SCOPING REPORT FOR THE DAMLAAGTE SOLAR PV FACILITY, FREE STATE PROVINCE

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TABLE OF CONTENTS

APPENDICES

LIST OF TABLES

LIST OF FIGURES

ACRONYMS AND ABBREVIATIONS

Acronym / Abbreviation	Definition
BA	Basic Assessment
BAR	Basic Assessment Report
BBBEE	Broad-Based Black Economic Empowerment
B.Sc.	Bachelor of Science
CA	Competent Authority
CARA	Conservation of Agricultural Resources Act, 1983 (No. 43 of 1983)
CBA	Critical Biodiversity Area
CBD	Central Business District
COD	Chemical Oxygen Demand
CR	Critically Endangered
DFFE	Department of Forestry, Fisheries and Environment (formerly Department of Environmental Affairs (DEA))
DWS	Department of Water and Sanitation (formerly Department of Water Affairs (DWA))
DM	District Municipality
DMRE	Department of Mineral Resources and Energy (formerly Department of Mineral Resources (DMR))
EA	Environmental Authorisation, i.t.o. NEMA
EAP	Environmental Assessment Practitioner
EAPASA	Environmental Assessment Practitioners Association of South Africa
EC	Electrical Conductivity
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EIA Regulations, 2014	Environmental Impact Assessment Regulations, 2014 (GN R 982 of 2014, as amended by GN R 326 of 2017)
EIAR	Environmental Impact Assessment Report
EIS	Ecological Importance and Sensitivity
EMPr	Environmental Management Programme
En	Endangered
ESA	Ecological Support Areas
FEPA	Freshwater Ecosystem Priority Area
GA	General Authorisation
GDP	Gross Domestic Product

Acronym / Abbreviation	Definition
GHG	Greenhouse Gas
GN	Government Notice
HIA	Heritage Impact Assessment
I&AP	Interested and Affected Party
IDP	Integrated Development Plan
IFC	International Finance Corporation
IRP	Integrated Resource Plan
ISO	International Standards Organization
IUCN	International Union for Conservation of Nature
LC	Least Concern
LN	Listing Notice
LN 1, 2014	Environmental Impact Assessment Regulations Listing Notice 1, 2014 (GN R 983 of 2014, as amended by GN R 327 of 2017)
LN 2, 2014	Environmental Impact Assessment Regulations Listing Notice 2, 2014 (GN R 984 of 2014, as amended by GN R 325 of 2017)
LN 3, 2014	Environmental Impact Assessment Regulations Listing Notice 3, 2014 (GN R 985 of 2014, as amended by GN R 324 of 2017)
LoS	Level-of-Service
mamsl	Metres Above Mean Sea Level
MAP	Mean Annual Precipitation
MAR	Mean Annual Runoff
MEC	Member of the Executive Council
M.Sc.	Master of Science
NAAQS	National Ambient Air Quality Standard
NAEIS	National Atmospheric Emission Inventory System
NDCR	National Dust Control Regulations, 2013
NDP	National Development Plan
NEMA	National Environmental Management Act, 1998 (No. 107 of 1998)
NEM: AQA	National Environmental Management: Air Quality Act, 2004 (No. 57 of 2003)
NEM:BA	National Environmental Management: Biodiversity Act, 2004 (No. 10 of 2004)
NEM: PAA	National Environmental Management: Protected Areas Act, 2003 (No. 57 of 2003)
NEM: WA	National Environmental Management: Waste Act, 2008 (No. 59 of 2008)
NFEPA	National Freshwater Ecosystem Priority Areas, 2011
NHRA	National Heritage Resources Act, 1999 (No. 25 of 1999)

Acronym / Abbreviation	Definition
NPAES	National Protected Areas Expansion Strategy
NT	Near Threatened
NWA	National Water Act, 1998 (No. 36 of 1989)
PES	Present Ecological State
PM	Particulate Matter
Pr.Sci.Nat.	Registered Professional Natural Scientists
R	Regulation
RE	Remaining Extent
SAAQIS	South African Air Quality Information System
SAAELIP	South African Atmospheric Emission Licensing and Inventory Portal
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resource Information System
SANBI	South African National Biodiversity Institute
SANS	South African National Standards
SAWS	South African Weather Services
SCC	Species of Conservation Concern
SDF	Spatial Development Framework
SHE	Safety, Health and Environment
SIA	Social Impact Assessment
SLR	SLR Consulting (South Africa) (Pty) Ltd
SPLUMA	Spatial Planning and Land Use Management Act, 2013 (No. 16 of 2013)
S&EIA	Scoping and Environmental Impact Assessment
TIA	Traffic Impact Assessment
VAT	Value Added Tax
VIA	Visual Impact Assessment
Vu	Vulnerable
WHO	World Health Organization
WML	Waste Management Licence, i.t.o. NEM: WA
WUL	Water Use Licence, i.t.o. NWA
WULA	Water Use Licence Application

1. INTRODUCTION

1.1 PROJECT BACKGROUND

South Africa Mainstream Renewable Power Developments (Pty) Ltd (Mainstream) is proposing to develop, construct and operate four Solar Photovoltaic (PV) facilities, including Battery Energy Storage Systems (BESS) and associated infrastructure on a site located 19 km west of the town Sasolburg in the Free State Province (see Figure 1-1). The four projects are collectively referred to as the **Scafell Cluster**. The total generation capacity of the proposed four solar PV facilities would be up to 525 MW_{ac}. The details of the four PV facilities, independent Power Producer (IPP) Substation, BESS and associated infrastructure is summarised in Table 1-1 below. The location of the four PV facilities are illustrated in Figure 1-1. Each solar PV facility will be subject to a separate Environmental Authorisation process and separate application, Scoping and Environmental Impact Assessment Report will be compiled for each facility. **This Scoping Report is compiled for the Damlaagte Solar PV Facility.** Figure 1-2 presents the location of the Damlaagte Solar PV Facility in relation to the other projects associated with the Scafell Cluster.

Table 1-1: Details for each of the projects included in the Scafell Cluster

Applicant	Project Name	Capacity (MW)	Affected Property
South Africa Mainstream Renewable Power Developments (Pty) Ltd	**Damlaagte Solar PV Facility**	**150 MW_{ac}**	Remaining Extent of the Farm Damlaagte 229
	Scafell Solar PV Facility	150 MW_{ac}	Portion 3 of the Farm Willow Grange 246
	Vlakfontein Solar PV Facility	150 MW_{ac}	Portion 6 of the Farm Vlakfontein 161
	Ilikwa Solar PV Facility	75 MW_{ac}	Portion 5 of the Farm Proceederfontein 100

In order to connect the each of the solar PV facilities to the grid, grid connection infrastructure comprising a transmission line and a substation will be required for each of the projects. Each transmission line will have a capacity of up to 132 kV and the substation up to 33 / 132kV. The grid connection infrastructure will connect the proposed projects to the Eskom Scafell Main Transmission Substation (MTS), located 2.47 km south -east of the project site. The grid connection infrastructure for each of the projects will be subject to a separate Environmental Authorisation process and will be assessed through separate Basic Assessment (BA) processes to support the applications for EAs.

Taking the above into consideration, Mainstream has appointed SLR Consulting (South Africa) Pty Ltd as the Independent Environmental Assessment Practitioner (EAP) to undertake a full Scoping and Environmental Impact Assessment (EIA) process for the proposed Scafell Cluster Project.

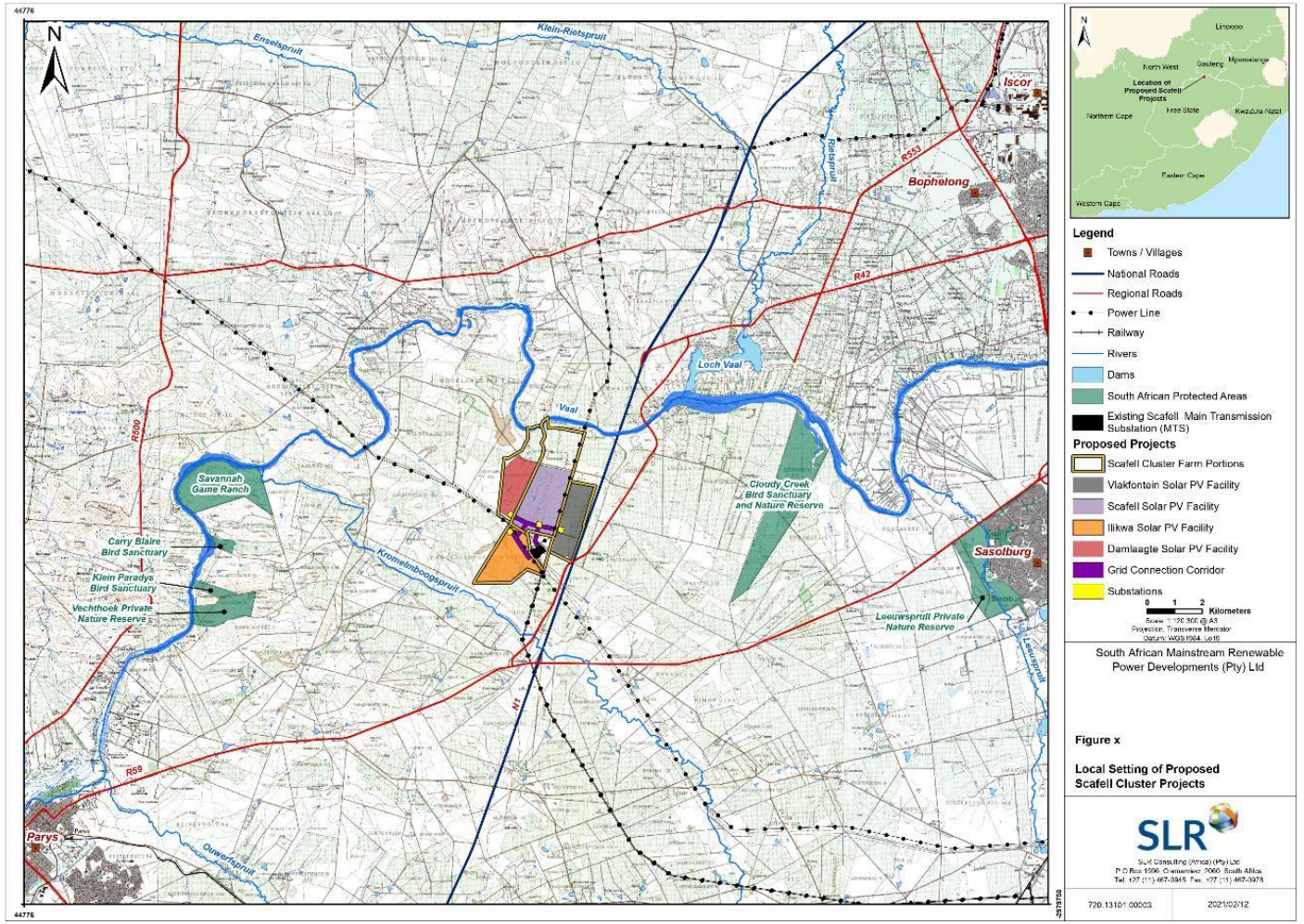

Figure 1-1: Locality Map of the project site for the Scafell Cluster Project

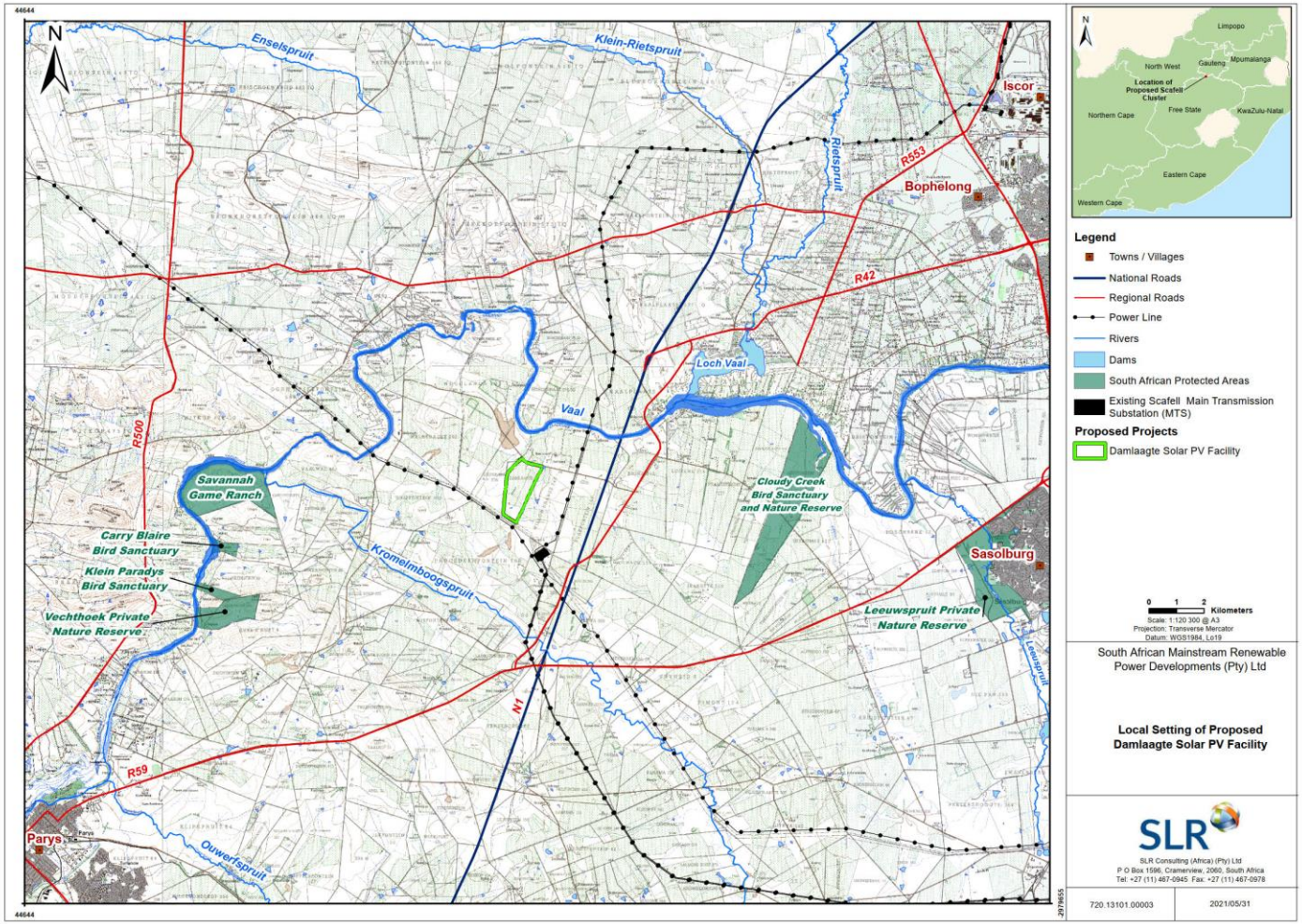

Figure 1-2: Locality Map showing the location of the proposed project in relation to the overall Scafell Cluster Project

1.2 PURPOSE OF THIS REPORT

This Scoping Report presents the process followed and the findings of the Scoping Study of the proposed solar PV project. It has been compiled and distributed for review and comment as part of the Scoping and EIA process that is being undertaken in accordance with the requirements of the National Environmental Management Act, 1998 (No. 107 of 1998) (NEMA) (as amended) and Regulations thereto.

This Scoping Report has been distributed for a 30-day comment period from **23 June** to **22 July 2021** in order to provide Interested and Affected Parties (I&APs) with an opportunity to comment on any aspect of the proposed project and the findings of the EIA process to date. Copies of the full report have been made available on the SLR website (at http://slrconsulting.com/public-documents/mainstream-scafell). The report can also be downloaded without any data charges using internet-capable mobile phones from the corresponding data free website (slrpublicdocs.datafree.co/public-documents/mainstream-scafell). Hard copies of the report have also been placed at the following locations:

Name of Location	Contact Details
Sasolburg City Library	John Vorster Avenue, Sasolburg Tel: 016 973 8464 Fax: 016 976 3083 Email: sasolburg@sacr.fs.gov.za
Zamdela Public Library	3246 Taylor Park, Zamdela Tel: 016 974 2163 Fax: 016 976 0308 Email: zamdela@fslib.gov.za

Comments should be forwarded to the SLR at the address, telephone or email address shown below. For comments to be included in the Scoping Report, comments should reach SLR no later than **22 July 2021**.

SLR Consulting (South Africa) (Pty) Ltd
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1.3 STRUCTURE OF THE SCOPING REPORT

This Scoping Report has been prepared in compliance with Appendix 2 of the EIA Regulations 2014 (as amended) and is divided into various chapters and appendices, the contents of which are outlined below.

Section	Contents
Executive Summary	Provides a comprehensive synopsis of the Scoping Report.
Chapter 1	**Introduction** Provides a background of the project; describes the purpose of the Scoping Report; outlines the structure of the report and provides information to I&APs on the opportunity to provide comments on the Scoping Report.
Chapter 2	**Legislative requirements** Outlines the key legislative requirements applicable to the proposed project.
Chapter 3	**EIA methodology** Outlines the methodology for the assessment and consultation process undertaken in the EIA. It also includes a summary of the public participation process undertaken to date and the results thereof.
Chapter 4	**Need and desirability** Provides an overview of the need and desirability for the proposed project.
Chapter 5	**Project description** Provides general project information; presents a description of the proposed project; and presents a motivation for not considering project alternatives.
Chapter 6	**Description of the affected environment** Describes the existing biophysical and social environment that could potentially be affected by the proposed project.
Chapter 7	**Key project issues and impacts** Describes key issues and impacts associated with the proposed project.
Chapter 8	**Preliminary assessment of project alternatives** Compares the environmental impacts and risks of the project alternatives.
Chapter 9	**Plan of Study for EIA** Describes the nature and extent of further investigations (including the specialist studies) to be undertaken during the EIA and sets out the proposed approach to the EIA process.
Chapter 10	**References** Provides a list of the references used in compiling this report.
Appendices	Appendix 1: EAP Declaration & Undertaking Appendix 2: Curricula Vitae (including registrations) of the Project Team Appendix 3: Public Participation Process: Appendix 3.1: Public Participation Plan Appendix 3.2: I&AP Database Appendix 3.3: Advertisements and Notices Appendix 4: Screening Report Appendix 5: Site Sensitivity Screening Report Appendix 6: Site Photographs

2. ADMINISTRATIVE AND LEGAL FRAMEWORK

2.1 NATIONAL ENVIRONMENTAL MANAGEMENT ACT 107 of 1998

NEMA, as amended, establishes principles, and provides a regulatory framework for decision-making on matters affecting the environment. Section 2 of NEMA sets out a range of environmental principles that are to be applied by all organs of state when taking decisions that significantly affect the environment. Included amongst the key principles is that all development must be socially, economically, and environmentally sustainable and that environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural, and social interests equitably. The participation of I&APs is stipulated, as is that decisions must consider the interests, needs and values of all I&APs.

Chapter 5 of NEMA provides a framework for the integration of environmental issues into the planning, design, decision-making and implementation of plans and development proposals. Section 24 provides a framework for granting of environmental authorisations. To give effect to the general objectives of Integrated Environmental Management (IEM), the potential impacts on the environment of listed or specified activities must be considered, investigated, assessed, and reported on to the competent authority. Section 24(4) provides the minimum requirements for procedures for the investigation, assessment, management, and communication of the potential impacts.

2.2 NEMA EIA REGULATIONS, 2014

The EIA Regulations 2014 (as amended) promulgated in terms of Chapter 5 of NEMA and published in Government Notice (GN) R982 (as amended by GN No. 326 of 7 April 2017) control certain listed activities. These activities are listed in GN R983 (Listing Notice 1; as amended by GN R327 of 7 April 2017), R984 (Listing Notice 2; as amended by GN R325 of 7 April 2017) and R985 (Listing Notice 3; as amended by GN R324 of 7 April 2017), and are prohibited until an EA has been obtained from the competent authority. Such an EA, which may be granted subject to conditions, will only be considered once there has been compliance with GN R982 (as amended).

GN R983 (as amended) sets out the procedures and documentation that need to be complied with when applying for an EA. A BA process must be applied to an application if the authorisation applied for is in respect of an activity or activities listed in Listing Notices 1 and/or 3 and a Scoping and EIA process must be applied to an application if the authorisation applied for is in respect of an activity or activities listed in Listing Notice 2. As the **Damlaagte Solar PV Facility** includes activities listed in Listing Notice 2 (see Table 2-1), it is necessary that a full Scoping and EIA process is undertaken in order for the Department of Forestry, Fisheries and Environment (DFFE) to consider the application in terms of NEMA.

Table 2-1: NEMA Listed Activities applied for as part of the proposed project

No.	Activity description	Description of activity in relation to the proposed project
GN R983 (Listing Notice 1)		
11(i)	*The development of facilities or infrastructure for the transmission and distribution of electricity, (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kV or more.*	The solar PV facility will require the construction and operation of internal distribution electrical infrastructure which is required to connect the Damlaagte Solar PV Facility components internally, and to the IPP portion of the onsite substation. The IPP portion of the onsite substation will be rated as 33 / 132 kV and the internal cabling will be up to 33 kV.
12(ii)(a)(c)	*The development of infrastructure or structures with a physical footprint of 100 square metres or more where such development occurs within a watercourse or within 32 m of a watercourse.*	The physical footprint of internal access roads and electrical cabling required to connect the various PV facility infrastructure and components will be confirmed once final designs have been provided. However, these will be located within 32 m of delineated watercourses on site. It is possible that access roads or other associated infrastructure would need to cross watercourses / drainage lines located within the vicinity of the project site in order to gain access to the development area.
14	*The development and related operation of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such good occurs in containers with a combined storage capacity of 80 cubic metres or more but not exceeding 500 cubic metres.*	The proposed project would require the storage and handling of dangerous good which could include, fuels (i.e., diesel or petrol for the operation of machinery and equipment, etc), lubricants and materials for the BESS. The storage capacity for the dangerous goods for the proposed project is not anticipated to exceed 500 cubic metres.
19	*The infilling or depositing of any material of more than 90 cubic metres into or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse.*	It is possible that access roads or other associated infrastructure would need to cross watercourses/drainage lines located within the vicinity of the project site in order to provide access to the development footprint.
24(ii)	*The development of a road where the road is wider than 8 metres*	The proposed project would require the development of access roads with a width of up to 12 m and internal access roads with a width of up to 5 m. The access roads would be constructed during the construction phase of the proposed project.

No.	Activity description	Description of activity in relation to the proposed project
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:* *(i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or* *(ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare;*	The proposed project would be established on land previously used for agriculture on or after 01 April 1998 and the total area required for the proposed development is in excess of 1 ha.
56(i)(ii)	*The widening of a road by more than 6 m, or the lengthening of a road by more than 1 km –* *(i) where the existing reserve is wider than 13.5 m; or* *(ii) where no reserve exists, where the existing road is wider than 8 m.*	The proposed project would require the widening of existing roads (for which there is no road reserve) up to 12 m. The access roads would be constructed during the construction phase of the proposed project.
GN R984 (Listing Notice 2) No. 324)		
1	*The development of facilities or infrastructure for the generation of electricity from a renewable resource where the electricity output is 20 megawatts or more.*	The proposed project will have a generating capacity of up to 150 MW_{ac}.
15	*The clearance of an area of 20 hectares or more of indigenous vegetation.*	The construction of the proposed project will require the clearance of 166 ha.
GN R985 (Listing Notice 3)		
4(b)(i)(ee)	*The development of a road wider than 4 metres within a reserve of less than 13.5 metres within (b) the Free State Province, (i) outside urban areas, and (ee) within critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans.*	The proposed project will require the construction of a main access road with a width of up to 12 m and internal access roads with a width of up to 5 m outside an urban area in the Free State Province. The main access road may be required to traverse a CBA 2 area identified in terms of the Free State Biodiversity Plan (2015) in order to provide access to the project site of the proposed development.
10(b)(i)(hh)	*The development and related operation of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres in (b) the Free State Province, (i) outside an urban area, and (ii) within 100 metres from the edge of a watercourse or wetland.*	The proposed project will require the development of storage and operation facilities for dangerous substances with a capacity exceeding 80 cubic metres, outside of an urban area in the Free State Province. It is possible that the dangerous goods and storage facility will be located within 100 m from the edge of a wetland located adjacent to the project site of the proposed project.

No.	Activity description	Description of activity in relation to the proposed project
12(b)(iv)	*The clearance of area of 300 square metres or more of indigenous vegetation in (b) the Free State Province, (iv) within 100 metres from the edge of a watercourse or wetland.*	The proposed project will require the clearance of up 166 ha of indigenous vegetation within the project site in the Free State Province, and within 100 m from the edge of a wetland located outside of the boundaries of the project site.
14(ii)(c)(b)(i)	*The development of, (ii) infrastructure or structures with a physical footprint of 10 square metres or more where such development (c) occurs within 32 m from edge of a watercourse, (b) in the Free State Province, (i) outside of an urban area.*	The proposed project will require the development of infrastructure with a footprint in excess of 10 m^2 within 32 m from the edge of a watercourse in the Free State Province, outside of an urban area.
18(b)(i)(ee) (hh)	*The widening of a road by more than 4 m, or the lengthening of a road by more than 1 km, (b) in the Free State Province, (i) outside of an urban area, (ee) within critical biodiversity areas as identified in systematic biodiversity plans, and within (hh) 100 metres from the edge of a watercourse or wetland.*	The proposed project will require the lengthening of existing roads by more than 1 km, and the widening of these roads by more than 4 m where required. The existing roads traverse a CBA 2 area identified in terms of the Free State Biodiversity Plan (2015), and construction activities would need to be undertaken on these roads as part of the extension process during the construction phase of the proposed project. It is possible that the existing roads to be extended will be located within 100 m from the edge of the wetland located outside the boundaries of the project site.

2.3 NATIONAL WATER ACT NO 36 of 1998

Chapter 4 of the National Water Act No 36 of 1998 (as amended), requires proponents to proposed developments to submit applications to the competent authority (Regional Office of the Department of Water and Sanitation (DWS)) where a water use listed under Section 21 of the Act is triggered. Water Use is defined by broadly by the Act 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), alteration of a watercourse, removing water underground for certain purposes and recreation.

Possible water uses that could triggered by the proposed development of the proposed project are outlined in Table 2-2. An application for a Water Use License (WUL) or General Authorisation (GA) must be undertaken in accordance with the regulations of GN R267 of 2017 and be submitted to the competent authority following the granting of an EA by DFFE and the project being selected as preferred bidder by the DMRE under the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP), or by another offtaker.

Table 2-2: List of potential Section 21 water uses applicable to the proposed project

No.	Water Use	Description of activity in relation to the proposed project
c	*Impeding or diverting the flow of water in a watercourse*	An unchanneled valley bottom wetland is located within the project site of the proposed project. As a result, the construction and operation of the project may potentially lead to an impediment or alteration of beds, banks, course of the wetland. Mainstream will be required to submit an application for a Water Use License (WUL) or General Authorisation (GA) Registration to the Regional Head of the Department of Human Settlements, Water and Sanitation in the Free State Province after the proposed project has been awarded preferred bidder status under the REIPPPP of the DMRE, or by another offtaker.
i	*Altering the bed, banks, course, or characteristics of a watercourse*	

2.4 NATIONAL HERITAGE RESOURCES ACT NO 25 of 1999

The National Heritage Resources Act, 1999 (No. 25 of 1999) (NHRA) provides for the identification, assessment, and management of the heritage resources of South Africa. Section 38(1) of the NHRA lists development activities that would require authorisation by the responsible heritage resources authority. Activities considered applicable to the proposed project include the following:

"(a) The construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length; …
(c) Any development or other activity which will change the character of a site;
(i) exceeding 5 000 m² in extent".

The NHRA requires that a person who intends to undertake a listed activity notify the relevant provincial heritage authority at the earliest stages of initiating such a development. The relevant provincial heritage authority would then in turn, notify the person whether a Heritage Impact Assessment (HIA) should be submitted. However, according to Section 38(8) of the NHRA, a separate report would not be necessary if an evaluation of the impact of such development on heritage resources is required in terms of the Environment Conservation Act (No. 73 of 1989) (now replaced by NEMA) or any other applicable legislation. The decision-making authority should, however, ensure that the heritage evaluation fulfils the requirements of the NHRA and take into account in its decision-making any comments and recommendations made by the relevant heritage resources authority.

2.5 NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT NO 59 of 2008

The National Environmental Management: Waste Act, 2008 (No. 59 of 2008) (NEM:WA) regulates all aspects of waste management and has an emphasis on waste avoidance and minimisation. NEM:WA creates a system for listing and licensing waste management activities. Listed waste management activities above certain thresholds are subject to a process of impact assessment and licensing. Activities listed in Category A require a Basic Assessment process, while activities listed in Category B require an EIA process. NEM:WA also provides for the setting of norms and standards for the storage and disposal of waste. These norms and standards are listed in GN R926 of 2013 (storage) and GN R636 of 2013 (disposal).

The proposed development of the proposed project does not trigger a Listed Activity in terms of NEM:WA, thus a Waste Management License for the project is not required. Any waste product produced would be disposed of via suitably qualified and licensed third-party service providers.

2.6 LEGISLATION CONSIDERED IN THE PREPARATION OF THE SCOPING REPORT

In accordance with the EIA Regulations 2014 (as amended), all legislation and guidelines that have been considered in the EIA process must be documented. In addition to Sections 2.1 to 2.5, Table 2-3 provides a summary of other applicable legislation.

Table 2-3: Additional Applicable Legislation

Applicable legislation	Relevance
National Environmental Management: Biodiversity Act, 2004 (No. 10 of 2004)	The National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEMBA), as amended, aims to provide for the management and conservation of South Africa's biodiversity within the framework of NEMA, the protection of species and ecosystems that warrant national protection, the sustainable use of indigenous biological resources and the fair and equitable sharing of benefits arising from bioprospecting involving indigenous biological resources. The Act places severe restrictions on activities that could have adverse effects on threatened or protected species. The purpose of the Act includes the following: • The management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act, 1998; • The protection of species and ecosystems that warrant national protection; and • The sustainable use of indigenous resources and the fair and equitable sharing of benefits arising from bioprospecting involving indigenous biological resources. The Act makes provision for the protection of threatened or protected ecosystems and species as well as provisions guarding against the introduction of alien and invasive species. The Act identifies restricted activities involving listed threatened, protected or alien species. These activities includes picking parts of, or cutting, chopping off, uprooting, damaging, or destroying, any specimen of a listed threatened or protected species. As stipulated in Section 57 of the Act, a person may not carry out a restricted activity involving a specimen of a listed threatened or protected species without a permit issued in terms of Chapter 7. A permit will be required to engage in restricted activities for the proposed project in accordance with Section 88 of the Act. DESTEA will be the competent authority for the application.

Applicable legislation	Relevance
Conservation of Agricultural Resources Act, 1983 (No. 43 of 1983)	This Act provides for the control over the utilization of the natural agricultural resources of the country in order to promote the conservation of the soil, the water sources and the vegetation and the combating of weeds and invader plants. Section 5 of the Act prohibits the spread of weeds through the prohibition of their sale. GN R1084 (published under CARA) provides categories for the classification of the various weeds and invader plants, and restrictions where these species may occur. Regulation 15E of GN R1084 provides methods to be implemented for the control of weeds and invader species. CARA finds application throughout the project lifecycle of the proposed project. As a result, soil conservation and erosion prevention management and mitigation measures need to be implemented. Furthermore, a Weed Control and Management Plan must be developed and implemented for the duration of the project life cycle of the proposed project.
Subdivision of Agricultural Land Act, 1970 (Act No. 70 of 1970), as amended	The Subdivision of Agricultural Land Act, 1970 (Act No. 70 of 1970), as amended provides for the subdivision of all agricultural land within the Republic thereby prohibiting certain activities from being undertaken without consent from relevant authority, the Minister of the Department of Agriculture, Land Reform and Rural Development. This Act finds relevance to the proposed Scafell Cluster Project as any portion of land that is zoned for agriculture and will need to be leased for a period exceeding 10 years is regulated by the Act.
National Forests Act, 1998 (No. 84 of 1998)	The National Forest Act (NFA) empowers the Minister of DFFE to declare and list a tree, group of trees, woodland, or a species of trees as protected. A list of protected tree species is included in GN R908, published in November 2014. Section 7 of the Act prohibits the cutting and disturbance of NFA-listed trees. A permit is required for the removal of NFA-listed tree species in terms of Section 4 of the Act. Prior to the submission of the permit application to the competent authority, a survey of the project site is required in order to ascertain the presence and distribution of NFA-listed tree species. The presence of any NFA-listed tree species within the project site will be confirmed in the Impact Assessment Phase.
National Veld and Forest Fire Act, 1998 (No. 10 of 1998)	The National Veld and Forest Fire Act (NVFA) in Chapter 4 requires landowners to prepare and maintain firebreaks, as well as the role of adjoining landowners and the fire protection association in an area. The Act through Chapter 5 requires all landowners to acquire firefighting equipment and have available personnel for firefighting. Landowners with land where a veldfire may start or burn or from whose land it may spread must have firefighting equipment and personnel available.

Applicable legislation	Relevance
	There are no permitting requirements for the proposed project in accordance with the NVFA. However, it must be ensured that firebreaks within the boundaries of the project site are prepared and maintained and that firefighting equipment and personnel for the duration of the project life cycle of the proposed development is made available.
Occupational Health and Safety Act, 1993 (No. 85 of 1993) and Major Hazard Installation Regulations	This Act provides for the health and safety of persons at work and the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work. Every employer shall provide and maintain, as far as is reasonably practicable, a working environment that is safe and without risk to the health of his employees. The construction and operation of the proposed project will include activities that are deemed as hazards and/risk to the health and safety of the employees employed on the project. Such hazards/risks should be managed in accordance with the relevant requirements of the Act.
Hazardous Substances Act, 1973 (Act No. 15 of 1973)	The Hazardous Substances Act, 1973 (Act No. 15 of 1973) (HAS) was promulgated to provide for the control of substances which may cause injury, ill-health, or death. Substances are defined as hazardous if their inherent nature is toxic, corrosive, irritant, strongly sensitising, flammable and pressure (under certain circumstances) which may injure ill-health, or death in humans. The Act provides for the division hazardous substances or products into four groups in relation to the degree of danger, the prohibition and control of the importation, manufacture, sale, use, operation, application, and disposal of such substances. Group 1: includes all hazardous substances defined in the Act; Group 2: substances include mixtures of Group 1 substances; Group 3: substances include substances found in certain electronic products (i.e., product with an electronic circuit); and Group 4: substances includes all radioactive substances. The use or sale of Group I, II and III hazardous substances is prohibited. Should the use of these substances be required for the proposed project, a permit application should be submitted to the Department of Health (DoH) in terms of Section of the Act.

Applicable legislation	Relevance
Municipal Systems Act, 2000 (Act No. 32 of 2000)	The Municipal Systems Act, 2000 (Act N. 32 of 2000) was promulgated for the administration of municipalities. The Act requires that the Constitution and other legislation, i.e., NEMA be incorporated into strategic plans at local government level. The Act regulates municipal service delivery and provides a comprehensive range of service delivery mechanisms through which municipalities may provide municipal services. The Act explains the process to be applied and the criteria to be considered in reviewing and selecting municipal service delivery mechanisms. The Act provides that each municipal council must adopt a single, inclusive, and strategic Integrated Development Plan (IDP) for the development of the municipality. At a municipal level, IDPs may require the implementation of renewable energy projects. As a result, IPPs should consult with the relevant structures of the municipality within which a development is located.
The Spatial Planning and Land Use Management Act, 2013 (No. 6 of 2013) (SPLUMA)	The Spatial Planning and Land Use Management Act, 2013 (Act No. 6 of 2013) aims to confirm and regulate the role of municipalities in land use planning and management. Objectives of the Act relevant to the proposed project ensure that the system of spatial planning and land use management promotes social and economic inclusion and to provide for the sustainable and efficient use of land. The current zoning of the project site is agriculture; thus, a rezoning application would be required to change the zoning of the site from agriculture to special purpose.
Astronomy Geographic Advantage Areas Act, 2007 (Act No. 21 of 2007)	The then Minister of Science and Technology in 2010 declared all land in the Northern Cape Province situated 250 km from the centre of the South African Large Telescope Dome as an 'Astronomy Advantage Area (AAA)' for optical astronomy purposes and the whole of the territory of the province, excluding Kimberly as an astronomy advantage area for radio astronomy purposes. From a renewable energy perspective, wind energy projects are more likely to contravene the objects of the Act. As a result, the proposed project requires the construction and operation of a solar PV facility and the project site is located outside of an Astronomy Advantage Area[1], therefore the proposed project is not anticipated to contravene the objects of the Act.
Civil Aviation Act, 2009 (Act No. 13 of 2009)	The Civil Aviation Act, 2009 (Act No. 13 of 2009) (CAA), governs civil aviation in the Republic. The Act provides for the establishment of a stand-alone authority mandated with the controlling, promoting, regulating, supporting, developing, enforcing, and continuously improving levels of safety and security throughout the civil aviation industry. This mandate is fulfilled by the South African Civil Aviation Authority (SACAA), an agency of the Department of Transport (DoT).

[1] http://bigrat.jb.man.ac.uk/~sjm/Spectrum/Karoo-WebExport/qgis2web_2020_08_03-11_25_02_774525/

Applicable legislation	Relevance
	The SACAA achieves the objectives of the Act by complying with the Standard and Recommended Practices (SARPs) of the International Civil Aviation Organisation (ICAO), while considering the local context when issuing the South African Civil Aviation Regulations (SA CARs). All proposed development or activities in South Africa that potentially could affect civil aviation must be assessed by SACCAA in terms of the CARs and the South African Civil Aviation Technical Standards (SA CATs) in order to ensure civil aviation safety. The SACAA will be provided with the Scoping and EIA reports of the proposed project for their comment during the 30-day review and comment periods.
National Traffic Act, 1996 (No. 93 of 1996)	The Act and the National Traffic Regulations, 2000 provide certain limitations on vehicle dimensions and axle and vehicle masses that a vehicle using a public road at any given time must comply with. Certain vehicles and loads cannot be moved on public roads without exceeding the limitations in terms of the dimensions and/or mass as prescribed. Where such a vehicle or load cannot be dismantled, without disproportionate effort, expense, risk, or damage, into units that can travel or be transported legally. Such load is classified as an abnormal load and is permitted to be transported on public roads under an exemption permit issued in terms of Section 81 of the Act. A permit application in terms of Section 81 of the Act will be required for the transportation of key infrastructure components and machinery to the project site during the construction phase of the proposed project.
Free State Nature Conservation Ordinance Act, 1969 (Act No. 8 of 1969)	Chapter 4 and Section 30 of the Act prohibits any persons from removing indigenous species listed in Schedule 6 of the Act without a valid permit from the relevant authority. This Act finds relevance to the Scafell Cluster Project on the basis that protected plant species in terms of the Act may be present within the project site and floral permits will be required from the relevant authority prior to the commencement of the construction phase for the removal of identified protected plant species. Mainstream will be required to obtain permits from the relevant authority for the removal of protected indigenous plant species in terms of the Act following the completion of the final site walkdown survey of the project site and prior to the commencement of the construction phase.

2.7 GUIDELINES

The guidelines listed in Table 2-4 have been or will be considered during the EIA process.

Table 2-4: Guidelines considered in the EIA process

Guideline	Governing Body	Relevance
Mitigating biodiversity impacts associated with solar and wind energy development (2021)	International Union of Conservation of Nature	Provides guidelines for mitigating biodiversity impact associated with the development of solar energy developments.
Procedures for the Assessment and Minimum Criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998, when applying for Environmental Authorisation	DFFE	Provides procedures for ground-truthing environmental themes identified by the web-based Screening Tool. The baselines studies used in the Scoping Report have been undertaken in accordance with the requirements of this Notice, where relevant.
Best Practice Guidelines Birds & Solar Energy (2017)	Birdlife South Africa and Endangered Wildlife Trust	Provide guidelines for assessing and monitoring the impact of solar generation facilities on birds in Southern Africa.
Public Participation in terms of NEMA, EIA Regulations (2017)	DFFE	The purpose of this guideline is to ensure that an adequate public participation process was undertaken during the Scoping and EIA process.
Guideline on need and desirability in terms of the EIA Regulations (2014)	DFFE	These guidelines inform the consideration of the need and desirability aspects of the proposed project.

3. EIA APPROACH AND PROCESS

3.1 DETAILS OF THE EIA PROJECT TEAM

The details of the EIA project team that were involved in the preparation of this Scoping Report are provided in Table 3-1. SLR has no vested interest in the proposed project other than fair payment for consulting services rendered as part of the EIA process and has declared its independence as required by the EIA Regulations 2014, as amended (see Appendix 1).

Table 3-1: Details of the EIA Project Team

General				
Organisation	SLR Consulting (South Africa) (Pty) Ltd			
Postal address	PO Box 798 RONDEBOSCH 7701			
Tel No.	+27 (0)21 461 1118 / 9			
Fax No.	+27 (0)21 461 1120			
Name	**Qualifications**	**Professional registrations**	**Experience (Years)**	**Tasks and roles**
Stuart-Heather Clark	B.Sc. (Hons) Civil Engineering M.Sc. Environmental Management	IAIA EAPASA	24	Report and process review
Nicholas Arnott	B.Sc. (Hons) Earth and Geographical Sciences	SACANASP (Pri.Sci. Nat)	15	Management of the EIA process, including process review, specialist study review, management of the public participation process and report compilation
Reuben Maroga	B.Sc. (Hons) Geology B.Sc. Environmental Management & Geology	N/A	3	Project administration, undertaking of public participation process activities and report compilation

3.2 QUALIFICATIONS AND EXPERIENCE OF THE EAP

- Stuart Heather-Clark is a Technical Director in SLR's Environmental Management Planning and Approvals (EMPA) team in Africa. He holds a B.Sc. (Honours) in Civil Engineering and a Master's degree in Environmental Science and has 24 years of relevant experience. He has expertise in a wide range of environmental disciplines, including EIAs, EMPs, environmental planning and review and public consultation and is a registered EAP with the Environmental Assessment Practitioners Association of South Africa (EAPASA).

- Nicholas Arnott has worked as an EAP since 2006 and has been involved in a number of projects covering a range of environmental disciplines, including Basic Assessments, Environmental Impact Assessments and Environmental Management Programmes. He has gained experience in a wide range of projects relating to mining, oil and gas, renewables, infrastructure projects (e.g., roads), housing and industrial developments.
- Reuben holds a B.Sc. in Environmental Management and a B.Sc. (Honours) in Geology and has worked as an EAP since 2018. His key focus is undertaking Environmental Impact Assessments, Public Participation, and Environmental Management Programmes.

Relevant curricula vitae (including proof of registrations) are attached in Appendix 2.

3.3 ASSUMPTIONS AND LIMITATIONS

The assumptions pertaining to this EIA are listed below:

- It is assumed that SLR has been provided with all relevant project information and that it was correct and valid at the time it was provided;
- It is assumed that the project site identified for the construction and operation of the proposed project by Mainstream represents a technically feasible site for the construction and operation of a solar PV facility which is based on the design undertaken by technical consultants on the project.
- There will be no significant changes to the project description or surrounding environment between the completion of the EIA process and implementation of the proposed project that could substantially influence findings and recommendations with respect to mitigation and management, etc.; and
- Should any future infrastructure being proposed within the project site trigger additional listed activities not included in this EIA process, a separate application process for EA would need to be undertaken and submitted to the relevant competent authority.

3.4 SCOPING PHASE

3.4.1 Objectives

In accordance with Appendix 2 to the EIA Regulations 2014 (as amended), the objectives of the scoping process are to:

- Identify the relevant policies and legislation relevant to the activity;
- Present the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location;
- Identify and confirm the preferred activity, technology and sites related to the project proposal;
- Identify the key issues to be addressed in the assessment phase;
- Agree on the level of assessment to be undertaken, including the methodology to be applied, the expertise required, as well as the extent of further consultation to determine the risks and impacts that activity will impose on the preferred site throughout the project life cycle of the activity; and

- Identify suitable measures to avoid, manage or mitigate identified impacts and to determine the extent of residual risks that need to be managed and monitored.

The scoping process consists of a series of steps to ensure compliance with these objectives and the EIA Regulations 2014 as set out in GN R982 (as amended by GN R326). The process involves an open, participatory approach to ensure that all impacts are identified, and that decision-making takes place in an informed, transparent, and accountable manner. A flowchart indicating the generic EIA process is presented in Figure 3-1.

3.4.2 Pre-Application Authority Consultation and Notification

SLR attended a pre-application meeting with DFFE on 19 January 2021. The purpose of this meeting was to provide DFFE with an overview of the proposed Scafell Cluster Projects and to obtain clarity on the legislative requirements and the approach to the EIA process in order to ensure agreement on the way forward. Furthermore, the purpose of the meeting was also to discuss the proposed methodology to be followed for the undertaking of the specialist studies to support the application for EA as well as the planned public participation process to be undertaken.

Summary of Pre-Application Meeting with DFFE

DFFE indicated that the listed activities identified for the proposed project suffice and reaffirmed that they are the competent authority for all NEMA listed activities related to the development of renewable energy projects in accordance with GN R779 of July 2016. The Department pointed out that should additional listed activities be triggered based on a review of detailed project-specific information; these activities should be included in an updated application form that should be submitted to the Department. The project team pointed out to DFFE that a single and consolidated public participation process would be undertaken for the proposed Scafell Cluster projects given their proximity to each other. DFFE agreed with this approach and emphasized that consideration should be given to I&APs that would not necessarily have access to internet-enabled mobile phones so that they are able to receive project-related information and requested the project team to submit the Public Participation Plan for consideration. The Public Participation Plan submitted to DFFE and the proof of acceptance of the plan is included in Appendix 4.1 of the Scoping Report.

The project team pointed out that due to the proximity of the proposed Scafell Cluster Projects to each other, each specialist would produce a single specialist report for all the projects. DFFE indicated that the approach was acceptable however it must be ensured that all project-specific information, i.e., mitigation, and management measures for each project are clearly stated and easily identifiable within the specialist reports.

3.4.3 Application for Environmental Authorisation

An 'Application Form for Environmental Authorisation' was submitted to DFFE on **23 June 2021** at the same time as making this draft version of the Scoping Report available for review and comment. Public Participation activities completed to date in support of the application for Environmental Authorisation for the proposed project are outlined in Box 3-1.

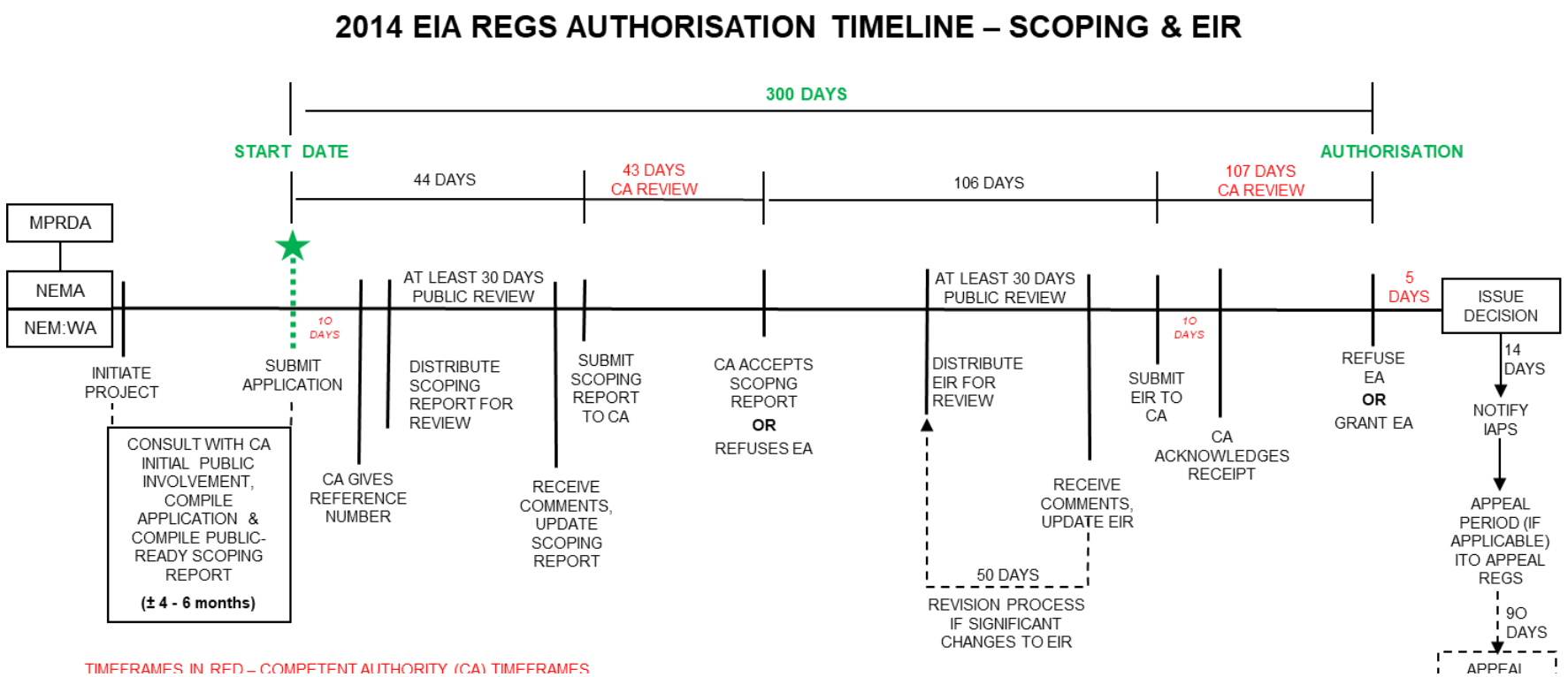

Figure 3-1: Flow Diagram Showing the EIA Process

Box 3-1: Public Participation Tasks undertaken during the Scoping Phase

TASKS UNDERTAKEN DURING THE SCOPING PUBLIC PARTICIPATION PROCESS

- **I&AP Identification**

  The I&AP database was developed through a process of obtaining information from SLR's existing stakeholder database of projects in the area and liaison with potentially affected interested and affected parties within the surrounding area. Key stakeholders, including organs of state, affected and adjacent landowners have been identified and registered on the database (see Appendix 3).

- **Advertisements and Site Notices**

  A newspaper advert, providing notification of the proposed project and the EIA process was placed on **23 June 2021** in the *Vaal Week Blad* newspaper (see Appendix 3). Site Notices (in English) have been placed at the entrances of the project site and in the town of Sasolburg where there is a lot of foot traffic (filling stations, supermarkets, etc) in order to advertise the Scoping and EIA process of the proposed project.

3.4.4 Compilation of the Scoping Report

This draft Scoping Report has been prepared in compliance with Appendix 2 of the EIA Regulations 2014 (see Table 3-2).

This report aims to present all information in a clear and understandable format suitable for easy interpretation by I&APs, State Departments/Organs of State, the competent and commenting authorities and provides an opportunity for I&APs to comment on the proposed project and the Plan of Study for the EIA (see Section 8).

Table 3-2: Requirements of a Scoping Report in terms of the EIA Regulations, 2014 (as amended)

Appendix 2	Content of Scoping Report	Completed (Y/N or N/A)	Location in report
2(a)	*(i & ii) Details and expertise of the Environmental Assessment Practitioner (EAP) who prepared the report, including a CV.*	Y	Chapter 3 Sections 3.1 and 3.2
(b)	*The location of the activity, including:*	Y	Chapter 5 Table 5-1
	(i) the 21-digit Surveyor General code of each cadastral land parcel; or		
	(ii) where available, the physical address and farm name		
	(iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;		
(c)	*A plan which locates the proposed activity or activities applied for at an appropriate scale, or, if it is:*	Y	Chapter 5 Figure 5-2
	(i) a linear activity, a description, and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or		

Appendix 2	Content of Scoping Report	Completed (Y/N or N/A)	Location in report
	(ii) on land where the property has not been defined, the coordinates within which the activity is to be undertaken.		
(d)	*A description of the scope of the proposed activity, including:*	Y	Chapter 2 Section 2.2
	(i) all listed and specified activities triggered;		
	(ii) a description of the activities to be undertaken, including associated structures and infrastructure.	Y	Chapter 5 Section 5.3 – 5.5
(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.*	Y	Chapter 2 Section 2.1– 2.7 Chapter 4 Section 4.1 – 4.3
(f)	*A motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location.*	Y	Chapter 4
(h)	*A full description of the process followed to reach the proposed preferred activity, site and location within the site, including:*	Y	Section 5.7
	(i) details of all the alternatives considered;		
	(ii) details of the public participation process undertaken in terms of Regulation 41 of the Regulations, including copies of the supporting documents and inputs;	Y	Chapter 3.4
	(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;	To be provided on completion of the draft Scoping Report 30-day review and comment period.	
	(iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Y	Chapter 6
	(v) the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the 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.*	Y	Section 7.3
	(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;	Y	Chapter 8 Section 8.5
	(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;	Y	Chapter 8 Section 8.5

Appendix 2	Content of Scoping Report	Completed (Y/N or N/A)	Location in report
	(viii) the possible mitigation measures that could be applied and level of residual risk;	Mitigation measures to be provided in the Environmental Management Programme to be prepared in the EIA Phase.	
	(ix) the outcome of the site selection matrix;	N/A	No alternative sites have been considered.
	(x) if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and	Y	Chapter 5 Section 5.7
	(xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity.	Y	
(i)	*A plan of study for undertaking the environmental impact assessment process to be undertaken, including:*	Y	Chapter 8
	(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 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; and		
	(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.		
(i)	*An undertaking under oath or affirmation by the EAP in relation to:*	Y	Appendix 1
	(i) the correctness of the information provided in the report;		
	(ii) the inclusion of comments and inputs from stakeholders and interested and affected parties; and		

Appendix 2	Content of Scoping Report	Completed (Y/N or N/A)	Location in report
	(iii) 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;		
(k)	*An undertaking under oath or affirmation by the EAP in relation to the level of agreement between the EAP and interested and affected parties on the plan of study for undertaking the environmental impact assessment.*		
(l)	*Where applicable, any specific information required by the competent authority.*	N/A	N/A
(m)	*Any other matter required in terms of Section 24(4)(a) and (b) of the Act.*	N/A	N/A

3.4.5 Completion of the Scoping Phase

The following steps are envisaged for the remainder of the Scoping Phase:

- After closure of the 30-day comment and review period, the Scoping Report will be updated to incorporate the comments received. Comments will be assimilated and responded to in an updated Comments and Responses Report; and
- The updated Scoping Report will be submitted to DFFE for consideration.

If the Scoping Report is accepted, the project will proceed onto the Impact Assessment Phase (see Section 8.1). A Plan of Study for EIA as required in terms of Section 2(i) of Appendix 2 of GN R982 is included in Chapter 8.

3.5 IMPACT ASSESSMENT PHASE

3.5.1 Objectives

In accordance with Appendix 3 of GN R982 (as amended) the key objectives of the EIA are to:

- Determine the policies and legislation relevant to the activity and document how the proposed activity complies with and responds to the policy and legislative context;
- Describe the need and desirability of the proposed activity in the context of the project site as contemplated in the accepted Scoping Report;
- Identify feasible alternatives related to the project proposal;
- Ensure that all potential key environmental issues and impacts that would result from the proposed project are identified;
- Assess potential impacts of the proposed project alternatives during the different phases of project development;
- Identify the most ideal location of the activity within the affected property based on the lowest level of environmental sensitivity identified during the assessment;
- Present appropriate mitigation or optimisation measures to avoid, manage or mitigate potential impacts or enhance potential benefits, respectively;
- Identify residual risks that need to be managed and monitored; and

- Provide a reasonable opportunity for I&APs to be involved in the EIA process.

The undertaking of the above-mentioned activities as part of the EIA process ensures an informed, transparent, and accountable decision-making process by the competent authority.

3.5.2 Specialist Studies

In accordance with GN R960 of 5 July 2019 and Regulation 16(1)(b)(v) of the EIA Regulations, 2014 (as amended), the submission of a Screening Report generated from DFFE's national web-based screening tool is considered compulsory for the submission of applications for EA in terms of Regulations 19 and 21 of the EIA Regulations 2014 (as amended). The requirement of the submission of a Screening Report is triggered by the application for EA for the proposed project as the application falls within the ambit of Regulation 21 of the EIA Regulations 2014 (as amended). The specialist assessments/theme, sensitivity ratings identified by the Screening Tool and, in accordance with GN R320 of 20 March 2020, the outcomes of the site verification are summarised in Table 3-3 below. The detailed findings of the specialists relating to the outcome of the Site Sensitivity Verification is set out in the Site Sensitivity Verification Report attached as Appendix 5. Where required, the specialist studies will be undertaken with the requirements of GN R320 of 20 March 2020 and any updates thereto. Where no protocols have been provided, the specialist assessment will be undertaken in accordance with Appendix 6 of the EIA Regulations, 2014 (as amended).

Table 3-3: Specialist Assessments and Sensitivity Ratings identified by DFFE's Web-based Screening Tool

Specialist Assessment / Theme	Sensitivity Rating as per Screening Report	Sensitivity Rating as per Specialist Verification	Response
Agriculture	High	Low to High	The north-eastern corner of the Damlaagte Solar PV Facility project site is deemed to be of high sensitivity as a result of the soil suitability for crop production and the recent (within the last six years) cultivation of land for the establishment of pasture. The rest of project site are considered to be of low and medium sensitivity. A Soil and Agricultural Agro-Ecosystem Specialist Assessment will be undertaken during the impact assessment phase.
Landscape / Visual	Very High	Medium to Very High	The sensitivity of the study area's landscape is dependent on the character, quality, value, and capacity for change. In this context, the study area is deemed to comprise of areas with a low (power utility and sand mining areas), moderate (drainage lines, open

Specialist Assessment / Theme	Sensitivity Rating as per Screening Report	Sensitivity Rating as per Specialist Verification	Response
			farmland, and urban recreation development), and high sensitivity for the bush-covered low hills and the Vaal River and its associated embankments. A Visual Impact Assessment will be undertaken during the impact assessment phase.
Archaeological and Cultural Heritage	Low	Low	No archaeological features were identified within the study area, as a result, the site is deemed to be of a low sensitivity. A Heritage Impact Assessment of the project will be undertaken during the impact assessment phase.
Palaeontology	Very High	Low	
Terrestrial Biodiversity	Very High	High	In accordance with the "*Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity",* as the Screening Tool identified the site as being of "very high sensitivity" for terrestrial biodiversity, a Terrestrial Biodiversity Specialist Assessment is required.
Aquatic Biodiversity	Low	Low	While the Screening Tool identified the site as being of "low sensitivity" for aquatic biodiversity, the freshwater specialist deemed portions of the site to be of "very high sensitivity''. Thus, in accordance with the '*Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Aquatic Biodiversity'*, a Freshwater Impact Assessment will be undertaken.
Avian	High	Low	The specialist deemed the site to be of low sensitivity as there were no species of conservation concern (SCC) confirmed during the site sensitivity verification survey, and the project site is not located

Specialist Assessment / Theme	Sensitivity Rating as per Screening Report	Sensitivity Rating as per Specialist Verification	Response
			in an Important Bird Area. Thus, an Avifaunal Compliance Statement will be compiled as part of the EIA phase.
Civil Aviation (Solar PV)	Low	Low	The site is associated with a low sensitivity; thus, no further assessment is deemed necessary. The South African Civil Aviation Authority (SACAA) has been identified as a key stakeholder on the project database and will be afforded an opportunity to provide comments of the Scoping Report during the 30-day review and comment period.
Defence	Low	Low	There are no military bases / facilities present within the vicinity of the project site. The nearest military base is Bloemspruit Air Force Base, located 282 km south of the project site outside Bloemfontein in the Free State Province. Thus, no further assessment is deemed necessary.
RFI	Low	Low	The project site for the Damlaagte Solar PV Facility falls outside of the Karoo Central Astronomy Advantage Area (KCAAA); thus, no further assessment is deemed necessary. SARAO has been identified as a stakeholder on the project database and will be afforded with the opportunity to provide comments during the 30-day review and comment period of the Scoping Report.
Geotechnical	-	-	Mainstream will undertake a detailed Geotechnical Assessment of the project site prior to the commencement of the construction phase, following the issuance of a decision regarding the Application for EA from DFFE, and the project being awarded preferred bidder status under the REIPPPP by the DMRE, or by another offtaker.

Specialist Assessment / Theme	Sensitivity Rating as per Screening Report	Sensitivity Rating as per Specialist Verification	Response
Socio-Economic	-	-	A detailed Social Impact Assessment for the project will be undertaken during the impact assessment phase.
Plant Species	Medium	Medium	These requirements will be addressed as part of the Terrestrial biodiversity study to be undertaken during the impact assessment phase.
Animal Species	Medium	Medium	

The terms of reference for the proposed specialist studies are presented in Section 8.4 of the Scoping Report. The proposed specialist studies will involve the gathering of data (desktop and site verification, where required) relevant to ground-truthing and assessing environmental impacts that may occur as a result of the proposed project. The identified environmental impacts will be assessed in accordance with pre-defined rating scales (see Section 8.5). Specialists will also recommend appropriate mitigation or optimisation measures to minimise potential impacts or enhance potential benefits, respectively.

3.5.3 Integration of Assessment

The specialist information and other relevant information will be integrated into an Environmental Impact Assessment (EIA) Report, which will include an Environmental Management Programme (EMPr). The specialist studies will be included as appendices to the EIA Report. The EIA Report will be released for a 30-day review and comment period and all I&APs on the project database will be notified of when the EIA Report is available for comment.

After closure of the comment period, all comments received on the EIA Report will be incorporated and responded to in a C&RR. The EIA Report will then be updated to a final report, which will include the C&RR, and will be submitted to DFFE for their consideration and decision making.

After DFFE has reached a decision, all I&APs on the project database will be notified of the outcome of the application for EA and the reasons for the decision. A legislated appeals period in terms of the National Appeal Regulations, 2014 (GN R993) will follow the issuing of the decision. In terms of Regulation 4(1)(a), an appellant must submit an appeal to the appeal administrator, and a copy of the appeal to the applicant, any registered I&AP, and any Organ of State with interest in the matter within 20 days from the date that the notification of the decision for the application for EA was sent to the registered I&APs by the applicant.

4. NEED & DESIRABILITY

The DFFE (then, the Department of Environmental Affairs) Guideline on Need and Desirability (GN R891, 2014) notes that while addressing the growth of the national economy through the implementation of various national policies and strategies, it is also essential that these policies take cognisance of strategic concerns such as climate change, food security, as well as the sustainability in supply of natural resources and the status of our ecosystem services. Thus, the over-arching framework for considering the need and desirability of development in general is taken at the policy level through the identification and promotion of activities / industries / developments required by civil society as a whole. The DFFE guideline further notes that at a project level (as part of an EIA process), the need and desirability of the project should take into consideration the content of regional and local plans, frameworks, and strategies.

In light of the above, this section aims to provide an overview of the need and desirability for the proposed Scafell Cluster Project by highlighting how it is aligned with the strategic context of international, national, regional, and local development policy and planning, and broader societal needs as appropriate.

4.1 INTERNATIONAL POLICY AND PLANNING FRAMEWORK

4.1.1 United Nations Framework Convention on Climate Change and Kyoto Protocol

The United Nations Framework Convention on Climate Change (UNFCCC) is an international environmental treaty addressing climate change, negotiated, and signed by countries at the United Nations Conference on Environment and Development (UNCED), or the 'Earth Summit', held in Rio de Janeiro from 3 to 14 June 1992. The primary objective of the treaty is to stabilize greenhouse gas emissions in the atmosphere to a level that prevents human-induced interference with the earth's climate system. The treaty places an obligation on signatory countries such as South Africa to adopt national policies and take concomitant measures on the mitigation of climate change impacts by limiting their anthropogenic emissions of greenhouse gases as well as to report on the steps undertaken to return their emissions to pre-1990 levels. In addition, the treaty requires more developed economies (i.e., USA) to provide financial resources to meet the costs incurred by developing nations in complying with their obligations to produce national inventories of their emissions.

The UNFCCC laid the foundation for the implementation of the Kyoto Protocol which was signed by Parties in 1997 and enforced in 2005. In 2016, the UNFCCC was superseded by the 2016 Paris Agreement at the Conference of Parties (COP19) in Warsaw, Poland.

The Kyoto Protocol marked the implementation of the first measures of the UNFCCC and applies to six greenhouse gases namely CO_2, CH_4, N_2O, HFCs, PFCs and SF_6. The protocol primarily operationalises the aims of the UNFCCC by committing industrialised countries and economies in transition to limit and reduce their greenhouse emissions in accordance with the agreed individual targets. The protocol requires signatories to adopt policies, measures on mitigation and to report greenhouse gas emissions periodically[2]. South Africa is the world's 14th largest emitter of greenhouse gases and accounts for highest emissions of CO_2 on the continent[3].

[2] What is the Kyoto Protocol? | UNFCCC. Accessed on 7 April 2021
[3] The Carbon Brief Profile: South Africa | Carbon Brief. Accessed on 7 April 2021

South Africa's emissions are a result of its reliance on the combustion of fossil fuels for the generation of electricity. In 2019, South Africa emitted approximately 478.61 million tonnes of CO_2 annually and 279.9 million tonnes was from electricity generation[4].

In order to fulfil the requirements of the UNFCCC and the Kyoto Protocol, government has developed legislation and policy to provide the framework indicating how commitments to reduce greenhouse gas emissions will be met. These policies include the National Climate Change Response Policy, Climate Change Bill, and the Carbon Tax Act, 2019 (Act No. 15 of 2019) and are explored further in Section 4.2 of this Scoping Report. Taking the above into consideration, the proposed development of the Scafell Cluster Project will generate at least 525 MW_{ac} of electricity from renewable energy, thereby reducing government reliance electricity generation from the combustion of fossil fuels which leads to the inevitable release of greenhouse gases such as CO_2 into the atmosphere. From this perspective, the proposed Scafell Cluster Project is in alignment with the obligations placed on South Africa in response to climate change through the UNFCCC and the Kyoto Protocol.

4.1.2 Paris Agreement

The Paris Agreement is an agreement in terms of the UNFCCC on climate change, mitigation, adaptation, and finance signed in 2016 at COP21 held in Le Bourget near Paris, France. The agreement set out to improve upon and replace the Kyoto Protocol by committing countries to keep the long-term rise of global temperature rise to below 2°C, above pre-industrial levels and to pursue efforts to limit the increase to 1.5°C recognizing that this would substantially reduce the risks and impacts of climate change.

South Africa signed the Paris Agreement and submitted its pledge in 2015. The pledge is also known as the 'Nationally Determined Contribution' or NDC. According to the pledge, South Africa adopted a 'peak, plateau and decline' approach whereby it is anticipated the greenhouse gas emissions will peak by 2025, plateau for a decade and then start to decline. By signing the agreement, countries are required to adopt the conditions of the agreement into their own legal systems through ratification, acceptance, approval, or accession. The agreement will become enforceable when ratified by at least 55 countries, which together account for at least 55 % of the global greenhouse gas emissions.

By prioritising the procurement of electricity from renewable energy technologies through the Integrated Resources Plan (IRP) and the REIPPPP, government has begun acting on the obligations of the Paris Agreement. Therefore, the development of the Scafell Cluster Project, which will contribute at least 525 MW_{ac} of electricity from renewable energy (solar) will aid government in reaching its target to peak with greenhouse gas emissions by 2025. From this perspective, the proposed Scafell Cluster Project aligns with the Paris Agreement and any updates thereto.

4.2 NATIONAL POLICY AND PLANNING FRAMEWORK

4.2.1 Energy White Paper, 1998

The 1998 White Paper on the Energy Policy of the Republic of South Africa is the primary policy document which guides all subsequent policies, strategies, and legislation within the energy sector. It provides specific policy

[4] https://ourworldindata.org/co2/country/south-africa. Accessed on 7 April 2021

statements on what government intends for the energy system as a whole and sets out five (5) key objectives. These objectives have subsequently formed the foundation and informed the development of energy policy in South Africa and still remain relevant. Various other energy policies have been developed and are in different stages of implementation. Some of the key policies developed following the 1998 White Paper on Energy Policy include:

- The White Paper on Renewable Energy, 2003;
- The National Energy Efficiency Strategy of the Republic of South Africa, 2008; and
- The Integrated Resources Plan 2010.

The proposed Scafell Cluster Project will have a total generating capacity of up to 525 MW_{ac} which will be added to the grid. This capacity will through the REIPPPP aid government meet its targets of ensuring energy security and supply as per the objectives of the provisions of the 1998 White Paper on Energy Policy.

4.2.2 Electricity Regulation Act, 1999 (Act No. 47 of 1999)

The Electricity Regulation Act, 1999 (Act No. 47 of 1999), as amended provides a national regulatory framework for the electricity supply and makes the National Energy Regulator of South Africa (NERSA) the overseer and enforcer of the framework. The Act requires that anyone with the intention to generate, transmit, reticulate, distribute, import, and export electricity to obtain approval from NERSA.

Each of the solar PV facilities from the proposed Scafell Cluster Project will require a generation license from NERSA in terms of the Act. The application process for the generation license will be undertaken when a positive decision on the application for an EA has been issued by DFFE and the project is granted preferred bidder status by the DMRE under the REIPPPP, or by another off taker.

4.2.3 Integrated Energy Plan, 2016

The development of a National Integrated Energy Plan (IEP) was envisaged in the White Paper on the Energy Policy of the Republic of South Africa of 1998, and in terms of the National Energy Act, 2008 (No. 34 of 2008) which places an obligation on the Minister of the DMRE to publish the IEP in the Government Gazette. The intention of the IEP is to provide a roadmap of the future of the energy landscape for South Africa which guides future energy infrastructure investments and policy development. The National Energy Act, 2008 (No. 34 of 2008) requires the IEP to have a planning horizon of no less than 20 years. The development of the IEP is therefore a continuous process at it needs to be reviewed periodically to consider changes in the macroeconomic environment, developments in new technologies and changes in national priorities and imperatives.
As a fast-emerging economy, South Africa needs to balance the competing need for continued growth with its social needs and the protection of the natural environment. South Africa needs to grow its energy supply to support economic expansion and in so doing, alleviate supply bottlenecks and supply-demand deficits. In addition, it is essential that all citizens are provided with clean and modern forms of energy at an affordable price. From the myriad of factors which had to be considered and addressed during the Integrated Planning Process, eight (8) key objectives were identified:

- Objective 1: Ensure security of supply;
- Objective 2: Minimise the cost of energy;

- Objective 3: Promote the creation of jobs and localisation;
- Objective 4: Minimise negative environmental impacts from the energy sector;
- Objective 5: Promote the conservation of water;
- Objective 6: Diversify energy supply sources and primary sources of energy;
- Objective 7: Promote energy efficiency in the economy; and
- Objective 8: Increase access to modern energy.

In the 2016 Draft, the IEP indicates the South Africa is endowed with renewable energy resources in the form of solar irradiation, and wind in coastal and mountainous areas, which have in the past remained untapped. In addition, the country receives a substantial amount of sunlight to support a sustainable solar power industry. The Northern Cape Province is considered one of the world's highest solar irradiation areas in the world. The IEP indicates that the daily solar irradiation in South Africa varies between 4.5 and 6.5 kilowatt hours per square meter (KWh/m^2). The total area of high solar irradiation in South Africa amounts to 194 000 km^2, including the Northern Cape Province. With electricity per square kilometre of mirror surface in solar power station being 30.2 MW, and just 1 % of the high radiation area in the country being made available for solar power generation, the generation potential is approximately 64 GW. Solar energy has the potential to contribute quite substantially to South Africa's future energy needs. This would, however, require large investments in transmission lines from areas of high radiation, such as the Northern Cape Province and the main electricity consumer centres.

The proposed Scafell Cluster Project is aligned with the precepts of the IEP in exploring renewable energy sources in the country in order to ensure a security of supply to promote the creation of jobs whilst minimising negative environmental impacts within the energy sector. Solar PV facilities have limited water requirements in comparison to other energy generation technologies, such as coal-fired power stations, which further supports the objectives of the IEP regarding the promotion of water conservation. As a result, the construction and operation of the proposed project supports the objectives of the IEP from a need and desirability perspective.

4.2.4 Integrated Resources Plan, 2019

The IRP, published in 2010 and promulgated in March 2011 and is a subset of the IEP is an electricity capacity plan which aims to provide an indication of the country's electricity demand, how this demand will be supplied and what it will cost. The recent IRP 2019 supports a diverse energy mix and presents policy interventions to ensure energy security for South Africa's electricity supply. Following the promulgation of the IRP 2010, a total of 18 000 MW of new generation capacity has been committed which comprises 9 564 MW of coal power from the Medupi and Kusile power stations, and 1 332 MW from the Ingula Pump Storage Project, 6 422 MW from renewable energy facilities and Independent Power Producers (IPPs), 1 055 MW from Open Cycle Gas Turbine Peaking Plants that will use diesel[5]. Through the IRP 2019, government recognises that coal will continue to play a significant role in electricity generation given the abundance of coal reserves. However, the existing Eskom fleet of coal-fired power stations will be decommissioned until 2030 and only then will 1 500 MW be procured

[5] What you need to know: South Africa's Integrated Resource Plan 2019 (miningreview.com). Accessed on 7 April 2021.

from coal-fired power sources. From a renewable energy perspective, government has allocated 6 000 MW of new capacity to be procured from solar PV facilities between 2022 and 2030.

Figure 4-1 illustrates a snapshot of South Africa's energy mix to date, as presented in the IRP 2019[6].

	Coal	Coal (Decommis-sioning)	Nuclear	Hydro	Storage	PV	Wind	CSP	Gas & Diesel	Other (Distributed Generation, CoGen, Biomass, Landfill)
Current Base	37,149		1 860	2,100	2 912	1 474	1 980	300	3 830	499
2019	2,155	-2,373					244	300		Allocation to the extent of the short term capacity and energy gap.
2020	1,433	-557				114	300			
2021	1,433	-1403				300	818			
2022	711	-844			513	400 1,000	1,600			
2023	750	-555				1000	1,600			500
2024			1,860				1,600		1000	500
2025						1000	1,600			500
2026		-1,219					1,600			500
2027	750	-847					1,600		2000	500
2028		-475				1000	1,600			500
2029		-1,694			1575	1000	1,600			500
2030		-1,050		2,500		1000	1,600			500
TOTAL INSTALLED CAPACITY by 2030 (MW)	33,364		1,860	4,600	5,000	8,288	17,742	600	6,380	
% Total Installed Capacity (% of MW)	43		2.36	5.84	6.35	10.52	22.53	0.76	8.1	
% Annual Energy Contribution (% of MWh)	58.8		4.5	8.4	1.2*	6.3	17.8	0.6	1.3	

Installed Capacity
Committed/Already Contracted Capacity
Capacity Decommissioned
New Additional Capacity
Extension of Koeberg Plant Design Life
Includes Distributed Generation Capacity for own use

- 2030 Coal Installed Capacity is less capacity decommissioned between years 2020 and 2030.
- Koeberg power station rated/installed capacity will revert to 1,926MW (original design capacity) following design life extension work.
- Other/ Distributed generation includes all generation facilities in circumstances in which the facility is operated solely to supply electricity to an end-use customer within the same property with the facility.
- Short term capacity gap is estimated at 2,000MW.

Figure 4-1: A snapshot of the IRP 2019

In line with the IRP 2019, the DMRE launched a Risk Mitigation Independent Power Producer Procurement Programme (RMIPPPP) in August 2020[7] to fill the current 2 000 MW short-term supply gap of electricity between 2019 and 2022 to alleviate supply constraints and reduce the extensive need of diesel-based peaking electrical generators. Due to the nature of the RMIPPPP, the objective of the DMRE was to procure energy from projects that were near ready. By December 2020, at least 28 bidders with near ready projects submitted bids to the DMRE to potentially supply the required 2 000 MW. These projects comprised gas, solar, wind and hybrid energy projects. In March 2021, the DMRE announced eight successful preferred bidder projects to supply 2 000 MW to the grid. Following the announcement of the preferred bidders for the RMIPPPP, the DMRE further announced Request for Proposals (RFPs) for the procurement of 2 600 MW from renewable energy sources will be issued as

[6] Cliffe Dekker Hofmeyr - The Integrated Resource Plan 2019: A promising future roadmap for generation capacity in South Africa. Accessed on 7 April 2021.
[7] IPP Risk Mitigation (ipp-rm.co.za). Accessed on 7 April 2021.

part of the upcoming Bidding Round 5 of the REIPPPP[8]. Bidding Round 5 will comprise 1 600 MW from wind and 1 000 MW from solar PV facilities.

Taking the above into consideration, the proposed Scafell Cluster Project has a total generating capacity of up to 525 MW_{ac} and it is understood that Mainstream will bid the projects into the REIPPPP upon receiving a positive EA from DFFE. Considering that the project will utilise solar PV technology to generate electricity, the project is aligned with the targets of the IRP 2019 for the procurement of 6 000 MW from solar PV facilities by 2030.

4.2.5 Renewable Energy Independent Power Producer Procurement Programme

The Renewable Energy Independent Power Producer Procurement (REIPPP) Programme is a competitive tender process that was launched to facilitate private sector investment into grid-connected renewable energy generation. Through the REIPPPP, government intends to enhance its power generation capacity, reduce reliance on the combustion of fossil fuels for the generation of electricity, stimulate an indigenous renewable energy industry and contribute to socio-economic development and environmentally sustainable growth. The programme supports the implementation of the National Development Plan and is centred on the procurement of electricity produced by the private sector through Independent Power Producers. Technologies such as solar photovoltaic amongst others are currently considered under the programme as IRP 2019 has made an allocation for the procurement of up to 6 000 MW from solar PV facilities.

The programme evaluates projects through various criterion which include job creation, local content, enterprise development and socio-economic development. The requirement from each criterion is summarised below.

a) Job Creation

Under the REIPPPP, this criterion requires IPPs to disclose the percentage of the project's total jobs that will be awarded to South African citizens, especially historically disadvantaged community members within communities where projects are located (Eberhard, 2015). The Scafell Cluster Project will provide at least 3 980 employment opportunities for the duration of the construction and operation phase of the project to local communities within the vicinity of the project site.

b) Local Content

This criterion requires IPPs to spend a certain percentage of the total value project value in South Africa to ensure that the country derives positive economic benefits from the implementation of these projects. To date, REIPPPP projects have attracted at least USD 20.5 billion in investment into the South African economy. For the Scafell Cluster Project, at least 45 % of the Capital Expenditure from the project will be spent in South Africa.

c) Enterprise Development

This criterion intends to direct investment from IPPs towards Exempted Micro Enterprises and Qualifying Small Enterprises that are owned by historically disadvantaged women. Since its inception, the REIPPPP has directed at least R6 billion towards enterprise development (Eberhard and Naude, 2015).

[8] The preferred bidders for the RMIPPPP - Gwede Mantashe - NEWS & ANALYSIS | Politicsweb. Accessed on 7 April 2021.

d) Socio-economic Development

This criterion aims to direct funding to socio-economic initiatives in such a way that a project has a positive socio-economic impact on an area by funding initiatives and projects related to improvements in healthcare, infrastructure, and education. This criterion requires that this funding be directed towards initiatives within the project area. IPPs are required to spend a threshold of 1 % of the project revenue towards these initiatives with a target of up to 1.5 %. According to Eberhard and Naude (2015), R9.3 billion was pledged to socio-economic developments in Bidding Round 4.

Taking the above into consideration, socio-economic initiatives with focus on improving healthcare, infrastructure, and education within the project area of the Scafell Cluster will derive positive economic benefits from the implementation of the project through this criterion that IPPs are required to meet under the REIPPPP.

4.2.6 Renewable Energy Development Zones and Strategic Transmission Corridors

In 2015, the then Department of Environmental Affairs through the Council for Scientific and Industrial Research (CSIR) embarked on a programme of Strategic Environmental Assessments (SEAs) for large-scale developments to support Strategic Integrated Projects. The intention of the SEAs was to pre-assess environmental sensitivities within development areas at a regional scale to simplify site-specific EIAs when they are undertaken and to focus the assessment to addressing the specific sensitivities of the site. The outcome of the programme led to the identification of eight Renewable Energy Development Zones (REDZ) and Power Corridors meant for the development of large-scale wind and solar renewable energy facilities in terms of *Strategic Integrated Project 8: Green Energy in Support of the South African Economy*, as well as the associated grid connection corridors for the development of grid connection infrastructure in terms of *Strategic Integrated Project 10: Electricity Transmission and Distribution.* Following the undertaking of further SEAs by the CSIR, DFFEthrough GN R144 (published on 26 February 2021) identified additional REDZs for the development of large-scale wind and solar renewable energy facilities in the Mpumalanga, North West, and Western Cape Provinces. The additional REDZs identified include the EMalahleni REDZ (REDZ 9), Klerksdorp REDZ (REDZ 10) and Beaufort West REDZ (REDZ 11). Furthermore, DFFE issued GN R383 (published on 29 April 2021) which identifies two additional power corridors in the Northern Cape and KwaZulu-Natal Provinces for the development of large-scale grid connection infrastructure. The identified power corridors include the Expanded Western Corridor and Expanded Eastern Corridor. Although the project site for the Scafell Cluster Project is located outside of the REDZs (Figure 4-2) the project will nevertheless contribute towards the need for the generation of electricity from renewable energy sources as highlighted by national policy and planning guidelines. As the project site for the Scafell Cluster Project does not fall within a REDZ, the project does not satisfy Regulation 3 of GN R114 of 2018. As a result, the Application for EA for the proposed project requires the undertaking of a Scoping and EIA process in accordance with Regulation 21 – 24 of the EIA Regulations 2014 (as amended), and the application will be considered within a period of 107 days from the day of receipt of the final EIA Report by DFFE. Although the grid connection corridor is located within a Central Strategic Transmission Corridor (see Figure 4-2), the grid connection infrastructure will have a capacity of up to 132 kV and does not fulfil the requirements of GN R113 of 2018.

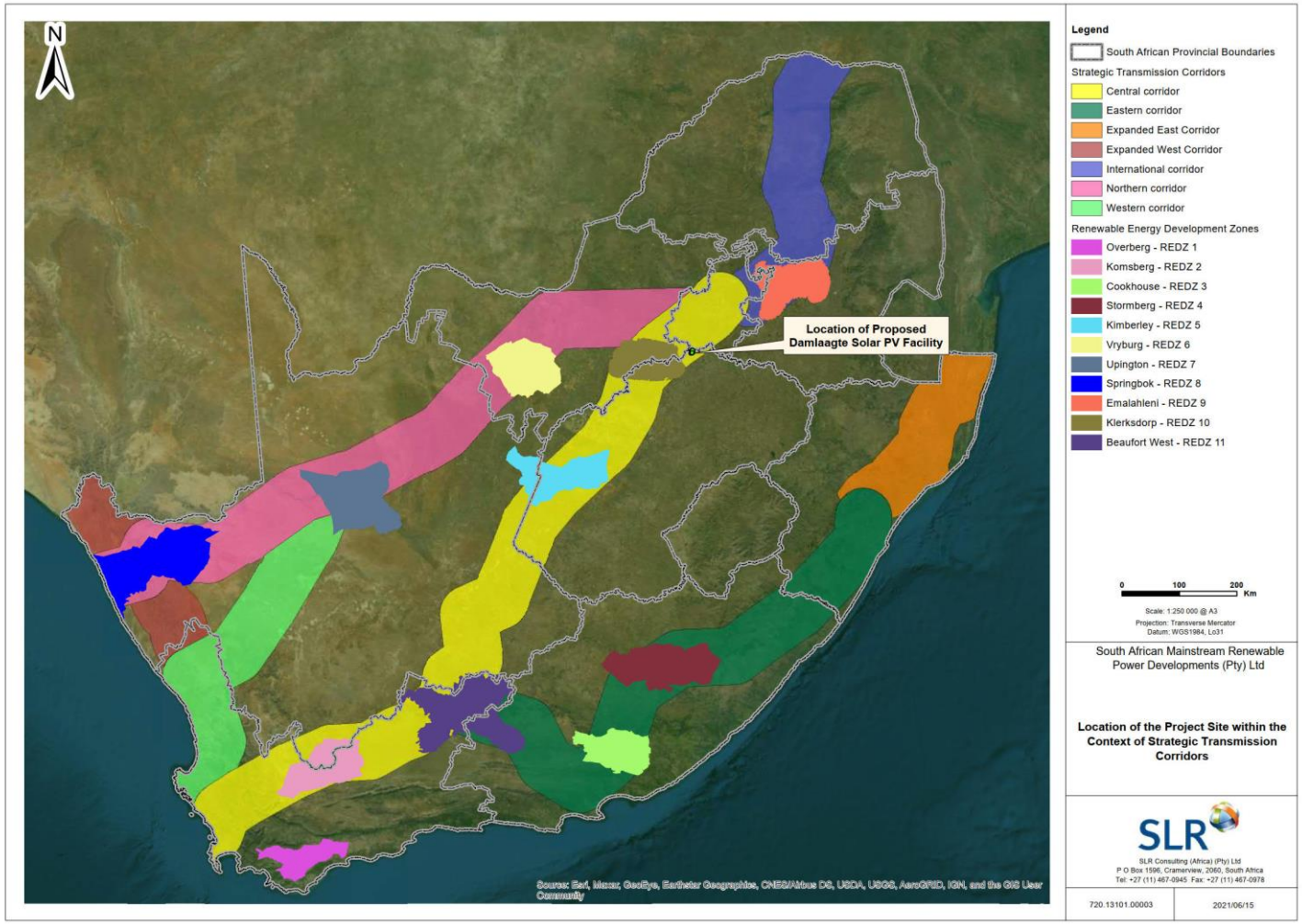

Figure 4-2: Location of the study area within the context of the REDZ and Strategic Transmission Corridors.

4.2.7 National Climate Change Response Strategy

The need for a National Climate Change Response Strategy was recognised as an urgent requirement by government during the ratification process of the UNFCCC in 1997. The document notes that climate change is a '*cross cutting issue that affects the entire economy as well as many specific sectors including energy, transport, agriculture, water resources management and provision of water services and health'.* The aim of the strategy is to promote and maximise the integration of the government department programmes whilst minimising negative impacts associated with climate change.

Taking into consideration that South Africa is the largest emitter of greenhouse gas emissions on the continent and 14th worldwide, and the fact that the majority of these emissions are from electricity generation through the combustion of fossil fuels, the proposed Scafell Cluster Project will positively contribute towards the reduction in greenhouse gas emissions - a key objective of the National Climate Change Response Strategy.

4.3 REGIONAL AND LOCAL POLICY AND PLANNING FRAMEWORK

A summary of provincial and local planning policies in the Free State Province aligned to the proposed project as well the suitability of the project site for the development of a solar PV project are described below. The proposed construction and operation of the solar PV facility is considered to be in alignment with the objectives of the policies, even though the contributions to the objectives from the proposed project can be negligible.

4.3.1 Free State Provincial Growth and Development Strategy 2005 – 2014

The objectives of the Free State Provincial Growth and Development Strategy include the following:

- Stimulate economic development;
- Develop and enhance the infrastructure for economic growth and social development;
- Poverty alleviation through human and social development;
- Ensure a safe and secure environment for all the people of the province; and
- Promote effective and efficient governance and administration.

The construction and operation of the proposed Scafell Cluster Project is aligned to the objectives of the Free State Provincial Growth and Development Strategy as the implementation of the project will stimulate the local economy within the surrounding areas. Stimulation of the local economy will be as a result of the creation of employment and business opportunities for community residents within the vicinity of the project site. The project will require numerous support services which can be rendered by Small Medium and Micro Enterprises within the surrounding area during the construction and operation phase. Support services that will be required and can be provided by the Small Medium and Micro Enterprises within the project area include, waste and sewage removal, security services, transportation of staff and the supply of construction material (i.e., sand and cement).

4.3.2 Fezile Dabi District Municipality Reviewed Integrated Development Plan (IDP), 2020 – 2021

The vision statement of the Fezile Dabi District Municipality *IDP states, 'Improving the lives of citizens and progressively meeting their basic, social and economic needs, thereby restoring community confidence and trust in government'*. The IDP on electricity and energy indicates that approximately 11 926 households do not have access to electricity within the municipal area of the Fezile Dabi District Municipality and further indicates that the electricity, gas, and water sectors within the District Municipality provide the least employment opportunities, contributing approximately 1 %. In addition, the Fezile Dabi District Municipality within the IDP has made provision for three electrification projects to be implemented between 2020 – 2021 within its municipal area.

Given that at least 11 926 households do not have access to electricity within the municipal area of the Fezile Dabi District Municipality, the addition of 525 MW_{ac} from the Scafell Cluster Project will provide much needed capacity to the grid and aid the municipality in meeting some of its targets for the electrification of communities. Furthermore, indirect positive socio-economic benefits of the project, i.e., project expenditure within the surrounding area and employment opportunities for residents will negligibly contribute to the Fezile Dabi District Municipality's economy. As a result, the project is in alignment with the objectives of the district municipality.

4.3.3 Ngwathe Local Municipality Reviewed Integrated Development Plan (IDP), 2020 – 2021

The Ngwathe Local Municipality IDP, 2020 – 2021 indicates that the municipality has a 35 % unemployment rate, which is equivalent to 19 643 residents. The IDP further indicates that approximately 1 835 households within the municipal area do not have access to electricity. The construction and operation of the Scafell Cluster Project with a generation capacity of up to 525 MW_{ac} will add much needed capacity to the grid and positively contribute towards the electrification of households without electricity within the municipal area. Although negligible, the employment opportunities associated with the construction and operation phases of the proposed project will contribute towards the stimulation of the local economy through the creation of employment and business opportunities for unemployment residents within the municipal area.

Taking into consideration the need for electricity within the municipality and the high unemployment rate, the implementation of the Scafell Cluster Project will enable the municipality in realising some of its key objectives as outlined in the IDP. As a result, the project is considered to be in alignment with the IDP of the Ngwathe Local Municipality.

4.3.4 Site Suitability

The identification and selection of the site as a suitable area for the development of the Scafell Cluster Project was determined based on the levels of solar irradiation, topography, extent of the area available for development, and the proximity of the site to the nearest grid connection point. From a technical perspective, the project site identified for development is considered to be feasible for the development of solar PV facilities with a total generating capacity of up to 525 MW_{ac}. The site-specific characteristics for the project site that support the development of solar PV facilities are described below:

i. Solar Irradiation

- The project site is associated with Global Horizontal Irradiation (GHI) values of approximately of 5.648 KWh / m^2 per day and a PV potential of 2 251 KWh / m^2 (see Figure 4-3). Based on these values, the development of solar PV facilities a solar PV facility on the site is considered highly desirable from a technical perspective.

ii. Topography

- The project site is associated with a flat topography, with average slope of 3.2 % and is approximately at an elevation of 1 400 m above sea level. The topography of a project site is critical as it informs the nature and level of foundations required for the mounting structures of the PV panel modules and other project infrastructure and has an impact on the total output of energy generated from the facility. Although the nature of the topography on the project site will be investigated further through detailed geotechnical investigations, from the outcomes of the Preliminary Engineering Assessment (BVi Consulting Engineers, 2021), the flat nature of the topography associated with the project site is considered feasible for the placement of the Scafell Cluster Project.

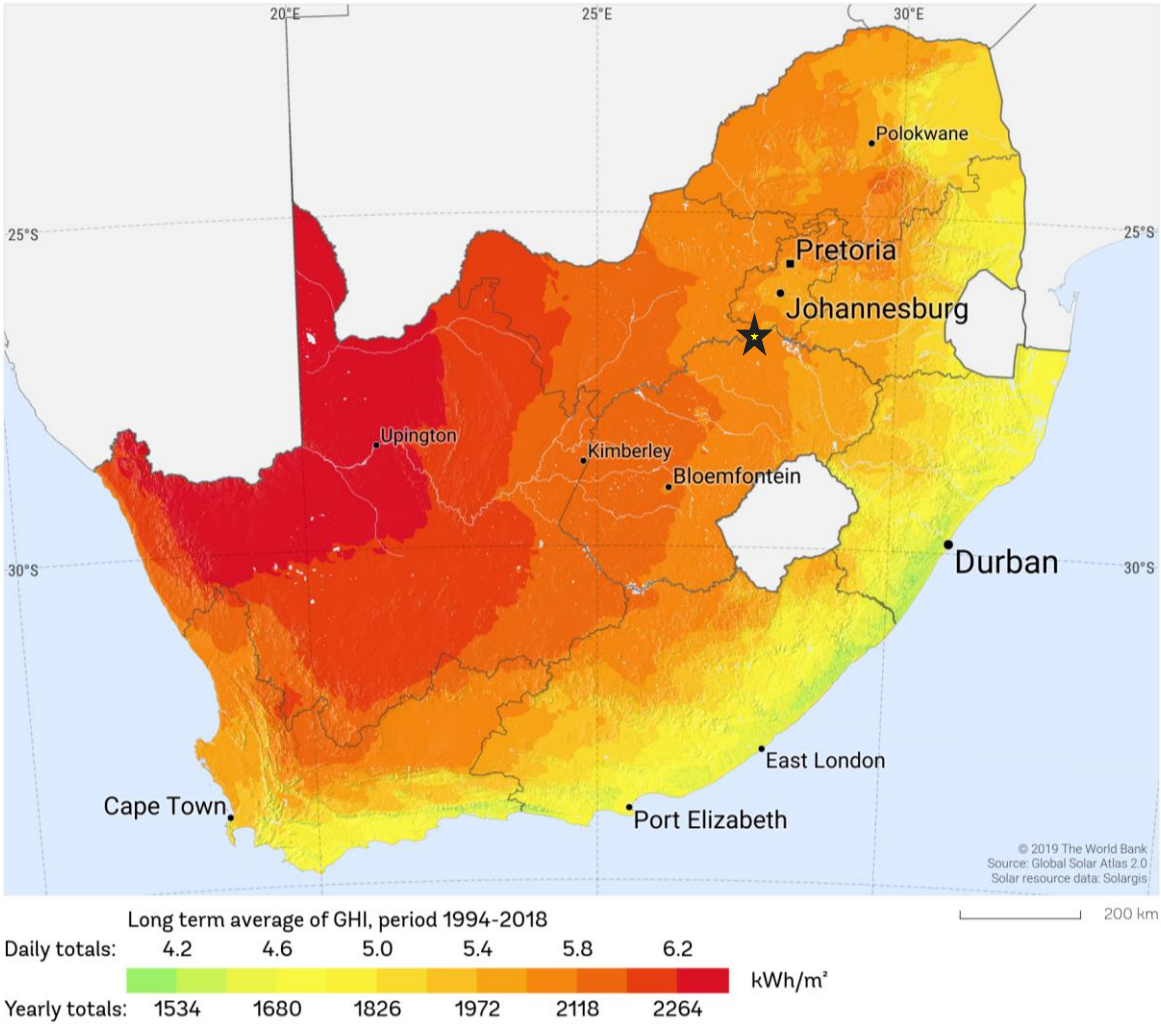

Figure 4-3: Global Horizontal Irradiation Map of the approximate location of the project site (yellow star)

Source: World Bank Group, http://globalsolaratlas.info

iii. Extent of the area available for development

- The project site for the placement of the Damlaagte Solar PV Facility comprises of the property Remaining Extent of the Farm Damlaagte 229. The property has an extent of up to 282.2 ha. The Damlaagte Solar PV Facility will have a total development footprint[9] of up to 166 ha, which is approximately 59 % of the total extent of the property. As a result, the extent of the area available for development is considered sufficient for the placement of the Damlaagte Solar PV Facility.

iv. Access Routes

- The project site is located in proximity to the N1 national road. The proximity of the project site to a highway decreases the impact of traffic on secondary roads during the construction and operation phase of the project. Site access was a key factor in the selection of the project site as a preferred area for the placement of the Damlaagte Solar PV Facility as it significantly reduces transportation costs for equipment that will be incurred during the construction phase.

v. Existing Grid Connection Infrastructure

- The location of the project site in proximity to existing grid connection infrastructure was a key component in selecting the area for the placement of the Damlaagte Solar PV Facility. According to the Preliminary Engineering Assessment (BVi Consulting Engineers, 2021), the Scafell MTS located 2.47 km to the south-east of the project site is identified as the most suitable grid connection point to connect the Damlaagte Solar PV Facility to the grid. Existing transmission lines present within the vicinity of the project site of the Damlaagte Solar PV Facility and the Scafell MTS include:
  - Mercury – Zeus 765 kV Transmission line
  - Olympus – Scafell 1 275 kV Transmission line
  - Scafell – Snowdon 1 275 kV Transmission line
  - Makalu – Scafell 1 275 kV Transmission line

[9] The actual area to be disturbed for the placement of infrastructure for the solar PV facility.

5. PROJECT DESCRIPTION

This chapter provides general project information and presents a description of the project considered by Mainstream.

5.1 GENERAL PROJECT INFORMATION

5.1.1 Applicant Details

Component	Description
Company Name	South Africa Mainstream Renewable Power Developments (Pty) Ltd
Address:	4th Floor Mariendahl House Newlands on Main Corners Main & Campground Roads Claremont 7800
Responsible person:	Eugene Marais
Tel:	021 657 4045
Fax:	073 871 5781
E-mail:	eugene.marais@mainstreamrp.com

5.2 LOCATION OF THE PROPOSED PROJECT

The Scafell Cluster Project consists of four separate solar PV facilities with a total generating capacity of up to 525 MW_{ac}. This Scoping Report is for the **Damlaagte Solar PV Facility** (see Figure 5-1). A project site located 20 km west of the town Sasolburg has been identified for the construction and operation of the solar PV facility. Access to the project site is provided via an unnamed road to the north of the project site, which also routes above the N1 for 4 km in a westerly direction. This unnamed road connects to the Boundary Road at the Vaal Eden intersection. The project site is within the Central Strategic Transmission Corridor – a node for the development and expansion of large-scale electricity / grid connection infrastructure, i.e., transmission lines and substations, etc. Existing grid connection infrastructure within the vicinity of the project site include the following:

- Scafell Main Transmission Substation;
- Mercury – Zeus 765 kV Transmission Line;
- Olympus – Scafell 1 275 kV Transmission Line,
- Scafell – Snowdon 1 275 kV Transmission Line; and
- Makalu – Scafell 1 275 kV Transmission Line.

All of the above-mentioned transmission lines connect to the Scafell MTS located 2.47 km south – east of the project site. The grid connection infrastructure associated with the proposed project would be a direct

connection to the Scafell MTS. A separate Basic Assessment (BA) process is being undertaken for this proposed grid connection infrastructure.

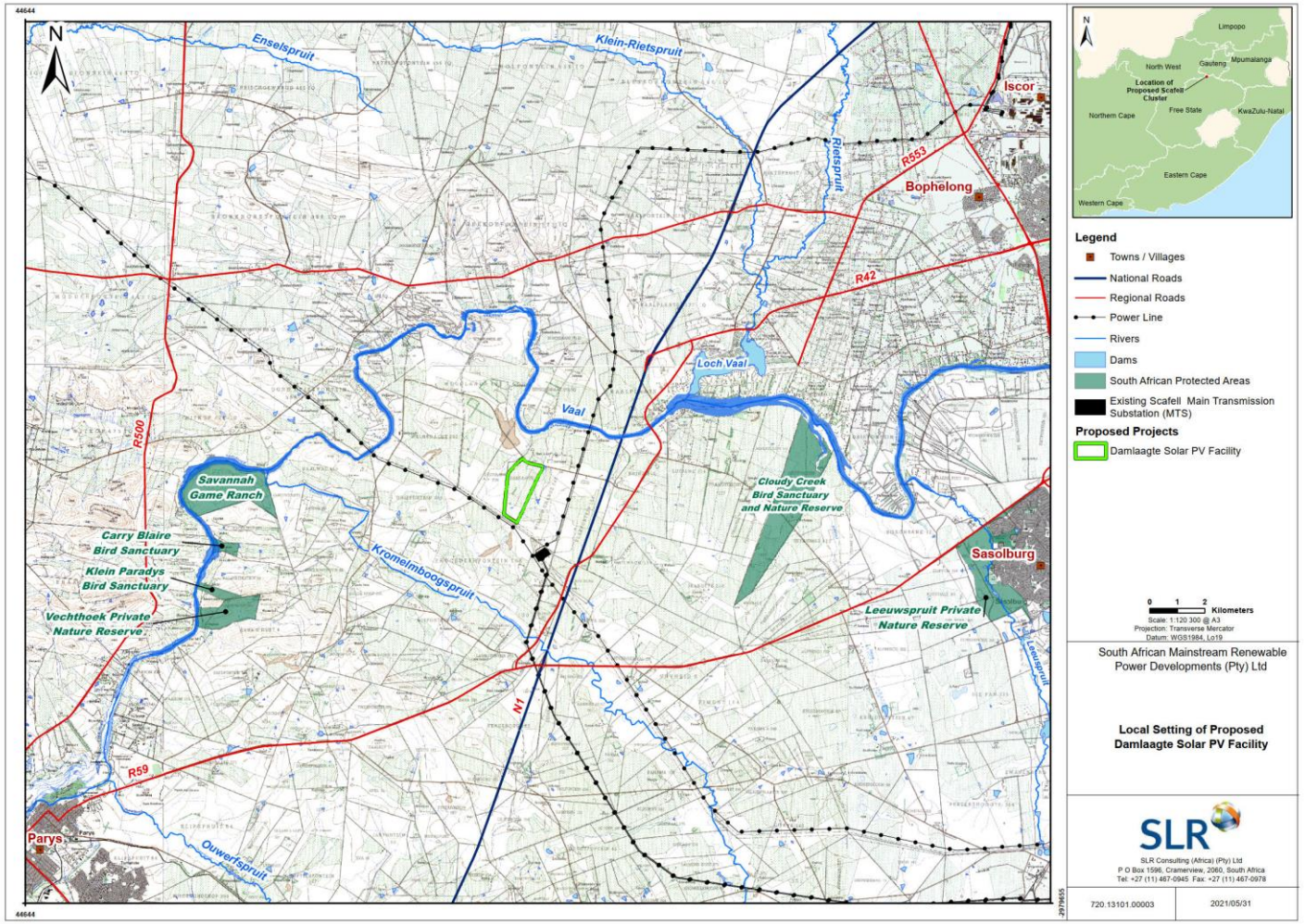

Figure 5-1: Locality Map of the Damlaagte Solar PV Facility

5.3 SUMMARY OF PROPERTY AND TECHNICAL INFORMATION

Table 5-1 includes technical and project-specific details of the key infrastructure components and support services that will be required to support the operations of the solar PV facility for a 20-year period. Mainstream has proposed a layout (see Figure Figure 5-2) which will be assessed in the EIA Report for the development of the proposed project.

5.4 KEY PROJECT COMPONENTS

Solar energy systems produce energy by converting photons "solar radiation" into electrons when then flow as electricity or heat. This process is referred to as the 'Photoelectric Effect'. Three types of solar panels are proposed and will be assessed in the Impact Assessment Phase for the proposed project. These include monocrystalline, polycrystalline, and thin film modules solar panels.

The main components of solar PV technology to be utilized for this project include the following components:

5.4.1 PV Cell

The PV cell is the device that generates electricity when exposed to solar radiation. The absorbed solar energy excites the electrons inside the PV cell and produces electrical energy (see Figure 5-3). All PV cells produce Direct Current (DC). There are three main types of solar cells:

- Monocrystalline – made from a single silicon crystal;
- Polycrystalline — made from multiple silicon crystals; and
- Thin film — common material used for thin film modules are Cadmium Telluride (CdTe) and Copper indium gallium selenide (CIGS).

5.4.2 PV module

The PV module is the set of interconnected photovoltaic cells encapsulated between a transparent front (usually glass) and a backing support material of either laminate or glass then mounted in an aluminium frame, or frameless with durable tempered glass. The modules will appear dark blue or black and will be mounted in an aluminium frame or laminated between durable glass sheets. The modules are designed to absorb the solar radiation and hence are not susceptible to reflection or glinting. Newer modules can also absorb irradiation reflected off the ground via the back of the panel if the back of the panel is glass. This type of module technology is referred to as bi-facial modules which are produced by a number of panel suppliers and can be produced in either monocrystalline or polycrystalline form. The proposed solar PV facility will utilise monofacial or bifacial PV modules.

5.4.3 PV array

The PV array is the complete power generating plant consisting of multiple PV modules wired in series and in parallel. The PV modules will be connected by DC cables to combiner boxes mounted underneath the PV module mounting structures. Each combiner box will occupy an area of approximately one square metre. The power generated by many PV module strings is combined in the combiner box and transmitted via DC cables to an inverter and transformer enclosure.

Table 5-1: Detailed Project Information

Component	Damlaagte Solar PV Facility
Property Information	
Farm name & portion number:	Damlaagte 229 Remaining Extent
Surveyor General 21-digit code:	F02500000000022900000
Name of Landowner:	Amanda Greeff
Property size:	282.2 ha
Study area size:	173 ha
Development footprint size:	166 ha
Centre coordinates of site:	26°47'31.73"S 27°37'45.52"E
Technical Details – Solar PV Facility	
Capacity	Up to 150 MW_{ac}
Installed PV panel height	Up to 3 m
Number of PV panels	Up to 304 252
Mounting structures	Single Axis Tracking, Dual Axis Tracking or Fixed Axis Mounting System Technology
Inverters	Centralised or String Inverter Stations and Power Transformers

Component	Damlaagte Solar PV Facility
Cabling	Underground Direct Current (DC) and Alternating Current (AC) cables of up to 33 kV
Electrical Infrastructure	
IPP Substation capacity	33 / 132 kV
IPP Substation footprint	2.5 ha
Cabling	Underground and overhead transmission lines (up to 33 kV)
Grid Connection[10]	• 132 kV transmission line from the 33 / 132 kV from the on-site substation to the Scafell MTS; or • 132 kV transmission line from the 33 / 132 kV on-site substation via Loop-in / Loop-out connection into the existing Bernina – Leeudoring Shaft / Scafell 132 kV transmission lines.
Grid Connection corridor length & width	• Up to 1 km long and 150 m (and up to 500 m for the on-site substation)
Building Infrastructure	
BESS footprint	Up to 1 ha
BESS technology	Solid State or Redox Flow Batteries
Buildings	• Operational Control Centre • Operation and Maintenance Area / Warehouse / Workshop / Control Centre and Office • Ablution Facilities • Substation Building

[10] The grid connection for the Damlaagte Solar PV Facility will be subject to a separate Environmental Authorisation process and will require a Basic Assessment (BA) process to support the application for Environmental Authorisation.

Component		Damlaagte Solar PV Facility
Laydown Area & Associated Infrastructure		
Size of laydown area		Up to 3 ha
Buildings and Infrastructure		• Permanent Laydown Area • Temporary Construction Camp and Laydown Area • Fencing and Lighting • Lightening protection infrastructure • Telecommunication infrastructure • 400 m^3 reservoir, water pipeline and stormwater channels
Supporting Infrastructure		
Main access road		2.5 km long and up to 8 m wide
Internal access road		12 km long and 5 m wide
Support Services		
Water Demand	Construction	Water for Roads - 15ℓ / m^2 Water for Civil Works - 400 m^3 / project Water for Domestic Use - 225 m^3 / month
	Operation	Water for PV module cleaning - 18 000 m^3 / annum Water for Domestic Use - 20 m^3 / month Water for Dust Suppression - 15ℓ / m^3
Waste Generation	Construction	General Waste would be managed on site in accordance with the principles of the waste management hierarchy. In terms of specific waste streams, the major sources include: • Carboard waste from the panels –Approximately 250 tons of cardboard (per 75 MW). A compactor would be used on site to compress the cardboard boxes in which the PVs are stored in order to reduce the space required for the temporary storage of this waste. • Rubber caps placed on all eight corners of the PV panels (total volumes are uncertain).

Component		Damlaagte Solar PV Facility
		• Wooden pallets on which the PV boxes arrive. • Plastic wrap. Hazardous Waste may be generated on site depending on the design / type of panel procured. Hazardous waste will be disposed of at a registered facility. Effluent would be managed by means of conservancy tanks (16 000 L in capacity which are cleaned once a month and disposed of at the nearest municipal facility).
	Operation	Effluent would be managed using septic Tanks (16 000 L in capacity which are cleaned 2/3 times a week) or a Clarus Fusion System (16 000 L capacity which are cleaned once every six months), or similar, which utilises a chemical process to recycle water from the Operations and Maintenance Buildings as well as Sub-Station Buildings. This treated water can then be used to water vegetation.
Traffic		It is expected that there will be approximately 2 000 trucks in total over the 12-18-month construction phase, approximately 10-20 trucks per day.
Employment Opportunities		
Construction Phase		• At least 230 people however the number of people employed at one time may vary as different contracts and subcontracts on the project are completed at a time onsite.
Operation Phase		• At least 17 people and this is due to the fact that the staff will mainly be responsible for the daily operations and maintenance activities of the project.
Recruitment for the duration of the project lifecycle will be undertaken in collaboration with local authorities, community leadership structures and agencies and no labourers will be hired onsite. Mainstream will therefore implement mitigation and management measures to ensure that no employee or job applicant is discriminated against on the basis of race, gender, nationality, age, religion, or sexual orientation.		

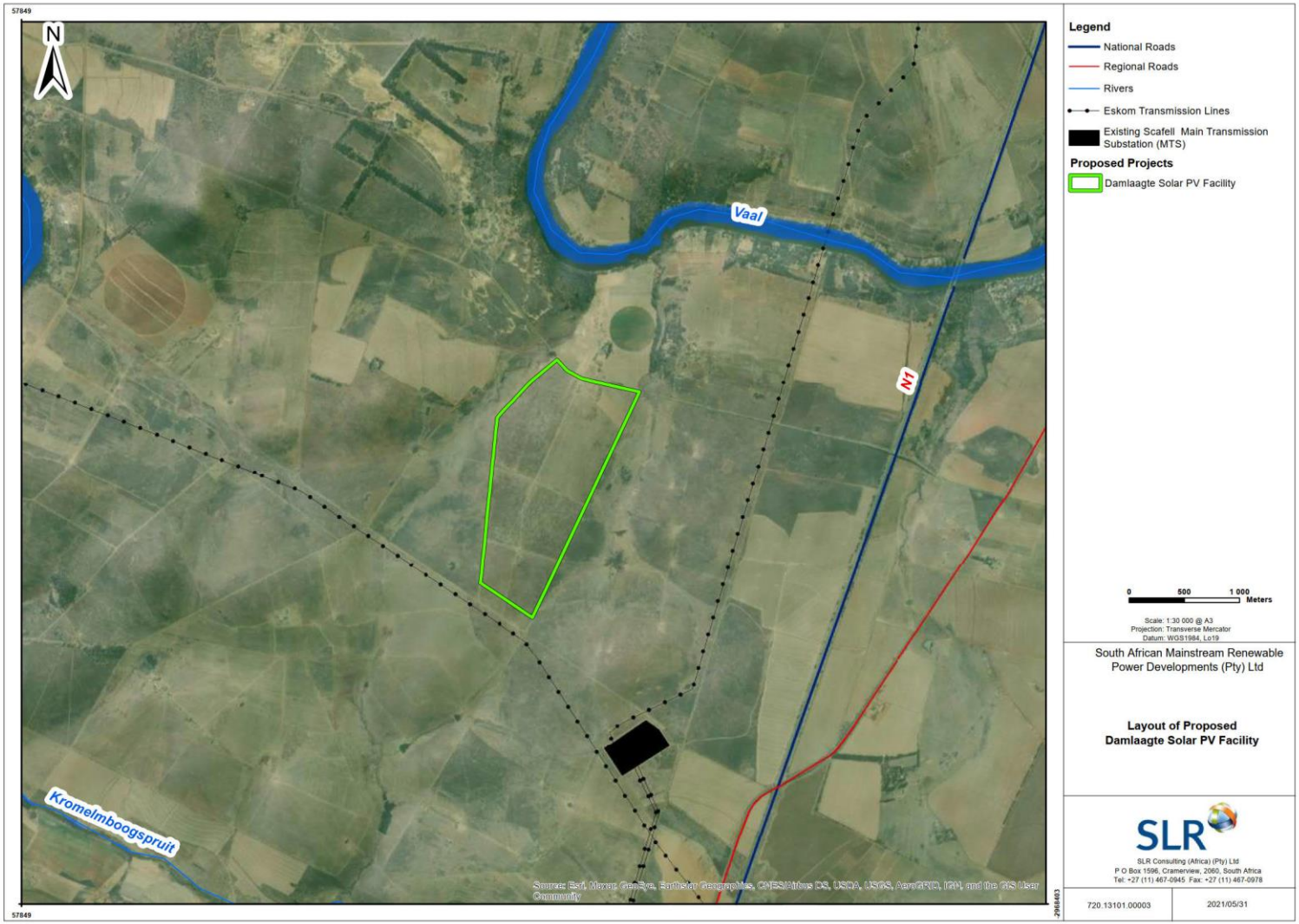

Figure 5-2: Layout map of the Damlaagte Solar PV Facility

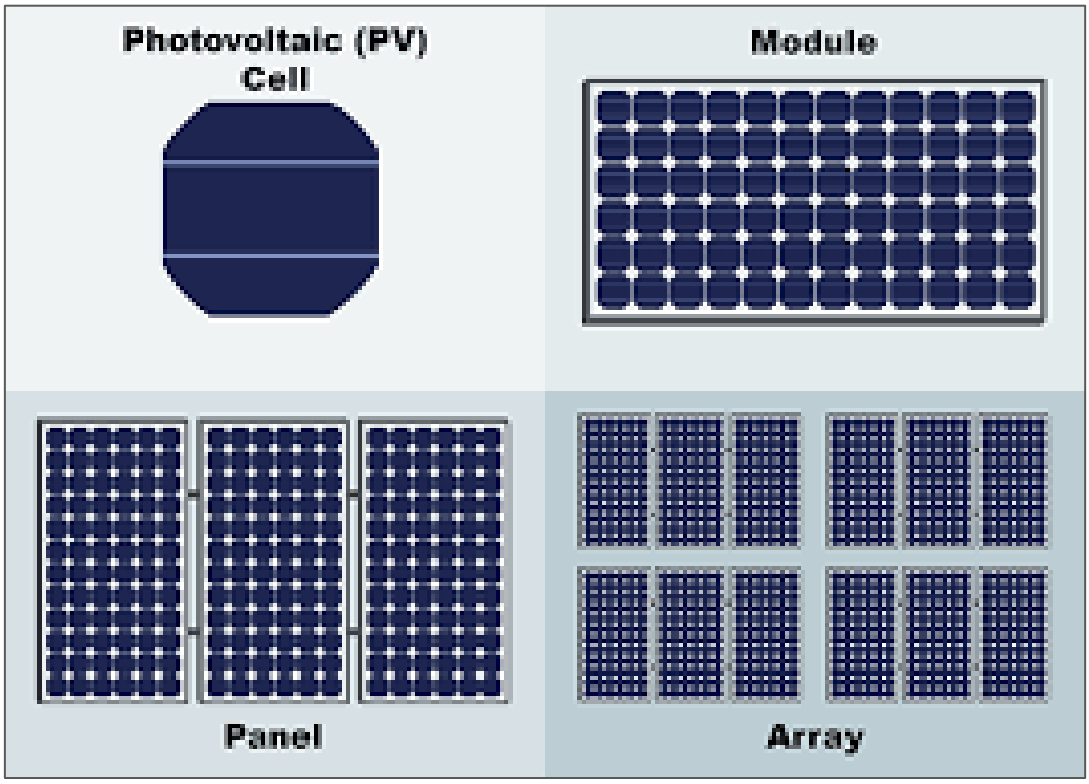

Figure 5-3: Illustration of the various components that make up a PV panel array.

Source: http://www.fsec.ucf.edu/en/consumer/solar_electricity/basics/cells_modules_arrays.htm

5.4.4 Mounting structures

Multiple PV modules are bolted onto a mounting structure which tracks the sun's progress across the sky usually in an east to west direction. PV arrays either use fixed or tracking (single or double axis) mounting structure in order to optimise the amount of solar irradiation. In a tracking system, the panels are mounted on a steel or aluminium rack and a tracking motor is placed at the end of the PV panel array to control the tilt and movement of the array as required to track sunlight. The proposed project will utilise either fixed or tracking (single or double axis) mounting structures.

5.4.5 Inverter

The inverter converts the direct current (DC) to alternating current (AC). The inverter and transformer are anticipated to be housed within the same inverter station housing (typically an insulated, steel-framed 6 m shipping container, or small brick building). The transformers transform the low voltage AC from the inverter to medium voltage. The actual number of the required inverter stations for the proposed project will be determined prior to the commencement of the construction phase of the project. The inverters will vary in size and frequency depending on technology. Inverter stations will be installed in between the PV panel rows (see Figure 5-4), in a line inside the layout area at the end of each row, located on a concrete plinth. The proposed project will utilise either central inverter stations, string inverters or power transformers.

Figure 5-4: Inverter positioning (red blocks) on a PV panel array

5.4.6 Substation

The IPP portion of the on-site 33 / 132 kV substation comprises an inverter (step-up facility) which converts power from Direct Current (DC) to Alternating Current and will step up electrical current from 33 kV to 132 kV. The substation will consist of at least one small building, outdoor electrical plant, equipment, and transformers. The development footprint of the substation will be up to 2.5 ha. An Eskom Switching Station with a development footprint of up to 2.5 ha will be constructed adjacent to the IPP Substation. The Switching Station will be assessed separately in a BA process of the grid connection infrastructure associated with the solar PV facility.

5.4.7 Battery Energy Storage System

The Battery Energy Storage System (BESS) allows for the storage of surplus energy generated by the solar PV facility for later use. The BESS enables a balance between supply and demand of electricity during the day and uses the stored energy during peak demand periods, i.e., morning and evenings. Energy generated from the PV panel array is DC and converted to AC by the inverters and then transferred to the on-site substation where it is determined if the energy should be stored or evacuated. When the energy is required, it is evacuated into the grid network, and when it is not required, it is transferred to the BESS and stored for later use (Figure 5-5). A BESS consists of stacked up containers, or a multi-story building with a maximum height of 8 m and will have a footprint of up to 1 ha (see Figure 5-6).

Several battery technologies are being considered for utilisation for the proposed project. These include solid state and flow type batteries. Solid State batteries consist of one or more electrochemical cells that convert chemical energy into electrical energy. Each cell consists of an anode and cathode. Electrolytes within the cells

allow ions to move between the electrodes and terminals, which enables the flow of current out of the battery. Examples of solid-state batteries include Lithium-ion and Sodium Sulphur batteries. Flow batteries are rechargeable and the rechargeability function is enabled by the dissolution of chemical components in liquids contained within the system that are separated by a membrane. The advantage associated with flow batteries is that they are easily rechargeable through the replacement of the electrolyte fluid. Typical examples of flow batteries include Vanadium Redox (VRB) flow batteries. The preferred BESS technology for utilisation for the proposed project will be selected during the detailed design of the solar PV facility post the issuance of the Environmental Authorisation, and when the project has been granted preferred bidder status under the DMRE's REIPPPP and a supplier of the batteries has been appointed. This Scoping Report and the EIA Report will consider and assess solid state and redox flow BESS technology options.

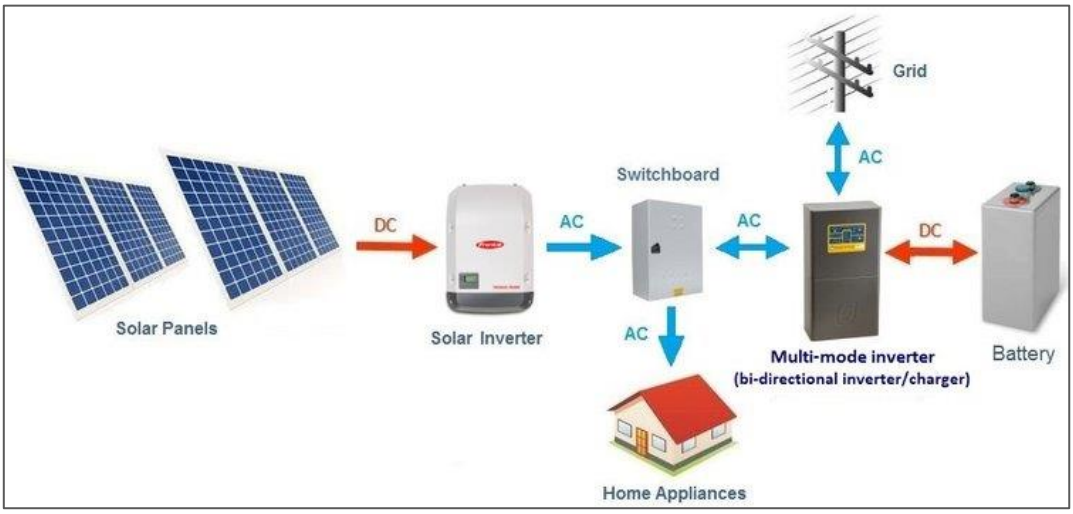

Figure 5-5: A process diagram illustrating the usage of a BESS in the electric grid.

Source: https://www.cleanenergyreviews.info/blog/ac-coupling-vs-dc-coupling-solar-battery-storage

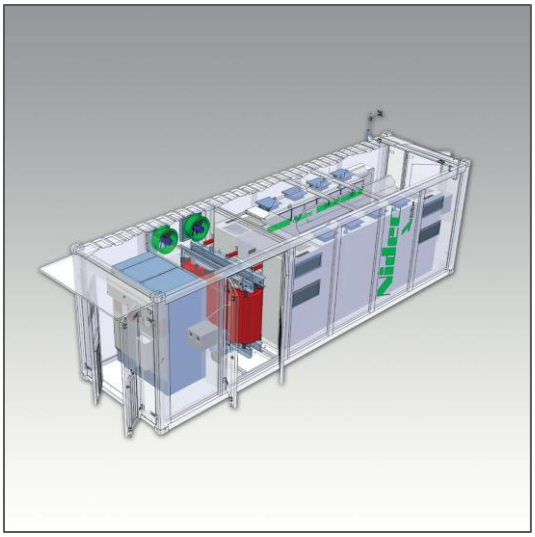

Figure 5-6: A BESS container

Source: https://www.nidec-industrial.com/markets/battery-energy-storage-solutions

5.4.8 Operations and Maintenance Buildings

Additional infrastructure is required in order to support the operations of a solar energy facility, and to provide services to personnel tasked with the operations and maintenance of a facility. Operations & Maintenance Buildings (O&M) typically include Offices, Operational and Control Centre, Workshop, Warehouse, and Ablution Facilities.

5.4.9 Access Roads

A main access road will be constructed for the provision of access from the existing road network to the project site. Within the project site, internal access roads will be constructed to provide access to the PV panel array and other components of the solar PV facility.

5.5 SUPPORT SERVICES

The proposed project will require support services and infrastructure for the duration of the project. Support services and infrastructure required will include water, waste and sewage removal, water, and electricity.

5.5.1 Water Demand

During the construction phase of the proposed project, water will be either from a registered service provider, existing boreholes within the project site or through surface water abstraction. The anticipated water usage for the project for the duration of the 12-18-month construction phase is included in Table 5-1 above. The water would be required for the following uses:

- Drinking;
- Ablution facilities;
- Access Road construction;
- Dust suppression
- Fire-fighting reserve
- Cleaning of facilities; and
- Construction of foundations for PV panel mounting structures and substation.

During the operation phase, water will be supplied either by a registered service provider, boreholes within the project site or through abstraction. The anticipated quantities required are listed in Table 5-1 above and would be necessary for domestic use, dust suppression and cleaning of the PV modules. The PV panels will typically be cleaned using dry brush techniques, and water cleaning will be used under certain circumstances where water will be used only to remove surface contaminants on the PV modules. No chemicals will be used for the cleaning of the PV modules, and it is anticipated that the PV modules for the proposed project will only be cleaned with water during the rainy season as regular rainfall creates the need for the PV panel cleaning.

5.5.2 Wastewater and Waste Removal

Wastewater: Approximately 16 000 m^3 per annum of effluent will be generated during the construction and operation phase of the project. A Service Level Agreement will be reached with a registered service provider for the collection of sewage from the project site using a honey sucker truck and be disposed of at the near Wastewater Treatment Works (WWTWs) during the 12 – 18-month construction phase. A new clarisfusion system will be deployed during the construction phase of the proposed project which will utilise a chemical process to recycle water from the Operations and Maintenance Buildings. The recycled water will be used for domestic applications within the project site, i.e., watering vegetation, etc.

Solid Waste: There will be solid waste generated for the duration of the proposed project and will comprise of hazardous and non-hazardous waste components. During the construction and operation phase of the proposed project, non-hazardous solid waste components will comprise spoil from construction-related activities, general domestic waste (i.e., wooden pallets, cardboards, etc.) and concrete.

Hazardous materials used on site during operations will include fuels, oils, lubricants, cleaning products, and specialised gases (for use in switchgear etc.). Minimal waste is expected to be generated during the operation phase. For certain types or transformers or backup generators, oil that needs to be replaced will be recycled, if possible, or safely stored and removed from the site and correctly disposed of.

All solid wastes generated (hazardous and non- hazardous) will be disposed of at a licensed landfill site by means of contracting a suitably registered waste handling company. This will be the responsibility of the Engineering Procurement Construction (EPC) Contractor during construction phase of the proposed project and will have overall oversight to verify that the collection, transport, handling, and disposal of these wastes is being undertaken in a suitable manner.

Waste during the decommissioning phase will be similar to that produced during the construction phase; this includes wooden and plastic packaging, cable off cuts, disused solar PV panels, office, and domestic waste. All solid wastes generated will be disposed of at appropriately licenced landfill sites for general, and/or hazardous waste streams.

In addition, Mainstream will have to ensure that any waste due to breakdowns and maintenance of the BESS is collected by the battery supplier or a licensed service provider and disposed in the appropriate manner in accordance with environmental legislation and best practice guidelines.

5.5.3 Air and noise emissions

Air emissions: Temporary air emissions will occur during the construction phase due to the use of construction machinery and the clearing of vegetation which may result in wind-blown dust and fugitive dust emissions. Little to no emissions are anticipated during the operation phase through management of on-site vehicle speed and vegetation and soil landscaping.

Noise emissions: The key temporary noise sources during the construction phase will be from the mobile machinery, vehicles, workers, and plant construction activities including high speed ramming using percussion hammers. Some construction activities may be required afterhours. The operation of the solar PV facility is not expected to generate noise additional to that generated from the existing Scafell MTS located 2.47 km south of the project site.

5.5.4 Traffic

There will be some traffic during the construction phase of the proposed project for the delivery of project components, machinery, and labour. The transportation route has not yet been finalised but is most likely to be one of the following two routes:

- Durban via Harrismith and Vereeniging;
- East London via Bloemfontein and Kroonstad; and
- Cape Town via Beaufort West, Bloemfontein, and Kroonstad.

Transport routes for the proposed project will be finalised once all suppliers are finalised after undergoing a procurement period. Traffic volumes are anticipated to diminish during the construction phase of the proposed project, and only a limited number of vehicles will travel to and from the project site for operation and

maintenance purposes. Where appropriate, mitigation and management measures for the control and management of traffic-related impacts will be included in the EMPr for the proposed project.

5.5.5 Employment opportunities

Refer to Table 5-1.

5.5.6 Schedule and Life of Project

It is anticipated that a Power Purchase Agreement (PPA) will be signed for a period of up to 20 years. Beyond this duration, the proposed project may continue to operate subject to further approvals or be decommissioned.

5.6 MAIN ACTIVITIES

The proposed project will be carried out in the following phases:

- Development / Planning phase;
- Site preparation;
- Construction phase;
- Operational phase; and
- Decommissioning phase.

Activities to be undertaken during each of the phases are described in the following sections of this report.

5.6.1 Development and Planning Phase

During the development and planning phase of the proposed project, Mainstream will assess the key parameters required for the construction and operation of the solar PV facility. This will include:

- Enviro-legal and other permitting;
- A detailed layout of the proposed project;
- Eskom grid connection requirements; and
- Detailed geotechnical investigations of the project site.

During the development and planning phase of the proposed project, the project will be adapted in order to meet regulatory requirements, time schedules and expectations of all relevant parties.

5.6.2 Site Preparation Phase

Should the proposed project be granted a positive decision by DFFE and selected as a preferred bidder in a renewable energy procurement programme and Financial Close be achieved, site preparation activities will commence. This phase would include the clearance of vegetation, installation of perimeter fencing and levelling of the site and preliminary earthworks. Thereafter the project site will be marked out, a construction camp set up and the access road to the site be constructed. The clearance of vegetation is not anticipated to be site wide and will depend on the detailed layout of the proposed project.

5.6.3 Construction Phase

The construction phase of the proposed project will be initiated following the completion of the site preparation activities. The construction phase will include the following:

- Excavation of cable trenches;

- Ramming or drilling of the mounting structure frames;
- Installation of the PV modules onto the frames;
- Installation of measuring equipment;
- Laying of cables between the module rows to the inverter stations;
- Optionally laying of gravel or aggregate from nearby quarries placed in the rows between the PV panel array for enhanced reflection onto the panels, assisting in vegetation control and drainage;
- Construction of foundations for the inverter stations and installation of the inverters;
- Construction of the substation and BESS foundations and installation of the substation components and placement of BESS;
- Construction of operations and maintenance buildings;
- Undertaking of rehabilitation on cleared areas where required;
- Testing and commissioning; and
- Removal of equipment and disassembly of construction camp.

Where possible, materials, plant and equipment will be sourced from suppliers within the vicinity of the project site. The bulk of the specialist equipment, i.e., PV modules, inverters, BESS, substation components and BESS, etc, will be imported from China, Europe or the United States of America and be shipped to South Africa.

The construction phase of the proposed project will be for a period of up to 12 – 18 months.

5.6.4 Operation Phase

The proposed project will be operated on a 24 hour, 7 days a week basis. The operation phase of the proposed project will comprise the following activities:

- Regular cleaning of the PV modules by trained personnel;
- Vegetation management under and around the PV modules to allow maintenance and operation at full capacity;
- Maintenance of all components including PV modules, mounting structures, trackers, inverters, substation transformers, BESS, and equipment;
- Office management and maintenance of operations and maintenance buildings;
- Supervision of the solar PV facility operations; and
- Site security monitoring.

5.6.5 Decommissioning Phase

The proposed project is expected to operate for at least 20 years. Once the solar PV facility reaches the end of its life, the facility will be decommissioned or continue to operate following the issuance of a new PPA by Eskom. If decommissioned, all components will be removed, and the site rehabilitated. Where possible all materials will be recycled, otherwise they will be disposed of in accordance with local regulations and international best practice.

5.7 ALTERNATIVES

The EIA Regulations 2014 (as amended) through Regulation (2)(g)(iv) of Appendix 2 ('Scoping Report') require that alternatives be considered during the Scoping phase of a project. Chapter 1 of the EIA Regulations 2014 (as

amended) defines 'alternatives' as a 'different means of meeting the general purpose and requirements of the activity', and alternatives may include:

- the property on which or location where it is proposed to undertake the activity;
- the type of activity to be undertaken;
- the design or layout of the activity;
- the technology to be used in the activity; and
- the option of not implementing the activity.

The alternatives considered in relation to the Scafell Cluster Project are discussed in detail in the following sections.

5.7.1 The property on which or location where it is proposed to undertake the activity

For the Damlaagte Solar PV Facility, no property or location alternatives were taken into consideration as the location of the project was based on the location of the Scafell MTS – the grid connection point for the project, which will be used to feed 150 MW_{ac} of electricity generated from renewable energy into the grid. In general, the site selection process of a site for the development of a solar PV facility is dependent on several aspects of which are favourable at the identified project site for the construction and operation of the Damlaagte Solar PV Facility. These aspects include the solar irradiation, topography, extent of the area available for development, proximity of the site to the nearest grid connection point and access to the site. Taking the detail included in Section 4.3.4 into consideration, the project location is considered suitable for the placement of the Damlaagte Solar PV Facility and no other locations are being assessed or considered for the placement of the project.

5.7.2 The type of activity being undertaken

The development of the Damlaagte Solar PV Facility is required in order to add 150 MW_{ac} of electricity generated from a renewable energy facility into the grid. Therefore, no other activity alternatives have been considered for the project.

5.7.3 The design or layout of the activity

Mainstream appointed specialists prior to the commencement of the Scoping phase to undertake field-based surveys of the project site to determine the suitability of the site from an environmental perspective for the placement of the Damlaagte Solar PV Facility in the area. Areas with sensitive environmental features within the project site were delineated by the specialists, and together with the Preliminary Engineering Assessment (BVi Consulting Engineers, 2021) have informed the layout considered for the Damlaagte Solar PV Facility. This layout will be assessed in detail during the Impact Assessment Phase of the project, taking into consideration the identified sensitive environmental features present within the project site.

5.7.4 The technology to be used in the activity

Based on the solar irradiation resource available and the topography of the site, the placement of a solar PV facility is considered to be the preferred option from a technology perspective. Furthermore, the IRP 2019 has allocated 6000 MW to be procured from solar PV facilities up to 2030 and no allocation has been made for Concentrated Solar Power (CSP) facilities. PV technology is considered as the preferred option in comparison to CSP as it is associated with limited water demand requirements and a lower visual profile.

For the Damlaagte Solar PV Facility, two types of PV panel modules, mounting system technology and Battery Energy Storage System (BESS) options are being considered for the project and these include:

- PV panel module alternatives:
    - Monofacial and Bifacial PV panel modules – monofacial PV panel modules generate electricity from one side of the module, whereas bifacial PV panel modules generate electricity from the front and rear side of the module. Bifacial PV panel modules are regarded as having a higher energy yield in comparison to monofacial PV panel modules. The utilisation of bifacial PV panel modules will require the placement of reflective material beneath the PV panel module such as concrete to enhance the albedo effect from the rear surface of the module. The selection of a preferred option for the PV panel modules will be undertaken within the Impact Assessment Phase of the project and following detailed technical assessments of both options by Mainstream.
- PV panel mounting technologies:
    - Fixed Tilt and Tracking (Single or Dual Axis) – fixed-tilt mounting structures for PV modules are typically aligned on North – South path, are cheaper, reliable and have a longer life span in comparison to tracking options. They however are associated with a lower energy output. Tracking mounting structures provide a flexibility in the orientation and motion of the PV panel modules. The tracking mounting structures work on primary and secondary axes which enable the structures to point PV panel modules to specific points in the sky for greater energy output. They therefore allow for a greater energy output and a higher degree of accuracy in directional pointing of these structures. The selection of the preferred option will be undertaken within the Impact Assessment Phase of the project and following detailed technical assessments of both options by Mainstream.
- Battery Energy Storage System (BESS): Mainstream is subject to detailed assessments considering the option of either using Solid State or Redox Flow BESS for the Scafell Cluster Project. Solid State BESS, i.e., Lithium ion are efficient for mobile and high-power applications such as mobile phones and laptops, whilst Redox Flow options are suitable for providing power to large utility applications and have a longer lifespan before they require replacement. The Impact Assessment Phase of the project will assess the selection of each technology option as a preferred option from a technical perspective. The selection of the preferred BESS option will be undertaken prior to the commencement of the construction phase subject to technical and site conditions.

5.7.5 The option of not implementing the activity

Should the option of not implementing the Damlaagte Solar PV Facility be considered, the land use of the project site (livestock grazing) will continue, and there would not be environmental impacts as well as socio-economic benefits associated with the implementation of the project. The Impact Assessment Phase will explore the impact of not implementing the project (i.e., the “No-Go” alternative) from an environmental perspective.

6. DESCRIPTION OF THE BASELINE ENVIRONMENT

6.1 CLIMATE

The study area and project site is associated with summer rainfall, and a cool – temperate climate. Average monthly temperatures are lowest in July (9.46°C) and highest in January (22.07°C). Average monthly rainfall is lowest in July (4.19 mm) and highest in January (116.9 m)(see Figure 6-1). The area is associated with high extremes between maximum summer and minimum winter temperatures, and frequent occurrence of frost.

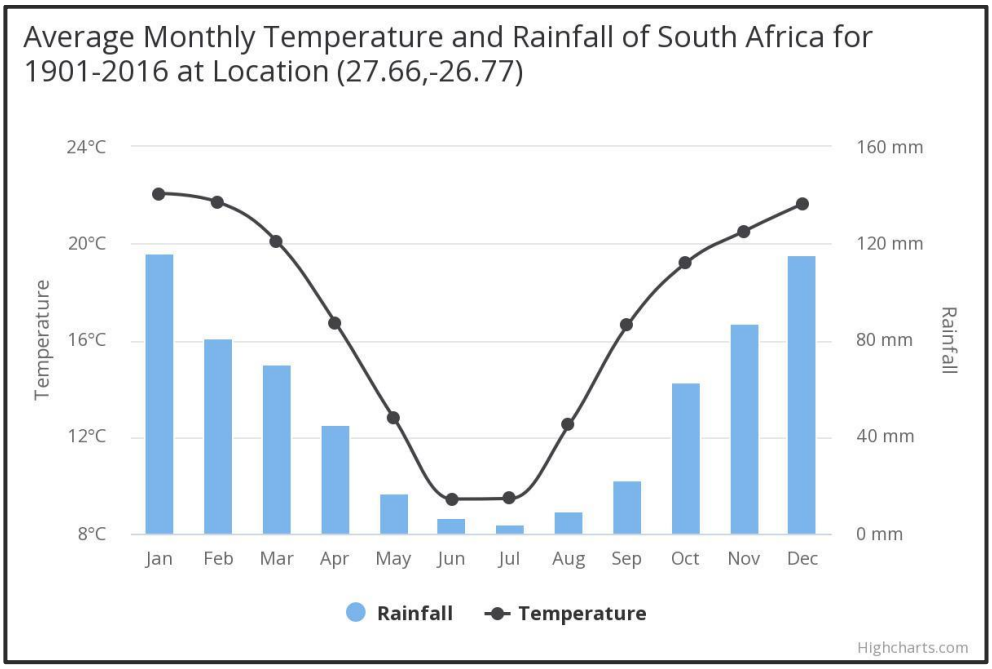

Figure 6-1: Average temperate and rainfall of the project site

Source: https://climateknowledgeportal.worldbank.org/country/south-africa/climate-data-historical

6.2 BIOPHYSICAL ENVIRONMENT

6.2.1 Topography and Geology

The study area and project site is located approximately 1 440 – 1 490 m above sea level, and the area is associated with shale, sandstone, or mudstone lithologies. These rocks belong to the Madzringwe Formation of the Karoo Supergroup or the intrusive Karoo Suite dolerites which are a common geological feature in the area. Rocks from the Volksrust Formation of the Karoo Supergroup are located to the south of the study area, and older lithologies of the Witwatersrand, Transvaal and Ventersdorp supergroups are located to the west of the study area and project site towards Parys.

6.2.2 Soils and Land Potential

i. Land Type

The study area predominantly consists of the Ba39 Land Type, except for the north-eastern corner of the site that is Land Type Bb23. Land Type Ba39 represent consist of five terrain units (see Figure 6-2) with approximately 50% of the total land type area consisting of mid-slopes (Terrain unit 3). The mid-slopes have slight slope (2 to 6%) and long slope lengths of 1 000 to 1 500 metres above sea level (masl). The dominant soil form of the mid-slopes is the Hutton form and soil depths range between 0.9 and 1.1 m. The mid-slopes also include soil of the Avalon form that is underlain by soft plinthite at depths of 0.8 to 1.0 m. Approximately 11% of the mid-slopes consist of shallow Mispah soils which are between 0.1 and 0.2 m deep.

The second most prevalent terrain form are crests (Terrain unit 1) that consists of a mixture of rock, shallow topsoil on rock (the Mispah form) and deeper red apedal soils of the Hutton form. Around 10% of the total land type area consists of toe-slopes (Terrain unit 4) consisting of a large variety of soil forms such as the Avalon, Glenrosa, Westleigh, Sterkspruit, Glencoe, Wasbank and Clovelly forms. The valley bottoms (Terrain unit 5) are characterised by soil with higher clay content and stronger structure. Soil forms include hydric soils of the Willowbrook and Rensburg forms as well as soil with a thick vertic horizon (Arcadia form).

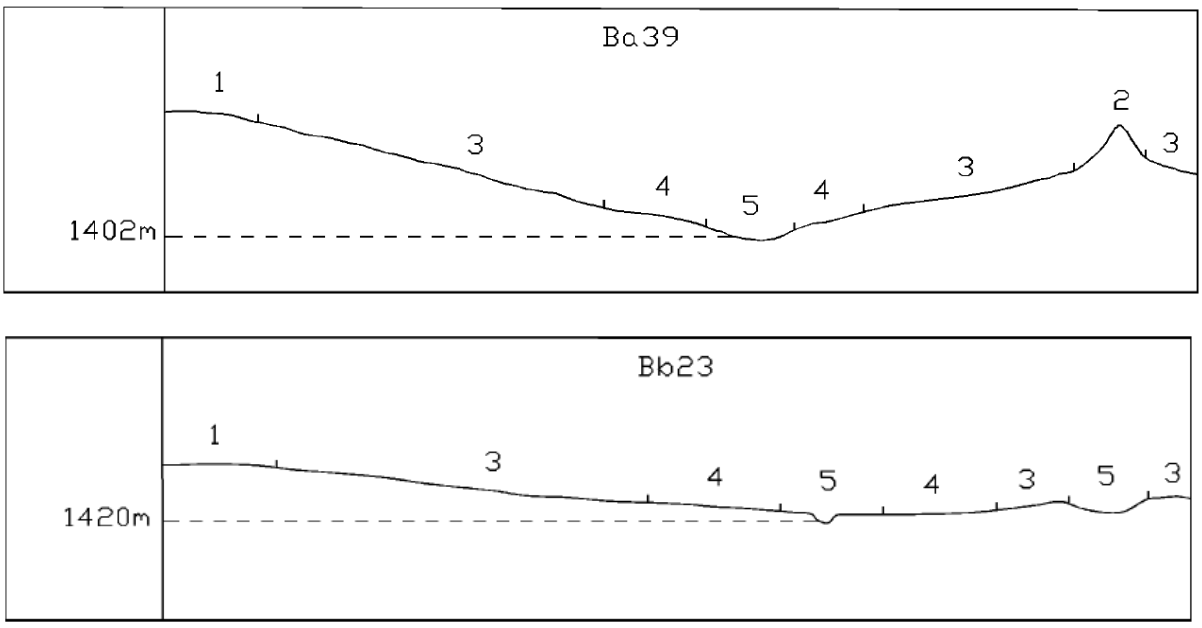

Figure 6-2: Terrain form sketches of Land Types Ba39 and Bb23

Land Type Ba23 consists of four terrain units (refer to Figure 6-2). The land type represent a flat landscape (at elevations between 1 420 and 1 1435 masl and consists predominantly of mid-slopes (Terrain unit 3) and toe-slopes (Terrain unit 4). These terrain units comprise sandy soils of the Longlands and Wasbank forms, apedal soils of the Hutton and Clovelly forms as well as soils with strong structure such as the Valsrivier and Sterkspruit forms. The valley bottoms consist of hydric soils with a gley horizon i.e., the Rensburg and Katspruit forms.

ii. Soil properties

Two soil forms with vertic topsoil are present within the Scafell Cluster Project study area, i.e., the Rustenburg form (where soil depth is limited by hard rock) and the Rensburg form (associated with the wetland area) where the vertic horizon is underlain by gley. Within the wetland area associated with the study area, the Katspruit form is also present. The southern boundary of the study area consists of shallower soil profiles, including Mispah, Glenrosa, Carolina, Clovelly. Vaalbos and Nkonkoni. The soil depth of these forms is a limiting factor to crop production and these areas are better used as grazing fields for livestock farming.

iii. Land capability

In terms of the Department of Agriculture, Land Reform and Rural Development (then Department of Agriculture, Forestry and Fisheries) land capability data, the middle, western and northern sections of the site is deemed to have a Moderate (Class 08) land capability (see Figure 6-3). The southern portion of the site as a well as a section of the north-eastern corner are deemed to be of Low-Moderate (Class 07) land capability. In addition, there are small, isolated patches with Moderate-High (Class 09) land capability as well as areas with Low (Class 05) and Low-Moderate (Class 06) land capability.

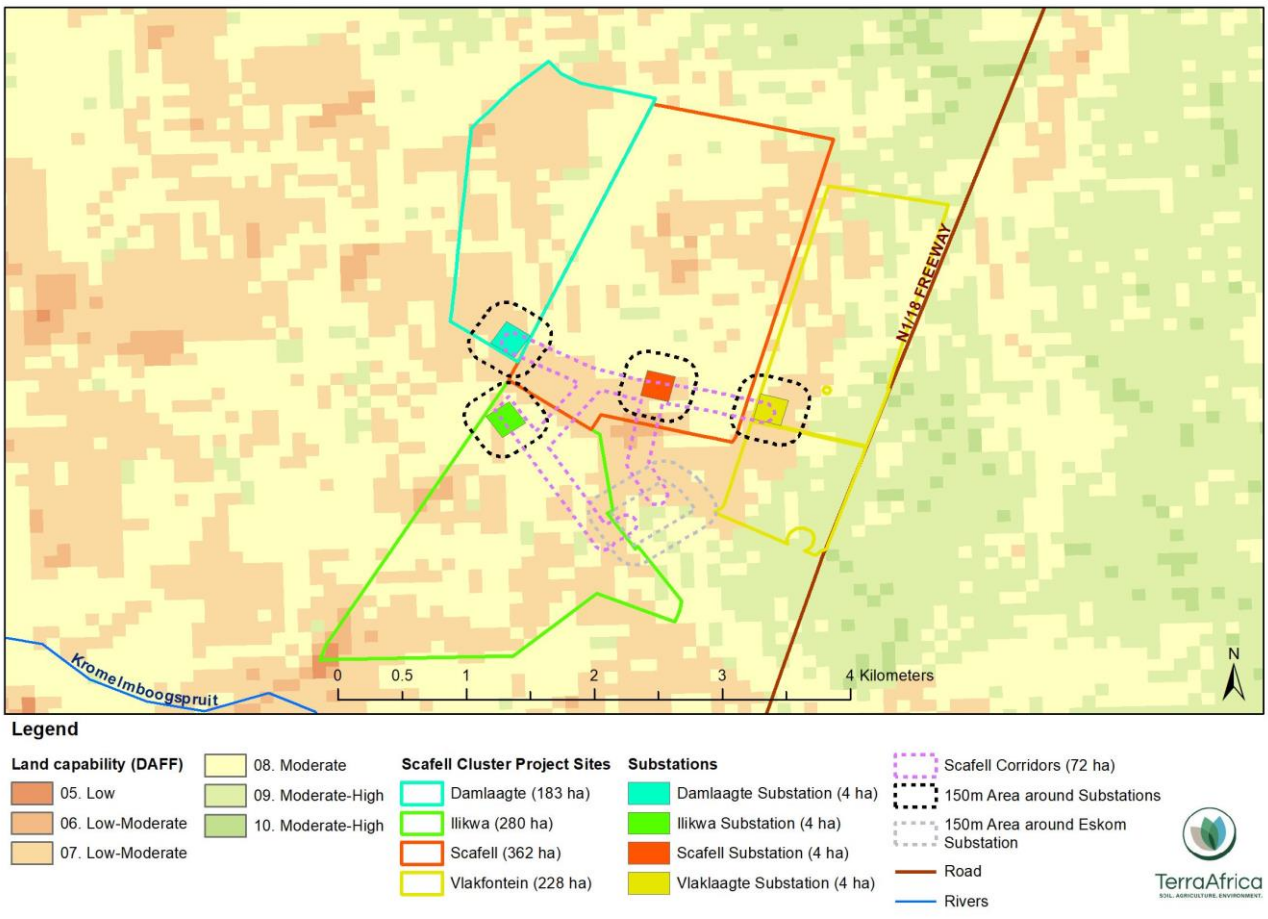

Figure 6-3: Land capability map of the Scafell Cluster Project study area.

iv. Sensitivity analysis

According to the newly delineated High Potential Agricultural Areas (HPAA) of the Free State Province, the Scafell Cluster Project study area falls within a Category B HPAA. The findings of the site sensitivity verification undertaken by the specialist indicate that the north-eastern corner of the Damlaagte Solar PV Facility project site is associated with a high sensitivity. This is a result of the presence of soil in this area of the project site with suitability for crop production, and the recent (within the last six years) cultivation of the land for the establishment of pasture. The remaining extent of the project site has a low and medium sensitivity (see Figure 6-4).

6.2.3 Biodiversity

i. Flora

According to Mucina and Rutherford (2006) and the 2018 Final Vegetation Map of South Africa, the study area for the proposed project falls within the remaining extent of the Soweto Highveld Grassland Vegetation Type (see Figure 6-5), which is considered to be vulnerable with a conservation target of 24 % and is not protected. The vegetation type has been impacted by anthropogenic activities such as agriculture, mining, and infrastructure development activities.

The Soweto Highveld Grassland Vegetation Type is associated with a gently to moderately undulating landscape on the Highveld Plateau, and is mainly distributed in the Mpumalanga and Gauteng Provinces, and to a lesser extent in the neighbouring Free State and North West provinces. This vegetation type supports short – medium – high, dense, tuffed grasslands that are dominated by *Themeda trianda* with associations to *Elionrus muticus*, *Erasgrostis racemosa*, *Heteropogon contortus* and *Tristachya leuxothrix*. In addition, the study area is located within 10 km of conservation and protected areas identified in terms of the South African Protected Area Database (SAPAD, 2020_Q2) which include, the Carry Blaire Bird Sanctuary and Nature Reserve, Cloudy Creek Bird Sanctuary and Nature Reserve, Klein Paradys Bird Sanctuary, and the Savannah Game Ranch (see Figure 6-6).

The findings of the field-based survey indicate that the project site for the Damlaagte Solar PV Facility is associated mainly with three (3) habitat units within the Soweto Highveld Grassland Vegetation type of the study area. These habitats units include the transformed and grassland habitats. The grassland habitat is further sub-divided into three (3) habitat subunits, which include the Degraded Grassland, *Seriphium* – dominated Grassland and *Themeda* – rich Grassland subunits. The various types of habitat units and subunits present within the project site of the Damlaagte Solar PV Facility are differentiated on the basis of plant species composition and are described below..

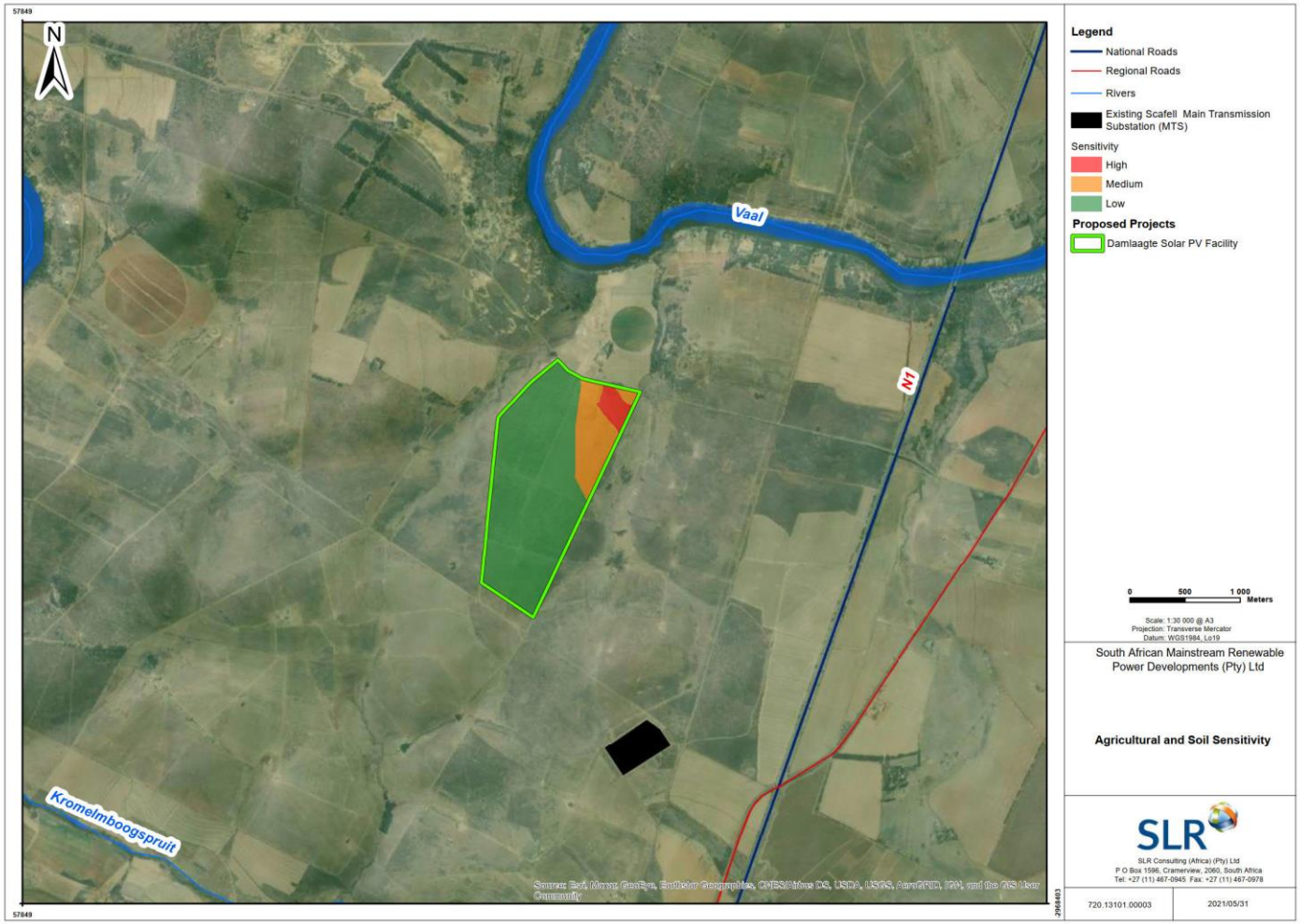

Figure 6-4: Agricultural and soil sensitivity of the Damlaagte Solar PV Facility project site

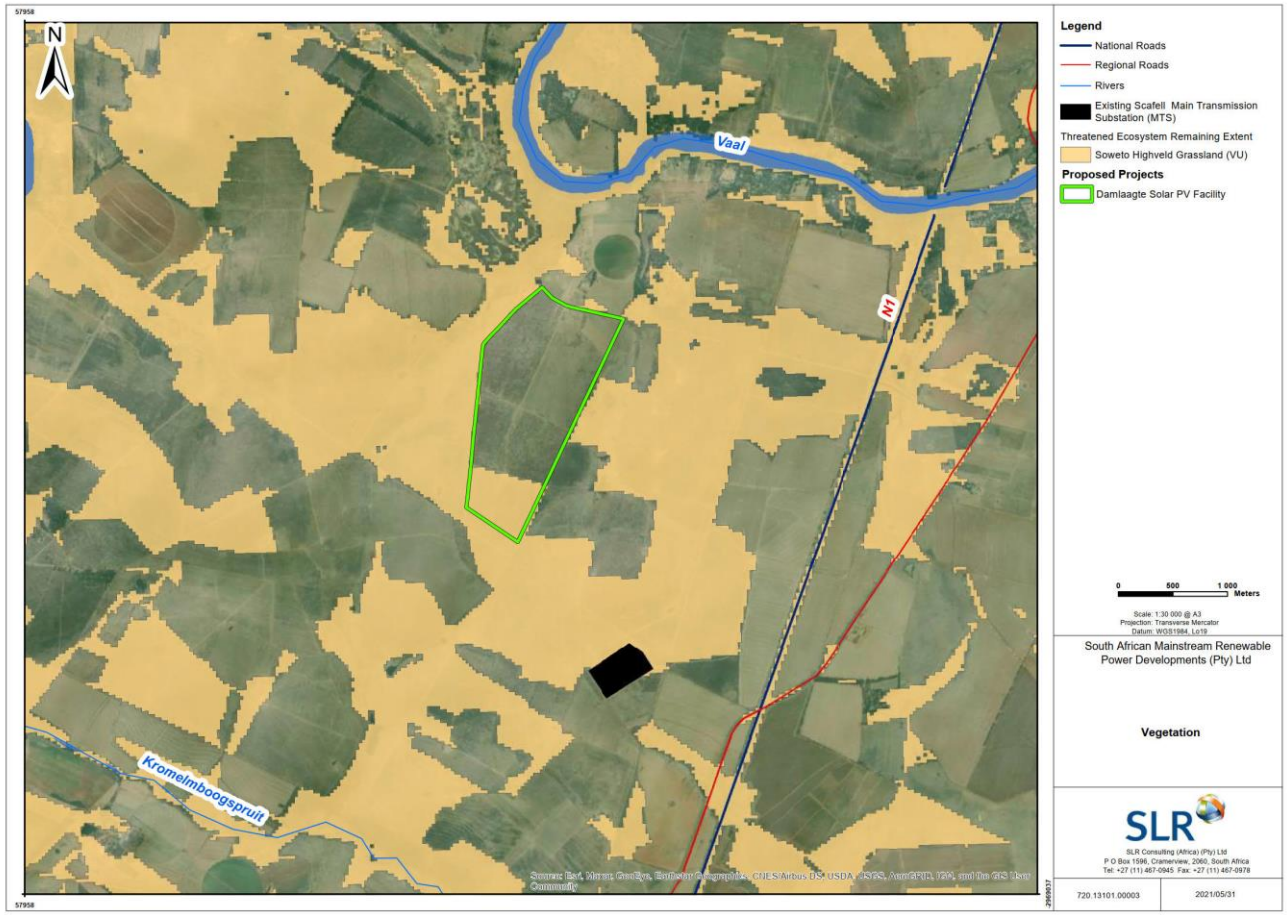

Figure 6-5: The location of the Damlaagte Solar PV Facility project site in relation to the mapped extent of the remaining Soweto Highveld Grassland vegetation type

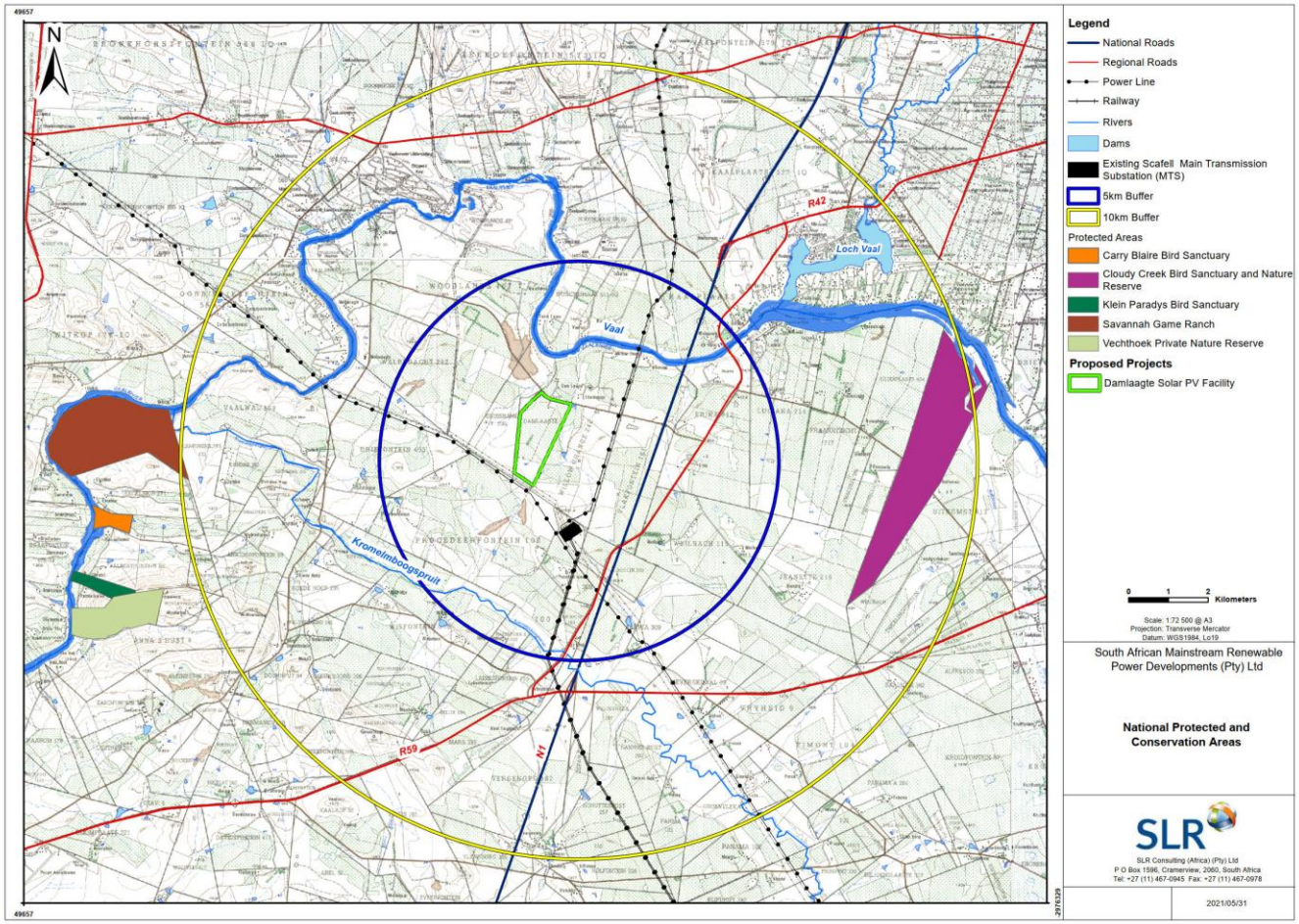

Figure 6-6: Protected areas within the vicinity of the Damlaagte Solar PV Facility project site.

Transformed Habitat

This habitat unit is present within the project site of the Damlaagte Solar PV Facility. The field-based survey undertaken by the Specialist indicated that the unit had experienced acute anthropogenic disturbances, which has led to subpar habitat conditions, decreased habitat integrity and a low diversity of indigenous species diversity. The low species diversity recorded within the habitat unit is attributed to disturbed and transformed nature of the area. Although indigenous species are poorly species throughout the habitat unit, those present, and indicative of disturbed areas include the *Gomphocarpus fruticosus* and *Plantago lancelota* (see Table 6-1). As a result of the scarcity of natural vegetation within this habitat unit, invasive alien plant species such as *Verbena bonariensis, Datura stramonium, Conyza bonariensis* and *Xanthium strumanium* (see Table 6-1) are abundant and make up the majority of the vegetation present throughout this habitat unit. No plant species of conservation concern were observed within this habitat unit and does not provide suitable conditions to support plant species listed under the National Forest Act, 1998 (Act No. 84 of 1998).

Table 6-1: Photographs of plant species associated with the Transformed Habitat subunit

Gomphocarpus fruticosus

Conyza bonariensis

Tagetes minuta

Grassland Habitat

This habitat unit has identified within the Damlaagte Solar PV Facility project site and is characterised by the dominance of grass species and consists of three (3) subunits, namely Degraded Grassland, *Seriphium* – dominated Grassland and *Themeda* – rich Grassland. Generally, the overall plant species composition of this habitat unit was moderate and characterised mainly by indigenous floral species, with invasive alien plant species present within all the subunits. Only two (2) subunits, the Degraded Grassland and *Seriphium* – dominated Grassland were identified within the project site of the Damlaagte Solar PV Facility and are described in detail below.

Degraded Grassland

The Degraded Grassland Unit is associated with a low species diversity, which is attributed to the disturbed nature of the study area (see Table 6-2). Representative graminoid plant species present within this subunit include *Cynodon dactylon, Andropogon appendiculatus, Hyparrhenia hirta* and *Melinis repens*, whereas representative forb and herb species include *Commilena africana, Hilliardiella elaegnoides* and *Gomphorarpus fruticosus.* Although this subunit appeared not to support an established woody layer of vegetation*, Searsia pyroides* and *Vachellia karroo* were infrequently recorded throughout the subunit. Furthermore, alien invasive plant species associated with this subunit include *Verbena bonariensis, Verbena brasiliensis, Tagetes minuta, Conyza bonariensis* and *Campuloclinium macrocephalum.*

Seriphium – dominated Grassland

This vegetation subunit is described as a *Seriphium* – rich grassland that supports a moderate species diversity and is associated with a high density of *Seriphium* plumosum in comparison with the other subunits within the Grassland Habitat unit (see Table 6-2). Based on the findings of the field-based survey, graminoids represented the dominated plant species within this subunit, and representative graminoid species include *Kyllinga alba, Helichrysum chionosphaerum, Polygala hottentotta,* and *Hibiscus microcarpus.* Although the woody layer of vegetation of this subunit was poorly represented*, Ziziphus zeyheriana, Vachellia karroo* and *Searsia pyroides* were infrequently identified. Furthermore, identified alien invasive plant species within this subunit include *Verbana bonariensis, Verbena brasiliensis, Conyza bonariensis* and *Campuloclinium macrocephalum.*

Listed and Protected Plant Species

The Damlaagte Solar PV Facility project site is not associated with any nationally – listed (in terms of NEMBA) or Red Data – listed plant species. Listed and Protected plant species present within the project site are listed in terms of the Free State Nature Conservation Ordinance Act, 1969 (Act 8 of 1969) and the identified species include, *Aloe davyana, Crinum bulbispermum, Helichrysum chionosphaerum, Helichrysum chionosphaerum, Helichrysum actuatum* and *Boophane disticha* (see Table 6-2). Mainstream will require permits from Free State DESTEA and DFFE (where nationally threatened plant species are concerned) prior to the commencement of the construction phase of the proposed project for the translocation or removal of listed and protected plant species present within the project site. Furthermore, no tree plant species listed in terms of the National Forest Act, 1984 (Act 84 of 1984) were identified within the project site of the proposed project.

Table 6-2: Photographs illustrating the habitat associated with the Degraded and *Seriphium* - dominated Grassland subunits, and the provincially protected *Boophone disticha*

Degraded Grassland

Seriphium – dominated Grassland

Boophone disticha

Critical Biodiversity and Ecological Support Areas

Critical Biodiversity Areas (CBAs) are divided into two sub-categories – CBA 1 and CBA 2. Areas classified as CBA 1 are irreplaceable from an ecological perspective and this means no other places in the landscape where conservation and ecological objectives associated with the CBAs can be met. CBA 2 areas contain options that may be available to proponents of developments for meeting conservation and ecological objectives associated with those CBAs in certain parts of the landscape, however this can only be achieved at the cost of losing a certain portion of the spatial efficiency of the network of the CBAs. Should a CBA 2 area be lost to development, an alternative area elsewhere is identified to become part of the CBA network, and the identified area is normally larger in extent compared to the area that is lost in order to increase the CBA network. Within the Free State Province, CBAs account for at least 12 % of the province land area. Ecological Support Areas (ESAs) are areas of

land that are considered important in ensuring the long – term persistence species or functioning of other important ecosystems. Areas identified as ESAs should be at least kept in a semi – natural condition, i.e., with their basic ecological functioning still intact. Within the Free State Province, ESAs make up 53 % of the province's land area. Taking the above into consideration, the project site for the Damlaagte Solar PV Facility falls within an ESA 1, ESA 2, and Degraded Area (see Figure 6-7) in terms of the Free State Biodiversity Plan (2015). The development of the Damlaagte Solar PV Facility is anticipated to have an ecological impact on these areas, however terrestrial biodiversity impacts associated with the development of the solar PV facility, as well as the recommended mitigation measures to mitigate anticipated terrestrial impacts will explored in detail in the EIA Report of the proposed project.

i. Fauna

Habitats

From a fauna perspective, three vegetation units, namely Transformed, Grassland and Freshwater habitats are identified within the study area. The Transformed Habitat has been acutely impacted by anthropogenic activities – agriculture (cultivation) and infrastructure development. Natural vegetation within this habitat has been replaced by crops and the habitat no longer retains a natural floristic composition. This habitat consists of a low plant species diversity and therefore offers minimal habitat for fauna. The habitat provides no areas of niche habitat for fauna and no varying habitat structure due to the lack of woody plant species. Common fauna species may periodically forage within the project site, but this is likely to be *ad hoc* foraging whilst moving between more suitable areas.

The Grassland Habitat is characterised by grass species and consists of three subunits namely, the Degraded Grassland, *Seriphium* – dominated Grassland, *Themeda* – dominated Grassland and Freshwater Habitat. The Degraded Grassland habitat is fairly small in size and comprises a poor floral species representation and provides limited forage or niche habitat for many faunae, particularly invertebrates. The *Seriphium* – dominated Grassland comprises the largest extent of the overall Grassland Habitat and comprises a moderate floral composition, with a well – developed grass layer providing suitable and valuable habitat for most fauna. This subunit has the potential to host common and SCC fauna species. The Freshwater Habitat was not present within the Damlaagte Solar PV Facility project site as there no freshwater resource features present within the project site (see Section 6.2.4).

Mammals

Spoors of a Black – backed Jackal, Porcupine, and evidence of burrowing activity of an Aardvark as well as a spoor of a Warthog (mainly on farm roads) were identified within the study area (see Table 6-3). The Aardvark was the only fauna species of conservation concern identified during the field-based survey in the area. The current land use of the study area and project site – grazing; constant human presence and disturbance; homogenous nature of the landscape and limited cover provided within the study are and project site reduce the suitability of this area for most mammal listed and protected species.

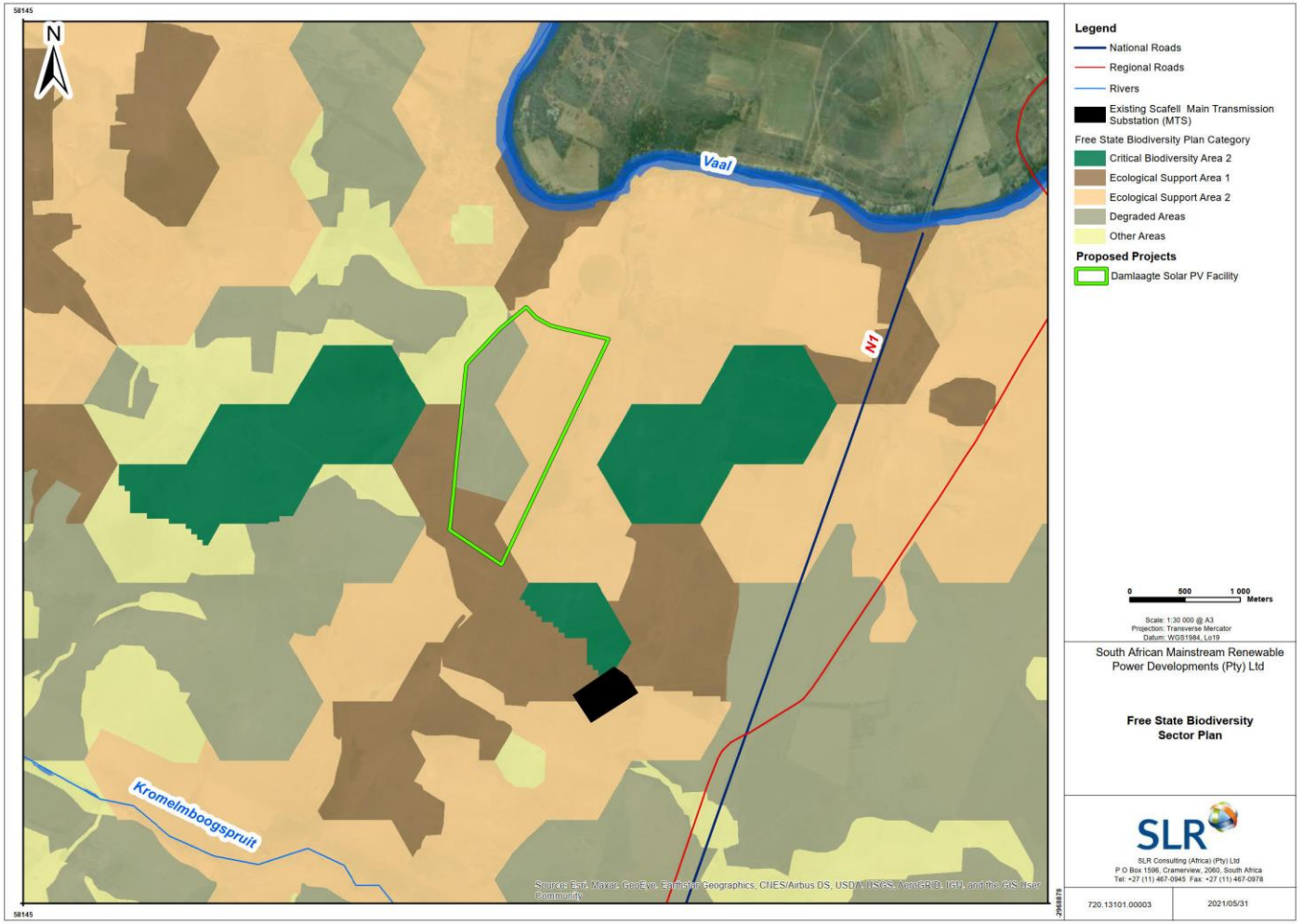

Figure 6-7: CBA Map of the Damlaagte Solar PV Facility project site

Table 6-3: Photographs illustrating the evidence of fauna present within the study area

A Porcupine quill and a Spoor of a Black – backed Jackal

Evidence of Aardvark burrowing activity

a Warthog spoor

Avifauna

A total of 194 avifauna species could potentially occur within the broader study area, and 62 of these species are classified as priority species. Within the 62 species, only 31 have a medium probability of being present within the project study area. 19 species were recorded during the field-based site survey held on 18 January 2021, and no Red Data listed species were identified within the study area. Avifauna with a high and medium probability of occurring within the study area include Common Buzzard, Cloud Cisticola, Western Cattle Egret, Black-headed Heron, Black-winged Kite, Pied Starling, Blacksmith Lapwing, Long-crested Eagle, Spotted Eagle-owl, Amur Falcon, Lesser Kestrel, Marsh Owl and Greater Kestrel. Habitat present within the study area associated with avifauna include medium to tall grassland (including the habitat associated with the wetlands), woodlands and existing grid connection infrastructure. According to the Avifauna Site Sensitivity Verification Report, the study

area is associated with a low sensitivity, and there are no avifauna species of conservation concern present. In addition, the study area is not located within an Important Bird Area (IBA).

Herpetofauna

Herpetofauna species diversity within the study area is low as reptile and amphibians are difficult to detect, owing to their secretive nature. A juvenile African Bullfrog was noted during the field-based survey by the Specialist within the study area, but outside of the project site for the Damlaagte Solar PV Facility. The freshwater habitat associated with the unchanneled valley bottom wetland within the study area provides a suitable habitat for herpetofauna species within the area. A single snake was noted within the clutches of a Black – chested Snake Eagle, which means that the presence of this raptor indicates the abundance of reptile species, particularly snakes within the area to support the presence of avifauna. Few amphibian species are anticipated to occur within the grassland habitat as a result of the lack of surface water sources or areas of increased soil moisture which are needed to maintain the respiration of amphibians. However, these locations serve as significant foraging habitats. The African Bullfrog is the only listed and protected amphibian species identified within the study area. Furthermore, it is envisaged that the Common Girdled Lizard, a reptile species of conservation may inhabit the study area, however the lack of rocky habitat within the study does not provide for the persistence of these species.

Invertebrates

Invertebrate diversity within the study area is considered intermediate. The Freshwater and *Themeda* - dominated Grassland habitats are associated with a rich invertebrate diversity within the study area. The small size of invertebrates enables them to inhabit small areas and form niche habitats at different scales. Invertebrates' species identified during the field-based survey are associated with broad habitat requirements and mainly belong to the orders *Coleoptera, Hemiptera* and *Orthoptera.* No invertebrate species of conservation concern were identified within the study area, and only the Golden Starburst Baboon Spider is anticipated to occur within the study area.

6.2.4 Freshwater Resources

The proposed project is located within the Vaal Catchment and the Upper Vaal Water Management Area. According to the National Freshwater Ecosystem Priority Areas (NFEPA) database, there is one artificial channelled valley bottom wetland situated towards the south – west of the study area; two artificial channelled valley bottom wetlands to the west and north of the study area; and one depression wetland to the south of the study area. The three artificial channelled valley bottom wetlands are considered to be in a severely degraded ecological condition (Class Z3) whereas the depression wetland is associated with a moderately modified ecological condition (Class C). The wetland vegetation within the study area falls within the Mesic Highveld Grassland Group 3 Wetland Type and is considered Least Threatened (Mbona *et al.,* 2015). In addition, the NFEPA database identifies the Kromelmboogspruit River within the broader study area and is located approximately 400 m south of the broader study area. The Kromelmboogspruit River is associated with a largely modified ecological condition (Class D) and is not classified as a river Freshwater Ecosystem Priority Area (FEPA). From the findings of the field-based survey, there are no freshwater features present within the project site of the Damlaagte Solar PV Facility, however an unchanneled valley bottom wetland located approximately 49 m from the western boundary of the project site (see Figure 6-8).

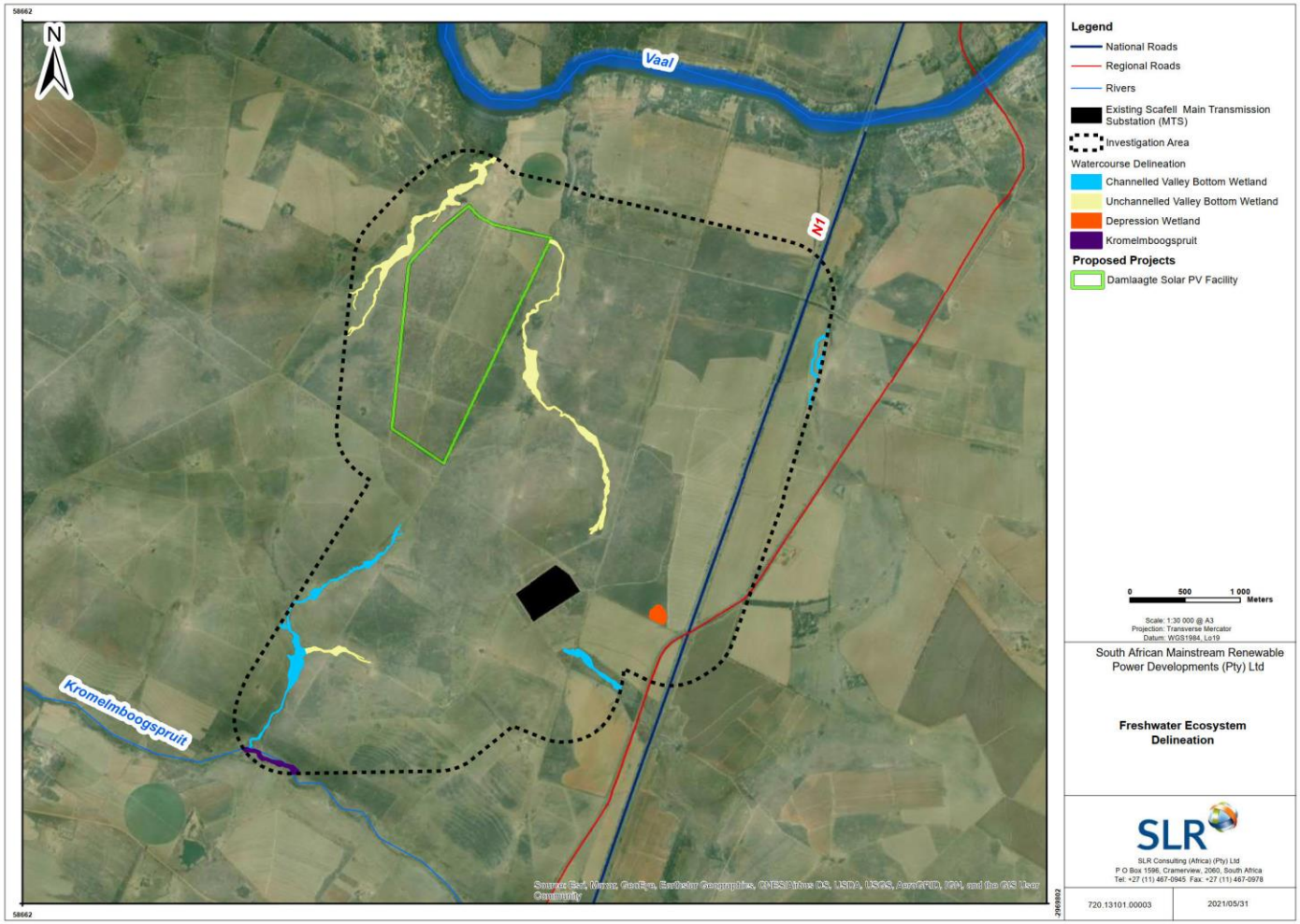

Figure 6-8: Freshwater resources present within the vicinity of the Damlaagte Solar PV Facility project site

6.3 SOCIO-ECONOMIC PROFILE

6.3.1 District Municipality

The proposed project falls within the Fezile Dabi District Municipality (FDDM) in the Free State Province. The FDDM is a Category C[11] municipality, established in 2000 and is located in the northern most portion of the Free State Province. The district municipality comprises 20 829.1 km^2 in extent, and is the smallest district municipality in the province, making up 16 % of the province's geographical area. The main attraction within the district is the Vredefort Dome –the third largest meteorite site in the world and is located 26 km south -west of the project site for the proposed project. The FDDM comprises four (4) local municipalities namely: Moqhaka, Metsimaholo, Ngwathe and Mafube.

The proposed project is located within Ward 07 of the Ngwathe Local Municipality (NLM). The NLM is located on the most northern part of the FDDM, and the Vaal River forms the northern boundary of the municipal area, which also forms the boundary between the Free State, North West, and Gauteng provinces. The municipal area comprises 7 055 km^2 which is equivalent to 33.87 % of the FDDMs geographical area. Major towns present within the NLM include, Parys, Vredefort, Heilbron, Koppiesand and Edenville.

6.3.2 Population

According to the District & Development Model Profile published by the Department of Cooperative Governance and Traditional Affairs (COGTA, 2019), the FDDM has a population of 527 788 and accounts for 18.3 % of the total population in the province. The FDDMs population is projected to grow at an annual growth rate of 0.6 % from 527 788 in 2019 to 545 000 in 2024, and the municipality has more males (50.02 %) relative to females (48.96 %). The median age within the FDDM is 28, and those within the working age of the population constitute 60 % of the population.

In 2019, 85.28 % of the FDDMs population consisted of Africans; 12.17 % White; 2.06 % Coloured and 0.49 % Asian. In terms of language within the jurisdiction of the FDDM, 75.9% of the population speaks Sesotho, 12.1 % Afrikaans; 4.2 % IsiZulu; 4 % IsiXhosa; and 1.6 % English.

6.3.3 Education

In 2019, the school pass rate in the FDMM was 90.3 % - the highest in the province. Approximately, 94.8 % of school-aged children between the ages 5 and 17 are in schools. At least 20.6 % of the population within the FDDM have secondary education, while 1.3 % are those with a tertiary education. Within the NLM, 29 418 learners between the age 5 – 24 years of age receive formal education from educational institutions. This is equivalent to 23.73 % within the FDDM and 3.65 % within the Free State Province. However, 3 592 have not received a formal education, and 1 536 have completed a tertiary level education.

[11] Municipalities for wider areas, outside cities.

6.3.4 Services

According to the District & Development Model Profile published by COGTA (COGTA, 2019), 93.3 % of the households within the FDDM obtain water from a regional or local service provider and 84.1 % have access to sanitation facilities. For the NLM, there are 40 910 within the municipality, with an average of 3 members per household. This is the third largest number of households within the FDDM. Approximately 85.9 % of these households are considered to be formal dwellings; 13.3 % informal dwellings; and 0.3 % traditional dwellings. From the 40 910 households, 95 % of the households are electrified; 62.3 % have access to safe drinking water which is largely supplied by the municipality; and 81.7 % have access to and/or utilise the flushing toilet system in their households.

6.3.5 Economy

From an economic perspective, the economy of the FDDM is made up of numerous industries and include namely: manufacturing, mining, electricity, trade, construction, transport, finance, community services and agriculture. The manufacturing sector is the largest economic activity within the district and in 2019 contributed approximately R14 billion to the economy of the municipality, whereas mining contributes 18.2 % followed by community services at 13.1 %. The construction industry contributes the least to the economy of the FDMM with R1.14 billion. The FDDM is known as the grain / maize basket of South Africa. The FDDM has a total of 327 592 ha (15. 4 % of all agricultural land in the province) of high potential agricultural land and 59 % of the land has a low potential. The Integrated Development Plan (IDP) of the FDDM notes that land within the municipal area needs to be optimally used for agriculture and food production. Cattle and sheep farming activities within the municipality provide opportunities for meat, diary, and wool processing industries. Furthermore, maize, sunflower seed, sorghum and weed are also cultivated in the FDDM. For the NLM, 2 893 households are involved in animal-only agricultural activities; 1 244 in mixed farming; and 484 households in other forms of agricultural activities. The Sasolburg area is considered to be a high-tech industrial area. Sasolburg is 19 km west of the project site for the proposed project and is located within the Metsimaholo Local Municipality. The area is known as the chemical hub of South Africa as there is a range of industries within the area that process oil from coal within the plants.

6.3.6 Existing Road Network

The FDMM is associated with an expansive road network. Some of the busiest routes within the FDDM and the NLM include the N1 national road and the R59 provincial road. The N1 links Polokwane, Pretoria, Johannesburg, Bloemfontein, and Cape Town. The routes are utilised for the movement of goods and tourists.

6.4 VISUAL PROFILE

6.4.1 Landscape Character

The landscape of the study area and the surrounding environment (within a 10 km radius of the Scafell Cluster) is characterised mostly by rolling agricultural land, with low hills occurring in the western and southern western parts (see Figure 6-9 and Figure 6-10). The Vaal River located at least 400 m to the northern boundary of the study area is the dominant landscape feature in the area. The only naturally occurring landscape type within the study area is the hills which are covered with Soweto Highland Grassland Vegetation.

The dominant landscape type is agricultural land which is being used mainly for grazing or cultivation. The project site for the proposed project falls within this landscape. In addition, the Vaal River is the primary focus of recreation tourism activities that stretch along its embankments within the surrounding area.

The general land character and overall visual impression of the study area is open land, punctuated bosques of tall trees (mostly exotic) associated with farmsteads. The land slopes gently to the Vaal River system, where a concentration of tall tree is evident (see Figure 6-11). A major drainage line, which flows into the Vaal River drains the southwestern sector of the study area.

6.4.2 Land Use

i. Residential

- Residential land use within the broader area is mostly associated with either recreation-type activities along the Vaal River, or homesteads and scattered Agricultural Holdings. A small resort community, Vaal Oewer, is in the far north - western section of the study area immediately north of the Vaal River on a promontory of land, which affords panoramic views over the north - west.

ii. Agriculture

- Agriculture is by far the dominant land use within the broader area, with approximately 90 % of the study area utilized for grazing and cultivated lands.

Figure 6-9: Views of the project site from the N1 looking south.

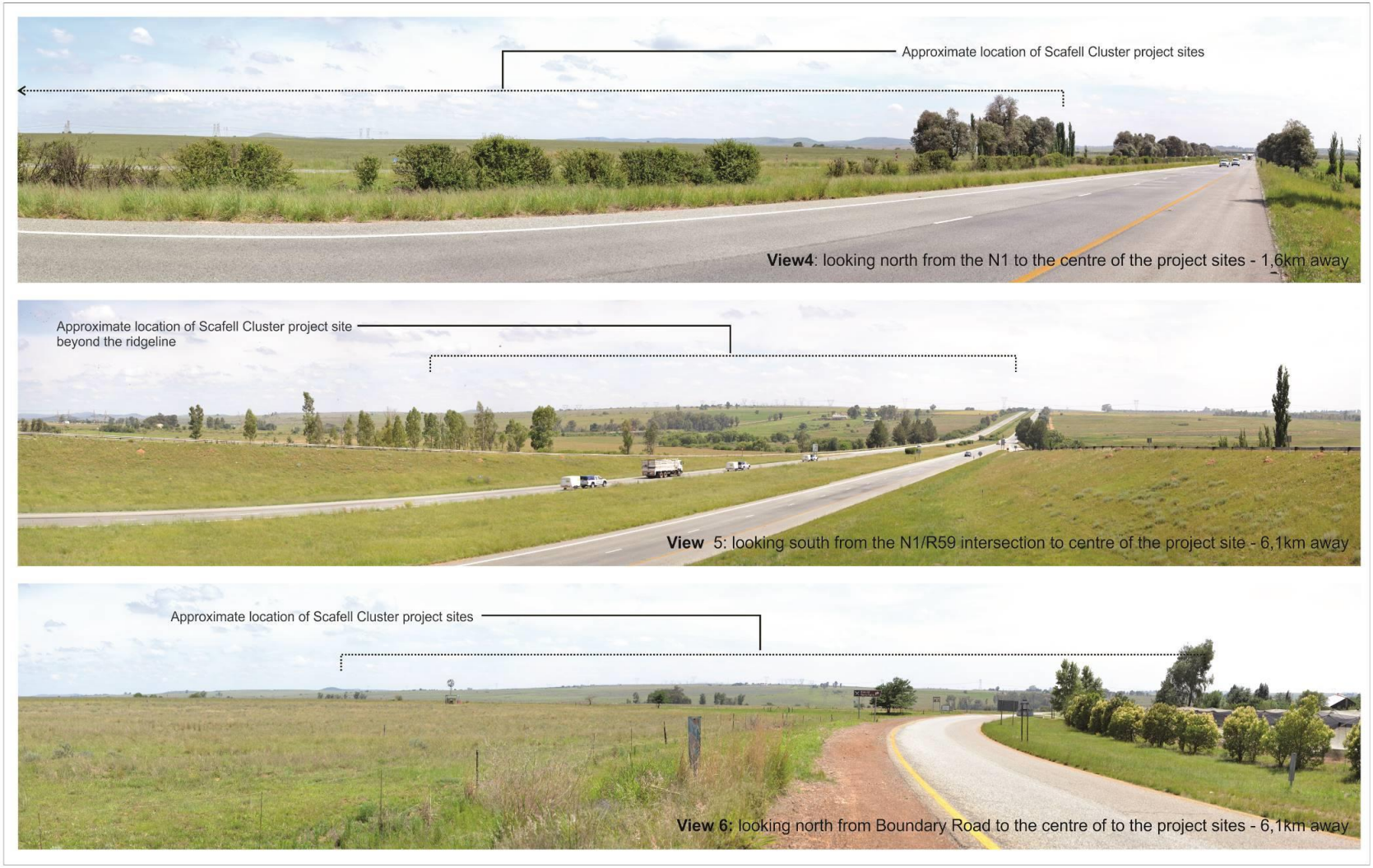

Figure 6-10 : Views of the project site looking north from the N1.

Figure 6-11: Views of the project site looking towards the banks of the Vaal River

iii. Industrial and Mining

- There are no major industrial areas within the vicinity of the study area. Some sand mining occurs to the south of the Vaal River and mostly north – west of the project site.

iv. Urban

- The major urban centres in the area are Parys (located 20 km south – west of the study area), Sasolburg (19 km east), and Vanderbijlpark (22 km north – east) and are all located outside of the study area.

v. Infrastructure and Roads

- The main roads within the vicinity of the study area include the N1 national road (located immediately to the east of the study area), the R59 that passes through the southern portion of the study area, and the R42 that connects the N1 to Vanderbijlpark in the north – east. Boundary Road passes south and east of the project site for the proposed project and provides direct access to the site. Several other roads that service the farming community within the vicinity of the study area and properties along the banks of the Vaal River crisscross the central parts of the study area.
- The study area is also traversed by existing transmission lines, that emanate from the Scafell MTS located 2.47 km south of the project site. The substation will be the grid connection point for the proposed project.

vi. Recreation and Tourism

- The area is well known for its tourism, primarily associated with the Vaal River. Tourist destinations within a 3 km radius of the broader study area include Pont de Val Boutique Hotel and Spa, River Lodge Estate, Westvaal Holiday Resort, Kamdebo-on-Vaal, Eden Manor, Bishop's Bay and Club Milos which are all located to the north and east of the project site. To the north – west and along the Vaal River is the resort village of Vaal Oewer, and downstream of it is Vaal – Eden and many B&B – type establishments along the banks of the river.

6.5 HERITAGE RESOURCES

6.5.1 Archaeology

The Scafell Cluster Project study area is associated with an archaeological record of Early and Middle Stone Age artefacts and rock engravings which have been recorded from previous studies within the surrounding environment. An archaeological record within the vicinity of the study area from the Iron Age include Type N and Type V walling located to the south-east of the study area near Heilbron.

Based on the outcomes of the field survey by the Specialist, the Damlaagte Solar PV Facility contains too little to no heritage resources. The lack of heritage resources is attributed to the undertaking of extensive agricultural activities within the project site which could have led to an impact on the surface evidence of heritage resources if they ever existed within the project site. As a result, no heritage resources were identified by the Specialist within the Damlaagte Solar PV Facility project site.

6.5.2 Palaeontology

The Scafell Cluster Project study area is associated with lithologies of the Karoo Supergroup – well known for being a host of fossils as well as coal deposits. According to the SAHRIS Palaeosensitivity Map (see Figure 6-12), the study area is associated with a low to moderate sensitivity. Given that there are no paleochannels or rivers present within the study area and there is a well-documented history within the surrounding area of historical mining activities, the possibility of locating fossils within the study area is low. However, this will be explored in detail during the Impact Assessment phase of the proposed project.

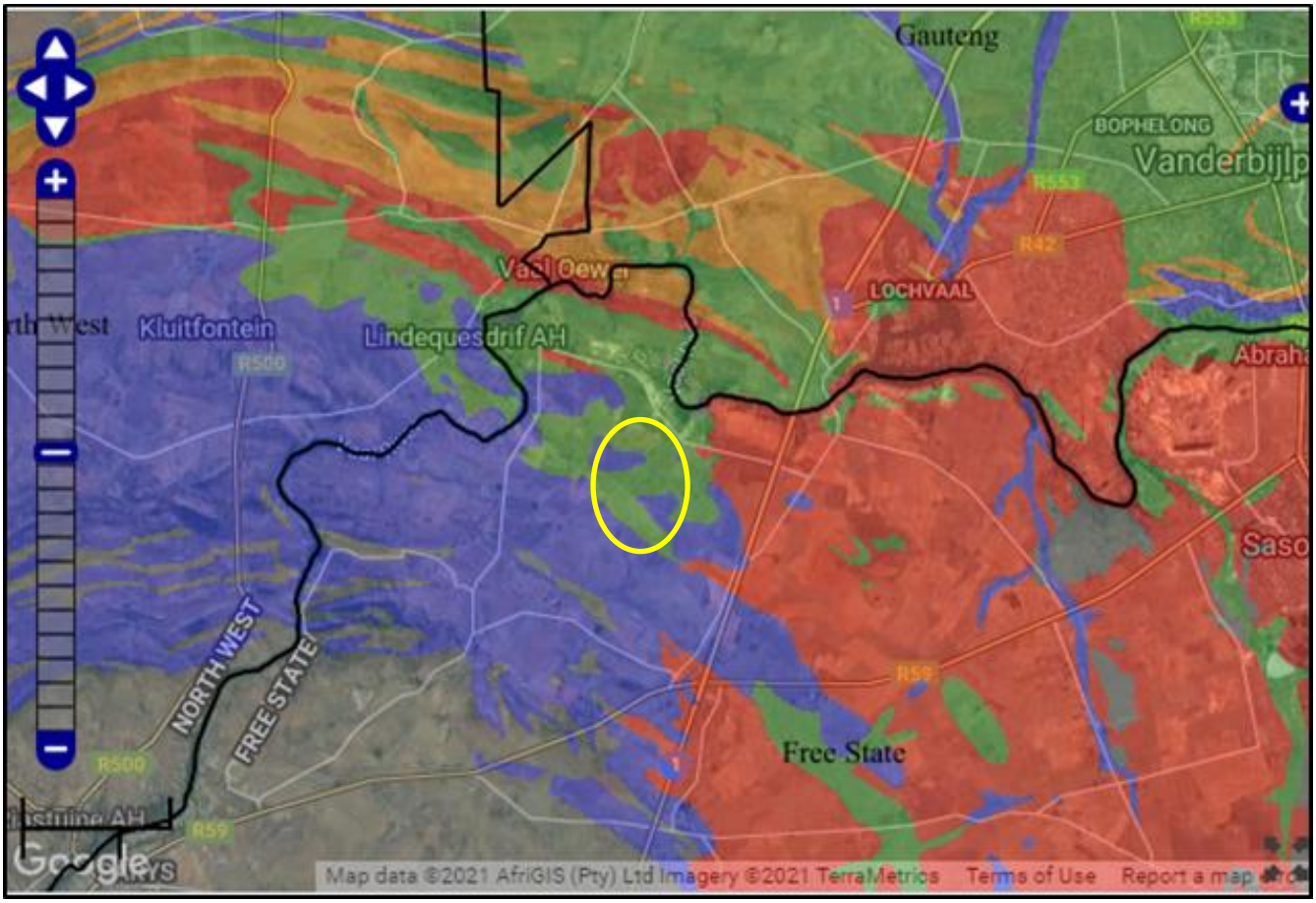

Figure 6-12: Palaeonsitivity Map of the Scafell Cluster Project study area

6.6 OVERALL SENSITIVITY

Based on the baseline investigations undertaken to date, a sensitivity map for the overall Damlaagte Solar PV Facility project site has been compiled and presented in Figure 6-13 below.

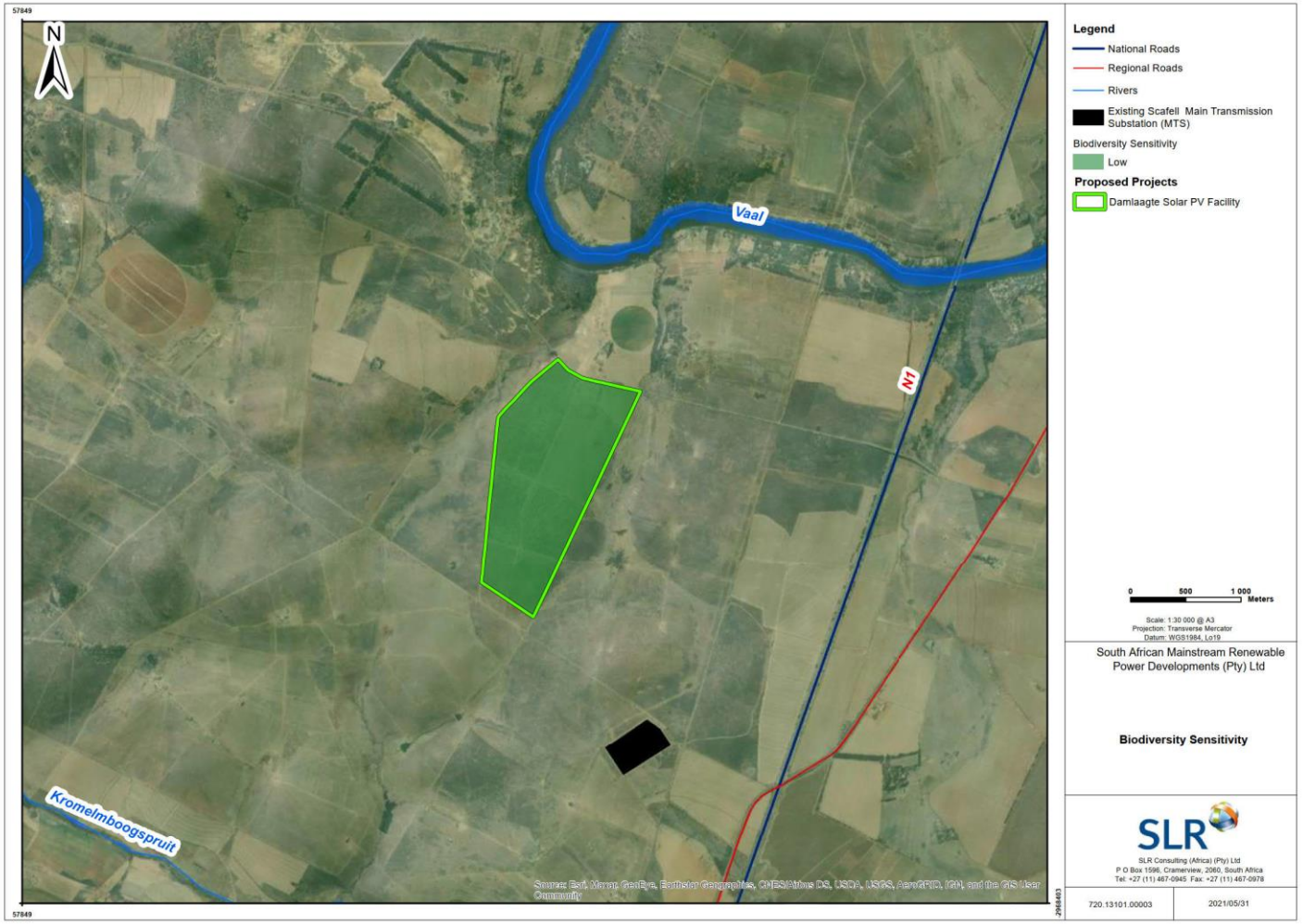

Figure 6-13: Overall Environmental Sensitivity map for the Damlaagte Solar PV Facility project site

7. POTENTIAL ENVIRONMENTAL IMPACTS

The purpose of the Scoping process is to identify key potential impacts and/or benefits and to screen out the impacts that do not warrant further detailed investigation and assessment during the Impact Assessment Phase. The key issues and impacts/benefits described below have been identified by the EIA project team with inputs made by I&APs (where applicable). This list of impacts will be updated and finalised once the Scoping Phase public participation process has been completed. Specialists will be required to confirm these potential impacts, as well as identify any others, and assess the significance thereof. The sequence in which these issues are listed are in no order of priority or importance.

7.1 IMPACTS ON THE BIOPHYSICAL ENVIRONMENT

7.1.1 Terrestrial Ecosystems

Issue: The proposed project would result in the clearing of vegetation within the proposed development footprint (including PV arrays, access roads, buildings, etc.). Additional areas would also need to be cleared for temporary construction camps and laydown areas that would be required during the construction phase. Due to the nature of decommission activities, impacts during the decommissioning phase would be of a similar nature and of short-term duration. The disturbance of these ecosystems would have an impact on both flora and fauna located within the study area.

The proposed project could also result in a number of indirect impacts on terrestrial ecosystems, e.g., introduction of alien invasive plant species and the alteration of the local micro-climate beneath the modules (e.g., shading, temperature, height restriction, etc.), which may bring about changes to the species composition, diversity, vegetation structure, etc.

Response: A Terrestrial Impact Assessment will be undertaken to determine the impact on terrestrial fauna and flora and the findings presented in the EIA Report. The terms of reference for the Vegetation Impact Assessment are presented in Table 8-2.

7.1.2 Avifauna

Issue: The clearing of vegetation within the proposed development footprint would result in the loss of avifaunal habitat. Operations during the construction, operational and/or decommissioning phases may result in the displacement of avifaunal species due to disturbance. During the operational phase, additional impacts on avifauna may result from possible collisions with the solar panels.

Response: The avifaunal specialists have confirmed that the site is of low sensitivity with respect to avifauna and that an Avifaunal Compliance Statement would be compiled in compliance with the *"Protocol for the specialist assessment and minimum report content requirements for environmental impacts on terrestrial animal species"* (GN No. 1150 of 30 October 2020).

7.1.3 Freshwater Resources

Issue: The proposed project could have an impact on the freshwater systems on site either through direct disturbance (e.g., placement of infrastructure footprints within rivers or wetlands) or indirectly through

contamination from spills / uncontrolled releases (during the construction, operational and decommissioning phases).

Response: A Freshwater Ecological Assessment will be undertaken to determine the impact on the freshwater systems and the findings presented in the EIA Report. It will also be determined if a Water Use Licence is required for the proposed project. The terms of reference for the Freshwater Ecological Assessment are presented in Table 8-2.

7.1.4 Soils and Agricultural Potential

Issue: The proposed project could result in the loss of arable/grazing land. Construction activities (e.g., excavations) may also increase the erosion potential of soils, which could result in the permanent loss of topsoil.

Response: An assessment will be undertaken to determine the impact on the soil and agricultural potential of the site and the findings presented in the EIA Report. The terms of reference for the Soil and Agricultural Potential Assessment are presented in Table 8-2.

7.2 IMPACTS ON THE SOCIO-ECONOMIC ENVIRONMENT

7.2.1 Creation of Employment and Local Expenditure

Issue: The proposed development of the solar PV facility and associated infrastructure would stimulate both direct and indirect employment opportunities during the construction and operation phases. The proposed project would also result in direct and indirect local expenditure with much of the expenditure being directed at payments to labour / employees and purchase of materials.

Response: A large number of the work force (low and semi-skilled) would be sourced from the local labour force in and around the project site. Employment and local expenditure will be considered qualitatively in the EIA and the specialist Social Impact Assessment.

7.2.2 Visual Impact

Issue: The proposed project would potentially alter the landscape character of the site. This could have some visual implications for the immediate surrounding area and neighbouring access roads (i.e., the N1 national road).

Response: The potential visual impact will be assessed in the specialist Visual Impact Assessment and the findings will be presented in the EIA Report. The terms of reference for the Visual Impact Assessment are presented in Table 8-2.

7.2.3 Impact on Heritage Resources

Issue: The construction of project-related infrastructure could potentially disturb cultural heritage material on site.

Response: A Heritage Impact Assessment will be undertaken during the impact assessment phase to identify the potential impact on any heritage resources which may be located on the site. The terms of reference for this assessment are presented in Table 8-2.

7.2.4 Impact on Civil Aviation

Issue: The potential impact on civil aviation is related to the reflection of sunlight during the day from the module surface, which can present a hazard during critical phases of flight, especially approach and landing.

Response: The potential impact on civil aviation at any nearby airfields, will be investigated, in consultation with the South African Civil Aviation Authority (SACAA), taking into account, *inter alia*, distances, orientation and angle of elevation of the modules, flight paths, etc. The findings will be presented in the EIA Report.

7.2.5 Impact of Additional Traffic

Issue: The proposed project would result in an increase in traffic volumes generated during the construction and operational phases of the proposed project, which may affect the level-of-service (LOS) on the existing road network (i.e., increased vehicle trips), as well as be a nuisance (noise and visual) to any surrounding residents.

Response: A Traffic Impact Assessment will be commissioned to establish the existing traffic volumes and associated LOS, determine the Trip Generation Rate for the proposed project and associated change to the LOS, and assess the associated traffic impact. The terms of reference for this assessment are presented in Table 8-2.

7.2.6 Impact of Project-Related Noise

Issue: While noise would be generated during the construction and decommissioning phases and may be a nuisance to any nearby sensitive noise receptors, the intensity of these impacts could be high at times, the overall duration of the construction/decommissioning phases would be over the short-term. During the operational phase, some equipment (e.g., transformers) can generate noise depending on their size and basic insulation level, however, it is not expected that this would have a significant impact on ambient noise levels due to the distance of the nearest sensitive noise receptors to the Project Site.

Response: Project-related noise-impacts will not be assessed further in the impact assessment phase. The EMPr for the proposed project will include appropriate management/mitigation, where required, to address possible noise impacts.

7.2.7 Impact on Air Quality

Issue: Dust generated from vegetation clearing and the movement of vehicles on unsurfaced roads may contribute to elevated particulate matter levels in the air on a local scale. Emissions would also be generated by vehicles and other combustion-driven equipment (e.g., generators) that release nitrogen oxides (NO_X), carbon dioxide (CO_2), carbon monoxide (CO) and volatile organic compounds (VOC).

Response: Construction/Decommissioning activities may result in temporary dust emissions. This can be effectively managed through appropriate management/mitigation included in the EMPr. The nature of the project is such that no material air emissions are anticipated. Thus, this issue is scoped out from further assessment in the impact assessment phase.

7.3 PRELIMINARY ASSESSMENT OF IDENTIFIED POTENTIAL IMPACTS

As required in terms of the EIA Regulations 2014 (as amended), a preliminary assessment of the potential impacts associated with the implementation of the proposed project is included in Table 7-1. It must be noted that a conservative approach has been applied to these ratings in the absence of site – specific specialists' assessments. The identified impacts and associated impact ratings may change once all the site-specific specialist studies have been completed. The final ratings will be included in the EIA Report. The methodology used for the assessment is described in Section 8.5.

Table 7-1: Preliminary List of Potential Impacts Identified for the Damlaagte Solar PV Facility

Potential impact	Activity	Project phases	Consequence			Probability	Significance	Degree to which impact can:		
			Intensity	Duration	Extent			Be reversed	Cause irreplaceable loss of resources	Be avoided
Impacts on terrestrial ecosystems	Site preparation Earthworks Accidental spillages and leaks from machinery and equipment General site management	C, O, D	H	L	R	Definite	VH	Unlikely	Possible	Managed / Mitigated
Impacts on avifauna	Site clearance Earthworks Noise generated from machinery and equipment	C, O, D	L	L	R	Possible	L	Partially	Possible	Managed / Mitigated
Impacts on freshwater systems	Site preparation Earthworks Accidental spillages and leaks from hazardous substances	C, O, D	H	L	L	Probable	H	Unlikely	Possible	Managed / Mitigated
Impacts on soil and agricultural potential	Site preparation Earthworks Accidental spillages and leaks from hazardous substances	C, O, D	M	L	L	Definite	M	Partially	Possible	Managed/ Mitigated
Creation of employment and local expenditure	Construction, operation and decommissioning of proposed project	C, O, D	M+	H	R	Probable	H+	Partially	N/A	Can be managed to enhance positive impact
Visual impacts	Site preparation Earthworks Placement of solar PV facility Movement of people, machinery, and equipment	C, O, D	H	L	R	Definite	VH	Unlikely	Possible	Can be managed / mitigated to acceptable levels

Potential impact	Activity	Project phases	Consequence			Probability	Significance	Degree to which impact can:		
			Intensity	Duration	Extent			Be reversed	Cause irreplaceable loss of resources	Be avoided
Impact on heritage resources	Site preparation Earthworks	C, O, D	H	L	R	Possible	H	Unlikely	Possible	Can be managed / mitigated to acceptable levels.
Impact on civil aviation	Operation of proposed project	O	L	L	R	Improbable	L	Fully	N/A	Can be managed/mitigated to acceptable levels
Impact of additional traffic	Transportation of workers, equipment, and material to site	C, O, D	L	L	R	Probable	M	Partially	Unlikely	Can be managed/mitigated to acceptable levels
Impact of project-related noise	Site preparation Earthworks Movement of vehicles and people Noise from equipment (i.e., generators, etc.)	C, D	L	L	L	Definite	L	Fully	Unlikely	Can be managed/mitigated to acceptable levels
Impact on air quality	Site preparation Earthworks Movement of vehicles and equipment	C, D	L	L	R	Definite	L	Partially	Unlikely	Can be managed/mitigated to acceptable levels

Key:

Project Phases
C – Construction
O – Operation
D – Decommissioning

Intensity
VL – Very Low
L – Low
M – Medium
H - High

Duration
S – Short term
M – Medium term
L – Long term

Extent
L - Local
R - Regional
N - National
I - International

Significance
VL – Very Low
L - Low
M - Medium
H - High
VH - Very High

8. PLAN OF STUDY FOR THE ENVIRONMENTAL IMPACT ASSESSMENT

This Plan of Study for the EIA is submitted in accordance with the requirements set out in Appendix 2 (h) of the EIA Regulations 2014 (as amended) which state that a Scoping Report must include a Plan of Study for EIA which sets out the proposed approach to the environmental impact assessment of the application. The contents for the Plan of Study for EIA are set out in Table 8-1 with an indication of where each requirement is addressed in the report.

8.1 IMPACT ASSESSMENT PHASE OBJECTIVES

The main objectives of the Impact Assessment phase are to:

- Conduct detailed environmental and social baseline studies of the project site for the proposed project and the surrounding environment;
- Assess the environmental (direct, indirect, and cumulative) impacts of the proposed project;
- Identify mitigation and management measures to be implemented to mitigate against negative environmental impacts, and to enhance positive environmental impacts during the project life cycle of the proposed project;
- Undertake a comprehensive Public Participation Process to provide Interested and Affected Parties (I&APs), Key Stakeholders, Organs of State with an opportunity to review and provide comments on the outcomes of the EIA process and the acceptability of the proposed mitigation and management measures;
- Develop an Environmental Management Programme (EMPr) for the proposed project; and
- Provide measures for on-going monitoring (including the undertaking of environmental audits) to ensure that the proposed project and recommended mitigation and management measures are implemented as outlined in EIA and EMPr.

Table 8-1: Summary of Plan of Study Requirements and location in the Scoping Report

Plan of Study Requirements (Appendix 2 (h) EIA Regulations 2014 (as amended in 2017)	Location in Report
(i) a description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity;	Chapter 5 Section 5.7
(ii) a description of the aspects to be assessed as part of the environmental impact assessment process;	Chapter 7 Section 7.1 – 7.2 and 7.3
(iii) aspects to be assessed by specialists;	Chapter 8 Section 8.3– 8.4
(iv) a description of the proposed method of assessing the environmental aspects, including a description of the proposed method of assessing the environmental aspects including aspects to be assessed by specialists;	Chapter 8
(v) a description of the proposed method of assessing duration and significance;	

Plan of Study Requirements (Appendix 2 (h) EIA Regulations 2014 (as amended in 2017)	Location in Report
(vi) an indication of the stages at which the competent authority will be consulted;	Chapter 8 Section 8.6 - 8.6
(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.	Chapter 8 Section 8.8

8.2 EIA TASKS

If the Final Scoping Report is accepted by DFFE, the impact assessment phase will commence. Any process conditions attached to the acceptance of the Scoping Report will be implemented in the EIA process. This will involve the tasks set out below.

8.2.1 Specialist studies

Various specialist studies will be undertaken concurrently, as per the Terms of Reference provided in Sections 8.3 and 8.4 and identify and assess potential impacts using the impact assessment methodology described in Section 8.5. Baseline information used to describe the affected environment in Chapter 6 will be updated where new information is identified. Stakeholder comments, concerns or issues raised during the Scoping Phase will be considered under the relevant specialist studies where relevant.

8.2.2 Draft EIA Reporting

The draft EIA Report will be prepared, building on the structure and content of the Scoping Report, following the requirements of Appendix 3 of the EIA Regulations, 2014 (as amended) and in terms of conditions of the DFFE's acceptance of the Scoping Report. Stakeholder comments, concerns or issues raised during the Scoping Phase will be considered and addressed in the EIA Report where relevant. Chapters will be updated to reflect any changes in legislation, project description, and affected environment where relevant. Reporting on the need and desirability of the proposed activities will be reviewed and updated.

The impacts, assessed by specialists for project activities during the mobilisation, operation, and decommissioning phases, will be incorporated into the draft EIA Report together with feasible and client-approved mitigation measures. A separate EMPr of the mitigation and monitoring measures will be prepared to meet NEMA requirements set out under Appendix 4 of the EIA Regulations, 2014 (as amended).

8.2.3 Public participation

I&APs who registered with SLR will be notified of the availability of the draft EIA Report and EMPr for review and comment over a period of 30 days. The report will be available on SLR's website, via a data-free website and in hard copy (subject to any applicable COVID-19 restrictions) at public libraries / venues.

All registered I&APs will be informed of the submission of the Final EIA Report to DFFE for consideration (report to be uploaded onto the SLR website for information) and notified of the DFFE's decision on the Environmental Authorisation.

8.2.4 Final EIA Report

After closure of the comment period, all comments, concerns, or issues received on the draft report will be incorporated and responded to in a Comments and Responses Report. Public comments relevant to informing the technical content and the assessment of impacts will be shared with the specialists to ensure issues raised are addressed in the content of the specialist reports, and the Final EIA and EMPr, where appropriate. The draft EIA report will be updated to a final version, which reflects the incorporation of comments, and submitted to DFFE for consideration and review. After its review, DFEE will make a decision as to whether or not to grant an Environmental Authorisation.

8.3 SPECIALIST STUDIES TO BE UNDERTAKEN

The specialist terms of reference are presented in Section 8.4 below. The terms of reference of these investigations have been designed to address all the issues that have been identified by the EIA project team.

As part of these studies, specialists will gather data relevant to identifying and assessing environmental impacts that might occur as a result of the proposed project in their particular field of expertise. They will provide baseline information and identify and assess impacts according to predefined rating scales (refer to Section 8.5). Specialists will also suggest ways in which negative impacts could be mitigated and benefits could be enhanced. The results of the specialist studies will be integrated into an EIA Report.

8.4 TERMS OF REFERENCE FOR THE SPECIALIST STUDIES

8.4.1 General Terms of Reference for the Specialist Studies

The following general Terms of Reference will apply to the Specialist Studies:

- Describe the baseline conditions that exist on site and identify any sensitive areas that would need special consideration;
- Review the Comments and Responses Reports in the Final Scoping Report to ensure that all relevant issues or concerns relevant to the field of expertise are addressed;
- Identify and assess potential impacts of the construction, operation, and decommissioning phases, as well as the No-Go Alternative;
- Identify and list all legislation and permit requirements that are relevant to the proposed project;
- Identify areas where issues could combine or interact with issues likely to be covered by other specialists, resulting in aggravated or enhanced impacts;
- Indicate the reliability of information utilised in the assessment of impacts as well as any constraints to which the assessment is subject (e.g., any areas of insufficient information or uncertainty);
- Consider the precautionary principle in the assessment of all potential impacts;

- Identify feasible ways in which impacts could be mitigated and benefits enhanced giving an indication of the likely effectiveness of such mitigation and how these could be implemented in the construction and management of the proposed project;
- To ensure that specialists use a common standard, the determination of the significance of the assessed impacts will be undertaken in accordance with a common Convention (see Section 8.5);
- Comply with DFFE guidelines as well as any other relevant guidelines on specialist study requirements for EIAs;
- Include specialist expertise and a signed statement of independence; and
- Comply with the relevant specialist assessment and minimum report content requirements listed in the gazetted Specialist Protocols (GN R320 of 20 March 2020), or where no protocol has been prescribed, comply with the provisions of Appendix 6 of the EIA Regulations 2014 (as amended).

8.4.2 General Terms of Reference for the Specialist Studies

The specific, additional Terms of Reference for each of the proposed specialist studies is provided in Table 8-2 below.

Table 8-2: Specific Terms of Reference for the proposed Specialist Studies

Specialist Study (appointed consultants)	Terms of Reference
Terrestrial Biodiversity (Scientific Terrestrial Services)	In accordance with the "*Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity",* as the Screening Tool identified the site as being of "very high sensitivity" for terrestrial biodiversity, a Terrestrial Biodiversity Specialist Assessment is required. The proposed terms of reference for the study is as follows: • Identify, map (vegetation types, locations of species of conservation concern and conservation value / sensitivity map) and describe the flora present on site that could be affected by the proposed project, based on a field survey and available literature; • Provide a broad description of the existing environment in terms of its fauna (focusing on vertebrates, but with cognition of invertebrates of conservation concern), based on a field survey and available literature; • Identify and describe sensitive faunal habitats within the study area; • Comment on the conservation status and ecological importance of species on a local, regional, and national scale; • Identify any species of special concern viz. species with conservation status, endemic to the area or threatened species that exist or may exist on site; • Provide a conservation importance rating of the vegetation on site (in local, regional, and national terms); • Incorporate the relevant requirements of the Terrestrial Plant and Animal Species Protocols;

Specialist Study (appointed consultants)	Terms of Reference
	• Investigate ecological / biodiversity processes that could be affected (positively and/or negatively) by the proposed project; • Provide guidance for the requirement of a permit in terms of the National Environmental Management: Biodiversity Act, 2004 (No. 10 of 2004) to remove or destroy threatened or protected species; • Assess the significance of the loss of vegetation, faunal species, and impact on ecological / biodiversity processes as a result of the implementation of the proposed project; and • Identify practicable mitigation measures to reduce any negative impacts to the indigenous vegetation (including species and techniques that could potentially be used for rehabilitation purposes) and indicate how these could be implemented in the construction and management of the proposed project.
Avifauna (Chris van Rooyen Consulting)	The avifaunal specialist confirmed that Screening Tool classification of "low sensitivity" for avifauna is correct for the project site. Thus, an Avifaunal Compliance Statement will be compiled for inclusion in the EIA Report and will: • Delineate areas of high sensitivity for priority species, including any No-Go areas; • Assess the significance of potential impacts of the proposed project on avifauna; and • Identify practicable mitigation measures to reduce impacts to avifauna and indicate how these could be implemented in the construction and management of the proposed project.
Freshwater (Scientific Aquatic Services)	While the Screening Tool identified the site as being of "low sensitivity" for aquatic biodiversity, the findings of the field-based survey by the specialist confirmed that the site can be considered as low sensitivity with respect to aquatic biodiversity. However, an unchanneled valley bottom wetland, located approximately 49 m from the western boundary of the project site was noted in the area. Thus, in accordance with the "*Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Aquatic Biodiversity*", a Freshwater Impact Assessment will be undertaken. The proposed terms of reference for the study is as follows • Identify, map, and describe the freshwater systems on site, both natural and man-made, that could be affected by the proposed project, based on a field survey and available literature; • Describe the ecological condition, sensitivity, ecological important and conservation value of all identified freshwater systems; • Identify and assess the significance of potential impacts associated with the proposed project on the freshwater systems; • Investigate ecological / biodiversity processes that could be affected (positively and/or negatively) by the proposed project; • Identify practicable mitigation measures to reduce impacts on the aquatic fauna and flora during construction and operation; and • Provide guidance for the requirement of any licences or permits from DWS that might be necessary.

Specialist Study (appointed consultants)	Terms of Reference
Soils and Agricultural Potential (TerraAfrica Environmental Consultants)	The Screening Tool identified the site as being of "high sensitivity" for the agriculture theme. In accordance with the "*Protocol for the specialist assessment and minimum report content requirements of environmental impacts on agricultural resources by onshore wind and/or solar photovoltaic energy generation facilities where the electricity output is 20 megawatts or more",* an Agricultural Specialist Assessment is required. The proposed terms of reference for the study is as follows: • Identify, map, and describe the soils on site that could be affected by the proposed project based on fieldwork and available literature; • Provide a description of the agro-ecosystem that includes soil classification and terrain analysis; • Assess the broad agricultural potential of the site; • Provide an analysis of the current land productivity based on production figures of the past five years of all agricultural activities undertaken on the project site; • Determine the employment figures of both permanent and temporary labour associated with the agricultural activities of the past three years; • Identify any existing negative impacts on agricultural productivity of the project site such as the presence of waste dump areas, alien vegetation and existing land degradation; • Assess the significance of potential impacts of the proposed project on the soil and agricultural potential; and • Identify practicable mitigation measures to reduce impacts and indicate how these could be implemented in the construction and management of the proposed project.
Social (Equisperspectives Research and Consulting Services)	• Provide a broad social description of the area in the vicinity of the proposed project; • Provide a detailed description of the socio-political history and demographics of the area; • Identify and assess potential social impacts as a result of the proposed project. This may include, but is not limited to, the following aspects: > Creation of employment and local expenditure; > Impact on local communities and surrounding landowners due to external construction workers and influx of job-seekers; > Sense of health and well-being of affected communities and surrounding landowners; > Impact on existing land use and economic activities; > Generation of clean, renewable energy; and > Social sustainability of the proposed project, identifying feasible alternatives to ensure social equity and justice. • Determine whether the distribution of negative impacts unfairly discriminate against any person, particularly vulnerable or disadvantaged persons; and • Identify practicable mitigation measures that would reduce potential negative impacts and enhancement measures to increase potential social benefits.
Visual (Graham Young Landscape Architects)	• Quantify and assess the existing scenic resources/visual characteristics in and around the proposed site in relation to the surrounding areas;

Specialist Study (appointed consultants)	Terms of Reference
	• Evaluate and classify the landscape in terms of its sensitivity to a changing land use; • Determine viewsheds (visual horizons) and important viewpoints in order to assess the visual impact of the proposed project; • Assess the significance of potential visual impacts resulting from the proposed project from various important viewpoints, e.g., transport corridors, neighbouring farmsteads / residential areas, recreational areas and other surrounding land-uses (i.e., viewer-observer distances, bulk, compatibility with surrounding area, viewer catchments, etc.); and • Identify practicable mitigation measures to reduce negative visual impacts and to identify how these can be built into the project design.
Heritage (Heritage Contracts and Archaeological Consulting)	• Provide a description of the archaeology, palaeontology and cultural heritage of the site and identify and map any sites of archaeology, palaeontology or cultural significance that may be impacted by the proposed project; • Assess the sensitivity and conservation significance of any sites of archaeological, palaeontology or cultural heritage significance affected by the proposed project; • Identify and assess the significance of the potential impacts of the proposed project on archaeological, palaeontology and cultural heritage; • Make recommendations on the protection and maintenance of any significant cultural heritage and/or archaeological / palaeontology sites that may occur on site; • Identify practicable mitigation measures to reduce negative impacts on the archaeological / palaeontology resources and indicate how these can be incorporated into the construction and management of the proposed project; • Provide guidance for the requirement of any permits from the South African Heritage Resources Agency (SAHRA) that might become necessary.
Traffic (Siyazi)	• Provide a description of the surrounding road network; • Conduct manual traffic counts at key traffic intersections within the vicinity of the project site; • Conduct detailed trip generation and distribution calculations; • Conduct detailed intersection performance evaluations; • Provide basic concept geometric input for main access intersection; and • Identify practicable mitigation measures that would reduce potential negative impacts and enhancement measures to increase level of service for any affected intersections.

8.5 IMPACT ASSESSMENT METHODOLOGY

The identification and assessment of environmental impacts is a multi-faceted process, using a combination of quantitative and qualitative descriptions and evaluations. It involves applying scientific measurements and professional judgement to determine the significance of environmental impacts associated with the proposed project. The process involves consideration of, *inter alia*: the purpose and need for the project; views and concerns of I&APs; social and political norms, and general public interest.

8.5.1 Identification and Description of Impacts

Identified impacts will be described in terms of the nature of the impact, compliance with legislation and accepted standards, receptor sensitivity and the significance of the predicted environmental change (before and after mitigation). Mitigation measures may be existing measures or additional measures that were identified through the impact assessment and associated specialist input. The impact rating system considers the confidence level that can be placed on the successful implementation of mitigation.

Introduction

Specialists are to use SLR's standard convention for assessing the significance of impacts, a summary of which is provided below. In assigning significance ratings to potential impacts before and after mitigation the approach presented below is to be followed.

Determine the impact consequence rating: This is a function of the "intensity", "duration" and "extent" of the impact (see Table 8-3).

Determine impact significance rating: The significance of an impact is a function of the consequence of the impact occurring and the probability of occurrence (see Table 8-2).

Modify significance rating (if necessary): Significance ratings are based on largely professional judgement and transparent defined criteria. In some instances, therefore, whilst the significance rating of potential impacts might be "low", the importance of these impacts to local communities or individuals might be extremely high. The importance/value which interested and affected parties attach to impacts will be highlighted, and recommendations should be made as to ways of avoiding or minimising these perceived negative impacts through project design, selection of appropriate alternatives and / or management.

Determine degree of confidence of the significance assessment: Once the significance of the impact has been determined, the degree of confidence in the assessment will be qualified. Confidence in the prediction is associated with any uncertainties, for example, where information is insufficient to assess the impact.

Criteria for Impact Assessment

The criteria for the impact assessment is provided in Table 8-3 below.

Table 8-3: Impact Assessment Criteria

Criteria	Rating	Description
Criteria for ranking of the INTENSITY (SEVERITY) of environmental impacts	**ZERO TO VERY LOW**	Negligible change, disturbance, or nuisance. The impact affects the environment in such a way that natural functions and processes are not affected. People / communities are able to adapt with relative ease and maintain pre-impact livelihoods.
	LOW	Minor (slight) change, disturbance, or nuisance. The impact on the environment is not detectable or there is no perceptible change to people's livelihood.
	MEDIUM	Moderate change, disturbance, or discomfort. Where the affected environment is altered, but natural functions and processes continue, albeit in a modified way. People/communities are able to adapt with some difficulty and maintain pre-impact livelihoods but only with a degree of support.

Criteria	Rating	Description
	HIGH	Prominent change, disturbance, or degradation. Where natural functions or processes are altered to the extent that they will temporarily or permanently cease. Affected people/communities will not be able to adapt to changes or continue to maintain-pre impact livelihoods.
Criteria for ranking the DURATION of impacts	**SHORT TERM**	< 5 years.
	MEDIUM TERM	5 to < 15 years.
	LONG TERM	> 15 years, but where the impact will eventually cease either because of natural processes or by human intervention.
	PERMANENT	Where mitigation either by natural processes or by human intervention will not occur in such a way or in such time span that the impact can be considered transient.
Criteria for ranking the EXTENT / SPATIAL SCALE of impacts	**LOCAL**	Impact is confined to project or study area or part thereof, e.g. limited to the area of interest and its immediate surroundings.
	REGIONAL	Impact is confined to the region, e.g. coast, basin, catchment, municipal region, etc.
	NATIONAL	Impact is confined to the country as a whole, e.g. South Africa, etc.
	INTERNATIONAL	Impact extends beyond the national scale.
Criteria for determining the PROBABILITY of impacts	**IMPROBABLE**	Where the possibility of the impact to materialise is very low either because of design or historic experience, i.e. ≤ 30% chance of occurring.
	POSSIBLE	Where there is a distinct possibility that the impact would occur, i.e. > 30 to ≤ 60% chance of occurring.
	PROBABLE	Where it is most likely that the impact would occur, i.e. > 60 to ≤ 80% chance of occurring.
	DEFINITE	Where the impact would occur regardless of any prevention measures, i.e. > 80% chance of occurring.
Criteria for determining the DEGREE OF CONFIDENCE of the assessment	**LOW**	≤ 35% sure of impact prediction.
	MEDIUM	> 35% and ≤ 70% sure of impact prediction.
	HIGH	> 70% sure of impact prediction.
Criteria for the DEGREE TO WHICH IMPACT CAN BE MITIGATED - the degree to which an impact can be reduced / enhanced	**NONE**	No change in impact after mitigation.
	VERY LOW	Where the significance rating stays the same, but where mitigation will reduce the intensity of the impact.
	LOW	Where the significance rating drops by one level, after mitigation.
	MEDIUM	Where the significance rating drops by two to three levels, after mitigation.
	HIGH	Where the significance rating drops by more than three levels, after mitigation.
Criteria for LOSS OF RESOURCES - the degree to which a resource is	**LOW**	Where the activity results in a loss of a particular resource but where the natural, cultural, and social functions and processes are not affected.

Criteria	Rating	Description
permanently affected by the activity, i.e. the degree to which a resource is irreplaceable	**MEDIUM**	Where the loss of a resource occurs, but natural, cultural, and social functions and processes continue, albeit in a modified way.
	HIGH	Where the activity results in an irreplaceable loss of a resource.

Determining Consequence

Consequence attempts to evaluate the importance of a particular impact, and in doing so incorporate extent, duration, and intensity. The ratings and description for determining consequence are provided below.

Rating	Description
VERY HIGH	Impacts could be EITHER: of ***high intensity*** at a ***regional level*** and endure in the ***long term***; OR of ***high intensity*** at a ***national level*** in the ***medium term***; OR of ***medium intensity*** at a ***national level*** in the ***long term.***
HIGH	Impacts could be EITHER: of ***high intensity*** at a ***regional level*** and endure in the ***medium term***; OR of ***high intensity*** at a ***national level*** in the ***short term***; OR of ***medium intensity*** at a ***national level*** in the ***medium term;*** OR of ***low intensity*** at a ***national level*** in the ***long term***; OR of ***high intensity*** at a ***local level*** in the ***long term***; OR of ***medium intensity*** at a ***regional level*** in the ***long term.***
MEDIUM	Impacts could be EITHER: of ***high intensity*** at a ***local level*** and endure in the ***medium term***; OR of ***medium intensity*** at a ***regional level*** in the ***medium term***; OR of ***high intensity*** at a ***regional level*** in the ***short term***; OR of ***medium intensity*** at a ***national level*** in the ***short term***; OR of ***medium intensity*** at a ***local level*** in the ***long term***; OR of ***low intensity*** at a ***national level*** in the ***medium term;*** OR of ***low intensity*** at a ***regional level*** in the ***long term.***
LOW	Impacts could be EITHER of ***low intensity*** at a ***regional level*** and endure in the ***medium term***; OR of ***low intensity*** at a ***national level*** in the ***short term***; OR of ***high intensity*** at a ***local level*** and endure in the ***short term***; OR of ***medium intensity*** at a ***regional level*** in the ***short term***; OR of ***low intensity*** at a ***local level*** in the ***long term***; OR of ***medium intensity*** at a ***local level*** and endure in the ***medium term.***
VERY LOW	Impacts could be EITHER of ***low intensity*** at a ***local level*** and endure in the ***medium term***; OR of ***low intensity*** at a ***regional level*** and endure in the ***short term***; OR of ***low to medium intensity*** at a ***local level*** and endure in the ***short term.*** OR **Zero to very low intensity** with any combination of extent and duration.

Determining Significance

The consequence rating is considered together with the probability of occurrence in order to determine the overall significance using the table below.

		PROBABILITY			
		IMPROBABLE	POSSIBLE	PROBABLE	DEFINITE
CONSEQUENCE	VERY LOW	INSIGNIFICANT	INSIGNIFICANT	VERY LOW	VERY LOW
	LOW	VERY LOW	VERY LOW	LOW	LOW
	MEDIUM	LOW	LOW	MEDIUM	MEDIUM
	HIGH	MEDIUM	MEDIUM	HIGH	HIGH
	VERY HIGH	HIGH	HIGH	VERY HIGH	VERY HIGH

In certain cases, it may not be possible to determine the significance of an impact. In these instances, the significance is **UNKNOWN**.

8.6 CONSULTATION PROCESS DURING THE IMPACT ASSESSMENT PHASE

8.6.1 Consultation with The Competent Authority

Any conditions attached to the acceptance of the Scoping Report will be implemented in the impact assessment phase of the proposed project. If requested, and subject to COVID-19 protocols and regulations, a site visit and meeting will be held with officials from DFFE.

The EIA Report (including the EMPr) will be submitted to DFFE for their review and comment during the 30-day legislated review and comment period of the EIA Report. The EIA Report will be updated where necessary in line with the comments received from DFFE and be submitted to the Department for decision-making. Opportunities for consultation and participation with Key Stakeholders, I&APs, and Organs of State in the Impact Assessment Phase of the project are shown in Table 8-4.

8.6.2 Notification to I&APs

All I&APs registered on the project database will be notified of relevant events in the impact assessment phase of the project via electronic mail, short message service (SMS), or, if required, post. This will include when the EIA and EMPr (including specialist reports) are available for the 30-day review and comment period, and invitations to possible focussed group meetings, and notification of DFFE's decision. Any Focussed Group Meetings held with Key Stakeholders and I&APs will be held virtually, where it is not possible to host the meetings virtually, these will be held subject to COVID-19 protocols and regulations.

8.6.3 Information to be provided to I&APs

The EIA Report (including EMPr and specialist studies) will be released for a 30-day review and comment period. The following tasks will be undertaken by the EAP in order to notify I&APs of the release of the EIA Report:

- A Notification Letter (with an Executive Summary) will be sent to all registered I&APs to inform them of the release of the EIA Report and where the report can be accessed;

- Copies of the EIA Report (including EMPr and specialist studies) will be made available on the SLR website, and at the Sasolburg and Zamdela Public Libraries; and
- Following receipt of the decision on the Application for EA from DFFE, registered I&APs on the project database will be informed accordingly of the decision, the reasons thereof and the fact that an appeal can be lodged in terms of the National Appeals Regulations, 2014.

8.6.4 Details of the Public Participation Process

The Public Participation Process in the Impact Assessment Phase of the proposed project will include the following:

- Ongoing identification and notifications to stakeholders;
- Registration of parties as I&APs on the project database;
- Circulation of the EIA Report and Executive Summaries of the proposed project during the 30-day review and comment period;
- Collation of the comments received during the 30-day review and comment period into a Comments and Responses Report (C&RR) for inclusion in the final EIA Report for submission to DFFE for decision-making; and
- Issuance of notifications to registered I&APs on the project database of the DFFE's decision on the application for EA for the proposed project, and the appeal process in terms of the National Appeal Regulations, 2014.

8.7 DESCRIPTION OF TASKS AND INDICATIVE TIMING OF THE IMPACT ASSESSMENT PHASE

A summary of the tasks that would be undertaken during the Impact Assessment Phase, together with the anticipated schedule is provided in Table 8-4.

Table 8-4 : Key Tasks (and indicative timing) of the Impact Assessment Phase

Phase	EAP activity	Opportunities for Consultation and Participation		Schedule*
		Competent Authority	I&APs	
Specialist Studies	EAP to manage specialist activities and receive inputs for EIA.	-	-	May – July 2021
Impact Assessment Phase	Compile EIA report	-	-	June – July 2021
	Upload a copy of EIA report on DFFE's Novell Filr System	✓	-	August/September 2021

Phase	EAP activity	Opportunities for Consultation and Participation		Schedule*
		Competent Authority	I&APs	
	I&AP consultations	-	Review of EIA (30 days), Comments to EAP	
	Collate and respond to comments and finalise EIA report	-	-	August/September 2021
	Submit final EIA report to DFFE	-	-	October 2021
Competent authority review and decision-making	EIA report to DFFE (107 days from acceptance of Scoping Report).	DFFE acknowledge receipt of EIA (10 days).	-	October 2021 - February/March 2022
		DFFE Review (107 days)		
		Environmental Authorisation Granted / Refused	-	
Decision	Notify registered I&APs of decision (within 14 days of date of decision)	-	-	February/March 2022
Appeal Phase	EAP to provide information on appeal process as and when required.	Consultation during processing of appeal if relevant.	Opportunity to appeal decision in terms of National Appeal Regulations, 2014	-

8.8 MEASURES TO AVOID, REVERSE, MITIGATE, OR MANAGE IDENTIFIED IMPACTS

A draft EMPr will be compiled and included as an appendix to the EIA Report. The EMPr will be structured in terms of Appendix 4 to the EIA Regulations 2014 (as amended). The EMPr will provide recommendations on how to establish, operate, maintain, and close the proposed project throughout all relevant phases of the project activities. The aim of the EMPr will be to ensure that the project activities are managed to avoid or reduce potential negative environmental impacts and enhance potential positive environmental impacts. The EMPr will detail the impact management objectives, outcomes and actions as required, the responsibility for implementation and the schedule and timeframe. Requirements for monitoring of environmental aspects, as well as compliance monitoring and reporting, will also be detailed. The EMPr will also include the required environmental awareness plan for the construction phase.

If approved by the relevant authorities, the provisions of the EMPr would be legally binding on the project applicant and all its contractors and suppliers.

Reuben Maroga	**Nicholas Arnott**	**Stuart-Heather Clark**
(Report Author)	(Project Manager)	(Reviewer)

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Appendix 1: EAP Declaration & Undertaking

Appendix 2: Curricula Vitae (including Professional Registrations) of the Project Team

Appendix 3: Public Participation

Appendix 4: Screening Report

Appendix 5: Site Sensitivity Screening Report

Appendix 6: Site Photographs

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