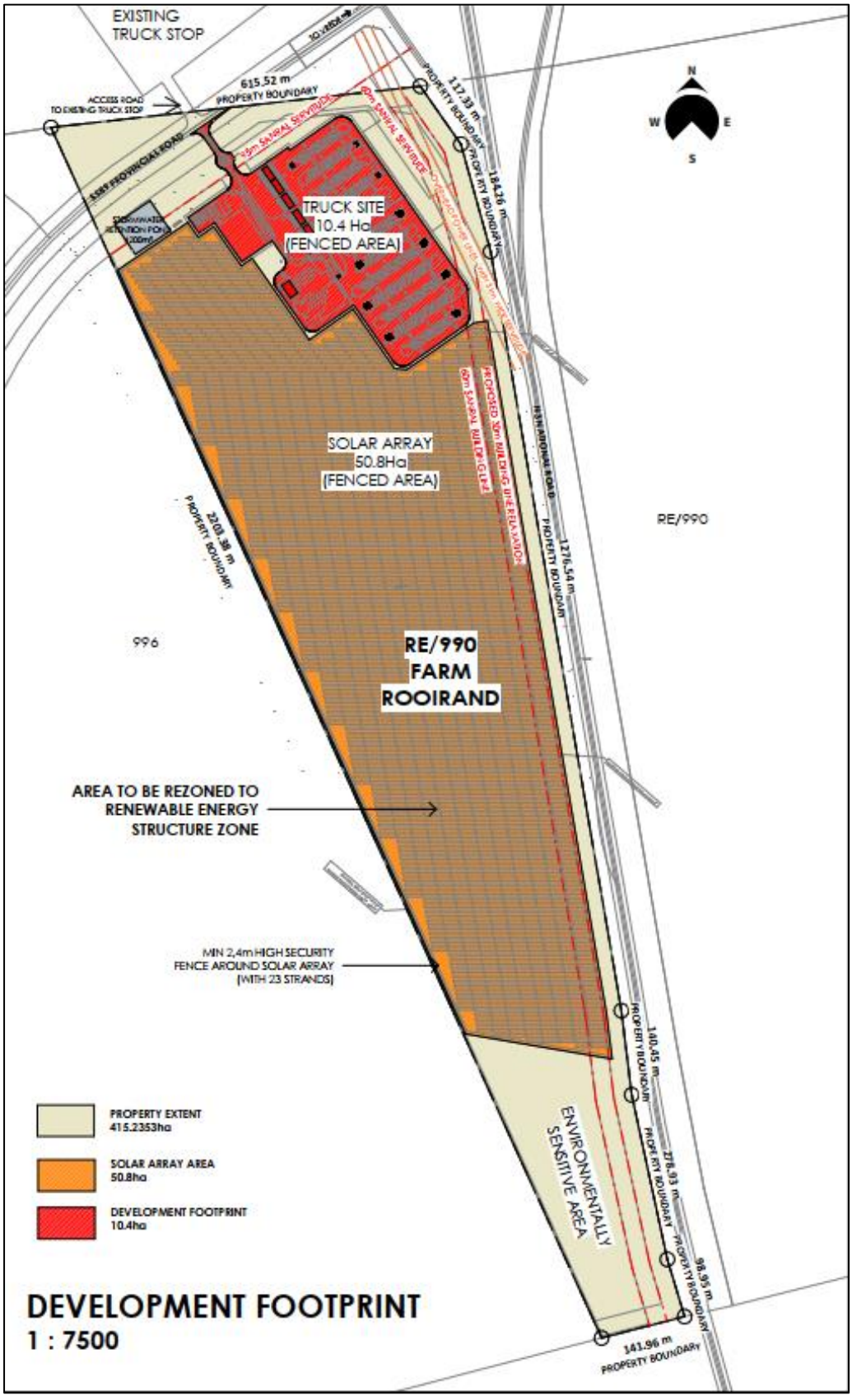


Figure 5: Draft SDP (Site Development Plan)

2 NEED AND DESIRABILITY

In terms of the National Environmental Management Act, as amended, EIA 2014 regulations the Scoping & EIA reports must provide a description of the need and desirability of the proposed activity. The consideration of "need and desirability" in EIA decision-making requires the consideration of the strategic context of the development proposal along with the broader societal needs and the public interest.

While the concept of need and desirability relates to the *type* of development being proposed, essentially, the concept of need and desirability can be explained in terms of the general meaning of its two components in which *need* refers to *time* and *desirability* to *place* – i.e. is this the right time and is it the right place for locating the type of land-use/activity being proposed? Need and desirability can be equated to *wise use of land* – i.e. the question of what the most sustainable use of land is.

2.1 NEED

South Africa is committed to the Paris Agreement by making efforts to reduce greenhouse gas emissions (GHG) to 398-510 $MtCO_2e$[1] by 2025 and 350-420 $MtCO_2e$ by 2030. In pursuant to the mission, the government has formulated the Green Transport Strategy for South Africa (2018-2050). As a part of this commitment, South Africa intends to widely adopt the use of electric vehicles (EVs) in its vehicle population to reduce the emissions from the Transport sector which accounts for 10.8% of the country's total GHG emissions.

Currently the market share of EVs in South Africa is minimal (approximately 2300 vehicles), and if this number is to grow exponentially, the availability and accessibly of charging infrastructure for EVs will need to be seriously considered. While the push to electrify the automotive sector is well underway in urban and suburban areas, the same cannot be said for rural South Africa, with the lack of rural charging infrastructure remaining the most significant barrier to large-scale EV adoption.

In light of the current situation in South Africa, where the market share of EVs remains minimal, it becomes crucial to address the lack of reliable chargers, particularly in rural areas, to facilitate the exponential growth of EV adoption. The focus of EV adoption has been limited to passenger vehicles but heavy vehicles is as an important contributor to carbon emissions. As trucks generally follow major routes to transport the freight. Infrastructure must be developed independent of the existing grid to make the transportation of freight possible.

EV recharging stations in rural areas of South Africa especially along the N3 Route corridor (Durban, KwaZulu Natal to Johannesburg, Gauteng) are imperative for ensuring efficient and sustainable transportation. With the growing demand for goods transport, particularly in the agricultural and industrial sectors, diesel-powered trucks dominate the highways. Introducing recharging stations specifically tailored for long-haul trucks not only facilitates smoother operations but also aligns with global efforts to reduce carbon emissions and dependence on fossil fuels. Moreover, investing in such infrastructure in rural communities can stimulate local economies and foster job creation, contributing to overall regional development. Thus, the establishment of EV recharging stations is not just a necessity but a strategic step towards a sustainable, more connected future for South Africa's transport industry.

As part of the global energy crisis and the shift to renewable energy, the trend towards electric vehicles is ever growing, and South Africa will be no exception. High powered, ultra-fast charging is the minimum

[1] Million Tonnes of carbon dioxide equivalent

viable standard to provide a stop and charge capability comparable with filling a vehicle with petrol or diesel (ZCC Info-Booklet, 2022). In South Africa, with a weak electrical grid and loadshedding, high power, ultra-fast charging will require on-site power generation, and with the need to charge when needed, a national network of charging facilities will be required (ZCC Info-Booklet, 2022).

2.2 DESIRABILITY

The following factors determine the desirability of the area for the proposed development:

2.2.1 Location and Accessibility

The proposed site is located on the Remaining Extent of Farm Rooirand No. 990, off the N3 highway, near Roadside, located in the Thabo Mofutsanyana District Municipality, Free State. The proposed site is located off the N3 Route, at the corner of the N3 and Reitz / Roadside road (S589) intersection (107 turnoff), approximately 32km south-west of Vrede, 33km north of Warden, and 61km south of Villiers.

Site coordinates (approximate central point): 27°33'50.8'' S ; 28°50'16.80'' E

The site is ideally located on the N3, the major route between Durban (with South Africa's busiest port) and Johannesburg (South Arica's largest city and economic hub). The N3 Route is one of the busiest freight routes in South Africa, with trucks carrying an average of 50-million tons of freight per annum constitute around 38% of traffic on the N3[2].

Trucks constitute approximately 44% of all vehicles travelling on the N3 Toll Route daily. During the past decade, a significant increase (between 8% and 10% per annum) in the number of trucks on the N3 Toll Route has been recorded. This is mainly due to the transfer of freight, especially bulk products, from rail to road. On average, 7000 trucks move thousands of tons of goods on the N3 every day[3].

The property has been partially disturbed by current and past agricultural activities, mostly livestock grazing. The site is mostly well-managed, and the veld is in generally good condition, however, some parts show localised over-grazing.

The vegetation type (Frankfort Highveld Grassland – Gm6) associated with the proposed site is currently listed as a Least Threatened ecosystem at a national level (SANBI, 2021; DFFE, 2022). No rare or threatened plant species nor any endangered faunal biota were found on the site. There are also no freshwater resources within the site. The site is therefore ideal, as there are no significant vegetation concerns on the site.

The topography is also ideal, as the terrain of the property is generally flat to slightly undulating.

The general area is also ideally suited for a solar PV facility due to the relatively high irradiation levels. The Global Horizontal Irradiation (GHI) average for the area is 2016.5 kWh/m^2 according to the Global Solar Atlas (Figure 6)[4]. According to the Global Weather Corp Global horizontal irradiance (GHI) is a measurement of the total solar electromagnetic radiation above a horizontal surface at a given location and time. It is the most useful metric for predicting solar panel output. It accounts for 71.6% of PV performance variations.

According to the Department of Forestry, Fisheries and the Environment (DFFE) Screening Tool Report (Appendix 1), no intersections with Environmental Management Framework areas was found.

[2] http://www.n3tc.co.za/n3-toll-route-traffic-and-crash-data-provide-numerous-safety-clues/
[3] http://www.n3tc.co.za
[4] https://globalsolaratlas.info/map

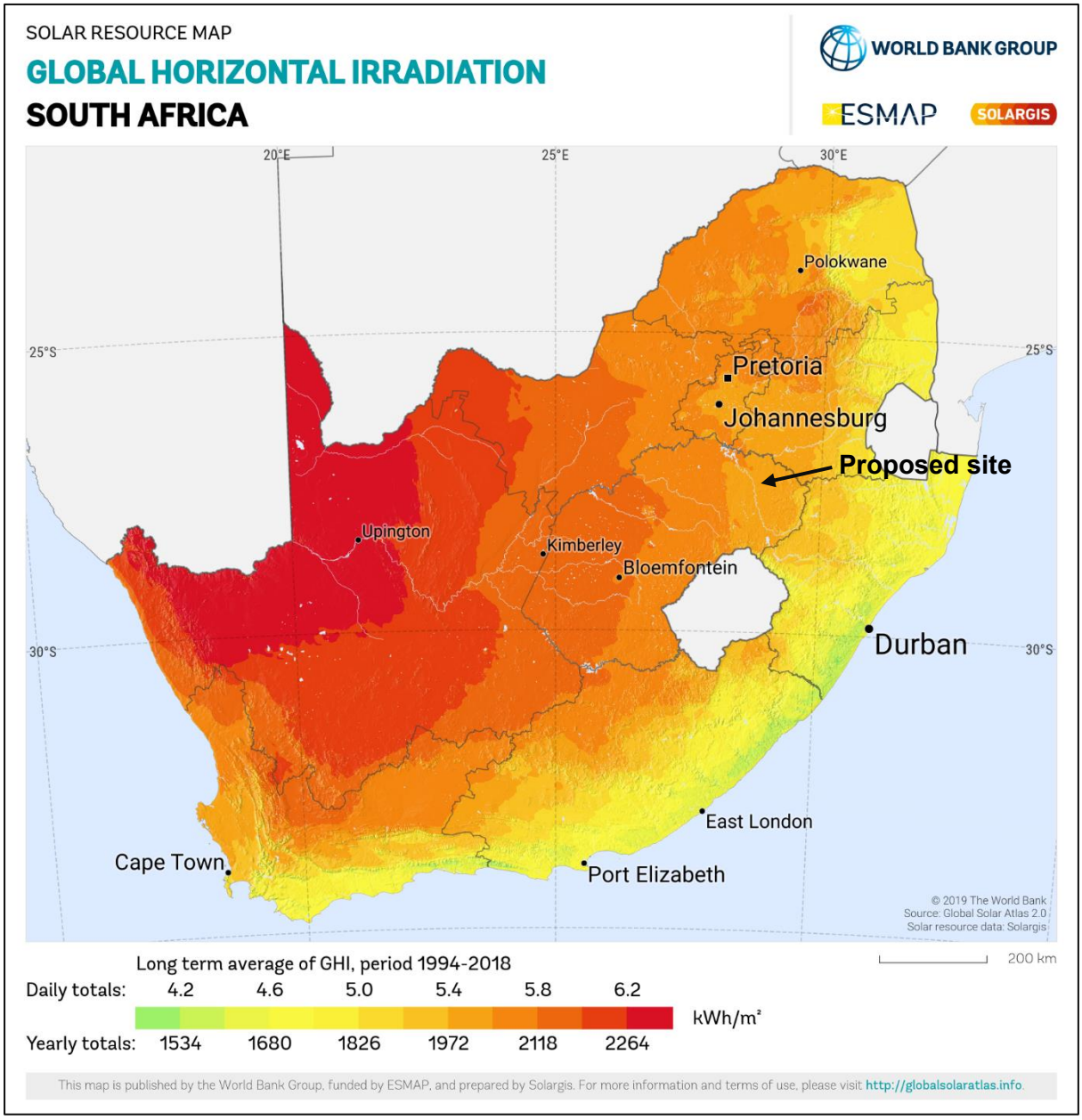


Figure 6: Global Solar Atlas image showing the Global Horizontal Irradiation levels for the proposed site

2.2.2 Compatibility with the Surrounding Area

The proposed activity is not within the existing land use rights of the property. The property is zoned Agricultural. A rezoning application in terms of SLUMA will be required. The surrounding land-uses are also predominantly agricultural in nature. The proposed development is not expected to significantly impact on people's health and well-being (*e.g.,* in terms of noise, odours*, etc.*). However, the proposed development may have an impact on the visual character and "sense of place", since the property is within an agricultural area. This development supports the broader goals of promoting sustainable energy infrastructure while preserving the visual integrity of the Free State's scenic landscapes.

2.2.3 Objectives of Integrated Environmental Management

The general objectives of Integrated Environmental Management have been taken into account through the following:

- The actual and potential impacts of the activity on the environment, socio-economic conditions and cultural heritage have been identified, predicted and will be evaluated, as well as the risks and consequences and alternatives and options for mitigation of activities, with a view to minimizing negative impact, maximizing benefits and promoting compliance with the principles of environmental management.
- The effects of the activity on the environment have been considered before actions taken in connection with them – *alternatives have been considered and will be investigated.*
- Adequate and appropriate opportunity for public participation is ensured through the public participation process.
- The environmental attributes have been considered in the management and decision-making of the activity – *an EMP will be compiled and included in the Environmental Impact Assessment Report for the proposed activity. The development must adhere to the requirements of all applicable state Authorities.*

2.2.4 Principles of Environmental Management

he principles of environmental management as set out in section 2 of NEMA have been taken into account. The principles pertinent to this activity include:

- People and their needs have been placed at the forefront while serving their physical, psychological, developmental, cultural and social interests – *the proposed activity will have a beneficial impact on people. However, potential negative impacts will also be investigated.*
- Development must be socially, environmentally and economically sustainable. Where disturbance of ecosystems, loss of biodiversity, pollution and degradation, and landscapes and sites that constitute the nation's cultural heritage cannot be avoided, are minimised and remedied. - *Although the activity is expected to have little significant environmental impact, these impacts have been considered, and mitigation measures have been put in place. This will also be dealt with in the EMP*
- Where waste cannot be avoided, it is minimised and remedied through the implementation and adherence of EMP.
- The use of non-renewable natural resources is responsible and equitable .
- The negative impacts on the environment and on people's environmental rights have been anticipated and will be prevented, and where they cannot be prevented, are minimised and remedied.
- The interests, needs and values of all interested and affected parties will be taken into account in any decisions through the Public Participation Process
- The social, economic and environmental impacts of the activity have been considered, assessed and evaluated, including the disadvantages and benefits – *will be addressed in the Environmental Impact Assessment Report.*
- The effects of decisions on all aspects of the environment and all people in the environment have been taken into account, by pursuing what is considered the best practicable environmental option – *the proposed activity is expected to have minimal/negligible environmental impacts, especially after mitigation measures as described in the specialist reports and in the EMP are implemented.*

3 LEGAL REQUIREMENTS

The current assessment is being undertaken in terms of the National Environmental Management Act (Act 107 of 1998, NEMA), to be read with section 24 (5): NEMA EIA Regulations 2014. However, the provisions of various other Acts must also be considered within this EIA. The legislation that is relevant to this study is briefly outlined below:

3.1 THE CONSTITUTION OF THE REPUBLIC OF SOUTH AFRICA

The Constitution of the Republic of South Africa (Act 108 of 1996) states that everyone has a right to a non-threatening environment and that reasonable measure are applied to protect the environment. This includes preventing pollution and promoting conservation and environmentally sustainable development, while promoting justifiable social and economic development.

3.2 NATIONAL ENVIRONMENTAL MANAGEMENT ACT (ACT 107 OF 1998)

The National Environmental Management Act (Act 107 of 1998) (NEMA), as amended, makes provision for the identification and assessment of activities that are potentially detrimental to the environment, and which require authorisation from the relevant authorities based on the findings of an environmental assessment. NEMA is a national act, which is enforced by the Department of Forestry, Fisheries and the Environment (DFFE). These powers are delegated in Free State to the Department of Small Business Development, Tourism and Environmental Affairs (DESTEA).

On the 04 December 2014 the Minister of Water and Environmental Affairs promulgated regulations in terms of Chapter 5 of the NEMA, namely the EIA Regulations 2014. These were amended on 07 April 2017 (GN No. 326, No. 327 (Listing Notice 1), No. 325 (Listing Notice 2), No. 324 (Listing Notice 3) in Government Gazette No. 40772 of 07 April 2017). Listing Notice 1 and 3 are for a Basic Assessment and Listing Notice 2 for a full Environmental Impact Assessment.

According to the regulations of Section 24(5) of NEMA, authorisation is required for the following listed activities for the proposed development i.e. Kohler Recharging Station (Table 1):

Table 1: NEMA Listed Activities

No.	Listed Activities as per Listing Notice 1, 2 and 3 (GN R327, R324, R325)	Applicability to the development
Government Notice R327 (Listing Notice 1)		
11.	The development of facilities or infrastructure for the transmission and distribution of electricity; (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts; or (ii) inside urban areas or industrial complexes with a capacity of 275 kilovolts or more.	The proposed solar PV plant and the electric vehicle and truck recharge facilities of the development will be connected via a 33 kV distribution line.
24.	The development of a road; (i) for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Government Notice 545 of 2010; or (ii) with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres; but excluding a road; a) which is identified and included in activity 27 in Listing Notice 2 of 2014; or b) where the entire road falls within an urban area; or c) which is 1 kilometre or shorter	An access road of 9m is required for vehicles and trucks to gain access to the proposed development site.
28.	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development: (i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare.	The proposed development site will be located outside an urban area and will exceed 1ha of land utilised for agriculture.
Government Notice R325 (Listing Notice 2)		
1.	The development of facilities or infrastructure for the generation of electricity from a renewable resource where the electricity output is 20 MW or more, excluding where such development of facilities or infrastructure is for photovoltaic installations and occurs; a) an urban area; or	The proposed solar PV plant will allow for an installed capacity of up to 50.8 megawatt-peak (MWp), which measures the maximum output of power from the solar array.

No.	Listed Activities as per Listing Notice 1, 2 and 3 (GN R327, R324, R325)	Applicability to the development
	b) On existing infrastructure	
15.	The clearance of an area of 20 hectares or more of indigenous vegetation, excluding 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 footprint is approximately 63.5ha and will clear an area of 20ha or more of indigenous vegetation over the proposed site. Indigenous vegetation will be cleared for the proposed development site even though the indigenous vegetation of the site has been identified as predominantly degraded.
Government Notice R324 (Listing Notice 3)		
4.	The development of a road wider than 4 meters with a reserve less than 13,5m b) In the Free State i. Outside Urban Areas (ee) Critical Biodiversity Areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans.	Internal roads wider than 4m with a reserve less than 13,5m is required for vehicles to gain access within the proposed development site for operational and maintenance purposes. The development site is outside an urban area.
12.	The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. b) In the Free State i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA. ii. Within Critical Biodiversity Areas identified in bioregional plans. iv. Areas within a watercourse or wetland; or within 100m from the edge of a watercourse or wetland.	More than 300m^2 of indigenous vegetation will be cleared; and the proposed development site may be within 100m of the watercourses identified on site; and the proposed development site falls outside an urban area.

An application form will be submitted to the Free State Department of Small Business Development, Tourism and Environmental Affairs (DESTEA). On acknowledgment from DESTEA, the Scoping phase process will be initiated and undertaken to further identify potential issues.

3.3 NATIONAL HERITAGE RESOURCES ACT

The protection and management of South Africa's heritage resources are controlled by the National Heritage Resources Act (Act No. 25 of 1999).

Section 38(8) also makes provision for the assessment of heritage impacts as part of an EIA process and indicates that if such an assessment is found to be adequate, a separate HIA is not required.

Furthermore, in terms of Section 34(1), no person may alter or demolish any structure or part of a structure, which is older than 60 years without a permit issued by the SAHRA, or the responsible resources authority. Nor may anyone destroy, damage, alter, exhume or remove from its original position, or otherwise disturb, any grave or burial ground older than 60 years, which is situated outside a formal cemetery administered by a local authority, without a permit issued by the SAHRA, or a provincial heritage authority, in terms of Section 36 (3). In terms of Section 35 (4), no person may destroy, damage, excavate, alter or remove from its original position, or collect, any archaeological material or object, without a permit issued by the SAHRA, or the responsible resources authority.

Section 38(1) of the NHRA of 1999 requires the responsible heritage resources authority to notify the person who intends to undertake a development that fulfils the following criteria to submit an impact assessment report if there is reason to believe that heritage resources will be affected by such event:

- the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
- the construction of a bridge or similar structure exceeding 50m in length;
- any development or other activity that will change the character of a site
  - exceeding 5000m² in extent; or
  - involving three or more existing erven or subdivisions thereof; or
  - involving three or more erven or divisions thereof which have been consolidated within the past five years; or
  - the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
- the rezoning of a site exceeding 10 000m² in extent; or
- any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority.

3.4 EIA GUIDELINE AND INFORMATION DOCUMENT SERIES

The following are the latest guidelines and information Documents that have been consulted:

- Department of Environmental Affairs and Development Planning's (DEA&DP) *Environmental Impact Assessment Guideline and Information Document Series (Dated: March 2013)*:
  - *Guideline on Transitional Arrangements*
  - *Generic Terms of Reference for EAPs and Project Schedules*
  - *Guideline on Alternatives*
  - *Guideline on Public Participation*
  - *Guideline on Exemption Applications*
  - *Guideline on Appeals*
  - *Guideline on Need and Desirability*
- Department of Environmental Affairs and Tourism (DEAT*) Integrated Environmental Management Information Series*

3.5 National Water Act

Besides the provisions of NEMA for this EIA process, the proposed development will also require authorizations under the National Water Act (Act No. 36 of 1998)(NWA). The Department of Water and Sanitation (DWS), who administer that Act, will be a leading role-player in the EIA. A Water Use Licence Application (WULA) or General Authorisation, in terms of Section 21 (c) and (i) of the NWA may be required, however the level of authorisation will be determined by the specialist. The level of application once determine will run concurrently with the NEMA Application.

3.6 National Environmental Management: Biodiversity Act

The National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEMBA) is part of a suite of legislation falling under NEMA, which includes the Protected Areas Act, the Air Quality Act, the Integrated Coastal Management Act and the Waste Act. Chapter 4 of NEMBA deals with threatened and protected ecosystems and species and related threatened processes and restricted activities. The need to protect listed ecosystems is addressed (*Section 54*).

3.7 The Spatial Planning And Land Use Management Act (Act 16 Of 2013)

The subject area falls under the jurisdiction of the local municipality and the appropriate zoning and subdivision would need to be allocated in order to permit the development of the land for the intended purpose. A rezoning and consent use planning application in terms of Section 35 of the SPLUMA regulations the Free State Bylaw on Municipal Land Use Planning.

3.8 The Conservation of Agricultural Resources Act (Act 43 Of 1983)

According to the Department of Environmental Affairs (2015). EIA Guideline for Renewable Energy Projects. Department of Environmental Affairs, Pretoria, South Africa, the mandate of the Conservation and Agricultural Resources Act 1983 (Act No 43 of 1983) (CARA) is to conserve “natural agricultural resources” (the soil, the water sources and the vegetation, excluding weeds and invader plants) through production potential of land, by the combating and prevention of erosion and weakening or destruction of the water sources, and by the protection of the vegetation and the combating of weeds and invader plants.

Section 6 of the Act concerns the control measures which the following may be applicable to IPPs (subsections (2) (f), (g) and (o)):

- the regulating of the flow pattern of run-off water;
- the utilization and protection of the vegetation; and
- the construction, maintenance, alteration or removal of soil conservation works or other structures on land.

4 ALTERNATIVES

Alternatives to the proposed development are limited and have been considered below:

4.1 SITE ALTERNATIVES

The proposed site is the only viable site or location available at this stage and the only one that will be investigated in this application.

4.2 ACTIVITY ALTERNATIVES

There are no feasible activity alternatives assessed. The primary activity is the development of a facility for the generation of renewable energy. Other renewable energy generation facilities include wind and concentrated solar power, none of which are viable on the proposed site.

4.3 DESIGN/TECHNOLOGY ALTERNATIVES

Three different solar photovoltaic (PV) technology alternatives are options for the PV:

- Poly-Crystalline photovoltaic
- Concentrated photovoltaic (CPV)
- Thin film PV

These technologies each have their own advantages and disadvantages, from cost and space efficiency to visual impacts. The various options will be considered and assessed in more detail in the Environmental Impact Report.

4.4 LAYOUT ALTERNATIVES

The proposed property covers an area of 415 ha, of which approximately 83 ha will be available to be assessed. The developed area for the PV array and all associated infrastructure is approximately 52 ha. This allows some space to consider various layout alternatives, including with the identified sensitivities and no-go areas excluded from potential development..

The layouts will consider the needs to maximise the output from the facility (maximise the solar array area) and consider the environmental sensitive and “no-go” areas identified by the specialists, either through desktop analysis and/or site investigations. These layouts will be assessed in the Environmental Impact Report.

4.5 NO-GO ALTERNATIVES

This is the option of not developing the proposed solar PV facility.

Although the no-go development might result in no potential negative environmental impacts, the direct and indirect socio-economic benefits of not constructing the PV Solar facility will not be realised. The national and local need for renewable energy will not be realised. The no-go alternative will not result in any removal of vegetation or impacts on biodiversity (flora or faunal) or loss of agricultural land since the development will not take place. However, since the area is used for grazing and other agricultural activities, this does not guarantee that the natural vegetation and ecosystem as a whole will revive or continue to function undisturbed.

The no-go alternative will also result in South Africa’s unsustainable, coal-based electricity supply will not be augmented with renewable energy alternatives.

The potential job opportunities during the construction and operational phases of the development will also not be realised.

Due to the nature of the activity, and the size and location of the site, the socio-economic benefits of the activity for the wider national community are considered to greatly outweigh any environmental benefits of not implementing the activity. The potential negative and/or positive environmental impacts will be fully assessed in the Environmental Impact Report.

5 SITE DESCRIPTION

5.1 LOCATION

The proposed site (referred to in places as Kohler) is located on a portion of the remaining extent of Farm Rooirand No. 990 located in the Thabo Mofutsanyana District Municipality, Free State Province. The proposed site is located off the N3, at the corner of the N3 and Reitz / Roadside road (S589) intersection (107 turnoff), approximately 32km south-west of Vrede, 33km north of Warden, and 61km south of Villiers. Site coordinates (approximate central point): 27°33'50.8''S ; 28°50'16.80''E.

Figure 7: Proposed development site - Locality Map

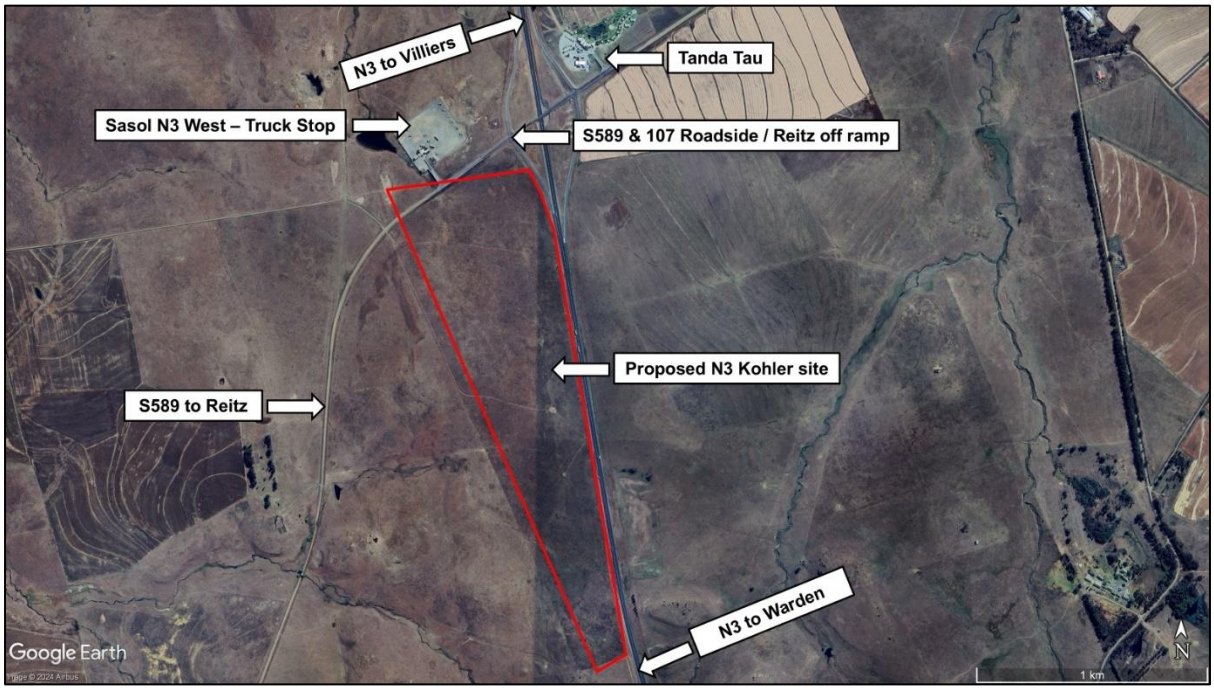


Figure 8: Proposed development site

5.2 DFFE Screening Tool Report

5.2.1 Proposed development area - Environmental Sensitivity

The Department of Forest, Fisheries and the Environment (DFFE) National Web based Environmental Screening Tool is a geographically based web-enabled application which allows a proponent intending to submit an application for environmental authorisation in terms of the Environmental Impact Assessment (EIA) Regulations 2014, as amended to screen their proposed site for any environmental sensitivity. The following summary of the development site environmental sensitivities is identified. The footprint environmental sensitivities for the proposed development footprint as identified, are indicative only and must be verified on site by a suitably qualified person before the specialist assessments identified below can be confirmed. Each theme is associated with a set of datasets that provide detailed information on the environmental sensitivities related to that theme. The tool uses these datasets to generate a sensitivity rating for each theme at a given location. The DFFE Screening Tool Report for the proposed development is attached as Appendix 1 to this report.

Table 2: Proposed development area - Environmental Sensitivity Results (Screening Tool Results)

Theme	Very High	High	Medium	Low
Agricultural		X		
Animal Species		X		
Aquatic Biodiversity	X			X
Archaeological and Cultural Heritage				X
Avian				X
Civil Aviation (Solar PV)				X
Defence				X

Theme	Very High	High	Medium	Low
Landscape (Solar)	X			
Palaeontology	X			
Plant Species			X	
RFI[5]				X
Terrestrial Biodiversity	X			

5.2.2 Site sensitivity verification

Table 3: Themes and associated sensitivity as per the DFFE Screening Tool

Theme	DFFE Sensitivity	Agree / Disagree	Proposed Sensitivity	Motivation & Need for Specialist Investigation
Agriculture	High	Disagree ↓	Medium	Sensitivity is high due to the moderate-high land capability. However, the land use is predominantly natural grassland without any field crops present, resulting in a proposed medium sensitivity. The property is currently zoned Agricultural and is used for grazing. An initial Agricultural Compliance Statement has been undertaken and the preliminary findings is included in this report, but will be finalised during the EIA phase.
Animal Species	High	Disagree ↓	Medium	Sensitivity is high due to the potential sensitive species recorded for the site by SANBI. The presence of several bird species (mostly vulnerable or endangered birds-of-prey) is also associated with the site. Unfortunately, because of the long history of agriculture and the transformed nature of the veld it is considered highly unlikely that the proposed development will result in any significant additional impact on any of these species, resulting in a proposed medium sensitivity. An initial Terrestrial Biodiversity Assessment has been undertaken and the preliminary findings is included in this report, but will be finalised during the EIA phase.
Aquatic Biodiversity	Very High	Disagree ↓	Medium	Sensitivity is very high due to the site being associated with a FEPA-subcatchment. There are no significant freshwater resources found on the site but there is a drainage line that runs through the proposed development footprint, resulting in a proposed medium sensitivity. An initial Freshwater Impact Assessment has been undertaken and the preliminary findings is included

[5] Radio Frequency Interference

Theme	DFFE Sensitivity	Agree / Disagree	Proposed Sensitivity	Motivation & Need for Specialist Investigation
				in this report, but will be finalised during the EIA phase.
Archaeology and Cultural Heritage	Low	Disagree ↑	Medium to High	Sensitivity is low; however, after a phase 1 heritage survey it was determined that most of the site has no heritage features, except for stone walled features associated with the dolerite outcrop (*koppie*) in the south of the site. These features are of medium to high heritage significance. An initial Archaeology Impact Assessment has been undertaken and the preliminary findings is included in this report, but will be finalised during the EIA phase. A Notice of Intent to Develop (NID) will also be submitted to the Heritage Authority.
Avian	Low	Agree	Low	An initial Avifaunal Impact Assessment has been undertaken regardless of the low sensitivity. The preliminary findings are included in this report, but will be finalised during the EIA phase.
Civil Aviation (Solar PV)	Low	Agree	Low	No major or other types of civil aviation aerodromes are within the immediate site area and thus will not pose any threat to civil aviation.
Defence	Low	Agree	Low	Due to the nature of the proposed development, it is not envisaged that the proposed expansion will impact any defence-related activities.
Landscape (Solar)	Very High	Agree	Very High	Sensitivity is very high due to the high ridges and steep slope (between 1:4 and 1:10) associated with the site. The dolerite outcrop (koppie) in the south of the site is such a feature that contributes to this very high sensitivity. An initial Visual Impact Assessment has been undertaken, with the preliminary findings included in the pre-application Scoping Report; however, it will be finalised during the EIA phase.
Palaeontology	Very High	Disagree ↓	Low to Medium	Sensitivity is very high due to the likelihood of finding significant fossils within the geologic unit associated with the site. However as per the SAHRIS palaeontological sensitivity map the area associated with the site has an insignificant / zero (grey) sensitivity, resulting in the proposed low to medium sensitivity. Nevertheless, an initial Palaeontological Impact Assessment has been undertaken and the preliminary findings is included in this report, but will be finalised during the EIA phase.

Theme	DFFE Sensitivity	Agree / Disagree	Proposed Sensitivity	Motivation & Need for Specialist Investigation
				A Notice of Intent to Develop (NID) will also be submitted to the Heritage Authority.
Plant Species	Medium	Agree	Medium	Sensitivity is medium due to the natural grassland being degraded by prolonged livestock grazing. However, potential sensitive species recorded for the site by SANBI may be present. An initial Terrestrial Biodiversity Assessment has been undertaken and the preliminary findings is included in this report, but will be finalised during the EIA phase.
RFI	Low	Agree	Low	Sensitivity is low.
Terrestrial Biodiversity	Very High	Disagree ↓	Medium	Sensitivity is very high due to the site being associated with a FEPA-subcatchment. The site also falls under the National Protected Area Expansion Strategy (NPAES) for the Free State Highveld Grasslands. However, there are no significant freshwater resources found on the site but there is a drainage line that runs through the proposed development footprint, resulting in a proposed medium sensitivity. An initial Freshwater Impact Assessment and initial Terrestrial Biodiversity Assessment has been undertaken and the preliminary findings is included in this report, but will be finalised during the EIA phase.

5.3 CLIMATE

According to South African National Biodiversity Institute (SANBI), the climatic conditions associated with the proposed site location are characteristic of a summer-rainfall region, with a mean annual precipitation (MAP) of 638 mm (much of which falls in the form of thunderstorms). The mean annual temperature (MAT) ranges between 14–15°C, indicating a cool to warm-temperature climate, characterised by great temperature differences between summer and winter (thermic continentality due to the deep-inland situation and high altitude of the unit). Occurrence of frost is frequent in winter.

Simulated historical climate & weather data was obtained from meteoblue.com for the town closest to the proposed site – i.e. Vrede. The Meteoblue climate diagrams indicated below are based on 30 years of hourly weather model simulations and available for every place on Earth. They give good indications of typical climate patterns and expected conditions (temperature, precipitation, sunshine and wind). The simulated weather data have a spatial resolution of approximately 30 km and may not reproduce all local weather effects, such as thunderstorms, local winds, or tornadoes, and local differences as they occur in urban, mountainous, or coastal areas.

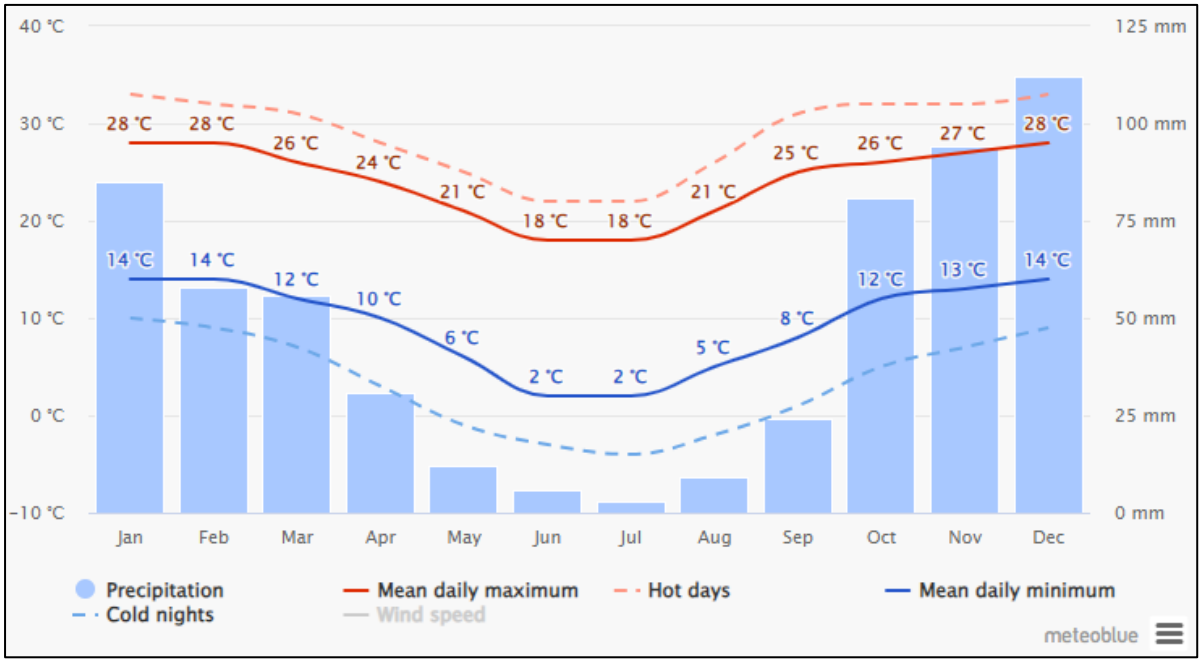


Figure 9: Meteoblue[6] - Simulated historical climate & weather data for the Frankfort / Vrede area

The general area is also ideally suited for a solar PV facility due to the relatively high irradiation levels. The Global Horizontal Irradiation (GHI) average for the area is 2016.5 kWh/m^2 according to the Global Solar Atlas (Figure 12)[7]. According to the Global Weather Corp Global horizontal irradiance (GHI) is a measurement of the total solar electromagnetic radiation above a horizontal surface at a given location and time. It is the most useful metric for predicting solar panel output. It accounts for 71.6% of PV performance variations. Refer to Figure 6.

[6] (https://www.meteoblue.com/en/weather/historyclimate/climatemodelled/frankfort_south-africa_1003763)
[7] https://globalsolaratlas.info/map

5.4 LANDSCAPE / VISUAL

An initial Visual Impact Assessment has been undertaken, with the preliminary findings included in the pre-application Scoping Report; however, it will be finalised during the EIA phase.

A Visual Impact Assessment aims to identify important visual characteristics of the surrounding landscape, especially the features and characteristics that contribute to scenic quality, as the basis for determining how and to what degree the proposed development will affect those scenic values.

The landscape sensitivity is very high due to the high ridges and steep slope (between 1:4 and 1:10) associated with the site. The dolerite outcrop (koppie) in the south of the site is such a feature that contributes to this very high sensitivity.

5.4.1 Topography and Landscape

Situated within the expansive grasslands of the Free State province, the proposed site features a topographical setting that is relatively flat with gentle undulations. The site's elevation ranges from 1,623.07 meters to 1,682.19 meters above sea level, depending on the specific location within the project boundaries. This variation in elevation, though minimal, provides a subtle yet important aspect of the site's topographical profile.

The north to south elevation profile, captured from the site's midpoint, shows a gradual rise in elevation from 1,626.67 meters at the northern end to approximately 1,682.19 meters at the southern boundary. This indicates a consistent but gentle slope across the site's length. Similarly, the west to east elevation profile reveals a gentle ascent, starting at an elevation of 1,635.81 meters on the western boundary and rising to around 1,649.87 meters on the eastern side. However, certain parts of the site exhibit a maximum slope of approximately 36.90%, which is quite steep and may present challenges for construction and infrastructure placement.

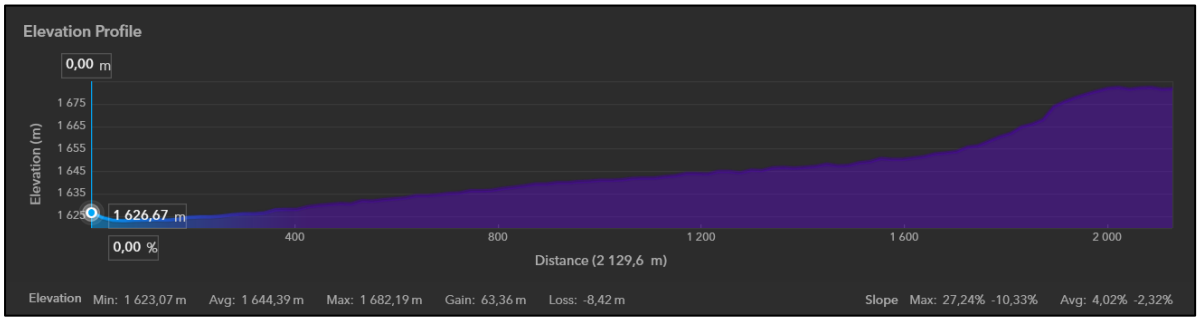


Figure 10: North to South (towards the *koppie*) Elevation Profile (captured from the site's midpoint)

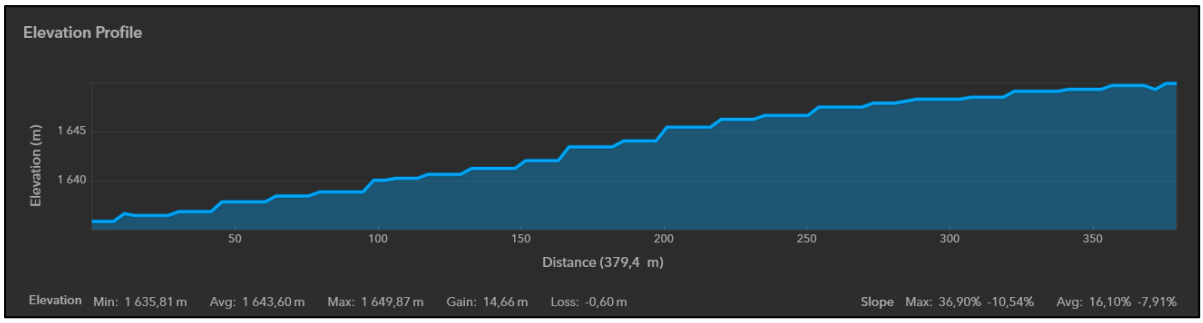


Figure 11: West to East (towards the N3) Elevation Profile (captured from the site's midpoint)

5.5 BIODIVERSITY

An initial Terrestrial Biodiversity Assessment has been undertaken, with the preliminary findings included in the pre-application Scoping Report; however, it will be finalised during the EIA phase.

A Terrestrial Biodiversity Assessment aims to understand the terrestrial ecology and evaluate the potential impacts of the proposed development on site. It identifies and assess biodiversity aspects (fauna and flora and terrestrial ecosystems) associated with the proposed development area and the environmental interactions it imposes.

A Screening Tool Report was generated (see Section 5.2) and classified the proposed development area's biodiversity sensitivities as the following:

- **Plant species (medium sensitivity)**
- **Animal species (high sensitivity)**
- **Terrestrial biodiversity (very high sensitivity)**

The plant species sensitivity is medium due to the natural grassland associated with the site being degraded by prolonged livestock grazing. However, potential sensitive species recorded for the site by SANBI may be present.

The animal species sensitivity is high due to the potential sensitive species recorded for the site by SANBI. The presence of several bird species (mostly vulnerable or endangered birds-of-prey) is also associated with the site. Unfortunately, because of the long history of agriculture and the transformed nature of the veld it is considered highly unlikely that the proposed development will result in any significant additional impact on any of these species.

The terrestrial biodiversity Sensitivity is very high due to the site being associated with a Freshwater Ecosystem Priority Area subcatchment (FEPA-subcatchment). The site also falls under the National Protected Area Expansion Strategy (NPAES) for the Free State Highveld Grasslands. However, there are no significant freshwater resources found on the site but there is a drainage line that runs through the proposed development footprint.

5.5.1 Vegetation

The proposed development area is located within the Grassland Biome, within the Mesic Highveld Grassland Bioregion (Rutherford and Westfall, 1994). It falls within the **Frankfort Highveld Grassland** vegetation type (Scott-Shaw and Escott, 2011; Mucina and Rutherford, 2006; 2018), which is currently listed as a **Least Threatened** ecosystem at a national level (SANBI, 2021; DFFE, 2022). Frankfort Highveld Grassland vegetation occurs in the Free State and marginally in Mpumalanga at an altitude of 1460-1800 m a.m.s.l. on flat to slightly undulating terrain. The vegetation is dominated by grasses such as *Eragrostis curvula* and *Themeda triandra*. Other common species include *E. capensis*, *E. plana*, *Cymbopogon pospischilii*, *Elionurus muticus*, and *Aristida junciformis* (Mucina and Rutherford, 2006).

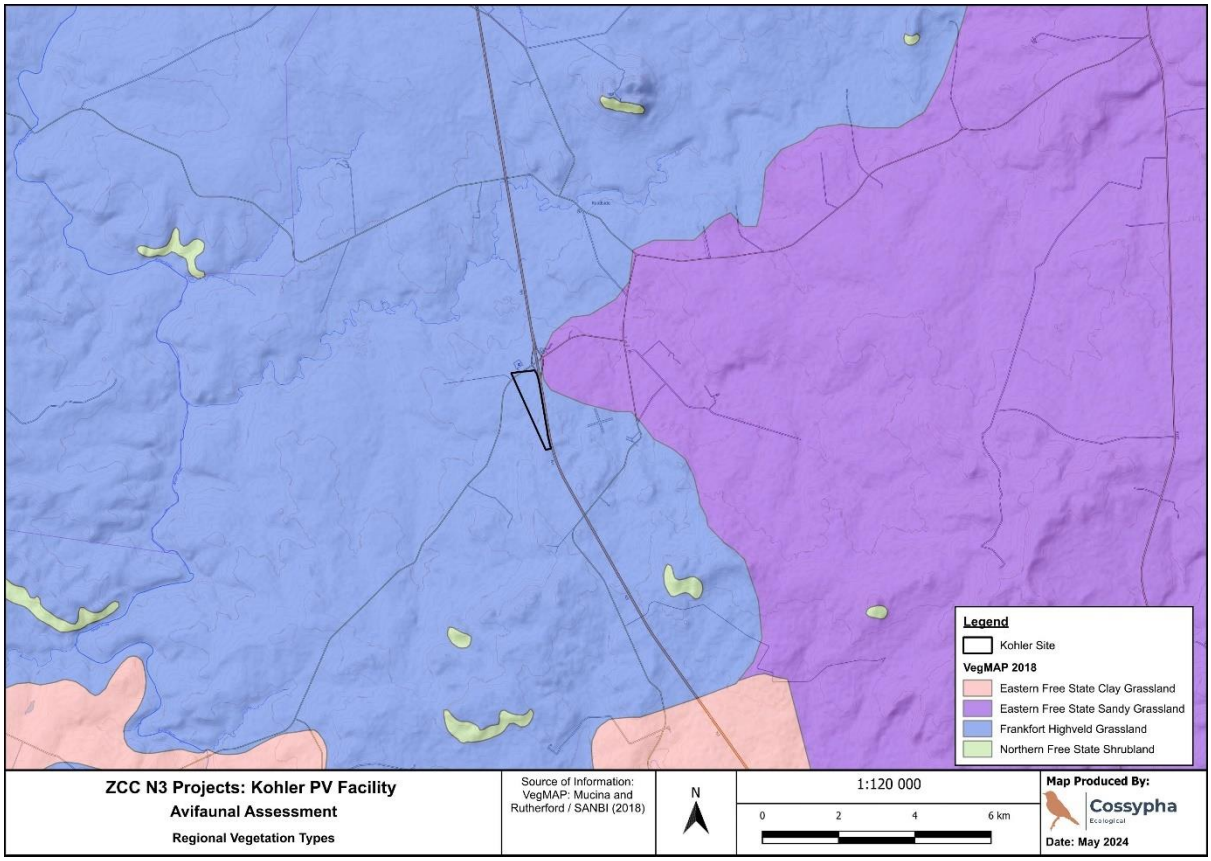


Figure 12: The study area in relation to regional vegetation types

5.5.2 Fauna

Based on the Mammal Map database obtained from the Virtual Museum website, a total of 5 (five) mammal species has the probability of occurring in and around the study area. According to the web based National Environmental Screening Tool 1 (one) mammal species of conservation concern is flagged for the site. 1 species is listed as near threatened, i.e. spotted-necked otter.

This species is usually associated with bodies of water or rivers. Seeing that the drainage area is usually dry, and water flows only during rain events, this habitat is not suited for the spotted neck otter. With specific reference to Species of Conservation Concern (SCC) listed on the screening tool the area is considered a low sensitivity. Other mammals observed on site included porcupine, mongoose, and ground squirrel. Small mammals are also likely abundant on the site.

Based on the Reptile Map database obtained from the Virtual Museum website, a total of 5 (five) reptile species have the possibility to occur within and around the study area. As per the database obtained from the Virtual Museum website, a total of 2 (two) amphibian species, have the possibility to occur within and around the study area. According to the web based National Environmental Screening 1 (one) reptile species and no amphibian of concern are flagged for the site. 1 species is listed as vulnerable.

5.5.3 Free State Biodiversity Plan

The Free State Biodiversity Plan (FSBP; Collins, 2016) uses a systematic biodiversity planning approach to identify the priority biodiversity areas and ecological infrastructure in the province. The FSBP is a spatial tool that indicates areas that are important for the representation and persistence of terrestrial species and ecosystems. These areas are referred to as Critical Biodiversity Areas (CBAs) and are the minimum area required to ensure the persistence and representation of biodiversity. The

bioregional plan also includes land use management guidelines, which if implemented, will avoid further loss and degradation within the CBAs (Collins, 2016). The key output of the biodiversity planning process is the CBA map. Categories included in the CBA map are as follows:

- **CBA1 (Irreplaceable):** A site that is irreplaceable or near irreplaceable for meeting biodiversity targets.
- **CBA2 (Optimal):** A site that has been selected based on its suitability for meeting biodiversity targets.
- **ESA:** An area that plays an important role in supporting the ecological functioning of a protected area or CBA, or in delivering ecosystem services. In most cases ESAs are currently in at least fair ecological condition and should remain in at least fair functioning condition.
    - **ESA1:** Sites with minimal degradation.
    - **ESA2:** Sites with degradation, i.e. they can be totally degraded, but not totally transformed.
- **Other:** An area of natural habitat not required to meet biodiversity targets for ecosystem types, species or ecological processes, i.e. natural areas not selected as CBA or ESA.
- **Degraded:** An area of degraded or transformed habitat that has not been selected as an ESA, i.e. all remaining areas.

According to the FSBP, the study area falls within an ESA1 (Figure 13). This is represented by near-natural grassland used for grazing purposes. Degraded areas occur on either side and to the south, and the site is bordered by the N3 highway on the eastern side. As a whole, the study site is deemed to have a “Low-Medium” sensitivity. Areas that were indicated to have a “Medium-High” sensitivity were completely excluded from the proposed development.

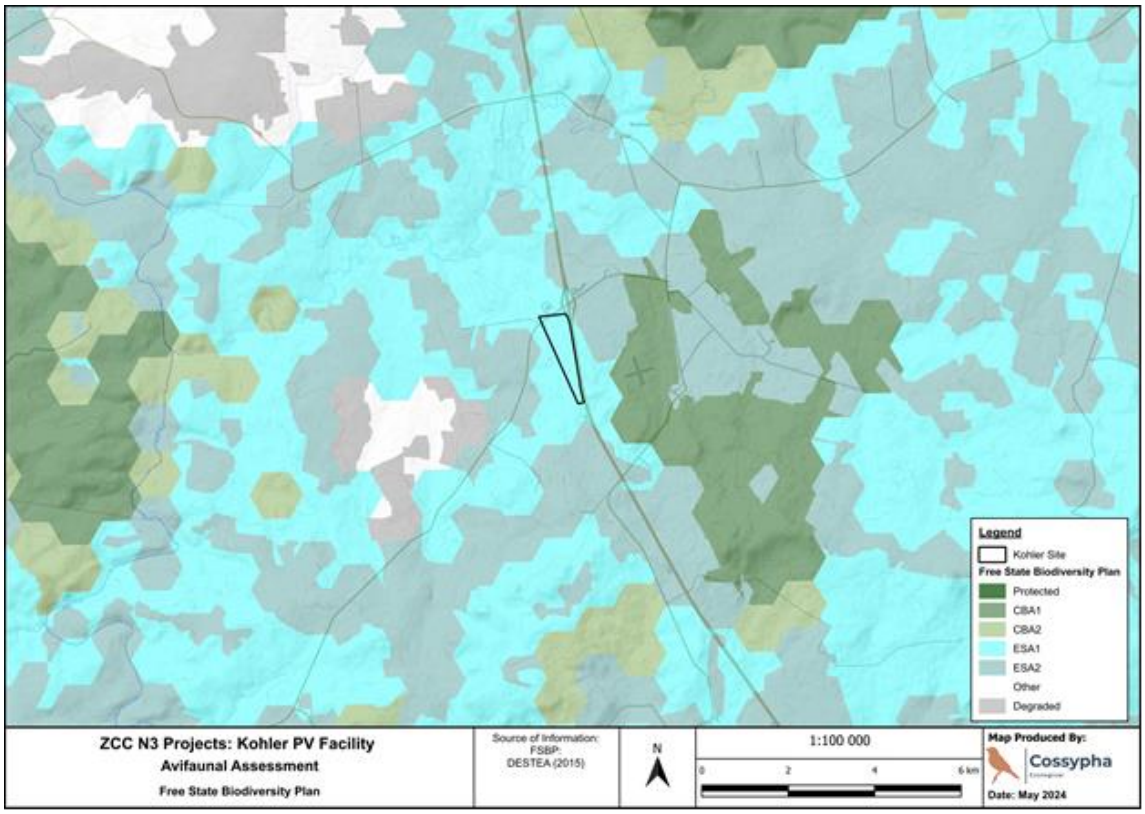


Figure 13: FSBP (2015), indicating that the site does not fall within a Critical Biodiversity Area (CBA)

5.6 AVIFAUNA

A preliminary Avifaunal Assessment has been undertaken, with the preliminary findings included in the pre-application Scoping Report; however, it will be finalised during the EIA phase.

A preliminary Avifaunal Assessment describes the relative sensitivity of the study area, highlights any red flags to development, and determines whether additional baseline data collection is necessary to fully inform the Avifaunal Impact Assessment report. This preliminary Avifaunal Assessment for is based on desktop review and a brief field survey of the site.

A Screening Tool Report was generated (see Section 5.2) **and classified the proposed development area's avifaunal sensitivity theme as a low sensitivity.** The EAP is however of the opinion that an Avifaunal Impact Assessment is required as a specialist assessment to this development in spite of the Screening Tool not listing it as an identified specialist assessment. The presence of several bird species (mostly vulnerable or endangered birds-of-prey) is also associated with the site.

5.6.1 Distribution of avifauna in the study area

According to SABAP2[8] data, 145 bird species have been recorded in the pentad in which the majority of the study area falls (pentad 2730_2850) and the adjacent pentad (2730_2845) combined. **Of these around 90 species can be considered priority species in terms of sensitivity to solar PV energy development impacts.** Such species include any species of conservation concern (SCC), range-restricted species, small passerines that congregate in large numbers, and large-bodied species such as waterfowl, herons, gamebirds, and raptors (including owls and vultures) (Jenkins et al., 2017).

According to SABAP2 data, priority species that have been recorded most often within the pentads in which the site falls include gregarious passerines, a few waterfowl (ducks and geese), and a few gamebirds such as herons, guineafowl, and hadedas.

While no priority species were recorded on site during the field survey, there is a good chance that certain species may move through the study area from time to time, predominantly for foraging purposes. **Documented records of priority species occurring in proximity to the study area (i.e. within a 10 km radius) include many SCC such as the Near Threatened (NT) Blue Korhaan, Endangered (EN) Grey Crowned Crane, Vulnerable (VU) Southern Bald Ibis, VU Lanner Falcon, and EN African Marsh Harrier.**

5.6.2 Key habitats and preliminary sensitivity

The natural grassland vegetation in the broader surrounding areas would be the most important habitat for birds in the region, with key habitat features such as river systems, wetlands, dams, and rocky koppies adding habitat heterogeneity. These habitats likely support the bird species found in the region, including priority species such as gamebirds, waterfowl, raptors, and gregarious passerines.

The majority of the study area is comprised of natural to near-natural grassland that is moderately disturbed by grazing activities, as well as the proximity to the N3 highway, and is of medium sensitivity. The north-western corner of the site where the S589 road crosses the site is modified (low sensitivity), with the grassland on the other side of the road disturbed by past activities (medium-low sensitivity).

Key habitats within the **study area include a natural rocky outcrop in the southern section of the site, which is considered highly sensitive**. **The proposed development footprint avoids this habitat adequately.** No streams or wetlands occur within the study area. **The top of a drainage line that feeds a small farm dam situated just to the north of the site is considered highly sensitive.**

[8] Southern African Bird Atlas Project 2

Table 4: Site feature sensitivity rating - Avifauna Assessment

Site Feature	Description and Recommendation	Sensitivity Rating
Drainage lines, wetlands, and dams	Drainage lines, wetlands, and dams provide important habitat for avifauna and are usually areas of high biodiversity. The small drainage line and dam just to the north of the site are considered highly sensitive	**High**
Rocky outcrops	Rocky areas are considered highly sensitive as they increase local habitat heterogeneity and species diversity	**High**
Natural / near-natural grassland	Although disturbed by grazing cattle, the grassland covering the majority of the site is natural and provides the main habitat for the avifauna found in the area. This habitat is considered to be of medium sensitivity	**Medium**
Modified habitat / disturbed grassland	Areas of natural grassland that have been disturbed or modified in the past are of medium-low sensitivity	**Medium-low**
Modified – roads	Areas that have been modified by road construction are not considered sensitive	**Low**

5.6.3 Protected areas and Important Bird Areas

According to the latest updates of the South African Protected Areas Database (SAPAD) and South African Conservation Areas Database (SACAD) (DEA, 2023a; 2023b), **the site does not fall within proximity to any Protected Areas**, with the nearest being the Shozaloza Safaris Nature Reserves (NR) situated approximately 16 km to the south-east. The Schuinshoogte Game Farm occurs ~22 km to the south-east and the Moreson NR occurs ~22 km to the east. The site does however fall within an area earmarked as a National Protected Area Expansion Strategy (NPAES) Priority Focus Area under the Freestate Highveld Grasslands. The study area does not fall within an Important Bird Area (IBA).

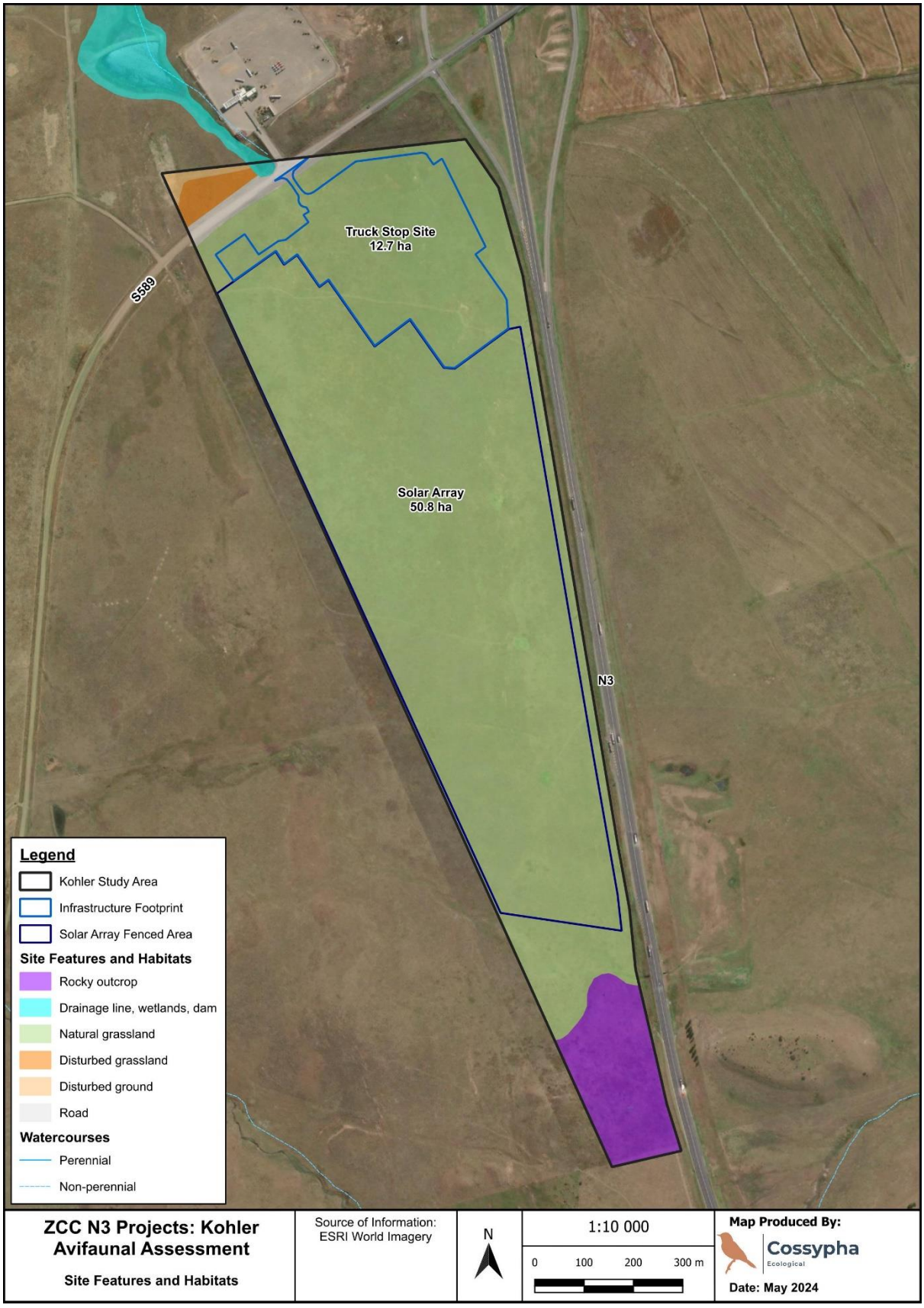


Figure 14: Site features and habitats

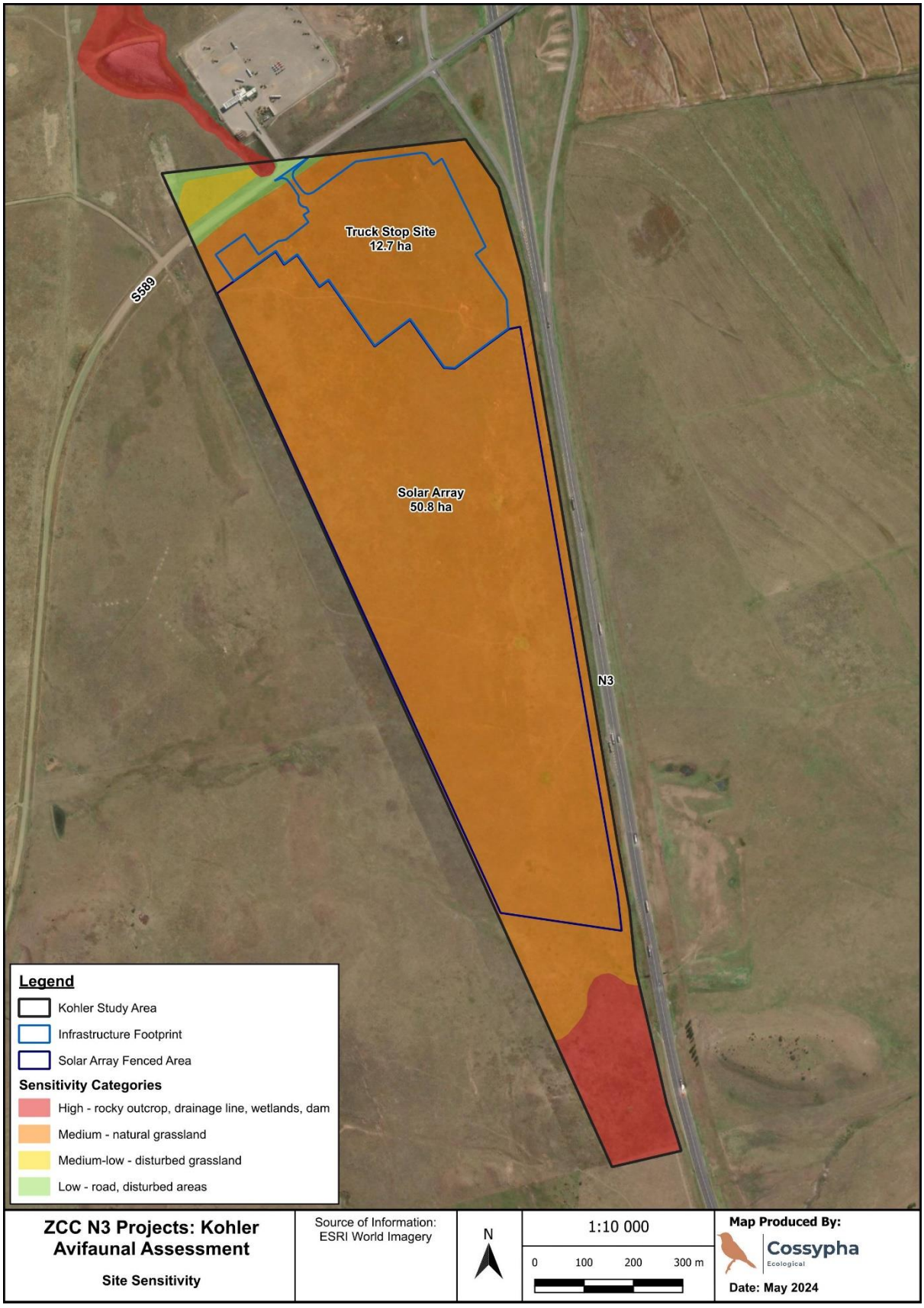


Figure 15: Preliminary avifaunal habitat sensitivity

5.7 FRESHWATER

An initial Freshwater Assessment has been undertaken, with the preliminary findings included in the pre-application Scoping Report; however, it will be finalised during the EIA phase.

A Freshwater report serves to evaluate the potential impacts of proposed development on freshwater resources such as watercourses and wetlands. It assesses factors like water quality, quantity, and ecosystem health to inform decision-making and mitigate adverse effects on these ecosystems.

A Screening Tool Report was generated (see Section 5.2) **and classified the proposed development area's aquatic biodiversity sensitivity as a very high sensitivity.**

The aquatic biodiversity sensitivity is very high due to the site being associated with a Freshwater Ecosystem Priority Area subcatchment (FEPA-subcatchment). The site also falls under the National Protected Area Expansion Strategy (NPAES) for the Free State Highveld Grasslands. However, there are no significant freshwater resources found on the site but there is a drainage line that runs through the proposed development footprint.

5.7.1 Drainage lines

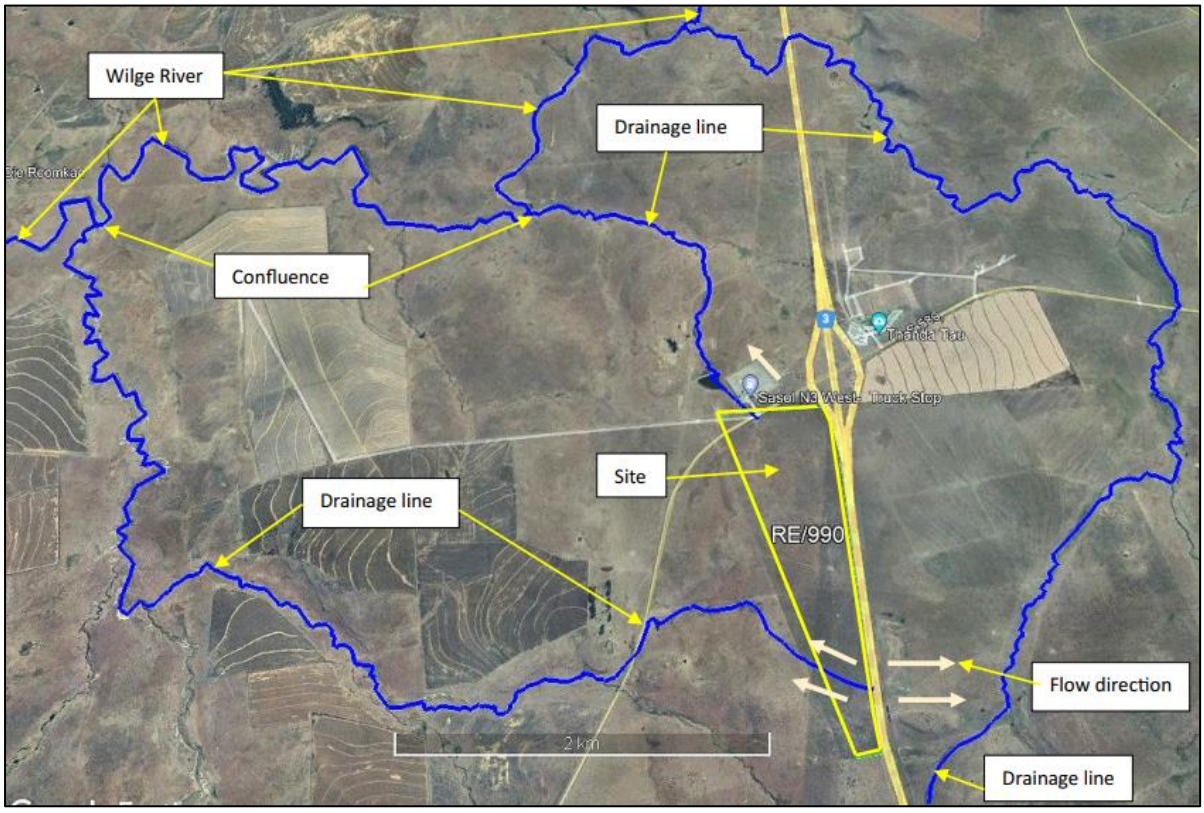


Figure 16: Drainage lines

None of the drainage lines on or around the site are listed as National Freshwater Ecosystem Priority Areas (NFEPA) on the National Biodiversity Spatial Development Plan, as listed on the Western Cape Farm Mapper. The Wilge River 2.15km away is listed as a NFEPA.

The aquatic biodiversity theme has been listed as very high, despite that the drainage lines on the site have not been listed as NFEPA. The site falls in the C82F quaternary catchment; however, the sub-catchment is listed as a Freshwater Ecosystem Priority Areas (FEPA) sub-catchment on the

DFFE Screening Tool. The sub-catchment is in the Wilge River catchment, an important resource of the Vaal Dam and of Gauteng, South Africa's economic heartland.

5.7.2 Present Ecological State

The **transverse drainage line** from the N3 embankment to the eastern boundary fence is in an almost natural condition, with the only impact grazing livestock. This was the status during the site visit, with summer rains and tall grass. The runoff from the N3 impacts on the flow regime. The instream habitat is almost natural, with the ecosystem functioning intact. The riparian zone did not exhibit any impacts during the site visit. The proposed charging station in the northern corner of the site is far away from this drainage line and it is not about to change its status in any way. The runoff flow from the development is away from the drainage line. Currently, it is not foreseen that the solar panels will be increased and that more land will be covered. Should such an expansion happen, the impact would be. A buffer zone of 32m on either side of this drainage line would offer adequate protection.

The **northern drainage line** is heavily impacted by the road embankment and the pipe culverts. The drainage line was straightened and engineered when the road and the truck stop was constructed. Both the instream habitat and the riparian zone are moderately modified because of these impacts. The construction and the operation of the charging station would further impact on this short reach of drainage line. The addition of hardened surfaces such as roof and parking areas would add to the altered runoff and the flow regime. However, it is not expected to lower the classification of this drainage line. It would remain moderately modified.

Table 5: Present Ecological State - Class

Drainage line	Instream	Riparian
Transverse drainage line	B	A
Northern drainage line	C	C

Table 6: Category's assigned to the scores for wetland habitat assessment

Category	Score	Description
A	>4	Unmodified or approximated natural condition.
B	>4 and ≤3	Largely natural with few modifications, but with some loss of natural habitats.
C	>2 and ≤3	Moderately modified, but with some loss of natural habitats.
D	2	Largely modified with a large loss of natural habitat and ecosystem function.
E	>0 and ≤2	Seriously modified with extensive loss of habitat and ecosystem function.
F	0	Critically modified with a near-complete loss of natural habitat.

The average score for the dam leaves it in the C category, which is moderately natural. That is if an entirely artificial dam can be viewed as "moderately modified". The runoff from the proposed charging station will increase the modification, but not to the next lower level. The change would not be significant, as the increased hardened surface area would be small.

5.8 AGRICULTURE

An initial Agricultural Compliance Statement has been undertaken, with the preliminary findings included in the pre-application Scoping Report; however, it will be finalised during the EIA phase. An Agricultural Compliance Statement aims to identify and assess the agricultural theme associated with the proposed development area and the environmental interactions it imposes.

A Screening Tool Report was generated (see Section 5.2) **and classified the proposed development area's agricultural sensitivity theme as a high sensitivity.** The agricultural sensitivity is high due to the moderate-high land capability. However, the land use is predominantly natural grassland utilised for livestock grazing without any field crops present.

Agricultural sensitivity, as reported in the Screening Tool, is based upon the land use (SANLC, 2014) and land capability (Department of Agriculture, Forestry and Fisheries, 2017, also referred to as DAFF, 2017). All cultivated land is considered a high sensitivity, while irrigation and unique crops, are considered very high sensitivity, irrespective of the land capability. The land use in the Screening Tool is based on the South African Nation Land Cover (SANLC, 2014). Meanwhile, there have been two more updated versions of the land use (2018 and 2020). According to DAFF,2017, land capability is defined as the most intensive long-term use of land for purposes of rainfed farming determined by the interaction of climate, soil, and terrain. The following weight was given to each attribute when calculating the Land Capability:

Land capability = Climate (40%) + Terrain (30%) + Soil (30%)

The land capability (DAFF, 2017) classifies the soils as having a land capability of **low to moderate and moderate to high** (Figure 17). There are also not any field crops present within the development area.

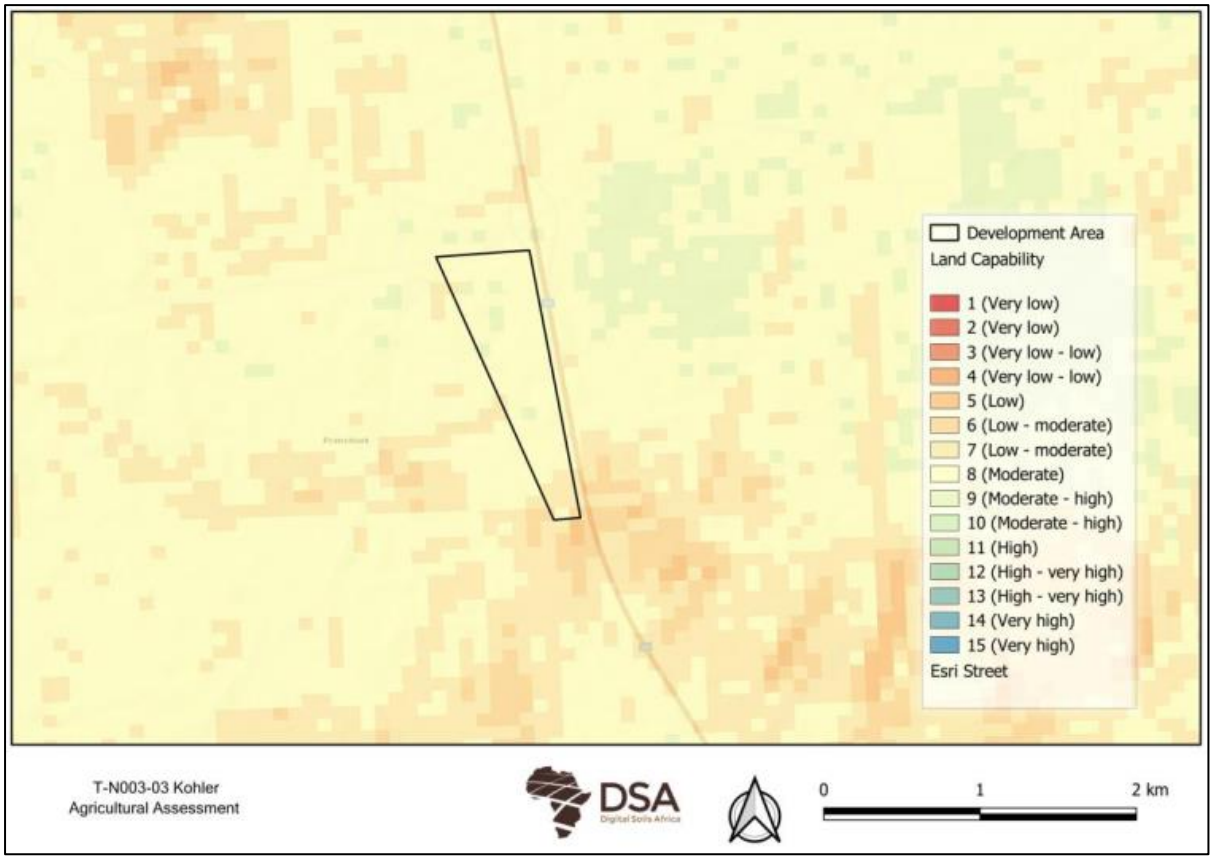


Figure 17: The land capability of the study as used in the Screening Tool

5.8.1 Land capability

According to DAFF, 2017, land capability is defined as the most intensive long-term use of land for purposes of rainfed farming determined by the interaction of climate, soil, and terrain. The following weight was given to each attribute when calculating the Land Capability:

Land capability = Climate (40%) + Terrain (30%) + Soil (30%)

5.8.1.1 Climate capability

As per the Agricultural Compliance Statement report (May 2024), the climate is characterized as mild and moderate. The Köppen-Geiger climate classification is Cwb[9]. The average annual temperature is 15.2 °C. Rainfall is present during summer, with an annual precipitation of about 799 mm. The site has a Semi-Arid climate. **Therefore, cultivation of dry land crops will be possible, but might prove to be difficult.**

Climate capability is highest weighted factor (40%) in the calculation of the Land capability (DAFF, 2017) which is used in the Screening Tool to determine the agricultural sensitivity (high). The climate capability consists of 9 values, with 1 being the lowest value and 9 being the highest value (There is however no evaluation value of 1 & 2). The climate capability is determined by factors such as moisture supply capacity, physiological capacity and climatic constraints. **The climate capability according to DAFF, 2017, is a value of 5. This is considered a moderate climate capability.**

5.8.1.2 Terrain capability

Terrain plays an important role in a plants' physiological growth requirements (sensitivity and accessibility perspective). Therefore, the two terrain modelling concerns included in the terrain capability modelling exercise were plant physiology and terrain sensitivity.

The terrain capability consists of 9 values, with 1 being the lowest value and 9 being the highest value. The terrain capability of where the proposed development area is situated, according to the DAFF, 2017, has a range from 5 (moderate) to 7 (high). **This is generally considered a moderate to high terrain capability, however, most of the development area has a terrain capability of 7 (high).**

5.8.1.3 Soil capability

A land type is an area which can be demarcated at a scale of 1:250 000 with similar soil forming factors and therefore soil distribution patterns. A land type does therefore not represent uniform soil polygons, but rather information regarding the occurrence of different soils on different terrain units can be obtained from the land type inventory. Land type data was used in calculating the soil capability (DAFF, 2017), and therefore, indirectly used in the Screening Tool for estimating the agricultural sensitivity.

The study area is comprised of the Ea (31) land type, except for a small region on the southern part of the development area, which is comprised of the Ea (81) land type (Land Type Survey Staff, 1972 – 2002). Refer to Figure 18.

Ea land types are characterized by black and red clays that comprise > 50% of the land type. The clayey soils could pose a swelling and shrinking problem regarding development; however, the large surface area does increase its water-holding capacity, making it favourable for crop production.

The soil capability consists of 9 values, with 1 being the lowest value and 9 being the highest value. The main factors contributing to the soil capability consist of plant available water (80%), soil sensitivity (17%) and soil fertility (3%).**The soil capability of the development area, according to the DAFF (2017), has a value of 5. This is considered a moderate soil capability.**

[9] Subtropical highland climate or temperate oceanic climate

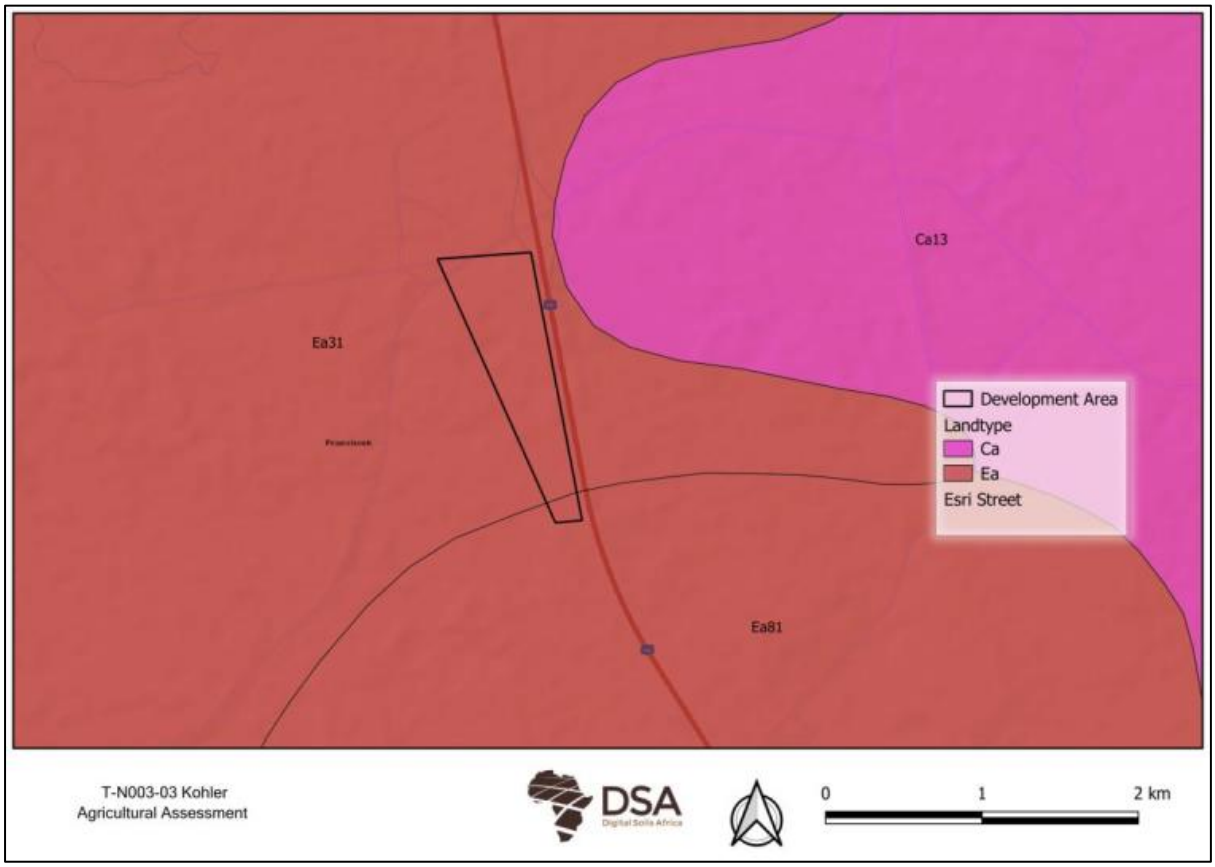


Figure 18: Land types found in the study area and the surrounding area (Land type survey staff, 1972-2002)

5.8.1.4 Land capability

The new Land capability (Department of Agriculture, Forestry and Fisheries, 2017) has fifteen classes, as opposed to the eight classes described by Schoeman et al. (2002). The data is usable on a scale of 1:50 000 – 1: 100 000, therefore, not suitable for farm scale recommendations.

- Classes 1 to 7 are of low land capability and only suitable for wilderness or grazing.
- Classes 8 to 15 are considered to have arable land capability with the potential for high yields increasing with the land capability class number.

The land capability values of the study area are between 7 (low to moderate) and 9 (moderate to high), which is in the range of non-arable soils (1-7) and arable soils (8-15). **However, the majority of the study area has a land capability of 8 (moderate), which is in the range of arable soils (8-15).**

5.8.2 Grazing capacity

The unit used in the grazing capacity is hectares per large stock unit (ha/LSU). **The site has a high grazing capacity of 4 and 5 ha/LSU.** A homogeneous unit of vegetation expressed as the area of land required (in hectares) to maintain a single large stock unit (LSU) over an extended number of years without deterioration to vegetation or soil. Where an LSU = an animal with a mass of 450 kg and which gains 0.5 kg per day on forage with a digestible energy of 55%. (Trollope et. Al., 1990).

5.8.3 Land use

South African National Land-Cover 2020 (SANLC 2020) (GeoTerraImage, 2020) was compared to the 2014 Land Cover to determine if there was a land use change since 2014, and there was very little conflicting classification in the study area. SANLC 2020 classifies the area as predominantly natural

grassland (13), with only a very small region in the top northwestern part of the study area having bare land (31) and a road (67) going through the study area. Refer to Figure 19.

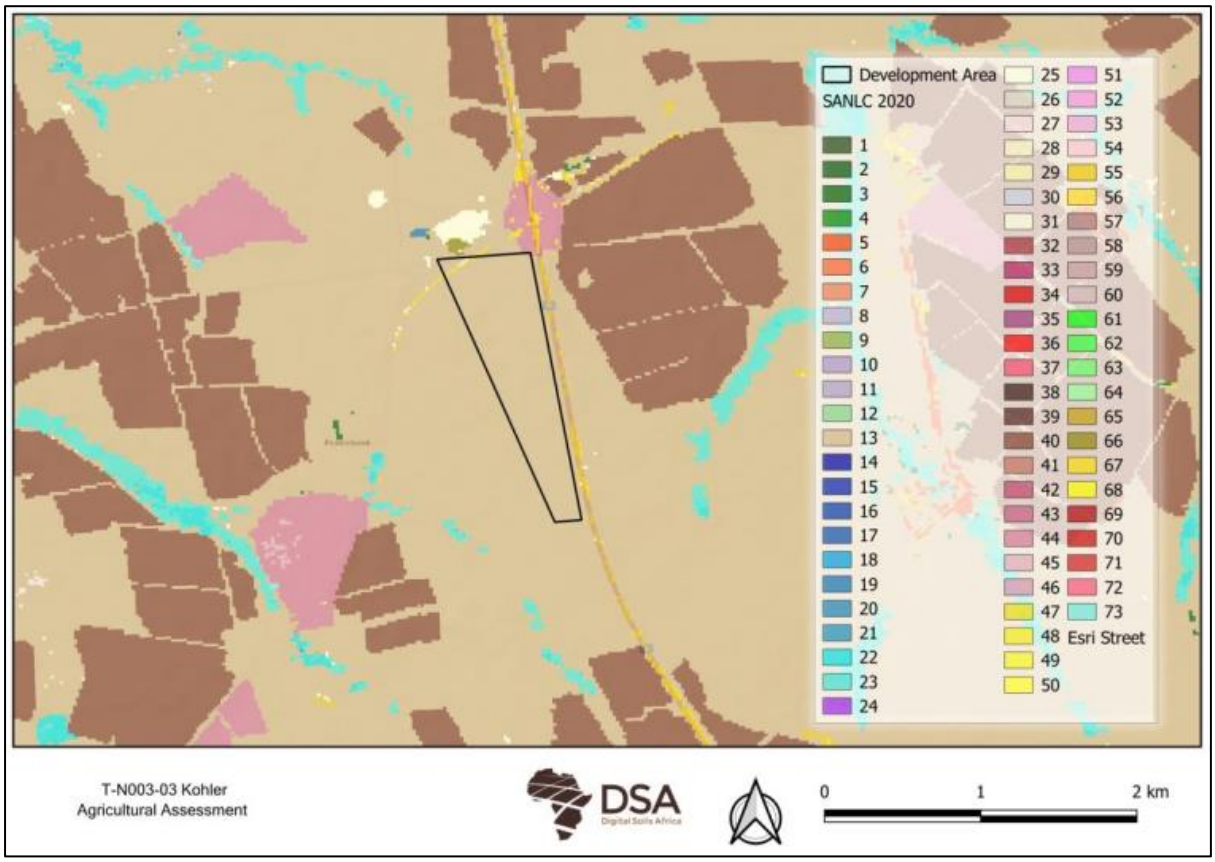


Figure 19: South African National Land-Cover 2020 (SANLC, 2020)

5.8.4 Site verification

On November 9, 2023, the specialist, Darren Bouwer conducted a field survey using a soil auger. The soils were observed, described, and classified based on the guidelines provided by the Soil Classification Working Group (2018). The observation map can be found in

The area is characterised by shallow soils except for a small area situated in a slight depression in the north of the study area which has signs of poor drainage. Rock outcrops are common throughout the site. Apart from the soils in the depression, soils were uniform with the only variable being a slight increase in depth when the lithic horizons were slightly weathered. No evidence of cultivation was visible on the site

Table 7: Soil types found in the study area

Soil type	A horizon	B horizon	Land capability
Glenrosa	Orthic A	Lithic	Medium
Mispah	Orthic A	Rock	Medium
Westleigh	Orthic A	Soft plinthic	Low

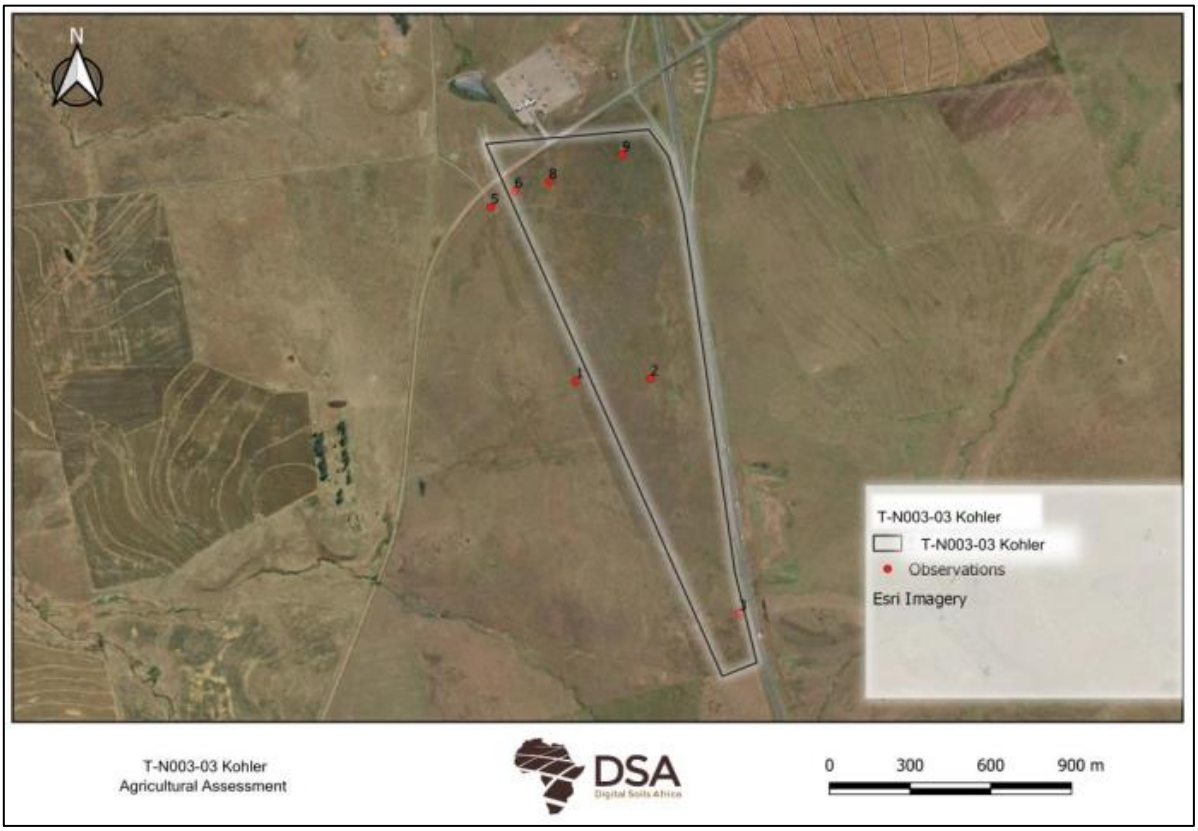


Figure 20: Observations made during the site visit

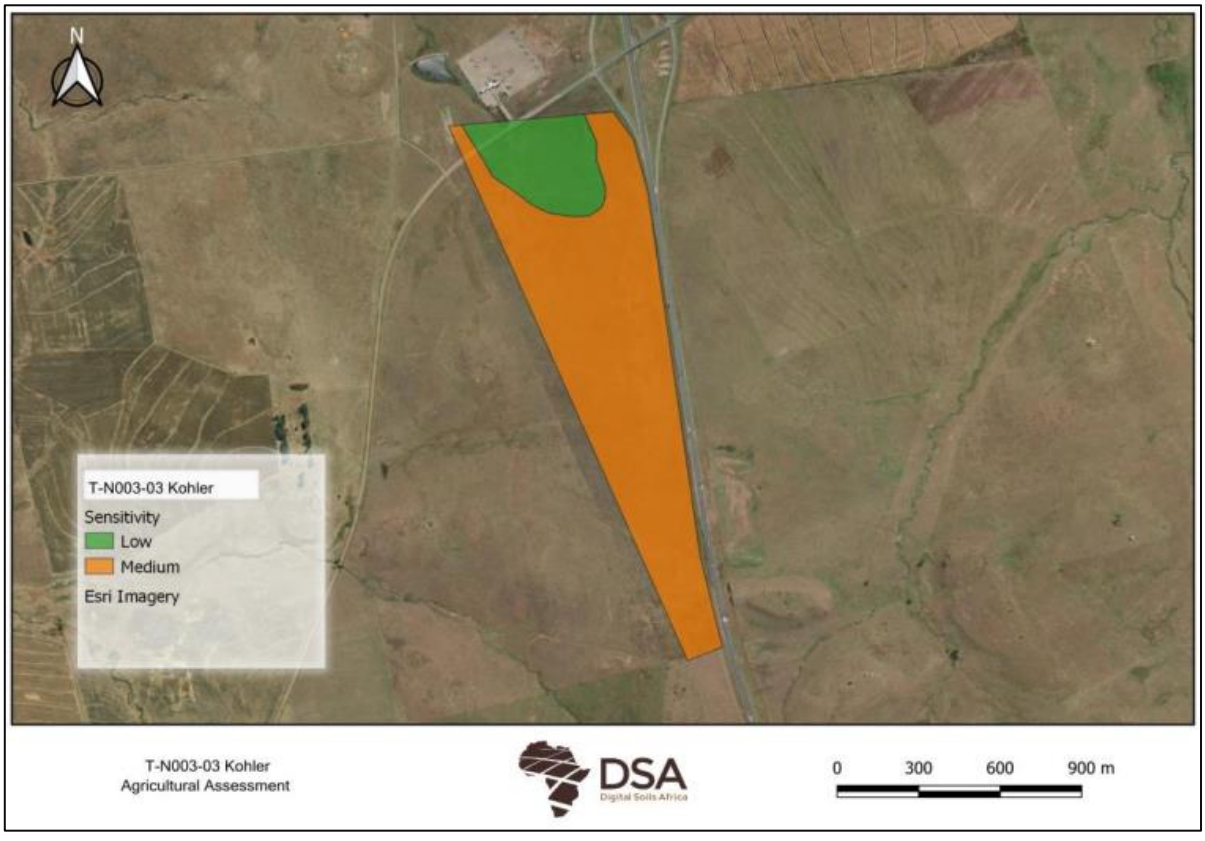


Figure 21: The agricultural sensitivity of the site

Figure 22: An example of a sample of Glenrosa soil type augured in the study area during site verification

5.8.5 Protected Agricultural Area

Preservation and Development of Agricultural Land Framework Act (PD-ALF) is in the process of being published. The new statutory framework will replace the Subdivision of Agricultural Land Act, Act 70 of 1970.

Protected Agricultural Area, as in the draft framework, is defined as "*an agricultural land use zone, protected for purposes of food production and ensuring that high potential and best available agricultural land are protected against non-agricultural land uses in order to promote long-term agricultural production and food security.*" **The study area is not situated within a Protected Agricultural Area.**

5.9 HERITAGE / ARCHAEOLOGICAL & PALAEONTOLOGICAL

An initial Heritage / Archaeological Impact Assessment has been undertaken, with the preliminary findings included in the pre-application Scoping Report; however, it will be finalised during the EIA phase.

A Heritage Assessment, like the Heritage Survey conducted for the proposed development, aims to identify and assess the heritage / archaeological and palaeontological themes associated with the proposed development area and the environmental interactions and impacts it imposes.

A Screening Tool Report was generated (see Section 5.2) **and classified the proposed development area's environmental sensitivity themes as the following:**

- **Archaeology and Cultural Heritage (low)**
- **Palaeontology (very high)**

The archaeological and cultural heritage sensitivity is low; however, after a phase 1 heritage survey it was determined that most of the site has no heritage features, except for stone walled features associated with the dolerite outcrop (koppie) in the south of the site. These features are of medium to high heritage significance. The palaeontological sensitivity is very high due to the likelihood of finding significant fossils within the geologic unit associated with the site.

A Notice of Intent to Develop (NID) will also be submitted to the Heritage Authority.

5.9.1 Heritage / Archaeological findings

A desktop assessment is conducted using databases which includes information on archaeological sites, national and provincial monuments, battlefields, and cemeteries in Southern Africa. These databases aids in locating and dating heritage / archaeological sites like buildings, graves, monuments, etc. Topographical maps and aerial photographs are also utilised and consultations with local data recording centres, historical architects, palaeontologists, and historians may be necessary.

Once heritage / archaeological sites have been identified the significance of each recorded site is rated. Sites are categorised into low, medium, and high significance. Depending on the significance determined, a corresponding mitigation measure is recommended based on the impact on the proposed development.The desktop study consisted of analysing various maps for evidence of prior habitation in the study area, as well as for previous archaeological surveys. There are no known surveys within the study area.

The area occurs ~25km south of Ntsuanatsatsi, the birthplace of the Basotho Nation (Maggs 1976. Another similar site is OU2 that occurs 51km northeast of the study area. Both sites were partially excavated and date to the 15th century. Both of these sites are relate Type N stone walling.

The Google earth imagery indicates that there are many stone walled structures in the southern part of the study area. These types of sites extend to all of the hill tops in the general area. There are several recorded family cemeteries in the general area and these would relate to specific farmhouses. The adjacent farm, Rooikraal, has a cemetery for farm labourers. Other types of heritage sites include 18th and 19th century farm buildings.

However, most of the study area has no heritage features, except for the dolerite outcrop (*koppie*) in the south. The *koppie* consists of many primary enclosures with multiple secondary walling. There is no cultural deposit and there is a distinct lack of artefacts to suggest the walling was used for domestic purposes. The walling appears to have been robbed for the adjacent stone walling.

Figure **23** indicates the central point of each byre or *kraals* with a few possible houses. These stone walled features are associated with Type N settlements that date to the 15th century. Most of the hilltops within a 50km radius have Type N or Type V stone walled settlements. **These are of medium to high heritage significance.**

A few possible graves occur around the site, but these need to be confirmed. Sites such as this one are abundant across the local landscape, and better preserved examples occur. **The stone walled area will not be affected by the proposed development.**

Figure 23: Location of stone walled features – Outcrop (koppie) in the south of the site

Figure 24: Stone walled features

5.9.2 Palaeontological findings

The palaeontological sensitivity is very high due to the likelihood of finding significant fossils within the geologic unit associated with the site. However, as per the SAHRIS palaeontological sensitivity map (Figure 25) the area associated with the site has an insignificant / zero (grey) sensitivity.

A desktop study indicates that the site may consist of intrusive rocks out of the Phanerozoic eon, the Palaeozoic era and Permian and carboniferous time periods. The sedimentary and volcanic rocks expected to be encountered on site is Balfour Formations forming part of the Adelaide subgroup in the Beaufort group which is part of the Karoo Supergroup. Intrusive rocks consisting of the Karoo Dolerite Suite may also be encountered on site.

The study area is in an area of no palaeontological sensitivity. No further palaeontological mitigation is required.

Figure 25: Palaeontological sensitivity map

Table 8: Palaeontological sensitivity rating

Colour	Sensitivity	Required action
Red	Very high	Field assessment and protocol for finds is required.
Orange / Yellow	High	Desktop study is required and based on the outcome of the desktop study; a field assessment is likely.
Green	Moderate	Desktop study is required.
Blue	Low	No palaeontological studies are required however a protocol for finds is required.
Grey	Insignificant / Zero	No palaeontological studies are required.
White / Clear	Uknown	These areas will require a minimum of a desktop study. As more information comes to light, SAHRA will continue to populate the map.

5.10 Socio-Economic Context

5.10.1 Thabo Mofutsanyana District Municipality

The Thabo Mofutsanyana District Municipality, located in the Free State Province of South Africa, covers an area of approximately 30 000 square kilometers. As per the 2022-2027 Integrated Development Plan (IDP), the District Municipality is home to approximately 800 000 people. Divided into six local municipalities, including Maluti-a-Phofung, Dihlabeng, and Phumelela, the district is known for its agricultural significance, producing maize, wheat, and livestock. Additionally, it boasts attractions such as the Golden Gate Highlands National Park and the Drakensberg Mountains, drawing tourists interested in outdoor recreation and natural beauty.

Crucially, the district is traversed by the N3 route, one of South Africa's primary highways connecting Johannesburg and Durban. This vital transportation artery facilitates the movement of goods and services between the country's economic hubs and enhances accessibility and connectivity for businesses, residents, and tourists alike, playing a pivotal role in the region's infrastructure and development.

Figure 26: Thabo Mofutsanyana District Municipality[10]

[10] https://municipalities.co.za/

In 2023, Thabo Mofutsanyana's forecasted GDP is projected to be an estimated R 29 billion (constant 2010 prices), accounting for 17.5% of the total GDP of the Free State Province. The district's gross domestic product has recorded an annual average growth rate of 1.3%, reflecting modest economic progress. Despite the economic outlook being somewhat depressed, there are encouraging signs of recovery, indicating a gradual improvement in the district's economic conditions.

In 2017, all local municipalities experienced positive growth rates: Setsoto grew by 7.1%, Dihlabeng by 4.7%, Nketoane by 8.7%, Maluti-a-Phofung by 1.4%, Phumelela by 4.8%, and Mantsopa by 7.7%. This recovery was driven by increased agricultural output. The tertiary sector contributed the most to GVA at 72.3%, with community services accounting for 29.4%. In the primary sector, agriculture was the largest contributor at 11.5%, and in the secondary sector, manufacturing contributed 7.6%.

The proposed development could potentially impact the economy of Thabo Mofutsanyana District by fostering local economic growth through job creation and increased demand for goods and services. While the district has shown modest economic progress, this initiative may contribute to further recovery by attracting investments in renewable energy and EV infrastructure. By enhancing logistics efficiency and supporting sustainable transportation, the project could gradually improve the economic conditions of the district, aligning with its ongoing efforts towards economic revitalisation and sustainability.

In the latest Thabo Mofutsanyana Draft IDP 2023 – 2024, the most recent data on employment within the district is from 2011. The table below shows the distribution of the employed population aged 15 to 64 years in TMDM by sector and gender in 2011. The majority were employed in the formal sector, with 56,030 males and 42,393 females, totalling 98,423 individuals. The informal sector employed 13,116 males and 9,416 females, making up 22,532 individuals, surpassing employment in private households, which had 9,601 males and 9,964 females, totalling 19,565 individuals.

Unemployment in the district was 32.0% in 2017, with women facing higher rates at 39.1% compared to 32.4% for men. The Maluti-a-Phofung local municipality had the highest unemployment rate at 44.1%, followed by Setsoto at 34.9% and Phumelela at 26.4%. These figures indicate a growing unemployment challenge across all municipalities and genders, underscoring the need for targeted economic development and job creation initiatives.

5.10.2 Phumelela Local Municipality

The Phumelela Local Municipality, a Category B municipality, is situated within the Thabo Mofutsanyana District in the Free State Province. As the largest municipality in the district, it accounts for a quarter of its geographical area, encompassing a variety of towns and rural communities.

The economy of the Phumelela Local Municipality is significantly influenced by a few key sectors. Agriculture plays a prominent role, particularly in crop and livestock production. The area aligns with the Free State Agricultural Master Plan, focusing on a variety of crops such as maize, sunflowers, and wheat, as well as livestock farming, including cattle and sheep. Processing facilities, though limited, support these agricultural activities, with facilities for cold storage, milling, and meat processing present within the municipality.

Retail trade, catering, and accommodation also contribute notably to the local GDP, indicating a vibrant service sector. Finance, insurance, real estate, and business services provide additional economic support, alongside transport and storage, which benefit from the municipality's strategic location along major transportation routes. Building and construction are vital for infrastructure development, further driving economic activity.

Local economic development and tourism initiatives aim to enhance community quality of life and economic conditions. Efforts include investment promotion, business support, property and infrastructure development, and support for small and micro enterprises. The municipality is actively reviewing its Local Economic Development Strategy to align with current needs and opportunities, highlighting its commitment to sustained economic growth and development.

In Phumelela Local Municipality, the 2011 Census data indicates that out of the population aged 15 to 64 years, 10,681 individuals were employed, comprising 7,067 males and 3,613 females. The unemployment figures were higher for females, with 2,186 unemployed compared to 1,437 males, totalling 3,624 unemployed individuals. Additionally, 15,461 people were classified as not economically active, with females (9,473) significantly outnumbering males (5,988). The overall unemployment rate in the municipality was 25.3%, reflecting significant labour market challenges and a higher unemployment burden on females compared to males.

Table 9: Phumelela Local Municipality - Employment data (IDP 2022-2027)

Employment Status	Gender		Total	Unemployment rate
	Male	Female		
Employed	7067	3616	10681	25.3%
Unemployed	1437	2186	3624	
Not economically active	5988	9473	15461	

The 2011 Census data for Phumelela Local Municipality shows the employment distribution by sector and gender for individuals aged 15 to 64 years. The majority of the employed population, 7,745 individuals, were in the formal sector, with 5,294 males and 2,451 females. The informal sector employed 1,368 people, including 979 males and 389 females, while private households employed 1,293 people, with a higher proportion of females (701) compared to males (592). This data highlights that the formal sector was the largest employer, followed by the informal sector and private households.

Although this data from the 2011 Census is dated, it provides valuable insights into the employment landscape of Phumelela Local Municipality. The majority of the employed population worked in the formal sector, with significant numbers also engaged in the informal sector and private households. This historical perspective helps us understand the employment dynamics and gender distribution within the region.

The proposed development has the potential to improve employment in the municipality. By creating jobs during both the construction and operational phases, the project can provide new opportunities in various sectors, including construction, logistics, and renewable energy. Additionally, the presence of a modern truck stop facility along the N3 highway can stimulate local businesses and services, further enhancing job creation and economic development in the region. This initiative aligns with the municipality's need for targeted economic development strategies to address high unemployment rates and foster sustainable growth.

6 ENVIRONMENTAL ISSUES AND POTENTIAL IMPACTS

Environmental issues were raised through desktop analysis, site visits, informal discussions with the project team, specialists and authorities, and by Interested and Affected Parties through the initial public participation period. All issues raised will be assessed in the specialist reports and will form part of the Environmental Impact Report. Additional issues raised during the public participation will be listed in the Final Scoping Report.

The following potential issues have been identified:

6.1 BIODIVERSITY IMPACT

The Terrestrial Biodiversity Assessment will be concluded to determine if there is any sensitive or endangered vegetation or animals on the proposed site. Although the property is used for livestock grazing, the property is undeveloped and mostly disturbed with degraded vegetation cover.

The Terrestrial Biodiversity Assessment will include the following:

- The significance of the potential impact of the proposed project, alternatives and related activities with and without mitigation – on biodiversity pattern and process at the site, landscape and regional scales.
- Recommended actions that should be taken to prevent or, if prevention is not feasible, to mitigate impacts.

6.2 FRESHWATER IMPACT

The following potential issues were identified in the initial Freshwater Assessment:

The construction and operation of the proposed development, i.e charging station is essentially a low impact undertaking. It does not carry any significant environmental risks. The drainage lines are low value aquatic habitats, even though they are still in good ecological shape. The Risk Matrix indicates that a General Authorisation is the correct level of official approval instead of a Water Use Licence application. Dickens et al (2003) lists several possible impacts on wetlands. This outline serves as a template for the discussion of the mitigating measures:

- Flow modification - The road, road embankments and the dam represent significant flow modifications and the proposed recharging station would add to this. Compared to the size of the sub-catchment, the addition of the current proposal is small. It would not be a significant change to the flow regime. The erosion potential would not increase.

- Permanent inundation - The proposed development will not materially change the inundation regime.

- Water quality modification - The soil will be loosened during the construction phase. digging, with a possibility of the sediments washing into the aquatic habitat along with storm water. This must be prevented, as it will upset ecological functioning, even though only minutely. It is best to complete the construction during the dry season.
- Sediment load modification - Soil will be disturbed during the construction phase. It is possible that storm water can wash sand and mud into the aquatic habitat, even though limited. This must be prevented.

- Canalization - The roads on the proposed site and the parking area may create preferential flow paths for stormwater. Landscaped swales and holding ponds may be required to contain and calm runoff. Runoff must not be allowed to cause erosion.

- Topographic alteration - The envisaged construction is not about to alter the topography of the landscape in any way.

- Terrestrial encroachment - The construction and operation of the recharging station will not be the cause of vegetation encroaching onto the aquatic habitat.

- Indigenous vegetation removal - Grassland will be lost because of the construction and operation of the charging station. The footprint must be limited to the demarcated construction area and not be allowed to spread onto the adjacent land.

- Invasive vegetation encroachment - There was no invasive vegetation in and around the drainage lines at the time of the site visit. It is not foreseen that the construction will alter in any way the vegetation regime.

- Alien fauna - The farm is used for grazing sheep and cattle. Over grazing must be prevented.

- Over-utilization - The farm is used for grazing sheep and cattle. Over grazing must be prevented. The vegetation was sparse and dry but in a good condition during the site visit.

- Isolation / Migration - The drainage lines are part of a much bigger river system, the Wilge River in the Eastern Free State. Migration routes are hampered for many species by roads, railway lines, town and other obstacles. Despite of this, migration routes are still intact for many species. The proposed charging station would not alter the migration routes any more than it already has been impacted.

- Ground water table - The ground's permeability under the elevated solar panels will be left unchanged, as the panels are elevated on stilts. The ground water table will not be affected.

- Waste - Portable toilets will be serviced by a reputable company during the construction phase. Wastewater will be dealt with in a septic tank and soakaway system during the operational phase. The municipal wastewater facility is too far away to offer a financially viable alternative. Litter will be collected in household wheelie bins and it will be disposed of on the municipal waste disposal site. These housekeeping issues will not be allowed to have any impact on the natural environment.

6.3 AVIFAUNAL IMPACT

6.3.1 Preliminary analysis

The overall environmental impacts of solar energy developments are poorly understood globally. Unlike wind energy developments, there is presently no clear pattern in the types of birds negatively affected by solar plants, and collision casualties recorded to date include a wide variety of avian guilds (Jenkins et al., 2017). Widely accepted impacts of solar PV include:

- Permanent habitat destruction.
- Fragmentation, and the associated bird displacement (particularly for range restricted species).
- Collision with reflective panels as birds mistake large panel arrays for wetlands or water bodies, otherwise known as the "lake effect" (Lovich and Ennen, 2011; Smit, 2012; DeVault et al., 2014; Visser, 2016; Kosciuch et al., 2020; Chock et al., 2021).

Other general impacts documented to date include noise and disturbance caused by construction activities, attraction of novel species through the creation of artificial nest sites and shade, and chemical pollution from panel cleaning (Lovich and Ennen, 2011; DeVault et al., 2014; Chock et al., 2021). The impacts of additional infrastructure associated with solar energy developments, such as roads, power lines, and substations, must also be considered. These include, habitat destruction, fragmentation, threat of collision, and electrocution (Jenkins et al., 2017).

Possible impacts on avifauna during the construction and operational phases and their sources associated with the proposed development are provided in the table below. The installation of the PV solar energy generation facility (SEF) and ancillary infrastructure will require the clearance of approximately 52ha of grassland vegetation during the construction phase. The main impact relating to avifauna will therefore be loss of habitat and potential displacement of small passerines. Impacts on highly sensitive habitats can be avoided or minimised by the project layout avoiding areas classified as highly sensitivity. The drainage line and dam to the north, and rocky koppie in the south have been avoided by the development. Other possible direct impacts include possible collisions with PV panels and power lines during the operational phase. Possible indirect impacts include spread of invasive alien vegetation due to disturbance to the soil, and contamination of the surrounding watercourses from chemicals used in cleaning of the panels or hydrocarbons from the truck stop workshop and wash bay.

Table 10: Possible impacts arising from the proposed development

Possible Impact	Source of Impact	Area and Species to be Affected	Development Phase	Nature of Impact
Loss of natural vegetation and avifaunal habitat	Clearing vegetation for installation of solar panels, roads, and buildings	Natural grassland vegetation; Small passerines; Raptors	Construction	Direct
Collision of avifauna with reflective surfaces of solar panels leading to injury or death	Solar panels perceived to be a water body by avifauna	Solar PV development site; Gamebirds, waterfowl; raptors	Operation	Direct
Collision and/or electrocution of avifauna with associated power lines	Existing power lines	Existing power lines; Gamebirds, waterfowl; raptors	Operation	Direct
Contamination of the environment by hazardous materials	Cleaning of solar panels during operation; Truck workshop, and cleaning of trucks	Watercourses downstream of the development, and soil below the panels; All species	Construction and Operation	Indirect
Spread of invasive alien plant species	Disturbance to soil and clearing of vegetation	Study area and surroundings	Construction	Indirect
Disturbance and displacement of resident bird species	Clearing of site and construction activities; Operational and maintenance activities; attraction of novel species	Site and immediate surroundings; Small terrestrial species; Common ground-dwelling gamebirds	Construction and Operation	Indirect
Habitat fragmentation	Clearing vegetation and installation of solar	Study area	Operation	Indirect

Possible Impact	Source of Impact	Area and Species to be Affected	Development Phase	Nature of Impact
	panels, roads, and buildings			
Increased human disturbance; Gradual environmental degradation	Disturbance to the study area, adding to existing pressures in the landscape (farming) Adding to cumulative pressures in the landscape caused by other approved or proposed renewable energy projects	Study area and surrounding natural areas	Operation	Cumulative

6.3.2 Recommendations

Drainage lines, wetlands, and dams provide important habitat for fauna and are usually areas of high biodiversity. The small drainage line and dam just to the north of the site are considered highly sensitive. Therefore, the drainage line in the north-western corner of the site must be avoided by the development by the buffers specified by the wetland specialist.

Rocky areas are considered highly sensitive as they increase local habitat heterogeneity and species diversity. Therefore, the rocky outcrop in the southern section of the site must be avoided by the proposed development by a minimum buffer of 50m.

Although disturbed by grazing cattle, the grassland covering the majority of the site is natural and provides the main habitat for the fauna found in the area. This habitat is considered to be of medium sensitivity. This area will be unavoidable; therefore impacts must be minimised and strict mitigation and restoration required

6.3.3 Pre-construction monitoring requirements

The study area is relatively disturbed considering the proximity to the N3 highway. The site is largely comprised of disturbed but natural grassland habitat that may support birds found in the region. It is evident that the broader landscape supports many priority species (bird species that may be susceptible to the impacts of solar PV development), including SCC, which have been confirmed to occur in the surrounding areas. It is therefore important to conduct the appropriate pre-construction monitoring according to the best practice guidelines for assessing the impacts of solar energy on birds (Jenkins et al., 2017). This will take the Avifaunal Assessment to Stage 2 – Data Collection, which will include on-site avifaunal monitoring on which to base the impact assessment report and provide a baseline against which post-construction monitoring (if required) can be compared.

6.4 HERITAGE / ARCHAEOLOGICAL IMPACT

The possible impact on heritage resources (archaeological and palaeontological) has been identified as a possible environmental impact as a result of the development of the solar PV facility.

6.4.1 SAHRA

In terms of Section 38(8) of the National Heritage Resources Act, a Notification of Intent to Develop (NID) will be submitted to SAHRA. Section 38(1) of the NHRA of 1999 requires the responsible heritage resources authority to notify the person who intends to undertake a development that fulfils the following criteria to submit an impact assessment report if there is reason to believe that heritage resources will be affected by such event:

- the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
- the construction of a bridge or similar structure exceeding 50m in length;
- any development or other activity that will change the character of a site
  - exceeding 5000m² in extent; or
  - involving three or more existing erven or subdivisions thereof; or
  - involving three or more erven or divisions thereof which have been consolidated within the past five years; or
  - the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
- the rezoning of a site exceeding 10 000m² in extent; or
- any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority.

6.4.2 Conclusion

The phase 1 heritage survey of the proposed development was undertaken in November 2023. Most of the study area has no heritage features, except for the dolerite outcrop in the south. These stone walled features are associated with Type N settlements that date to the 15th century. Most of the hilltops within a 50km radius have Type N or Type V stone walled settlements. **These are of medium to high heritage significance.** The walling is of low-medium significance since there is no cultural deposit and the walling is medium well preserved. However, if human graves do occur then they will be of high significance. No mitigation is required as it will not be affected. However, if the stone walling is to be affected, then it needs to be accurately mapped and extensively photographed. The following will also be required should the stone walling be affected:

- A permit to damage/alter/destroy the walling will be required.
- The interpretation of the walling could be placed on a large sign near the charging station.

6.5 Landscape / Visual Impact

This visual environment is a significant resource that contributes to the quality of life, sense of place, and cultural identity of local communities. Consequently, any alterations to the visual environment as a result of the proposed development necessitate careful assessment and management. The potential impact on the sense of place of the proposed development will also be considered. A Visual Impact Assessment will be conducted to determine the significance of any visual impact due to the construction and operation of the proposed PV facility. The assessment will determine whether the development will constitute an acceptable level of change from a visual perspective, and to provide mitigation measures to reduce any potential visual impact.

6.6 Agricultural Impact

The proposed site is located on a property zoned for agricultural use. Currently, large parts of the property are used for agricultural purposes (grazing). Due to the size and nature of the proposed development, a small amount of agricultural land will be lost.

6.6.1 Compliance Statement

An Agricultural Compliance Statement for the proposed development was undertaken pre-application Scoping Report. The following desktop study findings were made as per the Agricultural Compliance Statement report:

- The climate capability of the area was classified as moderate.

- The area had a high terrain capability.
- The Ea broad land type dominates the study area, indicating black clays. However, the
- Department of Agriculture, Forest and Fisheries classified the area as a moderate soil capability.
- **The overall land capability of the study area was considered as mostly moderate.**
    - **In general, the field verification was aligned with the desktop study with a medium sensitivity, and the site was dominated by grasslands.** However, the following was found:
        - Shallow soils with moderate clay content and rock outcrops were common.
        - A small area was classified as Westleigh, which is considered a poorly drained soil and not suitable for crop production.
- The grazing capacity of the study area was high (4-5 ha/LSU).
- The study area is not situated within the Protected Agricultural Area.
- No crop boundaries are recorded in the study area.

The site was classified as having a medium sensitivity. Therefore, due to the small area lost to agriculture and positive financial impact (refer to Section 6.6.2) on the sustainability of the individual farm, it is the specialist's opinion that the development continues, provided the following conditions are met:

1. Good fencing is used during construction and operation to prevent animals on the site.

6.6.2 Financial incentive for agriculture

An agreement structure between the applicant and the landowner(s), which are mostly farmers, can lead to improved agricultural sustainability in the long-term. This is provided that the loss of agricultural land does not significantly impact food security and reduce arable land.

In the cases where there is not a significant impact on agriculture, the diversification of income sources should be viewed as positive for agriculture. The agreement gives the landowner(s) a share of profit from the charging facility, therefore an income source independent of the agricultural activities on the farm. Furthermore, excess electricity generated can be freely available for use on the farm, further aiding the agricultural activities.

6.7 SOCIO-ECONOMIC IMPACT

6.7.1 Socio-economic Impact Statement and Conclusion

The establishment of the proposed site is anticipated to bring significant socio-economic benefits to the region. Key findings indicate advancements in sustainable transportation, economic growth, infrastructure development, and environmental sustainability. The project is also expected to foster job creation and skill development while necessitating mindful environmental management.

- **Sustainable Transportation:** The development of the truck site, equipped with multiple Electric Truck Charging Stations powered by Solar Photovoltaic (PV) arrays, will promote the adoption of electric trucks. This aligns with national and global efforts to reduce greenhouse gas emissions and reliance on fossil fuels.
- **Economic Growth:** The construction and operation of the truck site are anticipated to stimulate the local economy. This includes creating jobs during construction, offering ongoing employment opportunities, and generating economic activities that benefit local businesses.
- **Skill Development and Employment**: The facility will play a role in developing a skilled workforce, which can contribute to the economic and social prosperity of the region. Training programs tailored to the specific needs of the proposed site will ensure a skilled workforce for both current and future needs.
- **Environmental Considerations:** Careful planning and management are required to minimise environmental impacts during construction and operation. This includes addressing potential disruptions to daily life, managing increased demand on infrastructure, and ensuring sustainable practices.

6.7.2 Recommendations

Recommendations for the project include a strong emphasis on community engagement, prioritisation of local employment and skills training, strategic infrastructure planning, adherence to sustainable practices, cultural integration, and rigorous monitoring and evaluation.

- **Employment and Economic Stimulation:**
    - Prioritise the hiring of local labour, especially for unskilled and semi-skilled roles, to maximise employment creation and economic stimulation in the study area. This approach will also mitigate potential socio-economic challenges arising from the influx of non-local workers.

- **Local Supplier Inclusion:**
    - Develop a comprehensive list of potential local suppliers and service providers, ensuring they are given priority in procurement processes. This approach will further stimulate the local economy and offer valuable income opportunities for local businesses.

- **Mitigation of Construction Impacts:**
    - Implement robust measures to address potential disruptions during the construction phase, such as noise, dust, and traffic disturbances. Regular monitoring and timely interventions will ensure minimal inconvenience to the local community.

7 DETAILS OF THE PUBLIC PARTICIPATION PROCESS

Interested and Affected Parties (I&APs) have been and will be identified throughout the process. Landowners adjacent to the proposed site, relevant organs of state, organisations, ward councillors and the Local and District Municipality were added to this database. A complete list of organisations and individual groups identified to date is shown in Appendix 4.

Public Participation will be conducted for the proposed development in accordance with the requirements outlined in Regulation 41 of the NEMA EIA Regulations 2014. The issues and concerns raised during the scoping phase will be dealt with in the EIA phase of this application.

As such each subsection of Regulation 41 contained in Chapter 6 of the NEMA EIA Regulations 2014 will be addressed separately to thereby demonstrate that all potential Interested and Affected Parties (I&AP's) were notified of the proposed development.

Table 11: Public participation process Regulations as per NEMA EIA Regulations, 2014 (as amended 2021)

Sub	Regulations of Chapter 6 of NEMA EIA Regulations, 2014 (as amended 2021)	Applicability to the development
Regulation 39 - Activity on land owned by person other than proponent		
1.	If the proponent is not the owner or person in control of the land on which the activity is to be undertaken, the proponent must, before applying for an environmental authorisation in respect of such activity, obtain the written consent of the landowner or person in control of the land to undertake such activity on that land.	Written consent of the landowner or person in control of the land to undertake the proposed activities on the land has been obtained through an established agreement.
2.	Subregulation (1) does not apply in respect of— a) linear activities; and	Noted. Not applicable to this proposed development.
	b) strategic integrated projects as contemplated in the Infrastructure Development Act, 2014.	Noted. Not applicable to this proposed development.
Regulation 40 - Purpose of public participation		
1.	The public participation process to which the— a) basic assessment report and EMPr, and the closure plan in the case of a closure activity, submitted in terms of regulation 19; and	As part of the pre-application Scoping phase, a 30-day commenting period occurred between 08 November 2023 and 15 December 2023. All potential or registered interested and affected parties, including the competent authority were invited and allowed to submit comments regarding the proposed development.
	b) scoping report submitted in terms of regulation 21, the environmental impact assessment report, EMPr, and the closure plan in the case of a closure activity, submitted in terms of regulation 23; was subjected to must give all potential or registered interested and affected parties, including the competent authority, a period of at least 30 days to submit comments on each of the basic assessment report, EMPr, scoping report and environmental impact assessment report, and the closure plan in the case of a closure activity, as well as the report contemplated in regulation 32, if such reports or plans are submitted at different times.	
2.	The public participation process contemplated in this regulation must provide access to all information that reasonably has or may have the potential to influence any decision with regard to an application unless access to that information is protected by law and must include consultation with — a) the competent authority;	As part of the pre-application Scoping phase, initial notification letter were sent to — a) The Free State Department of Small Business Development, Tourism and Environmental Affairs (DESTEA) is identified as the competent authority.
	b) every State department that administers a law relating to a matter affecting the environment relevant to an application for an environmental authorisation;	

Sub	Regulations of Chapter 6 of NEMA EIA Regulations, 2014 (as amended 2021)	Applicability to the development
	c) all organs of state which have jurisdiction in respect of the activity to which the application relates; and d) all potential, or, where relevant, registered interested and affected parties.	b & c) The following state departments that administers a law relating to a matter affecting the environment relevant to an application and organs of state that have jurisdiction in respect of the activity to which the application relates: - Department of Agriculture and Rural Development - Co-operative Governance and Traditional Affairs - Eskom - Department of Energy - Department of Water and Sanitation - SAHRA - Department of Public Works - Department of Transport - N3 Toll concession - SANRAL - Transnet - Department of Environment, Forest and Fisheries d) All potential, or, where relevant, registered interested and affected parties. These initial notification letters were sent to inform the parties described above about the proposed activity/development and to invite their input.

Sub	Regulations of Chapter 6 of NEMA EIA Regulations, 2014 (as amended 2021)	Applicability to the development
3.	Potential or registered interested and affected parties, including the competent authority, may be provided with an opportunity to comment on reports and plans contemplated in subregulation (1) prior to submission of an application but must be provided with an opportunity to comment on such reports once an application has been submitted to the competent authority.	During the pre-application Scoping phase, potential or registered interested and affected parties, including the competent authority were notified and given the opportunity to comment on the proposed development. However, no reports or plans, as outlined in subregulation (1), were available at that time Nevertheless, an opportunity for potential or registered interested and affected parties, including the competent authority to comment on such reports and plans will be given once an application has been submitted to the competent authority.
Regulation 41 – Public participation process		
1.	This regulation only applies in instances where adherence to the provisions of this regulation is specifically required.	Noted.
2.	The person conducting a public participation process must take into account any relevant guidelines applicable to public participation as contemplated in section 24J of the Act and must give notice to all potential interested and affected parties of an application or proposed application which is subjected to public participation by— a) fixing a notice board at a place conspicuous to and accessible by the public at the boundary, on the fence or along the corridor of — i. the site where the activity to which the application or proposed application relates is or is to be undertaken; and	During the pre-application Scoping phase an A2 sized notice board was fixed on the boundary / fence of the site where the activity to which the proposed application relates is to be undertaken. Additionally, multiple A3 sized notice boards were placed at various locations around the site.
	ii. any alternative site	There is no alternative site.
	b) giving written notice, in any of the manners provided for in section 47D of the Act, to— i. the occupiers of the site and, if the proponent or applicant is not the owner or person in control of the site on which the activity is to be undertaken, the owner or person in control of the site where the activity is or is to be undertaken and to any alternative site where the activity is to be undertaken	As part of the pre-application Scoping phase, initial notification letters were sent to occupiers and persons in control of the site via email and/or mail drops conducted during the site visit.

Sub	Regulations of Chapter 6 of NEMA EIA Regulations, 2014 (as amended 2021)	Applicability to the development
	ii. owners, persons in control of, and occupiers of land adjacent to the site where the activity is or is to be undertaken and to any alternative site where the activity is to be undertaken	As part of the pre-application Scoping phase, initial notification letters were sent to occupiers of land adjacent to the site via email and/or mail drops conducted during the site visit.
	iii. the municipal councillor of the ward in which the site and alternative site is situated and any organisation of ratepayers that represent the community in the area	As part of the pre-application Scoping phase, an initial notification letter was sent to the relevant municipal ward councillor at the Phumelela Local Municipality. No ratepayer organisation were identified for the community in the area.
	iv. the municipality which has jurisdiction in the area	As part of the pre-application Scoping phase, an initial notification letter was sent to a representative of the Phumelela Local Municipality and the Thabo Mofutsanyana District Municipality.
	v. any organ of state having jurisdiction in respect of any aspect of the activity; and	As part of the pre-application Scoping phase, initial notification letters were sent to the following organs of state having jurisdiction in respect of any aspect of the activity: - Department of Agriculture and Rural Development - Co-operative Governance and Traditional Affairs - Eskom - Department of Energy - Department of Water and Sanitation - SAHRA - Department of Public Works - Department of Transport - N3 Toll concession - SANRAL - Transnet - Department of Environment, Forest and Fisheries

Sub	Regulations of Chapter 6 of NEMA EIA Regulations, 2014 (as amended 2021)	Applicability to the development
	vi. any other party as required by the competent authority	Noted. Should the competent authority require any other party to receive written notice, then this will be duly carried out.
	c) placing an advertisement in— i. one local newspaper; or	An advertisement was placed in the VrystaatKroon, a local newspaper, on 08 November 2023.
	ii. any official Gazette that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;	Noted. Not applicable to this proposed development.
	d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or district municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official Gazette referred to in paragraph (c) (ii); and	Noted. Not applicable to this proposed development.
	e) using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desirous of but unable to participate in the process due to — i. illiteracy;	Noted. In instances where a person desires to participate in the process but is unable to do so due to illiteracy, disability, or any other disadvantage, and make such a desire known to the EAP, then reasonable alternative methods will be used, as agreed upon by the competent authority.
	ii. disability; or	
	iii. any other disadvantage	
3.	A notice, notice board or advertisement referred to in subregulation (2) must— a) give details of the application or proposed application which is subjected to public participation; and	The written notices — specifically, notification letters, notice boards, and advertisements — that form part of the pre-application Scoping phase's 30-day commenting period, contain details of the proposed application, which is subject to public participation.
	b) state — i. whether basic assessment or S&EIR procedures are being applied to the application;	
	ii. the nature and location of the activity to which the application relates;	
	iii. where further information on the application or proposed application can be obtained; and	

Sub	Regulations of Chapter 6 of NEMA EIA Regulations, 2014 (as amended 2021)	Applicability to the development
	iv. the manner in which and the person to whom representations in respect of the application or proposed application may be made.	
4.	A notice board referred to in subregulation (2) must— a) be of a size of at least 60cm by 42cm; and	The notice boards measured 60cm by 42cm is size and displayed the required information in a legible format.
	b) display the required information in lettering and in a format as may be determined by the competent authority.	
5.	Where public participation is conducted in terms of this regulation for an application or proposed application, subregulation (2) (a), (b), (c) and (d) need not be complied with again during the additional public participation process contemplated in regulations 19 (1) (b) or 23 (1) (b) or the public participation process contemplated in regulation 21 (2) (d), on condition that— a) such process has been preceded by a public participation process which included compliance with subregulation (2) (a), (b), (c) and (d); and	Noted.
	b) written notice is given to registered interested and affected parties regarding where the— i. revised documents as contemplated in regulation 19 (1) (b);	Noted.
	ii. revised documents as contemplated in regulation 23 (1) (b); or	Noted.
	iii. environmental impact assessment report and documents as contemplated in regulation 21 (2) (d); may be obtained, the manner in which and the person to whom representations on these reports or plans may be made and the date on which such representations are due.	Noted.
6.	When complying with this regulation, the person conducting the public participation process must ensure that— a) information containing all relevant facts in respect of the application or proposed application is made available to potential interested and affected parties; and	Noted.
	b) participation by potential or registered interested and affected parties is facilitated in such a manner that all potential or registered interested and affected parties are provided with a reasonable opportunity to comment on the application or proposed application.	Noted.

Sub	Regulations of Chapter 6 of NEMA EIA Regulations, 2014 (as amended 2021)	Applicability to the development
7.	Where an environmental authorisation is required in terms of these Regulations and an authorisation, permit or licence is required in terms of a specific environmental management Act, the public participation process contemplated in this Chapter may be combined with any public participation processes prescribed in terms of a specific environmental management Act, on condition that all relevant authorities agree to such combination of processes.	Noted.
Regulation 42 - Register of interested and affected parties		
1.	A proponent or applicant must ensure the opening and maintenance of a register of interested and affected parties and submit such a register to the competent authority, which register must contain the names, contact details and addresses of— a) all persons who, as a consequence of the public participation process conducted in respect of that application, have submitted written comments or attended meetings with the proponent, applicant or EAP;	A register of interested and affected parties was opened and is maintained.
	b) all persons who have requested the proponent or applicant, in writing, for their names to be placed on the register; and	
	c) all organs of state which have jurisdiction in respect of the activity to which the application relates.	
Regulation 43 - Registered interested and affected parties entitled to comment on reports and plans		
1.	A registered interested and affected party is entitled to comment, in writing, on all reports or plans submitted to such party during the public participation process contemplated in these Regulations and to bring to the attention of the proponent or applicant any issues which that party believes may be of significance to the consideration of the application, provided that the interested and affected party discloses any direct business, financial, personal or other interest which that party may have in the approval or refusal of the application.	This subregulation is communicated to registered interested and affected parties during the public participation process.

Sub	Regulations of Chapter 6 of NEMA EIA Regulations, 2014 (as amended 2021)	Applicability to the development
2.	In order to give effect to section 24O of the Act, any State department that administers a law relating to a matter affecting the environment must be requested, subject to regulation 7 (2), to comment within 30 days.	State departments that administer laws relating to environmental matters relevant to the application, as well as organs of state with jurisdiction over the activity, were notified of the proposed application and invited to comment within 30 days. However, should comments not be received within the prescribed timeframes, it would be assumed that no comments are forthcoming.
Regulation 44 - Comments of interested and affected parties to be recorded in reports and plans		
1.	The applicant must ensure that the comments of interested and affected parties are recorded in reports and plans and that such written comments, including responses to such comments and records of meetings are attached to the reports and plans that are submitted to the competent authority in terms of these Regulations.	Comments of interested and affected parties are recorded together with the responses in a Comment and Response report (CRR) and where applicable, incorporated into reports and plans.
2.	Where a person desires but is unable to access written comments as contemplated in subregulation due to— a) a lack of skills to read or write; b) disability; or c) any other disadvantage; reasonable alternative methods of recording comments must be provided for.	Noted. Where a person desires to but is unable to access written comments due to illiteracy, disability, or any other disadvantage, and make such a desire known to the EAP, then reasonable alternative methods of recording comments will be provided for.

8 PLAN OF STUDY FOR THE EIA

8.1 TASKS TO BE UNDERTAKEN

Due to the nature of the proposed development, there are a number of activities that will still need to be undertaken during the next phase of the project. The proposed process is as described as follows (This follows from a Scoping process to be accepted by the Free State Department of Small Business Development, Tourism and Environmental Affairs (DESTEA)):

The NEMA Application Form will be submitted to DESTEA along with the Draft Scoping Report which will also be made available for viewing and comment for a 30-day comment period. Comments received during the Public Participation Process will be incorporated into the Final Scoping Report, to be submitted to DESTEA for a decision.

The following is a list of tasks to be performed as part of the EIA Process. Should the process be modified significantly, changes will be copied to DESTEA.

Table 12: EIA process - Timeline*

EIA Process	
Task	**Timeframes**
Submit NEMA Application and Draft Scoping Report (DSR) and Plan of Study for EIA to DESTEA and distribute to registered I&APs for comment.	February 2025
Submit Final Scoping Report (FSR) and Plan of Study to DESTEA for a decision.	March 2025
Receive approval for the FSR and the Plan of Study for EIA.	April 2025
Undertake specialist studies and compile the Draft Environmental Impact Report (EIR) for public comment based on specialist information.	May 2025
Submit Draft EIR for public comment.	June 2025
Receive responses to the Draft EIR.	July 2025
Preparation of a FINAL EIR and submission to DESTEA	June 2025

**Timeframes provided are estimates and are subject to change. They serve as a tentative indication and may be adjusted as the process progresses.*

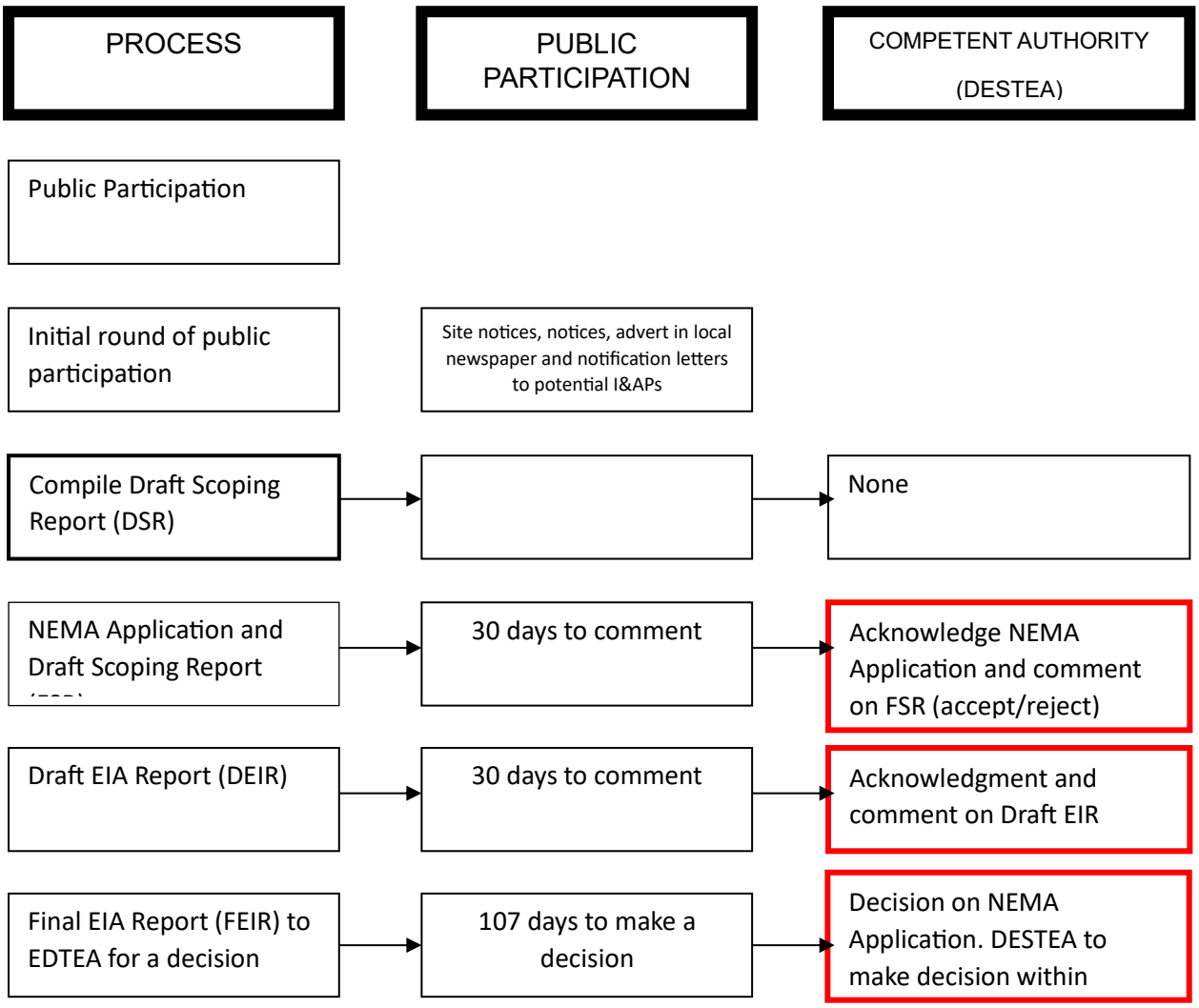


Figure 27: Summary of the EIA process and public participation process. The red indicates the stages where the competent authority will be consulted during the process

8.2 PUBLIC PARTICIPATION AND INTERESTED AND AFFECTED PARTIES

Please refer to Figure 27 to see where the public participation process is present in the environmental impact assessment. The Interested and Affected Parties will have a chance to view and comment on all the reports that are submitted. The figures also indicated what timeframes are applicable to what stage in the process. If required, meetings with key stakeholders will be held.

At the end of the comment period, the EIR will be revised in response to feedback received from I&APs. All comments received and responses to the comments will be incorporated into the Final Environmental Impact Report (EIR). The Final EIR will then be submitted to DESTEA for consideration and decision-making.

Correspondence with I&APs will be via post, fax, telephone, email and/or newspaper advertisements. Should it be required, this process may be adapted depending on input received during the on-going process and as a result of public input. DESTEA will be informed of any changes in the process.

8.3 CRITERIA FOR SPECIALIST ASSESSMENT OF IMPACTS

As a result of the environmental issues and potential impacts identified in Section 6, the need for the following specialist studies has been identified:

- Biodiversity Assessment
- Freshwater Assessment
- Heritage Impact Assessment
- Socio-economic Impact Assessment
- Visual Impact Assessment
- Agricultural Potential Assessment
- Avifauna Impact Assessment

These specialist studies have been conducted and some have been concluded. The findings of some the studies have already been included in this report, however, the studies will be finalised and the findings included during the EIA phase.

The impacts of the proposed activity on the various components of the receiving environment will be evaluated in terms of duration (time scale), extent (spatial scale), magnitude and significance as outlined in Table 13. These impacts could either be positive or negative. This includes an assessment of the alternatives, including the option of not proceeding with the proposed development (see Section 4).

The magnitude of an impact is a judgment value that rests with the individual assessor while the determination of significance rests on a combination of the criteria for duration, extent and magnitude. Significance thus is also a judgment value made by the individual assessor.

In addition to determining the individual impacts against the various criteria, the element of mitigation, where relevant, will also be brought into the assessment. In such instances the impact will be assessed with a statement on the mitigation measure that could/should be applied. An indication of the certainty of a mitigation measure considered, achieving the end result to the extent indicated, is given on a scale of 1-5 (1 being totally uncertain and 5 being absolutely certain), taking into consideration uncertainties, assumptions and gaps in knowledge. Cognisance of the minimum report content requirements of the various specialist assessment as per the Assessment Protocols (Government Notice 320, Government Gazette No. 43110 of 20 March 2020).

Table 13: Criteria used for evaluating impacts

Criteria	Category
Nature of impact	This is an evaluation of the effect that the construction, operation and maintenance of a proposed dam would have on the affected environment. This description should include what is to be affected and how.
Duration (Predict whether the lifetime of the Impact will be temporary (less than 1 year) short term (0 to 5 years); medium term (5 to 15 years); long term (more than 15 years, with the Impact ceasing after full implementation of all development	**Temporary:** < 1 year (not including construction) **Short-term:** 1 – 5 years **Medium term:** 5 – 15 years **Long-term:** >15 years (Impact will stop after the operational or running life of the activity, either due to natural course or by human interference) **Permanent:** Impact will be where mitigation or moderation by natural course or by human interference will not occur in a particular means or in a particular time period that the impact can be considered temporary

Criteria	Category
components with mitigations); or permanent.	
Extent (Describe whether the impact occurs on a scale limited to the site area; limited to broader area; or on a wider scale)	**Site Specific:** Expanding only as far as the activity itself *(onsite)* **Small:** restricted to the site's immediate environment within 1 km of the site *(limited)* **Medium:** Within 5 km of the site *(local)* **Large:** Beyond 5 km of the site *(regional)*
Intensity (Describe whether the magnitude (scale/size) of the Impact is high; medium; low; or negligible. The specialist study must attempt to quantify the magnitude of impacts, with the rationale used explained)	**Very low:** Affects the environment in such a way that natural and/or social functions/processes are not affected **Low:** Natural and/or social functions/processes are slightly altered **Medium:** Natural and/or social functions/processes are notably altered in a modified way **High:** Natural and/or social functions/processes are severely altered and may temporarily or permanently cease
Probability of occurrence Describe the probability of the Impact actually occurring as definite (Impact will occur regardless of mitigations	**Improbable:** Not at all likely **Probable:** Distinctive possibility **Highly probable:** Most likely to happen **Definite:** Impact will occur regardless of any prevention measures
Status of the Impact Describe whether the Impact is positive, negative (or neutral).	**Positive:** The activity will have a social/ economical/ environmental benefit **Neutral:** The activity will have no affect **Negative:** The activity will be socially/ economically/ environmentally harmful
Degree of Confidence in predictions State the degree of confidence in predictions based on availability of information and specialist knowledge	**Unsure/Low:** Little confidence regarding information available (<40%) **Probable/Med:** Moderate confidence regarding information available (40-80%) **Definite/High:** Great confidence regarding information available (>80%)
Significance (The impact on each component is determined by a combination of the above criteria and defined as follows) The significance of impacts shall be assessed with and without mitigations. The significance of identified impacts on components of the affected biophysical or socio-economic environment (and, where relevant, with respect to potential legal requirement/s) shall be described as follows:	**No change:** A potential concern which was found to have no impact when evaluated **Very low:** Impacts will be site specific and temporary with no mitigation necessary. **Low:** The impacts will have a minor influence on the proposed development and/or environment. These impacts require some thought to adjustment of the project design where achievable, or alternative mitigation measures **Moderate:** Impacts will be experienced in the local and surrounding areas for the life span of the development and may result in long term changes. The impact can be lessened or improved by an amendment in the project design or implementation of effective mitigation measures. **High:** Impacts have a high magnitude and will be experienced regionally for at least the life span of the development, or will be irreversible. The impacts could have the no-go proposition on portions of the development in spite of any mitigation measures that could be implemented.

Table 14: The stated assessment and information will be determined for each individual issue or related groups of issues and presented in descriptive format in the following table example or a close replica thereof

Impact Statement:		
Mitigation:		
Ratings	Duration	
	Extent	
	Intensity	
	Probability of impact	
	Status of Impact (Positive/negative)	
	Degree of confidence	
Significances	Significance **without** Mitigation	
	Significance ***WITH*** Mitigation	
Indication of the certainty of a mitigation measure considered, achieving the end result to the extent indicated, is given on a scale of 1-5 (1 being totally uncertain and 5 being absolutely certain), taking into consideration uncertainties, assumptions and gaps in knowledge:		
Legal Requirements (Identify and list the specific legislation and permit requirements which are relevant to this development):		

9 CONCLUSION AND RECOMMENDATIONS

A scoping exercise is being undertaken to present the proposed activities to the I&APs and to identify environmental issues discussed in this report and concerns raised as a result of the proposed development alternatives to date. The issues and concerns were raised by I&APs, authorities, the project team as well as specialist input, based on baseline studies undertaken.

This pre-application Draft Scoping Report, being undertaken in terms of NEMA, summarises the process undertaken, the alternatives presented, and the issues and concerns raised.

As a result of the above, the need for the following specialist studies, have been identified:

- Biodiversity Assessment
- Freshwater Assessment
- Heritage Impact Assessment
- Socio-economic Impact Assessment
- Visual Impact Assessment
- Agricultural Potential Assessment
- Avifauna Impact Assessment

These specialist studies have been conducted and some have been concluded. The findings of some the studies have already been included in this report, however, the studies will be finalised and the findings included during the EIA phase.

Any further issues raised as a result of the Public Participation Process will be dealt with during the EIA phase. The significance of the impacts associated with the alternatives proposed will be assessed in these specialist studies, as part of the EIA. Once the specialist studies have been completed, they will be summarised in an Environmental Impact Report (EIR), which integrates the findings of the assessment phase of the EIA.

Based on the significance of the issues raised during the ongoing Public Participation Process and Scoping Phase, it is evident that an Environmental Impact Assessment (EIA) is required. ***It is therefore recommended that authorisation for the commencement of an EIA for the proposed development is granted.*** Should the EIA process be authorised, the issues raised in the process to date will be addressed and the specialist studies noted in this report, will be undertaken.

9.1 PRELIMINARY RECOMMENDATIONS / CONDITIONS FOR AUTHORISATION

- Drainage lines, wetlands, and dams provide important habitat for fauna and are usually areas of high biodiversity. The small drainage line and dam just to the north of the site are considered highly sensitive. Therefore, the drainage line in the north-western corner of the site must be avoided by the development by the buffers specified by the wetland specialist.

- Rocky areas are considered highly sensitive as they increase local habitat heterogeneity and species diversity. Therefore, the rocky outcrop in the southern section of the site must be avoided by the proposed development by a minimum buffer of 50m.

- Although disturbed by grazing cattle, the grassland covering the majority of the site is natural and provides the main habitat for the fauna found in the area. This habitat is considered to be of medium sensitivity. This area will be unavoidable; therefore impacts must be minimised and strict mitigation and restoration required

- Good fencing is used during construction and operation to prevent animals on the site.

- In cases where there is not a significant impact on agricultural land, a diversification of income sources should be considered by the landowner(s). Through establishing an agreement between the applicant and the landowner(s); landowner(s) will be enabled to share in the profit generated from the charging facility, thereby offsetting their probable financial loss sustained through the loss of agricultural land (utilised or grazing mainly) over the development area.

10 DETAILS AND EXPERTISE OF THE EAP

Author / Compiler	Lian Roos
Qualifications	BSc Hons (App Sci) Water Utilisation (UP) BSc Environmental Science (UP)
Registrations	EAPASA Candidate EAP (2022/4550) SACNASP Pr. Sci. Nat (151023)
Expertise	Lian Rooss has over 5 years of experience as an Environmental Consultant and Assessment Practitioner in environmental monitoring, management and assessment in various industries ranging from mining and industrial to agricultural and renewable. His expertise includes, but are not limited to: - Environmental Authorisation applications - Water Use Licence applications - Waste Management Licence applications - Prospecting Right, Mining Permit & Right applications - Integrated Water and Waste Management plans - Rehabilitation, Decommissioning and Mine Closure plans - Environmental Due Diligence & Gap Analyses - Environmental Monitoring & Compliance

Reviewer / Supervisor	Clinton Geyser
Qualifications	MSc. Geography and Environmental Management (2002) (UJ) BSc. (hons): Geography and Environmental Management (2001) (UJ) BSc. Earth Sciences, Majors in Geology and Geography and Environmental Management (1998 – 2000) (UJ)
Registrations	EAPASA Reg no. 2021/3287
Expertise	Clinton Geyser has over fifteen years' experience in the environmental management field as an Environmental Assessment Practitioner and as an Environmental Control Officer, having worked on a variety of projects in the Western, Eastern and Northern Cape. Previous completed applications include, but not limited to: - Civil engineering infrastructure including pipelines, Waste Water Treatment Works, and roads in the Western and Northern Cape. - Solar PV facilities in the Free State and Western Cape - Agricultural developments, including reservoirs and dams, in the Western, Eastern and Northern Cape. - Telecommunications masts in the Western and Eastern Cape - Housing Developments in the Western and Northern Cape. - Resort developments in the Western and Northern Cape. - Cemeteries in the Western Cape - Waste Management Licences in the Western Cape

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