

AMSA Vanderbijlpark Solar 3, Gauteng Province

GDARD Ref No: GAUT 002/23-24/E3579

Scoping Report

April 2023

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PROJECT DETAILS

GDARD Reference	:	GAUT 002/23-24/E3579
Title	:	Environmental Impact Assessment Process: Scoping Report for the AMSA Vanderbijlpark Solar 3 Energy Facility, Gauteng Province.
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Client	:	ArcelorMittal South Africa Ltd
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When used as a reference this report should be cited as: Savannah Environmental (2023) Scoping report for the Eskom Vanderbijlpark Solar 3 Energy Facility, Gauteng Province.

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PURPOSE OF THE EIA REPORT AND INVITATION TO COMMENT

ArcelorMittal South Africa Ltd has appointed Savannah Environmental as the independent environmental consultant to undertake the Scoping and Environmental Impact Assessment Process for the AMSA Vanderbijlpark Solar 3 Energy Facility. The scoping process is being undertaken in accordance with the requirements of the 2014 EIA Regulations promulgated in terms of the National Environmental Management Act (NEMA; Act No. 107 of 1998). This scoping report has been compiled in accordance with Appendix 2 of the EIA Regulations, 2014 (as amended) and consists of the following sections:

This Scoping Report consists of seven chapters, which include:

- » **Chapter 1** provides background of the project and the environmental impact assessment.
- » **Chapter 2** provides a description of the project and alternatives.
- » **Chapter 3** Outlines the approach to undertaking the Scoping/EIA phase.
- » **Chapter 4** describes the existing biophysical, regional, and social environment within and surrounding the study area.
- » **Chapter 5** provides an assessment of the potential issues associated with the proposed project.
- » **Chapter 6** presents the conclusions and recommendations based on the findings of the Scoping Report and describes the Plan of Study (PoS) for the scoping phase.
- » **Chapter 7** provides the references used in the compilation of the Scoping Report.

The Scoping Report is available for review and comment from **Wednesday, 26 April 2023** to **Monday, 29 May 2023** at <https://savannahsa.com/public-documents/>. All comments received and recorded during the 30-day review and comment period will be included, considered and addressed within the final Scoping report for the consideration of the Gauteng Department of Agriculture and Rural Development (GDARD).

Please submit your comments by **Monday, 29 May 2023** to:

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Comments can be made as written submission via fax, post or email.

EXECUTIVE SUMMARY

ArcelorMittal South Africa (Pty) Ltd proposes the construction and operation of the AMSA Vanderbijlpark Solar Photovoltaic (PV) Energy Facility and associated infrastructure on Portion 1 of the Farm Vanderbijlpark 550 IQ, located approximately ~5km to the north of the city Vanderbijlpark, in the Emfuleni Local municipality and the Sedibeng District Municipality within the Gauteng Province. The AMSA Solar PV Energy Facility will have a contracted capacity of up to 153MW_{AC}. The grid connection infrastructure for this proposed facility is likely to be at 132kV and the use would be made of Eskom's grid to facilitate connection of the facilities to the grid. Details of the exact grid connection solution are to be finalised. The purpose of the project is to supply electricity to AMSA's operations. The project site is approximately 255ha and existing roads will be utilised as far as possible, with the limited construction of additional permanent access roads where required.

The placement of a Solar PV Energy Facility is dependent on several factors, namely, land suitability, climatic conditions (solar irradiation levels), topography, the location and extent of the project site, and availability of the land for development of the project. A preferred project site has been identified by the applicant on the basis of these criteria. The property, Portion 1 of the Farm Vanderbijlpark 550 IQ, has an extent of approximately ~ 24442800 ha. The site is a vacant stand with sufficient space to construct the Solar PV plant, onsite substation, power lines, internal roads (gravel), O&M building, and all associated infrastructure. The site will provide the opportunity for the optimal placement of the infrastructure, while ensuring avoidance of major identified environmental sensitivities. To avoid areas of potential sensitivity and to ensure that potential detrimental environmental impacts are minimised as far as possible, the full extent of the project site will be considered in the Scoping Phase, and a development footprint within which the infrastructure of the PV facility and associated infrastructures will be located will be fully assessed during the EIA Phase.

Potential issues relating to the following may occur during the construction and operation of the AMSA Solar 3 Energy Facility.

- » Impacts on terrestrial ecology
- » Impacts on freshwater features
- » Social impacts, (job creation, skills development and business opportunities)
- » Noise impacts
- » Visual impacts
- » Heritage impacts
- » Impacts on soil and agriculture

Impacts on terrestrial ecology

Anthropogenic activities drive habitat destruction causing displacement of fauna and flora and possibly direct mortality. Land clearing destroys local wildlife habitat and can lead to the loss of local breeding grounds, nesting sites and wildlife movement corridors such as rivers, streams and drainage lines, or other locally important features. The removal of natural vegetation may reduce the habitat available for fauna species and may reduce animal populations and species compositions within the area.

Impacts on freshwater features

A key consideration for the scoping level impact assessment is the presence of the water resources located in proximity beyond the project area. The available data suggests that no South African Inventory of Inland Aquatic Ecosystems (SAIIAE) or National Freshwater Ecosystem Priority Area (NFEPA) are present in the project area.

Although unlikely due to the proximity of the site relative to water resources. Construction could result in the encroachment into nearby water resources and result in the loss or degradation of these systems (if available), most of which will provide ecological services. These disturbances could also result in the infestation and establishment of alien vegetation, which would affect the functioning of the systems. Leaks and/or spillages could result in contamination of the receiving water resources. Contaminated water resources are likely to influence the associated biota. An increase in stormwater runoff could result in physical changes to the receiving systems caused by erosion, run-off and sedimentation, and the functional changes could result in changes to the vegetative structure of the systems.

Impacts on soils and agriculture

The proposed development can result in the loss of land capability. The disturbances could further also result in the infestation and establishment of alien vegetation, which in turn can have a detrimental impact on soil resources. The development of the area could also result in compaction and/or erosion. Furthermore, these activities could also cause leaks and/or spillages resulting in contamination of soil resources, which could affect the salinity or pH of the soil, which can render the fertility of the soil unable to provide nutrition to plants.

Impacts on heritage resources

A heritage screening report was compiled using the Department of Forestry, Fisheries and Environmental Affairs (DFFE) National Web-based Environmental Screening Tool as required by Regulation 16(1)(v) of the Environmental Impact Assessment Regulations 2014, as amended. According to the heritage screening report, the Project Site has a Low Heritage Sensitivity, and a Very High, High, Medium and Low Palaeontology Sensitivity. The fieldwork has shown that some archaeological and heritage resources were present in the area and thus have a higher rating than the original screening rating. This is in part due to the low resolution of the available data that the screening data is based on.

Visual impacts

The construction and operation of the proposed AMSA Vanderbijlpark Solar 3 may have a visual impact on potentially sensitive visual receptors particularly within (but not restricted to) a 6 km radius of the proposed project development site. The fact that some components of the proposed AMSA Vanderbijlpark Solar 3 and associated infrastructure may be visible does not necessarily imply a high visual impact. Sensitive visual receptors within (but not restricted to) a 3km buffer zone from the facility need to be identified and the severity of the visual impact assessed within the EIA phase of the project.

Noise impacts

Considering the project area to be developed initially, as well as the distance between potential noise sources and identified Noise Screening Report (NSR) (the VUT Sebokeng campus), the temporary nature of construction noise impacts as well as the low magnitude of operational noises, the development of the AMSA Vanderbijlpark Solar 3 within the development areas defined it is unlikely to influence ambient sound levels at the NSR in the vicinity of the project site.

For the initial project development area, it is the opinion of the specialist that no further Scoping or other acoustical studies would be required, and it is recommended that the AMSA Vanderbijlpark Solar 3 project be authorized (in terms of acoustics).

However, should AMSA extend the AMSA Vanderbijlpark Solar 3 project closer to a residential dwelling on the agricultural land, it is recommended that:

- AMSA either relocate the residential dwelling further than 200m from the proposed PV infrastructure; or
- AMSA do not locate any PV infrastructure within 200m from the residential dwelling.

Social Impacts

The positive and negative social impacts identified and evaluated for the construction phase include:

- » Creation of employment opportunities
- » Potential risks to livestock and farming infrastructure and the presence of workers on site
- » In- migration or potential influx of job seekers
- » Potential impacts of heavy and construction related activities
- » Increase Traffic

Overall conclusion

Due to the availability of favourable topography and site access, , the developer decided that the preferred activity would be the construction of AMSA Vanderbijlpark Solar 3. A technically viable development area was proposed by the developer considering environmental sensitivities identified. The assessment of the project site was undertaken through desktop studies and the findings have informed the results of this Scoping Report.

From a review of the relevant policy and planning framework, it was concluded that the project is well aligned with the policy framework, and a clear need for the Project is seen from a policy perspective at a local, provincial and National level.

The findings from the scoping studies undertaken have indicated that there are no identified fatal flaws associated with the implementation of the project subject to implementation of the recommended mitigation measures. Therefore, impacts can be mitigated to acceptable levels or enhanced through the implementation of the recommended mitigation or enhancement measures.

The benefits of the AMSA Vanderbijlpark Solar 3 energy facility are expected to occur at a national, regional and local level. From a social perspective, both positive and negative impacts are expected. The implementation of the 'do-nothing' alternative will result in a number of lost opportunities. The 'do nothing' alternative is therefore not preferred and not proposed to be implemented for the development of the AMSA Vanderbijlpark Solar 3.

Through the assessment of the development site, it can be concluded that the development of the AMSA Vanderbijlpark Solar 3 will not result in unacceptable environmental impacts (subject to the implementation of the recommended mitigation measures).

Overall Recommendation

Considering the findings of the desktop studies, the impacts identified, the development site proposed by the project developer, as well as the potential to further minimise the impacts to acceptable levels through mitigation, it is the reasoned opinion of the EAP that the project is acceptable within the landscape and can reasonably be granted authorisation subject avoidance of the sensitive areas identified through the scoping process and the implementation of recommended mitigation measures.

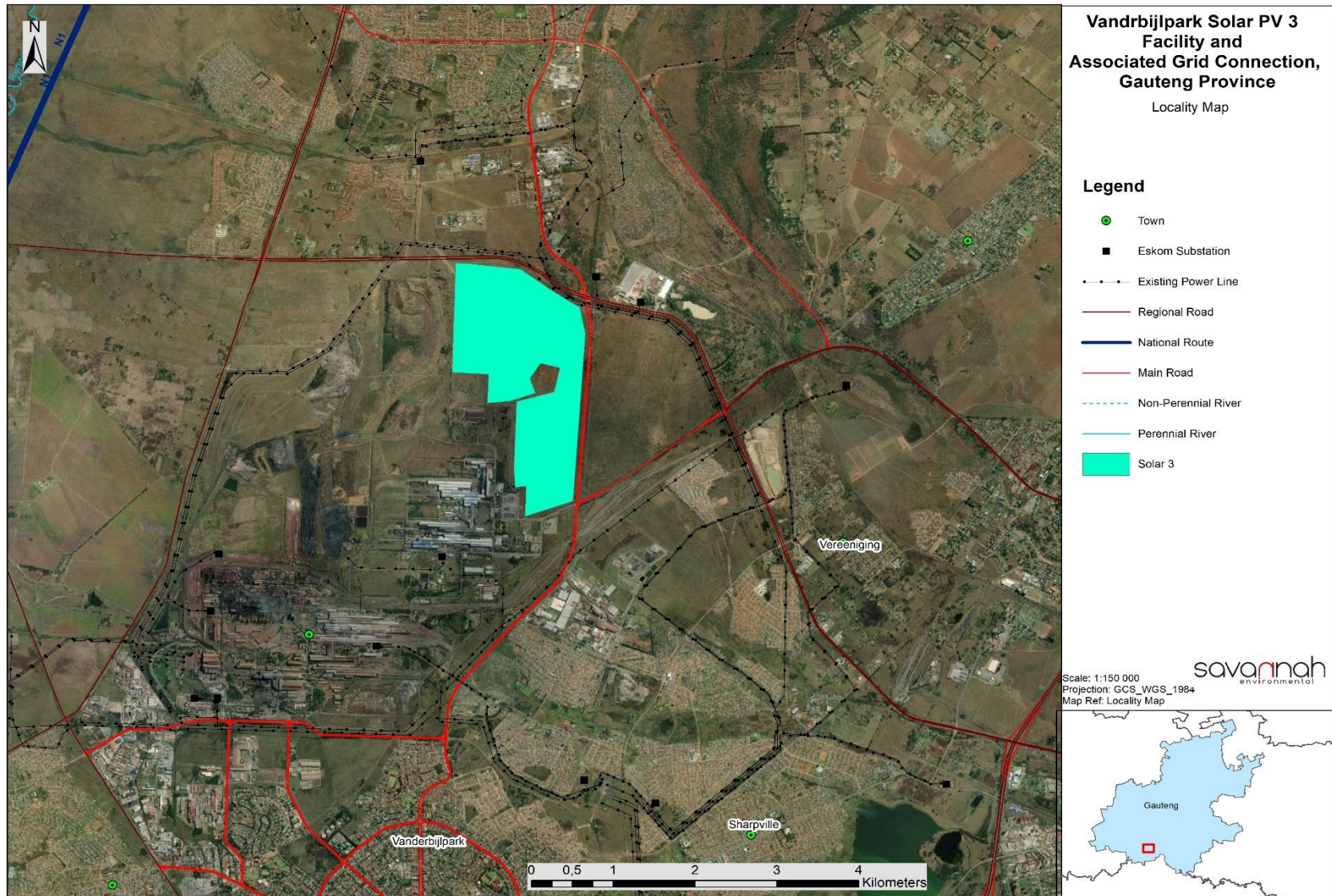


Figure 1.: Locality map of the AMSA Vanderbijlpark Solar 3

DEFINITIONS AND TERMINOLOGY

Alternatives: Alternatives are different means of meeting the general purpose and need of a proposed activity. Alternatives may include location or site alternatives, activity alternatives, process or technology alternatives, temporal alternatives or the 'do nothing' alternative.

Commence: The start of any physical activity, including site preparation and any other activity on site furtherance of a listed activity or specified activity, but does not include any activity required for the purposes of an investigation or feasibility study as long as such investigation or feasibility study does not constitute a listed activity or specified activity.

Commercial Operation date: The date after which all testing and commissioning has been completed and is the initiation date to which the seller can start producing electricity for sale (i.e. when the project has been substantially completed).

Commissioning: Commissioning commences once construction is completed. Commissioning covers all activities including testing after all components of the wind turbine are installed.

Construction: Construction means the building, erection or establishment of a facility, structure or infrastructure that is necessary for the undertaking of a listed or specified activity. Construction begins with any activity which requires Environmental Authorisation.

Cumulative impacts: Impacts that result from the incremental impact of the proposed activity on a common resource when added to the impacts of other past, present or reasonably foreseeable future activities (e.g. discharges of nutrients and heated water to a river that combine to cause algal bloom and subsequent loss of dissolved oxygen that is greater than the additive impacts of each pollutant). Cumulative impacts can occur from the collective impacts of individual minor actions over a period and can include both direct and indirect impacts.

Decommissioning: To take out of active service permanently or dismantle partly or wholly, or closure of a facility to the extent that it cannot be readily re-commissioned. This usually occurs at the end of the life of a facility.

Development area: The development area is that identified area (located within the project site) which has been assessed by specialists within this Scoping Report with the aim of identifying areas of sensitivity which should be avoided by the development footprint or facility layout. The development area is ~255ha in extent.

Development footprint: The development footprint is the defined area (located within the development area) where the Solar PV Energy Facility and other associated infrastructure for the Project is planned to be constructed. This is the actual footprint of the facility, and the area which would be disturbed.

Direct impacts: Impacts that are caused directly by the activity and generally occur at the same time and at the place of the activity (e.g. noise generated by blasting operations on the site of the activity). These impacts are usually associated with the construction, operation, or maintenance of an activity and are generally obvious and quantifiable.

Disturbing noise: A noise level that exceeds the ambient sound level measured continuously at the same measuring point by 7 dB or more.

'Do nothing' alternative: The 'do nothing' alternative is the option of not undertaking the proposed activity or any of its alternatives. The 'do nothing' alternative also provides the baseline against which the impacts of other alternatives should be compared.

Endangered species: Taxa in danger of extinction and whose survival is unlikely if the causal factors continue operating. Included here are taxa whose numbers of individuals have been reduced to a critical level or whose habitats have been so drastically reduced that they are deemed to be in immediate danger of extinction.

Emergency: An undesired/ unplanned event that results in a significant environmental impact and requires the notification of the relevant statutory body, such as a local authority.

Endemic: An "endemic" is a species that grows in a particular area (is endemic to that region) and has a restricted distribution. It is only found in a particular place. Whether something is endemic or not depends on the geographical boundaries of the area in question and the area can be defined at different scales.

Environment: the surroundings within which humans exist and that are made up of:

- i. The land, water and atmosphere of the earth;
- ii. Micro-organisms, plant and animal life;
- iii. Any part or combination of (i) and (ii) and the interrelationships among and between them; and
- iv. The physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

Environmental impact: An action or series of actions that have an effect on the environment.

Environmental impact assessment: Environmental Impact Assessment, as defined in the NEMA EIA Regulations and in relation to an application to which scoping must be applied, means the process of collecting, organising, analysing, interpreting and communicating information that is relevant to the consideration of that application.

Environmental management: Ensuring that environmental concerns are included in all stages of development, so that development is sustainable and does not exceed the carrying capacity of the environment.

Environmental management programme: An operational plan that organises and co-ordinates mitigation, rehabilitation and monitoring measures in order to guide the implementation of a proposal and its ongoing maintenance after implementation.

Heritage: That which is inherited and forms part of the National Estate (Historical places, objects, fossils as defined by the National Heritage Resources Act of 2000).

Indigenous: All biological organisms that occurred naturally within the study area prior to 1800.

Indirect impacts: Indirect or induced changes that may occur because of the activity (e.g. the reduction of water in a stream that supply water to a reservoir that supply water to the activity). These types of

impacts include all the potential impacts that do not manifest immediately when the activity is undertaken, or which occur at a different place because of the activity.

Interested and affected party: Individuals or groups concerned with or affected by an activity and its consequences. These include the authorities, local communities, investors, work force, consumers, environmental interest groups, and the public.

Method statement: A written submission to the ECO and the site manager (or engineer) by the EPC Contractor in collaboration with his/her EO.

Mitigation hierarchy: The mitigation hierarchy is a framework for managing risks and potential impacts related to biodiversity and ecosystem services. The mitigation hierarchy is used when planning and implementing development projects, to provide a logical and effective approach to protecting and conserving biodiversity and maintaining important ecosystem services. It is a tool to aid in the sustainable management of living, natural resources, which provides a mechanism for making explicit decisions that balance conservation needs with development priorities

No-go areas: Areas of environmental sensitivity that should not be impacted on or utilised during the development of a project as identified in any environmental reports.

Pre-construction: The period prior to the commencement of construction, this may include activities which do not require Environmental Authorisation (e.g. geotechnical surveys).

Pollution: A change in the environment caused by substances (radio-active or other waves, noise, odours, dust or heat emitted from any activity, including the storage or treatment or waste or substances.

Project developer: The project developer, ArcelMittal South Africa Ltd will be the partly responsible for the construction and day-to-day operation and maintenance of the proposed Solar PV Facility.

Project site: The project site is the aerial extent of the affected properties within which the Solar PV Facility is proposed.

Proponent: Applicant/Project Developer, ArcelMittal South Africa Ltd will be the partly responsible for the construction and day-to-day operation and maintenance of the proposed Solar PV Energy Facility.

Rare species: Taxa with small world populations that are not at present Endangered or Vulnerable, but are at risk as some unexpected threat could easily cause a critical decline. These taxa are usually localised within restricted geographical areas or habitats or are thinly scattered over a more extensive range. This category was termed Critically Rare by Hall and Veldhuis (1985) to distinguish it from the more generally used word "rare."

Red data species: Species listed in terms of the International Union for Conservation of Nature and Natural Resources (IUCN) Red List of Threatened Species, and/or in terms of the South African Red Data list. In terms of the South African Red Data list, species are classified as being extinct, endangered, vulnerable, rare, indeterminate, insufficiently known or not threatened (see other definitions within this glossary).

Significant impact: An impact that by its magnitude, duration, intensity, or probability of occurrence may have a notable effect on one or more aspects of the environment.

ACRONYMS

BGIS	Biodiversity Geographic Information System
CBA	Critical Biodiversity Area
DFFE	Department of Forestry, Fisheries, and the Environment (National)
DWS	Department of Water and Sanitation
CBA	Critical Biodiversity Area
CR	Critically Endangered
CSIR	Council for Scientific and Industrial Research
DM	District Municipality
DMRE	Department of Mineral Resources Energy
EAP	Environmental Assessment Practitioner
EGIS	Environmental Geographic Information System
EIA	Environmental Impact Assessment
EMF	Environmental Management Framework
EMP	Environmental Management Plan
EMPr	Environmental Management Programme
EN	Endangered
EP	Equator Principles
ESA	Ecological Support Area
GA	General Authorisation
GHG	Greenhouse Gas
HGM	Hydrogeomorphic
IBA	Important Bird Area
IDP	Integrated Development Plan
IEM	Integrated Environmental Management
IEP	Integrated Energy Plan
IFC	International Finance Corporation
IPP	Independent Power Producer
IRP	Integrated Resource Plan
IUCN	International Union for Conservation of Nature
I&AP	Interested and Affected Party
km	Kilometre
kWh	Kilowatt hour
LC	Least Concern
LM	Local Municipality
m	Metre
m ²	Square meters
m ³	Cubic meters
m amsl	Metres Above Mean Sea Level
MW	Megawatts
NDP	National Development Plan
NEMA	National Environmental Management Act (No. 107 of 1998)
NEM:AQA	National Environmental Management: Air Quality Act (No. 39 of 2004)
NEM:BA	National Environmental Management: Biodiversity Act (No. 10 of 2004)
NEM:WA	National Environmental Management: Waste Act (No. 59 of 2008)
NFA	National Forests Act (No. 84 of 1998)
NFEPA	National Freshwater Ecosystem Priority Area

NHRA	National Heritage Resources Act (No. 25 of 1999)
NT	Near Threatened
NWA	National Water Act (No. 36 of 1998)
ONA	Other Natural Area
PA	Protected Area
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
SAIAB	South African Institute for Aquatic Biodiversity
SANBI	South African National Biodiversity Institute
SDF	Spatial Development Framework
TOPS	Threatened or Protected Species
VU	Vulnerable

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CHAPTER 1: INTRODUCTION

The Applicant, ArcelorMittal South Africa (Pty) Ltd (AMSA) proposes the construction and operation of the AMSA Vanderbijlpark Solar Photovoltaic (PV) Energy Facility and associated infrastructure on Portion 1 of the Farm Vanderbijlpark 550 IQ, located approximately ~5km to the north of the city Vanderbijlpark, in the Emfuleni Local municipality and the Sedibeng District Municipality within the Gauteng Province (**Figure 1.1**). The AMSA Solar PV Energy Facility will have a contracted capacity of up to 270MW_{AC}, consisting of AMSA Vanderbijlpark Solar 2 Energy Facility (with a capacity of 117MW_{AC}) and the AMSA Vanderbijlpark Solar 3 Energy Facility (hereinafter referred to as the "AMSA Vanderbijlpark Solar 3" which will have a capacity of 153 MW_{AC}).

Currently the Applicant is proposing 132kV power line from the PV Site for the distribution of the generated power, which will be connected to the existing substation.

A project site, with an extent of approximately 255 ha, was identified by ArcelorMittal South Africa (Pty) Ltd and is considered to be technically suitable for the development of the 153MW_{AC} AMSA Vanderbijlpark Solar 3 Energy Facility.

1.1 Requirement for an Environmental Impact Assessment Process

Section 24 of South Africa's National Environmental Management Act (No. 107 of 1998) (NEMA) pertains to Environmental Authorisations (EA), and requires that the potential consequences for, or impacts of, listed or specified activities on the environment be considered, investigated, assessed, and reported on to the Competent Authority (CA). The 2014 Environmental Impact Assessment (EIA) Regulations, as amended (GNR 326) published under NEMA prescribe the process to be followed when applying for EA while the Listing Notices (Listing Notice 1 (GNR 327), Listing Notice 2 (GNR 325), and Listing Notice 3 (GNR 324)) contain those activities which may not commence without EA from the CA.

As the Project involves activities included in Listing Notices 1, and Listing Notice 2, an EA is required subject to the completion of a full S&EIA, as prescribed in Regulations 21 to 24 of the 2014 EIA Regulations. The need for EA subject to the completion of a full S&EIA is triggered by the inclusion of, amongst others, Activity 1 of Listing Notice 2 (GNR 325)¹, namely:

"The development of facilities or infrastructure for the generation of electricity from a renewable resource where the electricity output is 20MW or more."

The purpose of the proposed project is to generate electricity initially intended for the exclusive use by the AMSA Operations with the possibility of supplying to third party offtakers.. The construction of the PV facility aims to reduce AMSA Operation's dependency on direct supply from Eskom's national grid for operation activities, therefore the Gauteng Department of Agriculture and Rural Development (GDARD) is the Competent Authority (CA) for the project.

¹ Refer to **Chapter 3** for a full list of applicable listed activities.

The overarching objective of AMSA Vanderbijlpark Solar 3 is to maximise electricity production through exposure to the available solar resource, while minimising infrastructure, operational and maintenance costs, as well as potential social and environmental impacts in accordance with the principles of sustainable development. In order to meet these objectives, local level environmental and planning issues will be assessed through the EIA process with the aid of site-specific specialist studies in order to delineate areas of sensitivity within the identified project site. This will serve to inform and optimise the design of the Solar Energy Facility.

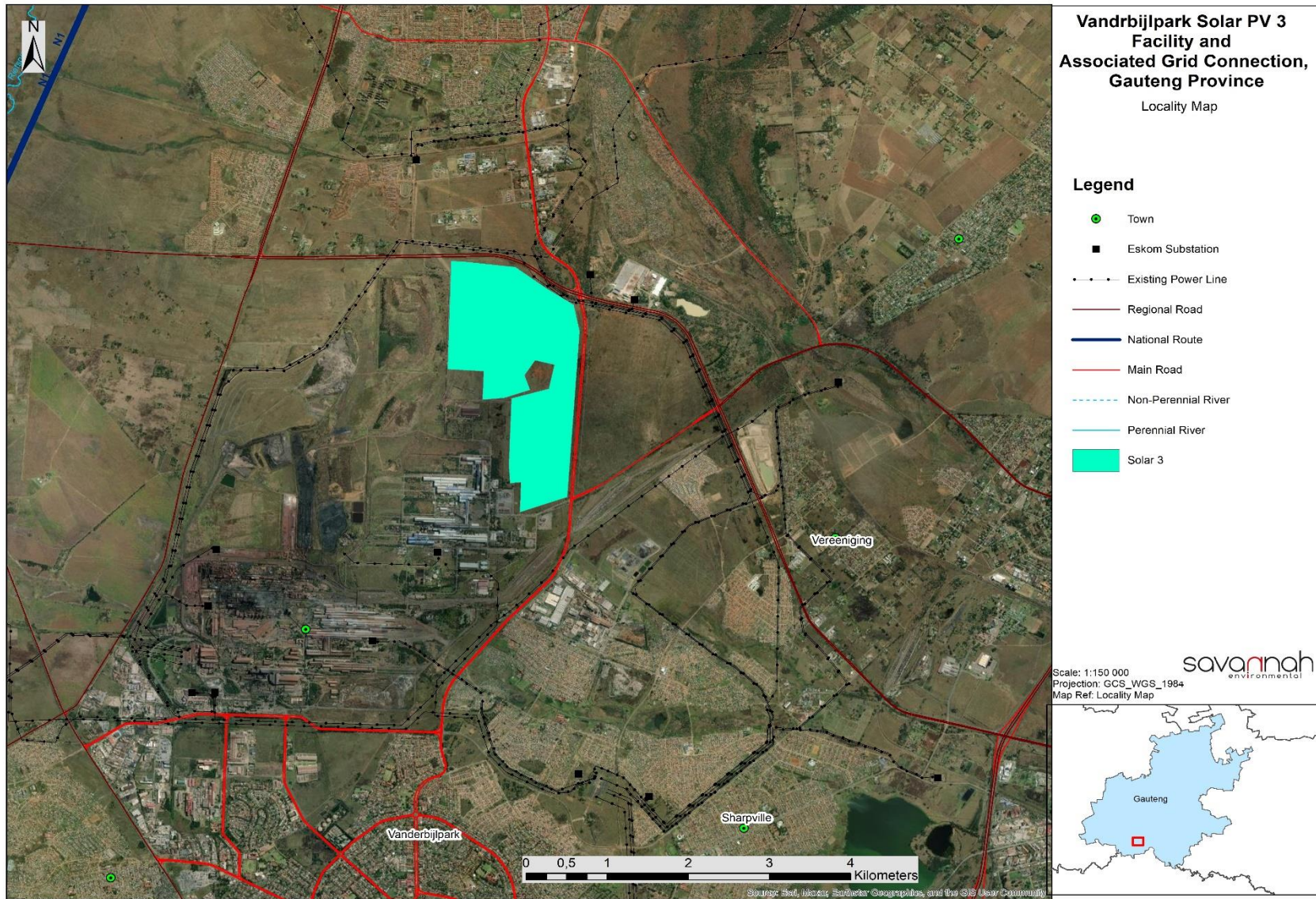


Figure 1.1: Locality map illustrating the site of the proposed AMSA Vanderbijlpark Solar 3 (refer to **Appendix I**).

1.2 Legal Requirements as per the EIA Regulations, 2014 (as amended) for the undertaking of a Scoping Report

This Scoping Report has been prepared in accordance with the requirements of the EIA Regulations published on 08 December 2014 (and amended on 11 June 2022) promulgated in terms of Chapter 5 of the National Environmental Management Act (Act No 107 of 1998).

This chapter of the Scoping Report includes the following information required in terms of Appendix 2: Content of Scoping Report:

Requirement	Relevant Section
2(1)(a)(i) the details of the EAP who prepared the report and (ii) the expertise of the EAP to carry out scoping procedures; including a curriculum vitae	The details of the EAP and the expertise of the EAP have been included in section 1.5 . The Curriculum Vitae of the Savannah Environmental team have been included as Appendix A .
2(1)(b) the location of the activity, including (i) the 21-digit Surveyor General code of each cadastral land parcel; (ii) where available, the physical address and farm name and (iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties	The location of The Vanderbijlpark Solar 3 Facility has been included as Figure 1.1 . The details of the affected property, including the property name and number, as well as the SG-code are included in Table 1.1 .
2(1)(c) a plan which locates the proposed activity or activities applied for at an appropriate scale, or, if it is (i) a linear activity, a description, and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or (ii) on land where the property has not been defined, the coordinates within which the activity is to be undertaken	A locality map illustrating the location of the Vanderbijlpark Solar 3 Facility has been included in Figure 1.1 . The centre point co-ordinates of the project site are included in Table 1.1 .

This Scoping Report consists of seven chapters, which include:

- » **Chapter 1** provides background of the project and the environmental impact assessment.
- » **Chapter 2** provides a description of the project and alternatives.
- » **Chapter 3** Outlines the approach to undertaking the Scoping/EIA phase.
- » **Chapter 4** describes the existing biophysical, regional, and social environment within and surrounding the study area.
- » **Chapter 5** provides an assessment of the potential issues associated with the proposed project.
- » **Chapter 6** presents the conclusions and recommendations based on the findings of the Scoping Report
- » and describes the Plan of Study (PoS) for the scoping phase.
- » **Chapter 7** provides the references used in the compilation of the Scoping Report.

1.3 Project Overview

A preferred project site, Portion1 of the Farm Vanderbijlpark 550 IQ, with an extent of approximately ~255ha has been identified by the Applicant for investigation through the S&EIA process. The site is a vacant stand with sufficient space to construct the 153MW_{AC} PV facility and associated infrastructure. The

extent of the site will provide the opportunity for the optimal placement of the infrastructure, while ensuring avoidance of major identified environmental sensitivities. To avoid areas of potential sensitivity and to ensure that potential detrimental environmental impacts are minimised as far as possible, the full extent of the project site has been considered in the Scoping Phase of the EIA process, and a development footprint within which the infrastructure of the PV facility and associated infrastructures will be located will be fully assessed during the EIA Phase.

The table below provides a detailed description of the location of the project site.

Table 1.1: Detailed description of the project

Province	Gauteng Province		
District Municipality	Sedibeng District Municipality		
Local Municipality	Emfuleni Local Municipality		
Ward Number (s)	Ward 8 and 25		
Nearest town(s)	~5km North of Vanderbijlpark		
Farm name(s) and number(s) of property/ies affected by the Solar PV Energy Facility	Portion 1 of the Farm Vanderbijlpark 550 IQ		
SG 21 Digit Code (s)	T0IQ0000000055000001		
Current zoning	Agriculture		
Site Coordinates (centre of affected property)	26°38'1.33"S; 27°50'46.95"E		
Site Coordinates (project site)		Latitude:	Longitude:
	Northern point	26°37'10.46"S	27°50'38.74"E
	Eastern point	26°38'3.79"S	27°51'7.75"E
	Southern point	26°38'52.55"S	27°50'45.80"E
	Western point	26°38'8.26"S	27°50'40.24"E
	Centre point	26°38'1.33"S	27°50'46.95"E

The project infrastructure will include:

- » Solar PV array, with branch strings, comprising PV panels and mounting structures.
- » Inverters and transformers.
- » Cabling between project components.
- » A battery energy storage system (BESS) with the footprint of 4.6ha.
- » AMSA Vanderbijlpark Solar PV will connect to on-site Transformers in the existing substation bay to facilitate the connection between the Solar PV Energy Facility with a footprint of 243 ha for AMSA Vanderbijlpark.
- » Storage area of 4.6ha.
- » 132kV power line from the PV Site for the distribution of the generated power, which will be connected to the existing substation.
- » Temporary laydown areas and a construction yard.
- » Access road (gravel), internal gravel roads, firebreaks (4m width) and fencing around the PV Site.

- » An O & M building, which will include a site security office, control areas, standard single storey height or warehouse not exceeding 8.6m.

1.4 Overview of the Environmental Impact Assessment (EIA) Process

An EIA is an effective planning and decision-making tool for the project developer as it allows for the identification and management of potential environmental impacts. It provides the opportunity for the developer to be forewarned of potential environmental issues and allows for the resolution of the issues reported on in the Scoping and EIA Reports as well as dialogue with Interested and Affected Parties (I&APs).

The EIA process comprises two (2) phases (i.e., Scoping and Impact Assessment) and involves the identification and assessment of potential environmental impacts through the undertaking of independent specialist studies, as well as public participation. The processes followed in these two phases is as follows:

- » The **Scoping Phase** includes the identification of potential issues associated with the project through a desktop study (considering existing information), limited field work and consultation with interested and affected parties and key stakeholders. This phase considers the broader project site in order to identify and delineate any environmental fatal flaws, no-go and / or sensitive areas. Following a public review period of the Scoping Report, this phase culminates in the submission of a final Scoping Report and Plan of Study for the EIA to the CA for consideration and acceptance.
- » The **EIA Phase** involves a detailed assessment of the potentially significant positive and negative impacts (direct, indirect, and cumulative) identified in the Scoping Phase. This phase considers a proposed development footprint within the project site and includes detailed specialist investigations as well as public consultation. Following a public review period of the EIA Report, this phase culminates in the submission of a final EIA Report and an Environmental Management Programme (EMPr), including recommendations of practical and achievable mitigation and management measures, to the CA for final review and decision-making.

1.5 Details of Environmental Assessment Practitioner and Expertise to conduct the S&EIA Process

In accordance with Regulation 12 of the 2014 EIA Regulations (GNR 326), the applicant, ArcelorMittal South Africa (Pty) Ltd has appointed Savannah Environmental (Pty) Ltd as the independent environmental consultant responsible for managing the Application for EA and supporting Scoping and Environmental Impact Assessment (S&EIA) process; inclusive of comprehensive, independent specialist studies. The application for EA and S&EIA process will be managed in accordance with the requirements of NEMA, the 2014 EIA Regulations (GNR 326), and all other relevant applicable legislation.

Neither Savannah Environmental nor any of its specialists are subsidiaries or are affiliated to the applicant. Furthermore, Savannah Environmental does not have any interests in secondary developments that may arise out of the authorisation of the proposed facility.

Savannah Environmental is a specialist environmental consulting company providing a holistic environmental management service, including environmental assessment, and planning to ensure compliance and evaluate the risk of development, and the development and implementation of

environmental management tools. Savannah Environmental benefits from the pooled resources, diverse skills and experience in the environmental field held by its team. The Savannah Environmental team for this project includes:

- » **Debbie-Lee Janse van Rensburg**, junior author of this report, holds a Bachelor of Arts in Psychology, Geography and Environmental Management and a BSc. Honors degree in Environmental Science from the North-West University. Her key focus is on undertaking environmental authorisation applications, environmental permitting, public participation, environmental impact assessments, and GIS mapping.
- » **Nkhensani Masondo**, is registered with the Environmental Assessment Practitioners Association of South Africa (EAPASA (2020/1385) and holds a BSocSci in Environmental Analysis and Management and is currently completing her MSc in Environmental Management. She has seven (7) years of working experience in the environmental field and has gained extensive experience in conducting Environmental Impact Assessments, Stakeholder Engagements, Environmental Auditing and Environmental Management Plans Programmes for a wide range of projects. She is responsible for overall compilation of the report, this includes reviewing specialists reports and incorporating specialist studies into the Basic Assessment report and its associated Environmental Management.
- » **Jo-Anne Thomas**, the EAP for this project, is a registered EAP with the Environmental Assessment Practitioners Association of South Africa (EAPASA - 2019/726) and a registered professional scientist with the South African Council for Natural Scientific Professions (SACNASP). She provides technical input for projects in the environmental management field, specialising in Strategic Environmental Advice, Environmental Impact Assessment studies, environmental auditing and monitoring, environmental permitting, public participation, Environmental Management Plans and Programmes, environmental policy, strategy and guideline formulation, and integrated environmental management. Her key focus is on integration of the specialist environmental studies and findings into larger engineering-based projects, strategic assessment, and providing practical and achievable environmental management solutions and mitigation measures. Responsibilities for environmental studies include project management (including client and authority liaison and management of specialist teams); review and manipulation of data; identification and assessment of potential negative environmental impacts and benefits; review of specialist studies; and the identification of mitigation measures.
- » **Molatela Ledwaba** works as a public participation and social consultant at Savannah Environmental. She has a BA in Environmental Management and is currently working on her BA(Hons) in Environmental Management. Molatela has thirteen (13) years of experience in office administration, project coordination, and public participation in a variety of industries including geohydrological and environmental services projects, but not limited to infrastructure development and mining. She has worked for both small and large organizations, gaining experience in research, data collection, planning and execution of social surveys, data management and community facilitation. Molatela has experience working on projects in South Africa and Kenya.

Specialist	Area of Expertise
Andrew Husted of The Biodiversity Company	Ecology (including fauna, flora, avifauna, and wetlands)
Andrew Husted of The Biodiversity Company	Soils and Agricultural Potential

Wouter Fourie of PGS Heritage	Heritage (including archaeology, palaeontology, and cultural landscape)
Lourens du Plessis of LOGIS	Visual
Morne de Jager of Enviro Acoustic Research cc	Noise screening
Molatela Ledwaba from Savannah Environmental	Social Impact Assessment

Appendix A includes the curricula vitae for the environmental consultants from Savannah Environmental and the specialist consultants.

CHAPTER 2: PROJECT DESCRIPTION AND ALTERNATIVES

This Chapter provides an overview of the Project and details the project scope which includes the planning/design, construction, operation, and decommissioning activities required for the development. It must be noted that the project description presented in this Chapter may change to some extent based on the outcomes and recommendations of detailed engineering and other technical studies, the findings and recommendations of the S&EIA and supporting specialist studies, and any licencing, permitting, and legislative requirements.

2.1 Legal Requirements as per the EIA Regulations, 2014 (as amended), for the undertaking of a Scoping Report

This chapter of the Scoping Report includes the following information required in terms of Appendix 2: Content of the Scoping Report as prescribed by the EIA Regulations:

Requirement	Relevant Section
2(1)(b) the location of the activity including, (i) the 21-digit Surveyor General code of each cadastral land parcel, (ii) where available the physical address and farm name and (iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties.	The location of the proposed project is detailed in Chapter 1, Table 1.1 , as well as in section 2.2.1 .
2(1)(d)(ii) a description of the scope of the proposed activity, including a description of the activities to be undertaken including associated structures and infrastructure	A description of the activities to be undertaken with the development of the project is included in Table 2.1 and Table 2.2 . A description of the associated infrastructure is included in Section 2.4 . Activities to be undertaken during the various project development phases is included in Section 2.4 .
2(1)(f) a motivation for the preferred site, activity, and technology alternative	The identification and motivation for the preferred project site, the development area within the project site, the proposed activity and the proposed technology is included in sections 2.3, 2.4 and 2.5 .
2(1)(g)(i) details of the alternative considered	The details of all alternatives considered as part of the Project are included in section 2.5 .
2(1)(g)(ix) the outcome of the site selection matrix	The site selection process followed by the project developer in order to identify the preferred project site and development area is described in section 2.5 .
2(1)(g)(x) if no alternatives, including alternative locations for the activity were investigation, the motivation for not considering such	Where no alternatives have been considered, motivation has been included. This is included in section 2.5 .

2.2 Nature and Extent of the AMSA Vanderbijlpark Solar 3

ArcelorMittal South Africa (Pty) Ltd proposes the construction and operation of the AMSA Vanderbijlpark Solar Photovoltaic (PV) Energy Facility and associated infrastructure on Portion 1 of the Farm Vanderbijlpark 550 IQ, located approximately ~5km to the north of the city Vanderbijlpark, in the Emfuleni Local municipality and the Sedibeng District Municipality within the Gauteng Province. The AMSA Solar PV Energy Facility will have a contracted capacity of up to 153MW_{AC}. The grid connection infrastructure for this proposed facility is likely to be at 132kV and the use would be made of Eskom's grid to facilitate connection of the facilities to the grid. Details of the exact grid connection solution are to be finalised. The purpose of the project is to supply electricity to AMSA's operations. The project site is approximately 255ha and existing roads will be utilised as far as possible, with the limited construction of additional permanent access roads where required.

2.3 Solar PV Technology

Solar energy facilities use energy from the sun to generate electricity through a process known as the **Photovoltaic Effect**. This effect refers to photons of light colliding with electrons, therefore placing the electrons into a higher state of energy to create electricity refer to **Figure 2.1**).

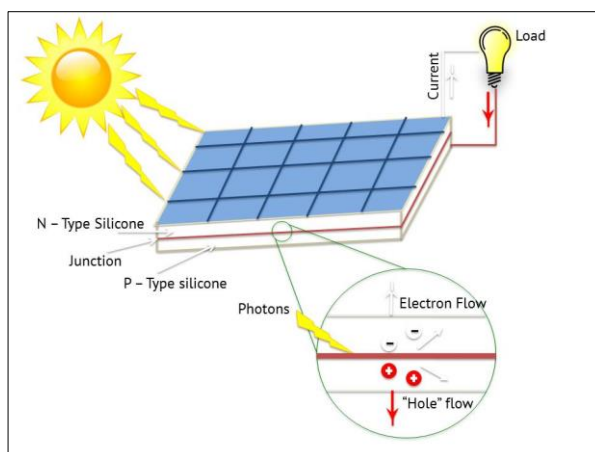


Figure 2.1: Diagram illustrating the Photovoltaic Effect (Source: Centre for Sustainable Energy).

The solar field of the PV facility will comprise the following components:

PV Cells, Modules and Arrays:

A PV cell is made of silicone that acts as a semiconductor used to produce the photovoltaic effect. PV cells are arranged in multiples / arrays and placed behind a protective glass sheet to form a PV module (Solar Panel). Each PV cell is positively charged on one side and negatively charged on the opposite side, with electrical conductors attached to either side to form a circuit. This circuit captures the released electrons in the form of an electric current (i.e., Direct Current (DC)). A solar PV module is made up of individual solar PV cells connected together, whereas a solar PV array is a system made up of a group of individual solar PV modules electrically wired together to form a much larger PV installation. PV modules

are designed to operate continuously for more than 25 years, mostly unattended and with low maintenance.

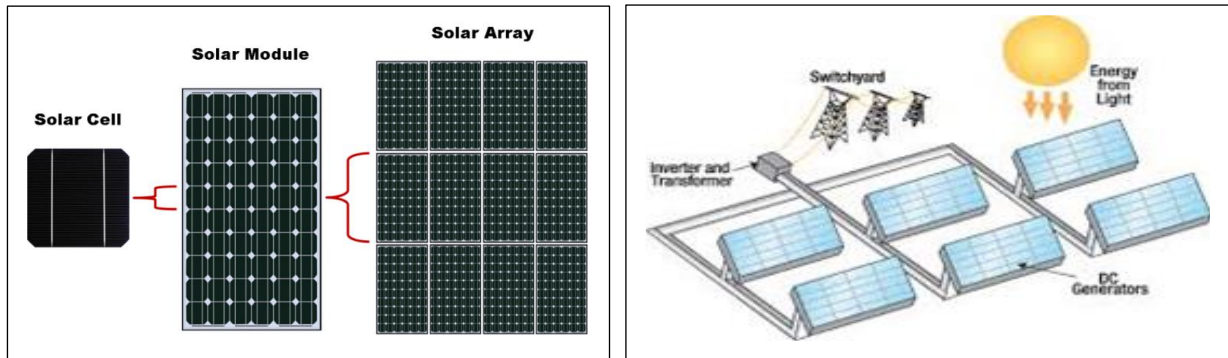


Figure 2.2: Overview of a PV cell, module, and array (Source: pveducation.com).

Inverters

Inverters are used to convert the electricity produced by the PV cells from DC into Alternating Current (AC) to enable the distribution of the electricity generated to the private off-taker's electricity point of interconnection. Numerous inverters will be arranged in several arrays to collect and convert power produced by the Solar PV Energy Facility.

Support Structures

The PV panels will be fixed to support structures to maximise exposure to the sun. They can either utilise fixed / static support structures or alternatively single or double axis tracking support structures. PV panels that utilise fixed / static support structures are set at an angle (fixed-tilt PV system), to optimise the amount of solar irradiation. With fixed / static support structures, the angle of the PV panel is dependent on the latitude of the proposed Project and may be adjusted to optimise for summer and winter solar radiation characteristics. PV panels that utilise tracking support structures track the movement of the sun throughout the day, to receive the maximum amount of solar irradiation.

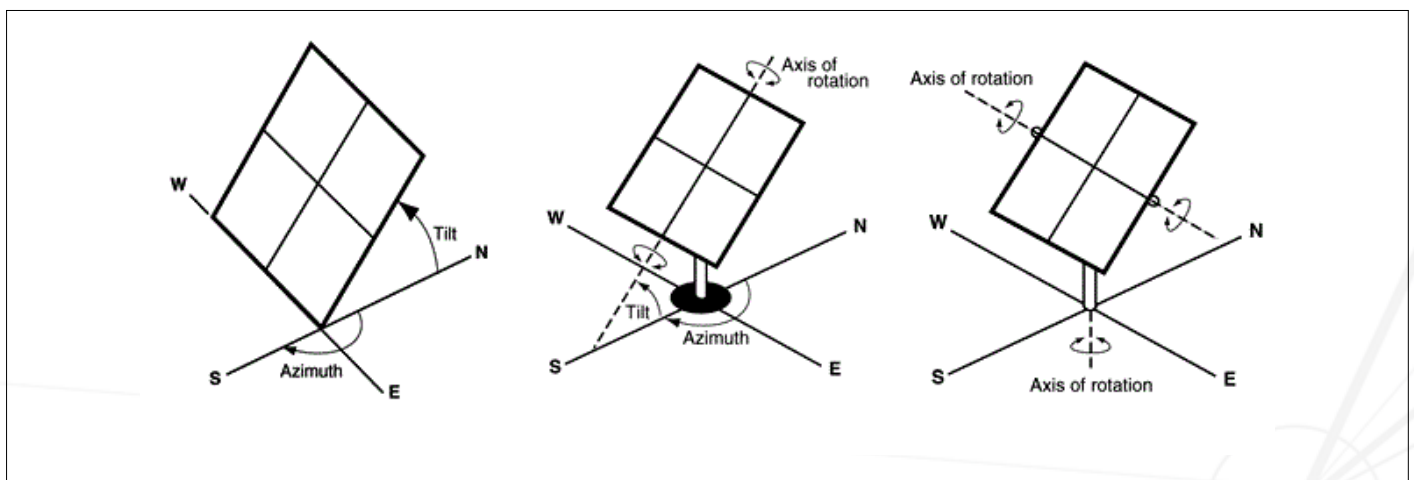


Figure 2.3: Overview of different PV tracking systems (from left to right: fixed-tilt, single-axis tracking, and double-axis tracking (Source: pveducation.com)).

Bifacial Solar Panel Technology

AMSA Vanderbijlpark Solar 3 Energy Facility is considering the use of bifacial tracking technology. Bifacial ("two-faced") modules produce solar power from both sides of the panel. Traditional solar panels capture sunlight on one light-absorbing side. The light energy that cannot be captured is simply reflected away. Bifacial solar panels have solar cells on both sides, which enables the panels to absorb light from the back and the front (refer to **Figure 2.4**). Practically speaking, this means that a bifacial solar panel can absorb light reflected off the ground or another material. In general, more power can be generated from bifacial modules for the same area, without having to increase the development footprint.

The optimum tilt for a bifacial module has to be designed so as to capture a big fraction of the reflected irradiation. Use of trackers is recommended so the modules can track the sun's movement across the sky, enabling them to stay directed to receive the maximum possible sunlight to generate power.

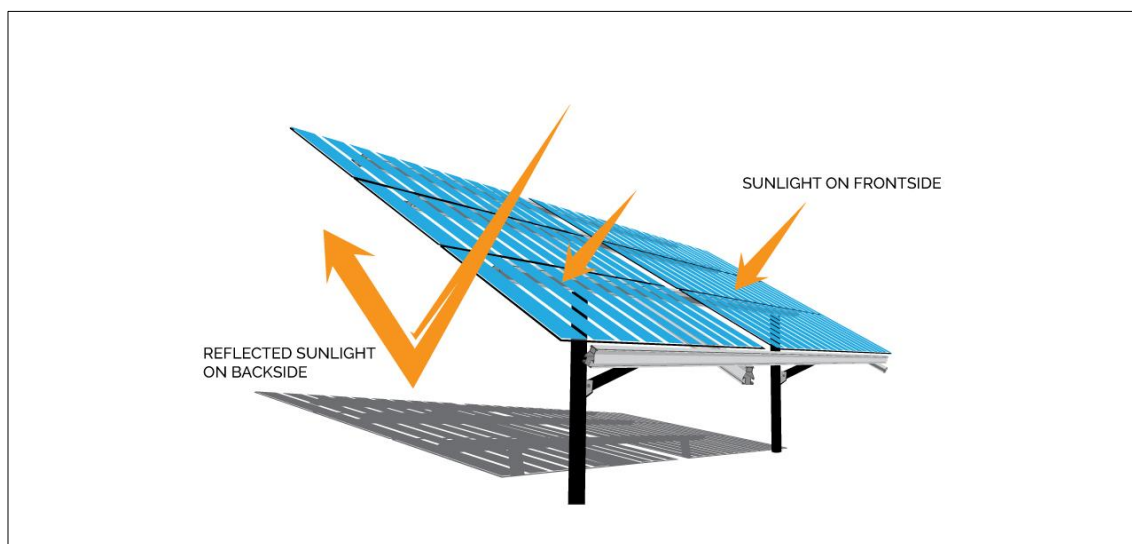


Figure 2.4: Diagram showing how bifacial Solar PV panels work (Source: <https://sinovoltaics.com/learning-center/solar-cells/bifacial-solar-modules/>).

Battery Energy Storage System

The need for a BESS system is due to the fact that electricity is only produced by the Solar PV Energy Facility while the solar resource is available, while the peak demand may not necessarily occur during the daytime or as the resource is available. Therefore, the storage of electricity and supply thereof during peak-demand will mean that the facility is more efficient, reliable and electricity supply more constant.

The BESS will:

- » Store and integrate a greater amount of renewable energy from the Solar PV Energy Facility into AMSA's distribution system.
- » This will assist with the objective to generate electricity by means of renewable energy to feed into AMSA's distribution system.
- » Proposed footprint of battery storage area: up to ~4.6ha.

The BESS is included as part of the ESIA process albeit that the facility will only be installed after the Solar PV Energy Facility has come into operation. The BESS has been included in this ESIA to ensure that should the energy master plan require this component to be included sooner than expected that it has already been authorized.

The type of battery storage will only be determined at a later stage and will be based solely on the technological advancements made in the battery technology field. The storage solution will remain a containerised solution.





Figure 2.5 Photographs of the construction phase of a solar facility similar to the AMSA Vanderbijlpark Solar 3

(Source: <https://medium.com/@solar.dao/how-to-build-pv-solar-plant-6c9f6a01020f>; <https://www.shutterstock.com/video/clip-1028794-workers-mounting-panels-on-solar-power-plant-construction>; <https://www.esi-africa.com/renewable-energy/kenya-construction-solar-farm-gets-green-light/>).

2.4 Overview of the Project Site and planned Infrastructure

The placement of a Solar PV Energy Facility is dependent on several factors, namely, land suitability, climatic conditions (solar irradiation levels), topography, the location and extent of the project site, and availability of the land for development of the project. A preferred project site has been identified by the applicant on the basis of these criteria. The property, Portion 1 of the Farm Vanderbijlpark 550 IQ, has an extent of approximately ~ 24442800 ha. The site is a vacant stand with sufficient space to construct the Solar PV plant, onsite substation, power lines, internal roads (gravel), O&M building, and all associated infrastructure. The site will provide the opportunity for the optimal placement of the infrastructure, while ensuring avoidance of major identified environmental sensitivities. To avoid areas of potential sensitivity and to ensure that potential detrimental environmental impacts are minimised as far as possible, the full extent of the project site will be considered in the Scoping Phase, and a development footprint within which the infrastructure of the PV facility and associated infrastructures will be located will be fully assessed during the EIA Phase.

2.4.1 Components of the AMSA Vanderbijlpark Solar 3

The project infrastructure will include:

- » Solar PV array, with branch strings, comprising PV panels and mounting structures.

- » Inverters and transformers.
- » Cabling between project components.
- » A battery energy storage system (BESS) with the footprint of 4.6ha.
- » AMSA Vanderbijl Solar PV will connect to on-site Transformers in the existing substation bay to facilitate the connection between the Solar PV Energy Facility with a footprint of 243 ha for AMSA Vanderbijl.
- » Storage area of 4.6ha.
- » 132kV power line from the PV Site for the distribution of the generated power, which will be connected to the existing substation.
- » Temporary laydown areas and a construction yard.
- » Access road (gravel), internal gravel roads, firebreaks (4m width) and fencing around the PV Site.
- » An O & M building, which will include a site security office, control areas, standard single storey height or warehouse not exceeding 8.6m.

A summary of the details and dimensions of the planned infrastructure associated with the Project is provided in **Table 2.2**. Specific details to be confirmed in the EIA phase.

Table 2.2: Details or infrastructures proposed as part of the Project.

Infrastructure	Footprint and dimensions
Number of Modules	Up to 279 240 modules
Contracted Capacity	Up to 153MWac
Area occupied by the solar array	Up to 241 ha
Panel Height	Up to 1.62 above ground level
Technology	The Project will make use of single-axis tracking PV technology and bifacial panels (to harness the solar resource on the project site)
Inverters	Details to be provided in EIA Phase
BESS	<ul style="list-style-type: none"> » Proposed technology: to be confirmed during EIA phase. » Footprint: up to 4.6ha » Height: Up to 2.5m » Proposed capacity of battery storage: 40MW
Other infrastructures	<ul style="list-style-type: none"> » O&M Buildings, » Control Areas, » Security – » standard single storey height or warehouse not exceeding 8,6m
Area occupied by temporary laydown area	To be provided in EIA Phase
Area occupied by the onsite facility substation	Up to 2.5 ha (to be finalized during detailed design)
Capacity of onsite facility substation	» To be determined in consultation with Eskom (final connection point to be defined)
Access and internal roads associated with the facility	Existing roads will be utilised as far as possible, with the limited construction of additional permanent access roads where required.
Grid connection	To be determined in consultation with Eskom
Temporary infrastructure	The location of temporary offices (site containers, chemical toilets) and temporary laydown area will be provided during the EIA phase

Table 2.2 provides details regarding the requirements and the activities to be undertaken during the Project development phases (i.e., construction phase, operation phase and decommissioning phase).

2.4.2 Project Development Phases Associated with the development of AMSA Vanderbijlpark Solar 3

Table 2.3: Details of the Project development phases (i.e., construction, operation, and decommissioning).

Construction Phase	
Requirements	<ul style="list-style-type: none"> » Project receives Environmental Authorisation from GDARD; and is registered with the National Energy Regulator of South Africa (NERSA) in terms of Schedule 2 of the Electricity Regulation Act (No. of 2006) (ERA). » Construction period expected to be up to 18 months. » The construction phase involves installation of the solar PV panels and the structural and electrical infrastructure to make the plant operational. In addition, preparation of the soil and improvement of the access roads would continue for most of the construction phase. » Create direct and indirect local employment opportunities whereby majority of the workforce will be sourced locally. Local unskilled and where possible, semi-skilled labour will be used. The number of employment opportunities to be created during the construction phase will be derived as the Project modelling progresses during the EIA Phase. » No on-site labour camps are planned to be established during the construction phase. Workers will be sourced from the neighbouring towns. » Overnight on-site worker presence would be limited to security staff. » Chemical toilets will be used for sewage management during the construction phase. » Electricity supply required for construction activities will be confirmed. » Water required for the construction phase will be sourced from AMSA's existing Municipality supply and will be transferred through temporary pipes during construction, and trenched (new), existing pipes or new pipes to join existing pipelines for operation.
Activities to be undertaken	
Conduct surveys prior to construction	<ul style="list-style-type: none"> » Including, but not limited to a geotechnical survey, site survey and confirmation of the panel micro-siting footprint, and survey of the on-site collector substation site to determine and confirm the locations of all associated infrastructure.
Undertake site preparation	<ul style="list-style-type: none"> » Including the clearance of vegetation at the footprint of PV panel supports, onsite substation, power line tower positions, establishment of the laydown area, the establishment of internal access roads and excavations for foundations. » Stripping of topsoil to be stockpiled, for use during rehabilitation. » Vegetation clearance to be undertaken in a systematic manner to reduce the risk of exposed ground being subjected to erosion. » Include search and rescue of floral species of concern (where required) and the identification and excavation of any sites of cultural/heritage value (where required).
Establishment of access roads to the site and internal roads	<ul style="list-style-type: none"> » An existing access road, which may be upgraded with hard surface, will be used to access the facility. » During construction, a permanent access road along the length of the power line corridor between 4 - 8m wide will be established to allow for large crane movement.

Establishment of laydown area	<ul style="list-style-type: none"> » Space to be used as Operations Building, substation will be used as a construction activities laydown area. » The laydown area will be used for the storage of PV panels, project components and civil engineering construction equipment. » The laydown will also accommodate building materials and equipment associated with the construction of buildings. » Concrete batching method to be confirmed whether cement will be mixed on site; or will ready-mix cement be supplied to site.
Construct foundation	<ul style="list-style-type: none"> » Excavations to be undertaken mechanically. » For PV array installation vertical support posts will be driven into the ground. » Depending on geological conditions, the use of alternative foundations may be considered (e.g., screw pile, helical pile, micropile or drilled post/piles). » Ramming of the piles or predrilling with concrete filling with be considered if the ground is found to be hard.
Transport of components and equipment to and within the site	<ul style="list-style-type: none"> » The components for the solar PV facility and onsite substation will be transported to site by road. Transportation will take place via appropriate National and Provincial roads, and the dedicated access/haul road to the site. » Some of the components (i.e., substation transformer) may be defined as abnormal loads in terms of the Road Traffic Act (Act No. 29 of 1989) by virtue of the dimensional limitations. » Typical civil engineering construction equipment will need to be brought to the site (e.g., excavators, trucks, graders, compaction equipment, cement trucks, etc.) as well as components required for the mounting of the PV support structures, construction of the substation and site preparation.
Erect PV Panels and Construct Substation, Invertors and BESS	<ul style="list-style-type: none"> » The construction phase involves installation of the solar PV panels and the structural, mechanical and electrical infrastructure to make the plant operational. In addition, preparation of the soil and improvement of the access roads would continue for most of the construction phase. » For array installation, typically vertical support posts are driven into the ground. Depending on the results of the geotechnical study a different foundation method, such as screw pile, helical pile, micro-pile or drilled post/pile could be used. The posts will hold the support structures (tables) on which PV arrays would be mounted. Brackets attach the PV modules to the tables. » Trenches are dug for the underground Alternate Current (AC) and Direct Current (DC) cabling, and the foundations of the inverter enclosures and transformers are prepared. While cables are being laid and combiner boxes are being installed, the PV tables are erected. » Wire harnesses connect the PV modules to the electrical collection systems. » Underground cables and overhead circuits connect the Power Conversion Stations (PCS) to the onsite AC electrical infrastructure and ultimately the Project's onsite substation. This process also involves the installation of the BESS facility. <p>The following simplified sequence is conducted for the construction of the substation:</p> <ul style="list-style-type: none"> » Step 1: Conduct geotechnical investigations to determine founding conditions. » Step 2: Conduct site survey. » Step 3: Vegetation clearance and construction of access road. » Step 4: Site grading and levelling. » Step 5: Construction of foundations.

	<ul style="list-style-type: none"> » Step 6: Import of collector substation components. » Step 7: Construction of collector substation. » Step 8: Rehabilitation of disturbed area and protection of erosion sensitive areas; and » Step 9: Testing (including quality control) and commissioning (in consultation with the switching specialist).
Connection of PV panels to the onsite substation	<ul style="list-style-type: none"> » PV arrays to be connected to the onsite substation via underground electrical cables. » Excavation of trenches is required for the installation of the cables. Trenches will be approximately 1.5 m deep. » Underground cables are planned to follow the internal access roads, as far as possible. » Onsite substation to be connected to the collector substation via underground cables.
Establishment of ancillary infrastructure	<ul style="list-style-type: none"> » An O&M building, which will include a site security office, warehouse, storage area and workshop will be required. (180m²) » On site substation (250m²) » Establishment of ancillary infrastructure will require the clearing of vegetation, levelling, and the excavation of foundations prior to construction.
Undertake site rehabilitation	<ul style="list-style-type: none"> » Commence with rehabilitation efforts once construction is completed in an area, and all construction equipment is removed. » On commissioning, access points to the site not required during the operation phase will be closed and prepared for rehabilitation.

Operation Phase

Requirements	<ul style="list-style-type: none"> » Duration will be a minimum of 25 years. » Requirements for security and maintenance of the project. » Employment opportunities relating to plant construction and operation. The number of employment opportunities to be created during the operation phase will be derived as the Project modelling progresses during the EIA Phase. » Overnight on-site worker presence would be limited to security staff. » During the operational phase, water will mostly be required for the cleaning of panels where it will be sourced from the Municipality and will be transferred through new pipes. » Sewage due to the presence of maintenance personnel on-site will be produced during the operation phase. Septic Tanks will be used during the construction and operational phases whereby these septic tanks will be serviced by an appropriately licensed third-party contractor and transported to municipal sewage treatment works.
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Activities to be undertaken

Operation and Maintenance	<ul style="list-style-type: none"> » Full time security, maintenance, and control room staff. » All PV panels will be operational except under circumstances of mechanical breakdown, inclement weather conditions, or maintenance activities. » Solar PV to be subject to periodic maintenance and inspection. » It is anticipated that the PV panels will be washed more than twice a year during operation using clean water with no cleaning products or using non-hazardous biodegradable cleaning products. The exact number of cleaning cycles will be confirmed once more knowledge on the soiling on site is acquired.
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» Areas which were disturbed during the construction phase to be utilised, should a laydown area be required during operation.

Decommissioning Phase

Requirements

- » Decommissioning of the Project at the end of its economic life.
- » Potential for repowering of the facility, depending on the condition of the facility at the time.
- » Expected lifespan of a minimum of 25 years (with maintenance) or as required by the off taker before decommissioning is required.
- » A decommissioning Environmental Management Programme (EMPr) will be drafted and complied with at that decommissioning stage of the project lifecycle.
- » Decommissioning activities to comply with the legislation relevant at the time.

Activities to be undertaken

Site preparation

- » Confirming the integrity of access to the site to accommodate the required decommissioning equipment.
- » Preparation of the site (e.g., laydown areas and construction platform).
- » Mobilisation of construction equipment.

Disassemble and remove PV panels

- » Components to be reused, recycled, or disposed of in accordance with regulatory requirements.
- » Much of the above ground wire, steel, and PV panels of which the system is comprised are recyclable materials and would be recycled to the extent feasible.
- » Concrete will be removed to a depth as defined by an agricultural specialist and the area rehabilitated. Cables will be excavated and removed, as may be required

It is expected that the area affected by the facility (development footprint) will revert to its original land-use once the Project has reached the end of its economic life and all infrastructure has been decommissioned.

2.5 Consideration of Alternatives

This section provides an overview of the site selection process and various alternatives considered for the Project as part of the S&EIA Process.

2.5.1 Alternatives Considered during the S&EIA Process

In accordance with the requirements of Appendix 2 of the 2014 EIA Regulations (GNR 326), reasonable and feasible alternatives including but not limited to site and technology alternatives, as well as the “do-nothing” alternative should be considered. The Department of Forestry, Fisheries and the Environment (DFFE) Guideline for determining alternatives states that the key criteria for consideration when identifying alternatives are that they should be “practicable”, “feasible”, “relevant”, “reasonable” and “viable”. Essentially there are two types of alternatives:

- » Fundamentally (totally) different alternatives to the Project.
- » Incrementally different (modifications) alternatives to the Project.

In this instance, the Project refers to the AMSA Vanderbijlpark Solar 3. The renewable energy facility will have a production capacity of up to 153MW which through associated infrastructure will be stored and evacuated to a private off taker. The development of the AMSA Vanderbijlpark Solar 3 project is to generate electricity initially intended for the exclusive use by the AMSA Operations with the possibility of supplying to third party offtakers.. The construction of the PV facility aims to reduce AMSA Operation's dependency on direct supply from Eskom's national grid for operation activities In addition to generating clean renewable energy, the proposed AMSA Vanderbijlpark Solar 3 will create employment opportunities through the construction and operation of the facility.

2.5.2 Consideration of Fundamentally Different Alternatives

Fundamentally different alternatives are usually assessed at a strategic level and, as a result, project specific EIAs are therefore limited in scope and ability to address fundamentally different alternatives. At a strategic level, electricity generating alternatives have been addressed as part of the Integrated Resource Plan for Electricity 2010 – 2030 (IRP)², and will continue to be addressed as part of future revisions.

In this regard, the need for renewable energy power generation from solar PV facilities has been identified as part of the technology mix for power generation in the country for the next 20 years. Of relevance to the proposed project is the IRP 2019 which outlines South Africa's steppingstones to reduce coal's contribution to the energy mix to below 60%, in favour of renewables like wind, and PV technologies, which would account for 25% of the country's energy mix by 2030. Of particular relevance to the proposed project is the allocation of 6000MW of new capacity to large scale PV in the period up to 2030 included in the IRP 2019. The site is considered most suitable for the development of a PV Solar Energy Facility as a result of local irradiation, land availability and topography (as detailed in the sections below). Therefore, fundamentally different alternatives to the proposed project are not considered within this EIA process.

² The Integrated Resource Plan (IRP) is legislated policy which regulates power generation planning.

2.5.3 Consideration of Incrementally Different Alternatives

Incrementally different alternatives relate specifically to the project under investigation. "Alternatives", in relation to a proposed activity, means different ways of meeting the general purposes and requirements of the activity, which may include alternatives for:

- » The property on which, or location where the activity is proposed to be undertaken.
- » The type of activity to be undertaken.
- » The design or layout of the activity.
- » The technology to be used in the activity.
- » The operational aspects of the activity.

In addition, the option of not implementing the activity (i.e., the "do-nothing" alternative) must also be considered.

The table below describe the incrementally different alternatives being considered as part of the Project. Where no alternative is being considered, a motivation has been provided as required by the EIA Regulations, 2014, as amended.

Nature of Alternatives Considered	Description of the Alternatives relating to the AMSA Vanderbijlpark Solar 3
Property/Location Alternatives	One preferred project site, owned by the Applicant, has been identified for the development of the AMSA Vanderbijlpark Solar 3 due to site specific characteristics such as the solar resource, topography, latitude of the site, the local climate, land availability, landowner support, land use and suitability, site access, and proximity to a viable grid connection and environmental features. No feasible alternatives have been identified for assessment through the EIA process.
Design and Layout Alternatives	<p>The overall aim of the facility layout is to maximise electricity production through exposure to the solar resource, while minimising infrastructure, operation, and maintenance costs, and social and environmental impacts. The findings of the specialist scoping assessments will assist the project developer in selecting the optimum position for the PV arrays and associated infrastructure including, but not limited to, access roads, and laydown areas.</p> <p>The property, Portion 1 of the Farm Vanderbijlpark 550 IQ, has an extent of 24442800 ha which is suitable for the proposed 153MW development. The site is a vacant stand with sufficient space to construct the Solar PV facility and associated infrastructure. The site will provide the opportunity for the optimal placement of the infrastructure, while ensuring avoidance of major identified environmental sensitivities. To avoid areas of potential sensitivity and to ensure that potential detrimental environmental impacts are minimised as far as possible, the full extent of the project site has been considered in the Scoping Phase, and a development footprint within which the infrastructure of the PV facility and associated infrastructures will be located will be fully assessed during the EIA Phase.</p>
Activity Alternatives	ArcelorMittal South Africa (Pty) Ltd is only considering renewable energy activities. Power generation from renewable energy is therefore the only activity considered for implementation on the identified site.
Technology Alternatives	Based on the feasibility studies undertaken by the Project Applicant only a renewable energy development, specifically a solar PV development, is being investigated by the

Nature of Alternatives Considered	Description of the Alternatives relating to the AMSA Vanderbijlpark Solar 3
	project developer, considering average daily solar radiation at the site (as discussed previously). Solar PV consists of a lower visual profile and limited water requirements when compared to the CSP technology option. On this basis, only solar PV technology is being considered for the project site.
'Do-nothing' Alternative	The 'Do-Nothing' alternative is the option of not constructing the project. Should this alternative be selected, there would be no environmental impacts or benefits as a result of construction and operation activities associated with the solar PV energy facility. This alternative will be assessed within the EIA Phase of the process in accordance with the requirements of the EIA Regulations, 2014.

CHAPTER 3: APPROACH TO UNDERTAKING THE EIA PROCESS

In terms of the EIA Regulations of December 2014 (as amended) published in terms of the NEMA (Act No. 107 of 1998) as amended, the construction and operation of the AMSA Vanderbijlpark Solar 3 is a listed activity requiring Environmental Authorisation (EA). The application for EA is required to be supported by an Environmental Impact Assessment (EIA) process based on the contracted capacity of the facility being up to 153MW and Activity 1 of Listing Notice 2 (GNR 325) being triggered.

An EIA process refers to the process undertaken in accordance with the requirements of the 2014 EIA Regulations (GNR 326), as amended, which involves the identification and assessment of direct, indirect, and cumulative environmental impacts associated with a proposed project or activity. The EIA process comprises two main phases: i.e., **Scoping** and **EIA Phase**. Public participation forms an important component of the process and is undertaken throughout both phases.

3.1 Legal Requirements as per the EIA Regulations, 2014 (as amended), for the undertaking of a Scoping Report

This chapter of the Scoping Report includes the following information required in terms of Appendix 2: Content of Scoping Report in terms of the EIA Regulations:

Requirement	Relevant Section
2(1)(d) a description of the scope of the proposed activity, including (i) all listed and specified activities triggered and being applied for and (ii) a description of the activities to be undertaken, including associated structures and infrastructure.	All listed activities triggered and applied for are included in Table 3.1 .
2(1)(e) a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process.	A description of the policy and legislative context is included in Section 3.1 .
2(1)(g)(ii) details of the public participation process undertaken in terms of Regulation 41 of the Regulations, including copies of the supporting documents and inputs.	The public participation process followed throughout the EIA process for the AMSA Vanderbijlpark Solar 3 is included in Section 3.5 and copies of the supporting documents and inputs are included in the Scoping Report as Appendix C .
2(1)(g)(iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them.	The main issues raised through the undertaking of the public participation process, including consultation with I&APs will be included in the Comments and Responses Report in Appendix C8 .
2(1)(g)(vi) the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;	The methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives are included in

Requirement	Relevant Section
	Section 3.6

3.2 Relevant legislative permitting requirements

The legislative permitting requirements applicable to the AMSA Vanderbijlpark Solar 3, as identified at this stage in the process and considered within this EIA process, are described in more detail under the respective sub-headings.

3.2.1 National Environmental Management Act (No. 107 of 1998) (NEMA)

The NEMA is South Africa's key piece of national environmental legislation that provides for the authorisation of certain controlled activities known as "listed activities". In terms of Section 24(1) of the NEMA, the potential impact on the environment associated with listed activities must be considered, investigated, assessed, and reported on to the Competent Authority (the decision-maker) charged by NEMA with granting of the relevant Environmental Authorisation (EA). Since it is not the intention of the applicant to bid the AMSA Vanderbijlpark Solar 3 into the DMRE's REIPPPP, the Gauteng Department of Agriculture and Rural Development (GDARD) has been determined as the Competent Authority (CA) for the project.

The need to comply with the requirements of the EIA Regulations published under NEMA ensures that developers are provided the opportunity to consider the potential environmental impacts of their activities early in the project development process, and also allows for an assessment to be made as to whether environmental impacts can be avoided, minimised or mitigated to acceptable levels. Comprehensive, independent environmental studies are required to be undertaken in accordance with the EIA Regulations to provide the Competent Authority with sufficient information in order for an informed decision to be taken regarding the application for EA.

The EIA process being conducted for the AMSA Vanderbijlpark Solar 3 is undertaken in accordance with Section 24(5) of the NEMA, which defines the procedure to be followed in applying for EA, and requires that the potential consequences for, or impacts of, listed or specified activities on the environment be considered, investigated, assessed, and reported on to the competent authority. Listed Activities are activities identified in terms of Section 24 of the NEMA which are likely to have a detrimental effect on the environment, and which may not commence without an EA from the competent authority subject to the completion of an environmental assessment process (either a Basic Assessment (BA) or full Scoping and EIA).

Table 3.1 details the listed activities in terms of the EIA Regulations, 2014 (as amended) that apply to the AMSA Vanderbijlpark Solar 3, and for which an application for Environmental Authorisation has been submitted to GDARD. The table also includes a description of the specific project activities that relate to the applicable listed activities.

Table 3.1: Listed activities as per the EIA Regulations that are triggered by the AMSA Vanderbijlpark Solar 3.

Notice Number	Activity Number	Description of listed activity
Listing Notice 1 (GNR 327) 08 December 2014 (as	11 (i)	The development of facilities or infrastructure for the transmission and distribution of electricity – (ii) inside urban areas or industrial complexes with a capacity of 275

Notice Number	Activity Number	Description of listed activity
amended on 11 June 2022)		kilovolts or more. Internal electrical infrastructure required to connect the AMSA Vanderbijlpark Solar 3 includes - Onsite facility substation 132kv or larger to be confirmed
Listing Notice 1 (GNR 327) 08 December 2014 (as amended on 11 June 2022)	24(ii)	The development of a road – (ii) with a reserve wider than 13.5m, or where no reserve exists where the road is wider than 8m. The construction of the AMSA Vanderbijlpark Solar 3 will require the upgrading of existing roads and construction of new access roads. These will exceed 8m in width.
Listing Notice 1 (GNR 327) 08 December 2014 (as amended on 11 June 2022)	28(ii)	Residential, mixed, retail, commercial, industrial, or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development: (ii) will occur outside an urban area, where the total land to be developed is bigger than 1ha. The total area to be developed (i.e., the development footprint) for AMSA Vanderbijlpark Solar 3 is greater than 1ha and occurs outside an urban area in an area currently zoned for agriculture.
Listing Notice 2 (GNR 325) 08 December 2014 (as amended on 11 June 2022)	1	The development of facilities or infrastructure for the generation of electricity from a renewable resource where the electricity output is 20MW or more. The project comprises a renewable energy generation facility, which will utilise solar power technology and will have a generation capacity of up to 153MW.
Listing Notice 2 (GNR 325) 08 December 2014 (as amended on 11 June 2022)	15	The clearance of an area of 20ha or more of indigenous vegetation. The facility is located on agricultural land where the predominant land use is agriculture. The project will require the clearance of indigenous vegetation within an area in excess of 20ha for the development of infrastructure.
Listing Notice 3 (GNR 324) 08 December 2014 (as amended on 11 June 2022)	4(c)(vii)	The development of a road wider than 4 metres with a reserve less than 13.5 metres. c. Gauteng vii. Sites identified as high potential agricultural land in terms of Gauteng Agricultural Potential Atlas. The development of the AMSA Vanderbijlpark Solar 3 and associated infrastructures will require the development of roads wider than 4m within and area where the Agricultural Theme sensitivity is High for the project area, with land capability ranging from Medium to High.

3.2.2 National Water Act (No. 36 of 1998) (NWA)

In accordance with the provisions of the National Water Act (No. 36 of 1998) (NWA), all water uses must be licensed with the Competent Authority (i.e., the Regional Department of Water and Sanitation (DWS) or the relevant Catchment Management Agency (CMA)). Water use is defined broadly, and includes taking and storing water, activities which reduce stream flow, waste discharges and disposals, controlled activities (activities which impact detrimentally on a water resource), altering a watercourse, removing water found underground for certain purposes, and recreation.

Table 3.2: contains Water Uses associated with the proposed project and identified in terms of the NWA which require licensing either in the form of a General Authorisation (GA), or in the form of a Water Use License (WUL). The table also includes a description of those project activities which relate to the applicable Water Uses.

Table 3.2: List of Water Uses published under Section 21 of NWA, as amended.

Notice No.	Activity No.	Description of Water Use
NWA (No. 36 of 1998)	Section 21 (c)	Impeding or diverting the flow of water in a watercourse <i>The site considered for the establishment of the AMSA Vanderbijlpark Solar 3 is associated with the presence of freshwater/drainage features. Activities pertaining to the establishment of the Solar Energy Facility might encroach on freshwater/drainage features which may lead to an impediment and diversion of the flow in the watercourses.</i>
NWA (No. 36 of 1998)	Section 21 (i)	Altering the bed, banks, course or characteristics of a watercourse. <i>The site considered for the establishment of the AMSA Vanderbijlpark Solar 3 Energy Facility is associated with the presence of freshwater/drainage features. Activities pertaining to the establishment of the Solar Energy Facility might encroach on freshwater/drainage features which may lead to the altering of the characteristics of the watercourses.</i>

In the event that the flow of water in the freshwater/drainage features is affected and the bed, banks or course characteristics are altered, then a water use authorisation would be required. This will need to be in accordance with the requirements of the Regulations Regarding the Procedural Requirements for Water Use License Applications and Appeals (GNR 267), or a GA registered in accordance with the requirements of the Revision of General Authorisation. The process of applying for a WUL or GA registration will only be completed once a positive EA has been received. This is in line with the requirements of the Department of Water and Sanitation (DWS).

3.2.3 National Heritage Resources Act (No. 25 of 1999) (NHRA)

The National Heritage Resources Act (No. 25 of 1999) (NHRA) provides an integrated system which allows for the management of national heritage resources, and to empower civil society to conserve heritage resources for future generations. Section 38 of NHRA provides a list of activities which potentially require the undertaking of a Heritage Impact Assessment.

Section 38: Heritage Resources Management

- 1). *Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as –*
- a. *the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;*
 - b. *the construction of a bridge or similar structure exceeding 50m in length;*
 - c. *any development or other activity which will change the character of a site –*
 - i). *exceeding 5 000m² in extent; or*
 - ii). *involving three or more existing erven or subdivisions thereof; or*
 - iii). *involving three or more erven or divisions thereof which have been consolidated within the past five years; or*
 - iv). *the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority.*

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 development, a permit is required to be obtained prior to disturbing or destroying such resources as per the requirements of Section 48 of the NHRA, and the South African Heritage Resources Agency (SAHRA) Permit Regulations (GNR 668).

3.4 Overview of the EIA Process being undertaken for the AMSA Vanderbijlpark Solar 3

The development of the AMSA Vanderbijlpark Solar 3 requires Environmental Authorisation (EA) from the GDARD subject to the completion of a full Scoping and Environmental Impact Assessment (S&EIA), as prescribed in Regulations 21 to 24 of the 2014 EIA Regulations (GNR 326), as amended. The need for a full S&EIA process to be conducted in support of the application for EA is based on listed activities triggered which are contained within Listing Notice 2 (GNR 325), as detailed in **Table 3.1**.

The S&EIA process is to be undertaken in two phases as follows (refer to **Figure 3.1**):

- » The **Scoping Phase** includes the identification and description of potential impacts associated with the project through a desktop study and consultation with I&APs and key stakeholders through a Public Participation Process. The entire project site is evaluated within this process. Through this study, areas of sensitivity within the project site are identified and delineated in order to identify any environmental fatal flaws, and environmentally sensitive, or no-go areas which need to be considered. In accordance with Regulation 21(1) of the 2014 EIA Regulations (GNR 326), as amended, this Scoping Report prepared for the project will be subjected to a 30-day review and comment period during which any Interested and Affected Parties (I&AP) and authorities are invited to review and provide

comment on the findings. Following completion of this review period, a Final Scoping Report, which incorporates all comments received during the 30-day public review and comment period, will be prepared and submitted to GDARD for consideration. Following receipt of the Final Scoping Report, GDARD has 43 days within which to either accept the Scoping Report, and advise the applicant to proceed or continue with the tasks contemplated in the Plan of Study for EIA; or refuse the application for EA in the event that the proposed activity is in conflict with a prohibition contained in the legislation; or the Scoping Report does not substantially comply with Appendix 2 of the 2014 EIA Regulations (GNR 326), as amended.

- » The **EIA Phase** involves a detailed assessment of potentially significant positive and negative direct, indirect, and cumulative impacts identified during the Scoping Phase. This phase includes detailed specialist investigations and a Public Participation Process, and results in the compilation of an EIA Report and Environmental Management Programme (EMPr). In accordance with Regulation 23(1)(a) of the 2014 EIA Regulations (GNR 326), as amended, the EIA Report and EMPr prepared for the project will also be subjected to a 30-day public review and comment period during which members of the public, I&APs, and authorities will be invited to review and provide comment on the EIA Report and EMPr. Following conclusion of this review period, a Final EIA Report and EMPr which incorporates all comments received during the 30-day review and comment period, will be prepared and submitted to GDARD for consideration. Following receipt of the Final EIA Report and EMPr, GDARD has 107 days within which to either grant or refuse the EA.

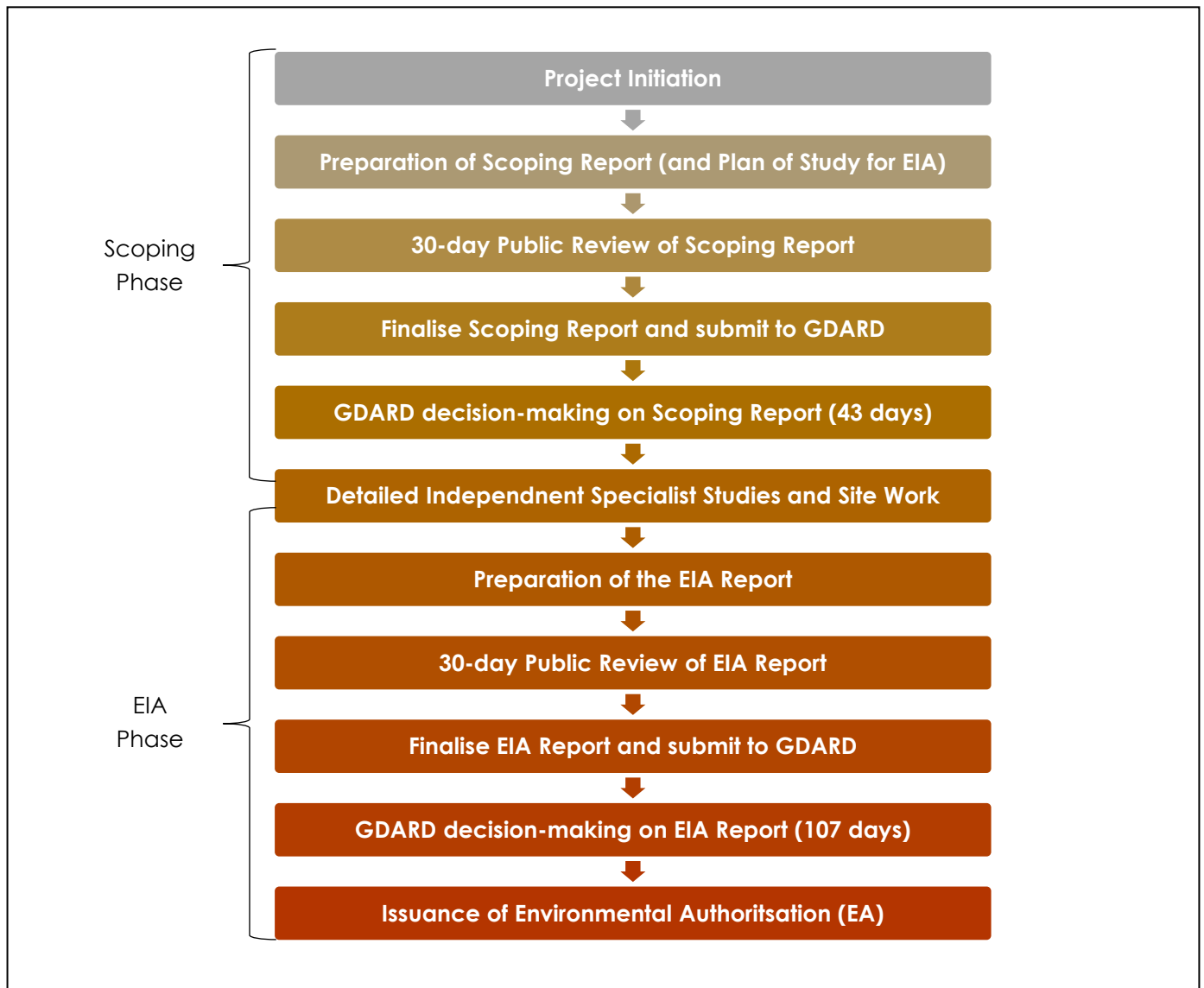


Figure 3.1 Regulated timeframe of an Environmental Impact Assessment (EIA) Process

3.5 Objectives of the Scoping Phase

This Scoping Report documents the evaluation of potential environmental impacts of the AMSA Vanderbijlpark Solar 3 and forms part of the EIA process being conducted in support of an application for EA for the project. The Scoping Phase has been conducted in accordance with the requirements of the 2014 EIA Regulations (GNR 326), as amended, and therefore aims to:

- » Identify and evaluate potential environmental (biophysical and social) impacts and benefits of all phases of the proposed development (including design, construction, operation, and decommissioning) within the broader project site through a review of existing baseline data, including specialist studies which were undertaken within the project area.
- » Identify potentially sensitive environmental features and areas within the broader project site in order to inform the preliminary design process of the facility.
- » Define the scope of studies to be undertaken during the EIA process.

- » Provide the authorities with sufficient information in order to make a decision regarding the scope of issues to be addressed in the EIA Phase, as well as regarding the scope and extent of specialist studies that will be required to be undertaken.

The following objectives of the Scoping Phase (in accordance with Appendix 2 of the 2014 EIA Regulations (GNR 326)), as amended, have been met, through the undertaking of a consultative process.

- » The policies and legislation relevant to the project have been identified and considered within this Scoping Report.
- » The need and desirability of the proposed project, including the need and desirability of the activity in the context of the preferred project site have been motivated.
- » Feasible alternatives for the project have been considered and confirmed.
- » Potential impacts associated with the undertaking of the identified activities and proposed technology have been identified and described.
- » Areas of high sensitivity to be avoided by the development area and the development footprint within the broader project site have been identified.
- » Preferred areas for the development in the form of a development area and a development footprint within the development area associated with low to medium environmental sensitivity have been identified through a desktop level scoping process and on-going consultative process. The development footprint and proposed facility layout will be assessed within the EIA Phase.
- » Key issues associated with the project to be addressed during the EIA Phase through further detailed study and ground-truthing have been identified and listed within this Scoping Report.
- » The level of assessment, including the methodology to be applied, the expertise required, and the extent of further consultation to be undertaken in the EIA Phase of the process, with the aim of determining the extent of impacts associated with the activities through the life cycle of the project (i.e., construction, operation, and decommissioning), have been identified and included within this Scoping Report.
- » Suitable measures to avoid, manage or mitigate identified impacts and to determine the extent of the residual risks that need to be managed and monitored have been identified where possible at this stage in the process.

3.6 Overview of the Scoping Phase

Key tasks undertaken within the Scoping Phase include:

- » Consultation with relevant decision-making and regulating authorities (at National, Provincial and Local levels).
- » Submission of the completed application for EA to the competent authority (i.e., GDARD) in terms of Regulations 5 and 16 of the 2014 EIA Regulations (GNR 326), as amended.
- » Undertaking a public participation process in accordance with Chapter 6 of GNR 326 and the Department of Environmental Affairs (2017) Public Participation guidelines in terms of the NEMA EIA Regulations (hereinafter referred to as "the Guidelines") in order to obtain comments on and identify issues and concerns associated with the proposed project.
- » Undertaking of independent specialist studies in accordance with Appendix 6 of the EIA Regulations, 2014 (GNR 326), as amended, and the requirements of the Specialist Protocols published in Regulation

GNR 320, issued 20 March 2020 and GNR 1150 of 30 October 2020, where relevant, as well as other relevant guidelines.

- » Preparation of a Scoping Report and Plan of Study for the EIA in accordance with the requirements of Appendix 2 of the 2014 EIA Regulations (GNR 326).
- » Provision of a 30-day public and authority review period for the Scoping Report.
- » Preparation of a Comments and Response (C&R) Report detailing all comments raised by I&APs and responses provided as part of the Scoping Phase.
- » Submission of a Final Scoping Report, including a Plan of Study for the EIA, to GDARD for review and approval.

3.7 Public Participation Process

Public participation is an essential and regulatory requirement for an Environmental Authorisation process and is guided by Regulations 41 to 44 of the EIA Regulations 2014 (GNR 326), as amended. The purpose of public participation is clearly outlined in Regulation 40 of the EIA Regulations 2014 (GNR 326, as amended, and is being followed for this proposed project.

The sharing of information forms the basis of the public participation process and offers the opportunity for I&APs to become actively involved in the EIA Process from the outset. The public participation process is designed to provide sufficient and accessible information to I&APs in an objective manner. The public participation process affords I&APs opportunities to provide input into and receive information regarding the EIA process in the following ways:

During the Scoping Phase:

- » Provide an opportunity to submit comments regarding the project.
- » Assist in identifying reasonable and feasible alternatives, where required.
- » Contribute relevant local information and knowledge to the environmental assessment.
- » Allow registered I&APs to verify that their comments have been recorded, considered, and addressed, where applicable, in the environmental investigations.
- » Foster trust and co-operation.
- » Generate a sense of joint responsibility and ownership of the environment.
- » Comment on the findings of the Scoping Phase results.
- » Identify issues of concern and suggestions for enhanced benefits.

During the EIA Phase:

- » Contribute relevant local information and knowledge to the environmental assessment.
- » Verify that issues have been considered in the environmental investigations as far as possible as identified within the Scoping Phase.
- » Comment on the findings of the environmental assessments.
- » Attend a Focus Group Meeting to be conducted for the project.

During the decision-making phase:

- » To advise I&APs of the outcome of the competent authority's decision, and how and by when the decision can be appealed.

The Public Participation process therefore aims to ensure that:

- » Information containing all relevant facts in respect of the application is made available to potential stakeholders and I&APs for their review.
- » The information presented during the public participation process is presented in such a manner, i.e., local language and technical issues, that it avoids the possible alienation of the public and prevents them from participating.
- » Public participation is facilitated in such a manner that I&APs are provided with a reasonable opportunity to comment on the project.
- » A variety of mechanisms are provided to I&APs to correspond and submit their comments i.e., fax, post, email, telephone, text message (SMS and WhatsApp).
- » An adequate review period is provided for I&APs to comment on the findings of the Scoping and EIA Reports.

i. Stakeholder identification and Register of Interested and Affected Parties

I&APs have been identified through a process of networking and referral, obtaining information from Savannah Environmental's existing stakeholder database, liaison with potentially affected parties in the greater surrounding area and a registration process involving the completion of a reply form. Key stakeholders and affected and surrounding landowners have been identified and registered on the project database. Other stakeholders are required to formally register their interest in the project through either directly contacting the Savannah Environmental Public Participation team via phone, text message (SMS and WhatsApp), email or fax, or registering their interest via the online stakeholder engagement platform.

As per Regulation 42 of the EIA Regulations, 2014, as amended, all relevant stakeholder and I&AP information has been recorded within a register of I&APs (refer to **Appendix C1** for a listing of the recorded parties)³. The database of I&APs will be updated throughout the EIA process and will act as a record of all I&APs involved in the public participation process.

ii. Advertisements and Notifications

The EIA process was announced with an invitation to the Organs of State, potentially affected and adjacent landowners, tenants and occupiers, and general public to register as I&APs and to actively participate in the process. This was achieved via the following:

- » Compilation of a background information document (BID) (refer to **Appendix C3**) providing technical and environmental details on the project and how to become involved in the EIA process. The BID and the process notification letter announcing the EIA process, notifying Organs of State, potentially affected and neighbouring landowners, as well as registered stakeholders/I&APs of the proposed project, and providing background information of the project and inviting I&APs to register on the project's database were distributed via email on **26 April 2023**. Evidence of distribution is contained in **Appendix C** of the Scoping Report. The BID is also available electronically on the Savannah Environmental website (<https://savannahsa.com/public-documents/energy-generation/>).

³ Contact details and addresses have not been included in the I&AP database as this information is protected by the Protection of Personal Information Act (No 4 of 2013).

- » Placement of site notices announcing the EIA process at visible points along the boundary of the project site (i.e., the boundaries of the affected properties), in accordance with the requirements of the EIA Regulations on **3 March 2023**. Photographs of the site notices and the GPS co-ordinates of the locations where the site notices were placed are contained within **Appendix C2** of the Scoping Report.
- » Placement of an advertisement in the The Vaal Weekblad (in English) on **26 April 2023**. This advert:
 - * Announced the project and the associated EIA process.
 - * Provided details of how I&APs can become involved in the EIA process, including details of the public participation consultant.
 - * Announced the availability of the Scoping report, the review period, and where it is accessible for review.
 - * Invited comment on the Scoping Report.
 - * Provided all relevant details to access the Savannah Environmental online stakeholder engagement platform.

A copy of the newspaper advert as sent to the newspaper and the advert tear sheet are included in **Appendix C2** of the Scoping Report.

- » The Scoping Report has been made available for review by I&APs for a 30-day review and comment period from **Wednesday, 26 April 2023 to Monday, 29 May 2023**. The Scoping Report has been made available on the Savannah Environmental website and all registered I&APs have been notified of the availability on **26 April 2023** via email which included the link to access the report on the Savannah Environmental website. The evidence of distribution of the Scoping Report will be included in the Final Scoping Report, which will be submitted to the GDARD.

iii. Public Involvement and Consultation

In order to accommodate the varying needs of stakeholders and I&APs within the surrounding area, as well as capture their views, comments, issues and concerns regarding the project, various opportunities have been and will continue to be provided to I&APs to note their comments and issues. I&APs are being consulted through the following means:

Table 3.4: Public involvement for the AMSA Vanderbijlpark Solar 3

Activity	Date
Announcement of the EIA process and the availability of the Scoping Report for a 30-day review and comment period, including details on how to access the Scoping Report via the online stakeholder engagement platform, in one local newspaper: » Die Vaal Weekblad (English advertisement)	26 April 2023
Distribution of the BID, process notification letters and stakeholder reply form announcing the EIA process and inviting I&APs to register on the project database. The BID and electronic reply form was also made available on the online stakeholder engagement platform.	26 April 2023
Placement of site notices at the project site.	3 March 2023
Distribution of notification letters announcing the availability of the Scoping Report for a 30-day review and comment period. These letters were distributed to Organs of State, Government Departments, Ward Councillors,	26 April 2023

Activity	Date
landowners within the surrounding area (including neighbouring landowners), registered I&APs and key stakeholder groups.	
30-day review and comment period of the Scoping Report.	26 April 2023 to 29 May 2023
Consultation meetings with the following parties: <ul style="list-style-type: none"> » Landowners » Authorities and key stakeholders (including Organs of State, local municipality and official representatives of community-based organisations). » Where an I&AP does not have access to a computer and/or internet to participate in a virtual meeting telephonic discussions (including WhatsApp video call) will be set-up and minuted for inclusion. The preferred language of the I&AP has been considered when setting up these discussions. 	Focus group meetings (virtual meetings or in-person consultations) will be held during the 30-day review and comment period of the Scoping Report.
On-going consultation (i.e., telephone liaison; e-mail communication) with all I&APs.	Throughout the EIA process

All comments raised as part of the discussions and written comments submitted during the 30-day review and comment period will be recorded and included in **Appendix C6** and **Appendix C8** of the Scoping Report. Meeting notes of all the telephonic discussions and meetings conducted during the 30-day review and comment period of the Scoping Report will be included in **Appendix C7**.

3.8 Evaluation of Issues Identified through the Scoping Process

Direct, indirect, and cumulative environmental impacts associated with the project identified during the Scoping Phase have been identified and evaluated through consideration of existing information available for the AMSA Vanderbijlpark Solar 3 project site.

In order to evaluate issues and assign an order of priority, the following methodology was used to identify the characteristics of each potential issue/impact:

- » The **nature**, which includes a description of what causes the impact, what will be affected and how it will be affected.
- » The **extent**, wherein it is indicated whether the impact will be local (limited to the immediate area or site of development), regional or national.
- » Identify **sensitive receptors** that may be impacted on by the proposed development and the types of impacts that are most likely to occur.
- » The **significance** of potential impacts in terms of the requirements of the 2014 EIA Regulations (including (nature, significance, consequence, extent, duration and probability of the impacts, the degree to which these impacts:
 - (a) Can be reversed.
 - (b) May cause irreplaceable loss of resources; and
 - (c) Can be avoided, managed or mitigated.
- » Identify the potential impacts that will be considered further in the EIA Phase through detailed investigations.

The evaluation of the proposed project resulted in a description of the nature, significance, consequence, extent, duration, and probability of the identified issues, as well as recommendations regarding further studies required within the EIA Phase.

3.9 Finalisation of the Scoping Report

The final stage of the Scoping Phase entails the recording and capturing of comments received from stakeholders and I&APs on the Scoping Report in order to finalise the Scoping Report for submission to the GDARD for decision-making. All written comments received will be addressed within the C&R Report (and will be attached as **Appendix C8**).

3.10 Assumptions and Limitations of the EIA Process

The following assumptions and limitations are applicable to the EIA process for the AMSA Vanderbijlpark Solar 3:

- » All information provided by the developer and I&APs to the environmental team was correct and valid at the time it was provided.
- » The project site identified by the developer represents a technically suitable site for the establishment of a solar energy facility, which is based on the design undertaken by technical consultants for the project.
- » The development footprint (the area that will be affected during the operation phase) will include the footprint for the solar energy facility and associated infrastructure (i.e., internal access roads).
- » The Scoping Phase evaluation of impacts has been largely based on desktop studies. This information has been used to inform this Scoping Report and will be verified by specialists in the EIA Phase to assess the project development footprint for the AMSA Vanderbijlpark Solar 3.

3.11 Policy and Legislative Context

The need to expand electricity generation capacity in South Africa is based on national policy and informed by on-going strategic planning undertaken by the Department of Mineral Resources and Energy (DMRE). The hierarchy of policy and planning documentation that support the development of renewable energy projects such as a solar energy facility is illustrated in **Figure 3.2**.

The South African energy industry is evolving rapidly, with regular changes to legislation and industry role-players. The regulatory hierarchy for an energy generation project of this nature consists of three tiers of authority who exercise control through both statutory and non-statutory instruments – that is National, Provincial and Local levels. As solar energy developments are a multi-sectoral issue (encompassing economic, spatial, biophysical, and cultural dimensions) various statutory bodies are likely to be involved in the approval process of a solar energy project and the related statutory environmental assessment process.

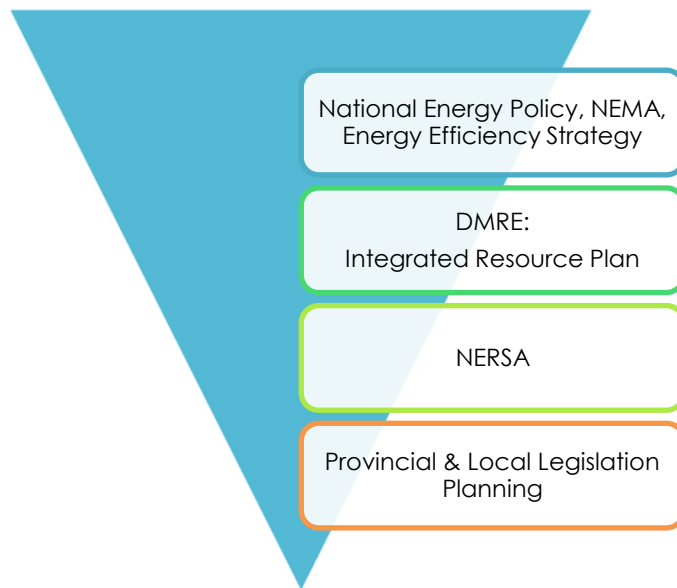


Figure 3.2: Hierarchy of electricity and planning documents

3.11.1 Relevant legislative permitting requirements

The legislative permitting requirements applicable to the AMSA Vanderbijlpark Solar 3 as identified at this stage in the process and considered within this EIA process, are described in more detail in the table below.

Table 3.3: Legislation Considered

Name of Act or Regulation	Area of Application	Responsible Authority
National Environment Management: Air Quality Act, 39 of 2004.	Regulations and controls concerning air quality to protect the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development while promoting justifiable economic and social development.	GDARD or SDM – Climate Change and Air Quality Management Application to be made to GDARD or SDM
Mineral and Petroleum Resources Development Act, 2002	Regulations and controls concerning mining applications, areas of undermining and any borrowing pits etc.	Department of Mineral Resources and Energy No application envisaged
The Conservation of Agricultural Resources Act, 43 of 1983	Regulations and controls provide for control over the utilization of the natural agricultural resources of the Republic to promote the conservation of the soil, the water sources and the vegetation and the combating of weeds and invader plants; and for matters connected therewith.	Department of Forestry, Fisheries and the Environment No application envisaged
Constitution of the Republic of South Africa, 1996	The Constitution of South Africa	National, Provincial and Local Government

Name of Act or Regulation	Area of Application	Responsible Authority
National Environmental Management Act, 107 Of 1998	Regulations concerning the control/prevention of pollution; combating noise; activities which may have a detrimental effect on the environment, preparation and contents of environmental impact reports.	<p>No application required</p> <p>Department of Forestry, Fisheries and the Environment; Department of Water and Sanitation; Provincial Department of Environmental Affairs.</p> <p>Application for Environmental Authorisation made to GDARD</p>
The National Environmental Management Waste Act, 58 of 2008	Regulations aimed at reforming the law regulating waste management in order to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development.	<p>Department of Forestry, Fisheries and the Environment; Department of Water and Sanitation; Provincial Department of Environmental Affairs.</p> <p>No application envisaged</p>
NEMA - Biodiversity Act, 10 of 2004	Regulations that encourage the sustainable use of natural and indigenous resources and provides for the management and conservation of South Africa's biodiversity through the protection of species, natural environments and ecosystems, while promoting the sustainable use of indigenous biological resources.	<p>Department of Forestry, Fisheries and the Environment.</p> <p>No application envisaged</p>
National Water Act, 36 of 1998	Regulations concerning the conservation and use of water. Treatment and disposal of waste, wastewater and effluent. Pollution and pollution emergencies.	<p>Department of Water and Sanitation.</p> <p>Application has been submitted by Lesedi</p>
National Heritage Resources Act, 25 of 1999	Regulations concerning the conservation of national heritage and archaeological material.	<p>South African Heritage Resources Agency; National Council for Heritage.</p> <p>No applications required in terms of Section 38 of the NHRA as an EIA process is being undertaken. Comment to be obtained from SAHRA as part of EIA process.</p>
Occupational Health and Safety Act, 85 of 1993	Regulations concerning the health and safety of persons at work and for the health and safety of persons in connection with the activities of persons at work and to establish an advisory council for occupational health and safety.	<p>Department of Employment and Labour.</p> <p>No application envisaged</p>

Name of Act or Regulation	Area of Application	Responsible Authority
National Veld and Forest Fire Act, 101 of 1998	Regulations concerning the control and prevention of veld fires.	Department of Agriculture Land Reform and Development No application envisaged
Road Traffic Act, 29 of 1989	Regulations providing for road traffic matters.	Department of Transport Application to be made to Gautrans
Transvaal Nature Conservation Ordinance, 12 of 1983	Provides for the protection of indigenous plants, protected plants and specially protect plants.	Gauteng Department of Agriculture and Rural Development Application to be made in the event that a protected plant or animal species is affected by the project.
Civil Aviation Act 13 of 2009	All aspects that relate to flight paths and the operations of the airports: <ul style="list-style-type: none"> • Rules of the Air and General Operating Rules • Flight Operations • Aerodromes and Heliports • Air Traffic Services 	South African Civil Aviation Authority (SACAA) Air Traffic Navigation Services (ATNS). An obstacle approval is required for the power line from ATNS. A glint and glare study for the PV facility is also required.
All relevant Provincial regulations, Municipal by-laws and ordinances. This includes: <ul style="list-style-type: none"> • Gauteng Planning and Development Act, 3 of 2003; • The Gauteng Draft Red Data Policy • The Gauteng Draft Ridges Policy • Protection of Agricultural Land in Gauteng Policy 2006; • Sedibeng District Municipality Final Integrated Development Plan - Framework for 2021 – 2022. • Emfuleni Local Municipality Integrated Development Plan Review for 2018 – 2019. 	The local tiers of government relevant to the AMSA Vanderbijlpark Solar 3 are the Emfuleni Local Municipality and the Sedibeng District Municipality. Instruments and/or policies at both the district and local level contain objectives which align with the development of the AMSA Vanderbijlpark Solar 3. These include, economic growth, job creation, community upliftment and poverty alleviation.	Gauteng Department of Agriculture and Rural Development; Sedibeng District Municipality Approvals required to be confirmed during EIA phase in terms of the Gauteng Planning and Development Act; and Protection of Agricultural Land in Gauteng Policy as required. Applications to be made to GDARD and SDM

CHAPTER 4: DESCRIPTION OF THE RECEIVING ENVIRONMENT

This chapter provides a description of the local environment. This information is provided in order to assist the reader in understanding the possible effects of the Project on the environment within which it is proposed to be developed. Aspects of the biophysical, social, and economic environment that could be directly or indirectly affected by, or could affect, the proposed development have been described. The scoping process has involved the review of existing information (including previous detailed studies undertaken), limited field work, input from the project proponent and specialist consultants.

4.1 Legal Requirements as per the EIA Regulations, 2014 (as amended), for the undertaking of a Scoping Report

This chapter includes the following information required in terms of Appendix 2: Scope of Content of the Scoping Report.

Requirement	Relevant Section
3(1)(h)(iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects.	<p>The environmental attributes associated with the development of the project site included as a whole within this chapter. The environmental attributes that are assessed within this chapter include the following:</p> <ul style="list-style-type: none"> » The regional setting of the broader study area indicates the geographical aspects associated with the Project. This is included in Section 4.2. » The climatic conditions for the area have been included in Section 4.3. » The biophysical characteristics of the project site and the surrounding areas are included in Section 4.4. The characteristics considered are topography and terrain, geology, soils and agricultural potential and the ecological profile which includes the vegetation patterns, listed plant species, critical biodiversity areas and broad-scale processes, freshwater resources, terrestrial fauna and avifauna. » The heritage and cultural aspects (including archaeology and palaeontology) has been included in Section 5.5. » The social and socio-economic characteristics associated with the broader study area and the project site has been included in Section 4.7 » The visual quality, land-use and settlement patterns of the affected environment is included in Section 4.6

A more detailed description of each aspect of the affected environment is included within the specialist Scoping Reports contained within Appendices D - K

4.2. Regional Setting

The AMSA Vanderbijlpark Solar 3 development area is located approximately ~5km to the north of the city Vanderbijl, in the Emfuleni Local municipality and the Sedibeng District Municipality within the Gauteng Province.

Gauteng is the smallest of South Africa's provinces, covering an area of 18 178km² or approximately 1.4% of the total surface area of South Africa. It is bordered by the Free State, North West, Limpopo and Mpumalanga provinces. While being the smallest province, it is also the most populous, being home to 13

399 725 people – 24.1% of the national population. Gauteng lies on the highest part of the interior plateau on the rolling plains of South Africa's Highveld.

Its capital is Johannesburg, and it also contains the city of Pretoria, as well as the East Rand, West Rand and Vaal areas.

Gauteng continues to serve as the economic engine room of the country and the subcontinent, responsible for over 34.8% of the country's GDP. Gauteng is the powerhouse of South Africa and the heart of its commercial business and industrial sectors. The most important sectors contributing to GDP are finance, real estate and business services; manufacturing; and general government services. Gauteng is also the financial services capital of Africa. More than 70 foreign banks have their head offices here, as do at least the same number of South African banks, stockbrokers and insurance giants.

The major gold and diamond mining houses all have their headquarters in Johannesburg, the biggest being Anglo American and De Beers. Gold mining constitutes 80% of Gauteng's mineral production output.

Gauteng is divided into three metropolitan municipalities, the City of Ekurhuleni, City of Johannesburg and City of Tshwane Metropolitan Municipalities, as well as two district municipalities, which are further subdivided into six local municipalities (refer to **Figure 4.1**).

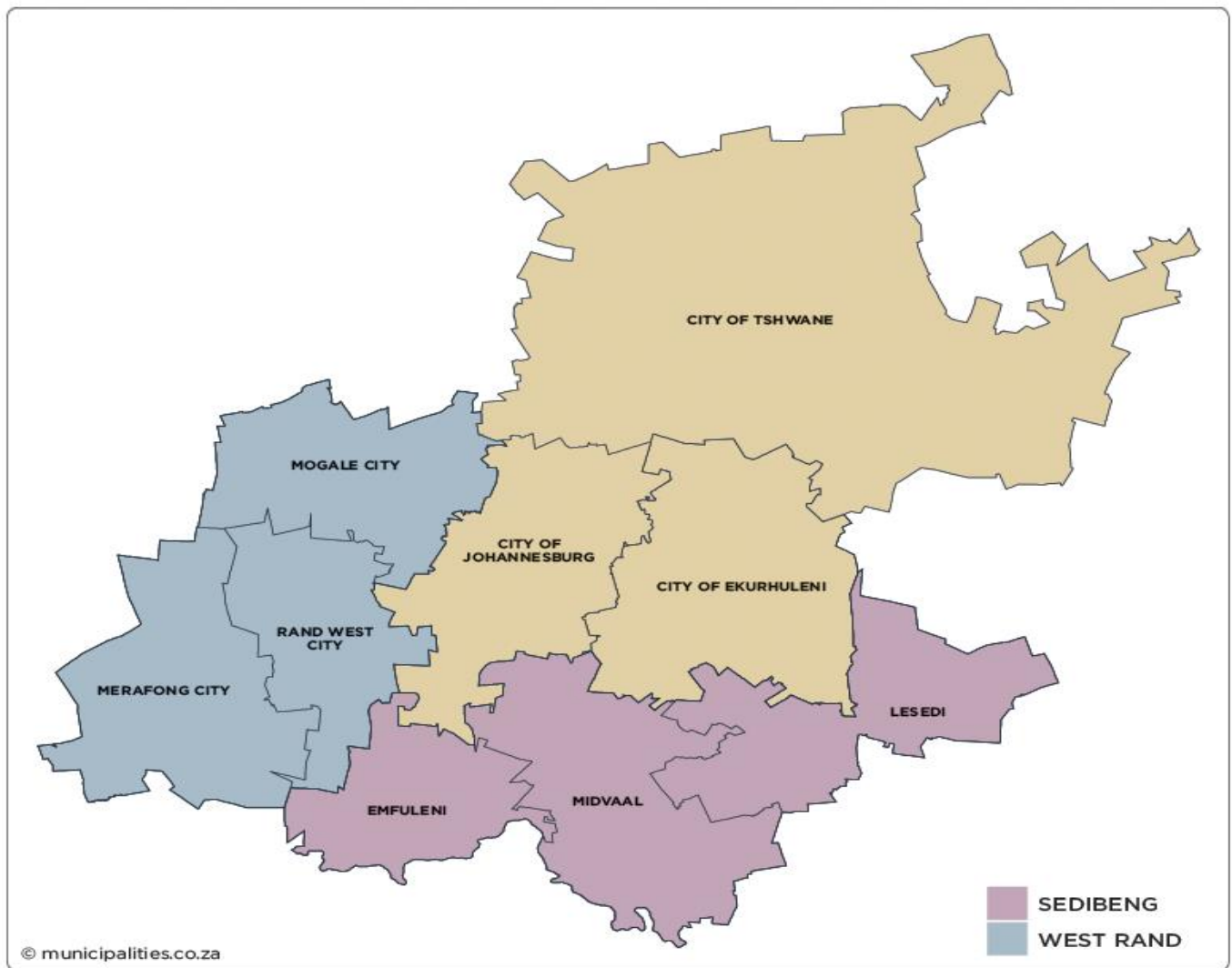


Figure 4.1: District municipalities of the Gauteng Province (Source: Municipalities of South Africa).

The Sedibeng District Municipality is a Category C municipality situated on the southern tip of the Gauteng Province and strategically located on the border of three other provinces, namely Free State, North-West and Mpumalanga. The municipality is the only area in the province that is situated on the banks of the Vaal River and Vaal Dam, covering the area formerly known as the Vaal Triangle. The municipality is a stone's throw from Johannesburg along the scenic Vaal, Klip and Suikerbos Rivers. It is comprised of the Emfuleni, Lesedi and Midvaal Local Municipalities, and includes the historic townships of Evaton, Sebokeng, Boipatong, Bophelong, Sharpeville and Ratanda, which have a rich political history and heritage.

It has a variety of attractions offering a vast cultural heritage and historical experience including, among others, the political breakthroughs that led to the country's political turnabout. The Sedibeng region boasts several Heritage Sites related to the South African War of 1899-1902 and the two World Wars that followed. The Sharpeville Memorial Precinct stands as a reminder of the Sharpeville Massacre of 21 March 1960, when 69 people lost their lives while protesting the pass laws of the then apartheid South Africa.

Sedibeng is the fourth-largest contributor to the Gauteng economy. The predominant economic sector in the district is the manufacturing of fabricated metal and chemicals. In the metal sector, the Arcelor-Mittal Steel plant, the Cape Gate Davsteel Wire and Steel plant, and the Ferromanganese plant of Samancor are the three main large baseline plants in the district, while DCD-Dorbyl Heavy Engineering is the biggest manufacturer of engineered products in Southern Africa. The well-developed national road network that cuts across the district to all the provinces ensures that the region remains the industrial centre of the Gauteng Province. The municipality is 40km away from Johannesburg and 80km away from Pretoria, without the high traffic volumes.

The municipality offers the best opportunity for growth and development as a result of availability of land for both residential and commercial development in a picturesque and tranquil setting. The Vaal University of Technology and the North-West University's Vaal Campus offer a wide range of graduates that provide the bulwark of employees for business and industries that seek to set up operations in Sedibeng.



Figure 4.2: Map showing the Sedibeng District and local municipalities (Source: Municipalities of South Africa)

The Emfuleni Local Municipality is a Category B municipality situated in the Sedibeng District in the Gauteng Province. It is the westernmost local municipality of the district, which covers the entire southern area of the Gauteng Province, extending along a 120km axis from east to west.

The Vaal River forms the southern boundary. Emfuleni shares boundaries with the City of Johannesburg Metro to the north, Metsimaholo in the Free State to the south, Midvaal to the east, and Rand West City and JB Marks (in the North-West Province) to the west.

The Emfuleni Local Municipality is rich in history as it encapsulates the Anglo-Boer War, with heritage assets such as the Sharpeville monument and the liberation struggle epitomised by the signing of the Constitution in 1996 in Sharpeville.

The municipality is strategically located, with access to a well-maintained road network – the N1 linking Johannesburg and Bloemfontein, and traversing Emfuleni. Sasolburg forms the heartland of what was formerly known as the Vaal Triangle, renowned for its contribution to the iron and steel industry in South Africa. Its location also affords it many opportunities for tourism and other forms of economic development.

4.3 CLIMATIC CONDITIONS

Vanderbijlpark is situated on the [highveld](#) of South Africa, at an altitude of 1,500 meters on the banks of the [Vaal River](#). Summers in the city are warm to hot with an average high between 31 and 35°C, and an average low between 15 and 22°C. Winters in the city are cool to warm with an average high of between 18

and 23°C and an average low of between –1 and 5°C.

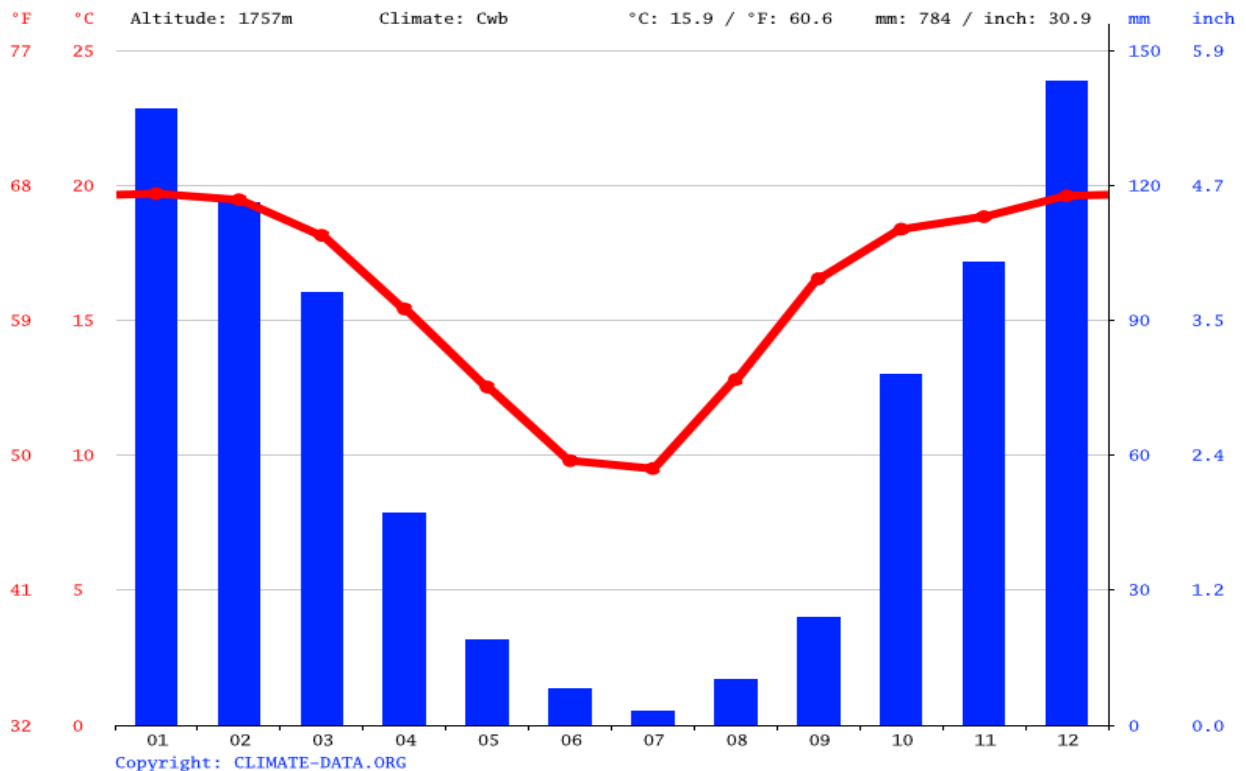


Figure 4.3: Climate graph for the Vanderbijlpark area, Gauteng Province within which the proposed project site is located (source: Meteoblue 2022)

4.4 BIOPHYSICAL CHARACTERISTICS OF THE STUDY AREA AND DEVELOPMENT AREA

The following section provides an overview and description of the biophysical characteristics of the study area and has been informed by specialist studies (Appendix D-G) undertaken for this Scoping Report.

4.4.1 Topographical profile

The topography or terrain morphology of the region is broadly described as gently to moderately undulating landscape. The slope of the entire study area is generally even with very gradual drops towards the water courses and wetlands traversing the study area (hence the term undulating). The highest point above sea level within the region is located in the hills located just north of the Houtkop Agricultural Holdings (1,620m), with the lowest points located along the Rietspruit and Leeuspruit in the western portion of the study area, as well as the Vaal River located in the south western portion of the study area (1,420m).

4.4.2 Geology, Soils and Agricultural Potential

In terms of geology and soils, the Soweto Highveld Grassland type is "Shale, sandstone, or mudstone of the Madzaringwe Formation (Karoo Supergroup) or the intrusive Karoo Suite dolerites which feature prominently in the area. In the south, the Volksrust Formation (Karoo Supergroup) is found and in the west, the rocks of the older Transvaal, Ventersdorp and Witwatersrand Supergroups are most significant. Soils are deep, reddish on flat plains and are typically Ea, Ba and Bb land types." (www.sanbi.org).

4.4.3 Land Use

The land use activities are largely of an agricultural and rural character where predominantly dryland agriculture and limited irrigated agriculture are practised. The south western portion and north eastern portions of the study area comprise predominately of the agricultural holding areas known as Mullerstuine, Rosashof, Lamont Park, Louisrus, Steel Valley, Houtkop, Lenteland and Waterdal. Other dominate land use activities within the study area include formalised high-density settlements with some informal township developments along the outskirts. These include Bophelong, Vanderbijlpark, Bedworth, Sharpeville, Tshepiso, Biopatong, Steel Park, Sonland Park and Sebokeng.

4.4.4 Ecological Profile of the Study Area and the Development Area

The immediate context of the proposed PV development is dominated by agriculture. **Figures 4.4** and **4.5** provide C-Plan maps showing the location of the proposed PV facility relative to areas of potential sensitivity. Based on this information, the following is concluded regarding the site:

Summary of relevance of the proposed project to ecologically important areas according to the spatial data set assessed by specialists.

- » Critical Biodiversity Areas and Ecological Support Areas - The project area does not overlap with any relevant areas but falls adjacent to an 'Important Area'.
- » Ecosystem Threat Status - Overlaps with an Endangered (EN) ecosystem.

- » Ecosystem Protection Level – Overlaps with a 'Hardly Protected' Ecosystem.
- » Protected Areas – The nearest protected area is the 'Leeuwkuil Nature Reserve' situated approximately ~ 6km south east of the project area.
- » South African Inventory of Inland Aquatic Ecosystems (SAIIAE) – The project area does not overlap with any SAIIAE.
- » National Freshwater Priority Area (NFEPA)– The project area does not overlap with any NFEPA's.
- » Strategic Water Source Areas (SWSA) – The project area does not overlap with any SWSAs -
- » REDZ – Does not overlap with any Renewable Energy Development Zones
- » Powerline Corridor – Overlaps with the Central Corridor
- » The quartzite ridges of Gauteng are one of the most important natural assets of the province. This is because these ridges and the areas immediately surrounding them, provide unique habitat for a wide variety of fauna and flora, some of which are Red-Listed, rare and endemic species. No ridges occur within the project area as indicated in **Figure 5.2**. The project is located a class 3 ridge.

In terms of vegetation, the portion of the study area is located within the Soweto Highveld Grassland vegetation type. This vegetation type is described as, "Gently to moderately undulating landscape on the Highveld plateau supporting short to medium-high, dense, tufted grassland dominated almost entirely by *Themeda triandra* and accompanied by a variety of other grasses such as *Elionurus muticus*, *Eragrostis racemosa*, *Heteropogon contortus* and *Tristachya leucothrix*. In places not disturbed, only scattered small wetlands, narrow stream alluvia, pans and occasional ridges or rocky outcrops interrupt the continuous grassland cover." (www.sanbi.org).

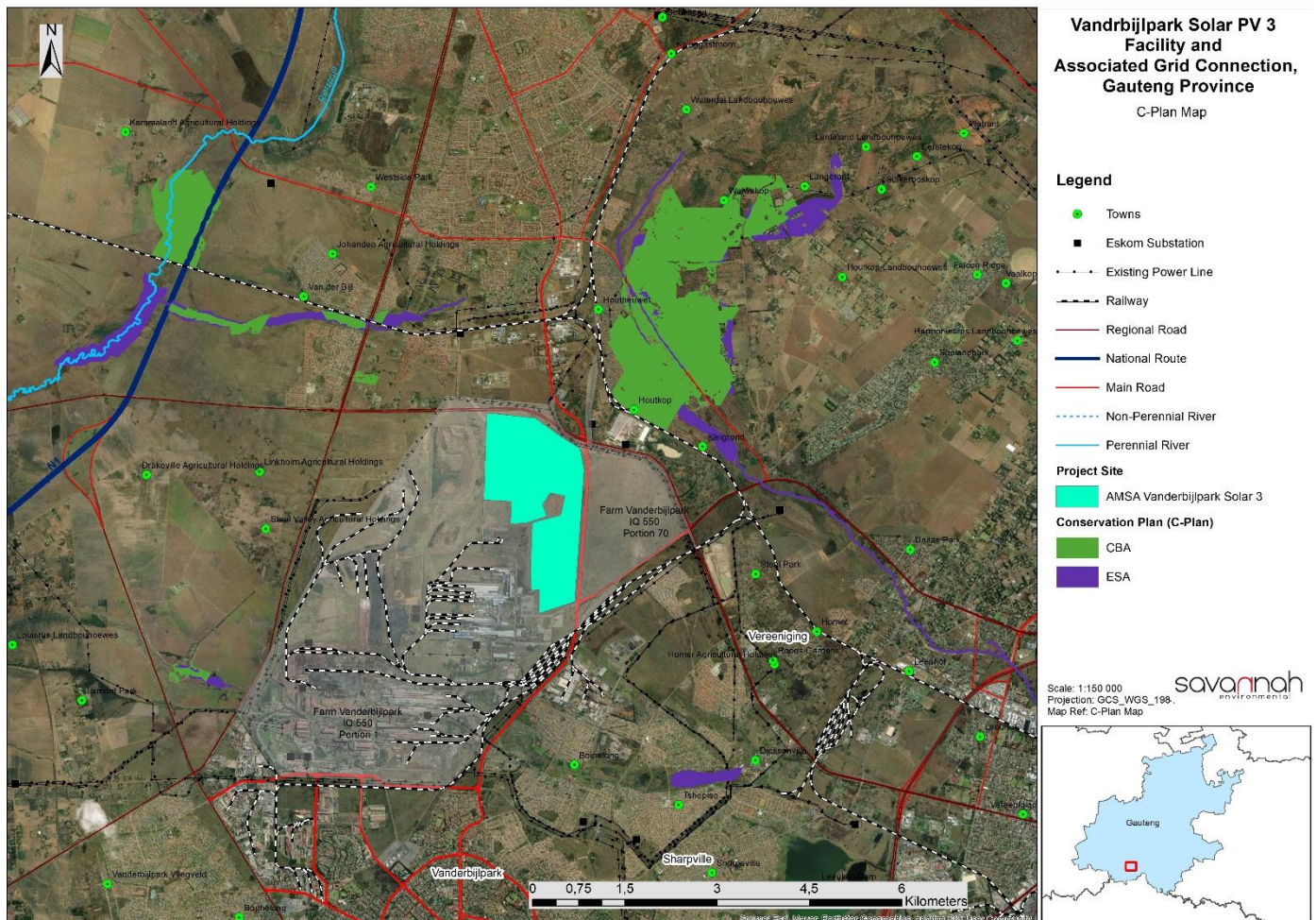


Figure 4.4 C-Plan map of the location of the AMSA Vanderbijlpark Solar 3 relative to areas of potential sensitivity.

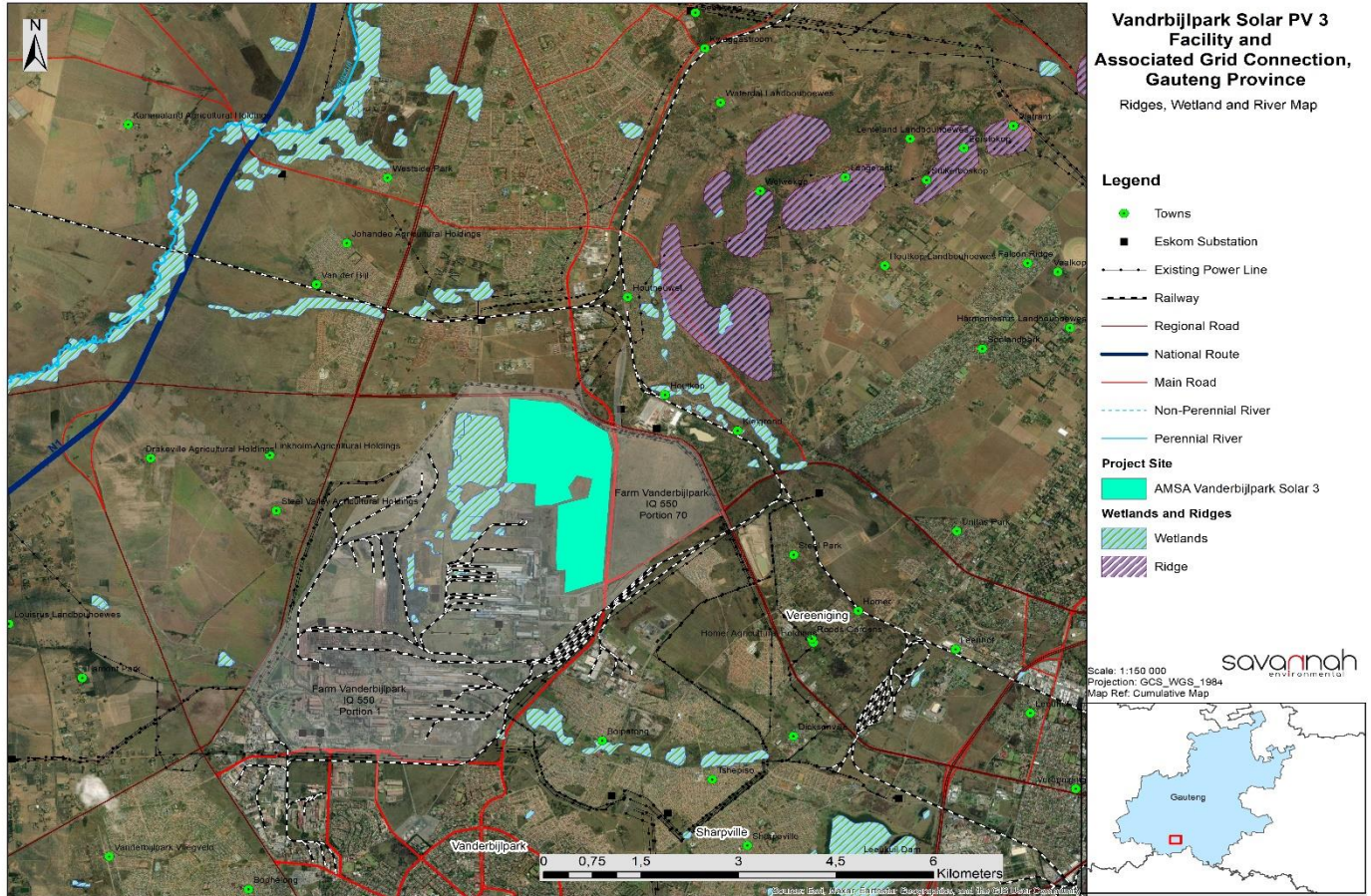


Figure 4.5: Wetlands, rivers and ridges map of the location of the AMSA Vanderbijlpark Solar 3

4.5 INTEGRATED HERITAGE INCLUDING ARCHAEOLOGY, PALAEOLOGY, AND THE CULTURAL LANDSCAPE

4.5.1 State of Site

A search of the South African Heritage Resources Information System (SAHRIS) database revealed that several previous archaeological and heritage impact assessments had been undertaken within the surroundings of the Project Site. The findings of the heritage studies found several archaeological and heritage sites. Based on the studies burial grounds, graves, historic houses and structures, historical farmsteads and a few sedimentation tanks were found in the area of the project site.

A total of fifteen (15) heritage features and resources were identified. These consist of seven (7) burial grounds with graves and seven (7) localities with recent historic structures, and one (1) trigonometrical beacon.

4.5.2 Archaeology

No archaeological sites were identified within the proposed Project Site.

4.5.3 Palaeontology

The proposed development is largely underlain by Quaternary deposits while a portion is underlain by the Vryheid Formation (Ecca Group, Karoo Supergroup). A small portion in the west is underlain by diabase, while a portion in the south-west is underlain by the Daspoort Formation of the Pretoria Group [Transvaal Supergroup].

According to the PalaeoMap of the South African Heritage Resources Information System (SAHRIS) the Palaeontological Sensitivity of the Quaternary alluvial deposits are Low while the Quaternary Superficial deposits has a Moderate Palaeontological Sensitivity and that of the Vryheid Formation is Very High. The Pretoria igneous intrusions have a Zero Palaeontological Sensitivity while that of the Daspoort Formation is High. The geology has recently been updated (Council of Geosciences, Pretoria). The study area is largely underlain by Quaternary alluvium, colluvium, elluvium and gravel.

According to the SAHRIS Palaeosensitivity map the proposed development is underlain by sediments with a Very High, High, moderate and Low and Zero Palaeontological Sensitivity.

4.6 VISUAL QUALITY

The study area for the visual assessment encompasses a geographical area of approximately 578km² and includes a minimum 6km buffer zone (area of potential visual influence) from the proposed project site. The study area includes predominantly mining land, farmland and a long section of the N4 national road.

The AMSA Vanderbijlpark Solar 3 Facility is located south east of the N1 national road approximately 5km north and north west of Vanderbijlpark, in the Emfuleni Local municipality and the Sedibeng District Municipality within the Gauteng Province. The region has a strong mining and industrial character, interspersed with agricultural activities (dryland crop production) and human settlements (both formal and informal). The central portion of the study area is home to the ArcelorMittal Vanderbijlpark Plant, one of the world's largest inland steel mills and the largest supplier of flat steel products in sub-Saharan Africa, giving the area a very industrial / mining feel. These activities are rapidly changing the once rural and agricultural character to that of a predominantly industrial nature.

Prominent rivers or streams include the Vaal River, to the south east, and the Rietspruit and Leeuspruit traversing western portion of the study area. The Leeukuil Dam is also located south east of the site. These water courses and associated wetlands, as well as grassland account for the few remaining scenic natural resources in an area largely dominated by industrial activities and human settlements.

The R553 traverses the site, while the R57 is located to the west of the site and the R54 to the north. Access to the various sites will be via these various arterial roads. The N1 national road traverses the north western portion of the study area. Additional linear infrastructure includes the railway line and railway sidings traversing the north and eastern portions of the study area and of the ArcelorMittal Vanderbijlpark Plant, transporting iron ore to the Plant.

A host of power lines criss-cross the study area, many of them congregating at the Olympus Substation located within the ArcelorMittal Vanderbijlpark Plant property. Electricity for the Vanderbijlpark Plant are supplied by some of these power lines.

The population density of the region is indicated at approximately 750 people per km², predominantly concentrated within the towns and settlements surrounding the site, especially in Vanderbijlpark.

The natural vegetation or land cover types of the region (where intact) are described as Grassland and Wetlands. These vegetation cover types are under increased pressure from both industrial activities and township development and are often subject to varying levels degradation. They may also include old agricultural fields that are regenerating. The majority of the remaining natural vegetation within the study area is indicated as Soweto Highveld Grassland.

One formally protected or conservation areas or major tourist attractions/resorts was identified within the study area, namely the Leeukuil Nature Reserve located adjacent to the Leeukuil Dam, a popular birding destination.

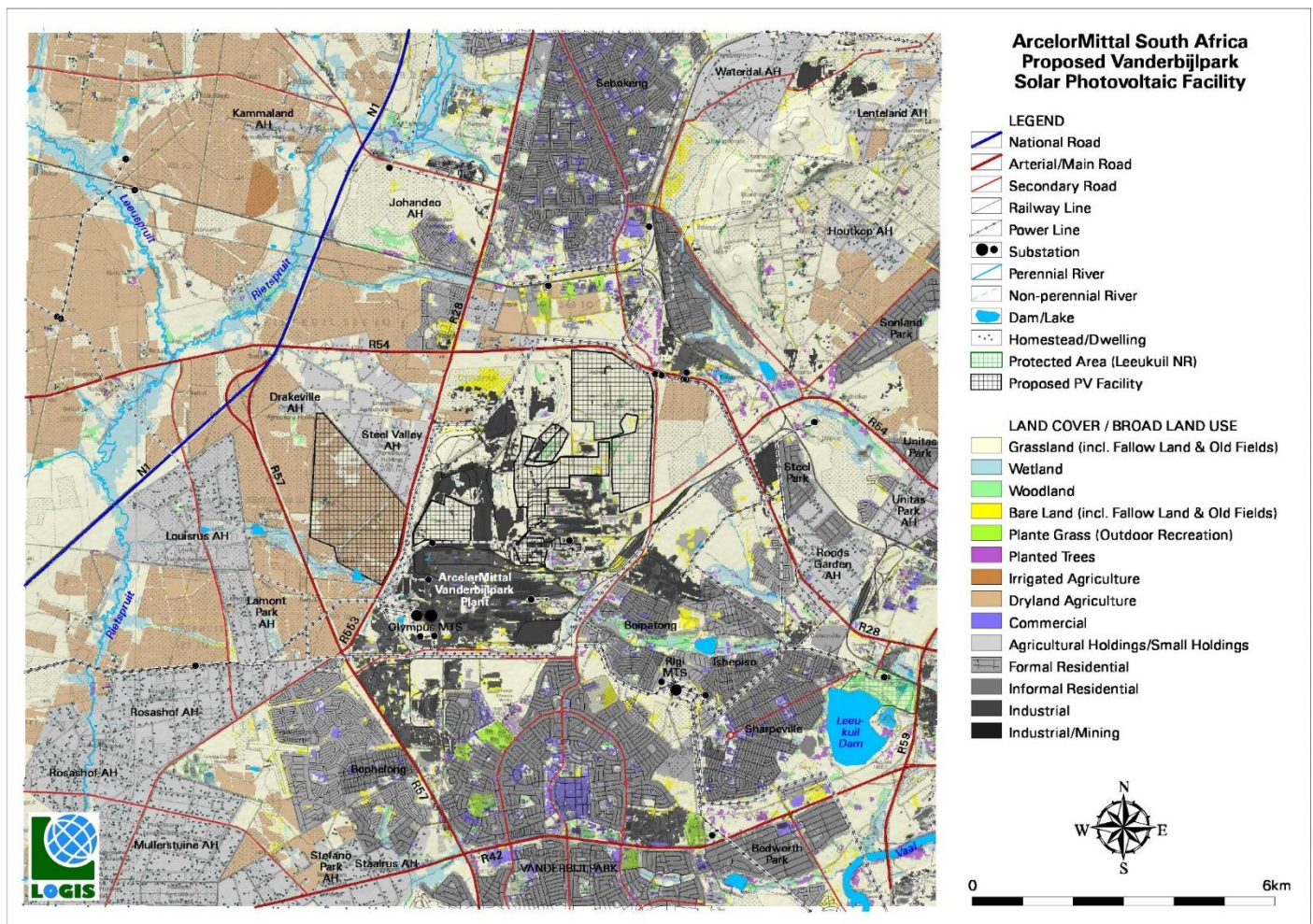


Figure 4.6: Land cover and broad land use patterns of the study area

4.7 SOCIAL CONTEXT

4.7.1 Profile of the Broader Area

Population

According to the StatsSA Community Survey (2016), the Sedibeng District Municipality has a population of 733 445 people and a population density of 758.0 people per m². 85% are black Africans, 12% are white, Indian or Asian 1% and 1% are coloured. Sesotho (59%), Afrikaans (11%), isiXhosa (6%), English (4%) and Isizulu (12%) are the most widely spoken languages. Approximately 17% of the people in the area have relocated from other South African provinces.

Households and house types and income

There are about 253 488 households. of this, 12.3% are shacks or other unofficial structures, which is about 12.33% the rate in Sedibeng District Municipality and 17.74% of Gauteng Province. 75 % of households have a formal home as their primary residence. The local municipality average annual household income of R29 400 applies. However, 18% of households make no money at all, and 5% of households make less than this. More than half of households (97%) have piped water, while another 1% have access to shared water sources. A small fraction of homes (2%) relies on borehole water, which is lower than the average for the district as a whole. Almost a three-fifths of households (4.4%) have no access to electricity, which is the same as the rate in South Africa at 7.36%.

Employment

Due to the loss of the steel sector, one of the district's largest employees, Sedibeng District has undergone a severe deindustrialization. With a high unemployment rate of 50.7% and a backlog of 120,218 open positions, this and other economic issues have had a significant negative impact on the region's rate of economic growth. Sedibeng region has some of the greatest poverty levels in the province of Gauteng, with unemployment rates ranging from 34.2% to 56.2% in 2017. The employment rate in Sedibeng is 42.6% (271 398).

Education.

There are over 60 primary and secondary schools within the Vaal Triangle area. Of these, 20 primary and 8 secondary schools are located in Vanderbijlpark. There are about 4 private schools in Vanderbijlpark, namely: El Shaddai School, Emmanuel Christian School, Vaal Primary School, Santa Maria Junior School and Watershed Christian School.

CHAPTER 5: SCOPING OF POTENTIAL ISSUES

This chapter serves to describe environmental issues and potential impacts (direct, indirect, and cumulative impacts) that have been identified to be associated with the development of the AMSA Vanderbijlpark Solar 3, and to make recommendations for further studies required to be undertaken in the EIA Phase. The scoping process has involved the review of existing information (including previous detailed studies undertaken), limited field work, input from the project proponent and specialist consultants.

Environmental issues associated with construction and decommissioning activities of the project may include, amongst others, impacts on vegetation and protected plant species, direct faunal impacts, soil erosion and associated degradation of ecosystems, alien plant invasion, impacts on water quality, impacts on the social environment and current land use, and visual impact.

Benefits during both the construction and operation phases include reduction of GHGs, in furtherance of South Africa's international obligations; the creation of employment and business opportunities; the opportunity for skills development and on-site training; improvement in energy security and support towards the renewable sector; benefits for local landowners; and benefits associated with socio-economic contributions to community development.

The Project Site of 255ha has been investigated during this Scoping Phase to determine its environmental suitability. This will provide an indication of the areas of sensitivity that the developer would need to take into consideration in planning the location of the development footprint within the Project Site.

Section 5.2 provides a summary of the findings of the desktop scoping study undertaken for the construction, operation and decommissioning phases of the AMSA Vanderbijlpark Solar 3. Those impacts associated with construction can also be expected to be associated with the decommissioning phase (however, to a lesser extent as the development footprint would have previously undergone transformation and disturbance during construction). More detail regarding potential impacts is included in the specialist scoping reports included in **Appendices D - K**.

A description of the potential cumulative impacts that may be associated with the Project is provided in **Section 5.3**. These impacts are associated with the scale of the Project when considered together with other similar developments within the region and will be confirmed and assessed within the EIA Phase of the Project.

5.1 Legal Requirements as per the EIA Regulations, 2014 (as amended), for the undertaking of a Scoping Report

This chapter serves to identify the potential environmental impacts associated with the development of the Project from a desktop level. It includes the following information required in terms of Appendix 2: Content of the Scoping Report:

Requirement	Relevant Section
(g)(v) the impacts and risks which have informed the identification of each alternative, including the nature,	The impacts and risks identified to be associated with the construction and operation phase of the AMSA

Requirement	Relevant Section
significance, consequence, extent, duration, and probability of such identified impacts, including the degree to which these impacts (aa) can be reversed (bb) may cause irreplaceable loss of resources and (cc) can be avoided, managed, or mitigated.	Vanderbijlpark Solar 3 have been included in Section 5.2 . Impact tables have been included for each field of study which considers the nature, significance, consequence, extent, duration, and probability of the impacts, as well the reversibility of the impacts, the loss of resources and avoidance, management, or mitigation.
(g)(vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects.	The positive and negative impacts associated with the AMSA Vanderbijlpark Solar 3 have been included in Section 5.2 .
(g)(viii) the possible mitigation measures that could be applied and level of residual risk	Possible mitigation (specifically relating to the avoidance of sensitive areas) has been included in Section 5.2 .

5.2. Identification and Evaluation of Potential Impacts associated with the Construction, Operation and Decommissioning Phases

5.2.1. Terrestrial Ecology (including flora, fauna and avifauna)

Description of Potential Impacts

Anthropogenic activities drive habitat destruction causing displacement of fauna and flora and possibly direct mortality. Land clearing destroys local wildlife habitat and can lead to the loss of local breeding grounds, nesting sites and wildlife movement corridors such as rivers, streams and drainage lines, or other locally important features. The removal of natural vegetation may reduce the habitat available for fauna species and may reduce animal populations and species compositions within the area.

According to the C-Plan (**Figure 5.1**) the project area does not overlap with CBA or ESA.

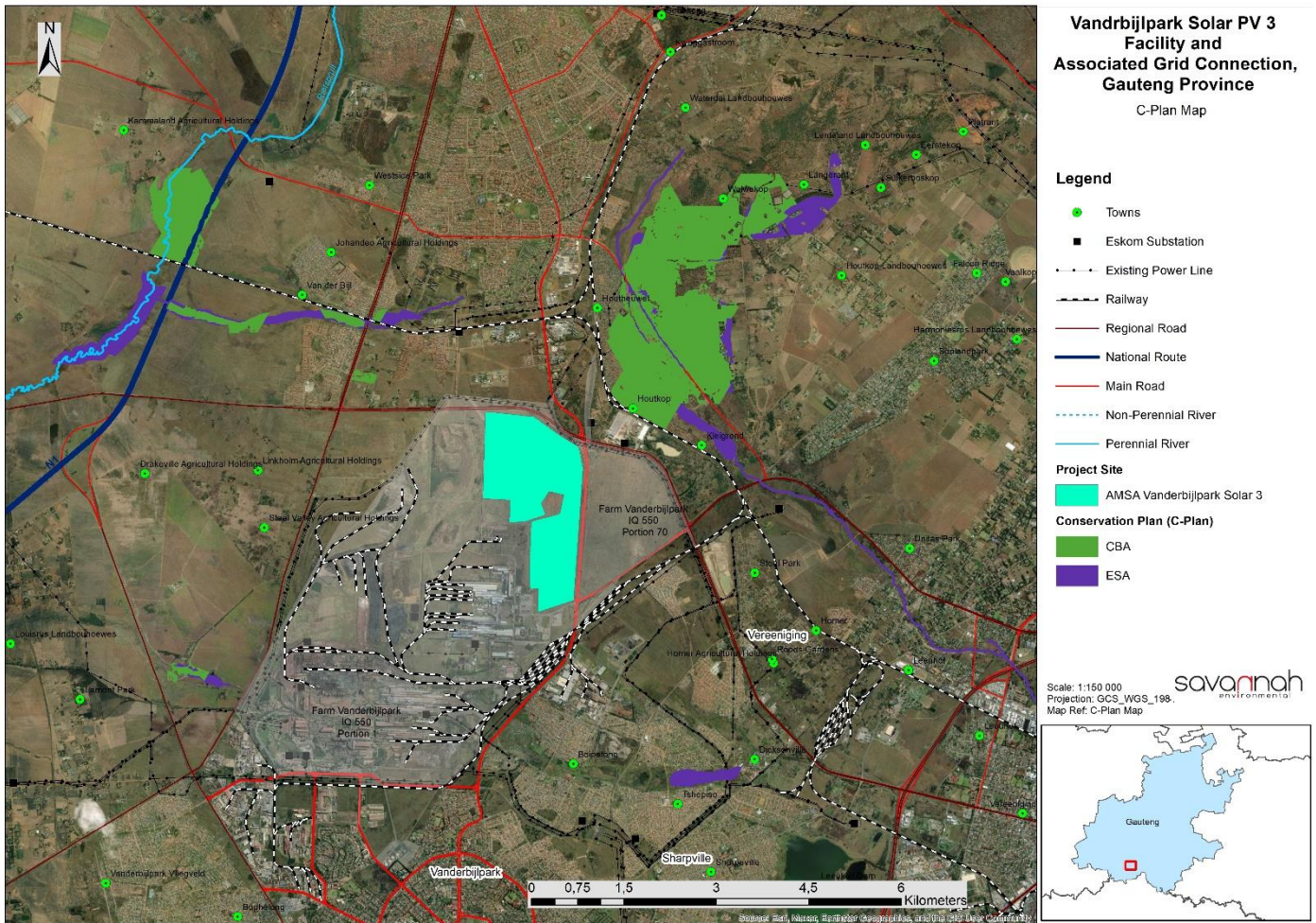


Figure 5.1 C-Plan map of the location of the proposed AMSA Vanderbijlpark Solar 3 development relative to areas of potential sensitivity.

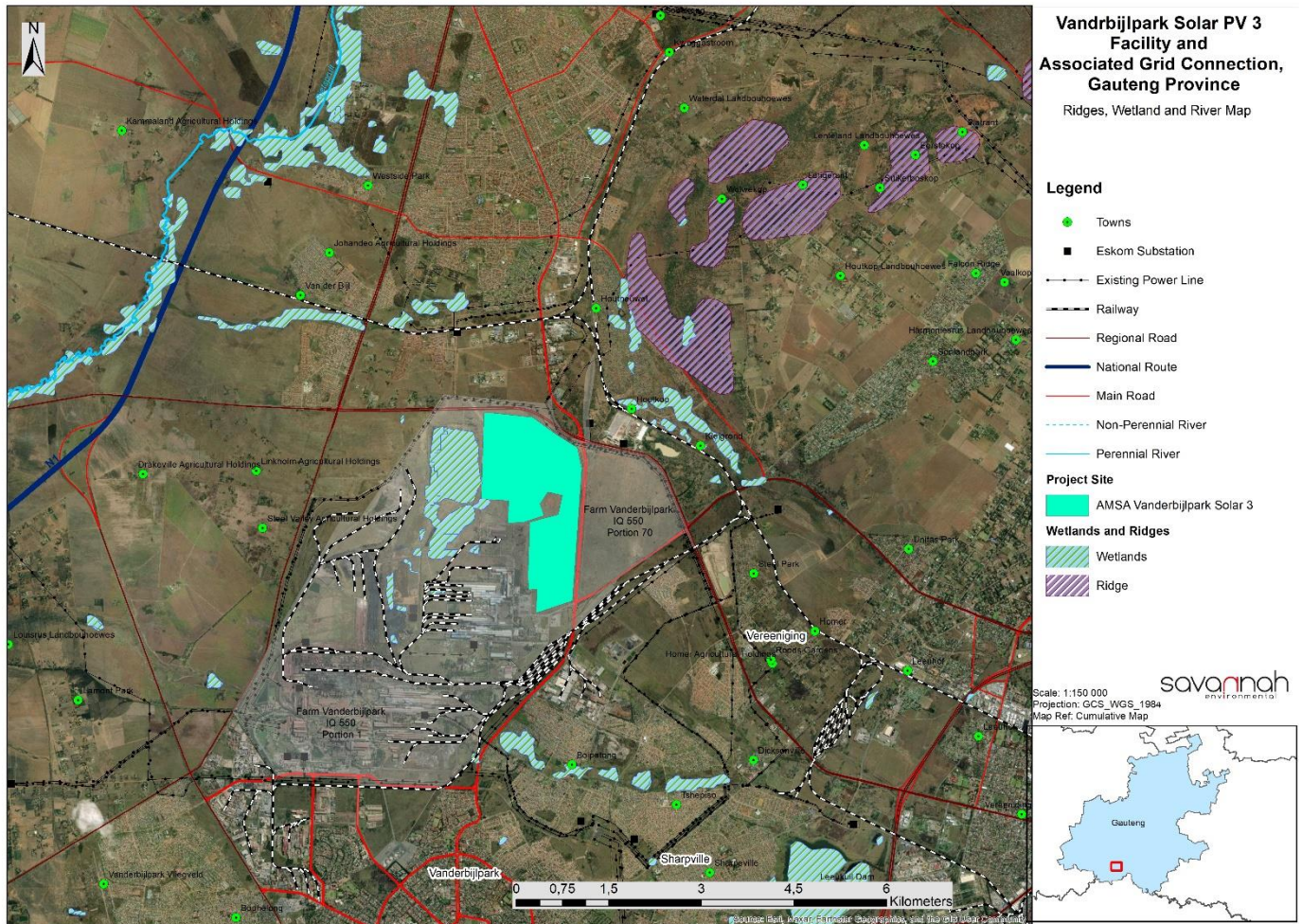


Figure 5.2 Ridges, wetland and river map of the location of the proposed AMSA Vanderbijlpark Solar 3 development relative to areas of potential sensitivity.

Potential Impacts

Issue	Nature of Impact	Extent of Impact	No-Go Areas
Destruction, fragmentation and degradation of habitats and ecosystems	<p><u>Direct impacts:</u></p> <ul style="list-style-type: none"> » Disturbance / degradation / loss to vegetation and habitats » Ecological corridors are disrupted » Habitat fragmentation <p><u>Indirect impacts:</u></p> <ul style="list-style-type: none"> » Erosion risk increases » Fire risk increases » Increase in invasive alien species 	Local	None identified at this stage
Spread and/or establishment of alien and/or invasive species	<p><u>Direct impacts:</u></p> <ul style="list-style-type: none"> » Loss of vegetation and habitat due to increase in alien species <p><u>Indirect impacts:</u></p> <ul style="list-style-type: none"> » Creation of infrastructure suitable for breeding activities of alien and/or invasive species » Spreading of potentially dangerous diseases due 	Local	None identified at this stage

Issue	Nature of Impact	Extent of Impact	No-Go Areas
	to invasive and pest species		
Direct mortality of fauna	<u>Direct impacts:</u> » Loss of SCC » Loss of fauna diversity <u>Indirect impacts:</u> » Loss of diversity and species composition in the area » Possible impact on the food chain	Local	None identified at this stage
Reduced dispersal/migration of fauna	<u>Direct impacts:</u> » Loss of genetic diversity » Isolation of species and groups leading to inbreeding <u>Indirect impacts:</u> » Loss of diversity and species composition in the area. » Possible impact on the food chain	National/ Local	None identified at this stage
Environmental pollution due to water runoff, spills from vehicles and erosion	<u>Direct impacts:</u> » Pollution in waterbodies and the surrounding environment » Faunal mortality (direct and indirectly) <u>Indirect impacts:</u> » Groundwater pollution » Loss of ecosystem services	Regional/ Local	None identified at this stage
Disruption/alteration of ecological lifecycles (breeding, migration, feeding) due to noise, dust, heat radiation and light pollution.	<u>Direct impacts:</u> » Disruption/alteration of ecological lifecycles due to noise » Reduced pollination and growth of vegetation due to dust » Faunal mortality due to light pollution (nocturnal species becoming more visible to predators) » Heat radiation could lead to the displacement of species <u>Indirect impacts:</u> » Loss of ecosystem services	Local	None identified at this stage
Staff and others interacting directly with fauna (potentially dangerous) or poaching of animals	<u>Direct impacts:</u> » Loss of SCC or Threatened or Protected Species <u>Indirect impacts:</u> » Loss of ecosystem service » Loss of genetic diversity	Local	None identified at this stage
Description of expected significance of impact The development of the area could result in the loss or degradation of the habitat and vegetation which is expected to support a few flora SCC species. The construction of the solar facility could also lead to the displacement/mortalities of the fauna and more specifically SCC fauna species. The operation of the facility could result in the disruption of ecological life cycles. This could be as a result of a number of things, but mainly due to dust, noise, light pollution and heat radiation. The disturbance of the soil/vegetation layer will allow for the establishment of flora alien invasive species. In turn, the new infrastructure could provide refuge for invasive/feral fauna species. Erosion is another possible impact that could result from the disturbance of the topsoil and vegetation cover. A			

Issue	Nature of Impact	Extent of Impact	No-Go Areas
	number of machines, vehicles and equipment will be required, aided by chemicals and concrete mixes for the project. Leaks, spillages or breakages from any of these could result in contamination of the receiving water resources. Contaminated water resources are likely to have an effect on the associated biota. The significance of these impacts will be determined after a field assessment has been conducted.		
	<p>Gaps in knowledge & recommendations for further study</p> <ul style="list-style-type: none"> » This is completed at a desktop level only. » Identification and descriptions of habitats. » Identification of the Site Ecological Importance. » Location and identification of SCCs as well as in the case of fauna their location of the nests/dens. » Determine a suitable buffer width for the identified features <p>Recommendations with regards to general field surveys</p> <ul style="list-style-type: none"> » Field surveys to prioritise the development footprint, but also consider the 500m project area of influence (PAOI). » Fieldwork to be undertaken during the wet season period. » Avifauna assessment field work to be conducted over two seasons, to ensure migratory species are considered. 		

5.2.2 Impacts on Freshwater Features

Description of Potential Impacts

A key consideration for the scoping level impact assessment is the presence of the water resources located in proximity beyond the project area. The available data suggests that no South African Inventory of Inland Aquatic Ecosystems (SIIAE) or National Freshwater Ecosystem Priority Area (NFEPA) are present in the project area as indicated in **Figure 5.2**.

Although unlikely due to the proximity of the site relative to water resources. Construction could result in the encroachment into nearby water resources and result in the loss or degradation of these systems (if available), most of which will provide ecological services. These disturbances could also result in the infestation and establishment of alien vegetation, which would affect the functioning of the systems. Leaks and/or spillages could result in contamination of the receiving water resources. Contaminated water resources are likely to influence the associated biota. An increase in stormwater runoff could result in physical changes to the receiving systems caused by erosion, run-off and sedimentation, and the functional changes could result in changes to the vegetative structure of the systems.

Potential Impacts

Issue	Nature of Impact	Extent of Impact	No-Go Areas
Disturbance / degradation / loss to wetland soils or vegetation due to the construction of the Project and associated infrastructure, such as crossings	<p><u>Direct impacts:</u></p> <ul style="list-style-type: none"> » Disturbance / degradation / loss to wetland soils or vegetation <p><u>Indirect impacts:</u></p> <ul style="list-style-type: none"> » Loss of ecosystem services 	Local	None identified at this stage
Increased erosion and sedimentation & contamination of	<p><u>Direct impacts:</u></p> <ul style="list-style-type: none"> » Erosion and structural changes to the systems 	Local	None identified at this stage

resources	<u>Indirect impacts:</u> » Sedimentation & contamination of downstream reaches		
<p>Description of expected significance of impact</p> <p>The development of the area is unlikely to result in encroachment into water resources, but this must be confirmed during a site visit. Disturbances such as these could result in degradation of the system and the infestation and establishment of alien vegetation which would affect the functioning of the systems. Earthworks will expose and mobilise earth materials which could result in sedimentation of a receiving system. A number of machines, vehicles and equipment will be required, aided by chemicals and concrete mixes for the project. Leaks, spillages or breakages from any of these could result in contamination of a receiving water resource. Contaminated water resources are likely to influence the associated biota. It is anticipated to increase stormwater runoff due to the hardened surfaces which will result in an increase in run-off volume and velocities, resulting in altered flow regimes. The changes could result in physical changes to a receiving system caused by erosion, run-off and also sedimentation, and the functional changes could result in changes to the vegetative structure of the system. The reporting of surface run-off to the system could also result in the contamination of the system, transporting (in addition to sediment) diesel, hydrocarbons and soil from the operational areas. The significance of these impacts will be determined after a field assessment has been conducted.</p>			
<p>Gaps in knowledge & recommendations for further study</p> <ul style="list-style-type: none"> » This is completed at a desktop level only. » Identification, delineation and characterisation of water resources. » Undertake a functional assessment of systems where applicable. » Determine a suitable buffer width for the resources. <p>Recommendations with regards to general field surveys</p> <ul style="list-style-type: none"> » Field surveys to prioritise the development areas, but also consider the 500m regulated area. » Beneficial to undertake fieldwork during the wet season period. 			

5.2.3 Impacts on Soils and Agricultural Capacity

Description of Potential Impacts

The proposed development can result in the loss of land capability. The disturbances could further also result in the infestation and establishment of alien vegetation, which in turn can have a detrimental impact on soil resources. The development of the area could also result in compaction and/or erosion. Furthermore, these activities could also cause leaks and/or spillages resulting in contamination of soil resources, which could affect the salinity or pH of the soil, which can render the fertility of the soil unable to provide nutrition to plants.

Potential Impacts

Issue	Nature of Impact	Extent of Impact	No-Go Areas
Compaction / soil stripping / transformation of land use, which leads to loss of land capability.	<u>Direct impacts:</u> » Loss of soil / land capability <u>Indirect impacts:</u> » Loss of land capability	Local	None identified at this stage
Issue	Nature of Impact	Extent of Impact	No-Go Areas
Erosion	<u>Direct impacts:</u> » Loss of topsoil soil <u>Indirect impacts:</u> » Loss of land capability	Site/ Local	None identified at this stage

Issue	Nature of Impact	Extent of Impact	No-Go Areas
<p>Description of expected significance of impact</p> <p>The development of the area could result in the encroachment into areas characterised by high land potential properties, which can ultimately result in the loss of land capability. These disturbances could also result in the infestation and establishment of alien vegetation, which in turn can have a detrimental impact on soil resources. Earthworks will expose and mobilise earth materials which could result in compaction and/or erosion. A number of machines, vehicles and equipment will be required, aided by chemicals and concrete mixes for the project. Leaks, spillages or breakages from any of these could result in contamination of soil resources, which could affect the salinity or pH of the soil, which can render the fertility of the soil unable to provide nutrition to plants. During the operational phase, the impacts associated with the solar PV array will be easily managed by best "housekeeping" practices. The significance of these impacts will be determined after a field assessment has been conducted.</p>			
<p>Gaps in knowledge & recommendations for further study</p> <ul style="list-style-type: none"> » This soils study is completed at a desktop level only. » Identification and delineation of soil forms. » Determine of soil sensitivity. <p>Recommendations with regards to general field surveys</p> <ul style="list-style-type: none"> » Field surveys to prioritise the development footprint. 			

5.2.4 Impacts on Heritage (Archaeology, Palaeontology and Cultural Landscape)

Description of the Affected Environment.

The project area were previously disturbed in varying degrees, which range from agricultural activities to large-scale development and industrial activities. The AMSA Vanderbijlpark Solar 3 are mainly characterised as both flat open grassy fields and large agricultural areas.

The project site has evidence of being previously disturbed, and there are dirt roads located across the area which is currently being used by heavy-duty vehicles to transport material. There is also a lot of dumping in the area as well as many old excavations. Some old farm roads were observed in certain areas as well as existing powerlines. The open fields are also currently used as grazing for cattle.

A heritage screening report was compiled using the Department of Forestry, Fisheries and Environmental Affairs (DFFE) National Web-based Environmental Screening Tool as required by Regulation 16(1)(v) of the Environmental Impact Assessment Regulations 2014, as amended. According to the heritage screening report, the Project Site has a Low Heritage Sensitivity, and a Very High, High, Medium and Low Palaeontology Sensitivity. The fieldwork has shown that some archaeological and heritage resources were present in the area and thus have a higher rating than the original screening rating. This is in part due to the low resolution of the available data that the screening data is based on.

Potential Impacts

Issue	Nature of Impact	Extent of Impact	No-Go Areas
Potential Impact: » Impact to archaeological resources » Impact to palaeontological resources » Impact to Cultural Landscape » Cumulative Impact	» Impact to significant archaeological resources such as Stone Age artefact scatters, burial grounds and graves, Iron age sites and historical artefacts through destruction during the development phase is likely. » - Impacts to palaeontological resources are likely. » - Due to the nature of the development and its context, cumulative impact and negative impact to the cultural landscape is likely	Local with broader impacts to scientific knowledge	None identified at this stage
Desktop Sensitivity Analysis of the Site Based on the information available, there are no "fatal flaws" in terms of potential impacts to heritage resources associated with the Proposed Development Areas. It is, however, recommended that the final development area selected for the proposed development be subject to a Heritage Impact Assessment to assess impacts to archaeological and palaeontological resources, as well as potentially historically significant structures and burials or burial grounds.			
Gaps in knowledge & recommendations for further study » This study is completed at a desktop level only. It is likely that the proposed development will impact significant cultural landscape, archaeological and palaeontological heritage and as such, it is recommended that a heritage impact assessment be completed that assesses these impacts as per section 38(3) of the NHRA.			

5.2.5 Visual Impacts

Potential Impacts

The construction and operation of the proposed AMSA Vanderbijlpark Solar 3 may have a visual impact on potentially sensitive visual receptors particularly within (but not restricted to) a 6 km radius of the proposed project development site. The fact that some components of the proposed AMSA Vanderbijlpark Solar 3 and associated infrastructure may be visible does not necessarily imply a high visual impact. Sensitive visual receptors within (but not restricted to) a 3km buffer zone from the facility need to be identified and the severity of the visual impact assessed within the EIA phase of the project.

Anticipated issues related to the potential visual impact of the proposed AMSA Vanderbijlpark Solar 3 include the following:

Issue	Nature of Impact	Extent of Impact	No-Go Areas
Potential Impact: » Impact associated with the construction phase » Glint and glare impact » Impact of operational, safety and security » Cumulative Impact » Impact on observers travelling along roads in closer proximity to the proposed development » Impact of visibility of the proposed development » Impact of visual character or sense of place » Impact of the construction of ancillary infrastructure	» Safety impacts during the construction and operational phases is likely. » Impacts to observers travelling along the roads and possible are likely. » Impacts on residents nearby the facility » Due to the nature of the development and its context, cumulative impacts and negative impact to the sense of place is likely	Local - Regional	N/A
Desktop Sensitivity Analysis of the Site Based on the information available, there are no "fatal flaws" in terms of potential impacts to sensitive visual receptors associated with the Proposed Development Areas. It is, however, recommended that the final development area selected for the proposed development be subject to a visual Impact Assessment to assess additional spatial analyses be undertaken in order to create a visual impact index that will further aid in determining potential areas of visual impact.			
Gaps in knowledge & recommendations for further study » This study is completed at a desktop level only. It is likely that the proposed development will impact sensitive visual receptors and as such, it is recommended that a visual impact assessment and glint and glare assessment be completed that assesses these impacts.			

5.2.6 Noise Impacts

Potential Impacts

Generally, noises associated with a PV facility relates to:

- Construction activities, though such noises are generally of a short duration and normally only associated with the day-time period (reducing the probability of a noise impact occurring); and
- Operational activities, associated with the limited maintenance activities, a hum from the invertors and transformers in the substations, as well as fan noises from the climate control system of the BESS. Noises from the BESS may take place at night and could be audible up to 500m from a BESS at night.

Considering the project area to be developed initially, as well as the distance between potential noise sources and identified Noise Screening Report (NSR) (the VUT Sebokeng campus), the temporary nature of construction noise impacts as well as the low magnitude of operational noises, the development of the AMSA Vanderbijlpark Solar 3 within the development areas defined it is unlikely to influence ambient sound levels at the NSR in the vicinity of the project site.

For the initial project development area, it is the opinion of the specialist that no further Scoping or other acoustical studies would be required, and it is recommended that the AMSA Vanderbijlpark Solar 3 project be authorized (in terms of acoustics).

However, should AMSA extend the AMSA Vanderbijlpark Solar 3 project closer to a residential dwelling on the agricultural land, it is recommended that:

- AMSA either relocate the residential dwelling further than 200m from the proposed PV infrastructure; or
- AMSA do not locate any PV infrastructure within 200m from the residential dwelling.

5.2.7 Socio Economic Impacts

Description of Potential Impacts

The positive and negative social impacts identified and evaluated for the construction phase include:

- » Creation of employment opportunities
- » Potential risks to livestock and farming infrastructure and the presence of workers on site
- » In-migration or potential influx of job seekers
- » Potential impacts of heavy and construction related activities
- » Increase Traffic

Potential Impacts

Impact			
Creation of local employment and business opportunities, skill development and training			
Issue	Nature of Impact	Extent of Impact	No-Go Areas
Creation of local employment and business opportunities, skill development and training associated with construction phase	<u>Direct impacts:</u> » Creation of temporary employment opportunities » Creation of business procurement opportunities <u>Indirect impacts:</u> » Creation of skill and development opportunities » Support the local economy	Local - Regional	N/A
Description of expected significance of impact			
The AMSA Solar Cluster Energy Facility construction phase will extend over a period of 18months. A total of 250 people are expected to be employed during construction phase. They will be sourced from the local communities, but this is dependent to a skill survey conducted by the Economic Development Consultant that will be appointed closer to the construction or bidding process. The surrounding areas would be in a position to qualify for most of the low skilled and semi-skilled opportunities. The business-related opportunities will be linked to hospitality (accommodation) and services sector (catering, security, transport etc.). This will result in a benefit to the local communities, the significance of which is expected to be medium in the short-term.			
Gaps in knowledge & recommendations for further study			
» Collection of information on local skills, educational levels and service sectors			
Recommendations with regards to general field surveys			
» Site visit and further interviews with Landowners and other relevant stakeholders			

Impact			
The potential risks to safety of local communities associated with the presence of construction workers on site			
Issue	Nature of Impact	Extent of Impact	No-Go Areas
The potential risks to safety of local communities associated with the presence of construction workers on site	<u>Direct impacts:</u> » <u>Break-ins and theft of livestock</u> » <u>Harm to local community or potential attacks</u> <u>Indirect impacts:</u> » <u>Resentment of outsiders and tension with local communities</u> » <u>Increase in risk of theft</u>	Local	N/A
Description of expected significance of impact			
According to data from the previous energy projects, movements and activities of construction workers can have an impact on the host communities. This is typically related to projects in rural areas and the risks are to the local farmers. Impacts are potentially of moderate significance but could be effectively reduced to low with the implementation of mitigation measures.			
Gaps in knowledge & recommendations for further study			
» Collection of data on the existing farming operations and activities			
Recommendations with regards to general field surveys			
» Site visit and further interviews with the local farmers			

Impact
Potential impacts on family structures, social networks and community services associated with the influx of job seekers

Issue	Nature of Impact	Extent of Impact	No-Go Areas
The potential risks to livestock and farming infrastructure and the presence of workers on site	<u>Direct impacts:</u> » Anti -Social behaviour of construction workers » Disruption of social networks <u>Indirect impacts:</u> » Resentment of outsiders and tension with local communities	Local	N/A
Description of expected significance of impact Evidence from other renewable energy projects indicates that the construction phase can result in the influx of jobseekers to the area and that this has the potential to impact negatively on local communities. Impacts can be of Moderate significance but can be reduced with the implementation of mitigation measures.			
Gaps in knowledge & recommendations for further study » Gathering of data on the existing community and needs Recommendations with regards to general field surveys » Site visit and interviews with representatives from the local municipality, community representatives and landowners.			

Impact			
Potential Negative Impact: Potential impacts of heavy construction vehicles and increase in traffic			
Issue	Nature of Impact	Extent of Impact	No-Go Areas
Potential, traffic, noise, dust and safety impacts associated with construction related activities	<u>Direct impacts:</u> » Dust impacts, and impact on the local communities living closer to the construction site » Noise impacts caused by moving construction vehicles » Damage on the gravel road that is leading to the project site <u>Indirect impacts:</u> » Limited indirect impacts	Local	N/A
Description of expected significance of impact Evidence from other renewable energy projects suggests that the construction-related activities do have an impact on the local communities in terms of dust, noise, and safety. Impacts could be of moderate significance in the short-term but can be effectively reduced through the implementation of appropriate management measures. Traffic impacts are expected during the construction phase. This can result in impacts on local roads and daily movement patterns. Impacts could be of moderate significance in the short term but could be effectively reduced through appropriate management measures.			
Gaps in knowledge & recommendations for further study » Gathering of information on existing farming activities and operations Recommendations with regards to general field surveys » Site visit and interviews with community representatives and farmers			

The positive and negative social impacts identified and evaluated for the **operational phase** include:

- » Creation of local employment and business opportunities, skills development, and training
- » The development of infrastructure for the generation of renewable energy
- » Visual impacts and associated impacts on the sense of place

Impact			
Issue	Nature of Impact	Extent of Impact	No-Go Areas
Creation of local employment and business opportunities, skill development and training associated with construction phase	<u>Direct impacts:</u> » Creation of employment opportunities. » Creation of business and procurement opportunities. <u>Indirect impacts:</u> » Creation of training and skills development opportunities. » Support for local economy.	Local- Regional	N/A
Description of expected significance of impact The operational phase of renewable energy projects offers a comparatively small number of direct employment possibilities. Reviewing the REIPPPP, however, reveals that there are other advantages to operating renewable energy plants that go beyond just creating employment opportunities. Although limited in number, the job opportunities provided will have a high positive impact for those individuals affected.			
Gaps in knowledge & recommendations for further study » Collection of information on local skills, educational levels and service sectors Recommendations with regards to general field surveys » Site visit and interviews with community representatives and other relevant stakeholders			

Impact			
Issue	Nature of Impact	Extent of Impact	No-Go Areas
Enhance the security of SA's energy supply and decrease coal dependence	<u>Direct impacts:</u> » Improve energy security » Support renewable energy » Reduce reliance on coal. <u>Indirect impacts:</u> » Limited indirect impacts	Local - International	N/A
Description of expected significance of impact Due to supply shortages, South Africa's prolonged energy crisis, which began in 2007, has led to widespread rolling blackouts (also known as load shedding). The load shedding has significantly affected investor confidence as well as other economic sectors. In addition to addressing environmental problems related to climate change and the consumption of finite water resources, renewable energy facilities also create significant socio-economic opportunities and benefits, particularly for historically underprivileged rural communities. Although the project will only contribute up to 153Mwac to the electricity grid, this will aid in achieving government's planned shift in the energy mix to include renewable energy.			
Gaps in knowledge & recommendations for further study » collection and reviewing of information from previous similar projects. Recommendations with regards to general field surveys » Desktop review on previous similar projects			
Impact			
Issue	Nature of Impact	Extent of Impact	No-Go Areas
Impact on rural sense of place	<u>Direct impacts:</u> » Change in rural sense of place <u>Indirect impacts:</u> » Limited indirect impacts	Local	N/A
Description of expected significance of impact Renewable energy projects do have the potential to impact on an area's sense of place in some instances, this can			

impact on the landscape of the surroundings. The findings of Visual Impact Assessment scoping report indicates that the impacts will be on primarily observers situated within a 3km radius of the facility and are expected to be moderate to high significance and can be mitigated.

Gaps in knowledge & recommendations for further study

- » Collection of data on potential sensitive land uses and activities.
- » Review of Visual Impact Assessment

Recommendations with regards to general field surveys

- » Site visit and interviews with local farmers, officials from the municipality and landowners in the area.

Impact: Decommissioning may result in the layoff of the people who worked during the operational phase.

Issue	Nature of Impact	Extent of Impact	No-Go Areas
Impact of loss of employment and income	<u>Direct impacts:</u> » Loss of employment and income <u>Indirect impacts:</u> » impact on the local economy and other business	Local - Regional	N/A

Description of expected significance of impact

Given the relatively small number of people expected to be employed during the operation phase, the social impacts associated with decommissioning are likely to be limited/minimal. Impacts on individuals are however expected to be of high significance but can be managed through the implementation of downscaling programs and retrenchment packages.

Gaps in knowledge & recommendations for further study

- » N/A

Recommendations

- » N/A

5.3 Evaluation of Potential Cumulative Impacts Associated with the Project

Description of the Affected Environment.

One (1) other solar renewable energy facility have received Environmental Authorisation within the broader study area, namely – the Lethabo Solar PV power station which is located approximately 29km south east of the proposed AMSA Vanderbijlpark Solar 3.

Description of Potential Impacts

Impacts of a cumulative nature place the direct and indirect impacts of the Project into a regional and national context, particularly in view of similar or resultant developments and activities in the region. Potential cumulative impacts associated with the Project are described below and will be assessed in detail as part of the subsequent EIA Phase to be conducted for the Project.

Cumulative impacts, in relation to an activity (refer to **Figure 5.3.**), refer to the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area. For cumulative effects analysis to help the decision-maker and inform interested parties, it must be limited to effects that can be evaluated meaningfully (DEAT, 2004). It is important to explore the potential for cumulative impacts, as this will lead to a better understanding of these impacts and the potential for mitigation that may be required. The scale at which the cumulative impacts are assessed is important. For example, the significance of the cumulative impact on the regional or national economy will be influenced by solar PV energy developments throughout South Africa, while the significance of the cumulative impact on the visual amenity may only be influenced by solar PV energy developments that are in closer proximity to each other.

The cumulative impacts associated with the Project have been viewed from two perspectives within this Scoping Report:

- » Cumulative impacts associated with the scale of the Project (153MW PV Facility and power lines on the development area); and
- » Cumulative impacts associated with other relevant planned, approved, or existing solar PV energy developments near and surrounding areas of the development area (multiple solar PV energy facilities in the proximity of the Site).

The cumulative impact assessment considers the project in the context of other similar land uses in the local study area. Other operational and historical features are within sighting distance of the proposed solar energy facility. The cumulative visual impact resulting from additional changes to the landscape caused by the proposed development, in combination with existing developments, is therefore considered to be medium as the sense of place of the area is already one of mixed residential, agriculture and industrial.

The Project site is located in an area characterised by agriculture and industrialisation and within at least 29km from one other authorised solar PV energy facility (refer to Figure 5.3):

The cumulative impacts that have the potential to be compounded through the development of the Project in proximity to other similar developments include impacts such as those listed below. The role of the cumulative assessment is to test if such impacts are relevant to the Project:

- » Unacceptable loss of threatened or protected vegetation types, habitat or species, through clearing, resulting in an impact on the conservation status of such flora, fauna or ecological functioning.
- » Unacceptable risk to freshwater features, through disturbance associated with construction activities and increased runoff and erosion during the operation phase.

- » Unacceptable risk to avifauna through habitat loss, displacement and collision with PV panels.
- » Unacceptable loss of high agricultural potential areas, presenting a risk to food security and increased soil erosion.
- » Unacceptable loss of heritage resources (including palaeontological and archaeological resources).
- » Unacceptable impact to the cultural landscape.
- » Complete or whole-scale change in the sense of place and character of an area and unacceptable visual intrusion.
- » Unacceptable impact to socio-economic factors and components.

Summary of the nature, significance, consequence, extent, duration and probability of the impacts

- » The abovementioned impacts are probable, although it is anticipated that the extent, duration, and magnitude of these impacts can be minimised to levels where this impact can be regarded as having low significance through the implementation of appropriate mitigation measures.
- » The operational lifespan of the Project and other solar PV energy facilities within the surrounding areas is expected to be long-term (i.e., a minimum of 20 years) and subsequently, the impact is also expected to be long-term.
- » The impact associated with the Project is expected to be local, affecting mainly the immediate environment and surrounding areas, as well as other solar PV energy facilities within the vicinity.

Gaps in knowledge & recommendations for further study:

- » Each specialist study will consider and assess the cumulative impacts of proposed, approved and authorised renewable projects in the area.
- » Cumulative impacts will be fully assessed and considered in the EIA Phase.

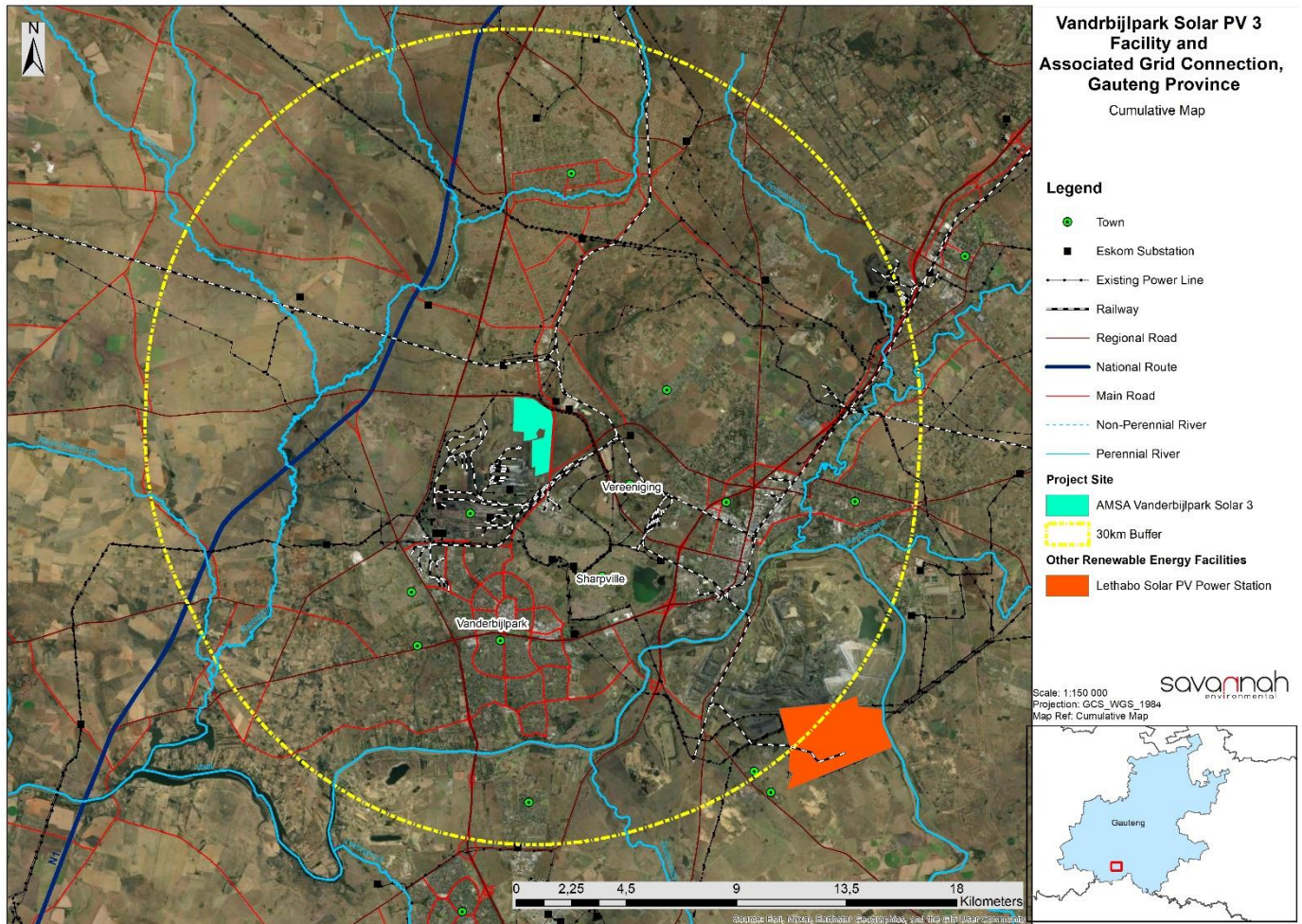


Figure 5.3: Cumulative map illustrating other approved and/or constructed Solar PV Energy Facilities located around the proposed AMSA Vanderbijlpark Solar 3 (refer to **Appendix I**).

CHAPTER 6: PLAN OF STUDY FOR THE ENVIRONMENTAL IMPACT ASSESSMENT

One of the key objectives of the Scoping Phase is to determine the level of assessment to be undertaken within the EIA Phase of the process. This will include the methodology to be applied, the expertise required as well as the extent of further consultation to be undertaken. This is to determine the impacts and risks a particular activity will impose on a preferred site through the life of the activity (including the nature, significance, consequence, extent, duration, and probability of the impacts) to inform the location of the development footprint within the preferred site.

This Chapter contains the Plan of Study for the EIA for proposed AMSA Vanderbijl Solar 3, which describes how the EIA Phase will proceed, and includes details of the independent specialist studies required to be undertaken to assess the significance of those impacts identified within the Scoping Study to be of potential significance.

6.1 Legal Requirements as per the EIA Regulations, 2014 (as amended), for the Undertaking of a Scoping Report

This chapter of the Scoping Report includes the following information required in terms of Appendix 2: Content of the Scoping Report:

Table 6.1

Requirement	Relevant Section
<p>2(1)(h) a plan of study for undertaking the environmental impact assessment process to be undertaken, including -</p> <ul style="list-style-type: none"> (i) a description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity. (ii) a description of the aspects to be assessed as part of the environmental impact assessment process. (iii) aspects to be assessed by specialists. (iv) a description of the proposed method of assessing the environmental aspects, including aspects to be assessed by specialists. (v) a description of the proposed method of assessing duration and significance. (vi) an indication of the stages at which the competent authority will be consulted. (vii) particulars of the public participation process that will be conducted during the environmental impact assessment process. (viii) a description of the tasks that will be undertaken as part of the environmental impact assessment process. (ix) identify suitable measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored. 	<p>A plan of study for the undertaking of the EIA Phase for AMSA Vanderbijlpark Solar 3 is included within this chapter as a whole.</p>

6.2 Objectives of the EIA Phase

The EIA Phase to be undertaken for the AMSA Vanderbijlpark Solar 3 and its associated infrastructure will aim to achieve the following:

- » Provide an overall description and detailed assessment of the social and biophysical environment affected by the development of the AMSA Vanderbijlpark Solar 3 and its associated infrastructure.
- » Assess potentially significant impacts (direct, indirect, and cumulative, where required) associated with the Solar PV Energy Facility.
- » Identify and recommend appropriate avoidance strategies and mitigation measures for potentially significant environmental impacts.
- » Undertake a fully inclusive public involvement process to ensure that I&APs are afforded the opportunity to participate, and that their comments are recorded.

The EIA will assess potential environmental impacts and benefits (direct, indirect, and cumulative impacts) associated with each phase of the development, including design, construction, operation and decommissioning; and will aim to provide the Competent Authority with sufficient information to make an informed decision regarding the proposed development. The site layout being proposed for the AMSA Vanderbijlpark Solar 3 will be assessed through detailed independent specialist studies. As required in terms of the 2014 EIA Regulations (GNR 326), as amended, the assessment will include consideration of the 'do nothing' alternative, (alternatives have been considered in Chapter 2 of this scoping report).

6.3 Scope of the EIA Phase

The EIA Report will be compiled in terms of the requirements of the EIA Regulations and include the information as required in Appendix 3 of GNR 326. The results of the specialist studies and other available information will be integrated, synthesised, and presented in the EIA Report by the Savannah Environmental project team. The EIA Report will assess the overall environmental impacts associated with the development, consider mitigation measures as may be required, and make recommendations regarding the best development alternative. The EIA Report will also identify mitigation measures and provide management recommendations to minimise negative impacts and enhance benefits. The EIA Report will include:

- » The details and expertise of the **EAP** who prepared the report.
- » The **location** of the development footprint of the activity and a locality map illustrating the location of the proposed activity.
- » A **description** of the scope of the proposed activity, including all listed activities triggered and a description of associated structures and infrastructure.
- » The **policy and legislative** context within which the development is located and an explanation of how the development complies and responds to the legislation and policy context.
- » The **need and desirability** of the proposed development of the activity in the context of the preferred location.
- » A motivation for the **preferred development footprint** within the approved site as contemplated in the accepted Scoping Report.
- » A description of the **process** followed to reach the proposed development footprint within the approved site, including:
 - * details of the development footprint considered;

- * details of the public participation process undertaken in terms of Regulation 41 of the 2014 EIA Regulations, including copies of supporting documents;
 - * a summary of issues raised by interested and affected parties and the manner in which the issues were incorporated;
 - * the environmental attributes associated with the development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;
 - * the impacts and risks identified including the nature, significance, consequence extent, duration and probability of the impacts, including the degree to which these impacts can be reversed, may cause irreplaceable loss of resources and can be avoided, managed or mitigated;
 - * the methodology used for determining and ranking the nature, significance, consequence, extent, duration and probability of potential environmental impacts and risks;
 - * positive and negative impacts that the activity and alternatives will have on the environment and the community;
 - * possible mitigation measures to be applied and the level of residual risk;
 - * a motivation for not considering alternative development locations;
 - * a concluding statement indicating the location of the preferred alternative development location; and
 - * a full description of the process followed to identify, assess and rank impacts of the activity and associated infrastructure on the preferred location including all environmental issues and risks that have been identified and an assessment of the significance of each issue and risk and the extent to which the issue/risk can be avoided or mitigated.
- » An **assessment** of the identified potentially significant impacts and risks.
 - » A summary of the **findings and recommendations** of any specialist report and an indication as to how these findings and recommendations have been included.
 - » An **environmental impact assessment** containing a summary of key findings, an environmental sensitivity map and a summary of the positive and negative impacts and risks of the proposed activity.
 - » An **Environmental Management Programme** (EMPr), as per Appendix 4 of GNR326, containing the recommendations from specialists, the impact management **objectives**, and the impact management **outcomes**.
 - » The final **alternatives** which respond to the impact management measures, avoidance and mitigation measures identified.
 - » Any aspects which were **conditional** to the findings of the assessment.
 - » Description of the assumptions, uncertainties and gaps in knowledge relating to the assessment and mitigation measures proposed.
 - » An **opinion** as to whether the proposed activity should or should not be authorised and the conditions thereof.
 - » An undertaking under **affirmation** by the EAP in relation to the correctness of the information, the inclusion of comments and inputs from stakeholders and interested and affected parties, the inclusion of inputs and recommendations from the specialists and any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties.

The EIA Report will be released to the public and relevant stakeholders, Organs of State and Authorities for a 30-day review and comment period. Comments received from I&APs will be captured within a Comments and Response Report, which will be included within the Final EIA Report, for submission to the Competent Authority for decision-making.

6.4 Specialist Assessments to be undertaken during the EIA Phase

A summary of the aspects which require further investigation within the EIA Phase through specialist studies, as well as the proposed activities to be undertaken in order to assess and ground truth the significance of the potential impacts is provided within **Table 6.2**. More detail on the methodology to be followed is included in the specialist reports contained in **Appendix D to G**. The specialists proposed to undertake detailed studies in the EIA Phase are also reflected within this table. These specialist studies will consider the development footprint proposed for the Solar PV Energy Facility and all associated infrastructure, as well as feasible and reasonable alternatives identified for the project.

Table 6.2: Aspects requiring further investigation by specialists during the EIA Phase and terms of reference to assess the significance of the potential impacts relevant to the AMSA Vanderbijlpark Solar 3

Aspect	Activities to be undertaken in order to assess significance of impacts	Specialist
<p>Terrestrial Ecology (including flora and fauna)</p>	<p>The following site-specific assessments are recommended for the EIA Phase:</p> <ul style="list-style-type: none"> » Undertake a flora survey, preferably during the wet season, as follows: <ul style="list-style-type: none"> ○ The fieldwork and sample sites will be placed within targeted areas (i.e., target sites) perceived as ecologically sensitive based on the preliminary interpretation of satellite imagery (Google Corporation) and GIS analysis (which will included the latest applicable biodiversity datasets) available prior to the fieldwork. The focus of the fieldwork will therefore be to maximise coverage and navigate to each target site in the field, to perform a rapid vegetation and ecological assessment at each sample site. Emphasis will be placed on sensitive habitats, especially those overlapping with the proposed project area. ○ Homogenous vegetation units will be subjectively identified using satellite imagery and existing land cover maps. The floristic diversity and search for flora SCC will be conducted through timed meanders within representative habitat units delineated during the fieldwork. Emphasis will be placed mostly on sensitive habitats overlapping with the proposed project areas. ○ Suitable habitat for SCC will be identified according to Raimondo et al. (2009) and targeted as part of the timed meanders. ○ At each sample site notes will be made regarding current impacts (e.g., livestock grazing, erosion etc.), subjective recording of dominant vegetation species, and any sensitive features (e.g., wetlands, outcrops etc.). In addition, opportunistic observations will be made while navigating through the project area. » Undertake a fauna survey. (including herpetofauna (amphibians and reptiles), avifauna (Regime 1) and mammals). The fauna survey will comprise the following techniques: <ul style="list-style-type: none"> ○ Visual and auditory searches - This typically comprises of meandering and using binoculars to view species from a distance without them being disturbed; and listening to species calls. ○ Active hand-searches - Used for species that shelter in or under particular micro-habitats (typically rocks, exfoliating rock outcrops, fallen trees, leaf litter, bark etc.). ○ Point counts for the avifauna ○ Utilization of local knowledge. » Identify the Site Ecological Importance. » Determine a suitable buffer to the identified features. <p><u>Assessment of Impacts for the EIA</u> The methodology described in Section 6.5 assists in the evaluation of the overall effect of a proposed activity on the</p>	<p>Andrew Husted of The Biodiversity Company</p>

Aspect	Activities to be undertaken in order to assess significance of impacts	Specialist
	<p>environment. It includes an assessment of the significant direct, indirect, and cumulative impacts. The significance of environmental impacts is to be assessed by means of criteria including extent (scale), duration, magnitude (severity), probability (certainty) and direction (negative, neutral or positive).</p> <p>The nature of the impact will be defined and described. It will refer to the causes of the effect, what will be affected, and how it will be affected. For each anticipated impact, recommendations will be made for desirable mitigation measures.</p> <p><u>Environmental Management Programme</u> For each overarching anticipated impact, management recommendations for the design, construction, and operational phase (where appropriate) will be drafted for inclusion in the project EMPr.</p>	
<p>Freshwater resources (including waterbodies and wetlands) all and</p>	<p><u>The EIA Phase will include the following activities:</u></p> <ul style="list-style-type: none"> » A risk assessment will be completed in accordance with the requirements of the DWS General Authorisation (GA) in terms of Section 39 of the NWA for water uses as defined in Section 21(c) or Section 21(i) (GN 509 of 2016). » The National Wetland Classification Systems (NWCS) developed by the SANBI will be considered for this assessment. This system comprises a hierarchical classification process of defining a wetland based on the principles of the hydrogeomorphic (HGM) approach at higher levels. In addition, the method will also include the assessment of structural features at the lower levels of classification (Ollis et al., 2013). » The wetland areas will be delineated in accordance with the DWAF (2005) guidelines. » The outer edges of the wetland areas will be identified by considering the following four specific indicators, the: <ul style="list-style-type: none"> o Terrain Unit Indicator helps to identify those parts of the landscape where wetlands are more likely to occur; o Soil Form Indicator identifies the soil forms, as defined by the Soil Classification Working Group (1991), which are associated with prolonged and frequent saturation. o Soil Wetness Indicator identifies the morphological "signatures" developed in the soil profile due to prolonged and frequent saturation; and o Vegetation Indicator identifies hydrophilic vegetation associated with frequently saturated soils. Vegetation will be used as the primary wetland indicator. However, in practise the soil wetness indicator tends to be the most important, and the other three indicators will be used in a confirmatory role. <p><u>Assessment of Impacts for the EIA:</u> The methodology described in Section 6.5 assists in the evaluation of the overall effect of a proposed activity on the environment. It includes an assessment of the significant direct, indirect, and cumulative impacts. The significance of environmental impacts is to be assessed by means of criteria including extent (scale), duration, magnitude (severity),</p>	<p>Andrew Husted of The Biodiversity Company</p>

Aspect	Activities to be undertaken in order to assess significance of impacts	Specialist
	<p>probability (certainty) and direction (negative, neutral or positive).</p> <p>The nature of the impact will be defined and described. It will refer to the causes of the effect, what will be affected, and how it will be affected. For each anticipated impact, recommendations will be made for desirable mitigation measures.</p> <p><u>Environmental Management Programme:</u> For each overarching anticipated impact, management recommendations for the design, construction, and operational phase (where appropriate) will be drafted for inclusion in the project EMPr.</p>	
<p>Soils and Agricultural Potential</p>	<p><u>The EIA Phase will include the following activities:</u></p> <p>The soils impact assessment will include the consideration of aspects related to agricultural aspects in accordance with the protocols and procedures of GN 320 of 2020. The assessment will also include:</p> <ul style="list-style-type: none"> » Undertake a field survey that will prioritise the development footprint. » Identification and delineation of soils forms. » Determination of soil sensitivity. <p><u>Assessment of Impacts for the EIA:</u></p> <p>The methodology described in Section 6.5 assists in the evaluation of the overall effect of a proposed activity on the environment. It includes an assessment of the significant direct, indirect, and cumulative impacts. The significance of environmental impacts is to be assessed by means of criteria including extent (scale), duration, magnitude (severity), probability (certainty) and direction (negative, neutral or positive).</p> <p>The nature of the impact will be defined and described. It will refer to the causes of the effect, what will be affected, and how it will be affected. For each anticipated impact, recommendations will be made for desirable mitigation measures.</p> <p><u>Environmental Management Programme:</u> For each overarching anticipated impact, management recommendations for the design, construction, and operational phase (where appropriate) will be drafted for inclusion in the project EMPr.</p>	<p>Andrew Husted of The Biodiversity Company</p>
<p>Heritage (including cultural landscape, archaeology and palaeontology)</p>	<p><u>The EIA Phase will include the following activities:</u></p> <p>As part of the EIA, it is necessary to undertake a Heritage and Archaeological Study to fulfil the SAHRA requirements in accordance with the section 38(3) of the National Heritage Resources Act (No. 25 of 1999) (NHRA). The following activities will be undertaken during the EIA Phase:</p> <ul style="list-style-type: none"> » Undertake field assessments in order to fill the identified gaps in knowledge. The archaeological field surveys will 	<p>Wouter Fourie of PGS Heritage</p>

Aspect	Activities to be undertaken in order to assess significance of impacts	Specialist
	<p>provide sufficient ground-coverage of the areas to be developed to be able to determine the nature of the resources likely to be impacted. The palaeontological and cultural landscape field surveys will identify and target sensitive geological and cultural landscape features if any.</p> <p>The heritage resources will be described both in terms of type:</p> <ul style="list-style-type: none"> » Group 1: Archaeological, Underwater, Palaeontological and Geological sites, Meteorites, and Battlefields » Group 2: Structures, Monuments and Memorials » Group 3: Burial Grounds and Graves, Living Heritage, Sacred and Natural sites » Group 4: Cultural Landscapes, Conservation Areas and Scenic routes <p>and significance (Grade I, II, IIIa, b or c, ungraded), as determined by the author of the original heritage impact assessment report or by formal grading and/or protection by the heritage authorities.</p> <p>Sites identified and mapped during research projects will also be considered. The extent of the inclusion zone to be considered for the Heritage Screener will be determined based on:</p> <ul style="list-style-type: none"> » the size of the development, » the number and outcome of previous surveys existing in the area » the potential cumulative impact of the application. <p>The inclusion zone will be considered as the region within a maximum distance of 50 km from the boundary of the proposed development.</p> <p>The possible impact of the proposed development on palaeontological resources is gauged by:</p> <ul style="list-style-type: none"> » reviewing the fossil sensitivity maps available on the South African Heritage Resources Information System (SAHRIS) » considering the nature of the proposed development » when available, taking information provided by the applicant related to the geological background of the area into account. <p>A Heritage and Archaeological Impact Assessment (including cultural landscape and palaeontology) will therefore be conducted, the primary objective of which is to determine the heritage and archaeological significance of features on the site as well as the significance of the cultural landscape.</p> <p><u>Assessment of Impacts for the EIA:</u></p> <p>The methodology described in Section 6.5 assists in the evaluation of the overall effect of a proposed activity on the environment. It includes an assessment of the significant direct, indirect, and cumulative impacts. The significance of</p>	

Aspect	Activities to be undertaken in order to assess significance of impacts	Specialist
	<p>environmental impacts is to be assessed by means of criteria including extent (scale), duration, magnitude (severity), probability (certainty) and direction (negative, neutral or positive).</p> <p>The nature of the impact will be defined and described. It will refer to the causes of the effect, what will be affected, and how it will be affected. For each anticipated impact, recommendations will be made for desirable mitigation measures.</p> <p><u>Environmental Management Programme:</u> For each overarching anticipated impact, management recommendations for the design, construction, and operational phase (where appropriate) will be drafted for inclusion in the project EMPr.</p>	
Visual	<p><u>The EIA Phase will include the following activities:</u></p> <ul style="list-style-type: none"> » A visual impact assessment will be undertaken during the EIA Phase. Confirmation of the following is required in order to investigate and finalise the issues and impacts highlighted by the Visual Scoping Study: <ul style="list-style-type: none"> ○ Confirmation of the facility layout. ○ Undertake a site visit to assess the proposed development. » The following methodology will be used in preparation of the visual impact assessment for the EIA Phase: » Refinement of the baseline study, description of the visual character of the sites and zone of visual influence, if required. » Adjust the list of identified visual impacts resulting from the proposed development (with consideration of any public and/or relevant authorities' comments), if required. » Assessment of visual impacts based on the following VIA rating criteria, namely: <ul style="list-style-type: none"> ○ Quality of the affected environment (landscape) – the aesthetic excellence and significance of the visual resources and scenery; ○ Viewer incidence, perception and sensitivity – the level of acceptable visual impact is influenced by the type of visual receptors. ○ Determine the Visual Absorption Capacity (VAC) – the capacity of the receiving environment to absorb the potential visual impact of the proposed development; ○ Refine the potential visual exposure (visibility) - the geographic area from which the project may be visible based on any layout changes undertaken between the Scoping and EIA Phase; ○ Determine the cumulative visual exposure - the combined or incremental effects resulting from changes caused by a proposed development in conjunction with other existing or proposed activities; ○ Visual Impact Index - the combined results of visual exposure, viewer incidence / perception and visual distance of the proposed facility. Values are assigned for each potential visual impact per data category and merged in order to calculate the visual impact index; 	Lourens Du Plessis of LOGIS

Aspect	Activities to be undertaken in order to assess significance of impacts	Specialist
	<ul style="list-style-type: none"> » Assessment of the significance of the visual impacts, rated according to methodology outlined in Section 6 above, which includes: <ul style="list-style-type: none"> o Extent, duration, magnitude and probability to determine significance; and o Significance considered with status (positive, negative or neutral) and reversibility (reversible, recoverable or irreversible) following decommissioning of the proposed facility. » Impacts will be rated before mitigation and after, assuming mitigation is possible. <p>Development of mitigation measures to reduce visual impacts and enhance any positive visual benefits, where possible.</p> <p><u>Assessment of Impacts for the EIA:</u></p> <p>The methodology described in Section 6.5 assists in the evaluation of the overall effect of a proposed activity on the environment. It includes an assessment of the significant direct, indirect, and cumulative impacts. The significance of environmental impacts is to be assessed by means of criteria including extent (scale), duration, magnitude (severity), probability (certainty) and direction (negative, neutral or positive).</p> <p>The nature of the impact will be defined and described. It will refer to the causes of the effect, what will be affected, and how it will be affected. For each anticipated impact, recommendations will be made for desirable mitigation measures.</p> <p><u>Environmental Management Programme:</u></p> <p>For each overarching anticipated impact, management recommendations for the design, construction, and operational phase (where appropriate) will be drafted for inclusion in the project EMPr.</p>	
Socio-Economic	<p><u>The EIA Phase will include the following activities:</u></p> <p>The full EIA level Socio-Economic Impact Assessment will be conducted as part of the EIA Phase. The following activities will be undertaken as part of the process:</p> <ul style="list-style-type: none"> » Gathering information and reviewing of reports and baseline socio-economic data on the area. » Identification of the elements involved in the construction and operational phase of the project, such as an estimate of total capital expenditure, number of employments created and breakdown of the employment opportunities in terms in skill levels. » Review from key findings of specialist studies that have an impact on SIA, such as the Visual Impact Assessment (VIA), Soils and Agricultural Potential Impact Assessment and Heritage Impact Assessment. » Undertake a site visit and interviews with key stakeholders and landowners. » The project's construction, operational, and decommissioning phases all have potential implications, both positive and negative, which should be identified and evaluated. » Identification and assessment of key issues, as well as assessment of potential impacts (both positive and negative) 	<p>Molatela Ledwaba of Savannah Environmental (Pty) Ltd</p>

Aspect	Activities to be undertaken in order to assess significance of impacts	Specialist
	<p>associated with the project's construction, operational and decommissioning phases.</p> <ul style="list-style-type: none"> » Identifying and assessing cumulative impacts (positive and negative). » Identifying appropriate measures to avoid, mitigate, enhance and compensate for potential social impacts. » Compilation of Social Impact Assessment (SIA) Report. <p><u>Assessment of Impacts for the EIA:</u> The methodology described in Section 6.5 assists in the evaluation of the overall effect of a proposed activity on the environment. It includes an assessment of the significant direct, indirect, and cumulative impacts. The significance of environmental impacts is to be assessed by means of criteria including extent (scale), duration, magnitude (severity), probability (certainty) and direction (negative, neutral or positive).</p> <p>The nature of the impact will be defined and described. It will refer to the causes of the effect, what will be affected, and how it will be affected. For each anticipated impact, recommendations will be made for desirable mitigation measures.</p> <p><u>Environmental Management Programme:</u> For each overarching anticipated impact, management recommendations for the design, construction, and operational phase (where appropriate) will be drafted for inclusion in the project EMPr.</p>	
Cumulative Assessment	<p>Assess the cumulative impacts associated with the construction and operation of more than one development (i.e., renewable energy developments) within the immediate surrounding areas of the project site on the ecological, heritage, soil and agricultural potential, avifaunal, social, and visual impacts of the area.</p> <p><u>The objective is to identify and focus on potentially significant cumulative impacts so these may be taken into consideration in the decision-making process. The following will be considered:</u></p> <ul style="list-style-type: none"> o Unacceptable loss of threatened or protected vegetation types, habitat or species through clearing, resulting in an impact on the conservation status of such flora, fauna or ecological functioning. o Unacceptable risk to freshwater features through disturbance associated with construction activities and increased runoff and erosion during the operation phase. o Unacceptable risk to avifauna through habitat loss, displacement and collision with PV panels. o Unacceptable loss of high agricultural potential areas, presenting a risk to food security and increased soil erosion. o Unacceptable loss of heritage resources (including palaeontological and archaeological resources). o Unacceptable impact to the cultural landscape. 	Specialists and Savannah Environmental

Aspect	Activities to be undertaken in order to assess significance of impacts	Specialist
	<ul style="list-style-type: none">o Complete or whole-scale change in the sense of place and character of an area and unacceptable visual intrusion.o Unacceptable impact to socio-economic factors and components.	

6.5 Methodology for the Assessment of Potential Impacts

Direct, indirect, and cumulative impacts of the above issues identified through this Scoping Study will be assessed in terms of the following criteria:

- » The **nature**, which shall include a description of what causes the effect, what will be affected and how it will be affected.
- » The **extent**, wherein it will be indicated whether the impact will be local (limited to the immediate area or site of development) or regional:
 - * local extending only as far as the development site area – assigned a score of 1;
 - * limited to the site and its immediate surroundings (up to 10 km) – assigned a score of 2;
 - * will have an impact on the region – assigned a score of 3;
 - * will have an impact on a national scale – assigned a score of 4; or
 - * will have an impact across international borders – assigned a score of 5.
- » The **duration**, wherein it will be indicated whether:
 - * the lifetime of the impact will be of a very short duration (0–1 years) – assigned a score of 1;
 - * the lifetime of the impact will be of a short duration (2–5 years) - assigned a score of 2;
 - * medium-term (5–15 years) – assigned a score of 3;
 - * long term (> 15 years) - assigned a score of 4; or
 - * permanent - assigned a score of 5.
- » The **magnitude**, quantified on a scale from 0-10, where a score is assigned:
 - * 0 is small and will have no effect on the environment;
 - * 2 is minor and will not result in an impact on processes;
 - * 4 is low and will cause a slight impact on processes;
 - * 6 is moderate and will result in processes continuing but in a modified way;
 - * 8 is high (processes are altered to the extent that they temporarily cease); and
 - * 10 is very high and results in complete destruction of patterns and permanent cessation of processes.
- » The **probability of occurrence**, which shall describe the likelihood of the impact actually occurring. Probability will be estimated on a scale, and a score assigned:
 - * Assigned a score of 1–5, where 1 is very improbable (probably will not happen);
 - * Assigned a score of 2 is improbable (some possibility, but low likelihood);
 - * Assigned a score of 3 is probable (distinct possibility);
 - * Assigned a score of 4 is highly probable (most likely); and
 - * Assigned a score of 5 is definite (impact will occur regardless of any prevention measures).
- » the **significance**, which shall be determined through a synthesis of the characteristics described above (refer formula below) and can be assessed as low, medium or high.
- » the **status**, which will be described as either positive, negative or neutral.
- » the degree to which the impact can be reversed.
- » the degree to which the impact may cause irreplaceable loss of resources.
- » the degree to which the impact can be *mitigated*.

The **significance** is determined by combining the criteria in the following formula:

S = (E+D+M) P; where

S = Significance weighting

E = Extent
D = Duration
M = Magnitude
P = Probability

The **significance weightings** for each potential impact are as follows:

- » < 30 points: Low (i.e., where this impact would not have a direct influence on the decision to develop in the area),
- » 30-60 points: Medium (i.e., where the impact could influence the decision to develop in the area unless it is effectively mitigated),
- » > 60 points: High (i.e., where the impact must have an influence on the decision process to develop in the area).

Other aspects to be taken into consideration in the specialist studies and EIA report are:

- » Impacts should be described in terms of before and after the proposed mitigation and management measures have been implemented.
- » All impacts should be evaluated for the full lifecycle of the proposed development, including construction, operation, and decommissioning.
- » The impact assessment should take into consideration the cumulative effects associated with this and other similar developments which are either developed or in the process of being developed in the region. The purpose of the cumulative assessment is to test if such impacts are relevant to the proposed project in the proposed location (i.e., whether the addition of the proposed project in the area will increase the impact). In this regard, specialist studies will consider whether the construction of the proposed development will result in:
 - Unacceptable risk
 - Unacceptable loss
 - Complete or whole-scale changes to the environment or sense of place
 - Unacceptable increase in impact

A conclusion regarding whether the proposed development will result in any unacceptable loss or impact considering all the projects proposed in the area is included in the respective specialist reports.

As ArcelorMittal South Africa (Pty) Ltd has the responsibility to avoid and/or minimise impacts as well as plan for their management (in terms of the EIA Regulations), the mitigation of significant impacts will be discussed. Assessment of mitigated impacts will demonstrate the effectiveness of the proposed mitigation measures.

6.6 Authority Consultation

Consultation with the regulating authorities (i.e., GDARD) has been undertaken in the Scoping Phase and will continue throughout the EIA process. On-going consultation will include the following:

- » Submission of a Final Scoping Report following a 30-day review period which will include all comments and issues raised during the review period as well as appropriate responses to the comments.
- » Submission of an EIA Report and EMPr for a 30-day review and comment period.

- » Submission of a Final EIA Report and EMPr following a 30-day review period which will include all comments and issues raised during the review period as well as appropriate responses to the comments received.
- » Consultation and an authority site visit (if required) in order to discuss the findings and conclusions of the EIA Report.

6.7 Public Participation Process

A public participation process will be undertaken by Savannah Environmental during the EIA Phase. Consultation with key stakeholders and I&APs will be on-going throughout the EIA Phase. Through this consultation process, stakeholders and I&APs will be encouraged to verify that their issues were recorded in the Scoping Phase, identify additional issues of concern or highlight positive aspects of the proposed project, and comment on the findings of the EIA Phase. In order to accommodate the varying needs of stakeholders and I&APs within the study area, as well as capture their inputs, various opportunities will be provided for stakeholders and I&APs to be involved in the EIA Phase of the process, as follows:

- » Focus group meetings (pre-arranged and I&APs invited to attend).
- » One-on-one consultation meetings (for example with directly affected and surrounding landowners).
- » Telephonic consultation sessions (consultation with various parties from the EIA project team, including the public participation consultant, lead EIA consultant, as well as specialist consultants).
- » Written, faxed or e-mail correspondence.

The public participation process will include the following activities:

- » Placement of advertisements in one local newspaper (Limpopo Mirror Newspaper, in English).
- » Maintenance and finalisation of the I&AP database.
- » Release of the EIA Report for a 30-day review and comment period.
- » Ongoing consultation with all registered I&APs regarding the progress of the EIA process and the outcomes or findings of the EIA Report through stakeholder consultation via notification letters, telephone calls, focus group meetings and information sharing meetings, depending on the specific needs of the stakeholders in the area.
- » Facilitate comments on the EIA Report.
- » Compile a Comments and Responses Report and evidence of the public participation process undertaken to be included in the final EIA Report for decision-making.

6.8 Key Milestones of the Programme for the EIA

The envisaged key milestones of the programme for the EIA Phase are outlined in the following table (and include indicative dates):

Key Milestone Activities	Proposed timeframe
Make the Scoping Report available to the public, stakeholders, and authorities for 30 days	26 April 2023 – 29 May 2023
Finalisation of Scoping Report, and submission of the Final Scoping Report to DFFE	06 June 2023
Authority acceptance of the Final Scoping Report and	43 days from submission of the Final Scoping

Key Milestone Activities	Proposed timeframe
Plan of Study to undertake the EIA	Report
Undertake specialist studies for the EIA Phase and the public participation process	May 2023 – July 2023
Make Draft EIA Report and EMPr available to the public, stakeholders, and authorities	August 2023 – September 2023
Finalisation of EIA Report, and submission of the Final EIA Report to DFFE	September 2023
Authority review period and decision-making (107 calendar days)	December 2023

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All the aerial depictions and overlays used in this report are from Google Earth and QGIS.

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