Merafong Energy (Pty) Ltd

PROPOSED MERAFONG PHOTOVOLTAIC (PV) SOLAR ENERGY FACILITY (SEF) AND ASSOCIATED INFRASTRUCTURE

Draft Site Sensitivity Verification Report

TBC
JUNE 2025

CONFIDENTIAL

Merafong Energy (Pty) Ltd

PROPOSED MERAFONG PHOTOVOLTAIC (PV) SOLAR ENERGY FACILITY (SEF) AND ASSOCIATED INFRASTRUCTURE

Draft Site Sensitivity Verification Report

TYPE OF DOCUMENT (VERSION) CONFIDENTIAL

PROJECT NO. 41106080

OUR REF. NO. TBC

DATE: JUNE 2025

Merafong Energy (Pty) Ltd

PROPOSED MERAFONG PHOTOVOLTAIC (PV) SOLAR ENERGY FACILITY (SEF) AND ASSOCIATED INFRASTRUCTURE

Draft Site Sensitivity Verification Report

WSP

Building 1, Maxwell Office Park
Magwa Crescent West, Waterfall City
Midrand, 1685
South Africa

Phone: +27 11 254 4800

WSP.com

QUALITY CONTROL

Issue/revision	First issue	Revision 1	Revision 2	Revision 3
Remarks	Draft SSVR			
Date	June 2025			
Prepared by	Matilda Mbazo			
Signature	 Digitally signed by Mbazo, Matilda (ZAMM04938) DN: cn=Mbazo, Matilda (ZAMM04938), ou=Active, email=Matilda.Mbazo@wsp.com			
Checked by	Ashlea Strong			
Signature	 Digitally signed by Ashlea Strong DN: cn=Ashlea Strong, c=ZA, o=WSP Group Africa, ou=Earth and Environment, email=ashlea.strong@wsp.com Date: 2025.06.05 12:13:16 +02'00'			
Authorised by	Ashlea Strong			
Signature	 Digitally signed by Ashlea Strong DN: cn=Ashlea Strong, c=ZA, o=WSP Group Africa, ou=Earth and Environment, email=ashlea.strong@wsp.com Date: 2025.06.05 12:13:30 +02'00'			
Project number	41106080			
Report number	01			
File reference	\\corp.pbwan.net\za\Central_Data\Projects\41100xxx\41106080 - WKN Windcurrent Solar PV\			

CONTENTS

TABLES

FIGURES

APPENDICES

NOTIFICATION LETTER

APPENDIX J.3

ADVERT

APPENDIX J.4

SITE NOTICE

APPENDIX K

EMPR

1 INTRODUCTION

Merafong Energy (Pty) Ltd (Merafong) has appointed WSP Group Africa Pty Ltd (WSP), as an independent Environmental Assessment Practitioner (EAP) to submit a registration application for the Merafong Solar Photovoltaic (PV) Facility and associated infrastructure. The proposed project is situated approximately 10km east of Carletonville, within the jurisdiction of the Merafong City Local Municipality, in the West Rand District Municipality, Gauteng Province (**Figure 1-1**; **Figure 1-2** and **Figure 1-3**).

This Site Sensitivity Verification Report (SSVR) forms part of the registration process in terms of "*Norm for the Exclusion of the Development and Expansion of Solar Photovoltaic Facilities in Areas of Low or Medium Environmental Sensitivity*". Registration in terms of this norm allows for the exclusion from the requirement to obtain an Environmental Authorisation (EA) from the competent authority for listed and specified activities identified in paragraph 7 of the Norm.

This exclusion will apply only to activities identified in terms of section 24(2)(a) and (b) of the National Environmental Management Act, 1998 (Act No. 107 of 1998), subject to compliance with the Norm for the Exclusion of the Development and Expansion of Solar Photovoltaic Facilities in Areas of Low or Medium Environmental Sensitivity, as set out in the Schedule, while the requirements of any other relevant legislation remain applicable.

1.1 BACKGROUND TO THE PROJECT

Merafong (Applicant) proposes to establish an up to 140MW Merafong Solar Energy Facility (SEF) and associated infrastructure (hereafter the 'Merafong SEF'), including an on-site switching station located near Fochville in Gauteng. The proposed SEF qualifies for an exclusion process in terms of section 24(2)(a) and (b) of the National Environmental Management Act, 1998 (Act No. 107 of 1998), subject to compliance with the Norm for the Exclusion of the Development and Expansion of Solar Photovoltaic Facilities in Areas of Low or Medium Environmental Sensitivity. The extent of the Project footprint will be approximately 311 hectares (ha), subject to finalisation based on technical and environmental requirements.

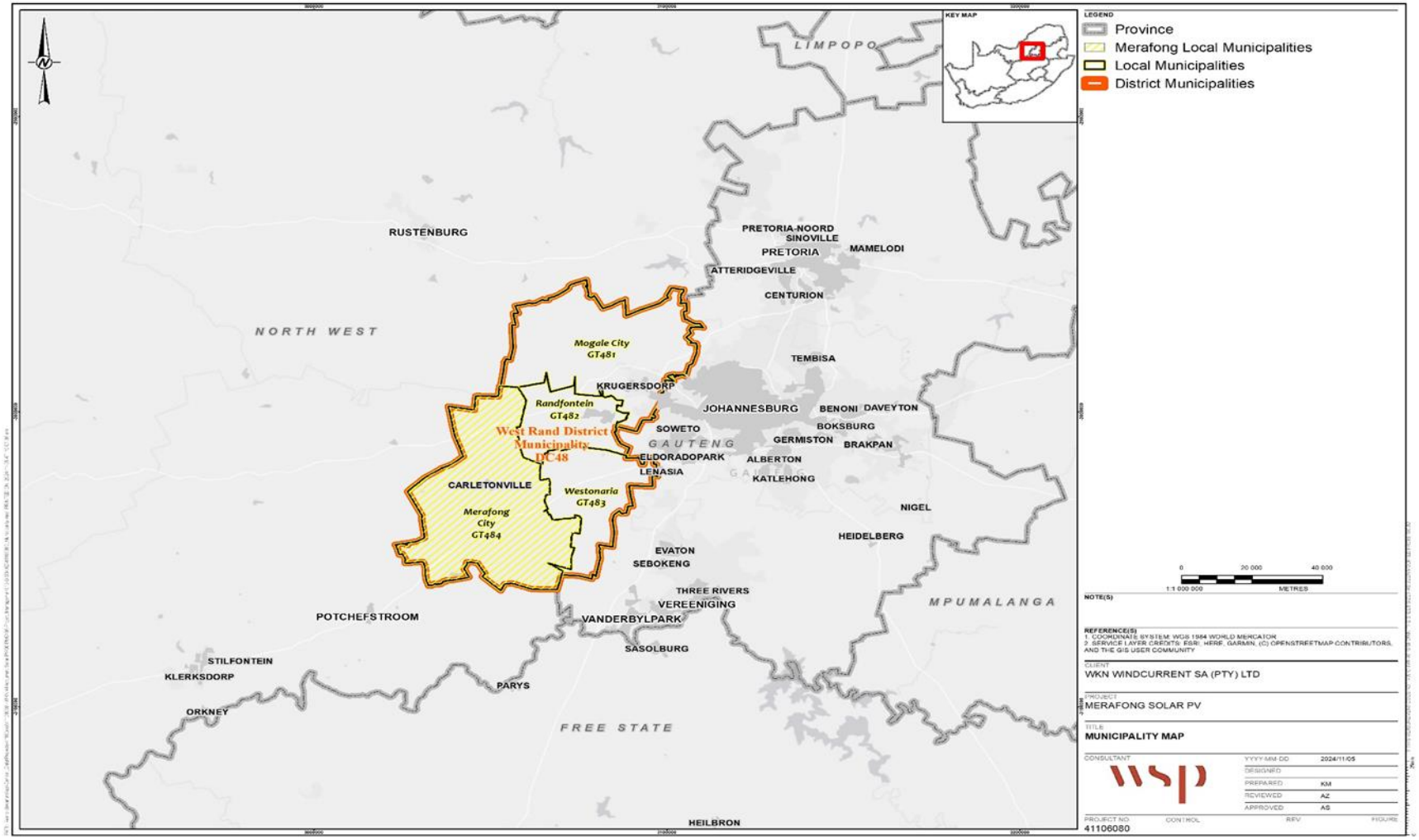


Figure 1-1 - Municipality Map

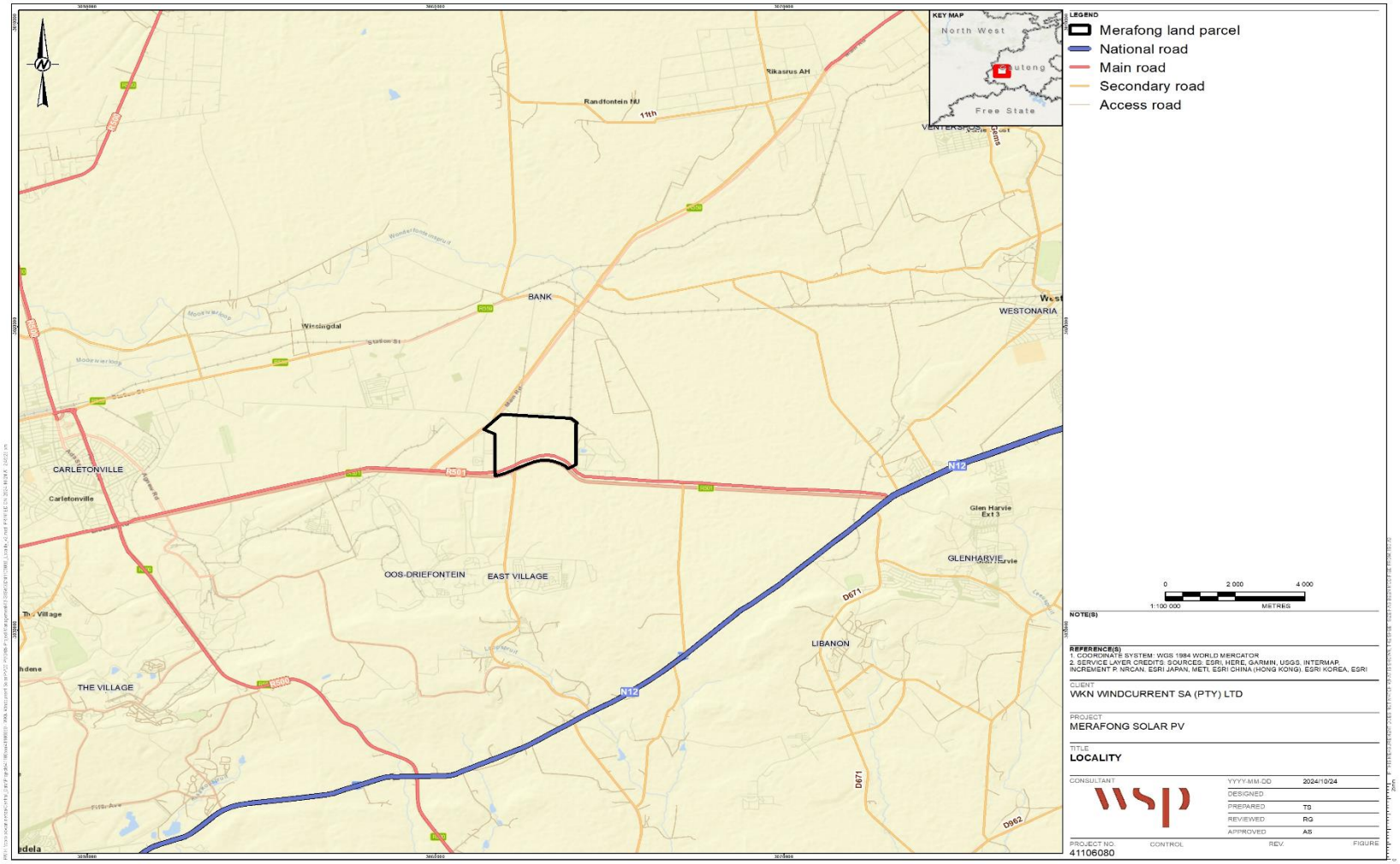


Figure 1-2 - Regional locality map of Merafong SEF Development

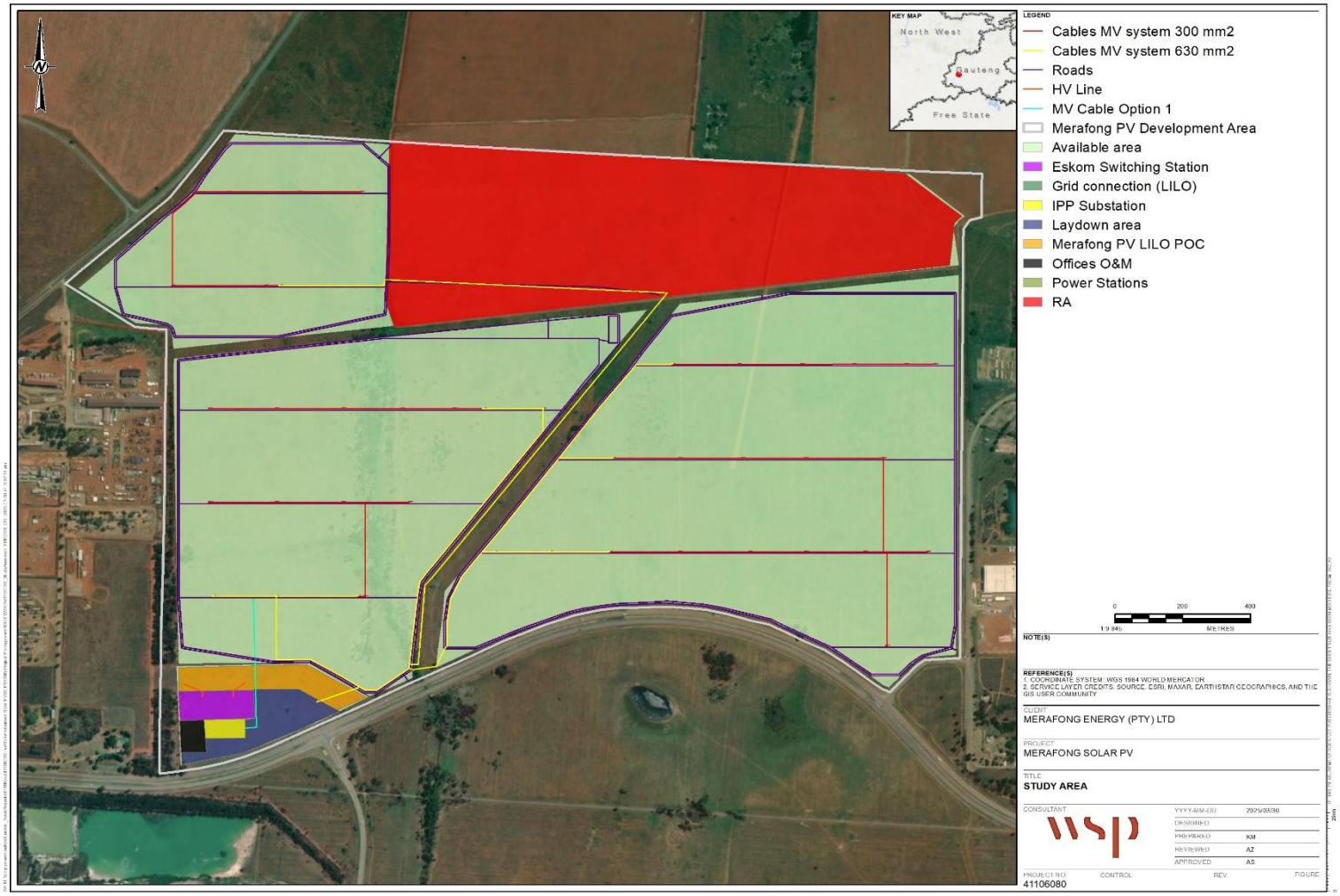


Figure 1-3 - Layout map of Merafong SEF Development

1.2 PURPOSE OF THE REPORT

The Norm, entitled "*Norm for the Exclusion of the Development and Expansion of Solar Photovoltaic Facilities in Areas of Low or Medium Environmental Sensitivity*", has been prepared to provide rules under which activities associated with the development and expansion of solar photovoltaic facilities identified in terms of section 24(2)(a) and (b) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and contained in the Environmental Impact Assessment Regulations Listing Notice 1, 2 or 3 of 2014, promulgated under section 24(5) of the National Environmental Management Act, 1998 (Act No. 107 of 1998), are excluded from the requirement to obtain an environmental authorisation prior to commencement, while meeting the objectives of the National Environmental Management Act, 1998 (Act No. 107 of 1998).

One of the guidance tools developed is the national web based environmental screening tool, which provides guidance on environmental sensitivities of a specific geographical location or site related to various identified environmental themes. Environmental sensitivities are rated as "very high", "high", "medium" or "low". In addition to the development of environmental management instruments, in 2022 the sector was professionalised with the requirement for an environmental assessment practitioner needing to be registered by the registration authority appointed by the Minister. The development of this Norm is part of the ongoing initiative to streamline the environmental legislative framework and to gain the benefits of the professionalisation of the environmental sector.

The Screening Report generated by the National Web-based Environmental Screening Tool contains a summary of any development incentives, restrictions, exclusions or prohibitions that apply to the proposed development footprint as well as the most environmentally sensitive features on the footprint based on the footprint sensitivity screening results for the application classification that was selected.

A screening report for the Merafong SEF was generated on 10 March 2025 and is attached as **Appendix A**. The Screening Report for the project identified various sensitivities for the site.

1.3 ROLE PLAYERS

1.3.1 COMPETENT AUTHORITY

Section 24C(2)(a) of NEMA stipulates that the Minister of Forestry, Fisheries and the Environment ("the Minister") must be identified as the competent authority if the activity has implications for international environmental commitments or relations. Project Proponent.

Merafong is the project proponent with regards to this application for the construction and operation of the Merafong SEF. **Table 1-1** provides the relevant details of the project proponent.

Table 1-1 - Details of Project Proponent

Proponent:	**Merafong Energy (Pty) Ltd**
Contact Person	Chris Botha
Postal Address	Unit 301, Sunclare Building, 21 Dreyer St, Claremont, Cape Town, 7708
Telephone	079 578 4511
Email	marshall@merchant.energy

1.3.2 ENVIRONMENTAL ASSESSMENT PRACTITIONER

WSP has been appointed in the role of Independent EAP to undertake the S&EIR processes for the development of the Project. The CV of the EAP together with proof of qualifications and professional registration is included in **Appendix B**. **Table 1-2** details the relevant contact details of the EAP. In order to adequately identify and assess potential environmental impacts, a number of specialists will support the EAP.

Table 1-2 - Details of the Environmental Assessment Practitioner

Environmental Assessment Practitioner (EAP)	WSP Group Africa (Pty) Ltd
Contact Person:	Ashlea Strong
Postal Address:	Building 1, Maxwell Office Park, Magwa Cres, Midrand, 1685
Telephone:	011 361 1392
Fax:	011 361 1381
E-mail:	Ashlea.Strong@wsp.com
Qualifications:	▪ Masters in Environmental Management, University of the Free State ▪ B Tech, Nature Conservation, Technikon SA ▪ National Diploma in Nature Conservation, Technikon SA
EAPASA Registration Number:	EAPASA (2019/1005)

Statement of Independence

Neither WSP nor any of the authors of this Report have any material present or contingent interest in the outcome of this Report, nor do they have any business, financial, personal, or other interest that could be reasonably regarded as being capable of affecting their independence. WSP has no beneficial interest in the outcome of the assessment.

1.3.3 SPECIALISTS

Table 1-5 outlines the specialists that provided input into this report. The relevant Curriculum Vitae together with proof of qualifications and professional registration is included in **Appendix C**.

Table 1-3 – Details of Specialists

Assessment	Name of Specialist	Company	Sections in Report	Specialist Report attached as
Agricultural Compliance Statement	Johann Lanz	Soil ZA	▪ Section 5.3.1	**Appendix D**
Terrestrial Biodiversity Compliance Statement	Andrew Zinn	Hawkhead Consulting	▪ Section 5.3.5	**Appendix E**

Assessment	Name of Specialist	Company	Sections in Report	Specialist Report attached as
Aquatic Biodiversity Compliance Statement	Rudolph Greffrath	WSP	▪ Section 5.3.5	**Appendix F**
Plant Species Compliance Statement	Andrew Zinn	Hawkhead Consulting	▪ Section 5.3.6	**Appendix E**
Animal Species Compliance Statement	Andrew Zinn	Hawkhead Consulting	▪ Section 5.3.7	**Appendix E**
Avifauna Verification Assessment	Megan Diamond	Feathers Environmental Services	▪ Section 5.3.8	**Appendix G**
Archaeological and Cultural Heritage Verification Assessment	Lara Lucija Kraljević	Beyond Heritage (Pty) Ltd	▪ Section 5.3.2	**Appendix H**
Palaeontology Verification Assessment	Prof Marion Bamford	Beyond Heritage (Pty) Ltd	▪ Section 5.3.3	**Appendix I**

2 GOVERNANCE FRAMWORK

2.1 NATIONAL LEGISLATION

Table 2-1 outlines the National and Provincial Legislation most applicable to this registration process.

Table 2-1 – Applicable National and Provincial Legislation

Legislation	Description of Legislation and applicability
The Constitution of South Africa (No. 108 of 1996)	The Constitution cannot manage environmental resources as a stand-alone piece of legislation hence additional legislation has been promulgated to manage the various spheres of both the social and natural environment. Each promulgated Act and associated Regulations are designed to focus on various industries or components of the environment to ensure that the objectives of the Constitution are effectively implemented and upheld on an on-going basis throughout the country. In terms of Section 7, a positive obligation is placed on the State to give effect to the environmental rights.
National Environmental Management Act (No. 107 of 1998)	In terms of Section 24(2) of the NEMA, the Minister may identify activities, which may not commence without prior authorisation. The Minister thus published GNR 983 (as amended) (Listing Notice 1), GNR 984 (as amended) (Listing Notice 2) and GNR 985 (as amended) (Listing Notice 3) listing activities that may not commence prior to authorisation. The regulations outlining the procedures required for authorisation are published in the EIA Regulations of 2014 (GNR 982) (as amended). Listing Notice 1 identifies activities that require a BA process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity. Listing Notice 2 identifies activities that require an S&EIR process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity. Listing Notice 3 identifies activities within specific areas that require a BA process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity. WSP undertook a legal review of the listed activities according to the proposed project description to identify the NEMA listed activities considered applicable to the development. The proponent is applying to be excluded from the requirement to obtain an environmental authorisation prior to commencement, as outlined in the "*Norm for the Exclusion of the Development and Expansion of Solar Photovoltaic Facilities in Areas of Low or Medium Environmental Sensitivity*". The listed activities that the client wishes to be excluded from are outlined in Section 2.2 below.
Norm for the Exclusion of the Development and Expansion of Solar Photovoltaic Facilities in Areas of Low or Medium Environmental Sensitivity	The Norms provides rules under which activities associated with the development and expansion of battery storage facilities identified in terms of section 24(2)(a) and (b) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and contained in the Environmental Impact Assessment Regulations Listing Notice 1, 2 or 3 of 2014, promulgated under section 24(5) of the National Environmental Management Act, 1998 (Act No. 107 of 1998), are excluded from the requirement to obtain an environmental authorisation prior to commencement, while meeting the objectives of the National Environmental Management Act, 1998 (Act No. 107 of 1998). One of the guidance tools developed is the national web based environmental screening tool, which provides guidance on environmental sensitivities of a specific geographical location or site related to various identified environmental themes. Environmental sensitivities are rated as "very high", "high", "medium" or "low".

Legislation	Description of Legislation and applicability
	This exclusion will apply only to activities identified in terms of section 24(2)(a) and (b) of the National Environmental Management Act, 1998 (Act No. 107 of 1998), subject to compliance with the Norm for the Exclusion of the Development and Expansion of Solar Photovoltaic Facilities in Areas of Low or Medium Environmental Sensitivity, as set out in the Schedule, while the requirements of any other relevant legislation remain applicable.
Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes (GNR 320, 20 March 2020 and GNR 1150, 30 October 2020)	The protocols provide the criteria for specialist assessment and minimum report content requirements for impacts for various environmental themes for activities requiring environmental authorisation. The protocols replace the requirements of Appendix 6 of the EIA Regulations, 2014, as amended. The assessment and reporting requirements of the protocols are associated with a level of environmental sensitivity identified by the national web based environmental screening tool (screening tool). The Screening Report was generated for the project on 10/03/2025 (**Appendix A**). The following environmental themes were applicable to the Merafong SEF: ▪ Agriculture Theme ▪ Animal Species Theme ▪ Aquatic Biodiversity Theme ▪ Archaeological and Cultural Heritage Theme ▪ Avian Theme ▪ Civil Aviation Theme ▪ Defence Theme ▪ Landscape (Solar) Theme ▪ Palaeontology Theme ▪ Plant Species Theme ▪ Radio Frequency Interference (RFI) Theme ▪ Terrestrial Biodiversity Theme
National Environmental Management: Waste Act (59 of 2008) (NEM:WA)	This Act provides for regulating waste management in order to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation. The Act also provides for the licensing and control of waste management activities through GNR. 921 (2013): List of Waste Management Activities that Have, or are Likely to Have, a Detrimental Effect on the Environment. The proposed project does not constitute a Listed Activity requiring a Waste Management Licence (WML) as defined in GNR 921. The Environmental Management Programme (EMPr) that will accompany the SSV Report, will include reasonable measures for the prevention of pollution and good international industry practice (GIIP).
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)	The National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEMBA) was promulgated in June 2004 within the framework of NEMA to provide for the management and conservation of national biodiversity. The NEMBA's primary aims are for the protection of species and ecosystems that warrant national protection, the sustainable use of indigenous biological resources, the fair and equitable sharing of benefits arising from bioprospecting involving indigenous biological resources. In addition, the NEMBA provides for the establishment and functions of a South African National Biodiversity Institute (SANBI). SANBI was established by the NEMBA with the primary purpose of reporting on the status of the country's biodiversity and conservation status of all listed threatened or protected species and ecosystems. According to the NEMBA Threatened Ecosystems (2021), Carletonville Dolomite Grassland is not listed as a threatened ecosystem. A Biodiversity Assessment has been undertaken and is included in **Appendix E**.

Legislation	Description of Legislation and applicability
National Environmental Management Protected Areas Act (No. 57 of 2003)	The purpose of the National Environmental Management Protected Areas Act (No. 57 of 2003) (NEMPAA) is to, inter alia, provide for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes. To this end, it provides for the declaration and management of various types of protected areas. Section 50(5) of NEMPAA states that "no development, construction or farming may be permitted in a nature reserve or world heritage site without the prior written approval of the management authority." There are no protected areas within the study area. No nationally protected areas occur in close proximity to the proposed Project area. The Project areas does coincide with areas that have been identified as Priority Focus Areas as part of the National Protected Area Development Strategy (2016).
Renewable Energy Development Zones and Strategic Transmission Corridors	On 16 February 2018, the DFFE gazetted the Renewable Energy Development Zones (REDZs) and Strategic Transmission Corridors and Procedures for the Assessment of Large-scale Wind and Solar Photovoltaic Energy Development Activities (GN 114) and Grid Infrastructure (GN 113). Subsequently, on 26 February 2021 a further three REDZ were gazetted (GN 142). The procedure allows for wind and solar PV activities within the eight REDZs and electricity grid development within the five power corridors to be subjected to a BA and not a full S&EIR process. In addition, the timeframes associated with the decision on the application is reduced from 107 days to 57 days. **The Merafong SEF is not located within a REDZ but is located within the Central Strategic Corridor.**
The National Heritage Resources Act (No. 25 of 1999)	The National Heritage Resource Act (Act No. 25 of 1999) (NHRA) serves to protect national and provincial heritage resources across South Africa. The NHRA provides for the protection of all archaeological and palaeontological sites, the conservation and care of cemeteries and graves by the South African Heritage Resources Agency (SAHRA), and lists activities that require any person who intends to undertake to notify the responsible heritage resources agency and furnish details regarding the location, nature, and extent of the proposed development. Part 2 of the NHRA details specific activities that require a Heritage Impact Assessment (HIA) that will need to be approved by SAHRA. Parts of Section 35, 36 and 38 apply to the proposed project, principally: ▪ Section 35 (4) - No person may, without a permit issued by the responsible heritage resources authority- ▪ destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite; ▪ destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite. ▪ Section 38 (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as- • any development or other activity which will change the character of a site— (i) exceeding 5 000 m^2 in extent, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development. In terms of Section 38(8), approval from the heritage authority is not required if an evaluation of the impact of such development on heritage resources is required in terms of any other legislation (such as NEMA), provided that the consenting authority ensures that the evaluation of impacts fulfils the requirements of the relevant heritage resources authority in terms of Section 38(3) and any comments and recommendations of the relevant resources authority with regard to such development have been taken into account prior to the granting of the consent. However, should heritage resources of significance be affected by the proposed Merafong SEF, a permit is required to be

Legislation	Description of Legislation and applicability
	obtained prior to disturbing or destroying such resources as per the requirements of Section 48 of the NHRA, and the SAHRA Permit Regulations (GN R668). A Heritage Verification Assessment (**Appendix H**) has been carried out by a suitably qualified specialist, Beyond Heritage, revealing: The field survey of the PV area noted high levels of surface disturbances from both agricultural and mining activities. The PV area is considered to be of low heritage potential and only a degraded cement foundation of low significance was identified. No other surface finds were present within the PV area. To comply with the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA) and with cognisance of known heritage resources in the area, the proposed project will be loaded onto the SAHRIS portal for comment by the provincial Heritage Resource Agency.
Noise Control Regulations in terms of the Environmental Conservation, 1989 (Act 73 of 1989)	In South Africa, environmental noise control has been in place for three decades, beginning in the 1980s with codes of practice issued by the South African National Standards (formerly the South African Bureau of Standards, SABS) to address noise pollution in various sectors of the country. Under the previous generation of environmental legislation, specifically the Environmental Conservation Act 73 of 1989 (ECA), provisions were made to control noise from a National level in the form of the Noise Control Regulations (GNR 154 of January 1992). In later years, the ECA was replaced by the National Environmental Management Act 107 of 1998 (NEMA) as amended. The National Environmental Management: Air Quality Act 39 of 2004 (NEMAQA) was published in line with NEMA and contains noise control provisions under Section 34: (1) The minister may prescribe essential national standards – (a) for the control of noise, either in general or by specific machinery or activities or in specified places or areas; or (b) for determining – (i) a definition of noise; and (ii) the maximum levels of noise. (2) When controlling noise, the provincial and local spheres of government are bound by any prescribed national standards. Under NEMAQA, the Noise Control Regulations were updated and are to be applied to all provinces in South Africa. The Noise Control Regulations give all the responsibilities of enforcement to the Local Provincial Authority, where location specific by-laws can be created and applied to the locations with approval of Provincial Government. Where province-specific regulations have not been promulgated, acoustic impact assessments must follow the Noise Control Regulations. Furthermore, NEMAQA prescribes that the Minister must publish maximum allowable noise levels for different districts and national noise standards. These have not yet been accomplished and as a result all monitoring and assessments are done in accordance with the South African National Standards (SANS) 10103:2008 and 10328:2008.
Conservation of Agricultural Resources Act (No. 43 of 1983)	The Conservation of Agricultural Resources Act (Act 43 of 1983) (CARA) provides for the implementation of control measures for soil conservation works as well as alien and invasive plant species in and outside of urban areas. In terms of the amendments to the regulations under the CARA, landowners are legally responsible for the control of alien species on their properties. Various Acts administered by the DFFE and the DWS, as well as other laws (including local by-laws), spell out the fines, terms of imprisonment and other penalties for contravening the law. Although no fines have yet been placed against landowners who do not remove invasive species, the authorities may clear their land of invasive alien plants and other alien species entirely at the landowners' cost and risk.

Legislation	Description of Legislation and applicability
	The CARA Regulations with regards to alien and invasive species have been superseded by NEMBA Alien and Invasive Species (AIS) Regulations which became law on 1 October 2014.
Occupational Health and Safety Act (No. 85 of 1993)	The National Occupational Health and Safety Act (No. 85 of 1993) (OHSA) and the relevant regulations under the Act are applicable to the proposed project. This includes the Construction Regulations promulgated in 2014 under Section 43 of the Act. Adherence to South Africa's OHSA and its relevant Regulations is essential.
National Energy Act (No. 34 of 2008)	The National Energy Act aims to ensure that diverse energy resources are available, in sustainable quantitates, and at affordable prices, to the South African economy in support of economic growth and poverty alleviation, taking into account environmental management requirements and interactions amongst economic sectors. The main objectives of the Act are to: ▪ Ensure uninterrupted supply of energy to the Republic; ▪ Promote diversity of supply of energy and its sources; ▪ Facilitate effective management of energy demand and its conservation; ▪ Promote energy research; ▪ Promote appropriate standards and specifications for the equipment, systems and processes used for producing, supplying and consuming energy; ▪ Ensure collection of data and information relating to energy supply, transportation and demand; ▪ Provide for optimal supply, transformation, transportation, storage and demand of energy that are planned, organised and implemented in accordance with a balanced consideration of security of supply, economics, consumer protection and a sustainable development; ▪ Provide for certain safety, health and environment matters that pertain to energy; ▪ Facilitate energy access for improvement of the quality of life of the people of Republic; ▪ Commercialise energy-related technologies; ▪ Ensure effective planning for energy supply, transportation, and consumption; and ▪ Contribute to sustainable development of South Africa's economy. In terms of the act, the Minister of Energy is mandated to develop and, on an annual basis, review and publish the Integrated Energy Plan (IEP) in the Government Gazette. The IEP analyses current energy consumption trends within different sectors of the economy (i.e. agriculture, commerce, industry, residential and transport) and uses this to project future energy requirements, based on different scenarios. The IEP and the Integrated Resource Plan are intended to be updated periodically to remain relevant. The framework is intended to create a balance between energy demand and resource availability so as to provide low-cost electricity for social and economic development, while taking into account health, safety and environmental parameters.
Electricity Regulation Act (No. 4 of 2006)	The Electricity Regulation Act (No. 4 of 2006) (ERA) aims to: ▪ Achieve the efficient, effective, sustainable and orderly development and operation of electricity supply infrastructure in South Africa; ▪ Ensure that the interests and needs of present and future electricity customers and end users are safeguarded and met, having regard to the governance, efficiency. effectiveness and long-term sustainability of the electricity supply industry within the broader context of economic energy regulation in the Republic: ▪ Facilitate investment in the electricity supply industry; ▪ Facilitate universal access to electricity; ▪ Promote the use of diverse energy sources and energy efficiency; ▪ Promote competitiveness and customer and end user choice; and ▪ Facilitate a fair balance between the interests of customers and end users, licensees, investors in the electricity supply industry and the public. The Act establishes a National Energy Regulator as the custodian and enforcer of the National Electricity Regulatory Framework. The Act also provides for licenses and

Legislation	Description of Legislation and applicability
	registration as the manner in which generation, transmission, distribution, trading and the import and export of electricity are regulated.
The Gauteng Provincial Employment, Growth and Development Strategy (GEGDS)	The Gauteng Provincial Employment, Growth and Development Strategy (GEGDS) identifies the need for creating accessible and decent work within a growing, sustainable, and inclusive economy as a priority for the province. The GEGDS aims to address the deep structural weaknesses within the economy that has yielded persistent high unemployment and excluded marginalized populations despite the economic growth of the region. Key aims of GEGDS: ▪ Provide a framework within which relevant government departments can develop and/or refine their strategic policy interventions or drivers, while creating decent work and building a growing, inclusive economy. ▪ Identify effective interventions for provincial government to mitigate the impact of economic crises while initiating programmes that can maximise (decent) employment creation in the medium term. ▪ Address inequality through the investment in people and the progressive realisation of decent jobs. ▪ Support social cohesion through interventions that directly contribute towards employment creation and a healthy, well-nourished, and safe labour force. ▪ Highlight the need for effective monitoring, reviewing, and evaluating of the various interventions or drivers. ▪ To act as the framework that leads to the Gauteng Growth Path, which is the living or real implementation of the GEGDS. To achieve this GEGDS proposes necessary and profound structural changes to the Gauteng economy that are based on a rapid shift to an endogenous economy rooted in three key factors: ▪ Innovation. ▪ Green Growth. ▪ Inclusivity. There are three integral components that make up the strategy, namely: the seven foundational provincial priorities, the five strategic pillars, and seven cross-cutting drivers. The foundational provincial priorities of relevance include: ▪ Creating Decent Work and Building a Sustainable and Inclusive Economy. ▪ Building Cohesive and Sustainable Communities including Spatial Development. This GEGDS outlines the strategic interventions by which Gauteng will work to make this innovating, green and inclusive economy a reality. These interventions are organised into five strategic pillars. The strategic pillars of relevance include: ▪ Transforming the provincial economy through improved efficiency. ▪ Sustainable employment creation. ▪ Sustainable communities and social cohesion. Each pillar contains several government interventions, which enable them to implement this strategy. These are called drivers. Cross-cutting drivers of relevance include: ▪ Green Economy and Sustainable Energy Usage. ▪ Innovation and the Knowledge Economy. ▪ Infrastructure – Strategic, Socio-economic and Bulk. ▪ Green Jobs. ▪ Spatial Planning.
Gauteng Provincial Spatial Development Framework (2030)	The Gauteng Provincial Spatial Development Framework (GSDF) 2030 aspires to establish a compact urban form that has a balanced, polycentric spatial network, with strong and resilient nodes enabling mutually beneficial exchanges of goods and services, and movement of people as well as the protection of green spaces and sustainable energy use. To support this vision, four spatial development strategies are to be followed:

Legislation	Description of Legislation and applicability
	▪ Capitalising on proximity. ▪ Managing new settlement development. ▪ Building an economic network. ▪ Creating a viable and productive hinterland. The effective provision and maintenance of bulk infrastructure, including energy production, is prioritised within the capitalising on proximity strategy. Ten high-priority provincial spatial development proposals are outlined. While none focus specifically on energy production, the following are important in terms of conservation and bulk infrastructure development: ▪ Municipal urban growth management. ▪ Strengthening and enhancing agricultural production and agro-processing. ▪ Actively pursuing environmental management and eco-system protection. ▪ Boosting and optimising provincial tourism opportunities. ▪ The GSDF notes that the West Rand District Municipality (WRDM) is currently operating at near capacity in terms of energy production and the lack of stable generation capacity from current providers act as a major constraint to economic development and investor confidence. The GSDF also notes that Merafong's electricity network was not designed to supply the developments and extensions that are currently underway in the district.
Gauteng Integrated Energy Strategy (2012)	The aim of the Gauteng Integrated Energy Strategy (GIES) is to direct the energy supply and consumption of the Gauteng province over the next five to forty-five years by integrating and supporting sustainable energy and climate change initiatives, both locally and internationally. The key goals of this strategy include: ▪ Providing the leadership and institutional framework required to drive the strategy. ▪ Implementing strong energy efficient measures. ▪ Facilitating the development and growth of renewable and alternative energy options. ▪ Supporting the move towards a low carbon economy. ▪ Prioritising energy security and access to safe, clean, and affordable energy. ▪ Developing and growing the alternative and energy efficiency industry as a critical aspect of Gauteng's economy. The relative policy implications include: ▪ Shifting to a low carbon economy. ▪ Maximizing the use of local energy resources. ▪ Development of the renewable energy industry as an employment creation opportunity. ▪ The GIES hopes to achieve a low carbon economy, Gauteng as a hub of innovation, focused on clean energy technology, decentralised energy generation-micro generation, as well as clean and renewable energy contributing 50% of the total energy mix of the province.
Growing Gauteng Together 2030	Growing Gauteng Together 2030 (GGT2030) is a plan of action realised by the Gauteng government to drive the province towards a more sustainable and inclusive future. The plan includes seven priorities that are to be executed to achieve this vision. The relevant priorities include: ▪ The Economy, Jobs, and Infrastructure. ▪ Integrated Human Settlements and Land Release. ▪ Safety, Social Cohesion and Food Security. ▪ Sustainable Development for Future Generations. ▪ This vision will be implemented along five developmental corridors of Gauteng. The Western Development Corridor includes WRDM, and the focus is around diversifying the district economy to include tourism, agriculture, and agro-processing, and renewable energy projects.

Legislation	Description of Legislation and applicability
Merafong City Local Municipality Integrated Development Plan (2020)	The vision for the Merafong City Local Municipality (MCLM) Integrated Development Plan (IDP) is “A prosperous, Sustainable and Community-oriented City”. The Key Performance Areas (KPA) adopted by the municipality to realise this vision are: ▪ KPA 1: Basic Service Delivery ▪ KPA 2: To Promote Local Economic Development ▪ KPA 3: To Promote Municipal Transformation & Organisational Development ▪ KPA 4: To ensure Municipal Financial Viability & Management ▪ KPA 5: To ensure Good Governance and Public Participation ▪ KPA 6: Spatial Development Framework There are various Development Strategies of Merafong Municipality, which are informed by a Strategic Turn-Around plan developed during a strategic review session held in 2018. Of relevance to the project is the Electricity Supply Strategy (2020/2021), which identifies a variety of strategic interventions for the municipality. The Strategic Turnaround Plan is aligned to 14 regional outcomes, with Outcome 1: Provision of Basic Service Delivery as well as Outcome 8: Sustainable Environment being relevant to the project. The MCLMIDP notes that the status of the current Energy Plan needs to be re-assessed to integrate with the greater West Rand Plan.
Merafong City Local Municipality Spatial Development Framework (2019)	Merafong Spatial Development Framework (MSDF), forms part of a hierarchy of plans that consolidate into the IDP. It concentrates on the spatial aspects of development planning and identifies the opportunities and constraints associated with the district. The Merafong City’s SDF proposes the following structuring tools: ▪ Improve urban efficiency and rectify Apartheid spatial disparities through realigning the urban structure of Merafong settlements into three distinct urban areas. ▪ Improve urban and rural liveability where basic needs are met, the cost of living is bearable, amenities and employment are accessible, and urban space is aesthetically pleasing and healthy. ▪ Facilitate sustainable economic growth and diversification, through identified strategic nodes, which include a bio-energy eco-industrial park. ▪ Protect natural and agricultural resources to ensure a sustainable coexistence between urban, mining, agricultural and ecological land uses. Opportunities in the MSDF of relevance to the project include a Bioenergy Agro-Industrial Park and the Merafong SEF. Additionally, the adaptation of unsustainable, unused, or old mines and mine dumps for reuse or rehabilitation also presents an opportunity. The mines Driefontein North and Kusasalethu/Elandsrand were identified as particularly promising for the establishment of solar farms or other renewable energy sources.

2.2 SCOPE OF REGISTRATION

Table 2-2 outlines the listed activities applicable to the proposed project from which the Proponent wishes to be excluded.

Table 2-2 - Listed activities applicable for exclusion

Listed Activity	Description
GNR 983 (as amended) (Listing Notice 1)	
Activity 11 (i): 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	The proposed Solar PV Facility will include an up to 132kV substation..

Listed Activity	Description
(ii) inside urban areas or industrial complexes with a capacity of 275 kilovolts or more; excluding the development of bypass infrastructure for the transmission and distribution of electricity where such bypass infrastructure is — (a) temporarily required to allow for maintenance of existing infrastructure; (b) 2 kilometres or shorter in length; (c) within an existing transmission line servitude; and (d) will be removed within 18 months of the commencement of development.	
Activity 12 (ii) The development of— (ii) infrastructure or structures with a physical footprint of 100 square metres or more; (a) within a watercourse;	Internal access roads will be required for access to the Facility. The physical footprint of internal access roads and electrical cabling required to connect the various components of the Facilities will either traverse the delineated watercourses on site or be located within 32m of the outer extent of the delineated watercourses on site. The access roads will fall within the solar PV development areas.
Activity 19 The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse.	The proposed infrastructure, with specific reference to access roads and the grid infrastructure, will require the removal of soil more than 10 cubic metres from a watercourse.
Activity 24 (ii) The development of a road— (ii) with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres.	The proposed access roads for the Solar facility will be 8 metres wide. Where existing roads are utilised these will be updated 8 metres wide.
GNR 984 (as amended) (Listing Notice 2)	
Activity 1 The development of facilities or infrastructure for the generation of electricity from a renewable resource where the electricity output is 20 megawatts or more, excluding where such development of facilities or infrastructure is for photovoltaic installations and occurs: (a) within an urban area; or (b) on existing infrastructure	The proposed energy generation technology (i.e. Solar) will generate more than 20MW of electricity output from a renewable resource outside an urban area.
Activity 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	Based on the information provided with regards to total project area, it is assumed that the facilities will result in the clearance of at least 20 hectares or more of indigenous vegetation.

Listed Activity	Description
(ii) maintenance purposes undertaken in accordance with a maintenance management plan.	
GNR 985 (as amended) (Listing Notice 3)	
Activity 4 The development of a road wider than 4 metres with a reserve less than 13,5 metres. C. Gauteng (iv).Sites identified as Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans.	Internal roads with a width of up to approximately 8m will provide access to the site as well as the substation and BESS. Existing site roads will be used wherever possible, although new site roads will be constructed where necessary. The project area contains areas classified as Critical Biodiversity Areas (CBA) as identified in the Gauteng Conservation Plan (C-Plan) (4.0).
Activity 10 The development and related operation of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres. C. Gauteng (iv).Sites identified as Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans.	The Facility will require storage and handling of dangerous goods, including fuel, cement, and chemical storage onsite, that will be greater than $30m^3$ but not exceeding $80m^3$ within the specified geological areas. Storage contemplated above may be located within, and will require vegetation clearance in sensitive areas. The storage areas may also be located within delineated watercourses on site, or within 100m of the outer extent of the delineated watercourses on site. The project area contains areas classified as CBA as identified in the Gauteng Conservation Plan (C-Plan) (4.0).
Activity 12 The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. C. Gauteng (ii) Within critical biodiversity areas identified in bioregional plans	The clearance of indigenous vegetation will be required for the facilities, however, the full extent is not yet known. Such clearance will be in excess of $300m^2$ The project area contains areas classified as CBA as identified in the Gauteng Conservation Plan (C-Plan) (4.0).
Activity 14 (ii)(a)(c) The development of— (ii) infrastructure or structures with a Physical footprint of 10 Square metres or more; where such development occurs— (a) within a watercourse; (c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse; b. Gauteng (iv) Sites identified as Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans;	The Facility will require the development of internal roads and/or access roads around the site. The physical footprint of internal access roads, stormwater control infrastructure and electrical cabling required to connect the various components of the Facility will either traverse the delineated watercourses on site, or be located within 32m of the outer extent of the delineated watercourses on site. The project area contains areas classified as CBA as identified in the

Listed Activity	Description
Activity 18 The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre. c. Gauteng v. Sites identified as Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans;	Transport of large infrastructure components related to the facilities will require the widening of existing access and/or internal roads by more than 4 metres or the lengthening of existing access and/or internal roads by more than 1km. The project area contains areas classified as CBA as identified in the Gauteng Conservation Plan (C-Plan) (4.0).

3 STAKEHOLDER ENGAGEMENT

Stakeholder engagement (public participation) is a requirement of the registration process. It consists of a series of inclusive and culturally appropriate interactions aimed at providing stakeholders with opportunities to express their views, so that these can be considered and incorporated into the registration of Exclusion of EA decision-making process. Effective engagement requires the prior disclosure of relevant and adequate project information to enable stakeholders to understand the risks, impacts, and opportunities of the proposed project. The objectives of the stakeholder engagement process can be summarised as follows:

- Identify relevant individuals, organisations and communities who may be interested in or affected by the proposed project;
- Clearly outline the scope of the proposed project, including the scale and nature of the existing and proposed activities;
- Identify viable proposed project alternatives that will assist the relevant authorities in making an informed decision;
- Identify shortcomings and gaps in existing information;
- Identify key concerns, raised by Stakeholders that should be addressed in the specialist studies;
- Highlight the potential for environmental impacts, whether positive or negative; and
- To inform and provide the public with information and an understanding of the proposed project, issues, and solutions.

A Comments and Response Report (C&R) will be compiled and included in the Final SSVR for submission to the DFFE with the application for registration.

3.1 STAKEHOLDER IDENTIFICATION

Stakeholders were identified through several mechanisms. These include:

- Utilising existing databases from other projects in the area;
- Networking with local business owners, non-governmental agencies, community based organisations, and local council representatives;
- Field work in and around the project area;
- Advertising in the press;
- Placement of community notices;
- Completed comment sheets; and
- Attendance registers at meetings.

All Stakeholders identified to date have been registered on the project stakeholder database. The EAP endeavoured to ensure that individuals/organisations from referrals and networking were notified of the Proposed Project. Stakeholders were identified at the horizontal (geographical) and vertical extent (organisations level).

A list of stakeholders captured in the project database is included in **Appendix J.1**.

3.2 STAKEHOLDER NOTIFICATION

3.2.1 DIRECT NOTIFICATION

Notification of the proposed Project will be issued to potential Stakeholders, via direct correspondence (i.e., site notices and e-mail) on **06 June 2025**. The notification letter that was circulated is included in **Appendix J.2**. Proof of notification will be included the Final SSVR for submission to the DFFE with the application for registration.

3.2.2 NEWSPAPER ADVERTISEMENTS

In accordance with the requirements of GNR 4557, the proposed project has been advertised in a local newspaper in English, Afrikaans and IsiZulu. The purpose of the advertisement was to notify the public about the proposed project and registration process and to invite them to register as stakeholders. Copies of the advertisements and proof of publication are included in **Appendix J.3**. The relevant advertisement dates are listed in **Table 3-1**.

Table 3-1: Dates on which the Adverts were published

Newspaper	Publication Date	Language
Carletonville Herald	06 June 2025	English, Afrikaans and IsiZulu

3.2.3 SITE NOTICES

The official site notices will be erected as per GNR 4557, as amended, on the boundary fence of the proposed site. In addition, general project notices, announcing the Proposed Project and inviting stakeholders to register, were placed at various locations in and around the project area. A copy of the site notice is included in **Appendix J.4**. Proof of placement will be included in the Final SSVR for submission to the DFFE with the application for registration.

3.3 PUBLIC REVIEW

The SSVR and EMPr will be made available for public review for a period of 30 days from **06 June 2025** to **07 July 2025,** at the following public places:

- Carletonville Library;
- Fochville Library;
- WSP website - https://www.wsp.com/en-za/services/public-documents
- WSP datafree website - https://wsp-engage.com/

This SSVR, inclusive of all comments and responses received during the public review period, will be submitted to the DFFE for approval.

3.4 COMMENT AND RESPONSE REPORT

All concerns, comments, viewpoints, and questions (collectively referred to as ‘issues’) received during the comment period will be documented and responded to adequately in the C&R report which will be included in the Final SSVR. Where comments are project specific, this will be noted in the C&R report. This will record the following:

- List of all issues raised;

- Record of who raised the issues;
- Record of where the issues were raised;
- Record of the date on which the issue was raised; and
- Response to the issues.

It should be noted that the Draft SSVR will be submitted to the provincial authority (GDARDE) for comment.

4 PROJECT DESCRIPTION

4.1 LOCATION OF THE PROPOSED PROJECT

The proposed study area is situated east of Carletonville and west of Westonaria within the Merafong City Local Municipality in the West Rand District Municipality of Gauteng, South Africa. The proposed Merafong SEF will be developed within a project area of approximately 311 hectares (ha). The site will be accessed via N12 to the R501, and the R559 as illustrated in **Figure 4-1**.

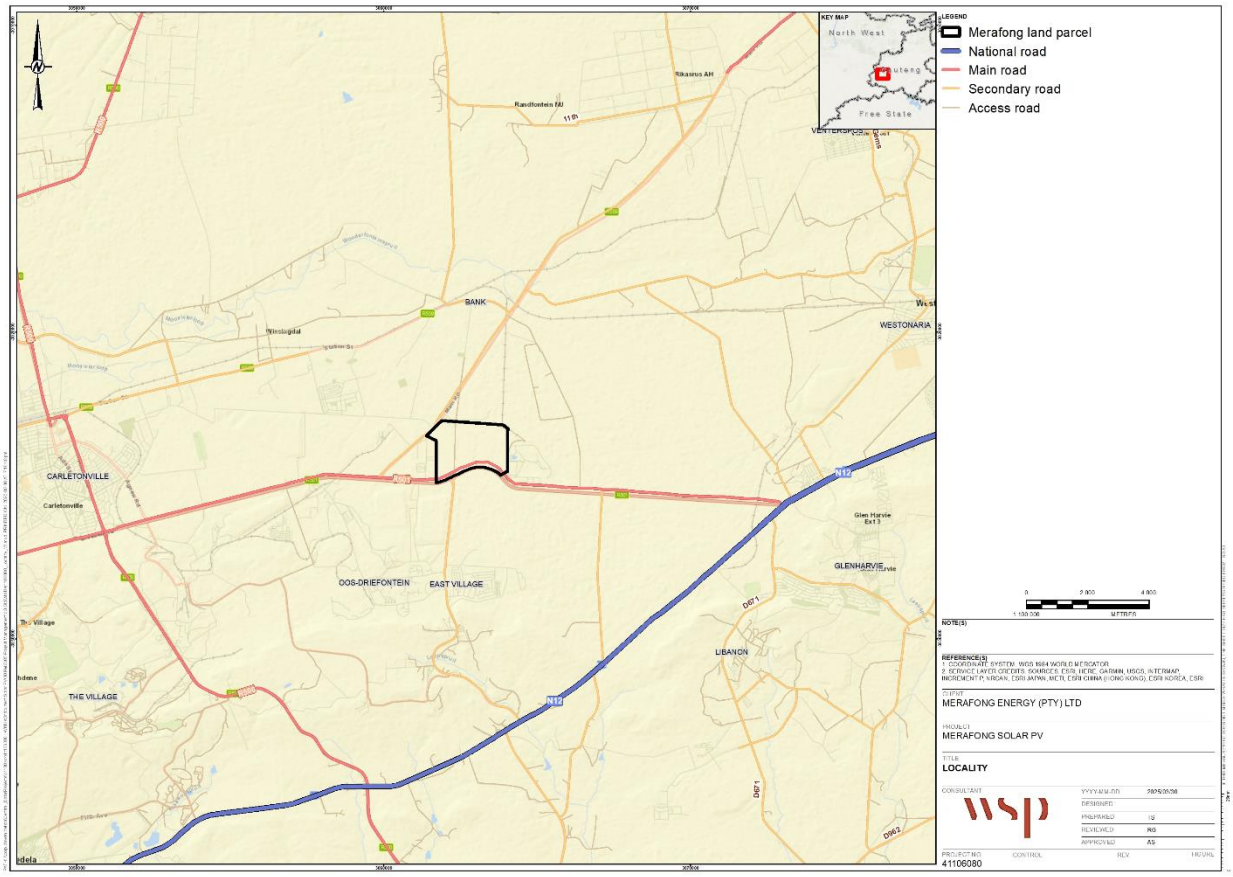
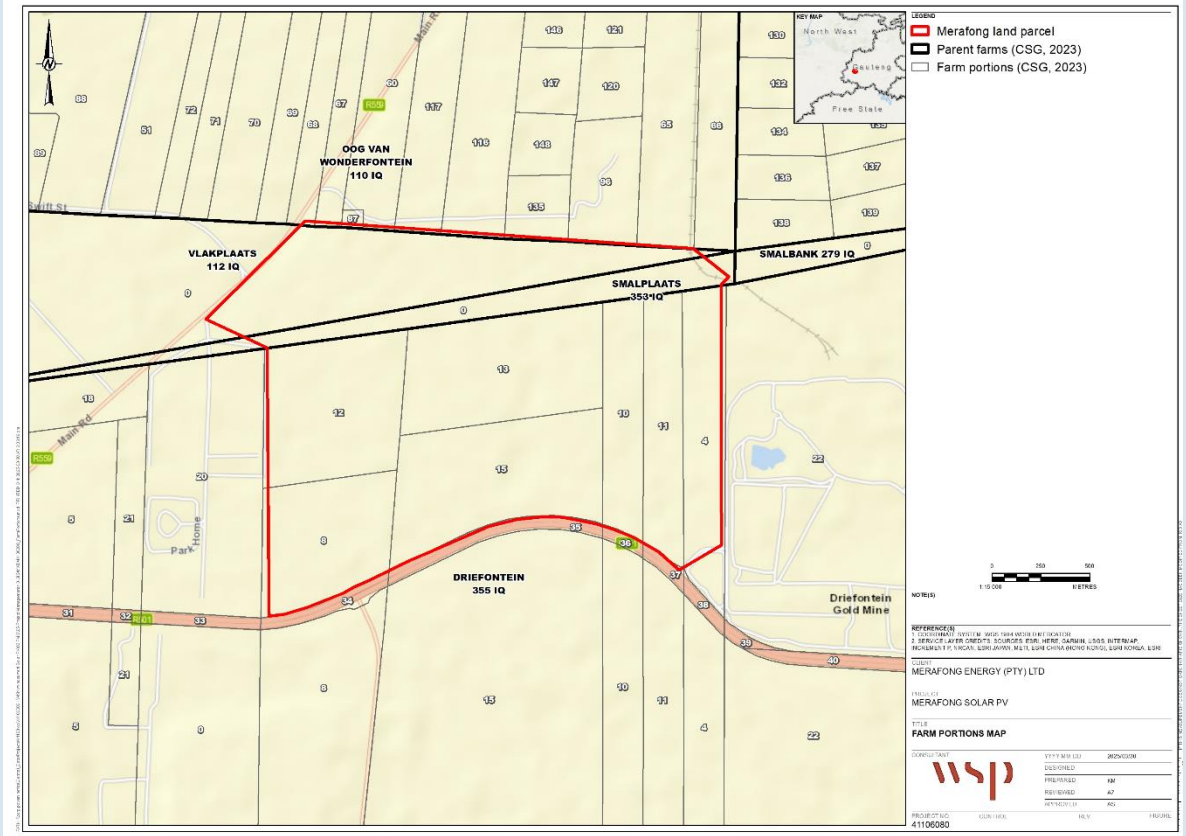


Figure 4-1 – Merafong Locality map

The details of the property associated with the Proposed Project, including the 21-digit Surveyor General (SG) codes for the cadastral land parcels are outlined in **Table 4-1**.

Table 4-1 – Merafong SEF Affected Farm Portions

Farm Name	21 Digit Surveyor General Code of Each Cadastral Land Parcel
	
Driefontein 355 Portions 4, 8, 10, 11, 12, 13, and 15	T0IQ00000000035500008
	T0IQ00000000035500015
	T0IQ00000000035500013
	T0IQ00000000035500010
	T0IQ00000000035500011
	T0IQ00000000035500012
	T0IQ00000000035500004
Smallplaats 353	T0IQ00000000035300000
Vlakplaats 112	T0IQ00000000011200000

The coordinates of the various development areas are provided in **Table 4.2.**

Table 4-2 – Merafong SEF Facility Co-ordinates

Component	Longitude	Latitude
		
1	26º 20’ 55.589’’ S	27º 30’ 03.131’’ E
2	26º 20’ 40.964’’ S	27º 30’ 19.563’’ E
3	26º 20’ 45.049’’ S	27º 31’ 23.933’’ E
4	26º 20’ 49.298’’ S	27º 31’ 29.843’’ E
5	26º 20’ 50.421’’ S	27º 31’ 28.528’’ E
6	26º 21’ 29.284’’ S	27º 31’ 28.529’’ E
7	26º 21’ 33.039’’ S	27º 31’ 21.596’’ E
8	26º 21’ 39.898’’ S	27º 30’ 13.607’’ E
9	26º 20’ 59.887’’ S	27º 30’ 13.337’’ E

4.2 SOLAR POWER GENERATION PROCESS

Energy storage systems capture surplus energy during times of high production/low demand and store it for use during times of low production/high demand. While not a new technology, energy storage is rapidly gaining traction as a way to provide a stable and consistent supply of renewable energy to the grid. South Africa experiences some of the highest levels of solar

radiation in the world between 4.5 and 6.5kWh/m^2/day) and therefore, possesses considerable solar resource potential for solar power generation.

In terms of large-scale grid connected applications the most commonly used technologies include PV and Concentrated Solar Power (CSP); these are described in some detail in the following sections.

4.2.1 PHOTOVOLTAIC (PV) SYSTEMS

Internationally, solar PV is the fastest-growing power generation technology. Approximately 139 GW was added to the installed capacity globally in 2020, increasing the installed capacity by 18% from the previous year. The total capacity from PVs was 760 GW globally, producing approximately 3% of the world's electricity[1]. In South Africa the solar PV installed capacity in 2020 grew by 37% compared to the previous year's value. As much as 3.6 GW of PV is planned to be installed by 2026, with approximately 1.48GW already installed as recorded in 2019. Utility-scale CSP plants were in operation long before solar PVs became widely commercialized, however PV has taken over the market, attributed to the declining costs of solar PV modules and associated system. In South Africa, this is also coupled with the supportive government policies. Global CSP capacity grew only 1.6 percent in 2020 to 6.2 GW.

Large-scale or utility-scale PV systems are designed for the supply of commercial power into the electricity grid. Large-scale PV plants differ from the smaller units and other decentralised solar power applications because they supply power at the utility level, rather than to local users.

PV cells are made from semi-conductor materials that are able to release electrons when exposed to solar radiation. This is called the photo-electric effect. Several PV cells are grouped together through conductors to make up one module and modules can be connected together to produce power in large quantities. In PV technology, the power conversion source is via PV modules that convert light directly to electricity. This differs from the other large-scale solar generation technology such as CSP, which uses heat to drive a variety of conventional generator systems.

Solar panels produce direct current (DC) electricity; therefore PV systems require conversion equipment to convert this power to alternating current (AC), that can be fed into the electricity grid. This conversion is done by inverters. **Figure 4-2** provides an illustration of the main components of a solar PV power plant.

There are two primary alternatives for inverters in large scale systems; being centralised and string inverters.

[1] https://www.c2es.org/content/renewable-energy/

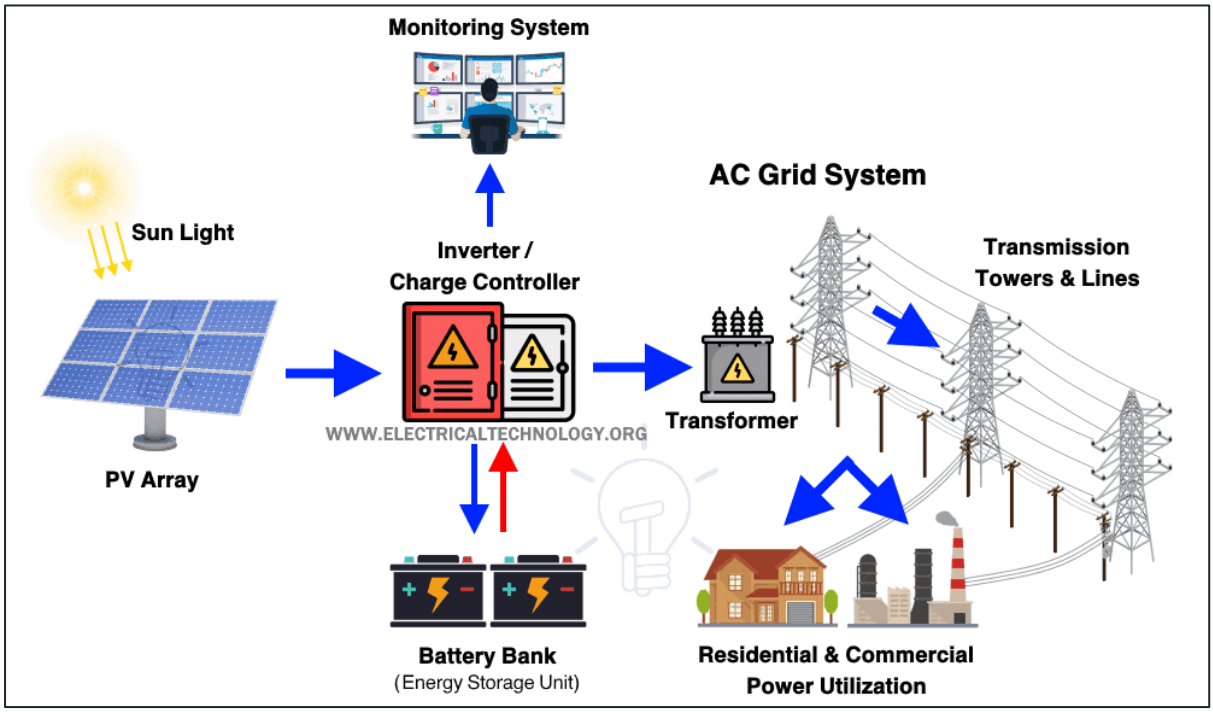


Figure 4-2: Illustration of the main components of a solar power plant (Source: www.electricaltechnology.org/2021/07/solar-power-plant.html)

4.2.2 CONCENTRATED SOLAR POWER

Concentrated solar power (also called concentrating solar power, concentrated solar thermal or CSP) systems use mirrors or lenses to concentrate a large area of sunlight, or solar thermal energy, onto a small area. Electrical power is produced when the concentrated light is converted to heat which is used to produce steam, which drives a heat engine, usually a steam turbine, connected to an electrical power generator.

The process of energy conversion in a CSP plant is illustrated in **Figure 4-3**. Since a thermal intermediary is always involved, a conventional steam power turbine generator can be coupled for power generation. Energy storage is possible usually in thermal form (e.g. steam, molten salt).

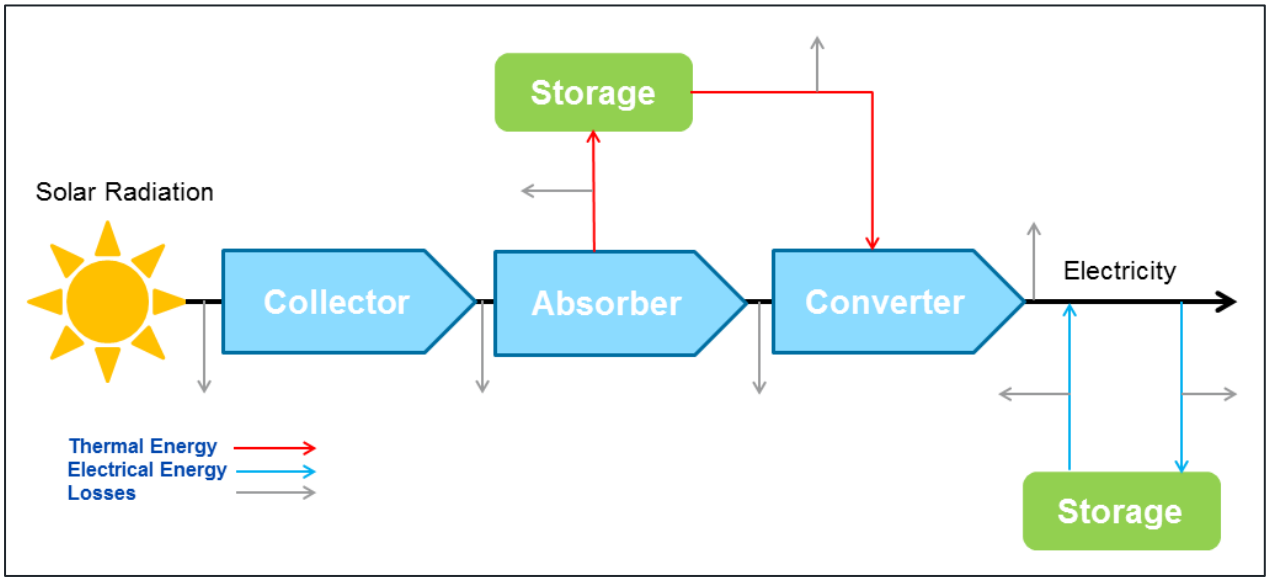


Figure 4-3: Process of Energy Conversion in a CSP Plant

The minimum Direct Normal Radiation (DNR) to justify a CSP plant is 1 800 kWh/m^2 per year. According to the South African Renewable Resource Database (RRDB), the area exceeding the minimum required DNR in South Africa covers approximately 194 000km^2. The 2003 Renewable Energy White Paper calculates that South Africa may have a CSP potential of some 65GW, capable of providing 36 000 GWh/year.

The proposed Merafong SEF project will only be using Solar PV Technology. CSP is not being considered as a technology alternative.

4.3 PROJECT INFRASTRUCTURE

The proposed Merafong SEF will be developed with a capacity of up to 140 megawatt (MW), thus allowing for up to 100 MW export from the facility. The proposed Merafong SEF will comprise of the following key components:

4.3.1 SOLAR FIELD

- PV Modules, which convert the solar radiation into direct current (DC);
- PV panels will have a maximum height of 5 m, and could be mounted on fixed tilt, single axis tracking or dual axis tracking mounting structures or Bifacial Solar Modules with a maximum combined height of up to 10m (i.e. total height of structure and panel will be up to 10m). Where desirable and feasible, Agri-Voltaic principles could be considered in the final design.

4.3.2 SITE SUBSTATION

- The switching station of approximately 1.57ha. The substation will consist of a high voltage substation yard to allow for multiple up to 132kV feeder bays and transformers, control building telecommunication, and other substation components as required.

4.3.3 OPERATION AND MAINTENANCE BUILDING INFRASTRUCTURE

- Operations and maintenance (O&M) building infrastructure will be required to support the functioning of the SEF and for services required by operations and maintenance staff.

The O&M building infrastructure will be located in close proximity to the site substation and will include:

- Operations building of approximately 200m^2;
- Workshop and stores area of approximately 300m^2; and
- Refuse area for temporary waste storage and septic and/or conservancy tanks to service ablution facilities.

4.3.4 CONSTRUCTION CAMP LAYDOWN

- Temporary infrastructure includes:
- A construction camp area and concrete batching plant;
- The site will also accommodate a cement silo;
- Temporary laydown area (up to 3.15ha) for the storage of equipment, materials, fuels, cement, chemicals etc; and
- Sewage: septic and/or conservancy tanks and portable toilets.

4.3.5 ACCESS ROAD

- Internal gravel roads of approximately 8km will be developed;
- Where required for turning circle/bypass areas, access or internal roads may be up to 8m wide to allow for larger component transport.

4.3.6 ASSOCIATED INFRASTRUCTURE

- The solar arrays are typically connected to each other in strings, which are in turn connected to converters/inverters that convert DC to AC. The medium voltage collector system will comprise of cables up to and including 33kV that run underground, except where a technical assessment suggest that overhead lines are required, within the facility connecting the solar PV arrays to the onsite substation;
- Fencing of up to 4m high around the construction camp, O&M building and Site substation areas; and
- Any other associated infrastructure, such as:

  - Fencing around the facility (or where required) and lighting,
  - Lightning protection
  - Telecommunication infrastructure
  - Storm water channels
  - Water pipelines
  - Offices
  - Operational control centre
  - Operation and Maintenance Area / Warehouse / workshop
  - Ablution facilities
  - A gate house
  - Control centre
  - Offices
  - Warehouses
  - Security building
  - A visitor's centre; and
  - Substation building.

The proposed development footprint (buildable area) is approximately 264ha (subject to finalisation based on technical and environmental requirements), and the extent of the project area is approximately 311ha. The development footprint includes the solar PV arrays and all associated infrastructures as outlined above.

4.4 PROPOSED PROJECT DEVELOPMENT ACTIVITIES

4.4.1 CONSTRUCTION PHASE

The construction process will follow industry standard methods and techniques. Key activities associated with the construction phase are described in **Table 4-3**.

Table 4-3 – Construction activities

Activity	Description
Establishment access and internal roads	Internal gravel roads of approximately 8km will be developed. The roads will be between 5m and 8m wide and may require widening to ensure that it is suitable for use.
Site preparation and establishment	Site establishment will include clearing of vegetation and any bulk earthworks that may be required.
Transport of components and equipment to site	All construction material (i.e. PV support structure materials), machinery and equipment (i.e. graders, excavators, trucks, cement mixers etc.) will be transported to site utilising the national, regional and local road network. Large components (such as substation transformers) may be defined as abnormal loads in terms of the Road Traffic Act (No. 29 of 1989). In such cases a permit may be required for the transportation of these loads on public roads.
Establishment of a laydown area on site	Construction materials, machinery and equipment will be kept at relevant laydown and/or storage areas. A laydown area of approximately 3.15ha has been proposed for this project. The laydown area will also be utilised for the assembly of the PV panels. The laydown area will limit potential environmental impacts associated with the construction phase by limiting the extent of the activities to one designated area.
Erection of PV Panels	The PV panels will be arranged in arrays. The frames will be fixed onto vertical posts that will be driven into ground utilising the relevant foundation method identified during the geotechnical studies, including potentially employing concrete foundations for the panel frames. PV panels will have a maximum height of 10m, and could be mounted on fixed tilt, single axis tracking or dual axis tracking mounting structures or Bifacial Solar Modules with a maximum combined height of up to 10m (i.e. total height of structure and panel up to 10m). Where desirable and feasible, Agri-Voltaic principles could be considered in the final design.
Construction of substation and inverters	The facility output voltage will be stepped up from medium voltage to high voltage in the transformer. The medium voltage cables will be run underground in the facility (except where a technical assessment suggest that overhead lines are applicable) to a common point before being fed to the onsite substation.
Establishment of ancillary infrastructure	Ancillary infrastructure will include a workshop, storage areas, office and a temporary laydown area for contractor's equipment.
Rehabilitation	Once all construction is completed on site and all equipment and machinery has been removed from the site, the site will be rehabilitated.

4.4.2 OPERATIONAL PHASE

During operation the key activities will include inspection and maintenance of the SEF and substation.

4.4.3 DECOMMISSIONING PHASE

The decommissioning phase will include activities similar to that of the construction phase as indicated in **Table 4-3**.

5 SITE SENSTIVITY VERIFICATION

In line with GNR 320, the site sensitivity verification requirements have been achieved as per **Table 5.1** below.

Table 5-1 - Site Sensitivity Verification and Minimum Report Content Requirements

No	Requirement	Comment
2.1	The activities contemplated in paragraph 3 of this Norm are excluded from the requirement to obtain an environmental authorisation when undertaken in compliance with the requirements contemplated in this paragraph as well as paragraphs 4, 5 and 6, read with paragraph 7 or 8 of this Norm-	All activities stated in **Table 2-2** are proposed to be excluded from the requirement to obtain an environmental authorisation as per paragraph 3 of the Solar Exclusion Norm.
2.1.1	where the activities have not yet been commenced with; and	The intended registration is for a proposed Merafong SEF activity that has not yet commenced.
2.1.2	when proposed entirely in areas of “low” or “medium” environmental sensitivity as identified by the screening tool and verified by relevant specialists as contemplated in paragraph 4, for the following environmental themes: 2.1.2.1. Plant species; 2.1.2.2. Animal species; 2.1.2.3. Terrestrial biodiversity; 2.1.2.4. Aquatic biodiversity; and 2.1.2.5. Agriculture:	The sensitivities of the various mentioned themes have been confirmed to be of low to medium sensitivity, as stated in **Table 5-3**.
	(a) with the exception of linear infrastructure which forms an integral part of a solar photovoltaic facility, which is located in a pre-negotiated corridor, which may be located in areas of “very high”, “high", “medium” or “low” environmental sensitivity on condition that the requirements contained in paragraph 2.2 are complied with.	This condition is noted by the Applicant and WSP. However, linear infrastructure will be assessed separately from the SEF registration.
2.2	The exception of linear infrastructure contemplated in paragraph 2.1.2(a) will only apply if-	
2.2.1	the mitigation hierarchy has been applied to the pre-negotiated corridor and the environmental assessment practitioner or environmental scientist and specialists confirm in the site sensitivity verification report, that the proposed pre-negotiated corridor avoids areas of “very high” or “high” sensitivity, as far as practically possible;	The linear infrastructure will be assessed separately from this registration, therefore this is not applicable.
2.2.2	through the site sensitivity verification, the relevant specialists identify areas within the corridor in which development is not permitted to take place due to environmental sensitivity and such areas are avoided;	The linear infrastructure will be assessed separately from this registration, therefore this is not applicable.

No	Requirement	Comment
2.2.3	no plant species of conservation concern is destroyed or removed and no breeding areas of species of conservation concern are impacted on;	The linear infrastructure will be assessed separately from this registration, therefore this is not applicable.
2.2.4	through the site sensitivity verification, the relevant specialist identifies mitigation measures for any identified environmental impacts for inclusion in the environmental management programme2 3 and confirms in the site sensitivity verification report that any remaining environmental impact is acceptable after avoidance and mitigation; and	The linear infrastructure will be assessed separately from this registration, therefore this is not applicable.
2.2.5	the environmental assessment practitioner or environmental scientist and relevant specialist confirm in the site sensitivity verification report that the necessary mitigation measures and areas where development is not permitted have been included and / or demarcated in the environmental management programme.	The linear infrastructure will be assessed separately from this registration, therefore this is not applicable.
2.3	The corridor contemplated in this Norm is to be determined by the proponent and may not exceed 200 metres in width.	The linear infrastructure will be assessed separately from this registration, therefore this is not applicable.
2.4	With the exception of the requirement contemplated in paragraph 2.1.1, where any of the requirements contemplated in this paragraph or paragraphs 4, 5 and 6, read with paragraphs 7 or 8, cannot be met or are not met, this exclusion does not apply and an application for an environmental authorisation must be submitted in terms of the EIA Regulations, the Renewable Energy Development Zones Notice or the Strategic Transmission Corridors Notice, whichever applies.	The linear infrastructure will be assessed separately from this registration, therefore this is not applicable.
3.1	The activities which are the subject of this exclusion relate to the development or expansion of a facility for the generation of electricity from solar photovoltaic technology, where such development or expansion triggers- 3.1.1 Activity 1 or Activity 36 of Listing Notice 1; or 3.1.2 Activity 1 of Listing Notice 2; and any associated activity identified in Listing Notice 1, 2 or 3 necessary for the realisation of such facilities	The Merafong SEF facility is the proposed activity subject to an exclusion and the associated development triggers are stated in **Table 2-2.** The proposed development triggers Activity 1 of Listing Notice 2, and is therefore subject to the Norm for the Exclusion of the Development and Expansion of Solar Photovoltaic Facilities in Areas of Low or Medium Environmental Sensitivity..
3.2	Identified activities for the development or expansion of battery storage facilities, associated with and integral to the operation of the solar photovoltaic facility, are to be registered under this Norm and not the *Norm for the exclusion of identified activities associated with the development and expansion of battery storage facilities in areas of low or medium environmental sensitivity.*	This condition is noted by the Applicant and WSP. This SSVR serves as supporting documentation to be included in the exclusion registration for the SEF.
4.1	Where possible, land which has already been modified should be considered for the location of the proposed facility and the consideration of such land for the location of the proposed	According to the Terrestrial Biodiversity Scoping report the land is modified by historic and/or current farming activities

No	Requirement	Comment
	facility must be discussed in the site sensitivity verification report.	(cultivation) (**Appendix E**). This report serves as the site sensitivity verification, confirming that the site sensitivity as indicated in **Table 5-3**.
4.2	It is advised that a buffer is identified around the footprint to allow for slight adjustments without the need to resubmit the request for registration contemplated in this Norm, which buffer— 4.2.1 must be clearly indicated; 4.2.2 must envelope the footprint; and 4.2.3 must be subjected to the site sensitivity verification requirements of which the findings must confirm that it is in an area of low or medium environmental sensitivity.	According to the specialists' reports (**Appendix D - Appendix I**), the development footprint includes various buffers ranging from 50 to 500 meters.
4.3	A proponent must ensure that a site sensitivity verification inspection is undertaken for the environmental themes contemplated in paragraph 2.1.2 to confirm whether or not the environmental sensitivity of the footprint and corridor is as identified by the screening tool.	The specialist undertook site investigations, between August and October 2024, to identify sensitive features on site that informed the sensitivity mapping (**Figure 5-19**) for the Merafong SEF.
4.4	A “very high” or “high” environmental sensitivity rating may be disputed by the specialist, provided that evidence and motivation to substantiate such a change of environmental sensitivity is provided.	The following themes were identified as very high or high by the DFFE Screening tool: ▪ Agricultural ▪ Terrestrial Biodiversity ▪ Plant Species ▪ Animal Species ▪ Aquatic Biodiversity The sensitivity of all of the above-mentioned themes was disputed by various specialists as shown in **Table 5-3** The Archaeological and Cultural Heritage and avifauna themes where the specialists confirmed to be low as per the DFFE environmental sensitivity rating.
4.5	The site sensitivity verification must be undertaken-	
4.5.1	for the environmental themes contemplated in paragraph 2.1.2;	The sensitivities of the various mentioned themes have been confirmed to be of low to medium sensitivity, as stated in **Table 5-3**.
4.5.2	for the footprint as well as the proposed corridor for the linear infrastructure;	The linear infrastructure will be assessed separately from this registration, therefore this is not applicable.
4.5.3	by specialists, registered in the field for which they are undertaking the site sensitivity verification and where relevant, with demonstrated experience in the taxonomic group of the species being considered;	All the specialists’ CVs and qualifications attached in **Appendix C**, demonstrate experience in their respective fields.

No	Requirement	Comment
4.5.4	within the season which would be most relevant to identify the specific species or vegetation of interest; and	The site sensitivity verification was undertaken during the dry season to confirm that no SCCs are located on site as stated the specialists reports.
4.5.5	for a period of time as necessitated by the sensitivity of the proposed site and size of the proposed facility.	The specialists carried out physical site assessments on the following dates to inform the specialist report required for the proposed project (with the extent of 311 ha) and to confirm the site's sensitivity.: ▪ Aquatic Biodiversity – 15th August 2024 ▪ Avifauna – 15 August 2024 and January 2025 ▪ Archaeology and Heritage – 12 August 2024 ▪ Agriculture – 07 August 2024 ▪ Terrestrial Biodiversity (inclusive of Plant and Animal Biodiversity) – 09 July 2024 and December 2024
4.6	The site sensitivity verification inspection must be a physical inspection, which must, where relevant, be supplemented by utilising any desk top information available, including any fine scale data available from the provincial department responsible for the environment, provincial conservation authorities, iNaturalist records or the relevant municipality, where available.	In addition to the available desktop information, the specialists conducted their physical site assessments on the following dates: ▪ Aquatic Biodiversity – 15th August 2024 ▪ Avifauna – 15 August 2024 and January 2025 ▪ Archaeology and Heritage – 12 August 2024 ▪ Agriculture – 07 August 2024 ▪ Terrestrial Biodiversity (inclusive of Plant and Animal Biodiversity) – 09 July 2024 and December 2024
4.7	Where additional information identified in paragraph 4.6 has been used in the verification process, this information must be identified and referenced in the site sensitivity verification report.	All additional information is included in **Section 5** and further discussed in the specialists' reports attached from **Appendix D - Appendix K**.
4.8	For the agriculture theme, the site sensitivity verification report must confirm that the "allowable development limits" set for solar photovoltaic technology on agricultural land in the Agricultural Specialist Assessment Protocol, are not exceeded.	According to the Merafong Agricultural SSVR, the allowable development limit on land of medium agricultural sensitivity with a land capability of < 8, as this site has been verified to be, is 2.5 ha per MW. This would allow the proposed facility with a total generating capacity of 200 MW to occupy an agricultural footprint of 200 x 2.5 = 500 hectares. The total footprint is 208 hectares. It is therefore confirmed that the facility is in line with the allowable development limits contained in the agricultural protocol.
4.9	For the plant and animal species themes, the relevant specialist must confirm the presence, likely presence, or absence of a	The animal species assessment found that no flora SCC were recorded on-site, and

No	Requirement	Comment
	species of conservation concern within the footprint and corridor identified as “medium” sensitivity by the screening tool.	none are expected to be present. As a result, the plant species sensitivity has been rated as Low. According to the Terrestrial Biodiversity SSVR, the modified nature of the site indicates that it does not provide functionally important fauna habitat. Additionally, no fauna SCC were observed on-site, and it is considered unlikely that SCC are present. Therefore, the animal species sensitivity has also been rated as Low.
4.10	Should a species of conservation concern be found or have been confirmed to be likely present on the footprint, this exclusion does not apply and an application for an environmental authorisation must be submitted.	This condition is noted by the Applicant and WSP.
4.11	Should a species of conservation concern be found or have been confirmed to be likely present in the corridor, this exclusion applies under the conditions contemplated in paragraph 2.2.	This condition is noted by the Applicant and WSP.
4.12	The relevant specialists must consider the cumulative effects for the themes identified in paragraph 2.1.2 and provide a discussion on possible cumulative impacts, the ability to mitigate such impacts and a statement of environmental acceptability of any cumulative impacts after mitigation in any report produced.	The cumulative impacts are included in the following sections of the specialists reports: ▪ Plant Biodiversity Assessment - Section 9 of Appendix E ▪ Animal Biodiversity Assessment - Section 9 of Appendix E ▪ Terrestrial Biodiversity Assessment – Section 9 of Appendix E ▪ Aquatic biodiversity Assessment – No potential impacts noted (Appendix F) ▪ Agriculture – Section 9.2 of Appendix D ▪ Avifauna Assessment – Section 9.1 of Appendix G ▪ Heritage Assessment- Impact of the Project is expected to be low (Appendix H) According to the specialists’ reports, the cumulative impacts is acceptable after mitigation has been applied.
4.13	Should the cumulative impact not be acceptable after mitigation this exclusion does not apply and an application for an environmental authorisation must be submitted.	This condition is noted by the Applicant and WSP.
4.14	The relevant specialists must consider the presence and preservation of ecological corridors and discuss the possible presence and preservation of such ecological corridors.	According to the Terrestrial Biodiversity report, the proposed area’s habitat in the study area is not considered a highly functional or critically important component of local landscape connectivity or an ecological corridor.
4.15	The outcome of the relevant site sensitivity verification must be recorded by the specialist in the form of a specialist report, and	This report serves as the site sensitivity verification report that confirms or disputes

No	Requirement	Comment
	collated into a final site sensitivity verification report that confirms or disputes the environmental sensitivity, as identified by the screening tool for each environmental theme identified in paragraph 2.1.2	the environmental sensitivity, as identified by the screening tool for each environmental theme identified in paragraph 2.1.2. The specialists reports are attached from **Appendix D - Appendix I.**
4.16	The specialist report must be appended to the final site sensitivity verification report and must be signed by the relevant specialist.	This condition is noted by the commissioned specialists.
4.17	The final specialist report must include verifiable evidence from the specialist's site inspection, including as a minimum: 4.17.1 a map showing the specialist's GPS track in relation to the proposed footprint; and 4.17.2 at least 4 spatially representative sample site descriptions from across the inspected area that include as a minimum precise geographical coordinates of the sample site, one in situ photograph of the sample site and a habitat description of the sample site; and 4.17.3 a map identifying any areas within the corridor in which development is not permitted due to environmental sensitivity, where relevant.	All specialists' reports include verifiable evidence as per condition 4.17: ▪ Plant Biodiversity Assessment - Appendix E ▪ Animal Biodiversity Assessment - Appendix E ▪ Terrestrial Biodiversity Assessment – Appendix E ▪ Aquatic Biodiversity Assessment – Appendix F ▪ Agricultural Assessment – Appendix D ▪ Avifauna Assessment – Appendix G ▪ Heritage Assessment - Appendix H ▪ Palaeontological Assessment – Appendix K
4.18	A final site sensitivity verification report must be prepared by a registered environmental assessment practitioner or a registered environmental scientist and signed off by the relevant specialists, all of whom must meet the requirement of regulation 13(1) of the EIA Regulations, read in the context of this Norm.	This SSVR was compiled by Ashlea Strong, a registered Environmental Assessment Practitioner (EAP) utilising the inputs of various specialists. Details of the EAP are provided in **Table 1-2** of the SSVR. The CV of the EAP and relevant specialists are included in **Appendix B** and **Appendix C** as per regulation 13(1) of the EIA Regulations, read in the context of this Solar Exclusion Norm.
5.1	The environmental assessment practitioner or environmental scientist on behalf of the proponent must identify and consult with parties who may be affected by the proposed facility, including as a minimum the following: 5.1.1 adjacent landowners and land occupiers; 5.1.2 relevant conservation and biodiversity entities/agencies; 5.1.3 relevant non-governmental organisations involved with ecology, including bird preservation; 5.1.4 relevant tourist and farmers associations; 5.1.5 the relevant heritage resources authority;8 5.1.6 the relevant local government authority; and 5.1.7 Eskom where the activities related to the development or expansion of a solar photovoltaic facility are proposed within 2km of a main electricity transmission substation or 1 km of a main electricity distribution substation, as identified by the screening tool.	The EAP has undertaken the Public Participation Process (PPP) as demonstrated in **Section 3**.

No	Requirement	Comment
5.2	The consultation process must as a minimum include the following:	
5.2.1	notification of the proposed development including— 5.2.1.1 details of the proponent; 5.2.1.2 a detailed project description including the need and desirability of the proposed project; 5.2.1.3 the location of the proposed facility including a map generated at an appropriate scale that displays the extent of the proposed facility in as much detail as possible, overlaid on the identified environmental sensitivities per theme;	The Interested and Affected Parties (I&APs) are notified through advertisement and site notices (refer to **Section 3.2**) that include: 5.2.1.1 details of the proponent; 5.2.1.2 a detailed project description including the need and desirability of the proposed project; 5.2.1.3 the location of the proposed facility including a map
5.2.2	notification of where the site sensitivity verification report and environmental management programme can be accessed; and	The advertisement and the site notice state four locations for I&APs to access the SSVR and the EMPr (**Appendix J**)
5.2.3	a request for inputs and the timeframe in which inputs are to be submitted.	A request for input is clearly stipulated on the site notice and advertisement (**Appendix J**).
6.	(a) the footprint or expanded footprint of a proposed solar photovoltaic facility, including any associated activities contemplated in paragraph 3, is to occur entirely— (i) in areas of “medium" or “low” environmental sensitivity as identified by the screening tool and confirmed to be such by the site sensitivity verification inspection for the environmental themes as identified in paragraph 2.1.2; or (ii) in areas where the site sensitivity verification for a specific theme identifies that the “very high" or “high” sensitivity rating of the screening tool is in fact “medium" or “low” sensitivity; and	A summary of the environmental sensitivities identified by the DFFE Screening Tool and the confirmed sensitivity is provided in **Table 5-3**.
	(b) the corridor occurs in areas of “very high”, “high”, “medium” or “low” sensitivity subject to compliance with the requirements set out in paragraph 2.2.	A summary of the environmental sensitivities identified by the DFFE Screening Tool and the confirmed sensitivity is provided in **Table 5-3**.
7.1	Prior to the commencement of the activities related to the development or expansion of a solar photovoltaic facility, the proponent must register the proposed facility with the competent authority.	This SSVR will form part of a registration submission to the DFFE.
7.2	The following documents must be submitted for registration:	
7.2.1	a completed and signed registration form contemplated in Appendix A, prepared by an environmental assessment practitioner or environmental scientists;	These conditions are noted by the Applicant and WSP.
7.2.2	the screening report for the proposed facility, generated by the screening tool, to be attached as Appendix 1;	

No	Requirement	Comment
7.2.3	evidence of the consultation process followed as contemplated in paragraph 5, as well as tabulated responses to inputs received, to be attached as Appendix 2;	
7.2.4	the final site sensitivity verification report contemplated in paragraphs 4.16 and 4.18 and which responds to the inputs provided during the consultation process, to be attached as Appendix 3	
7.2.5	the written consent of the landowner or person in control of the land constituting the footprint, to be attached as Appendix 4;	
7.2.6	confirmation of pre-negotiation with landowners for land within the corridor, to be attached as Appendix 4	
7.2.7	a letter of consent from Eskom, which confirms that the proposed layout of the facility will not unnecessarily obstruct access to main electricity transmission or distribution substation, where relevant, to be attached as Appendix 4	
7.2.8	a locality map, showing the location of the footprint and pre-negotiated corridor including any areas within the pre-negotiated corridor where no development should take place, overlayed on the confirmed environmental sensitivities, to be attached as Appendix 5;	
7.2.9	an environmental management programme for the management of impacts from the solar photovoltaic facility which addresses as a minimum, each of the general environmental controls identified in Appendix 10, compiled by the environmental assessment practitioner or environmental scientist and signed off by the relevant specialists, to be attached as Appendix 10	
7.2.10	the signed declaration of commitment by the proponent to implement the environmental management programme, to be attached as Appendix 6; and	
7.2.11	the declaration of independence, curriculum vitae and professional affiliation or registration certification by the environmental assessment practitioner or environmental scientist and specialists to be attached as Appendices 7, 8 and 9 respectively.	
7.3	Should the proposed footprint or the alignment of the linear infrastructure be amended where such amendment results in the footprint falling outside of the verified buffer or the linear infrastructure alignment falling outside of the verified corridor, the requirements contemplated in paragraphs 4, 5, and 7 of this Norm are applicable and must be complied with.	These conditions are noted by the Applicant and WSP.

No	Requirement	Comment
7.4	The registration of the development or expansion will expire if commencement does not occur within 6 years of the date on which the competent authority registered the facility, in which case the process as identified in paragraphs 4, 5 and 7 of this Norm will apply afresh.	These conditions are noted by the Applicant and WSP.

5.1 ENVIRONMENTAL SENSITIVITY

As per the Screening Tool Report (**Appendix A**), the proposed site is indicated to be located within areas ranging from low to very high sensitivity. These are identified in **Table 5-2**.

Table 5-2 - Sensitivities identified in the DFFE Screening Report

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity
Agriculture Theme		X		
Animal Species Theme			X	
Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme				X
Avian Theme				X
Civil Aviation (Solar PV) Theme			X	
Defence Theme				X
Landscape (Solar) Theme		X		
Palaeontology Theme	X			
Plant Species Theme			X	
Radio Frequency Interference (RFI) Theme				X
Terrestrial Biodiversity Theme	X			

Based on information gathered through a desktop study and site assessment, not all of the identified sensitivities apply to the site in its current state. Section 5.3 below serves to:

- Verify land use and sensitivities identified in the Screening Tool Report (as indicated above);
- Provide motivation and evidence of either the verified or different use of the land and environmental sensitivity; and
- Confirm / refute the need for the various specialist inputs recommended in terms of the Screening Tool Report.

5.2 SPECIALIST ASSESSMENTS

A summary of the DFFE screening tool, the applicable legislation as well as the specialist sensitivity verification are detailed in **Table 5.3**. The motivation for the site sensitivity verification for each environmental theme is discussed in **Section 5.3** below.

Table 5-3 - Assessment Protocols and Site Sensitivity Verifications

Specialist Assessment	Assessment Protocol	DFFE Screening Tool Sensitivity	Specialist Sensitivity Verification
Agricultural Compliance Statement	*Protocol for the specialist assessment and minimum report content requirements of environmental impacts on agricultural resources by onshore wind and/or solar photovoltaic energy generation facilities where the electricity output is 20 megawatts or more*	High Sensitivity	Medium Sensitivity
Terrestrial Biodiversity Impact Assessment	*Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity*	Very High Sensitivity	Low Sensitivity
Aquatic Biodiversity Impact Assessment	*Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Aquatic Biodiversity*	Very High Sensitivity	Low Sensitivity
Plant Species	*Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Plant Species*	Medium Sensitivity	Low Sensitivity
Animal Species	*Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Animal Species*	Medium Sensitivity	Low Sensitivity
Avifauna Impact Assessment	*Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Animal Species*	Low Sensitivity	Low Sensitivity
Archaeological and Cultural Heritage Impact Assessment	*Site Sensitivity Verification Requirements where a specialist Assessment is required but no Specific Assessment Protocol has been prescribed*	Low Sensitivity	Low Sensitivity
Palaeontology Impact Assessment	*Site Sensitivity Verification Requirements where a specialist Assessment is required but no Specific Assessment Protocol has been prescribed*	Very High Sensitivity	Low Sensitivity

5.3 SPECIALIST SITE SENSITIVITY VERIFICATION MOTIVATION

5.3.1 AGRICULTURAL IMPACT ASSESSMENT

The following is extracted from the Agricultural Report compiled by Soil ZA and included as **Appendix D**.

Figure 5-1 illustrates the high agricultural sensitivity rating identified for the project area by the DFFE Screening tool.

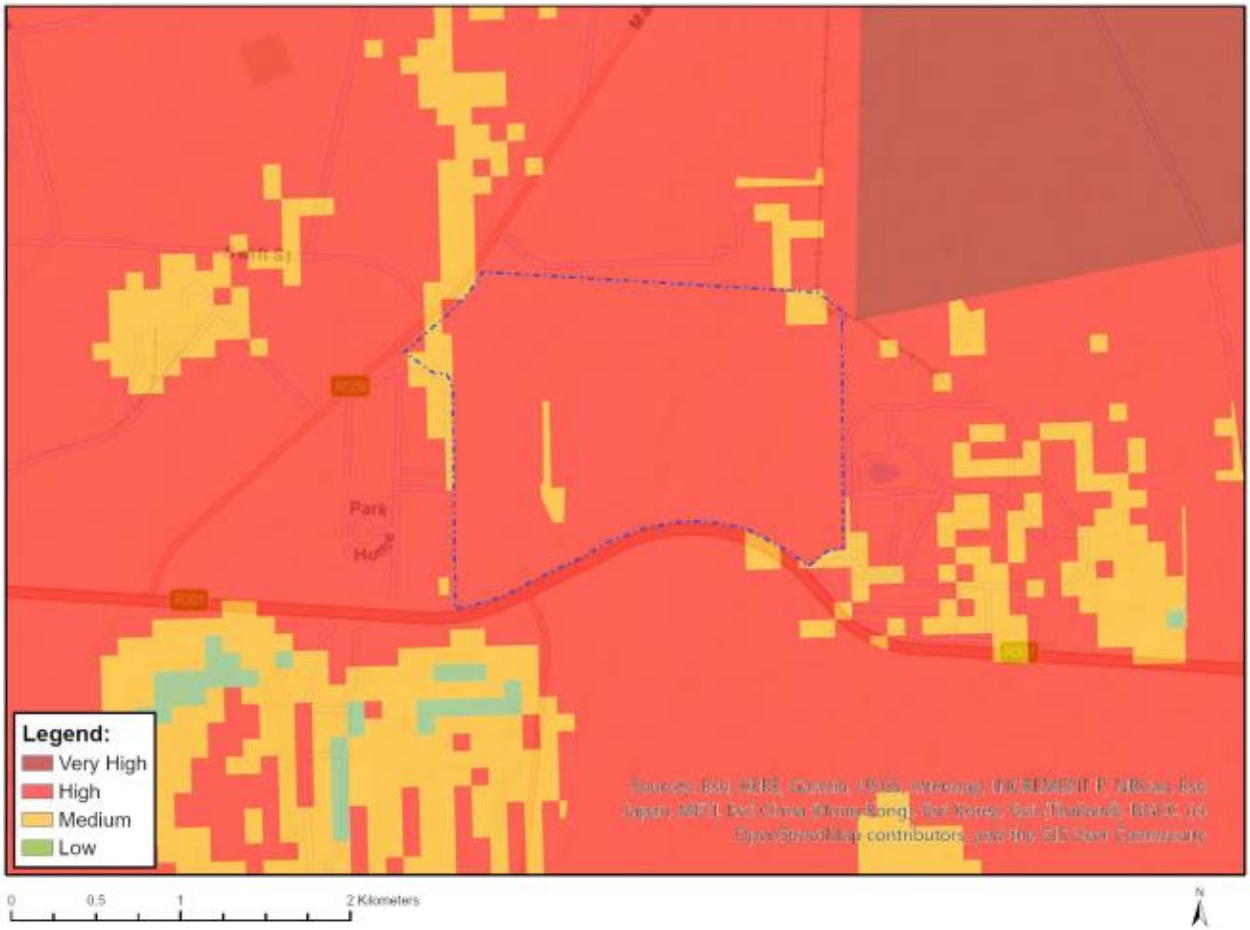


Figure 5-1 – DFFE screening tool sensitivity for Agricultural theme

Source: DFFE Screening Report

The screening tool's classification of sensitivity is merely an initial indication of what the sensitivity of a piece of land might be, as indicated by the only data that is available. What the screening tool attempts to indicate is whether the land is suitable for crop production (high and very high sensitivity) or unsuitable for crop production (low and medium sensitivity). To do this, the screening tool uses three independent criteria, from three independent data sets, which are all indicators of suitability for crop production but are limited and were not designed for this purpose. The three criteria are:

1. Whether the land is classified as cropland or not on the field crop boundary data set (Crop Estimates Consortium, 2019). All classified cropland is, by definition, either high or very high sensitivity.

2. Its land capability rating as per the Department of Agriculture's updated and refined, country-wide land capability mapping (DAFF, 2017). Land capability is defined as the combination of soil, climate, and terrain suitability factors for supporting rain-fed agricultural production. The direct relationship between land capability rating, agricultural sensitivity, and rain-fed cropping suitability is summarised by this author in **Figure 5-4**.
3. Whether the land is classified as a protected agricultural area (PAA) or not (DALRRD, 2020). All classified PAAs are, by definition, either high or very high sensitivity[2].

The limitations for determining cropping suitability based on these data are as follows:

- The field crop boundary data set used by the screening tool is very outdated;
- Land capability mapping is fairly coarse, and modelled data is not accurate at site scale.
- PAAs are demarcated broadly, not at a fine scale, therefore there is much variation of cropping suitability within a PAA. All land within the demarcated areas are not necessarily of sufficient agricultural potential to be suitable for crop production due to finer scale terrain, soil, and other constraints.

These three inputs operate independently, and the screening tool's agricultural sensitivity is simply determined by whichever of these gives the highest sensitivity rating. The agricultural sensitivity of the site, as classified by the screening tool, is shown in **Figure 5-2**.

The true agricultural sensitivity of any land is equivalent to its actual suitability for crop production on the ground, rather than being determined by a parameter that serves as a proxy for crop suitability in a dataset. The land's suitability for cropping directly determines how important it is to conserve that land as agricultural production land. To determine suitability for crop production, and hence sensitivity, requires a site-specific assessment, as has been conducted in this assessment, rather than a reliance on data sets that have significant limitations.

Table 5-4 - Relationship between land capability, agricultural sensitivity, and rain-fed cropping suitability.

Land capability value	Agricultural sensitivity	Rain-fed cropping suitability	
		Summer rainfall areas	Winter rainfall areas
1 - 5	Low	Unsuitable	Unsuitable
6	Medium		
7			Suitable
8 - 10	High	Suitable	
11 - 15	Very High		

[2] The Merafong SEF is not located within a PAA

Note: There is an error in the screening tool whereby a land capability of 8 is classified as medium sensitivity, but according to NEMA's agricultural protocol, should in fact be classified as high sensitivity. This assessment follows the agricultural protocol definition and classifies a value of 8 as high sensitivity.

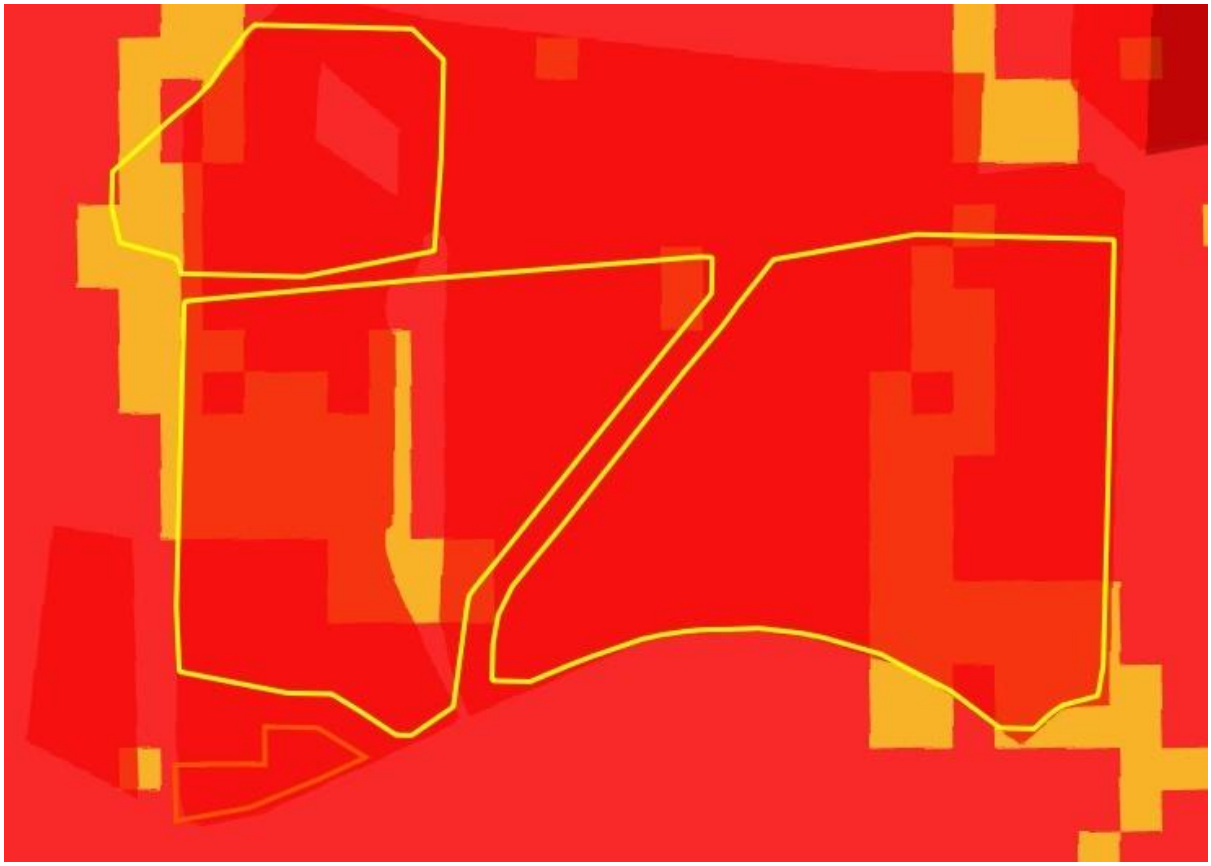


Figure 5-2 - The development footprint overlaid on agricultural sensitivity, as classified by the screening tool (green = low; yellow = medium; red = high; dark red = very high).

Despite the detail in this section above, the determinants of agricultural sensitivity are actually very straightforward and may be summed up as follows. If land is suitable for viable crop production - that is if it has the capability to deliver an above break-even crop yield on a sustainable basis - then it is of high or very high agricultural sensitivity. If it has limitations that prevent it from being able to deliver an above break-even crop yield on a sustainable basis, then it is of medium or low agricultural sensitivity.

The screening tool classifies the assessed PV site as being almost entirely high agricultural sensitivity and therefore classifies the overall site sensitivity, which is the highest sensitivity encountered across the site, as high. The high sensitivity classification by the screening tool is due to a combination of some land being classified as cropland (high sensitivity) and some land being classified as high sensitivity because of its land capability rating (see **Figure 5-4**). However, as shown in the previous section, the site has been assessed as not suitable for viable crop production due to soil depth limitations and its true sensitivity, as assessed on the ground, is therefore medium. This assessment therefore disputes the high sensitivity classification of the site by the screening tool

and verifies the entire site as being of medium agricultural sensitivity because of its assessed cropping potential.

In conclusion, this assessment disputes the high sensitivity classification of the footprint by the screening tool and verifies it as being entirely of medium agricultural sensitivity because of the assessed cropping potential. There are no parts of the footprint in which development is not permitted due to agricultural sensitivity. The cumulative agricultural impact of the proposed development is assessed as being of low significance and acceptable. Any remaining environmental impact is acceptable after avoidance and mitigation have been applied.

5.3.2 ARCHAEOLOGICAL AND CULTURAL HERITAGE IMPACT ASSESSMENT

The following is extracted from the Heritage Impact Assessment report compiled by Beyond Heritage and included as **Appendix H.**

The output of the DFFE Screening Tool for the Archaeological and Heritage Theme is illustrated in **Figure 5-3** and indicates that Merafong site is classified as Low. The heritage specialist disputes the high sensitivity of the broader study area noting that PV area is considered to be of low heritage potential and only a degraded cement foundation of low significance was identified.

Figure 5-3 – DFFE screening tool sensitivity for Archaeological/Heritage theme

Source: DFFE Screening Report

Surveys in the surrounding areas have identified Stone Age artefacts, Late Iron Age complexes, Anglo-Boer War related features, and Historical features. The area earmarked for the Merafong SEF present high levels of surface disturbances caused by agricultural and mining activities. The field investigation only recorded a single degraded cement foundation which is too degraded to hold any historical value. The site is illustrated in relation to the Project layout in **Figure 5-4** and general site conditions area indicated in **Figure 5-4.** The site location details are provided in **Table 5-5**. No other heritage resources were recorded within the PV footprint.

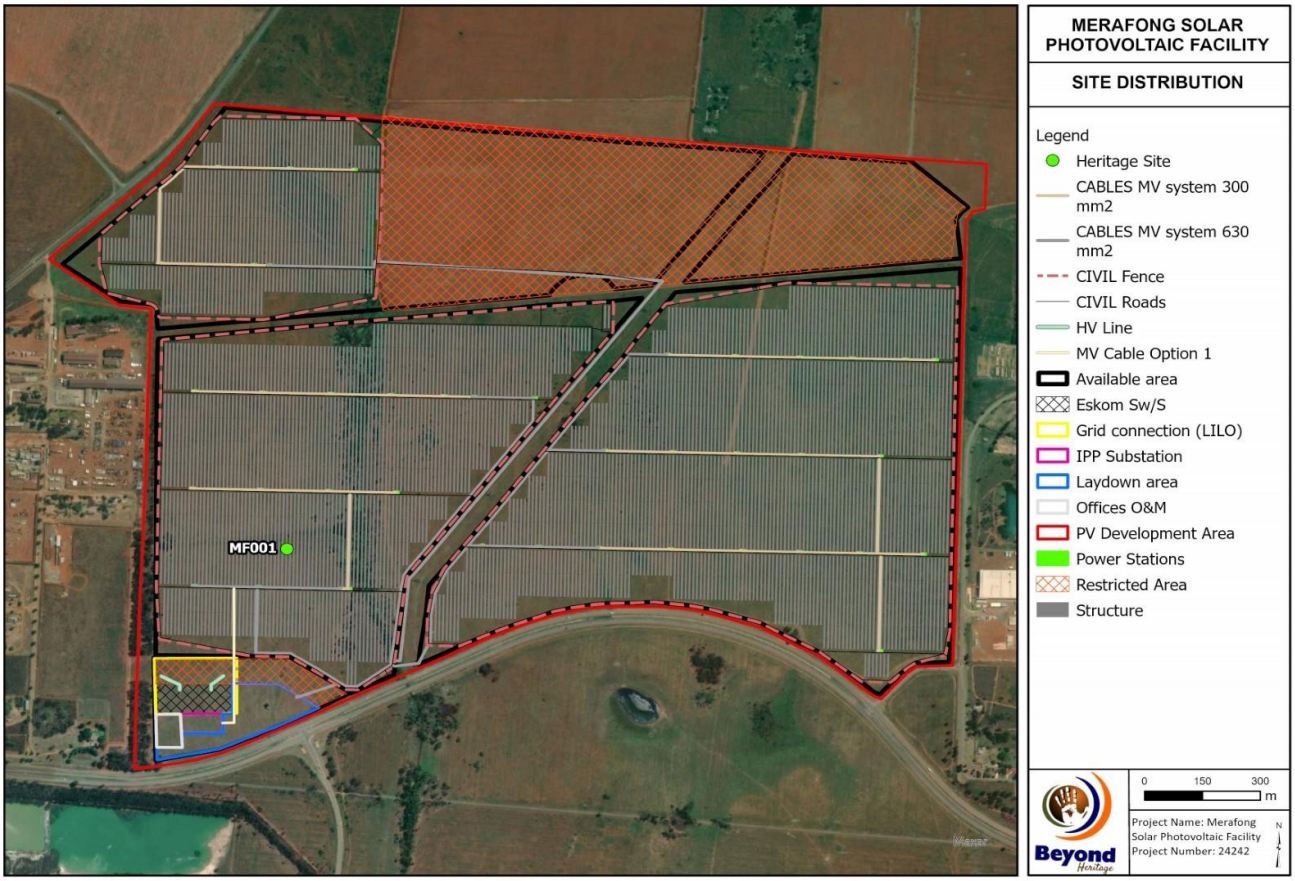


Figure 5-4 - Recorded features in relation to the Project layout.

Table 5-5 - Recorded Features

Label	Longitude	Latitude	Description	Heritage Significance
MF001	27°30'26.22"E	26°21'20.56"S	Degraded cement foundation	GP C – Low

The field survey of the PV area noted high levels of surface disturbances from both agricultural and mining activities. The PV area is considered to be of low heritage potential and only a degraded cement foundation (MF 001) of low significance was identified. No other surface finds were present within the PV area. Any impact to the low significance ephemeral ruin is negligible and the inclusion of these features in an HIA report is considered sufficient mitigation. The area should be monitored during construction and a chance find procedure should be implemented.

No fatal flaws were recorded although potential risks to the project is the occurrence of unrecorded cultural resources (of which graves and subsurface archaeological or paleontological deposits are the highest risk). This can cause delays during construction, as well as additional costs involved in mitigation, and possible layout changes.

5.3.3 PALAEONTOLOGY IMPACT ASSESSMENT

The following is extracted from the Heritage Impact Assessment report compiled by Beyond Heritage and included as **Appendix I.**

Provisional site sensitivity mapping for palaeontology using the DFFE National Web-Based Environmental Screening Tool (as well as the SAHRIS Palaeo-sensitivity Map) suggests that the Merafong SEF falls within a Very High Sensitivity (**Figure 5-5**).

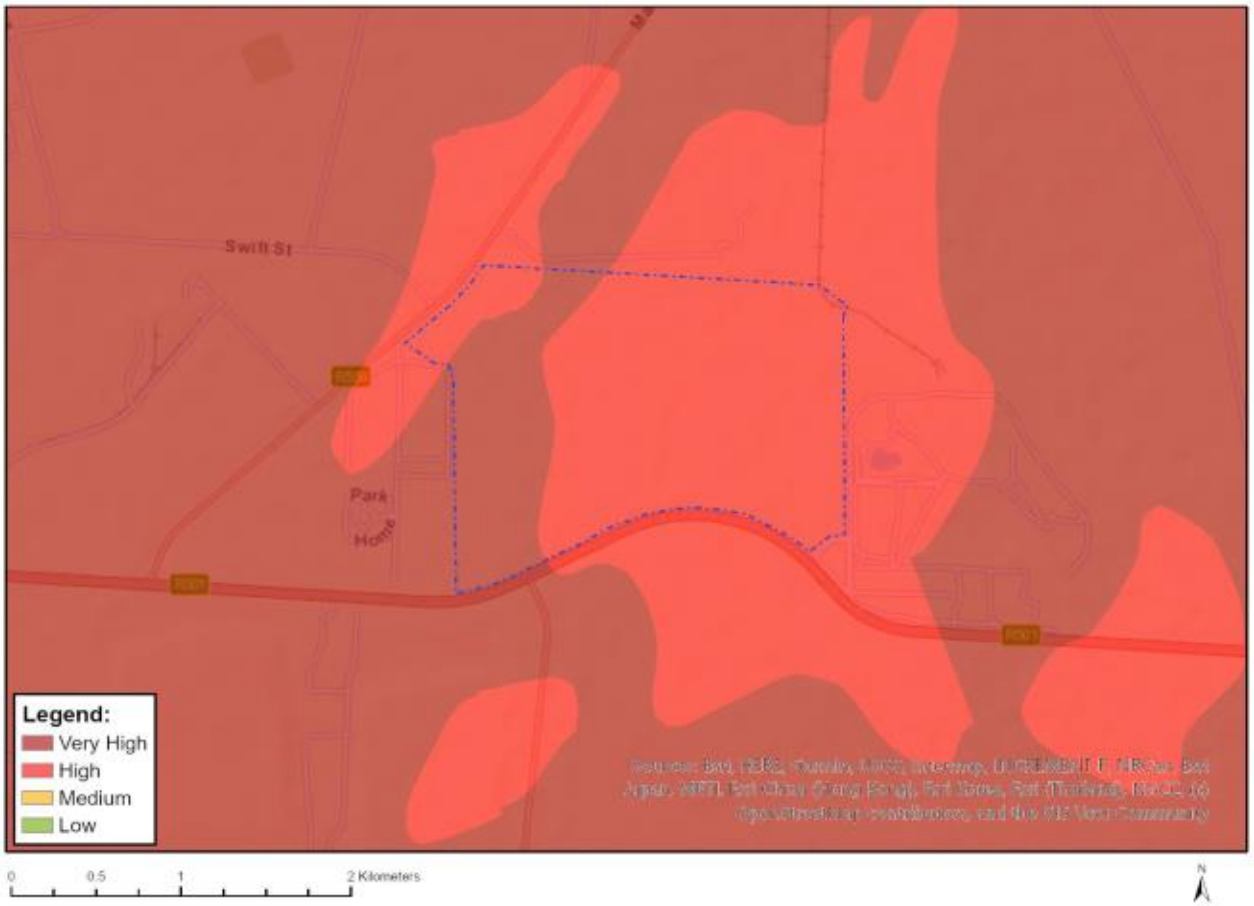


Figure 5-5 – DFFE screening tool sensitivity for Palaeontology theme

Source: DFFE Screening Report

The palaeontological sensitivity of the area under consideration is presented in **Figure 5-6**. The site for development is in the potentially very highly sensitive Malmani Subgroup dolomites (red) that could preserve trace fossils such as stromatolites and microbialites. The highly sensitive Vryheid Formation (orange) could preserve fossil plants of the *Glossopteris* flora.

Nonetheless, stromatolites and microbialites are accepted as trace fossils of algal colonies. MISS could be microbially or abiotically formed. The oldest stromatolites have been recorded from the Barberton Supergroup that was deposited between 3.55 to ca. 3.20 Ga, and stromatolites still form today in warm, shallow seas (Homan, 2019).

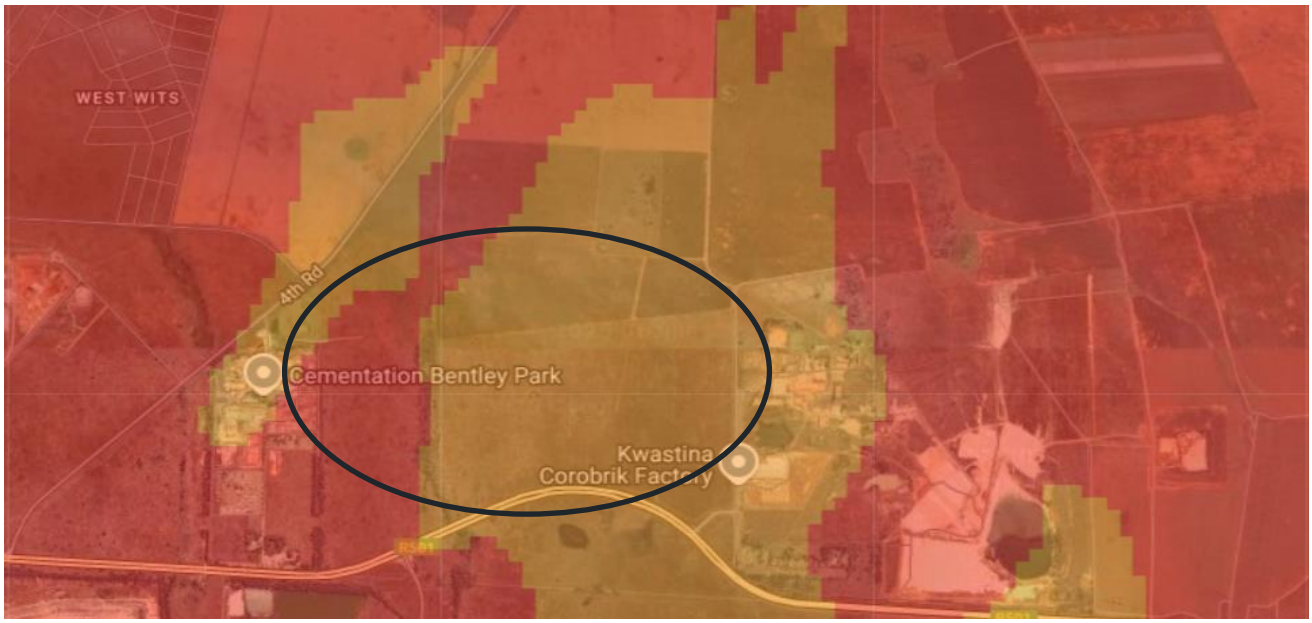


Figure 5-6 - SAHRIS palaeosensitivity map for the site for the proposed Merafong Solar PV

The proposed project area is a 311ha open field that mainly consists of degraded open grassland. The entire proposed project area was ploughed according the satellite imagery from 2005. A large thicket of eucalyptus trees is situated within the south west quadrant of the area, running from the R501 which borders the southern edge of the project area, towards the central area.

Multiple existing powerlines run across the proposed project area with associated gravel roads crossing through the open fields. The majority of the proposed project area had been burnt just before the survey so there was excellent exposure of the land surface.

The R501 runs along the southern edge of the proposed project area with the R559 running along a section of the north western edge of the proposed project area. The proposed project area is bordered along the western edge by the Cementation Bentley Park and along the eastern edge by the Kwastina Corobrick factory. The northern edge of the project area consists of freshly ploughed fields. Building rubble is scattered throughout the area near the large thickets of trees.

Large depressions are situated within the area. These resemble possible sinkholes that could be a result of past mining activities. Site visit photographs are presented below in **Figure 5-7** to **Figure 5-9** with captions and observations.

Figure 5-7 - A-B - General view of the proposed project area - Image taken within the western portions of the proposed project area. C - Image showing the fairly open fields that have been burnt in recent days. D – large thicket of alien trees – eucalyptus, some places also burned. No rocky out crops and no fossils seen.

Figure 5-8 - A-D – More views of the large thicket of eucalyptus trees with minimal undergrowth so the soil is visible. E-F - View of the large freshly ploughed fields along the northern edge of the proposed project area. No rocks and no rocky outcrops.

Figure 5-9 - : A-C - General view of the surrounding environment within the eastern half of the proposed project area. D-E - View of a possible sinkhole near the northern ploughed fields. F - General view of the R501 running along the southern edge of the proposed project area.

The impact on the palaeontological heritage would be low pre-mitigation and very low post-mitigation, as far as the palaeontology is concerned, so the project should be authorised. There are no no-go areas, no buffers are required and there will be no cumulative impact.

5.3.4 AQUATIC BIODIVERSITY IMPACT ASSESSMENT

The following is extracted from the Aquatic Biodiversity SSVR report compiled by WSP and included as **Appendix H.**

The proposed study area for the Merafong SEFfootprint was assessed at desktop level using the National Web-based Environmental Screening Tool. According to the Tool, the Aquatic Biodiversity Theme for the study area is rated as 'Very High Sensitivity', due to the multiple NWM5 wetlands that have been flagged within the proposed study area (**Figure 5-10**).

Figure 5-10 - Map of Aquatic Biodiversity Sensitivity

Source: DFFE Screening Report

There are no natural rivers/streams within the study area. Therefore the Very High Sensitivity is disputed and the site sensitivity is verified as Low.

The findings of the site sensitivity verification exercise, based on the data gathering activities conducted to date (i.e. review and consolidation of available desktop data, site sensitivity verification site visit), together with the anticipated reporting requirement as stipulated by the various protocols, are summarised below.

Theme	Screening tool sensitivity	Site-based sensitivity	Motivation	Scoped baseline assessment requirements
Aquatic biodiversity	Very high	Low	The site survey confirmed that no wetland habitat is present within the project area, therefore on-site wetlands according to the NWM5 have incorrectly been designated. No natural rivers/streams are present within the site.	Due to the absence of natural rivers/streams within the study area, it is recommended that a compliance statement be prepared in order for the project to meet the requirements of the "Protocol for the specialist assessment and minimum report content requirements for environmental impacts on aquatic biodiversity.

The Project Area is located within a predominantly transformed area subjected to mixed land use activities i.e. cultivated fields, an industrial complex, mining facilities and residential areas amongst others. Consequently, existing impacts include habitat fragmentation, roads, and water quality modification within the watercourses (canalized channels).

The proposed Project's contribution to the cumulative impacts upon aquatic biodiversity will be limited to the artificial channel within which sites 1, 2 and 3 are located (**Figure 5-11**). Anticipated impacts during the construction phase include sedimentation and water quality modifications. This system was however observed to occur in isolation with no visible connectivity to any other water resources within the catchment. Furthermore, only a single aquatic macroinvertebrate taxon was sampled along this system, therefore the proposed Project's contribution to the cumulative impacts is deemed negligible for the aquatic biodiversity them.

Figure 5-11 - General habitat conditions

5.3.5 TERRESTRIAL BIODIVERSITY IMPACT ASSESSMENT

The following is extracted from the Terrestrial Biodiversity SSVR report compiled by WSP and included as **Appendix E.**

The proposed Project site was assessed using the Department of Forestry, Fisheries and The Environment's (DFFE) National Web-based Environmental Screening Tool. The output of the sensitivity report is below:

- The Terrestrial Biodiversity Theme for study area is rated 'Very High' (**Figure 5-12**) sensitivity due to the following features:
  - Critical Biodiversity Area 1;
  - Critical Biodiversity Area 2;
  - Ecological Support Areas 1;
  - Ecological Support Areas 2; and
  - National Protected Area Expansion Strategy.

Figure 5-12 - Map of Terrestrial Biodiversity Sensitivity

Source: DFFE Screening Report

Table 5-6 below provides information regarding the outcome of the DFFE Screening Tool sensitivity rating for the Terrestrial Biodiversity theme, and the outcome of the sensitivity verification process.

Table 5-6 – Terrestrial Biodiversity theme sensitivity for the proposed Merafong SEF

Environmental Theme	DFFE Screening Tool Sensitivity	Applicable protocol	Specialist Sensitivity Verification
Terrestrial Biodiversity	Very High	Protocol for the specialist assessment and minimum report content requirements for environmental impacts on Terrestrial Biodiversity	The entire site has been modified by historic and/or current farming activities (cultivation). Accordingly, on-site CBA and ESA land have been incorrectly designated. Based on the verification field visit, the Terrestrial Biodiversity sensitivity rating for the site is Low.

According to the Gauteng Conservation Plan (C-Plan) 3.3 (2011) bands of land along the northern and eastern boundaries of the site are designated 'Ecological Support Areas (ESA)'. There is also a very small area designated 'Critical Biodiversity Area (CBA) - Important Area' in the north-east corner of the site, with 'primary vegetation' being the triggering criterion. The remainder of the study area is not classified under the Gauteng C-Plan. With reference to the National protected Area Expansion Strategy (2018), no designated Priority Focus Areas are present in the proposed Site, however, the land to the north of the site is mapped as a Priority Focus Area.

The findings of the verification field visit indicate that the entire site has been modified by historic farming activities, with the northern portion of the site still actively cultivated. The CBA and ESA designations for the site are therefore considered incorrect. The very small CBA patch in the north-east corner is entirely transformed, and comprises active cultivated fields. The rest of the site, including the designated ESAs, were either cultivated in the past and now support a secondary vegetation community, or are also under active cultivation. It is also noted that a significant portion of the ESA corridor along the eastern boundary of the site is completely transformed and actually occupied by the Kwastina Corobrik Factory.

At a broader scale, the land to the north of the site is also mapped as CBA. This land however, mostly comprises active cultivated fields, while small patches of secondary grassland are also present. The designation of land to the north of the site as CBA is therefore also considered incorrect.

Pursuant to these findings, the DFFE Screening Tool's rating of 'Very High' sensitivity for the Terrestrial Biodiversity theme, is considered incorrect due to current and past levels of habitat disturbance and modification. The sensitivity rating for the Terrestrial Biodiversity theme is considered to be of 'Low' sensitivity.

The verification field visits indicated that the entire proposed Project footprint is modified, and has been subject to anthropogenic disturbances, mostly in the form of historic- and current dryland cultivation. On-site habitat is mostly characterised by *Hyparrhenia hirta* secondary grassland (old lands). The northern portion of the site remains under active cultivation (maize production), with no indigenous vegetation present. A linear stand of alien *Eucalyptus* trees is also present. All on-site habitat is considered modified. The sensitivity rating for the Terrestrial Biodiversity theme is therefore considered to be Low.

5.3.6 PLANT SPECIES ASSESSMENT

The following is extracted from the Terrestrial Biodiversity SSVR report compiled by WSP and included as **Appendix E.**

The DFFE Screening Tool indicates that the site has a medium sensitivity (**Figure 5-13**) due to the potential presence of the following features:

- *Khadia beswickii*;
- Sensitive species 1147; and
- Sensitive species 1248.

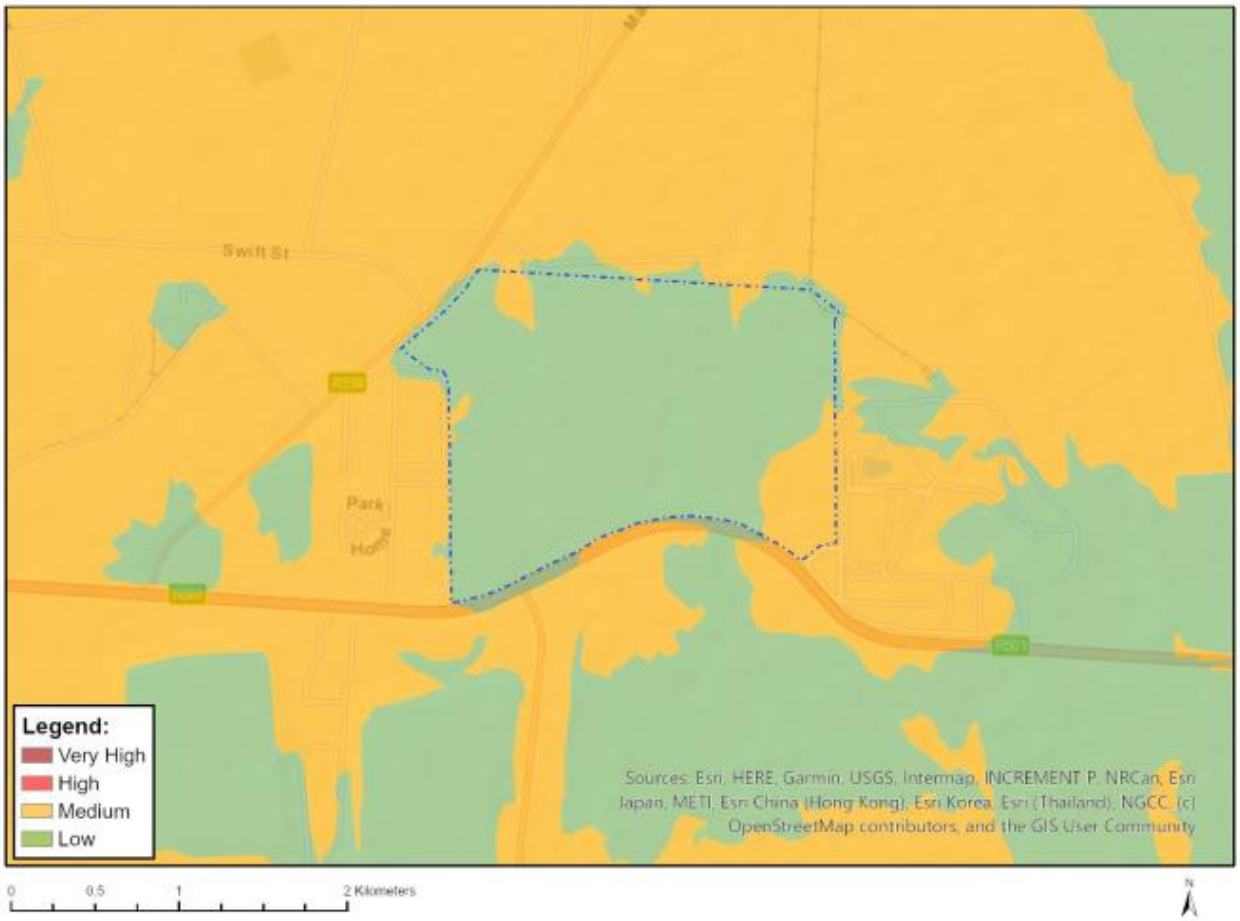


Figure 5-13 - Map of Plant Species Sensitivity

Source: DFFE Screening Report

Figure 5-6 below provides information regarding the outcome of the DFFE Screening Tool sensitivity rating for the Plant Species theme, and the outcome of the sensitivity verification process.

Table 5-7 – Plant Species theme sensitivity for the proposed Merafong SEF

Environmental Theme	DFFE Screening Tool Sensitivity	Applicable protocol	Specialist Sensitivity Verification
Plant Species	Medium	Protocol for the specialist assessment and minimum report content requirements for environmental impacts on Plant Species	Outside of currently cultivated fields, on-site habitat is essentially characterised by old land secondary grassland with scattered woody species, and a Eucalyptus dominated tree stand associated with a storm/process water drainage channel.

Environmental Theme	DFFE Screening Tool Sensitivity	Applicable protocol	Specialist Sensitivity Verification
			No flora SCC were recorded on-site and none are expected to be present. Accordingly, the Plant Species sensitivity is rated Low.

No Red List flora species were recorded on-site during the verification field visits, and considering the modified and secondary character of on-site vegetation, none are likely to be present, including those taxa highlighted by DFFE Screening Tool:

- *Khadia beswickii* favours open shallow soils, over rocks in grassland (Victor and Pfab, 2005). No suitable habitat is present on-site, and therefore it is unlikely' that *Khadia beswickii* is present;
- Sensitive species 1147 occurs in open undisturbed grasslands on dolomite or in black, sandy soils. No suitable habitat is present on-site, and therefore it is unlikely' that Sensitive species 1147 is present; and
- Sensitive species 1248 is found in open woodland and steep rocky hills in shady situations. No suitable habitat is present on-site, and therefore it is unlikely' that Sensitive species 1248 is present.

Habitat suitability assessments, based on field data collected on-site and a review of documented habitat preferences, also indicated that none of the seven flora SCC that are known from the region are likely to be present on-site – refer to **Table 5-8**.

This is primarily predicated on the disturbed and secondary nature of on-site vegetation. The 'Medium' DFFE sensitivity rating for the Plant Species theme is therefore considered incorrect. The sensitivity rating for the Plant Species theme is considered to be of 'Low' sensitivity.

Table 5-8 - Flora species of conservation concern potentially occurring on-site

Family	Scientific Name	Regional Red List Status	Gauteng Status	Habitat Preferences	Probability of Occurrence
Asphodelaceae	*Kniphofia typhoides*	Near Threatened	Protected	Kniphofia typhoides occurs in the black clay soils of low-lying wetlands and seasonally wet habitats in Themeda triandra grasslands (von Staden and Victor, 2005)	Unlikely – no suitable habitat present.
Aizoaceae	*Khadia beswickii*	Vulnerable	-	Species has an EOO of only 475 km2 and an AOO of 3-7 km2. It is known from only ten locations, mostly across Gauteng Province, but also scattered sites in Mpumalanga. Favours open shallow soils, over rocks in grassland (Victor and Pfab, 2005).	Unlikely – no suitable habitat present.

Family	Scientific Name	Regional Red List Status	Gauteng Status	Habitat Preferences	Probability of Occurrence
Aizoaceae	*Lithops lesliei*	Vulnerable	Protected	This species has a widespread distribution, but is experiencing local losses due to urbanisation. This species favours rocky locations in arid grassland habitat (Mtshali, et al., 2023)	Unlikely – no suitable habitat present.
Crassulaceae	*Adromischus umbraticola subsp. umbraticola*	Near Threatened	-	Species has an EOO of 14 600 km2 and is known from 14 locations. Grows in rock crevices on south-facing slope ridges. (Helme and Raimondo, 2006).	Unlikely – no suitable habitat present.
Hyacinthaceae	*Drimia sanguinea*	Near Threatened	-	This species favours open veld and scrubby woodland across northern South Africa (Willaims, et al., 2008).	Unlikely – no suitable habitat present.
-	Sensitive species 1147	Endangered		Occurs in six scattered subpopulations, with a total population size estimated at 230 mature individuals. Occurs in open grassland on dolomite or in black sandy soil.	Unlikely – no suitable habitat present.
-	Sensitive species 1248	Vulnerable	-	Found in open woodland and steep rocky hills in shady situations at low- and medium altitudes. No EOO for this species is listed, but its AOO is estimated at 30.70 km2 (SANBI, 2020).	Unlikely – no suitable habitat present.

5.3.7 ANIMAL SPECIES ASSESSMENT

The following is extracted from the Terrestrial Biodiversity SSVR report compiled by WSP and included as **Appendix E.**

The DFFE Screening Tool indicates that the site has a medium sensitivity (**Figure 5-14**) due to the potential presence of the following features:

- Two mammal species:
  - Spotted-necked Otter (*Hydrictis maculicollis*)
  - Maquassie Musk Shrew (*Crocidura maquassiensis*);

- Two bird species[3]:
  - White-bellied Bustard (*Eupodotis senegalensis*);
  - African Grass Owl (*Tyto capensis*);
  - African Marsh Harrier (*Circus ranivorus*);
- Three invertebrate species:
  - Highveld Nimble Blue (*Lepidochrysops praeterita*);
  - Uvarov's Clonia (*Clonia uvarovi*); and
  - (*Lepidochrysops procera*).

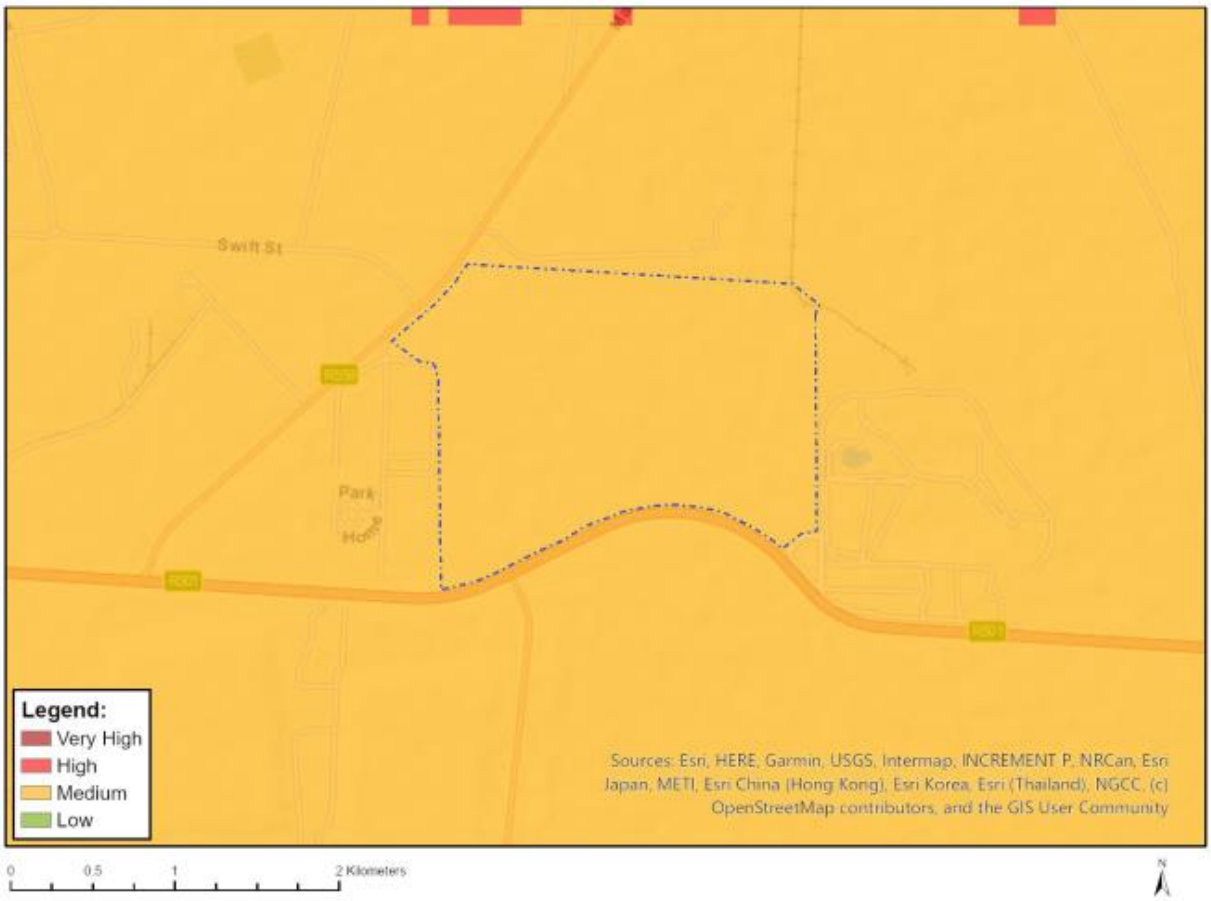


Figure 5-14 - Map of Animal Species Sensitivity

Source: DFFE Screening Report

Table 5-9 below provides information regarding the outcome of the DFFE Screening Tool sensitivity rating for the Animal Species theme, and the outcome of the sensitivity verification process.

Table 5-9 – Animal Species theme sensitivity for the proposed Merafong SEF

[3] Bird species were assessed as part of a separate sensitivity verification process.

Environmental Theme	DFFE Screening Tool Sensitivity	Applicable protocol	Specialist Sensitivity Verification
Animal Species	Medium	Protocol for the specialist assessment and minimum report content requirements for environmental impacts on Animal Species	Considering the modified nature of the site, the site does not constitute functionally important fauna habitat. No fauna SCC were observed on-site, and it is considered unlikely that SCC are present. Accordingly, the Animal Species sensitivity is rated Low.

No Red List fauna species were recorded on-site during the verification field visit. Considering the modified and secondary character of on-site vegetation, the site is not considered important fauna habitat. Habitat suitability assessments for the species highlighted by the DFFE Screening Tool's indicate that these taxa are 'unlikely' to be present:

- Spotted-necked Otter is restricted to areas with permanent, large open-water bodies (Ponsonby, *et al*., 2016). No suitable open-water bodies are present on-site for this species. It is therefore 'unlikely' that Spotted-necked Otter is present;
- Maquassie Musk Shrew favours moist grassland habitats in savanna and grassland ecosystems (Taylor *et al*., 2016). Limited moist grassland habitat is present on-site, and therefore it is 'unlikely' that the Maquassie Musk Shrew is present;
- *Lepidochrysops praeterita* inhabits rocky grassed south-facing slopes, with the host plant *Ocimum obovatum* present (Dobson, 2018). *Ocimum obovatum* was recorded on-site during the field visit, however, considering the overall disturbed and secondary nature of on-site vegetation, it is considered unlikely that the *Lepidochrysops praeterita* is present in the study area; and
- *Clonia uvarovi* favours tall woodland and savanna (Bazelet and Naskrecki, 2014). Habitat of this form is essentially limited to the alien *Eucalyptus* tree stand, and the small open stands of alien *Prunus persica* trees. Suitable tall indigenous woodland is therefore not present, and it is 'unlikely' that *Clonia uvarovi* occurs on-site.

Reviewed literature also indicates that up to 15 Red List mammal species and two herpetofauna taxa listed as Protected on the NEMBA ToPs List (2007) are known to occur in the broader region in which the site is located. These are listed in **Table 5-10**, along with their conservation status, and a 'probability of occurrence' based on habitat suitability assessments.

The 'Medium' DFFE sensitivity rating for the Animal Species theme is therefore considered incorrect. The sensitivity rating for the Animal Species theme is considered to be of 'Low' sensitivity.

Table 5-10 - Fauna species of conservation concern potentially occurring on-site.

Family	Scientific Name	Common Name	Regional Red List Status	NEMBA ToPS List (2007)	Gauteng Status	Habitat Preferences	Probability of Occurrence
Mammals							
Bovidae	*Pelea capreolus*	Grey Rhebok	Near Threatened	-	Protected	Sourveld grassland and scrubland in hills and mountainous areas.	Unlikely – no suitable habitat
Bovidae	*Redunca fulvorufula fulvorufula*	Mountain Reedbuck	Endangered	-	Protected	Rolling grassy hillsides and mountain slopes.	Unlikely – no suitable habitat
Canidae	*Vulpes chama*	Cape Fox	Least Concern	Protected	-	Range of habitats, including grassland and arid savanna.	Unlikely – limited suitable habitat present
Chrysochloridae	*Amblysomus septentrionalis*	Highveld Golden Mole	Near Threatened	-	-	Sandy soils in undisturbed grassland areas.	Unlikely – no suitable habitat
Chrysochloridae	*Chrysospalax villosus*	Rough-haired Golden Mole	Vulnerable	Critically Endangered	-	Sandy soils in undisturbed grassland areas.	Unlikely – no suitable habitat
Erinaceidae	*Atelerix frontalis*	South African Hedgehog	Near Threatened	Protected	Protected	Range of habitats, including undisturbed grassland and savanna.	Unlikely – limited suitable habitat
Felidae	*Felis nigripes*	Black-footed Cat	Vulnerable	Protected	-	Open, short grass areas in savanna and grassland habitats.	Unlikely – limited suitable habitat
Felidae	*Leptailurus serval*	Serval	Near Threatened	Protected	-	Wetland, tall grassland and well-watered savanna habitats.	Unlikely – limited suitable habitat
Felidae	*Acinonyx jubatus*	Cheetah	Vulnerable	-	-	Occurs in a wide-range of habitats including savanna, grassland, thicket and karoo shrublands.	Unlikely – no suitable habitat

Family	Scientific Name	Common Name	Regional Red List Status	NEMBA ToPS List (2007)	Gauteng Status	Habitat Preferences	Probability of Occurrence
							& sensitive to disturbance
Felidae	*Panthera pardus*	Leopard	Vulnerable	Vulnerable	-	Wide range of habitats, including grassland and savanna.	Unlikely – no suitable habitat & sensitive to disturbance
Hipposideridae	*Cloeotis percivali*	Short-eared Trident Bat	Endangered	-	-	Savanna and woodland habitats, with caves or mine adits present.	Unlikely – no suitable habitat
Hyaenidae	*Parahyaena brunnea*	Brown Hyaena	Near Threatened	Protected	Protected	Savanna and grassland habitats.	Unlikely - sensitive to disturbance
Muridae	*Dasymys robertsii*	Robert's Marsh Rat	Vulnerable	-	-	Moist grassland and wetland habitats.	Unlikely – no suitable habitat
Mustelidae	*Aonyx capensis*	Cape Clawless Otter	Near Threatened	Protected	-	Riparian habitats, with permanent water.	Unlikely – no suitable habitat
Mustelidae	*Hydrictis maculicollis*	Spotted-necked Otter	Vulnerable	Protected	-	Riparian habitats, favouring large, open water bodies.	Unlikely – no suitable habitat
Nesomyidae	*Mystromys albicaudatus*	White-tailed Rat	Vulnerable	-	-	Undisturbed grassland habitats, as well as succulent karoo and fynbos.	Unlikely – no suitable habitat
Soricidae	*Crocidura maquassiensis*	Maquassie Musk Shrew	Vulnerable	-	-	Moist grassland habitats in savanna and grassland ecosystems.	Unlikely – no suitable habitat
Soricidae	*Crocidura mariquensis*	Swamp Musk Shrew	Near Threatened	-	-	Reedbeds, wetlands and thick moist grassland in riverine habitats.	Unlikely – no suitable habitat

Family	Scientific Name	Common Name	Regional Red List Status	NEMBA ToPS List (2007)	Gauteng Status	Habitat Preferences	Probability of Occurrence
Herpetofauna							
Pythonidae	*Python natalensis*	South African Python	Least Concern	Protected	-	Occurs in a wide variety of habitats but generally favours riverine and rocky areas.	Unlikely – no suitable habitat
Pyxicephalidae	*Pyxicephalus adspersus*	Giant Bullfrog	Least Concern	Protected	Protected	Seasonally shallow pans, wetland and rained-filled depressions in savanna and grassland ecosystems.	Unlikely – no suitable habitat

**Habitat preferences as per Stuart and Stuart (2007) and Child et al., (2016) for mammals, and Bates, et al., (2014) and Du Preez and Carruthers (2009) for herpetofauna.*

5.3.8 AVIFAUNA

The following is extracted from the Avifauna SSVR compiled by Feathers Environmental Services and included as **Appendix G.**

A map of the proposed Merafong development area overlaid on the screening tool sensitivity is given in **Figure 5-15**. The DFFE Screening Tool rates the Avian Theme as Low Sensitivity.

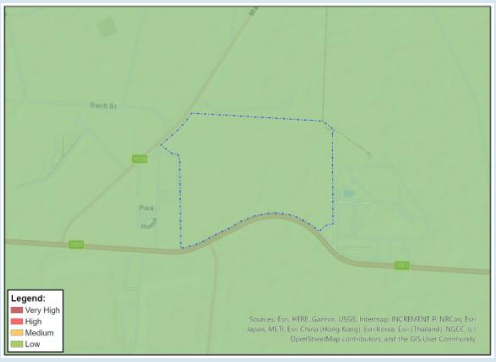
Figure 5-15 - Map of Avian Sensitivity

Source: DFFE Screening Report

The transformed nature of the habitat within the Merafong Solar PV Facility development area and PAOI, absence of observed SCC and breeding locations during the field survey, overall low SCC abundances and existing levels of disturbance are key factors that have been considered in determining the site sensitivity and the potential impacts of the proposed Merafong Solar PV Facility on the resident avifaunal community.

The site sensitivity verification survey confirms the assigned LOW sensitivity for the proposed Merafong Solar PV Facility footprint (**Table 5-11**).

Table 5-11 - Specialist Avifaunal Sensitivity disputing the assigned Screening Tool Sensitivity.

Environmental Theme	Screening tool map and rating	Specialist sensitivity rating Confirming/disputing the screening tool rating
Avifauna	 Sensitivity: Low Feature(s): Low Sensitivity	 Screening tool rating of LOW is confirmed based on the transformed nature of the habitat, absence of observed SCC during the field surveys, overall low SCC abundances and existing levels of disturbance.

Areas of MEDIUM and LOW avian potential/sensitivity occur within the proposed *Merafong SEF* development area and broader PAOI. A preferred layout for the proposed development has been determined based on the avoidance of the environmental and social sensitivities delineated as part of the initial screening and scoping assessment processes. The proposed *Merafong SEF* development envelope has a MEDIUM-LOW avifaunal sensitivity that is unlikely to regularly support SCC (**Figure 5-16**).

.

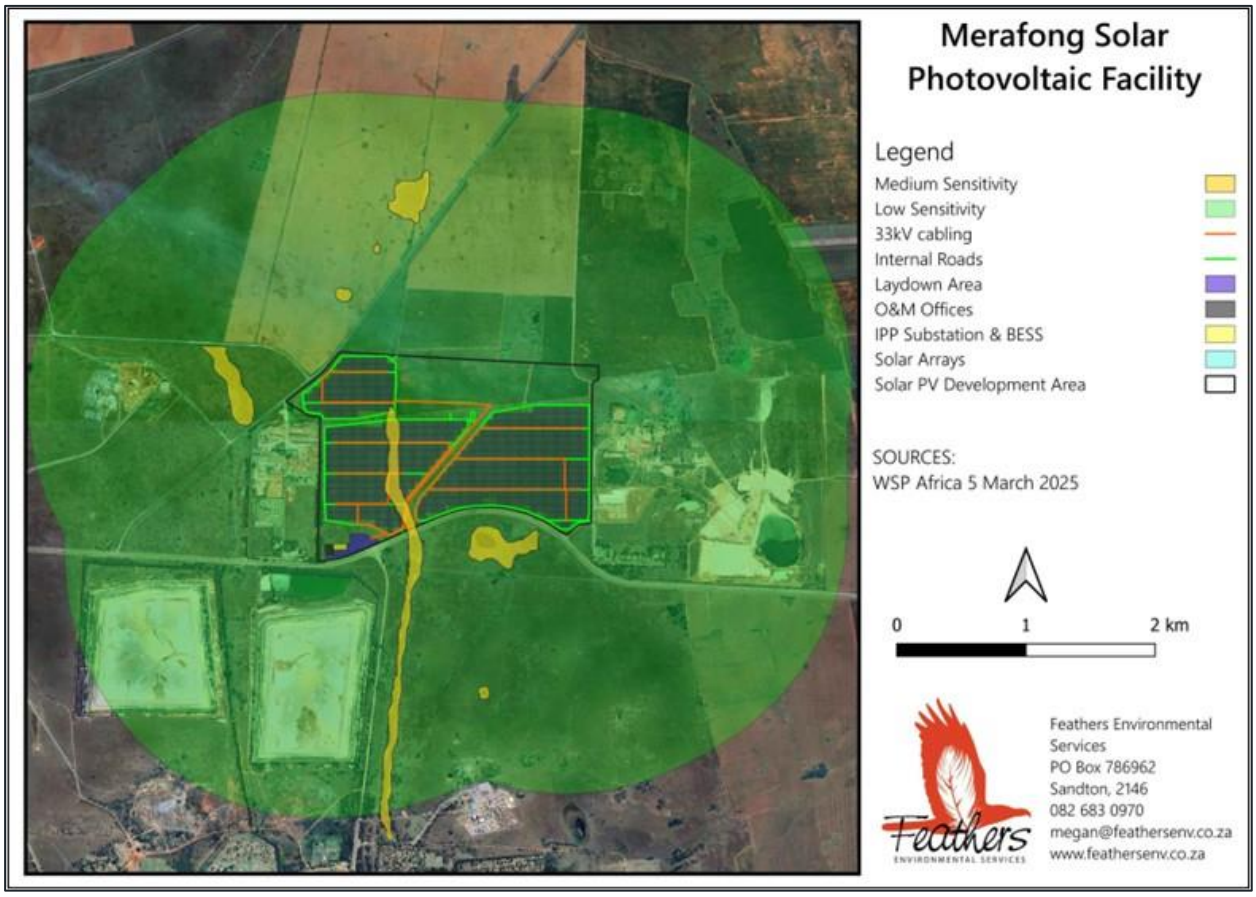


Figure 5-16 - Avifaunal sensitivities within the Merafong Solar PV Facility development area and broader PAOI

5.3.9 CIVIL AVIATION ASSESSMENT

Figure 5-17 illustrates the high civil aviation sensitivity rating identified for the project area by the DFFE Screening tool.

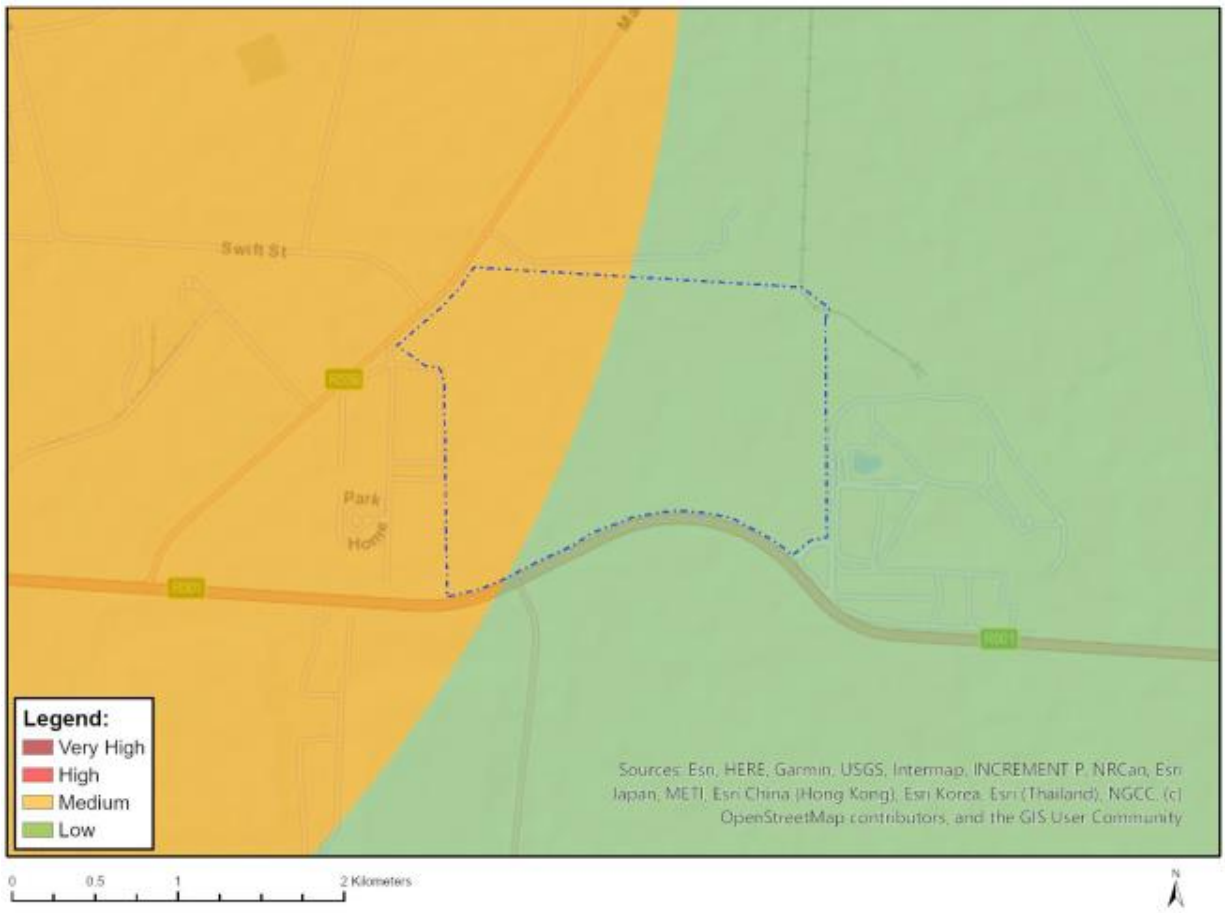


Figure 5-17 – DFFE screening tool sensitivity for civil aviation theme

Source: DFFE Screening Report

According to the DFFE Screening Tool Report, civil aviation is regarded as having high sensitivity. due to the possible location of an aerodrome within 8 km of civil aviation aerodromes.

A google earth search shows that there are no active aerodromes within 8km of the site. The closest active aerodrome is the Carletonville Aerodrome which is 17km northwest of the proposed project. The high sensitivity identified in the DFFE Screening tool is therefore disputed and regarded as Low Sensitivity.

As of the 1st of May 2021, ATNS has been appointed as the new Obstacle application Service Provider for Wind farms and later Solar Plants. Their responsibility would pertain to the assessments, maintenance, and all other related matters in respect to Windfarms and in due time Power Plant assessments. The ATNS and SACAA have been included on the project stakeholder database. They have been informed of the proposed Project, and comment is being sought. Furthermore, an application for the Approval of Obstacles will be submitted to ATNS by the applicant.

5.3.10 DEFENCE ASSESSMENT

Figure 5-18 illustrates the low defence sensitivity rating identified for the project area by the DFFE Screening tool.

The defence theme is confirmed to have **low** sensitivity.

Figure 5-18 – DFFE screening tool sensitivity for Defence theme

Source: DFFE Screening Report

5.4 SENSITIVITY MAPPING

A preliminary consolidated environmental sensitivity map showing the “No-Go” areas (**Table 5-12**) has been compiled based on the sensitivities and buffers outlined in the specialist studies. The environmental sensitivities identified on site are included in **Table 5-12**. The development envelope avoids the very high (no-go) areas.

Table 5-12 - Environmental Sensitivities identified by specialists

Discipline	Infrastructure Type and Sensitivity Criteria		Exceptions
	Solar and associated infrastructure	New roads outside of the solar area	
Agriculture	MEDIUM: Land capability Value of 9	MEDIUM: Land capability Value of 9	N/A
	LOW: Land capability Value of 7	LOW: Land capability Value of 7	N/A
Aquatic Biodiversity	No-go areas were not identified by the specialist	No-go areas were not identified by the specialist	N/A
Heritage	National Significance (NS) - Grade 1	National Significance (NS) - Grade 1	Conservation; national site nomination
	Provincial Significance (PS) – Grade 2	Provincial Significance (PS) – Grade 2	Conservation; provincial site nomination
	Local Significance (LS) – Grade 3A High significance	Local Significance (LS) – Grade 3A High significance	Conservation; mitigation not advised
	Local Significance (LS) – Grade 3B High significance	Local Significance (LS) – Grade 3B High significance	Mitigation (part of site should be retained)
	Generally Protected A (GP. A) High/medium significance	Generally Protected A (GP. A) High/medium significance	Mitigation before destruction
	Generally Protected B (GP. B) Medium significance	Generally Protected B (GP. B) Medium significance	Recording before destruction
	Generally Protected C (GP.C) Low significance	Generally Protected C (GP.C) Low significance	Destruction
Avifauna	No-go areas were not identified by the specialist	No-go areas were not identified by the specialist	N/A
Terrestrial Ecology	No-go areas were not identified by the specialist	No-go areas were not identified by the specialist	N/A

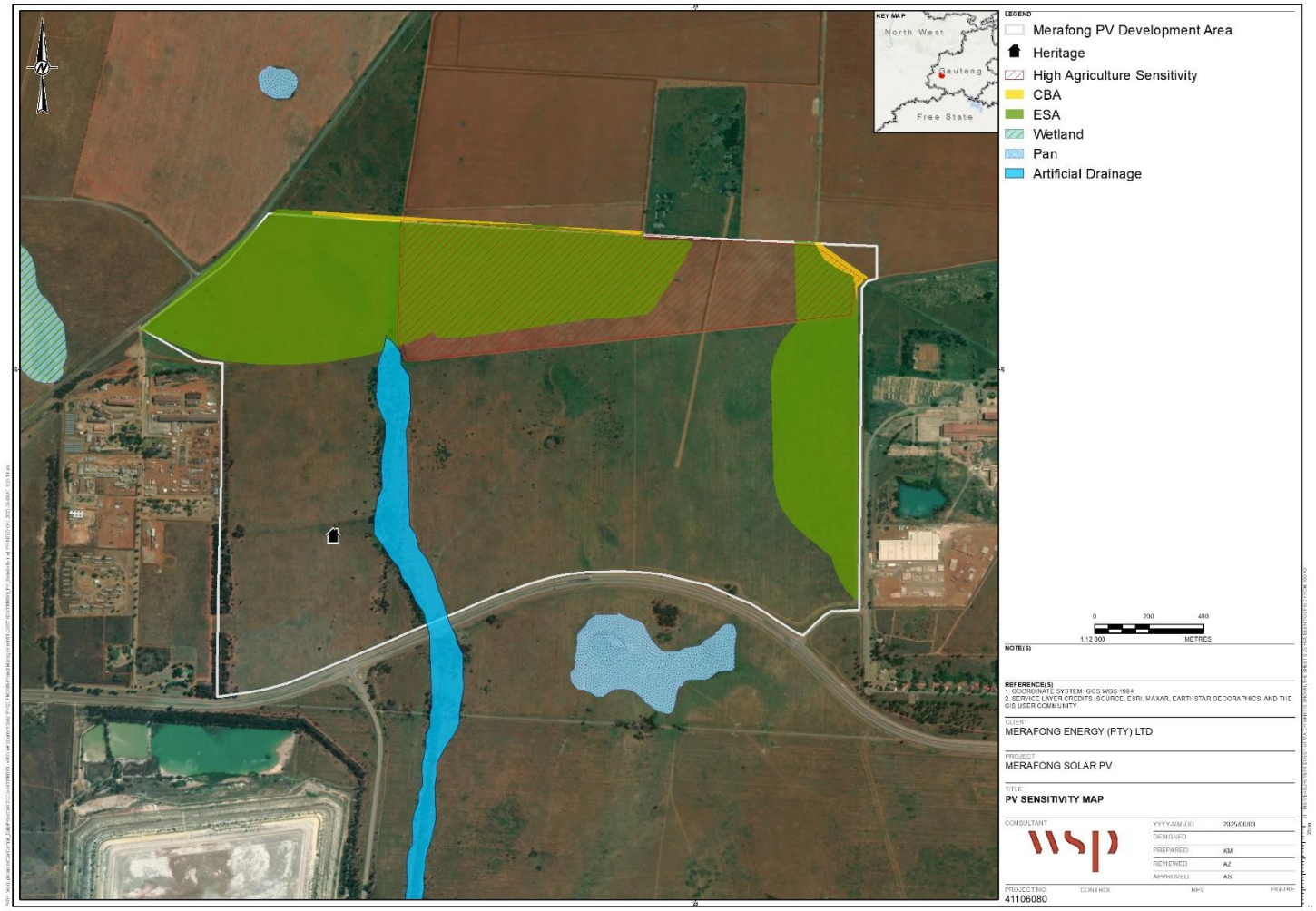


Figure 5-19 - Consolidated Sensitivity for Merafong SEF

6 CONCLUSION AND RECOMMENDATIONS

Merafong Energy (Pty) Ltd (Merafong) has appointed WSP Group Africa Pty Ltd (WSP), as an independent Environmental Assessment Practitioner (EAP) to submit an application for the registration of the Merafong Photovoltaic (PV) Solar Energy Facility (SEF) and associated infrastructure on various farm portions. The proposed project is situated approximately 10km east of Carletonville, within the jurisdiction of the Merafong City Local Municipality, in the West Rand District Municipality, Gauteng Province.

A registration application was submitted to the Department of Forestry, Fisheries and the Environment (DFFE) on **06 June 2025**.

The EAP hereby confirms the following environmental themes where sensitivity was confirmed to coincide with the DFFE Screening Tool Rating:

- Avifauna Impact Assessment (confirmed Low Sensitivity); and
- Archaeological and Cultural Heritage (confirmed Low Sensitivity).

The following environmental themes were disputed against the DFFE Screening Tool Rating, and found to be a lower sensitivity than what was identified by the DFFE Screening Tool:

- Agricultural (verified Medium sensitivity);
- Palaeontology (verified Low Sensitivity);
- Terrestrial Biodiversity (verified Low Sensitivity);
- Aquatic Biodiversity (verified Low Sensitivity);
- Plant Biodiversity (verified Low Sensitivity); and
- Animal Biodiversity (verified Low Sensitivity).

The following recommendations have been made by the relevant specialists:

- Agriculture:
    - A system of storm water management, which will prevent erosion on and downstream of the site, will be an inherent part of the engineering design on site. Any occurrences of erosion must be attended to immediately and the integrity of the erosion control system at that point must be amended to prevent further erosion from occurring there.
    - Any excavations done during the construction phase, in areas that will be re-vegetated during or at the end of the construction phase, must separate the upper 30 cm of topsoil from the rest of the excavation spoils and store it in a separate stockpile. When the excavation is back-filled, the topsoil must be back-filled last, so that it remains at the surface. Topsoil should only be stripped in areas that are excavated. Across most of the site, including construction lay down areas, it will be much more effective for rehabilitation, to retain the topsoil in place. It will be advantageous to have topsoil and vegetation cover below the panels during the operational phase to control dust and erosion.
- Terrestrial Biodiversity:
    - Restricting all construction related disturbances to the minimum area required for safe implementation;
    - Actively controlling alien invasive flora species;

- Stabilising and rehabilitating any sites where construction disturbances have occurred, and ensuring that correct storm water infrastructure is in place across the proposed facility;
- Measures to limit death, injury and disturbance of fauna include:
  - Retaining an Environmental Control Officer (ECO) on-site during construction to manage any fauna-human interactions, and train on-site construction workers/contractors on the correct and responsible treatment of wildlife;
  - Enforcing on-site speed limits for all construction and maintenance vehicles;
  - Prohibiting hunting and snaring of fauna by on-site workers; and
  - Implementing noise suppression (fit mufflers and silencers to noisy equipment) and dust suppression (water spraying etc.) on-site, as required

- Avifauna:
  - The proposed Merafong Solar PV Facility is not deemed to present unmitigable negative environmental issues or impacts subject to mitigation and management measures. Any remaining environmental impact is acceptable after avoidance and mitigation have been applied.
  - The following recommendations are provided regarding practical mitigation measures for potentially significant impacts to be included in the EMPr:
    - The PV panels should preferably be constructed using a single or double axis tracking system where possible.
    - Construction activity should be restricted to the immediate footprint of the Merafong Solar PV Facility and strictly managed.
    - The recommendations of the aquatic and botanical studies must be strictly implemented especially as far as limitation of the construction footprint and rehabilitation of disturbed areas is concerned.
    - Construction activity should be restricted to the immediate footprint of the Solar PV Facility infrastructure (including ancillary infrastructure).
    - All construction activities should be strictly managed according to generally accepted environmental best practice standards, to avoid any unnecessary impact on the receiving environment.
    - All temporary disturbed areas should be rehabilitated according to the site's rehabilitation plan, following construction.
    - Measures to control noise should be applied according to current best practice in the industry.
    - Construction of a single perimeter fence is recommended.
    - The 33kV powerline should, where practically possible, be constructed below ground to eliminate the electrocution impact. If this is not feasible, the powerline must be constructed using a bird friendly structure (e.g. an inverted Delta-T structure, with the two outer phases suspended below the cross arm).
    - Electrocutions within the switching station to be mitigated reactively using site-specific recommendations, by an avifaunal specialist, if they occur.

- Heritage:
  - Development activities must be confined to the approved development footprint only;

- Monitoring of the Project area (with specific reference to site MF001) by the ECO during pre-construction and construction phases for heritage and palaeontological chance finds, if chance finds are encountered to implement the Chance Find Procedure for the Project

- Palaeontology:
  - A Fossil Chance Find Protocol should be added to the EMPr. If fossils are found by the environmental officer, or other responsible person once excavations for foundations and infrastructure have commenced then they should be rescued and a palaeontologist called to assess and collect a representative sample.

The SSVR and EMPr have been made available for public review for a period of 30 days from **06 June 2025 to 07 July 2025,** at the following public places:

- Carletonville Library;
- Fochville Library;
- WSP website - https://www.wsp.com/en-za/services/public-documents
- WSP datafree website - https://wsp-engage.com/

This SSVR, will be updated to include all comments and responses received during the public review period, and will be submitted to the DFFE for approval.

It is the opinion of WSP that the information contained in this document (read in conjunction the EMPr) is sufficient for the DFFE to make an informed decision on the registration application being applied for in respect of this Project.

Mitigation measures have been developed, where applicable, for the above aspects and are presented within the EMPr (**Appendix L**). It is imperative that all impact mitigation recommendations contained in the EMPr, of which the environmental impact assessment took cognisance, are legally enforced.

Considering the findings of the above, no fatal flaws were identified for the proposed Project. The sensitivity pertaining to the environmental themes has been verified to be medium to low. It is thus the opinion of the EAP that the Project can proceed, and that all the prescribed mitigation measures and recommendations are considered by the issuing authority.

Building 1, Maxwell Office Park
Magwa Crescent West, Waterfall City
Midrand, 1685
South Africa

wsp.com