DRAFT BASIC ASSESSMENT REPORT

02 June 2023

THE DEVELOPMENT OF THE STEENBOK GRID CONNECTION NEAR BLOEMFONTEIN, FREE STATE PROVINCE

ENVIRONAMICS

PROJECT DETAIL

DESTEA Reference No. : To be obtained

Project Title : The development of the Steenbok Grid Connection near Bloemfontein, Free State Province

Authors : Mrs. Carli van Niekerk (Registered EAP)
Mrs. Lisa de Lange

Client : Steenbok Solar (Pty) Ltd

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destea
department of
economic, small business development,
tourism and environmental affairs
FREE STATE PROVINCE

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File Reference Number:	
Application Number:	
Date Received:	

Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2014, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2014 as amended and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of **07 April 2017**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
3. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
4. Where applicable tick the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.
11. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.

13. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.
14. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.
15. Shape files (.shp) for maps must be included in the electronic copy of the report submitted to the competent authority.

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GLOSSARY OF TERMS AND ACRONYMS

BA	Basic Assessment
BAR	Basic Assessment Report
CEA	Cumulative Effects Assessment
DFFE	Department of Forestry, Fisheries and the Environment
DM	District Municipality
DMRE	Department of Mineral Resources and Energy
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
EP	Equator Principles
EPFI	Equator Principles Financial Institutions
Environmental impact	Any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's environmental aspects.
GNR	Government Notice Regulation
I&AP	Interested and affected party
IDP	Integrated Development Plan
IFC	International Finance Corporation
IPP	Independent Power Producer
IRP	Integrated Resource Plan
kV	Kilo Volt
LM	Local Municipality
Mitigate	Activities designed to compensate for unavoidable environmental damage.
MW	Megawatt
NEMA	National Environmental Management Act No. 107 of 1998
NERSA	National Energy Regulator of South Africa
NWA	National Water Act No. 36 of 1998
PAOI	Project Area of Influence
PPP	Public Participation Process
PV	Photovoltaic
QDS	Quarter Degree Square

CONTEXT FOR THE DEVELOPMENT

According to Eskom, the demand for electricity in South Africa has been growing at approximately 3% per annum. This growing demand, fueled by increasing economic growth and social development, is placing increasing pressure on South Africa's existing power generation capacity. Coupled with this, is the growing awareness of environmentally responsible development, the impacts of climate change and the need for sustainable development. The use of renewable energy technologies, as one of a mix of technologies needed to meet future energy consumption requirements is being investigated as part of the national Department of Mineral Resources and Energy's (DMRE) (previously referred to as the Department of Energy) long-term strategic planning and research process.

The Steenbok Grid Connection is proposed to specifically address the need to connect the proposed Steenbok Solar 1 and Steenbok Solar 2 solar energy facilities to the national grid which will enable the evacuation of the generated electricity from the two solar energy facilities. A combined Application for Environmental Authorisation has been lodged for Steenbok Solar 1 and Steenbok Solar 2 with the National Department of Forestry, Fisheries, and the Environment (DFFE) under the reference number 14/12/16/3/3/2/2235. The process being followed is a full Scoping/EIA process, with the projects currently in the EIA process. This combined Application was lodged with the DFFE in November 2022.

The primary rationale for the proposed grid connection infrastructure is to enable the evacuation of the generated electricity from Steenbok Solar 1 and Steenbok Solar 2 to ultimately add new generation capacity from renewable energy to the national electricity mix and to aid in achieving the goal of 42% share of all new installed generating capacity being derived from renewable energy forms, as targeted by DMRE (Integrated Resource Plan Update 2010-2030). The IRP also identifies the preferred generation technologies required to meet the expected demand growth up to 2030 and incorporates government objectives including affordable electricity, reduced greenhouse gas (GHG) emissions, reduced water consumption, diversified electricity generation sources and localisation and regional development. In terms of the Integrated Resource Plan Update (2019 IRP Update, 2010-2030), over the short term (of the next two or three years), clear guidelines arose; namely to continue with the current renewable bid programme with additional annual rounds of 1000 MW PV, with approximately 8.4GW of the renewable energy capacity planned to be installed from PV technologies over the next twenty years.

Steenbok Solar 1 and Steenbok Solar 2 are intended to form part of the Department of Mineral Resources and Energy's (DMREs) Renewable Energy Independent Power Producer Procurement (REIPPP) Programme or any other programmes/opportunities to generate and supply power in South Africa[1]. The REIPPP Programme aims to secure 14 725 Megawatts (MW) of new generation capacity from renewable energy sources, while simultaneously diversifying South Africa's electricity mix. According to the 2021 State of the Nation Address, Government will be initiating the procurement of an additional 11 800 MW of power from renewable energy, natural gas, battery storage and coal in

[1] Should Steenbok Solar 1 and Steenbok Solar 2 not be successful in the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) process it could also be used for private off-take. However, the Applicant confirms that the main intention is to bid the proposed developments as part of the REIPPP Programme. Government Gazette No. 44989, dated 12 August 2021, amended the threshold for self-generation facilities from 1MW to 100MW. This amendment allows an Independent Power Producer (IPP) of up to 150MW to sell electricity to an end-user customer who consumes the power itself.

line with the Integrated Resource Plan 2019 and fulfilling their commitments under the United Nations Framework Convention on Climate Change and its Paris Agreement which include the reduction of greenhouse gas emissions. Eskom, our largest greenhouse gas emitter, has committed in principle to net zero emission by 2050 and to increase its renewable capacity.

Specific grid connection infrastructure is being proposed as part of the Steenbok Grid Connection which includes a network of infrastructure including up to 2 switching substation/s and a 132kV overhead power line that will connect the proposed Steenbok Solar 1 and Steenbok Solar 2 solar energy facilities to the national grid via a loop-in loop-out connection to the existing 132kV Wolf line (Harvard – Karee) overhead power line which traverses the affected property. Further associated infrastructure will include access roads and laydown areas.

The grid connection solution is being assessed within the development areas of the PV areas. This will provide some flexibility for the avoidance of sensitive environmental features and areas which may be present in close proximity to the proposed grid connection infrastructure.

A 300 m wide and 1.5km long grid connection corridor has been identified which will be assessed for the placement of the grid connection infrastructure.

Based on the grid connection infrastructure proposed to be developed, listed activities under Listing Notice 1 and Listing Notice 3 of the EIA Regulations are triggered. Listed activities are activities that are considered to have an impact on the environment and as such Environmental Authorisation is required to undertake such activities. As such, a Basic Assessment (BA) process and Application for Environmental Authorisation is being undertaken and lodged with the Free State Department of Economic, Small Business Development, Tourism and Environmental Affairs (DESTEA).

EXECUTIVE SUMMARY

The Mangaung Metropolitan Municipality identified five strategic development objectives for the municipal area as part of the 2022/2027 Draft Integrated Development Plan (IDP). The objectives include spatial transformation, economic growth, service delivery improvement, financial health improvement and organisational strength. With these objectives the Municipality also identifies strategic risks to enable early warning in terms of the city's planning, implementation and monitoring to achieve the objectives. These risks include, but are not limited to climate change, pollution, drought, flooding, loss of natural resources, high unemployment rates, financial instability, financial viability, technological failure and skills shortage.

Steenbok Solar (Pty) Ltd intends to develop two individual 35MW photovoltaic solar facilities and the respective associated infrastructure for each development on the Remaining Extent of the Farm Floradale No. 15, Registration Division Bloemfontein, Free State Province situated within the Mangaung Metropolitan Municipality area of jurisdiction. The proposed Steenbok Grid Connection is also located within the Remaining Extent of the Farm Floradale No. 15. The town centre of Bloemfontein is located approximately 17km south of the proposed development. The site is located directly to the west of the R700 Regional Road.

This Application for Environmental Authorisation and Basic Assessment process is for the grid connection solution, which comprises specific grid connection infrastructure, to enable the evacuation of the generated electricity from the proposed Steenbok Solar 1 and Steenbok Solar 2. The Applicant therefore seeks to develop a 132kV loop-in loop-out overhead power line and up to two (2) 132kV switching substation/s.

As part of this Basic Assessment process, the Applicant has identified a 300m wide and 1.5km long grid connection corridor and 5ha assessment area for the switching substation/s for the placement of the proposed grid connection infrastructure. This approach was taken to ensure that the development footprint ultimately put forward for Environmental Authorisation within the larger grid connection corridor assessed is appropriate from an environmental perspective. This approach also provides an opportunity for the avoidance of sensitive environmental features and areas.

The Environmental Impact Assessment (EIA) Regulations, 2014, as amended (Regulation 326) determine that an Environmental Authorisation is required for certain listed activities, which might have detrimental effects on the environment. The following activities has been identified with special reference to the proposed development and is listed in the EIA Regulations:

- Activity 11(i) (GN.R. 327): *"The development of facilities or infrastructure for the transmission and distribution of electricity outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts."*
- Activity 14 (GN.R. 327): "*The development and related operation of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic meters or more by not exceeding 500 cubic meters."*

- Activity 27 (GN.R. 327): *"The clearance of 1 hectares or more, but less than 20 hectares of indigenous vegetation."*
- Activity 28(ii) (GN.R. 327): *"Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture or afforestation on or after 1998 and where such development (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare."*
- Activity 4(b)(i)(bb)(gg) (GN.R 324): *"The development of a road wider than 4 metres with a reserve less than 13,5 metres, in the (b) Free State Province, (i) outside urban areas and (bb) within a National Protected Area Expansion Strategy Focus Area, and (gg) areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve, excluding disturbed areas."*
- Activity 10(b)(i)(bb)(gg)(hh) (GN.R 324): "*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 meters in (b) the Free State Province, (i) outside urban areas; ,(bb) within National Protected Area Expansion Strategy Focus Areas (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve; (hh) Areas within a watercourse or wetland; or within 100 metres from the edge of a watercourse or wetland."*
- Activity 12(b)(i)(iv) (GN.R 324): "*"The clearance of an area of 300 square meters or more of indigenous vegetation in the (b) Free State Province, (i) within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004, (iv) areas within a watercourse or wetland; or within 100 metres from the edge of watercourse or wetland."*

Being listed under Listing Notice 1 (Regulation 327) and Listing Notice 3 (Regulation 324) implies that the development is considered as potentially having a potential impact on the environment. Subsequently a 'basic assessment process' is required as described in Regulations 19 - 20. Environamics has been appointed as the independent consultant to undertake the Basic Assessment (BA) for the grid connection solution on behalf of Steenbok Solar (Pty) Ltd.

Regulation 19 of the 2014 EIA Regulations (as amended) requires that a BA report must contain the information set out in Appendix 1 to the Regulations or comply with a protocol or minimum information requirements relevant to the application as identified and gazetted by the Minister in a government notice. Appendix 1 to GN. R. 326 requires that the environmental outcomes, impacts and residual risks of the proposed activity be set out in a Basic Assessment Report (BAR).

It must be noted that this is the Draft Basic Assessment Report for the proposed development. This BA Report has been made available to all registered I&APs for a 30-day review and comment period as per Regulation 19(1)(b) of the EIA Regulations 2014, as amended. The 30-day review and comment period is from 02 June 2023 – 03 July 2023.

It has been determined that the proposed development will have a net positive impact for the area and will subsequently ensure the optimal utilisation of resources. This is based on the fact that the proposed grid connection infrastructure will enable the operation and evacuation of generated solar electricity into the national grid from two proposed solar energy facilities. All negative environmental impacts can be effectively mitigated through the proposed mitigation measures and no residual negative impacts are foreseen. The potentially most significant environmental impacts associated with the development are briefly summarized below:

Impacts during the construction phase:

Construction of the grid connection infrastructure will potentially result in the following impacts: loss of irreplaceable resources in terms of indigenous vegetation and faunal movement corridors, habitat destruction within the project footprint, destruction, degradation and fragmentation of surrounding habitats, displacement / emigration of avifauna community (including Species of Conservation Concern) due to noise pollution, direct mortality from persecution or poaching of avifauna species and collection of eggs, direct mortality from increased vehicle and heavy machinery traffic, impacts to soil and agriculture, and disturbance and degradation of wetland vegetation, introduction and spread of alien and invasive vegetation. The impacts expected to occur during the construction phase will mainly have a significance of **low**. No impacts of a **high** significance are expected to occur.

Impacts during the operational phase:

The proposed grid connection infrastructure will require routine maintenance work throughout the operational phase. The negative impacts are generally associated with loss of irreplaceable resources in terms of indigenous vegetation and faunal movement corridors, collisions and electrocutions of avifauna, direct mortality from roadkills, persecution or poaching of avifauna species and collection of eggs, encroachment of Invasive Alien Plants into disturbed areas, visual impacts, impacts to soil and agriculture and wetlands. The significance of the expected impacts is considered to be **medium** and **low**, with no impacts of a **high** significance expected to occur (this being with the implementation of mitigation).

Impacts during the decommissioning phase:

The photovoltaic solar energy facility has a lifespan of between 20 and 30 years from where the project and its associated infrastructure will be decommissioned or upgraded. If the solar plant is not decommissioned the grid connection infrastructure is expected to have a lifespan of more than 40 years (with maintenance) and the infrastructure will only be decommissioned once it has reached the end of life, or if no longer required. Upon decommissioning, the grid connection infrastructure will be disassembled, and the components removed from site. The physical environment will benefit from the decommissioning of the infrastructure since the site will be restored to its natural state. During the decommissioning phase the following impacts are foreseen: loss of irreplaceable resources in terms of indigenous vegetation and faunal movement corridors, direct mortality due to earthworks, vehicle collisions and persecution, continued habitat degradation due to Invasive Alien Plant encroachment and erosion, increased stormwater runoff and soil and water pollution.

Cumulative impacts:

Cumulative impacts could arise as other similar projects are constructed in the area. According to the Department of Forestry, Fisheries and Environment database and local knowledge provided by the Applicant eight (08) other solar plants have been proposed, however not in close proximity to the proposed activities. No cumulative impacts of a **high** significance have been identified and no unacceptable change to the environment is expected to occur. The potentially most significant cumulative impact during the construction phase relate to the loss or fragmentation of habitats, impacts on avifauna, temporary employment, and the impact of construction workers on local communities and influx of job seekers. The potential cumulative effects during the operational phase relate to visual impacts, avifauna impacts and the development of infrastructure for the generation of clean, renewable energy. During the decommissioning phase, the generation of waste and visual intrusion may result in cumulative impacts.

In accordance with the EIA Regulations, this draft BAR evaluates and rates each identified potential impact and identifies and recommends mitigation measures which will be required in order to ensure the reduction of the impact significance of negative impacts to acceptable levels and the avoidance of negative residual risks. This draft BAR also contains information that is required by the competent authority (Free State Department of Economic, Small Business Development, Tourism and Environmental Affairs (DESTEA)) to consider the Application for Environmental Authorisation and to reach a decision contemplated in Regulation 20 of GNR 326. No fatal flaws or impacts with unacceptable levels of significance were identified. The impacts from the proposed development are expected to be at an acceptable level with the implementation of mitigation measures and therefore the project can be authorised subject to the implementation of the recommended mitigation measures.

SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section?	~~YES~~	**NO**

If YES, please complete the form entitled "Details of specialist and declaration of interest" for the specialist appointed and attach in Appendix I.

1. PROJECT DESCRIPTION

a) Describe the project associated with the listed activities applied for

The Steenbok Solar 1 and Steenbok Solar 2 (DFFE ref.: 14/12/16/3/3/2/2235) are in process of obtaining Environmental Authorisation (EA) for the development of two separate 35MW photovoltaic solar facilities and associated infrastructure on the Remaining Extent of the Farm Floradale No. 15., Registration Division Bloemfontein, Free State Province situated within the Mangaung Metropolitan Municipality area of jurisdiction. The town centre of Bloemfontein is located approximately 17km south of the proposed developments. A combined Application has been lodged with the Department of Forestry, Fisheries and the Environment (DFFE) for the two facilities.

This Application for Environmental Authorisation and Basic Assessment process is for the grid connection solution to connect the two abovementioned solar power plants to the national grid via a loop-in loop-out connection to the existing Eskom Harvard – Karee 132kV Wolf overhead power line which traverse the affected property. The grid connection solution requires the development of specific grid connection infrastructure which includes a loop in loop out 132kV overhead power line and up to two (2) switching substation/s. For this Basic Assessment a larger grid connection corridor and switching substation assessment area has been identified within which the power line route and switching substation/s will be placed. The corridor is approximately 300m wide and ~1.5km long and the assessment area for the switching substation/s is 5ha in extent and were assessed as part of the Basic Assessment process. Further associated infrastructure will include access roads and laydown areas.

The Applicant is requesting that the full extent of the grid connection corridor and the assessment area for the switching substations be authorised so that the Applicant may place the infrastructure within the larger areas, however subject to avoidance of any sensitive environmental features and areas present within the corridor and assessment area. This will provide flexibility to allow the grid infrastructure to be placed so as to accommodate the final layouts of the proposed Steenbok Solar 1 and Steenbok Solar 2. Therefore, the assessed corridor and assessment area are presented as the layout for approval.

The general site information is included in Table 1 below.

Table 1: General site information

Description of affected farm portions	Steenbok Grid Connection Farm Floradale No. 15
Province	Free State Province
Municipality	Mangaung Metropolitan Municipality
Ward numbers	44
Closest towns	The site is located 17km north from the centre of Bloemfontein
21 Digit Surveyor General codes	Farm Floradale No. 15 - F00300000000001500000
Type of technology	132kV overhead power line and switching substation
Structure Height	Power Line: ~ 30m Switching Substation: < 30m
EIA footprint (area assessed for the placement of the development footprint)	Grid connection corridor of 1.5km in length and 300m wide, and 5ha assessment area for the switching substation/s.

In terms of the National Environmental Management Act (Act 107 of 1998), with specific reference to Sections 24 and 24D, as read with GNR 324-327, as amended (2017), Environmental Authorisation is required for the grid connection infrastructure proposed.

The technical details of the proposed development are included in Table 2 below.

Table 2: Technical details of the proposed development

Component	**Description / dimensions**
Height of power line	30m
Length of the power line	Up to 1.5km long
Capacity of power line	132kV
Power Line servitude	32m
Area occupied by switching substations	1 hectare per substation, 2 hectares in total
Capacity of the switching substations	132kV
Area occupied by both permanent and construction laydown areas	Up to 4 hectares
Width of access roads	Between 6 and 8 meters
Height of fencing	Approximately 2.4 meters

Being listed under Listing Notice 1 (Regulation 327) and Listing Notice 3 (Regulation 324) implies that the development is considered as potentially having a potential impact on the environment. Subsequently a 'basic assessment process' is required as described in Regulations 19 – 20. Environamics has been appointed as the independent consultant to undertake the Basic Assessment (BA) for the grid connection infrastructure on behalf of Steenbok Solar (Pty) Ltd.

b) Provide a detailed description of the listed activities associated with the project asapplied for

Regulations No. 326, 327, 325, 324 of 07 April 2017 and Regulation No. 517 of 11 June 2021 promulgated in terms of Section 24(5) and 44 of the National Environmental Management Act, (107 of 1998) determine that an Environmental Impact Assessment (EIA) process should be followed for certain listed activities, which might have a detrimental impact on the environment. According to Regulation No. 326 the purpose of the Regulations is: *"…to regulate the procedure and criteria as contemplated in Chapter 5 of the Act relating to the preparation, evaluation, submission, processing and consideration of, and decision on, applications for environmental authorisations for the commencement of activities, subjected to environmental impact assessment, in order to avoid or mitigate detrimental impacts on the environment, and to optimise positive environmental impacts, and for matters pertaining thereto*".

The EIA Regulations No. 324 & 327 outline the activities for which a Basic Assessment (BA) process should apply:

Listed activity as described in GN 327 and324	Description of project activity
Activity 11(i) (GN.R. 327) "The development of facilities or infrastructure for the transmission and distribution of electricity outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts."	Activity 11(i) is triggered since the development of a 132kV loop-in loop-out power line and up to two (2) 132kV switching substations are required to enable the connection of the proposed Steenbok Solar 1 and Steenbok Solar 2 solar energy facilities to the national grid network. A 300m wide and ~1.5km long grid connection corridor is assessed for the placement of the power line route and substations. The power line is proposed to connect into the existing Eskom Harvard – Karee 132kV Wolf overhead power line.
Activity 14 (GN.R. 327) "The development and related operation of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic meters or more by not exceeding 500 cubic meters."	Activity 14 is triggered since the two (2) switching substations will require the infrastructure for the storage and handling of dangerous goods (diesel and oils), with a combined capacity of 80 cubic metres, but not exceeding 500 cubic metres. The capacity of dangerous goods that will be stored on site will be between 80 and 90 cubic meters.
Activity 27 (GN.R. 327) "The clearance of 1 hectares or more, but less than 20 hectares of indigenous vegetation."	Activity 27 is triggered since the development of the up to two (2) 132kV switching substations proposed as part of the project will require the clearance of 1 hectare of indigenous vegetation each. The total vegetation clearance required for the two (2) 132kV switching substations is 2

	hectares. Further to the above, clearance of indigenous vegetation for both construction and permanent laydown areas will be required, which will be up to 4 hectares in extent. It is therefore expected that a total of up to 6 hectares of indigenous vegetation will be cleared.
Activity 28(ii) (GN.R. 327) "Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture or afforestation on or after 1998 and where such development (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare."	Activity 28(ii) is triggered as the Steenbok Grid Connection will occur outside an urban area on land used for agricultural purposes (mainly grazing). The development of the up to two (2) 132kV switching substations proposed as part of the project will require the clearance of 1 hectare of indigenous vegetation each. Further to the above, clearance of indigenous vegetation for both construction and permanent laydown areas will be required, which will be up to 4 hectares in extent. It is therefore expected that a total area of up to 6 hectares will be developed.
Activity 4(b)(i)(bb)(gg) (GN.R 324) "The development of a road wider than 4 metres with a reserve less than 13,5 metres, in the (b) Free State Province, (i) outside urban areas and (bb) within a National Protected Area Expansion Strategy Focus Area, and (gg) areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve, excluding disturbed areas."	Activity 4 (b)(i)(bb)(gg) is triggered as an access road with a width of between 6 and 8 metres will be required during the construction and operational phase of the project. The site is located within the Free State Highveld Grassland Focus Area of the NPAES and is located within 5km of a protected area identified in terms of NEMPAA which is the Auch Macoy Game Reserve located 1km to the south.
Activity 10(b)(i)(bb)(gg)(hh) (GN.R 324) "The development and related operation of facilities or infrastructure for the storage, or storage and handling of a dangerous good,	Activity 10(b)(i)(bb)(gg)(hh) is triggered since the proposed development will need to develop infrastructure for the storage and handling of dangerous goods (diesel and oils) in containers with a capacity just over 80 cubic metres. The

where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic meters in (b) the Free State Province, (i) outside urban areas; ,(bb) within National Protected Area Expansion Strategy Focus Areas (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve; (hh) Areas within a watercourse or wetland; or within 100 metres from the edge of a watercourse or wetland."	Steenbok Grid Connection is located in the Free State Province and outside urban areas. The site is located within the Free State Highveld Grassland Focus Area of the NPAES and is located within 5km of a protected area identified in terms of NEMPAA which is the Auch Macoy Game Reserve located 1km to the south. Furthermore, surface water features, including a wetland and seasonal drainage channel, are present within the grid connection corridor.
Activity 12(b)(i)(iv) (GN.R 324) "The clearance of an area of 300 square meters or more of indigenous vegetation in the (b) Free State Province, (i) within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004, (iv) areas within a watercourse or wetland; or within 100 metres from the edge of watercourse or wetland."	Activity 12(b)(i)(iv) is triggered since the power line, switching substations and the associated access road will require more than 300 square meters of vegetation clearance within a vegetation type classified as endangered. In terms of vegetation type the site falls within the Bloemfontein Grassland Vegetation type which is described by Mucina and Rutherford as Endangered. Surface water features, including a wetland and seasonal drainage channel, are present within the grid connection corridor.

2. FEASIBLE AND REASONABLE ALTERNATIVES

"alternatives", in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

(a) the property on which or location where it is proposed to undertake the activity;
(b) the type of activity to be undertaken;
(c) the design or layout of the activity;
(d) the technology to be used in the activity;
(e) the operational aspects of the activity; and
(f) the option of not implementing the activity.

Describe alternatives that are considered in this application as required by Appendix 1 (3)(h) of GN 326, Regulation 2014 as amended. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

The determination of whether site or activity (including different processes, etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the, competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

The identification of alternatives should be in line with the Integrated Environmental Assessment Guideline Series 11, published by the DEA in 2004. Should the alternatives include different locations and lay-outs, the co-ordinates of the different alternatives must be provided. The co-ordinates shouldbe in degrees, minutes and seconds. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

a) Site alternatives

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
A 300m wide and 1.5km long gird connection corridor and 5ha assessment area for the switching substation/s has been identified and assessed for the placement of the grid connection infrastructure. The preferred grid connection corridor is also located in close proximity to the connection point on the national grid. As the corridor and assessment area are related to the proposed Steenbok Solar 1 and Steenbok Solar 1 solar energy facilities no other grid connection corridor locations are being considered for the development.	28°57'51.79"S	26°12'2.79"E
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

In the case of linear activities:

Alternative:	**Latitude (S):**	**Longitude (E):**
Alternative S1 (preferred)		
• Starting point of the activity	28°57'49.31"S	26°11'34.47"E
• Middle/Additional point of the activity	28°57'51.79"S	26°12'2.79"E
• End point of the activity	28°57'53.65"S	26°12'32.32"E
Alternative S2 (if any)		
• Starting point of the activity		
• Middle/Additional point of the activity		
• End point of the activity		
Alternative S3 (if any)		
• Starting point of the activity		
• Middle/Additional point of the activity		
• End point of the activity		

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

In the case of an area being under application, please provide the co-ordinates of the corners of the site as indicated on the lay-out map provided in Appendix A of this form.

b) Lay-out alternatives

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
A 300m wide and 1.5km long gird connection corridor and 5ha assessment area for the switching substation/s has been identified and assessed for the placement of the grid connection infrastructure. The preferred grid connection corridor is also located in close proximity to the connection point on the national grid. The loop-in loop-out connection to the existing Eskom Harvard – Karee 132kV Wolf overhead power line which traverses the affected property will be constructed within the grid connection corridor. As the corridor and assessment area are related to the proposed Steenbok Solar 1 and Steenbok Solar 2 solar energy facilities no other grid connection corridor locations/layouts are being considered for the development.	28°57'51.79"S	26°12'2.79"E
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

c) Technology alternatives

Alternative 1 (preferred alternative)
A 132kV overhead distribution line is the preferred alternative for the applicant due to overhead lines being less costly to construct than underground lines. Therefore, the preference for overhead lines is mainly based on cost. Overhead lines allow high voltage operations, and the surrounding air provides the necessary electrical insulation to earth. Further, the surrounding air cools the conductors that produce heat due to lost energy. The overall weather conditions in the Free State Province are unlikely to cause damage and faults on the proposed overhead distribution power line. Nonetheless, if a fault occurs, it can be found quickly by visual means using a manual line patrol. Repair to overhead lines is relatively simple in most cases and the line can usually be put back into service within a few days. In terms of potential impacts associated with overhead distribution lines these include visual intrusion and threats to sensitive habitat (where applicable). Furthermore, overhead power lines also provide an opportunity for the avoidance of sensitive

environmental features as the overhead lines can span on-ground environmental features to ensure conservation, therefore providing more flexibility in terms of mitigation of the associated on-ground disturbance. Either a single-circuit or double-circuit overhead power line will be developed depending on the technical requirements of the proposed Steenbok Solar 1 and Steenbok Solar 2.
Alternative 2
Alternative 3

d) Other alternatives (e.g. scheduling, demand, input, scale and design alternatives)

Alternative 1 (preferred alternative)
The choice of pylon structure to be used for the power line will be determined in consultation with Eskom and does not significantly affect the environmental impacts of the proposed development as provision has already been made for the visual, ecological and heritage impacts of erecting a power line. No defined structure has been confirmed at this stage and will depend on Eskom's technical requirements. The 132kV line must be constructed according to the authorised standards for a power line approved by Eskom Holdings SoC Ltd. The structure to be utilised for the power line towers will also be informed by the local geotechnical and topographical conditions. A variety of different monopole pylon options could be required, depending on the location of the pylon within the route or at bends and how sharp the bend is.
Alternative 2
Alternative 3

e) No-go alternative

This alternative considers the option of 'do nothing' and maintaining the status quo. The grid connection corridor and switching substations assessment area and the surrounding areas is currently zoned for agricultural land uses. Should the proposed activity not proceed, the corridor and assessment area will remain unchanged and will continue to be used for agricultural purposes. The purpose of the proposed grid connection infrastructure is to connect the proposed Steenbok Solar 1 and Steenbok Solar 2 (DFFE ref.: 14/12/16/3/3/2/2235) photovoltaic solar facilities to the National Grid. If the status quo is maintained, the potential opportunity costs in terms of the successful operation of the photovoltaic solar facilities would be lost, since it will not be able to operate without the grid connection infrastructure, which in turn will result in job losses and loss of economic growth in the area.

Paragraphs 3 – 13 below should be completed for each alternative.

3. PHYSICAL SIZE OF THE ACTIVITY

a) Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

Alternative:	**Size of the activity:**
Alternative A1[2] (preferred activity alternative)	450000m2 / 45ha (size of the grid connection corridor and assessment area)
Alternative A2 (if any)	m2
Alternative A3 (if any)	m2

or, for linear activities:

Alternative:	**Length of the activity:**
Alternative A1 (preferred activity alternative)	up to 1500m / 1.5km
Alternative A2 (if any)	m
Alternative A3 (if any)	m

b) Indicate the size of the alternative sites or servitudes (within which the above footprintswill occur):

Alternative:	**Size of the site/servitude:**
Alternative A1 (preferred activity alternative)	m2
Alternative A2 (if any)	m2
Alternative A3 (if any)	m2

4. SITE ACCESS

Does ready access to the site exist?	**YES**	NO
If NO, what is the distance over which a new access road will be built	m	

Describe the type of access road planned:

Access to the grid connection corridor is under assessment as part of the Scoping/EIA process being undertaken for the Steenbok Solar 1 and Steenbok Solar 2 solar energy facilities. However internal access roads between 6 and 8m wide will be required within the grid connection corridor and assessment area.

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

[2] "Alternative A.." refer to activity, process, technology or other alternatives.

5. LOCALITY MAP

An A3 locality map must be attached to the back of this document, as Appendix A. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities ofmore than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map.). The map must indicate the following:

- an accurate indication of the project site position as well as the positions of the alternative sites, ifany;
- indication of all the alternatives identified;
- closest town(s
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1km radius of the site or alternative sites; and
- a north arrow;
- a legend; and
- locality GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

The Locality and Regional Maps are included as Appendix A1 and A2, respectively.

6. LAYOUT/ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this document.

The site or route plans must indicate the following:

- the property boundaries and numbers of all the properties within 50 metres of the site;
- the current land use as well as the land use zoning of the site;
- the current land use as well as the land use zoning each of the properties adjoining the site or sites;
- the exact position of each listed activity applied for (including alternatives);
- servitude(s) indicating the purpose of the servitude;
- a legend; and
- a north arrow.

The Layout Map is included as Appendix A12 to the report.

7. SENSITIVITY MAP

The layout/route plan as indicated above must be overlain with a sensitivity map that indicates all the sensitive areas associated with the site, including, but not limited to:

- watercourses;
- the 1:100 year flood line (where available or where it is required by DWS);
- ridges;
- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or infested with alien species); and
- critical biodiversity areas.

The sensitivity map must also cover areas within 100m of the site and must be attached in Appendix A.

The Sensitivity Map is included as Appendix A9 to the report.

8. SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to this report**.** It must be supplemented with additional photographs of relevant features on the site, if applicable.

Site photographs are included as Appendix B to this report.

9. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of at least 1:200 as Appendix C for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

The illustration of the grid connection infrastructure is included as Appendix C to this report.

10. ACTIVITY MOTIVATION

Motivate and explain the need and desirability of the activity (including demand for the activity):

1. Is the activity permitted in terms of the property's existing land use rights?	YES	**NO**	Please explain
The site is zoned for agriculture. However, the landowner has provided consent for the development of the solar energy facilities on the property, which includes the associated infrastructure, such as the grid connection solution. A rezoning process to change the land use from agriculture to special land use will be undertaken prior to construction to ensure the land use rights align with the proposed solar energy facilities, including the Steenbok Grid Connection.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	**YES**	NO	Please explain
The Free State Provincial Growth and Development Strategy (Free State PSDF, 2012) states that sustainable economic development is the only effective means by which the most significant challenge of the Free State, namely poverty, can be addressed is. The PSDF gives practical effect to sustainable development, which is defined as development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. The PSDF is prepared in accordance with bioregional planning principles that were adapted to suit the site-specific requirements of the Free State. It incorporates and complies with the relevant protocols, conventions, agreements, legislation, and policy at all applicable levels of planning, ranging from the international to the local. The PSDF builds upon achievements and learns from mistakes of the past, reacts to the challenges of our time, incorporates the traditional knowledge of the people of the Free State, and builds upon international best-practice and technology. The development of Steenbok Solar 1 and Steenbok Solar 2 is in-line with the framework based on the contributions and opportunities presented by a development of this nature. The proposed grid connection solution will enable the evacuation of the generated electricity from the two solar energy facilities mentioned above.			
(b) Urban edge / Edge of Built environment for the area	YES	**NO**	Please explain
The development is located outside an urban edge.			
(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g., would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).	**YES**	NO	Please explain
The Mangaung Metropolitan Municipality (Draft Integrated Development Plan (IDP) 2022/2027) identified five strategic development objectives for the municipal area as part of the 2022/2027 Draft Integrated Development Plan (IDP). The objectives include spatial transformation, economic growth, service delivery improvement, financial health improvement and organisational strength.			

With these objectives the Municipality also identifies strategic risks to enable early warning in terms of the city's planning, implementation, and monitoring to achieve the objectives. These risks include, but are not limited to climate change, pollution, drought, flooding, loss of natural resources, high unemployment rates, financial instability, financial viability, technological failure, and skills shortage.

Further to the above, the Municipality has considered and identified specific outcome indicators in terms of energy and electricity within the municipal area. One outcome identified by the IDP is improved energy sustainability, with the outcome indicator referring to renewable energy capacity available within the municipal jurisdiction as a percentage of Eskom supply capacity to the municipality. The output indicators refer to the total renewable energy capacity available through IPPs and a percentage of municipal buildings utilising electricity from renewable electricity.

The IDP of the municipal are within which Steenbok Solar 1, Steenbok Solar 2 and Steenbok Grid Connection is located therefore supports the development of renewable energy generation and seeks to promote such developments as part of improved energy sustainability. The proposed grid connection solution will enable the evacuation of the generated electricity from the two solar energy facilities mentioned above.

(d) Approved Structure Plan of the Municipality	**YES**	NO	Please explain

According to the Mangaung Metropolitan Municipality District / Metro One Plan (2022), six transformational goals are outlined in the plan which includes spatial restructuring and environmental sustainability. In terms of environmental sustainability, the strategic outcome is to facilitate the protection and sustainable management of the natural environmental resources, with the strategic action being to contain urban development and manage rural areas through appropriate application of Spatial Planning Categories. Furthermore, the plan indicates the need to implement climate change adaptation and mitigation measures, which considered the energy sector. The mitigation measures /intervention projects proposed includes the development of renewable energy, as well as the implementation of measures for energy efficiency. The details of the interventions include the building of solar parks that will feed electricity to the National Grid, use of Solar in residential areas and industry and the installation of solar water heaters.

The plan for the municipal area therefore identifies the need for renewable energy developments, specifically that of solar energy facilities, such as Steenbok Solar 1 and Steenbok Solar 2. The proposed grid connection solution will enable the evacuation of the generated electricity from the two solar energy facilities mentioned above.

(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)	**YES**	NO	Please explain

The Mangaung Metropolitan Municipality Environmental Management Framework and Plan (2015) objectives includes the integration of sustainable development practices within Mangaung Metro Municipality, manage conservation and sustainable usage of natural resources. The development of the Steenbok Solar 1 and Steenbok Solar 2 are in line with these objectives as it will contribute to

sustainable development and management of natural resources. The proposed grid connection solution will enable the evacuation of the generated electricity from the two solar energy facilities mentioned above. The development grid connection solution will not compromise the objectives and environmental management priorities of the area.

(f) Any other Plans (e.g., Guide Plan)	**YES**	NO	Please explain

The National Development Plan

The National Development Plan (NDP 2030) aims to "eliminate poverty and reduce inequality by 2030" (RSA, undated). In order to eliminate or reduce inequality, the economy of South Africa needs to grow faster in order to benefit all South Africans. In May 2010 a draft national development plan was drafted, which highlighted the nine (9) key challenges for South Africa. The highest priority areas according to the plan are considered to be the creation of employment opportunities and to improve the quality of national education. In this regard, the plan sets out three (3) priority areas, namely, to raise employment by a faster growing economy, improve the quality of education, and to build the capability of the state in order to play a more developmental and transformative role. One of the key challenges identified was that the economy is unsustainably resource intensive and the acceleration and expansion of renewable energy was identified as a key intervention strategy to address this challenge.

The development of Steenbok Solar 1 and Steenbok Solar 2 will contribute to the intervention strategy as identified within the plan. The proposed grid connection solution will enable the evacuation of the generated electricity from the two solar energy facilities mentioned above.

National Infrastructure Plan of South Africa (2012)

In the year 2012 the South African Government adopted a National Infrastructure Plan (hereafter referred to as the Plan). The aim of this Plan is to transform the economic landscape, while strengthening the delivery of basic services and creating new employment opportunities. This Plan also supports the integration of African communities, and also sets out the challenges and enablers that our country needs in order to respond to the planning and development of infrastructure with regards to fostering economic growth (RSA, 2012). The Plan has developed eighteen (18) strategic integrated projects (further referred to as SIPs). These SIPs stretch over all nine (9) provinces, covering social and economic infrastructure, and projects that enhances development and growth. Of the eighteen (18), five (5) are geographically focused, three (3) spatial, three (3) energy, three (3) social infrastructure, two (2) knowledge, one (1) regional integration, and one (1) water and sanitation focused. The three (3) SIPs according to the Plan, which are energy focused and correlate to the proposed project are as follow:

- SIP 8: Green energy in support of the South African economy;
- SIP 9: Electricity generation to support socio-economic development; and
- SIP 10: Electricity transmission and distribution for all.

SIP 8 according to the Plan "*support sustainable green energy initiatives on a national scale through a diverse range of clean energy options as envisaged in the IRP 2010 and support bio-fuel production facilities*". The purpose of SIP 9 according to the Plan is to "*accelerate the construction of new*

electricity generation capacity in accordance with the IRP 2010 to meet the needs of the economy and address historical imbalances". SIP 9 should also monitor the implementation of major projects such as new power stations like Medupi, Kusile and Ingula. Lastly, SIP 10 aims to "*expand the transmission and distribution network to address historical imbalances, provide access to electricity for all and support economic development*" (RSA, 2012:20).

The development of Steenbok Solar 1 and Steenbok Solar 2 is in line with this plan as it proposes the generation of renewable energy from the solar resource which supports socio-economic development and will contribute to meeting the electricity demand of the country as set out in this plan. The proposed grid connection solution will enable the evacuation of the generated electricity from the two solar energy facilities mentioned above.

3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e., is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?	**YES**	NO	Please explain

The Mangaung Metropolitan Municipality IDP (2022/2027) considered and identified specific outcome indicators in terms of energy and electricity within the municipal area. One outcome identified by the IDP is improved energy sustainability, with the outcome indicator referring to renewable energy capacity available within the municipal jurisdiction as a percentage of Eskom supply capacity to the municipality. With the output indicators referring to the total renewable energy capacity available through IPPs and a percentage of municipal buildings utilising electricity from renewable electricity.

The IDP of the municipality within which Steenbok Solar 1 and Steenbok Solar 2 is located therefore supports the development of renewable energy generation and seeks to promote such developments as part of improved energy sustainability. The proposed grid connection solution will enable the evacuation of the generated electricity from the two solar energy facilities mentioned above. The development has been considered within the timeframe of the IDP.

4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g., development is a national priority, but within a specific local context it could be inappropriate.)	**YES**	NO	Please explain

Diversifying the sources of power in the country, the surety of supply will increase. The power demands of South Africa are ever increasing and by adding solar power this demand can be met, even exceeded without increasing pollution in relation to the use of fossil fuels. The project has the potential of "securing" economic activity by assisting in removing supply constraints if Eskom generation activities result in a supply shortfall. When supply is constrained, it represents a limitation to economic growth. When a supply reserve is available, it represents an opportunity for economic growth. The area is in need of a sustainable energy supply as indicated by the Mangaung Metropolitan Municipality IDP (2022/2027). The development of the proposed grid connection solution will enable the evacuation of the generated electricity from the Steenbok Solar 1 and Steenbok Solar 2 solar energy facilities to the national grid.

5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)	**YES**	NO	Please explain
Confirmation of services will be sought by the Applicant after from the municipality along with other permitting requirements following the Basic Assessment Process.			
6. Is this development provided for in the infrastructure planning of the municipality, and if not, what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)	**YES**	NO	Please explain
From a local perspective the need for renewable energy development within the municipal area has been specified in the Mangaung Metropolitan Municipality Draft Integrated Development Plan (IDP) 2022/2027 and the Mangaung Metropolitan Municipality District / Metro One Plan. The development of the proposed grid connection solution for the Steenbok Solar 1 and Steenbok Solar 2 solar energy facilities is required to enable evacuation of the generated electricity to the national grid.			
7. Is this project part of a national programme to address an issue of national concern or importance?	**YES**	NO	Please explain
The proposed Steenbok Solar 1 and Steenbok Solar 2 solar energy facilities are intended to form part of the Department of Mineral Resources and Energy's (DMREs) Renewable Energy Independent Power Producer Procurement (REIPPP) Programme or any other appropriate energy generation programmes / opportunities. The REIPPP Programme aims to secure 14 725 Megawatts (MW) of new generation capacity from renewable energy sources, while simultaneously diversifying South Africa's electricity mix. The development of the proposed grid connection solution is required to enable evacuation of the generated electricity to the national grid.			
8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the practices of the proposed land use on this site within its broader context.)	**YES**	NO	Please explain
The proposed grid connection corridor and switching substation assessment area ae considered to be the most feasible option for the location of this infrastructure, taking technical and environmental issues into consideration. The proposed grid connection corridor is approximately 1.5km long, and the proposed route of the power line is the shortest route from the proposed switching substations to the existing Eskom Harvard – Karee 132kV Wolf overhead power line.			
9. Is the development the best practicable environmental option for this land/site?	**YES**	NO	Please explain
The development of the proposed grid connection solution is required for the evacuation of generated electricity from the proposed Steenbok Solar 1 and Steenbok Solar 2 solar energy facilities. The development of one grid connection solution with specific grid connection infrastructure for two solar power plants provides an opportunity to consolidate linear infrastructure and the associated disturbance within the landscape and reduces the need for each			

of the solar energy facilities to develop its own alone-standing grid infrastructure to enable evacuation to the national grid. This is seen as the main need for the project.

10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	**YES**	NO	Please explain

The reduction in electricity consumed from the grid will not only result in a reduction in greenhouse gas emissions, but also the prevention of negative impacts associated with coal mining. For example, coal power requires high volumes of water, in areas of South Africa where water supply is already over-stretched and water availability is highly variable. Photovoltaic solar energy technology also does not produce sulphur emissions, ash or coal mining concerns associated with conventional coal fired electricity generation technologies resulting in a relatively low level of environmental impacts. It is a clean technology which contributes toward a better-quality environment for employees and nearby communities. The project activity is likely to have significant long-term, indirect positive social impacts that may extend to a regional and even national scale. The larger scale impacts are to be derived in the utilisation of solar power and the experience gained through the construction and operation of the power plant (including the grid connection infrastructure). In future, this experience can be employed at other similar solar installations in South Africa. The main benefit of the proposed development operating in the area is that local companies or contractors will be hired for the duration of the construction period. The operational phase will provide permanent job opportunities to the local communities from the surrounding area since security guards and general labourers will be required on a full-time basis, specifically for the Steenbok Solar 1 and Steenbok Solar 2 solar energy facilities that the Steenbok Grid Connection will cater for.

11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?	YES	**NO**	Please explain

Grid connection infrastructure, such as the Steenbok Grid Connection, is present within the local municipality for the transmission and distribution of electricity. The proposed infrastructure will not set a precedent for similar activities since it is regarded as essential infrastructure to the national grid.

12. Will any person's rights be negatively affected by the proposed activity/ies?	YES	**NO**	Please explain

Affected landowners have been consulted and will be informed about the availability of the DBAR.

13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?	YES	**NO**	Please explain

Surrounding landowners have been consulted as part of the Public Participation process. No comments have been received on the development of the grid connection infrastructure.

14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?	**YES**	NO	Please explain

It is expected that the development of the Steenbok Grid Connection will contribute to SIP 8 Green energy in support of the South African economy and SIP 9: Electricity generation to support socio-economic development.

15. What will the benefits be to society in general and to the local communities?	Please explain

The deployment of the facilities, and the required proposed grid connection infrastructure, will have a positive macro-economic impact by reducing South Africa's dependence on fossil fuel generated power and assisting the country in meeting its growing electricity demand. By diversifying the sources of power in the country, the surety of supply will increase. The power demands of South Africa are ever increasing and by adding solar power this demand can be met, even exceeded without increasing pollution in relation to the use of fossil fuels. The project has the potential of "securing" economic activity by assisting in removing supply constraints if Eskom generation activities result in a supply shortfall. When supply is constrained, it represents a limitation to economic growth. When a supply reserve is available, it represents an opportunity for economic growth.

The proposed project will contribute to local economic growth by supporting industry development in line with provincial and regional goals and ensuring advanced skills are drawn to the Free State Province. The project will likely encounter widespread support from government, civil society, and businesses, all of whom see potential opportunities for revenues, employment and business opportunities locally. The development of the photovoltaic solar energy facilities and the proposed grid connection infrastructure will in turn lead to growth in tax revenues for local municipalities and sales of carbon credits, resulting in increased foreign direct investment.

An increase in the number of solar facilities commissioned will eventually reduce the cost of the power generated through solar facilities. This will contribute to the country's objective of utilising more renewable energy and less fossil fuel-based power sources. It will assist in achieving the goal to generate 14 725 MW of electricity from renewable energy as per the Renewable Energy Independent Power Producer Procurement (REIPPP) Programme of the Department of Mineral Resources and Energy. The Government will soon be initiating the procurement of an additional 11 800 MW of renewable energy as stated during the 2021 State of the Nation Address.

The additional power supplied through solar energy, proposed to be evacuated to the national grid via the proposed grid connection infrastructure, will reduce the reliance on the combustion of fossil fuels to produce power. The South African electricity grid is predominantly coal-fired and therefore GHG emissions intensive (coal accounts for more than 92% of the fuel used in South Africa's electricity generation). The reduction of GHG emissions as a result of the project implementation will be achieved due to a reduction of CO2 emissions from combustion of fossil fuel at the existing grid-connected power plants and plants which would likely be built in the absence of the project activity.

The reduction in electricity consumed from the grid will not only result in a reduction in greenhouse gas emissions, but also the prevention of negative impacts associated with coal mining. For example, coal power requires high volumes of water, in areas of South Africa where water supply is already over-stretched and water availability is highly variable. Photovoltaic solar energy technology also does not produce the sulphur emissions, ash or coal mining concerns associated with conventional coal fired electricity generation technologies resulting in a relatively low level of environmental impacts. It is a clean technology which contributes toward a better-quality environment for

employees and nearby communities. Furthermore, the development of one grid connection solution with specific grid connection infrastructure for two solar energy facilities provides an opportunity to consolidate linear infrastructure and the associated disturbance within the landscape and reduces the need for each of the solar power plants to develop its own alone-standing grid infrastructure to enable evacuation to the national grid. This is seen as the main need for the project.

The project activity is likely to have significant long-term, indirect positive social impacts that may extend to a regional and even national scale. The larger scale impacts are to be derived in the utilisation of solar power and the experience gained through the construction and operation of the power plant (including the grid connection infrastructure). In future, this experience can be employed at other similar solar installations in South Africa.

The main benefit of the proposed development operating in the area is that local companies or contractors will be hired for the duration of the construction period. The operational phase will provide permanent job opportunities to the local communities from the surrounding area since security guards and general labourers will be required on a full-time basis.

The development of the Steenbok Grid Connection will enable the Steenbok Solar 1 and Steenbok Solar 2 solar energy facilities to evacuate the electricity generated to the grid. Therefore, the need for the grid connection infrastructure directly correlates to the need for solar energy facilities.

16. Any other need and desirability considerations related to the proposed activity?	Please explain

On a global scale, the project makes a contribution to greenhouse gas emission reduction and therefore contributes toward climate change mitigation.

The increase in the demand for services such as accommodation, transportation, security, general maintenance and catering will generate additional indirect socio-economic benefits for the local community members.

The proposed development in this specific area will generate alternative land use income through rental, which will have a positive impact on agriculture. It will provide the farming enterprise with increased cash flow

17. How does the project fit into the National Development Plan for 2030?	Please explain

The National Development Plan aims to “eliminate poverty and reduce inequality by 2030” (RSA, undated). In order to eliminate or reduce inequality, the economy of South Africa needs to grow faster in order to benefit all South Africans. In May 2010 a draft national development plan was drafted, which highlighted the nine (9) key challenges for South Africa. The highest priority areas according to the plan are considered to be the creation of employment opportunities and to improve the quality of national education. In this regard, the plan sets out three (3) priority areas, namely, to raise employment by a faster growing economy, improve the quality of education, and to build the capability of the state in order to play a more developmental and transformative role. One of the key challenges identified was that the economy is unsustainably resource intensive and the acceleration and expansion of renewable energy was identified as a key intervention strategy to

address this challenge.

The development of the grid connection solution and the Steenbok Solar 1 and Steenbok Solar 2 solar energy facilities will contribute to the intervention strategy as identified within the plan.

18. Please describe how the general objectives of Integrated Environmental Management asset out in section 23 of NEMA have been taken into account.

The objectives listed in Section 23 of NEMA have been considered and met through:

- Identifying, predicting and evaluating the potential positive and negative impacts on the environment associated with the proposed Steenbok Grid Connection as part of this Basic Assessment process.
- Undertaking of independent specialist studies to inform the impact assessment, including impacts on the biophysical, visual and heritage/cultural environments.
- Consideration has been given to the mitigation hierarchy which has led the Applicant to place the grid connection corridor in an area that primarily avoids the environmental sensitivities present within the affected property.
- A public participation process has been undertaken as per the requirements of the EIA Regulations in order to ensure all I&APs and stakeholders are afforded the opportunity to participate in decisions that affect their environment.
- The Environmental Management Programmes provide appropriate mitigation measures for the reduction of the negative impact significance to acceptable levels.

19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.

Principles of section 2 of NEMA have been considered throughout this Basic Assessment process in order to ensure that the proposed development will be appropriate from both an environmental and social perspective and that the proposed grid connection infrastructure will be sustainable without having a detrimental impact on the biophysical and social environments.

11. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to theapplication as contemplated in the EIA regulations, if applicable:

LEGISLATION	ADMINISTERING AUTHORITY	DATE	SUMMARY / IMPLICATIONS FOR PROPOSED DEVELOPMENT
The Constitution of South Africa (Act No. 108 of 1996)	National Government	1996	The Constitution is the supreme law of the Republic, and all law and conduct must be consistent with the Constitution. The Chapter on the Bill of Rights contains a number of provisions, which are relevant to securing the protection of the environment. Section 24 states that "everyone has the right to (a) an environment that is not harmful to their health or well-being and (b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that – (i) prevent pollution and ecological degradation; (ii) promote conservation; and (iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development. The Constitution, therefore, compels government to give effect to the people's environmental right and places government under a legal duty to act as a responsible custodian of the country's environment. It compels government to pass legislation and use other measures to protect the environment, to prevent pollution and ecological degradation, promote conservation and secure sustainable development. The development of Steenbok Solar 1 and Steenbok Solar 2, and the proposed Steenbok Grid Connection, and the aspects related thereto considers the creation of an environment which is not harmful or degraded through the implementation of appropriate mitigation measures.
The National Environmental Management Act (Act No. 107 of 1998)	National Department of Environmental Affairs (now known as the Department of Forestry, Fisheries and the Environment) and the Free State Province Department of	1998	NEMA provides for co-operative governance by establishing principles and procedures for decision-makers on matters affecting the environment. An important function of the Act is to serve as an enabling Act for the promulgation of legislation to effectively address integrated environmental management. Some of the principles in the Act are accountability; affordability; cradle to grave management; equity; integration; open information; polluter pays; subsidiary; waste avoidance and minimisation; co-operative

	Economic, Small Business Development, Tourism and Environmental Affairs (DESTEA)		governance; sustainable development; and environmental protection and justice. The mandate for EIA lays with the National Environmental Management Act (107 of 1998) and the EIA Regulations No. 324, 325, 326, and 327 promulgated in terms of Section 24 of NEMA. The EIA Regulations determine that an Environmental Authorisation is required for certain listed activities, which might have a detrimental effect on the environment. The BA process undertaken for the Steenbok Grid Connection, as pe Regulation 11, is in-line with the requirements of NEMA for the Application for Environmental Authorisation.
The National Energy Act (Act No. 34 of 2008)	Department of Mineral Resources and Energy	2008	One of the objectives of the National Energy Act was to promote diversity of supply of energy and its sources. In this regard, the preamble makes direct reference to renewable resources, including solar: "To ensure that diverse energy resources are available, in sustainable quantities, and at affordable prices, to the South African economy, in support of economic growth and poverty alleviation, taking into account environmental management requirements (…); to provide for (…) increased generation and consumption of renewable energies…" (Preamble). Considering that Steenbok Solar 1 and Steenbok Solar 2 are proposed to make use of PV technology and the solar resource for the generation of electricity, the proposed projects are in-line with the Act. The proposed Steenbok Grid Connection will cater for the two solar energy facilities and will enable the evacuation of the generated electricity to the national grid.
Electricity Regulation Act (Act No. 4 of 2006) (as amended)	National Energy Regulator of South Africa (NERSA)	2006	The Act provides a national regulatory framework for the electricity supply industry. The Act requires registration and licensing of anyone wanting to generate, transmit, reticulate, distribute, trade, or import and export electricity. One of the requirements for the REIPPPP is for the Proponent to hold an environmental authorisation for the proposed project. The REIPPPP is guided by the National Energy Act, one of the purposes of which is to promote sustainable development of renewable energy infrastructure.

The National Water Act (Act No. 36 of 1998)	Department of Water Affairs (now known as Department of Water and Sanitation)	1998	Sustainability and equity are identified as central guiding principles in the protection, use, development, conservation, management and control of water resources. The intention of the Act is to promote the equitable access to water and the sustainable use of water, redress past racial and gender discrimination, and facilitate economic and social development. The Act provides the rights of access to basic water supply and sanitation, and environmentally, it provides for the protection of aquatic and associated ecosystems, the reduction and prevention of pollution and degradation of water resources. As this Act is founded on the principle that National Government has overall responsibility for and authority over water resource management, including the equitable allocation and beneficial use of water in the public interest, a person can only be entitled to use water if the use is permissible under the Act. Chapter 4 of the Act lays the basis for regulating water use. The Ecological and Wetland Impact Assessment (Appendix D1) identified the presence of wetlands and a seasonal drainage channel. The relevant water use licensing (WULA or General Authorisation) will need to be applied for the two projects, as relevant. The National Water Act will be applicable in terms of obtaining the relevant license.
National Environmental Management: Biodiversity Act (10 of 2004) (NEMBA)	Department of Forestry, Fisheries and the Environment (DFFE)	2004	"The Act calls for the management of all biodiversity within South Africa. The 2007 Threatened or Protected Species Regulations (GN R150, as amended) provides protection through a permit system as well as through the identification of restricted activities. If required, the relevant permits will be applied for." The Act also provides for duty of care with regards to control of alien species.
National Environmental Management: Waste Act (Act No. 59 of	National Department Environmental Affairs (DEA) (now known as the Department of Forestry, Fisheries and the Environment)	2008	NEMWA has been developed as part of the law reform process enacted through the White Paper on Integrated Pollution and Waste Management and the National Waste Management Strategy (NWMS). The objectives of the Act relate to the provision of measures to protect health, well-being and the environment, to ensure that people are aware of the impact of waste on their health, well-being and the environment, to provide

2008)			for compliance with the measures, and to give effect to section 24 of the Constitution in order to secure an environment that is not harmful to health and well-being. Regulations No. R921 (of 2013) promulgated in terms of Section 19(1) of the National Environmental Management: Waste Act (59 of 2008) determines that no person may commence, undertake or conduct a waste management activity listed in this schedule unless a license is issued in respect of that activity. It is not envisaged that a waste permit will be required for the proposed development as no listed activities in terms of waste management are expected to be triggered.
National Environment Management: Air Quality Act (Act No. 39 of 2004)	National Department Environmental Affairs (DEA) (Now known as the Department of Forestry, Fisheries and the Environment)	2004	The object of this Act is to protect the environment by providing reasonable measures for the protection and enhancement of the quality of air in the Republic; the prevention of air pollution and ecological degradation; and securing ecologically sustainable development while promoting justifiable economic and social development. Regulations No. R248 (of 31 March 2010) promulgated in terms of Section 21(1)(a) of the National Environmental Management Act: Air Quality Act (39 of 2004) determine that an Atmospheric Emission License (AEL) is required for certain listed activities, which result in atmospheric emissions which have or may have a detrimental effect on the environment. The Regulation also sets out the minimum emission standards for the listed activities. It is not envisaged that an Atmospheric Emission License will be required for the proposed development.
The National Heritage Resources Act (Act No. 25 of 1999)	South African Heritage Resources Agency (SAHRA)	1999	The Act aims to introduce an integrated and interactive system for the management of heritage resources, to promote good governance at all levels, and empower civil society to nurture and conserve heritage resources so that they may be bequeathed to future generations and to lay down principles for governing heritage resources management throughout the Republic. It also aims to establish the South African Heritage Resources Agency together with its Council to co-ordinate and promote the management of heritage resources, to set norms and maintain essential national standards and to protect heritage resources, to provide for the protection and management of conservation-

				worthy places and areas by local authorities, and to provide for matters connected therewith. The Act protects and manages certain categories of heritage resources in South Africa. For the purposes of the Heritage Resources Act, a "heritage resource" includes any place or object of cultural significance. In this regard the Act makes provision for a person undertaking an activity listed in Section 28 of the Act to notify the resources authority. The resources authority may request that a heritage impact assessment be conducted if there is reason to believe that heritage resources will be affected. A case file has been opened on SAHRIS for the Steenbok Grid Connection and the relevant documents have been submitted for their comments and approval. The Heritage Impact Assessment undertaken for the project is included as Appendix D5. The Heritage Impact Assessment considers and assesses the impact of the development on archaeology, palaeontology and cultural heritage.
Conservation of Agricultural Resources Act (Act No. 85 of 1983)	National and Provincial Government		1983	The objective of the Act is to provide control over the utilisation of the natural agricultural resources of the Republic in order to promote the conservation of the soil, the water sources and the vegetation and the combating of weeds and invader plants; and for matters connected therewith. Consent will be required from the Department of Agriculture, Forestry and Fisheries (now known as the Department of Forestry, Fisheries and the Environment) in order to confirm that the proposed developments are not located on high potential agricultural land and to approve the long-term lease agreement. A Soils and Agricultural Compliance statement has been undertaken for the Steenbok Grid Connection and is included as Appendix D4.
Subdivision of Agricultural	Department of Agriculture, Land Reform and Rural Development		1970	The purpose of this Act is to control the subdivision of agricultural land and, in connection therewith, the use of agricultural land. Applications are lodged with Department of

Land Act (70 of 1970) (SALA)	(DALRRD)		Agriculture, Land Reform and Rural Development (DALRRD) to allow for the subdivision of agricultural land, as well as other prohibited actions in terms of the Act. In order to limit the potential threat that solar energy development could pose to agricultural production and to the agricultural economy, DALRRD created the 10% rule to inform the decision of whether a solar energy development on agricultural land should be approved or not. This rule states that a solar energy facility may not utilise more than 10% of the surface area of a farm. Its aim was to ensure that each farm unit remained predominantly agricultural rather than certain farms abandoning agricultural production in favour of renewable energy generation.
Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013) (SPLUMA);	Provincial Authority	2013	This suite of legislation provides the framework for spatial planning and regulates the use and development of land.
The National Forests Act, 1998 (Act 84 of 1998)	Department of Environmental Affairs (now known as the Department of Forestry, Fisheries and the Environment)	1998	The purposes of this Act are to: (a) promote the sustainable management and development of forests for the benefit of all; (b) create the conditions necessary to restructure forestry in State forests; (c) provide special measures for the protection of certain forests and trees: (d) promote the sustainable use of forests for environmental, economic, educational, recreational, cultural, health and spiritual purposes. (e) promote community forestry; (f) promote greater participation in all aspects of forestry and the forest products industry by persons disadvantaged by unfair discrimination. Section 12(1) read with s15(1) of the NFA stated that the Minister may declare a particular tree, group of trees, woodland; or trees belonging to a particular species, to be a protected tree, group of trees, woodland or species. A list of protected tree species was gazetted in GN 635 of 6 December 2019. The effect of the declaration is that no person

			may (a) cut, disturb, damage or destroy; or (b) possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, or any forest product derived from a protected tree, except under a license granted by the Minister; or in terms of an exemption published by the Minister in the Gazette. An Ecological Impact Assessment has been undertaken for the Steenbok Grid Connection and is included in Appendix D1.
National Road Traffic Act (93 of 1996) (NRTA)	Department Roads and Public Works	1996	Certain vehicles and loads cannot be moved on public roads without exceeding the limitations in terms of the dimensions and/or mass as prescribed in the Regulations of the NRTA. Due to the large size of some of the facility's component, they will need to be transported via "abnormal loads". The grid connection corridor is directly adjacent to the R700 therefore providing easy access from national roads. Some roads have been identified for upgrade to ensure that the heavy vehicles can reach the site.
Disaster Management Act (57 of 2002)	Department of Co-Operative Governance	2002	On 27 February 2023 (Government Notice 3089) regulations were issues in terms of Section 27(2) of the Disaster Management Act. These regulations have been gazetted to address the current energy crisis experienced in the country. The regulations provide measures to address effects of disaster and prevent escalation of severe electricity supply constraints. Furthermore, the regulations call for implementing measures to remove impediments to the development or construction of new generation capacity and enabling effective co-ordination between state departments, Eskom and other relevant entities and institutions to ensure security of electricity infrastructure. The development and operation of Steenbok Solar 1 and Steenbok Solar 2, as well as the proposed Steenbok Grid Connection will contribute (albeit to a limited extent) to the relief of the current energy crisis.

POLICY	ADMINISTERING AUTHORITY	DATE	SUMMARY / IMPLICATIONS FOR PROPOSED DEVELOPMENT
The White Paper on the Energy Policy of the Republic of South Africa	Department of Mineral Resources and Energy	1998	The White Paper on the Energy Policy of the Republic of South Africa establishes the international and national policy context for the energy sector, and identifies the following energy policy objectives: • Increasing access to affordable energy services • Improving energy governance • Stimulating economic development • Managing energy-related environmental and health impacts • Securing supply through diversity • Energy policy priorities The White Paper sets out the advantages of renewable energy and states that Government believes that renewables can in many cases provide the least cost energy service, particularly when social and environmental costs are included. The White Paper acknowledges that South Africa has neglected the development and implementation of renewable energy applications, despite the fact that the country's renewable energy resource base is extensive, and many appropriate applications exist. The White Paper notes that renewable energy applications have specific characteristics that need to be considered. Advantages include: • Minimal environmental impacts in operation in comparison with traditional supply technologies; and • Generally lower running costs, and high labour intensities. Disadvantages include: • Higher capital costs in some cases; • Lower energy densities; and • Lower levels of availability, depending on specific conditions, especially with sun and wind-based systems. Steenbok Solar 1 and Steenbok Solar 2 are in line with this policy as it proposes the generation of

			renewable energy from the solar resource. The Steenbok Grid Connection will enable the evacuation of the generated electricity to the national grid.
The White Paper on Renewable Energy	Department of Mineral Resources and Energy	2003	This White Paper on Renewable Energy supplements the *White Paper on Energy Policy*, which recognises that the medium and long-term potential of renewable energy is significant. This Paper sets out Government's vision, policy principles, strategic goals and objectives for promoting and implementing renewable energy in South Africa. The White Paper notes that while South Africa is well-endowed with renewable energy resources that have the potential to become sustainable alternatives to fossil fuels, these have thus far remained largely untapped. Government's long-term goal is the establishment of a renewable energy industry producing modern energy carriers that will offer in future years a sustainable, fully non-subsidised alternative to fossil fuels. The medium-term (10-year) target set in the White Paper is: *10 000 GWh (0.8 Mtoe) renewable energy contribution to final energy consumption by 2013, to be produced mainly from biomass, wind, solar and small-scale hydro. The renewable energy is to be utilised for power generation and non-electric technologies such as solar water heating and bio-fuels. This is approximately 4% (1667 MW) of the projected electricity demand for 2013 (41539 MW)* (Executive Summary, ix). Steenbok Solar 1 and Steenbok Solar 2 are in line with this paper as it proposes the generation of renewable energy from the solar resource. The Steenbok Grid Connection will enable the evacuation of the generated electricity to the national grid.
Integrated Resource Plan (IRP) for South Africa	Department of Mineral Resources and Energy	2010-2030	The Integrated Resource Plan for Electricity for South Africa of 2010–2030 (further referred to as the IRP) is a "living plan" which is expected to be revised and updated continuously as necessary due to changing circumstances. According to the Summary of the plan the current IRP for South Africa, which was originally initiated by the Department of Energy (DoE) in June 2010 (the Department is now known as Department of Mineral Resources and Energy), led to the Revised Balanced Scenarios (RBS) for the period 2010–2030. "*This scenario was derived based on the cost-optimal solution for new build options (considering the direct costs of new build power plants), which was then "balanced" in accordance with qualitative measures such as local job creation".* In addition to all existing and committed power plants, the RBS included 11,4 GW of

renewables. In 2010 several changes were made to the IRP model. The main changes in the IRP were the disaggregation of renewable energy technologies to explicitly display solar photovoltaic (PV), concentrated solar power (CSP), and wind options (RSA, 2011a).

The summary of the IRP further explains that traditional cost-optimal scenarios were developed based on the previously mentioned changes in the IRP. This resulted in the Policy-Adjusted IRP, which stated that: "*The installation of renewables (solar PV, CSP and wind) have been brought forward in order to accelerate a local industry*; *To account for the uncertainties associated with the costs of renewables and fuels, a nuclear fleet of 9,6 GW is included in the IRP; The emission constraint of the RBS (275 million tons of carbon dioxide per year after 2024) is maintained; and Energy efficiency demand-side management (EEDSM) measures are maintained at the level of the RBS*" (RSA, 2011a:6).

"The Policy-Adjusted IRP includes the same amount of coal and nuclear new builds as the RBS, while reflecting recent developments with respect to prices for renewables. In addition to all existing and committed power plants (including 10 GW committed coal), the plan includes 9,6 GW of nuclear; 6,3 GW of coal; 17,8 GW of renewables; and 8,9 GW of other generation sources" (RSA, 2011a:6).

The IRP highlights the commitments before the next IRP. The commitments pertaining to the purpose of the proposed project in renewable energy is: "*Solar PV programme 2012-2015: In order to facilitate the connection of the first solar PV units to the grid in 2012 a firm commitment to this capacity is necessary. Furthermore, to provide the security of investment to ramp up a sustainable local industry cluster, the first four years from 2012 to 2015 require firm commitment."*

"*Solar PV 2016 to 2019: As with wind, grid upgrades might become necessary for the second round of solar PV installations from 2016 to 2019, depending on their location. To trigger the associated tasks in a timely manner, a firm commitment to these capacities is necessary in the next round of the IRP at the latest. By then, the assumed cost decreases for solar PV will be confirmed*" (IRP, 2011a:17).

In conclusion the IRP recommends that an accelerated roll-out in renewable energy options should be

allowed with regards to the benefits of the localization in renewable energy technologies (RSA, 2011a). It is however important to take note that since the release of the IRP in 2011 there has been a number of developments in the energy sector of South Africa. Therefore, the IRP was updated and was open for comments until March of 2017. The new IRP of 2019 was formally published in October 2019. For the revision scenario, analysis was conducted. The results revealed that for the period ending 2030 that: *"The committed Renewable Energy Independent Power Producers Programme, including the 27 signed projects and Eskom capacity rollout ending with the last unit of Kusile in 2022, will provide more than sufficient capacity to cover the projected demand and decommissioning of plants up to approximately 2025"; "Imposing annual build limits on renewable energy will not affect the total cumulative capacity and the energy mix for the period up to 2030*"; and *"the scenario without renewable energy annual build limits provides the least-cost option by 2030*" (RSA, 2018:34).

Lastly, the draft IRP of 2018 also included the scenario analysis for the period post 2030. Here it was observed that: "*Imposing annual build limits on renewable energy will restrict the cumulative renewable installed capacity and the energy mix for this period; adopting no annual build limits on renewables or imposing a more stringent strategy to reduce greenhouse gas emissions implies that no new coal power plants will be built in the future unless affordable cleaner forms of coal-to-power are available; and the scenario without renewable energy annual build limits provides the least-cost option by 2050*" (RSA, 2018:34–35).

In the final IRP of 2019 key considerations were taken into account together with required actions to be taken for the IRP of 2019 to be credible. In terms of renewable energy technologies like solar and wind, the IRP stated that *"The application of renewable build limits 'smoothes out' the capacity allocations for wind and solar PV which provides a constant pipeline of projects to investment; this addresses investor confidence*". The decision stated against this key consideration is to *"retain the current annual build limits on renewables (wind and PV) pending the finalization of a just transition plan"* (RSA, 2019:46). Hereby the IRP also recognises renewable technologies' potential to diversify the electricity mix, create new industries and job opportunities and localize across the value chain (RSA, 2019:13).

			Steenbok Solar 1 and Steenbok Solar 2 are in line with this plan as it proposes the generation of renewable energy from the solar resource and will contribute to the energy mix of the country as set out in this plan. The Steenbok Grid Connection will enable the evacuation of the generated electricity to the national grid.
National Development Plan of 2030	The Presidency: National Planning Commission	-	The National Development Plan aims to "eliminate poverty and reduce inequality by 2030" (RSA, undated). In order to eliminate or reduce inequality, the economy of South Africa needs to grow faster in order to benefit all South Africans. In May 2010 a draft national development plan was drafted, which highlighted the nine (9) key challenges for South Africa. The highest priority areas according to the plan are considered to be the creation of employment opportunities and to improve the quality of national education. In this regard, the plan sets out three (3) priority areas, namely, to raise employment by a faster growing economy, improve the quality of education, and to build the capability of the state in order to play a more developmental and transformative role. One of the key challenges identified was that the economy is unsustainably resource intensive and the acceleration and expansion of renewable energy was identified as a key intervention strategy to address this challenge. The development of Steenbok Solar 1 and Steenbok Solar 2 will contribute to the intervention strategy as identified within the plan. The Steenbok Grid Connection will enable the evacuation of the generated electricity to the national grid.
National Infrastructure Plan of South Africa	Presidential Infrastructure Coordinating Commission	2012	In the year 2012 the South African Government adopted a National Infrastructure Plan (hereafter referred to as the Plan). The aim of this Plan is to transform the economic landscape, while strengthening the delivery of basic services and creating new employment opportunities. This Plan also supports the integration of African communities, and also sets out the challenges and enablers that our country needs in order to respond to the planning and development of infrastructure with regards to fostering economic growth (RSA, 2012). The Plan has developed eighteen (18) strategic integrated projects (further referred to as SIPs). These SIPs stretch over all nine (9) provinces, covering social and economic infrastructure, and projects that enhances development and growth. Of the eighteen (18), five (5) are geographically focused, three (3) spatial, three (3) energy, three (3) social infrastructure, two (2) knowledge, one (1) regional integration, and one (1) water and sanitation focussed. The three (3) SIPs according to the Plan, which are energy focused and correlate to the proposed project are as follow:

		- SIP 8: Green energy in support of the South African economy; - SIP 9: Electricity generation to support socio-economic development; and - SIP 10: Electricity transmission and distribution for all. SIP 8 according to the Plan "*support sustainable green energy initiatives on a national scale through a diverse range of clean energy options as envisaged in the IRP 2010 and support bio-fuel production facilities*". The purpose of SIP 9 according to the Plan is to "*accelerate the construction of new electricity generation capacity in accordance with the IRP 2010 to meet the needs of the economy and address historical imbalances*". SIP 9 should also monitor the implementation of major projects such as new power stations like Medupi, Kusile and Ingula. Lastly, SIP 10 aims to "*expand the transmission and distribution network to address historical imbalances, provide access to electricity for all and support economic development*" (RSA, 2012:20). The development of Steenbok Solar 1 and Steenbok Solar 2 is in line with this plan as it proposes the generation of renewable energy from the solar resource which supports socio-economic development and will contribute to meeting the electricity demand of the country as set out in this plan. The Steenbok Grid Connection will enable the evacuation of the generated electricity to the national grid.
New Growth Path Framework	Department of - Economic Development	The New Growth Path was developed after 16 years of South Africa's democracy, to respond to emerging opportunities and risks while building on policies. This framework provides a dynamic vision on how to collectively achieve a more developed, equitable and democratic society and economy. This framework mainly reflects the commitment of the South African Government to create employment opportunities for its people in all economic policies (RSA, 2011b). This framework sets out the markers for job creation and growth and also identify where there are viable changes in the character and structure of production, in order to create a more inclusive, greener economy in the long-term. It is stated in the framework that in order for this framework to reach its objectives, the Government is committed to: - Identify the possible areas of employment creation; and

			- Develop a policy to facilitate employment creation especially with regards to social equity, sustainable employment and growth in the creation of employment activities (RSA, 2011b). This framework also identifies investments in five key areas, one of which is energy. This framework also states that the green economy is a priority area, which includes the construction of and investment in renewable energy technologies like solar (RSA, 2011b). In this regard it will also assist creating employment opportunities over the medium- and long-term. Considering that the construction of and investment in renewable energy is a key area identified within the framework, the development of Steenbok Solar 1 and Steenbok Solar 2 are considered to be in-line with the framework. The Steenbok Grid Connection will enable the evacuation of the generated electricity to the national grid.
Climate Change Bill	National Department of Environmental Affairs (now known as the Department of Forestry, Fisheries and the Environment)	2018	On 08 June 2018 the Minister of Environmental Affairs published the Climate Change Bill ("the Bill") for public comment. The Bill provides a framework for climate change regulation in South Africa aimed at governing South Africa's sustainable transition to a climate resilient, low carbon economy and society. The Bill provides a procedural outline that will be developed through the creation of frameworks and plans. The following objectives are set within the Bill: • Provide for the coordinated and integrated response to climate change and its impacts by all spheres of government in accordance with the principles of cooperative governance; • Provide for the effective management of inevitable climate change impacts through enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change, with a view to building social, economic, and environmental resilience and an adequate national adaptation response in the context of the global climate change response; • Make a fair contribution to the global effort to stabilise greenhouse gas concentrations in the atmosphere at a level that avoids dangerous anthropogenic interference with the climate system within a timeframe and in a manner that enables economic, employment, social and environmental development to proceed in a sustainable manner. Steenbok Solar 1 and Steenbok Solar 2 comprises the development of two renewable energy generation

			facilities and would not result in the generation or release of emissions during its operation. The Steenbok Grid Connection will enable the evacuation of the generated electricity to the national grid.
Climate Change Bill	National Department of Forestry, Fisheries and the Environment	2021	The Department of Forestry, Fisheries and the Environment has published a new Climate Change Bill for public comment. The bill notes that climate change represents an urgent threat to human societies and the planet, and requires an effective, progressive and incremental response from both government and citizens. It recognises that South Africa has a global responsibility to reduce greenhouse gasses and that the anticipated impacts arising as a result of climate change have the potential to undermine achieving of the country's developmental goals. The main objective of the bill is to enable the development of an effective climate change response and the long-term, just transition to a climate-resilient and lower-carbon economy and society, and to provide for matters connected therewith. Steenbok Solar 1 and Steenbok Solar 2 comprises the development of two renewable energy generation facilities and would not result in the generation or release of emissions during its operation. The Steenbok Grid Connection will enable the evacuation of the generated electricity to the national grid.
Strategic Integrated Projects (SIPs)	The Presidential Infrastructure Coordinating Committee	2010 - 2030	The Presidential Infrastructure Coordinating Committee (PICC) is integrating and phasing investment plans across 18 Strategic Infrastructure Projects (SIPs) which have five core functions: to unlock opportunity, transform the economic landscape, create new jobs, strengthen the delivery of basic services and support the integration of African economies. A balanced approach is being fostered through greening of the economy, boosting energy security, promoting integrated municipal infrastructure investment, facilitating integrated urban development, accelerating skills development, investing in rural development and enabling regional integration. SIP 8 and 9 of the energy SIPs supports the development of the solar energy facility: • SIP 8: Green energy in support of the South African economy: Support sustainable green energy initiatives on a national scale through a diverse range of clean energy options as envisaged in the Integrated Resource Plan (IRP 2010 – 2030) and supports bio-fuel production facilities.

			• SIP 9: Electricity generation to support socio-economic development: The proposed Steenbok Solar 1 and Steenbok Solar 2 facilities are potential SIP 9 Projects as electricity will be generated and social and economic upliftment, development and growth will take place within the surrounding communities. It would become SIP 9 projects if selected as Preferred Bidder projects by the Department of Mineral Resources and Energy. SIP 9 supports the acceleration of the construction of new electricity generation capacity in accordance with the IRP 2010 to meet the needs of the economy and address historical imbalances. Steenbok Solar 1 and Steenbok Solar 2 could be registered as SIP projects once selected as preferred bidder under the REIPPP Programme. The projects would then contribute to the above-mentioned SIPs. The Steenbok Grid Connection will enable the evacuation of the generated electricity to the national grid.
Strategic Environmental Assessment (SEA) for wind and solar PV Energy in South Africa	National Department of Environmental Affairs (now known as the Department of Forestry, Fisheries and the Environment)	2014	The then Department of Environmental Affairs (DEA) has committed to contribute to the implementation of the National Development Plan and National Infrastructure Plan by undertaking Strategic Environmental Assessments (SEAs) to identify adaptive processes that integrate the regulatory environmental requirements for Strategic Integrated Projects (SIPs) while safeguarding the environment. The wind and solar photovoltaic (PV) SEA were accordingly commissioned by DEA in support of SIP 8, which aims to facilitate the implementation of sustainable green energy initiatives. This SEA identifies areas where large scale wind and solar PV energy facilities can be developed in terms of SIP 8 and in a manner that limits significant negative impacts on the environment, while yielding the highest possible socio-economic benefits to the country. These areas are referred to as Renewable Energy Development Zones (REDZs). The REDZs also provide priority areas for investment into the electricity grid. Currently one of the greatest challenges to renewable energy development in South Africa is the saturation of existing grid infrastructure and the difficulties in expanding the grid. Proactive investment in grid infrastructure is the likely to be the most important factor determining the success of REDZs. Although it is intended for the SEA to facilitate proactive grid investment in REDZs, such investment should not be limited to these areas. Suitable wind and solar PV development should still be promoted across the country and any proposed development must be evaluated on its own merit.

			Steenbok Solar 1 and Steenbok Solar 2 are not located within a REDZ, but the developments will contribute to the expansion of renewable energy facilities and infrastructure within the country, and provide the positive opportunities associated with it. The Steenbok Grid Connection will enable the evacuation of the generated electricity to the national grid.
Free State Provincial Spatial Development Framework (PSDF)	Free State Provincial Government	2012	The Free State PSDF is a policy document that promotes a 'developmental state' in accordance with national and provincial legislation and directives. It aligns with the Free State Provincial Growth and Development Strategy which has committed the Free State to 'building a prosperous, sustainable and growing provincial economy which reduces poverty and improves social development'. The PSDF includes comprehensive plans and strategies that collectively indicate which type of land-use should be promoted in the Province, where such land-use should take place, and how it should be implemented and managed. In broad terms, the PSDF: • Indicates the spatial implications of the core development objectives of the Free State Provincial Growth and Development Strategy. • Serves as a spatial plan that facilitates local economic development. • Lays down strategies, proposals and guidelines as it relates to sustainable development. • Facilitates cross-boundary co-operation between municipalities, adjoining provinces, and bordering countries. • Serves as a manual for integration and standardisation of the planning frameworks of all spheres of government in the Province. The Free State Provincial Growth and Development Strategy states that sustainable economic development is the only effective means by which the most significant challenge of the Free State, namely poverty, can be addressed is. The PSDF gives practical effect to sustainable development, which is defined as development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. The PSDF is prepared in accordance with bioregional planning principles that were adapted to suit the site-

			specific requirements of the Free State. It incorporates and complies with the relevant protocols, conventions, agreements, legislation and policy at all applicable levels of planning, ranging from the international to the local. The PSDF builds upon achievements and learns from mistakes of the past, reacts to the challenges of our time, incorporates the traditional knowledge of the people of the Free State, and builds upon international best-practice and technology. The development of Steenbok Solar 1 and Steenbok Solar 2 is in-line with the framework based on the contributions and opportunities presented by development of this nature. The Steenbok Grid Connection will enable the evacuation of the generated electricity to the national grid.
Mangaung Metropolitan Municipality Draft Integrated Development Plan (IDP) 2022/2027	Mangaung Metropolitan Municipality	2022	The Mangaung Metropolitan Municipality identified five strategic development objectives for the municipal area as part of the 2022/2027 Draft Integrated Development Plan (IDP). The objectives include spatial transformation, economic growth, service delivery improvement, financial health improvement and organisational strength. With these objectives the Municipality also identifies strategic risks to enable early warning in terms of the city's planning, implementation and monitoring to achieve the objectives. These risks include, but are not limited to climate change, pollution, drought, flooding, loss of natural resources, high unemployment rates, financial instability, financial viability, technological failure and skills shortage. Further to the above, the Municipality has considered and identified specific outcome indicators in terms of energy and electricity within the municipal area. One outcome identified by the IDP is improved energy sustainability, with the outcome indicator referring to renewable energy capacity available within the municipal jurisdiction as a percentage of Eskom supply capacity to the municipality. With the output indicators referring to the total renewable energy capacity available through IPPs and a percentage of municipal buildings utilising electricity from renewable electricity. The IDP of the municipal area within which Steenbok Solar 1 and Steenbok Solar 2 is located therefore supports the development of renewable energy generation and seeks to promote such developments as

			part of improved energy sustainability. The Steenbok Grid Connection will enable the evacuation of the generated electricity to the national grid.
Mangaung Metropolitan Municipality District / Metro One Plan	Mangaung Metropolitan Municipality	2022	Six transformational goals are outline in the plan which includes spatial restructuring and environmental sustainability. In terms of environmental sustainability, the strategic outcome is to facilitate the protection and sustainable management of the natural environmental resources, with the strategic action being to contain urban development and manage rural areas through appropriate application of Spatial Planning Categories. Furthermore, the plan indicates the need to implement climate change adaptation and mitigation measures, which considered the energy sector. The mitigation measures /intervention projects proposed includes the development of renewable energy, as well as the implementation of measures for energy efficiency. The details of the interventions include the building of solar parks that will feed electricity to the National Grid, use of Solar in residential areas and industry and the installation of solar water heaters. The plan for the municipal area therefore identifies the need for renewable energy developments, specifically that of solar energy facilities, such as Steenbok Solar 1 and Steenbok Solar 2. The Steenbok Grid Connection will enable the evacuation of the generated electricity to the national grid.

12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

Will the activity produce solid construction waste during the construction/initiationphase?	**YES**	NO
If YES, what estimated quantity will be produced per month?	Unknown	

How will the construction solid waste be disposed of (describe)?

All solid waste collected will be disposed of at registered/licensed landfill sites. Skip waste containers and waste collection bins will be maintained on site and the contractor will arrange for them to be collected regularly and transported to the landfill site. Records of all disposal will be kept as proof.

Under no circumstances will waste be burned or buried on site.

Hazardous materials and contaminants will be stored carefully to prevent contamination until being disposed of at a licensed landfill site.

Where will the construction solid waste be disposed of (describe)?

All solid waste will be disposed of at licensed/registered landfill sites. Where a registered waste site is not available close to the construction site, the Contractor shall provide a method statement with regard to waste management.

Will the activity produce solid waste during its operational phase?	YES	**NO**
If YES, what estimated quantity will be produced per month?	N/A	

How will the solid waste be disposed of (describe)?

N/A

If the solid waste will be disposed of into a municipal waste stream, indicate which registered landfillsite will be used.

N/A

Where will the solid waste be disposed of if it does not feed into a municipal waste stream (describe)?

N/A

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the NEM:WA?	YES	**NO**

If YES, inform the competent authority and request a change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

Is the activity that is being applied for a solid waste handling or treatment facility?	YES	**NO**

If YES, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA. An application for a waste permit in termsof the NEM:WA must also be submitted with this application.

b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?	YES	**NO**
If YES, what estimated quantity will be produced per month?	N/A	
Will the activity produce any effluent that will be treated and/or disposed of on site?	YES	**NO**

If YES, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Will the activity produce effluent that will be treated and/or disposed of at another facility?	YES	**NO**

If YES, provide the particulars of the facility:

Facility name:
Contactperson:
Postal address:
Postal code:
Telephone:
E-mail:

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

Wastewater will not be generated by the grid connection infrastructure, and therefore no measures are applicable.

c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other that exhaust emissions and dust associated with construction phase activities?	YES	**NO**
If YES, is it controlled by any legislation of any sphere of government?	N/A	

If YES, the applicant must consult with the competent authority to determine whether it is necessary tochange to an application for scoping and EIA.

If NO, describe the emissions in terms of type and concentration:

Other than exhaust emissions and dust associated with construction phase activities, the activity will not release emissions into the atmosphere.

d) Waste permit

Will any aspect of the activity produce waste that will require a waste permit in termsof the NEM:WA?	YES	**NO**

If YES, please submit evidence that an application for a waste permit has been submitted to thecompetent authority

e) Generation of noise

Will the activity generate noise?	**YES**	~~NO~~
If YES, is it controlled by any legislation of any sphere of government?	~~YES~~	**NO**

Describe the noise in terms of type and level:

The construction phase will create limited and temporary noise pollution and disturb the receiving community but can be mitigated with the limitation construction hours to cause minimal disturbance to the surrounding residents and farming community.

During the operational phase the no noise is expected to be generated. However, some maintenance activities may create limited noise, where such activities are required to be undertaken.

13. WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es):

Municipal	Water board	Groundwater	River, stream, dam or lake	**Other**	The activity will not use water

As the Steenbok Grid Connection will cater for the proposed Steenbok Solar 1 and Steenbok Solar 2 solar energy facilities, water will be obtained from the water resources of the facilities. Water for the proposed solar energy facilities will most likely be obtained from ground water resources or alternatively collected with water trucks from an authorized water service provider and stored on site.

If water is to be extracted from groundwater, river, stream, dam, lake or any othernatural feature, please indicate the volume that will be extracted per month:	**N/A**	
Does the activity require a water use authorisation (general authorisation or wateruse license) from the Department of Water Affairs?	**YES**	NO
If YES, please provide proof that the application has been submitted to the Department of WaterAffairs.		

A water use license may be required in terms of the National Water Act should construction need to take place inside / near any of the wetlands. However, the Applicant has indicated that all infrastructure will be placed within the grid connection corridor and switching substation assessment area in such a manner as to avoid triggering the requirements of a water use licensing process.

14. ENERGY EFFICIENCY

Describe the design measures, if any, which have been taken to ensure that the activity is energy efficient:

The activity in itself is considered to be energy efficient as the Steenbok Solar 1 and Steenbok Solar 2 solar energy facilities, that the proposed Steenbok Grid Connection will cater for, will use solar energy as a resource for the generation of electricity. Furthermore, energy saving light bulbs will be utilised during the construction and operation phases to further increase the energy efficiency of the development.

Describe how alternative energy sources have been taken into account or been built into the design ofthe activity, if any:

The activity in itself provides the opportunity and enables the evacuation of an alternative energy source to the national grid as the solar energy facilities will use solar energy as a resource for the generation of electricity which will be evacuated through the operation of the Steenbok Grid Connection.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

1. For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section B and indicate the area, which is covered by each copy No. on the Site Plan.

Section B Copy No. (e.g. A): A

2. Paragraphs 1 – 6 below must be completed for each alternative.

3. Has a specialist been consulted to assist with the completion of this section? **YES** NO

If YES, please complete the form entitled "Details of specialist and declaration of interest" for each specialist thus appointed and attach it in Appendix I. All specialist reports must be contained in Appendix D.

Property description/practices address:

Province	Free State Province
District Municipality	Mangaung Metropolitan Municipality
Local Municipality	Not Applicable
Ward Number(s)	Ward 44
Farm name and number	Remaining Extent of Farm Floradale No. 15
SG Code	Remaining Extent of the Farm Floradale No. 15 - F00300000000001500000

Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application including the same information as indicated above.

Current land-use zoning as per local municipality IDP/records:

Agriculture

In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions eachuse pertains to, to this application.

Is a change of land-use or a consent use application required? **YES** NO

1. GRADIENT OF THE SITE Indicate the

General gradient of the site.**Alternative S1:**

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

Alternative S2 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

Alternative S3 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site:

2.1 Ridgeline		2.4 Closed valley		2.7 Undulating plain / low hills			
2.2 Plateau	X	2.5 Open valley		2.8 Dune			
2.3 Side slope of hill/mountain		2.6 Plain	X	2.9 Seafront			
2.10 At sea							

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following?

	Alternative S1:		Alternative S2 (if any):		Alternative S3(if any):	
Shallow water table (less than 1.5m deep)	YES	**NO**	YES	NO	YES	NO
Dolomite, sinkhole or doline areas	YES	**NO**	YES	NO	YES	NO
Seasonally wet soils (often close to water bodies)	**YES**	NO	YES	NO	YES	NO
Unstable rocky slopes or steep slopes with loose soil	YES	**NO**	YES	NO	YES	NO
Dispersive soils (soils that dissolve in water) Soils with high clay content (clay fraction more than 40%)	YES	**NO**	YES	NO	YES	NO
Any other unstable soil or geological feature	YES	**NO**	YES	NO	YES	NO
An area sensitive to erosion	YES	**NO**	YES	NO	YES	NO

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted.

4. GROUNDCOVER

Indicate the types of groundcover present on the site. The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Natural veld - good condition[E]	**Natural veld with scattered aliens[E]**	Natural veld with heavy alien infestation[E]	Veld dominated by alien species[E]	Gardens
Sport field	Cultivated land	Paved surface	Building or other structure	Bare soil

If any of the boxes marked with an "[E] "is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn't have the necessary expertise.

5. SURFACE WATER

Indicate the surface water present on and or adjacent to the site and alternative sites?

Alternative S1:

Perennial River	YES	**NO**	UNSURE
Non-Perennial River	YES	**NO**	UNSURE
Permanent Wetland	**YES**	NO	UNSURE
Seasonal Wetland	**YES**	**NO**	UNSURE
Artificial Wetland	YES	**NO**	UNSURE
Estuarine / Lagoonal wetland	YES	**NO**	UNSURE

If any of the boxes marked YES or UNSURE is ticked, please provide a description of the relevant watercourse.

Wetland

One wetland is located in the Steenbok Grid Connection. This wetland stretches from a concrete farm reservoir in the center of the site in a south-western direction towards the R700 road. The wetland has in some areas permanent standing water sections with terrestrial spots in-between and various small channels along the edge. The soil wetness indicator, topography and vegetation were used to determine the edge of the system.

The stream channel and wetland have experienced little loss of habitat and biota over the years with the only disturbances influencing the system being the grazing and trampling of sections of the wetland. Overall, it has remained largely intact in terms of species composition and ecosystem

functioning.

Although a mostly natural and undisturbed ecosystem, the wetland does not have a high level of ecosystem services with the highest values obtained for erosion control and nitrate removal. The ecosystem services provided by this wetland are regarded as moderate.

The vegetation of the wetland is typical of a seasonally-permanently wet wetland and has a low-moderate species richness. From a plant ecological and ecosystem functioning point of view the wetland has a high conservation value.

A 32m buffer has been recommended by the specialist within which no development or disturbance may take place.

It is important that no development is allowed within the wetland ecosystem and that a 32 m buffer zone is implemented around its edges within which no development should be allowed. The Applicant has confirmed that the placement of the grid connection infrastructure within the grid connection corridor and switching station assessment area will comply with the requirements and recommended buffer.

6. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that currently occur within a 500m radius of the site and give a description of how this influences the application or may be impacted upon by the application:

Natural area	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station H
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential[A]	Church	**Agriculture**
Retail commercial & warehousing	Old age home	**River, stream or wetland**
Light industrial	Sewage treatment plant [A]	Nature conservation area
Medium industrial [AN]	Train station or shunting yard [N]	Mountain, koppie or ridge
Heavy industrial [AN]	Railway line [N]	Museum
Power station	Major road (4 lanes or more) [N]	Historical building
Office/consulting room	Airport [N]	Protected Area
Military or police base / station / compound	Harbour	Graveyard
Spoil heap or slimes damA	Sport facilities	Archaeological site
Quarry, sand or borrow pit	Golf course	Other land uses (describe)

If any of the boxes marked with an "N "are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

N/A

If any of the boxes marked with an "An" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

N/A

If any of the boxes marked with an "H" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

N/A

Does the proposed site (including any alternative sites) fall within any of the following:

Critical Biodiversity Area (as per provincial conservation plan)	YES	**NO**
Core area of a protected area?	YES	**NO**
Buffer area of a protected area?	**YES**	NO
Planned expansion area of an existing protected area?	YES	**NO**
Existing offset area associated with a previous Environmental Authorisation?	YES	**NO**
Buffer area of the SKA?	YES	**NO**

If the answer to any of these questions was YES, a map indicating the affected area must be includedin Appendix A.

7. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or paleontological sites, on or close (within 20m) to the site? If YES, explain:	YES	**NO**
	UNCERTAIN	

N/A

If uncertain, conduct a specialist investigation by a practices specialist in the field (archaeology or palaeontology) to establish whether there is such a feature(s) present on or close to the site. Briefly explain the findings of the specialist:

A Heritage Impact Assessment has been conducted which confirms that during the survey no sites, features or objects of cultural significance were identified. Refer to Appendix D5.

Will any building or structure older than 60 years be affected in any way?	YES	**NO**
Is it necessary to apply for a permit in terms of the National Heritage ResourcesAct, 1999 (Act 25 of 1999)?	YES	**NO**

If YES, please provide proof that this permit application has been submitted to SAHRA or the relevantprovincial authority.

8. SOCIO-ECONOMIC CHARACTER

a) Local Municipality

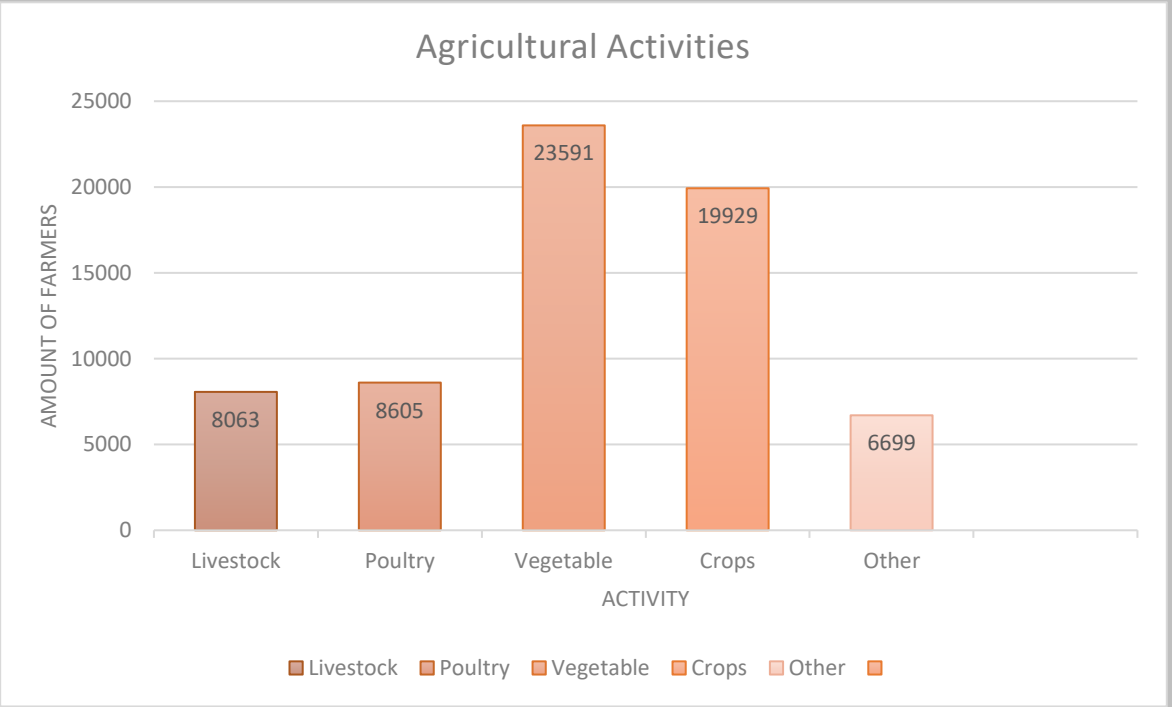
Please provide details on the socio-economic character of the local municipality in which the proposed site(s) are situated.

Level of unemployment:

In the Mangaung Metropolitan Municipality (MMM) a total of 292 971 people is economically active (employed or unemployed but looking for work), and of these 211 746 are unemployed. Of the 292 971 economically active (employed or unemployed but looking or work) people in MMM, 27,7% are unemployed. 37,2% of the 150 128 economically active youth (15 – 34 years) in the area are unemployed.

Economic profile of local municipality:

The MMM gains most of its economic activity within the agricultural sector with specific focus on game farming, pivot crop farming and other livestock and poultry production being the most popular sectors. The agricultural activities by sector are listed below: whilst that of the secondary industries decreased slightly from 6.0% in 2007 to 5.9% in 2015.



Sector composition of the MMM economy (Stats SA, 2011).

Level of education:

Education plays a pivotal role in community development. The level of education influences growth and economic productivity of a region. There is a positive correlation between a higher level of education and the level of development, and standard of living. Education levels in any given population will influence both economic and human development. While low levels of education typically lead to a low skills base within an area, high levels of education have the opposite effect, resulting in a skilled or highly skilled population. Household and personal income levels are also either positively or adversely affected by education levels.

Of the total number of people in the MMM, those aged 20 years and older, 3% has no form of schooling, 33% has completed matric and 4% has completed higher education.

b) Socio-economic value of the activity

It must be noted that the information provided below is for the proposed Steenbok Solar 1 and Steenbok Solar 2 as the Steenbok Grid Connection proposed will form part of the larger solar energy facilities as associated and necessary infrastructure for operation and will be constructed and operated as such. Furthermore, some of the required information is unknown at this time and will be largely driven by the contractor to be appointed.

What is the expected capital value of the activity on completion?	R 13.56 billion	
What is the expected yearly income that will be generated by or as a result of the activity?	N/A – unknown at this stage	
Will the activity contribute to service infrastructure?	**YES**	NO
Is the activity a public amenity?	YES	**NO**
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	~ 210	
What is the expected value of the employment opportunities during the development and construction phase?	N/A – unknown at this stage	
What percentage of this will accrue to previously disadvantaged individuals?	N/A – unknown at this stage	
How many permanent new employment opportunities will be created during the operational phase of the activity?	~ 14	
What is the expected current value of the employment opportunities during the first 10 years?	N/A – unknown at this stage	
What percentage of this will accrue to previously disadvantaged individuals?	N/A – unknown at this stage	

9. BIODIVERSITY

Please note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed activity/ies. To assist with the identification of the biodiversity occurring on site and the ecosystem status consult http://bgis.sanbi.org or BGIShelp@sanbi.org. Information is also available on compact disc (cd) from the Biodiversity-GISUnit, Ph (021) 799 8698. This information may be updated from time to time and it is the applicant/ EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity information (including an indication of the habitat conditions as per (b) below) and must be provided as an overlay map to the property/site plan as Appendix D to this report.

a) Indicate the applicable biodiversity planning categories of all areas on site and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category)

Systematic Biodiversity Planning Category				If CBA or ESA, indicate the reason(s) for itsselection in biodiversity plan
Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	Other Natural Area (ONA)	No Natural Area Remaining (NNR)	According to the 2015 Free State CBA and ESA map dataset the grid connection corridor overlaps with an ESA 1. No concern has been raised by the ecological specialist regarding the placement of the grid connection infrastructure within an ESA 1.

b) Indicate and describe the habitat condition on site

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practices, presence of quarries, grazing, harvesting regimes etc).
Natural	0%	N/A
Near Natural (includes areas with low to moderate level of alien invasive plants)	100%	The area has a few rocks with clay to loam soil. The grasses have the highest cover followed by the forbs. This grassland is used for grazing by cattle and as a result various cattle paths as well as trampling are present throughout the unit. The vegetation is dominated by the secondary successional grass *Eragrostis curvula* with the climax grass *Themeda triandra* co-dominant. Other species present include the grasses *Cymbopogon pospischilii, Panicum natalense, Eragrostis obtusa, Setaria sphacelata, Digitaria eriantha*, and the forbs *Berkheya onopordifolia, Hypoxis iridifolia, Pseudognaphalium luteo-album, Senecio hastatus, Gomphocarpus fruticosus* and Tagetes *minuta*.

Degraded (includes areas heavily invaded by alien plants)	0%	N/A
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	0%	N/A

c) **Complete the table to indicate:**

(i) the type of vegetation, including its ecosystem status, present on the site; and

(ii) whether an aquatic ecosystem is present on site.

Terrestrial Ecosystems		**Aquatic Ecosystems**						
Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	Critical / **Endangered** / Vulnerable / Least Threatened	Wetland (including rivers, depressions, channelled and unchanneled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline	
		YES	NO	UNSURE	YES	NO	YES	NO

d) **Please provide a description of the vegetation type and/or aquatic ecosystem present on site, including any important biodiversity features/information identified on site (e.g. threatened species and special habitats)**

The following information was sourced from the Ecological and Wetland Impact Assessment. Refer to Appendix D1.

<u>Terrestrial Ecosystems and wetlands</u>

The vegetation of the grid connection corridor belongs to the endangered Bloemfontein Dry Grassland vegetation type (Gh 5) (Mucina & Rutherford 2006). This vegetation type occurs at altitudes ranging between 1320-1420 m.a.s.l. within the Free State Province. It occurs on slightly undulating plains with mainly medium to tall grasses with smaller patches of karroid dwarf shrubs. The soil varies from deep red sand and clay with Hutton, Bainsvlei and Bloemdal soil forms. The vegetation is dominated by the grasses *Anthephora pubescens, Aristida diffusa, Digitaria argyrograpta, Eragrostis chloromelas, Eragrostis lehmanniana, Eragrostis superba, Eragrostis trichophora, Themeda triandra, Setaria sphacelata* and the forbs *Selago densiflora, Berkheya onopordifolia, Blepharis integrifolia, Commelina africana, Dicoma macrocephala, Gazania krebsiana, Pollichia campestris, Oxalis depressa, Haemanthus humilis*. Common dwarf shrubs include *Pentzia globosa, Pentzia incana, Asparagus striatus* and the succulent shrub *Hertia pallens.* The following vegetation units are relevant to the Steenbok Grid Connection:

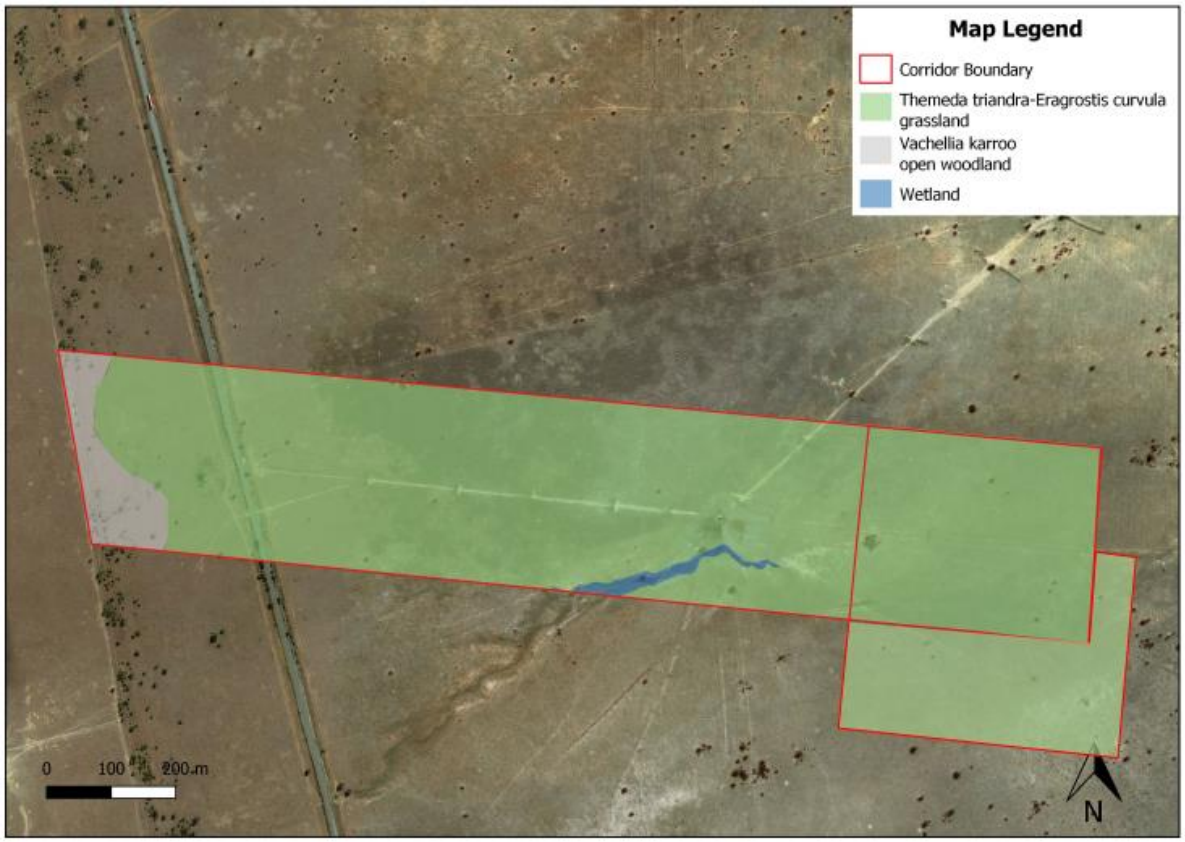
Vegetation unit 1 (***Themeda triandra-Eragrostis curvula*** **grassland**) is the largest vegetation unit on the site. This grassland is used for grazing by cattle and as a result various cattle paths as well as

trampling are present throughout the unit. The vegetation is dominated by the secondary successional grass *Eragrostis curvula* indicative of long-term grazing, as well as the palatable grass *Themeda triandra*. The latter is a preferred grass by cattle and will be grazed first resulting in a long-term decline of this grass which could explain the dominance of the area by *Eragrostis curvula*. Overall, this unit has a good grass cover that is medium in height. Unfortunately, large sections of this unit have become moribund which will in the longer-term lead to further degradation of the vegetation. From a plant ecological and ecosystem functioning point of view this has a **medium conservation value**.

The ***Vachellia karroo* open woodland** (vegetation unit 2) occurs as patches throughout the property. The area consists of trees (>3 m) and shrubs (<3 m) that occur scattered throughout this unit forming smaller clumps. The woody species are evenly spread throughout this woodland with the herbaceous layer (grasses and forbs) well-developed. The herbaceous layer comprises pioneer weedy and secondary successional species. This open woodland has been disturbed in the past (most probably due to overgrazing) due to grazing activities with various pioneer species present directly underneath the trees as well as the woody shrub *Asparagus laricinus* that thrives in degraded areas. The grass layer between the woody species is mostly well-developed with a high cover. This unit has a low species richness and from a plant ecological point of view it has **a low conservation value**.

The **wetland** (vegetation unit 3) is located east of the R700 road. A reservoir (round concrete farm dam) occurs close to the wetland. The surrounding area is as expected, trampled and grazed. The wetland varies in width and forms various "fingers" into the terrestrial vegetation. The soil is typically dark clay. Some sections have permanent standing water while others are dry with mostly terrestrial vegetation. The vegetation of the wetland is typical of a seasonally-permanently wet wetland and has a low-moderate species richness. From a plant ecological and ecosystem functioning point of view the wetland has a **high conservation value**.

Refer to the Figure below for an indication of the three vegetation units present within the Steenbok Grid Connection project.



Fauna

The DFFE screening report indicated that the area that may potentially contain habitats of *Hydrictis maculicollis* (Spotted-necked otter). Spotted-necked Otters are thought to inhabit freshwater habitats where water is not silt-laden, and is unpolluted, and rich in small fishes. They are thought to be indicators of pristine and unpolluted systems and generally indicates a healthy, unpolluted habitat (SANBI & EWT 2016)). Adequate riparian vegetation, in the form of long grass, reeds, or bushes, is also essential to provide cover (Perrin & d'Inzillo Carranza 2000). No signs, tracks or any remains of spotted-necked otters were observed during the survey undertaken as part of the Ecological and Wetland Impact Assessment (Appendix D1) and none of the vegetation units within the sites contained adequate habitat as described by Perrin and d'Inzillo (2000).

Fauna observed on the sites were *Raphicerus campestris* (Steenbok) and signs such as tracks and excrement of Phacochoerus africanus (warthog) were noted close to artificial water bodies.

No fauna as listed in the National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004): Publication of Lists of Critically Endangered, Endangered, Vulnerable and Protected Species were observed. No signs of any faunal species listed in the NEMBA lists were noted either.

Avifauna

According to the Avifaunal Impact Assessment (Appendix D2) the sampling effort of two seasonal multi-day surveys conducted in summer (January) and winter (July) is considered adequate for the type and size of the developments and the avifaunal sensitivity of the sites. Sampling effort is in line

with Regime 2 of the Best Practice Guidelines, the Species Assessment Guidelines and with the Terrestrial Species Protocol (GN 1150 of October 2020 which refers to the Species Environmental Assessment Guideline (SANBI 2021).

The South African Bird Atlas Project 2 (SABAP2) has recorded 155 species within the pentad (2855_2610) covering the sites, with 26 full protocol cards having been submitted, which is a relatively large number of cards for a farming area. Two of these species are Red Data listed as Vulnerable (Lanner Falcon and Secretarybird) and two are Red Data listed as Near-threatened (Black-winged Pratincole and European Roller). Six near-endemic species have been reported for the pentad.

A total of 108 species of birds were recorded during the two seasonal surveys within the sites. Three Species of Conservation Concern (SCC) were recorded: Secretarybird (Endangered), Lanner Falcon (Vulnerable) and Maccoa Duck (Near-threatened). Thirteen near-endemic species were recorded.

During walked transects 98 avian species were recorded, with 83 species recorded during the summer survey, some of which were migrants, and 57 avian species recorded during the winter survey. The highest number of individuals were recorded on walked transect 5 with an Index of Kilometric Abundance (number of birds recorded per km) of 170.9. This was due mainly to the presence of large flocks of Grey-headed Gull and Red-billed Quelea recorded. Overall, the number of individual birds present is relatively high, however the species recorded were mostly abundant and common.

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICE

Publication name	Bloemnuss	
Date published	Thursday 29 September 2023	
Site notice position	**Latitude**	**Longitude**
	28°57'52.04"S	26°11'44.26"E
Date placed	Friday 16 September 2022	

Include proof of the placement of the relevant advertisements and notices in Appendix E1.

2. DETERMINATION OF APPROPRIATE MEASURES

Provide details of the measures taken to include all potential I&APs as required by Regulation 41(2)(e) and 41(6) of GN 326.

The following measures were taken to include all potential I&APs:

- Existing databases were consulted to source information for all surrounding landowners to the affected property.
- An advert was placed in a local newspaper published in the affected area and site notices were erected at the boundary of the affected property to notify the general public and potential I&APs of the proposed development and also provide the details of how I&APs can become involved in the BA process and register on the project I&AP database.

Key stakeholders (other than organs of state) identified in terms of Regulation 41(2)(b) of GN 326

Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (tel number ore-mail address)
Gradwell Barry James-Trustees Ms. L Gradwell	Farm Holme's Dale No. 95 – Surrounding Landowner	Information not included as per the POPI Act. The contact information has been provided to the Competent Authority accordingly as Appendix E5 of this draft BA Report.
Auch Macoy Trust Mr. Dirk Botha	Portion 1 of the farm Holme's Dale No. 95 and Auchmacoy Nature Reserve No. 2981 – Surrounding Landowner	
Phyllis Aleandra Gradwell Testamentary Trust Ms. L Gradwell	Farm No. 314 – Surrounding Landowner	
Hutchinson Henry Tell Pachoud Mr. Henry Hutchinson	Farm Winterhoek No. 865 – Surrounding Landowner	

Bianco Trust Stoffel du Raan	Farm No. 1140, Portion 2 of the farm Dieseldeane No. 1138 and Portion 2 of the farm Dieseldeane No. 1138 – Surrounding Landowner	
Lups Trust Mr. Conna Lups	Remaining Extent of the farm Dieseldeane No. 1138 – Surrounding Landowner	
Raymond Diedericks Trust Mr. Raymond Diedericks	Remaining Extent of the farm Cambrae No. 1139 – Surrounding Landowner	

Include proof that the key stakeholder received written notification of the proposed activities as Appendix E2. This proof may include any of the following:

- e-mail delivery reports;
- registered mail receipts;
- courier waybills;
- signed acknowledgements of receipt; and/or
- or any other proof as agreed upon by the competent authority.

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summary of main issues raised by I&APs	Summary of response from EAP

No comments or issues have been received to date on the proposed development. The main issues raised by I&APs during the 30-day review period of the draft BA Report will be summarized here and responded to accordingly.

The 30-day review and comment period is from 02 June 2023 to 03 July 2023.

4. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments received from I&APs and respond to each comment before the Draft BAR is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to the Final BAR as Appendix E3.

All comments/correspondence received to date on the proposed development have been recorded and responded to in a Comments and Responses Report. All comments submitted by I&APs during the 30-day review period of the draft BA Report will be recorded and responded to in a Comments and Responses Report that will be submitted to the DESTEA as part of the final BA Report for decision-making on the Application for Environmental Authorisation.

5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

Authority/Organ of State	Contact person (Title, Name and Surname)
Mangaung Metro Municipality	GM Environmental Management Vivian Minnaar
Free State Department of Economic Development, Tourism and Environmental Affairs	Head of Department: Mbulelo Nokwequ Head of Communications: Mr. Kgotso Tau Grace Mkhosana
The Department of Water Affairs	Mrs. Nosie Mazwi, Mr. Abe Abrahams and Mr.
The Department of Water Affairs: Free State Regional Office	Dawn Jaca Fikile Mnisi Vernon Blair
Free State Department of Agriculture and Rural Development	Head of Department: Agriculture & Rural Development Head of Communications: Ms. Modiehi Moeng Ms Agnes Sebeo Nthabiseng Nyathi Mr Schalk Burger
The Department of Agriculture	Ms. Mashudu Marubini Thoko Buthelezi Thebe Thebe
Department of Forestry, Fisheries and the Environment: Biodiversity and conservation	Seoka Lekota (Deputy Director) Portia Makitla
Department of Environmental Affairs: Protected Areas	Mr. Thivhulawi Nethononda Mr. Rofhiwa Magodi
Department of Energy	Ms. Nelly Magubane (Director General)

	Masipa Pheladi (Acting Project Manager: Renewable Energy Initiatives)
South African Heritage Resources Agency (SAHRA)	Sityhilelo Ngcatsha
Provincial Heritage Resources Agency (PHRA)- Free State	Ms. T. Mbatha Ms. Malintja Molahloe
Department of Police, Roads and transport	Mr. S. Msibi & Mr Hannes Maree
Department of Mineral Resources	Azwihangwisi Mulaudzi Kevin Mutheiwana
Department of Communications	Mr Tebatso Chokoe
Department of Rural Development and Land Reform	Mangalane Du Toit Nomfundo Ntloko-Gobodo
South African Department of Defence	Lt. Cnl. Kebasenosi Zondi (SO1 Military Integrated Environment Management (MIEM)
Eskom	John Geeringh (Senior Environmental Advisor)
South African Radio Astronomy Observatory (SARAO) / Square Kilometre Array	Adrian Tiplady & Matlhane Selaelo
Air Traffic and Navigation Services (ATNS)	Johanna Morobane (Manager: Corporate Sustainability and Environment)

The contact details of the key stakeholders are included in the I&AP database as Appendix E5 to this draft BA Report. The full list of I&APs and relevant contact information has been submitted to DESTEA. Proof of correspondence is included in Appendix E4. Furthermore, it is confirmed that the SKA, now known as SARAO and Eskom have been consulted since the commencement of the Basic Assessment process.

Include proof that the Authorities and Organs of State received written notification of the proposed activities as Appendix E4. In the case of renewable energy projects, Eskom and the SKA Project Office must be included in the list of Organs of State.

6. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for any activities (linear or other) where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that sub-regulation to the extent and in the manner as may be agreed to by the competent authority.

Proof of any such agreement must be provided, where applicable. Application for any deviation from the regulations relating to the public participation process must be submitted prior to the commencement of the public participation process.

A list of registered I&APs must be included as Appendix E5.

Copies of any correspondence and minutes of any meetings held must be included in Appendix E6.

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014 as amended and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

1. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

Provide a summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed. This impact assessment must be applied to all the identified alternatives to the activities identified in Section A(2) of this report.

The impact assessment methodology proposed for this development is based on the principle of activities, aspects and impacts. Activities are the physical activities that are carried out during the project during design, construction, operations and decommissioning of the development proposed for the site; Environmental aspects are elements of the activities that interact with the environment and include biophysical and socio-economic elements. Impacts are defined as changes in the biophysical or socio-economic environment as a result of the aspects. Each impact identified is allocated a significance rating.

The following specialist studies have informed the impact assessment below:

Appendix D1: Ecological and Wetland Assessment
Appendix D2: Avifauna Impact Assessment
Appendix D3: Visual Impact Assessment
Appendix D4: Agricultural Compliance Statement
Appendix D5: Heritage Impact Assessment

For ease of reference the significance of the impacts is colour-coded as follow:

Low significance	Medium significance	High significance	Positive impact

IMPACTS AND MITIGATION MEASURES DURING THE CONSTRUCTION PHASE				
Specialist study	**Impact**	**Pre-mitigation rating**	**Post mitigation rating**	**Summary of mitigation measures**
Ecology Impact Assessment	Loss of plant and species	Negative Low	Negative Low	• The areas to be developed must be clearly demarcated prior to initial site clearance. • Construction personnel should not be allowed to enter the no-go areas. • To minimize the effect on the vegetation, insects, small mammals and environment it is recommended that the construction be done within the winter period as far as practically possible without hindering the construction phase, when most plants are dormant and animals less active. • Where vegetation of areas not to be developed needs to be opened to gain access it is recommended that the herbaceous species are cut short rather than removing them. • Vegetation clearance/cutting should be restricted to the approved development areas allowing remaining faunal species the opportunity to move away from the disturbance. The Environmental Control Officer (ECO) should monitor these areas on a regular basis. • Any disturbed or eroded areas not to be developed should be appropriately revegetated. Only indigenous (to the area) grass species are recommended.
	Loss of rare / medicinal species	Negative Low	Negative Low	
	Loss of animal species	Negative Low	Negative Low	
	Loss of biodiversity	Negative Low	Negative Low	

	Increased soil erosion	Negative Low	Negative Low	• Storage of equipment, fuel and other materials should be limited to demarcated areas. They should be established at least 300 meters away from the buffer zone of the wetland areas of the study site as well as from the Stinkhoutspruit in the east outside the study area. • The few alien invasive plants present within the various vegetation units must be removed and eradicated throughout all stages of the projects. • All stormwater and runoff generated by the development activities must be appropriately managed to prevent erosion of the wetland areas. • Monitoring of all these activities must be done on a monthly basis by the ECO during the construction phase of the developments to ensure that minimal impact is caused to the surrounding fauna and flora of the area. Any transgressing of rules must be reported by the ECO.
	Alien plant invasion	Negative Low	Negative Low	
	Vegetation clearance / habitat destruction	Negative Medium	Negative Low	• All temporary stockpile areas, litter and dumped material and rubble must be removed and disposed of at a licensed land fill facility. Proof of safe disposal must be obtained and kept on record for monitoring purposes. • The careful position of soil piles, and runoff control, during all phases of development, and planting of some vegetative cover after completion (indigenous groundcover, grasses etc.) will limit the extent of erosion occurring on the sites and must therefore be undertaken. • Hazardous chemicals must be stored on an impervious surface accompanied by Safety Data Sheets (SDS) and protected from the elements. These chemicals must be strictly controlled, and records kept of when it was used and by whom.
	Soil erosion and pollution	Negative Medium	Negative Low	
	Spread and establishment of alien invasive plant species	Negative Medium	Negative Low	

	Negative effect of human activities on fauna and road mortalities	Negative Medium	Negative Low	• Limit human activity in the no-go areas, areas that are not to be developed, as well as the completed areas to the minimum required for ongoing operation. • Any alien plants observed should be reported to the environmental manager and should be removed as soon as possible. • Regular monitoring (monthly) for damage to the environment as well as establishment of alien plant species must be conducted.
Wetland Impact Assessment	oil compaction, erosion and sedimentation of the wetland	Negative Medium	Negative Low	• No development should be allowed within the wetland area and its associated buffer zone. • The pylons must span the wetland area and its associated buffer zone. • No hazardous materials should be stored within 300 m of the wetland areas. • Provision of adequate toilet facilities must be implemented to prevent the possible contamination of ground (borehole) and surface water in the area. • No cleaning of equipment should be done closer than 300m of the edge of the buffer zones. This includes the establishment of temporary and permanent offices and ablution facilities. • All vehicles and equipment should be regularly inspected for leaks. Re-fuelling must take place on a sealed surface area at least 300 m away from the edge of the wetland buffer zones to prevent ingress of hydrocarbons into topsoil. • No dumping or storage of waste should take place within the watercourse areas.
	Soil and water pollution for the wetland	Negative Medium	Negative Low	
	Spread and establishment of alien invasive species in the wetland	Negative Medium	Negative Low	
	Erosion of streambank	Negative High	Negative Low	• The wetland and appropriate buffer zone must be declared as a No-Go area.

	Loss of wetland habitat	Negative High	Negative Low	• Ensure that all hazardous storage containers and storage areas comply with the relevant SABS standards to prevent leakage. • The release of stormwater must be designed such that the force of the water is reduced to prevent unnecessary erosion. • No dumping of waste should take place within the watercourse areas. If any spills occur, they should be cleaned up immediately. • Adequate toilet facilities must be provided for all staff to prevent pollution of the environment. • No person/s involved with the construction must be allowed within any of the wetlands other than performing official work as instructed by the ECO.
	Soil & water pollution	Negative High	Negative Low	
Avifauna Impact Assessment	Disturbance	Negative Low	Negative Low	• Disturbance can be managed and mitigated at the design stage by avoiding important nesting, roosting, and foraging areas of sensitive species during site selection and layout design. • In order to ensure no Species of Conservation Concern are breeding within the proposed disturbance footprint prior to the commencement of construction or decommissioning activities, a walkthrough of the corridor must be conducted by an avifaunal specialist, as close as possible prior to the commencement of activities. • The entire length of the proposed overhead power line must be fitted with Bird Flight Diverters.
	Habitat Loss	Negative Medium	Negative Low	• Retain as much of the indigenous vegetation as possible, and minimise the footprint of all associated infrastructure, including buildings, electrical infrastructure and the width and length of roads.
Visual Impact Assessment	Visual impact of construction activities on sensitive visual	Negative Low	Negative Low	• Retain and maintain natural vegetation immediately adjacent to the development footprint. • Ensure that vegetation is not unnecessarily removed during the construction phase.

	receptors in close proximity to the proposed project			• Plan the placement of laydown areas and temporary construction equipment camps in order to minimise vegetation clearing (i.e., in already disturbed areas) where possible. • Restrict the activities and movement of construction workers and vehicles to the immediate construction site and existing access roads. • Ensure that rubble, litter, etc. are appropriately stored (if it can't be removed daily) and then disposed of regularly at a licensed waste site. • Reduce and control dust during construction by utilising dust suppression measures. • Limit construction activities to daytime/daylight hours, where possible, in order to reduce the impacts of construction lighting. • Rehabilitate all disturbed areas immediately after the completion of construction work and maintain good housekeeping.
Heritage Impact Assessment	Impacts on heritage and palaeontological objects	Negative Medium	Negative Low	• Should significant archaeological materials – such as well-preserved subsurface artefacts or fossils – be exposed during construction, the on-duty Environmental Control Officer should protect these (preferably in primary exposed context), and should immediately consult a professional archaeologist. In this circumstance, the South African Heritage Resources Authority should be immediately alerted so that appropriate mitigation measures by a professional archaeologist can be implemented, at the expense of the developer. In such a scenario, mitigation measures would normally involve the application for an excavation permit and the digital documentation of the occurrences with modern archaeological recording standards, as well as the collection of a reflective sample of material to be deposited in a local approved curation facility. • If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures,indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils,

				burials or other categories of heritage resources are found during the proposed development, work must cease in the vicinity of the find and SAHRA must be alerted immediately to determine an appropriate way forward.
Other	Generation of waste - general waste, construction waste, sewage and grey water.	Negative Medium	Negative Low	• The Contractor shall install temporary chemical toilets on the site. • Staff shall be sensitised to the fact that they should use these facilities at all times. No indiscriminate sanitary activities on site shall be allowed. • Ablution facilities shall be within 30m from workplaces. There should be enough toilets available to accommodate the workforce (minimum requirement 1:15 workers, or as per Occupational Health & Safety Act). • Toilets shall be serviced regularly, and the ECO shall inspect toilets regularly. • Under no circumstances may open areas, neighbours' fences or the surrounding bush be used as a toilet facility. • Construction methods and materials should be carefully considered in view of waste reduction, re-use and recycling opportunities. • Specific areas must be designated on-site for the temporary management of various waste streams. Location of such areas must seek to minimise the potential for impact on the surrounding environment, including prevention of runoff, seepage and vermin control. • Adequate weather and vermin proof waste bins and skips should be placed on site. Separate bins should be provided for general and hazardous waste. • Documentation (waste manifest) must be maintained detailing the quantity, nature and fate of any regulated waste. Waste disposal records must be available for review at any time.

				• Refuse bins must be placed at strategic positions to ensure that litter does not accumulate within the construction site. • The Contractor shall supply waste collection bins where such is not available, and all solid waste collected shall be disposed of at registered/licensed landfill. • A housekeeping team should be appointed to regularly maintain the litter and rubble situation on the construction site. • If possible and feasible, all waste generated on site must be separated into glass, plastic, paper, metal and wood and recycled. An independent contractor can be appointed to conduct this recycling. • Littering by the employees of the Contractor shall not be allowed under any circumstances. The ECO shall monitor the neatness of the work sites as well as the Contractor campsite. • Skip waste containers should be maintained on site. These should be kept covered and arrangements made for them to be collected regularly. • All waste must be removed from the site and transported to a landfill site promptly to ensure that it does not attract vermin or produce odours. • Where a registered waste site is not available close to the construction site, the Contractor shall provide a method statement with regard to waste management. • A certificate of disposal shall be obtained by the Contractor and kept on file, if relevant. • Under no circumstances may solid waste be burnt on site. • All waste must be removed promptly to ensure that it does not attract vermin or produce odours.
	Soil erosion	Negative Low	Negative Low	• There are no additional mitigation measures required, over and above what has already been included in the Generic EMPr for overhead

				electricity transmission and distribution infrastructure as per Government Notice 435, which was published in Government Gazette 42323 on 22 March 2019.
	Creation of local employment and business opportunities, skills development and training	Positive Low	Positive Medium	• Efforts should be made to employ local contractors first and contractors that are compliant with the Broad Based Black Economic Empowerment (BBBEE) criteria. • Gender equality should also be promoted. If possible, a training and skills development programme for the local workers should be initiated prior to the construction phase.
	Technical support to local farmers and municipalities	Negative Low	Positive Low	• Private consultation sessions with local farmers can be held to inform them about the installation of solar energy facilities, the benefits thereof, the process and costs. • Workshops can also be held for the local farmers as well as the local municipality to also advise them regarding the installation of solar power plants (and the associated grid infrastructure) and the process and costs thereof.
	Potential loss of productive farmland	Negative Low	Negative Low	• Development footprint needs to be fenced off prior to the construction phase and all construction related activities should be confined in this fenced off area. Livestock grazing on the proposed site need to be relocated.
	In-migration or influx of job seekers.	Negative Low	Negative Low	• A policy that no employment will be available at the gate should be implemented. Job seekers from the local community should be employed first.
	Presence of construction workers on the local communities	Negative Medium	Negative Low	• The proposed site should be fenced off and the movement of construction workers should be limited to the vicinity of the site. • Transportation for the construction workers need to be arranged by the contractor to ensure that there will be no trespassing of properties by any staff. Necessary arrangements to enable workers to

				return to their hometowns over weekends should also be arranged in order to reduce the risks posed to local family structures and social networks. No staff should be accommodated overnight on site, except for security staff. Contractors need to ensure that all workers sign a code of conduct before the construction phase starts, which are drawn up in accordance with the South African labour legislation. By doing this, workers will be legally informed of the associated risks on the property and that they would be held liable for any damages or losses. This code of conduct should also outline the acceptable behaviour an activities of construction workers.
	Heavy vehicles and construction activities	Negative Low	Negative Low	• With regards to all safety measures, the drivers of the vehicles must be qualified, and all vehicles must be road worthy. • Drivers should also be made aware of the strict speed limits on and off site and the potential road safety issues on site. • The contractor must repair any damages to the gravel roads on the site, during the construction phase, and any cost with regards to the repair of the roads must be borne by the contractor.
	Risk to safety, livestock and farm infrastructure	Negative Low	Negative Low	• The proposed site should be fenced off and the movement of construction workers should be limited to the vicinity of the site. • Contractors need to ensure that all workers sign a code of conduct before the construction phase starts, which are drawn up in accordance with the South African labour legislation. By doing this, workers will be legally informed of the associated risks on the property and that they would be held liable for any damages or losses. • Any form of theft, damaged infrastructure and trespassing will lead to immediate dismissal and the workers would be held liable for the costs thereof.

	Increased risk of veld fires	Negative Medium	Negative Low	• A firebreak should be implemented before the construction phase. The firebreak should be controlled and constructed around the perimeters of the project site. • Adequate fire-fighting equipment should be provided and readily available on site and all staff should be trained in firefighting and how to use the fire-fighting equipment. • The contractor should ensure that no open fires are allowed on site. The use of cooking or heating implements should only be used in designated areas. • Contractors need to ensure that any construction related activities that might pose potential fire risks, are done in the designated areas where it is also managed properly.
IMPACTS AND MITIGATION MEASURES DURING THE OPERATIONAL PHASE				
Specialist study	**Impact**	**Pre-mitigation rating**	**Post mitigation rating**	**Summary of mitigation measures**
Ecology Impact Assessment	Habitat destruction caused by clearance of vegetation	Negative Low	Negative Low	• All temporary stockpile areas, litter and dumped material and rubble must be removed and discarded with in an environmentally friendly way. • Undeveloped areas that were degraded due to human activities must be rehabilitated with indigenous vegetation. • Hazardous chemicals must be removed from the site • Regular monitoring must be undertaken by the operator of the facility to determine any degradation of the vegetation and or animal habitat around the site.
	Soil and water pollution	Negative Low	Negative Low	

	Spread and establishment of alien invasive species	Negative Low	Negative Low	
	Negative effect of human activities on fauna and road mortalities	Negative Low	Negative Low	
	Negative effect of fences on dispersal movements of fauna	Negative Low	Negative Low	
	Negative effect of light pollution on nocturnal fauna	Negative Low	Negative Low	
Wetland Impact Assessment	Erosion	Negative Medium	Negative Low	• The release of stormwater must be designed such that the force of the water is reduced to prevent unnecessary erosion of the wetland areas.
	Soil and water pollution	Negative Medium	Negative Low	

	Increase in stormwater run-off	Negative Medium	Negative Low	• No dumping of waste should take place within or close to the wetland areas. • If any spills of pollutants occur, they should be cleaned up immediately. • Remove all substances which can result in groundwater (or surface water) pollution.
Avifauna Impact Assessment	Disturbance	Negative Low	Negative Low	• Demarcate the disturbance footprint, and minimise this to the development footprint as much as practically possible.
	Collision with overhead power line and associated infrastructure	Negative Medium	Negative Low	• The power line must be minimised as much as possible in length and avoid areas identified as of high sensitivity where possible and avoid any identified no-go areas. • All lines and pylons must be of a bird friendly design, with anti-perching structures installed, and fit with line markers along the entire length, in line with current Eskom Technical Standards. • A steel monopole pylon structure is preferred over a lattice tower which offers more perching and nesting opportunities and should be selected wherever technically possible. • The overhead power line should be at the same height as the existing line if technically possible.
	Electrocutions	Negative Medium	Negative Low	• Implement a bird-friendly pole design i.e., creating separation between conductors of differing electric potential, by placing insulation over conductors, or by redirecting birds to perch or nest away from conductors.
Visual Impact Assessment	Potential visual impacts on sensitive visual receptors located within a 5km radius.	Negative Low	Negative Low	• Retain/re-establish and maintain natural vegetation immediately adjacent to the development footprint. • Maintain the general appearance of the power line corridor/servitude

	Potential visual impacts on sensitive visual receptors in the region (5-10km)	Negative Low	Negative Low	• Retain/re-establish and maintain natural vegetation immediately adjacent to the development footprint. • Maintain the general appearance of the power line corridor/servitude
	Visual and sense of place impacts	Negative Low	Negative Low	• The subjectivity towards the project in its entirety can be influenced by creating a "Green Energy" awareness campaign, educating the local community and potentially tourists on the benefits of renewable energy, and/or hosting an 'open day' (subject to the land owner's consent) where the local community can have the opportunity to view the completed project which may enlist a sense of pride in the renewable energy project in their area. Note that this is not a requirement, but is encouraged, where possible. • Implement good housekeeping measures.
Other	Soil erosion	Negative Low	Negative Low	• There are no additional mitigation measures required, over and above what has already been included in the Generic EMPr for overhead electricity transmission and distribution infrastructure and substation infrastructure as per Government Notice 435, which was published in Government Gazette 42323 on 22 March 2019.
	Local employment and business opportunities, skills development and training	Positive Low	Positive Medium	• If possible, a training and skills development programme for the local workers should be initiated prior to the operational phase.
	Potential loss of productive	Negative Low	Negative Low	• The development footprint must be maintained.

	farmland			
	Change in the sense of place	Negative / Positive Low	Negative / Positive Low	• Due to the height of the power line and extent of the project, no viable mitigation measures can be implemented to eliminate the visual impact of the power line, but the subjectivity towards the project in its entirety can be influenced by creating a "Green Energy" awareness campaign (if possible), educating the local community and potentially tourists on the benefits of renewable energy.
	Development of infrastructure for the generation of clean, renewable energy	Positive Medium	Positive Medium	• Utilise the proposed solar power plant and the associated grid connection infrastructure to promote and increase South Africa's contributions of renewable energy to the national energy supply grid.
IMPACTS AND THE MITIGATION MEASURES DURING THE DECOMMISSIONING PHASE				
Specialist study	**Impact**	**Pre-mitigation rating**	**Post mitigation rating**	**Summary of mitigation measures**
Ecology Impact Assessment	Habitat destruction caused by clearance of vegetation	Negative Low	Negative Low	• All temporary stockpile areas, litter and dumped material and rubble must be removed and discarded with in an environmentally friendly way. • Undeveloped areas that were degraded due to human activities must be rehabilitated. • Hazardous chemicals must be stored on an impervious surface and protected from the elements. These chemicals must be strictly controlled, and records kept of when it was used and by whom.
	Soil and water pollution	Negative Low	Negative Low	

	Spread and establishment of alien invasive species	Negative Low	Negative Low	• Any alien plant observed should be reported to the environmental manager and should be removed as soon as possible. • All vehicles should be inspected for oil and fuel leaks on a regular basis. • No activity allowed within the wetland and its buffer zone. • Drainage must be controlled to ensure that runoff from the site will not culminate in off-site pollution or result in rill and gully erosion or any erosion of the watercourses.
	Negative effect of human activities on fauna and road mortalities	Negative Low	Negative Low	
Wetland impact Assessment	Erosion of wetland embankment	Negative Medium	Negative Low	• The release of stormwater must be designed such that the force of the water is reduced to prevent unnecessary erosion. • No dumping of waste should take place within 300m of the wetland area. If any spills occur, they should be cleaned up immediately. • Remove all substances which can result in groundwater (or surface water) pollution.
	Soil pollution	Negative Medium	Negative Low	
	Increase in stormwater runoff	Negative Medium	Negative Low	
Other	Generation of waste	Negative Medium	Negative Low	• All decommissioned equipment must be removed from site and disposed of at a registered land fill. Records of disposal must be kept.
	Soil erosion	Negative Low	Negative Low	• There are no additional mitigation measures required, over and above what has already been included in the Generic EMPr for overhead electricity transmission and distribution infrastructure and substation infrastructure as per Government Notice 435, which was published in Government Gazette 42323 on 22 March 2019.

A complete impact assessment in terms of Regulation 19(3) of GN 326 must be included as Appendix F.

2. CUMULATIVE IMPACT ASSESSMENT

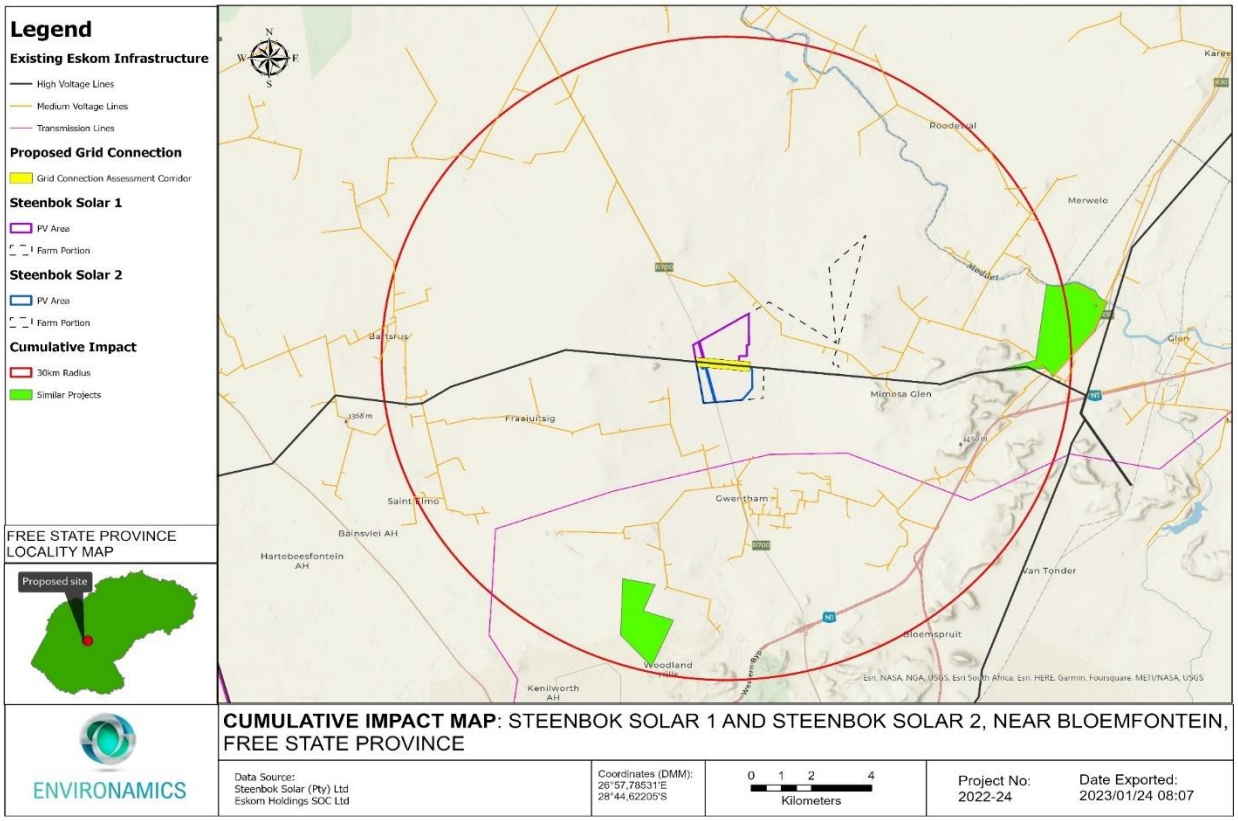
The EIA Regulations (as amended) determine that cumulative impacts, "*in relation to an activity, means the past, current and reasonably foreseeable future impact of an activity, considered together with the impact of activities associated with that activity, that in itself may not be significant, but may become significant when added to the existing and reasonably foreseeable impacts eventuating from similar or diverse activities*." Cumulative impacts can be incremental, interactive, sequential or synergistic. EIAs have traditionally failed to come to terms with such impacts, largely as a result of the following considerations:

- Cumulative effects may be local, regional or global in scale and dealing with such impacts requires coordinated institutional arrangements;
- Complexity - dependent on numerous fluctuating influencing factors which may be completely independent of the controllable actions of the proponent or communities; and
- Project level investigations are ill-equipped to deal with broader biophysical, social and economic considerations.

Despite these challenges, cumulative impacts have been afforded increased attention in this Basic Assessment Report and for each impact a separate section has been added which discusses any cumulative issues, and where applicable, draws attention to other issues that may contextualise or add value to the interpretation of the impact. This chapter analyses the proposed project's potential cumulative impacts in more detail by: (1) defining the geographic area considered for the cumulative effects analysis; (2) providing an overview of relevant past and present actions in the project vicinity that may affect cumulative impacts; (3) presenting the reasonably foreseeable actions in the geographic area of consideration; and (4) determining whether there are adverse cumulative effects associated with the resource areas analysed.

The term "Cumulative Effect" has for the purpose of this report been defined as: the summation of effects over time which can be attributed to the operation of the project itself, and the overall effects on the ecosystem of the site that can be attributed to the project and other existing and planned future projects.

The geographic area of evaluation is the spatial boundary in which the cumulative effects analysis was undertaken. The spatial boundary evaluated in this cumulative effects analysis generally includes an area of a 30km radius surrounding the proposed development. Refer to the image below:



Geographic area of evaluation with utility-scale renewable energy generation sites and power lines

The geographic spread of PV solar projects and grid infrastructure, administrative boundaries and any environmental features (the nature of the landscape) were considered when determining the geographic area of investigation. It was argued that a radius of 30km would generally confine the potential for cumulative effects within this particular environmental landscape. The geographic area includes projects located within the Free State Province. A larger geographic area may be used to analyse cumulative impacts based on the specific temporal or spatial impacts of a resource. For example, the socio-economic cumulative analysis may include a larger area, as the construction workforce may draw from a much wider area. The geographic area of analysis is specified in the discussion of the cumulative impacts for that resource where it differs from the general area of evaluation described above.

It is unclear whether other projects, including grid infrastructure, not related to renewable energy is or has been constructed in this area, and whether other projects are proposed. In general, development activity in the area is focused on agriculture. It is quite possible that future solar farm development may take place within the general area. The table below provides a list of other known renewable energy developments within the surrounding area.

A summary of related facilities, that may have a cumulative impact, in a 30 km radius of the Steenbok Grid Connection, excluding the Steenbok Solar 1 and Steenbok Solar 2 solar energy facilities that the development will cater for

Site name	Distance from study area	Proposed generating capacity	DEFF reference	EIA process	Project status
Letsatsi Solar Power	<27km	100MW	12/12/20/1972/1	Scoping and EIA	Approved
Jedwater Solar Power Facility	<28 km	75MW	12/12/20/1972/2	Scoping and EIA	Approved
Solaire Direct Glen Thore Solar	<8km	75MW	12/12/20/2596	Scoping and EIA	Approved
Glenthorne PV	~16km	10MW	14/12/16/3/1/455	Basic Assessment	Withdrawn/Lapsed
SSS1 Solar PV	~18km	5MW	14/12/16/3/3/1/1093	Basic Assessment	Approved
Mara Solar Facility	~18km	15MW	14/12/16/3/3/1/564	Basic Assessment	Approved
Keren Holdings Spesbona Solar	~12km	0 MW	14/12/16/3/3/2/435	Scoping and EIA	Withdrawn/Lapsed
Spes Bona Solar PV	~15km	86 MW	14/12/16/3/3/2/641	Scoping and EIA	In Process

As can be concluded from the table above, other developments, are located quite far from the proposed development, and therefore it is not expected that the cumulative impacts will be of great significance. The cumulative impacts are further considered and assessed in the specialist studies included in Appendix D and in Appendix F.

3. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

Alternative A (preferred alternative)

When considering the impact assessment undertaken for the proposed Steenbok Grid Connection to connect the proposed Steenbok Solar 1 and Steenbok Solar 2 solar energy facilities it is confirmed that all impacts associated with the development throughout the various development phases (i.e., construction, operation and decommissioning) can be mitigated to acceptable levels of significance through the implementation of the recommended mitigation measures provided. All impacts expected to occur will have a medium or low significance following the implementation of the mitigation measures, and no negative impacts of a high significance is expected to occur.

During construction it is expected that direct and temporary impacts will occur (i.e., short-term). The probability of occurrence will be definite in most cases. During operation it is expected that direct and indirect impacts will occur which will be of a long-term duration, and the probability of occurrence will be probable and definite in most cases. The impacts expected during the decommissioning phase will also be direct and temporary, with the impacts being very similar to what is expected during the construction phase. It must however be taken into consideration that the grid connection infrastructure is of a limited extent and therefore limited disturbance is proposed to be undertaken within the landscape.

When considering the siting and the location of the proposed development footprint it is confirmed that the connection is the shortest and most technically viable route from the authorised solar energy facilities to the National Grid. The Applicant has utilised the opportunity to avoid environmental sensitive features within the site through the careful placement of the proposed infrastructure, and will further implement the mitigation and management measures recommended by the independent specialists as included in Appendix D.

Considering the above the EAP confirms that the development of proposed grid connection solution to connect the proposed Steenbok Solar 1 and Steenbok Solar 2 solar energy facilities is considered as environmentally appropriate and will not lead to any detrimental impacts on the environment. No fatal flaws have been identified.

This alternative is therefore considered as preferred from an environmental suitability perspective.

Alternative B

N/A

Alternative C

N/A

No-go alternative (compulsory)

This alternative considers the option of 'do nothing' and maintaining the status quo. The grid connection corridor and substation / switching station development area and the surrounding areas is currently zoned for agricultural land uses. Should the proposed activity not proceed, the corridor and substation / switching station development area will remain unchanged and will continue to be used for agricultural activities. The purpose of the proposed 132kV power line and substation / switching station is to connect the proposed Steenbok Solar 1 and Steenbok Solar 2 solar energy facilities to the National Grid through the development and operation of one consolidated grid connection solution. If the status quo is maintained, the potential opportunity costs in terms of the successful operation of the solar energy facilities would be lost, since it will not be able to operate without the power line and substation / switching station, which in turn will result in job losses and loss of economic growth in the area.

Considering the above, it is confirmed that the no-go alternative is not preferred as there would be loss in terms of the positive impacts associated with the development as well as a loss of surety of supply for the electricity users in South Africa.

SECTION E. RECOMMENDATION OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?	**YES**	NO

If "NO", indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment).

N/A

If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application.

It is the opinion of the independent EAP that the proposed development will have a net positive impact for the area and will subsequently ensure the optimal utilisation of resources through enabling the operation of the Steenbok Solar 1 and Steenbok Solar 2 solar energy facilities. All negative environmental impacts can be effectively mitigated through the proposed mitigation measures, and the significance of the impacts can be reduced to either medium or low significance. Based on the contents of the report it is proposed that an environmental authorisation be issued, which states (amongst other general conditions) that the proposed grid connection infrastructure and associated infrastructure be approved subject to the following conditions:

- Implementation of the proposed mitigation measures set out in the EMPr(s).
- Implementation of the proposed mitigation measures set out in the specialist studies.
- The proposed grid connection infrastructure must comply with all relevant national environmental laws and regulations.
- All actions and task allocated in the EMPr(s) should not be neglected and a copy of the EMPr should be made available onsite at all times.
- Should archaeologically sites or graves be exposed during construction work, it must immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made.
- In order to ensure no Species of Conservation Concern are breeding within the proposed disturbance footprint prior to the commencement of construction or decommissioning activities, a walkthrough of the corridor must be conducted by an avifaunal specialist, as close as possible prior to the commencement of activities. (Appendix D2).
- The period for which the Environmental Authorisation is required is 10 years. This is based on the fact that the project is proposed to cater for two solar energy facilities which are proposed to be bid as part of the DMRE REIPPP Programme, with there being uncertainty regarding the announcement of the next bidding rounds, and the need for a valid Environmental Authorisation.

The Applicant is requesting that the full extent of the grid connection corridor and the assessment area for the switching substations be authorised so that the Applicant may place the infrastructure within the larger areas, however subject to avoidance of any sensitive environmental features and areas present within the corridor and assessment area. This will provide flexibility to allow the grid

infrastructure to be placed so as to accommodate the final layouts of the proposed Steenbok Solar 1 and Steenbok Solar 2. Therefore, the assessed corridor and assessment area are presented as the layout for approval.

Is an EMPr attached? The EMPr must be attached as Appendix G.	**YES**	NO

The details of the EAP who compiled the BAR and the expertise of the EAP to perform the Basic Assessment process must be included as Appendix H.

If any specialist reports were used during the compilation of this BAR, please attach the declaration of interest for each specialist in Appendix I.

Any other information relevant to this application and not previously included must be attached in Appendix J.

Carli van Niekerk
NAME OF EAP

Signature of the EAP

02 June 2023
Date

SECTION F: APPENDIXES

The following appendixes must be attached:

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

Appendix E: Public Participation

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

Appendix J: Additional Information