

Appendix C3
Background Information Letter



MAY
2022



ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

PROPOSED DEVELOPMENT OF THE BUFFELSPOORT SOLAR PHOTOVOLTAIC (PV) ENERGY
FACILITY AND ASSOCIATED INFRASTRUCTURE NEAR MOOINOOI,

NORTH-WEST PRORINCE

Buffelspoort Solar Project (Pty) Ltd is proposing to develop a Solar Photovoltaic (PV) Energy Facility and associated infrastructure on Portions 75 and 134 of the Farm Buffelspoort 343JQ, located approximately 6km west of Mooi-nooi, within the jurisdiction of the Rustenburg Local Municipality and the Bojanala Platinum District Municipality in the North-West Province (the "Project"). The Project will have a contracted capacity of up to 40MWp and will be known as the Buffelspoort Solar PV Energy Facility.

The purpose of the Project will be to supply power to a private offtaker through connecting to an existing 88kV Substation via a newly proposed 88kV single circuit overhead power line. The overhead powerline will be approximately 2.5km in length and will be routed across several privately-owned properties from the onsite facility substation to the point of interconnection, north of the N4. The construction of the Solar PV Energy Facility is aimed at diversifying the energy mix for the private offtaker and to reduce their reliance on Eskom supplied power. It is also a conscious effort for the offtaker to contribute to their sustainability targets and reduce their carbon footprint.

A grid connection corridor, which varies in width from 200m to 300m, and is up to 2.5km in length has been identified for assessment. The proposed grid connection infrastructure will be positioned within the confines of the assessed corridor. This corridor will allow for the consideration and avoidance of sensitive environmental features. A development footprint of up to ~77ha has been identified within the project site (~223ha) by Buffelspoort Solar Project for the development of the Buffelspoort Solar PV Energy Facility. Infrastructure associated with the Solar PV Energy Facility will include the following:

- » Solar PV arrays comprising PV panels and mounting structures.
- » Inverters and transformers.
- » Cabling between the arrays.
- » Onsite facility substation.
- » 88kV single circuit overhead power line for the distribution of the generated power, which will be connected to an existing 88kV Substation just north of the proposed project site.
- » Battery Energy Storage System (BESS) – to be initiated at a later stage than the Solar PV Energy Facility.
- » Temporary laydown area.
- » Operations and Maintenance (O&M) building, which will include a site security office, warehouse, storage area and workshop.
- » Main access road (existing – to be upgraded with hard surface) and internal (new) gravel roads.
- » Fencing around the site, including an access gate.



¹The development footprint of the Buffelspoort Solar PV Energy Facility will be located within the 223ha project site and will be a much smaller area within which the PV array and associated infrastructure will be constructed and operated. The development footprint, which is up to 77ha in extent, will be assessed by independent specialists and subject to a detailed design process by the developer through the consideration of sensitive environmental features identified by independent specialists, which will need to be avoided by the PV Facility.

²The project site is that identified area within which the development footprint is located. It is the broader geographic area assessed as part of the S&EIA Process, within which direct effects of the proposed project may occur. The project site is ~223ha in extent.



AIM OF THIS BACKGROUND INFORMATION DOCUMENT

This document aims to provide you, as an Interested and/or Affected Party (I&AP), with:

- » An overview of the Project.
- » An overview of the Scoping and Environmental Impact Assessment (S&EIA) process and specialist studies being undertaken to assess the proposed Project.
- » Details of how you can become involved in the S&EIA process, receive information, or raise comments that may concern and/or interest you.

OVERVIEW OF SOLAR PV TECHNOLOGY

Solar energy facilities use energy from the sun to generate electricity through a process known as the **Photovoltaic Effect**. This effect refers to photons of light colliding with electrons, therefore placing the electrons into a higher state of energy to create electricity. The solar fields of the PV facilities will comprise the following components:

PV Cells, Modules and Panels:

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

PV panels are designed to operate continuously for more than 20 years, mostly unattended and with low maintenance.

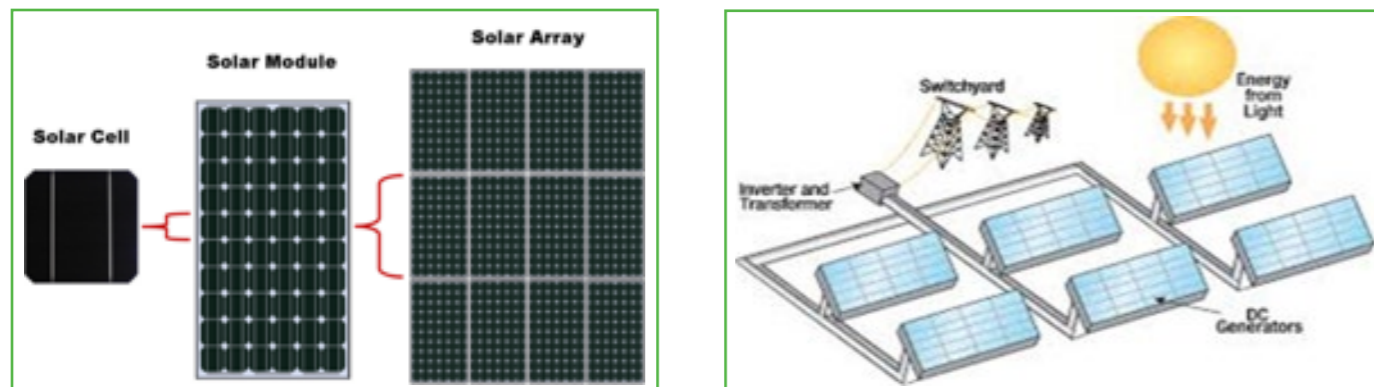


Figure 2: Overview of a PV cell, module, and array / panel (Source: pveducation.com).

Inverters

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

Support Structures

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

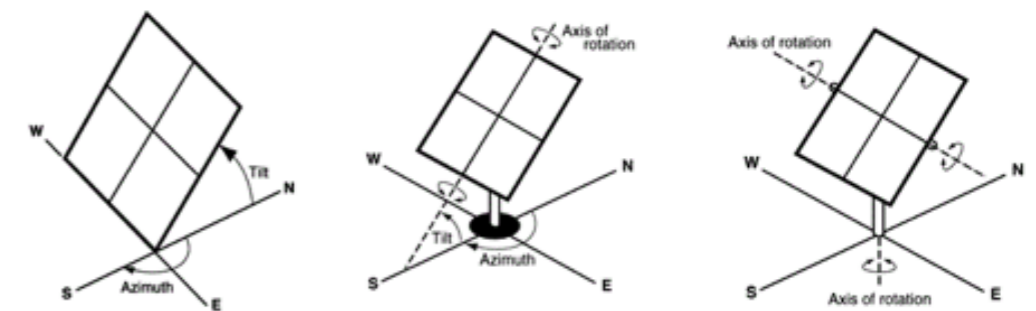


Figure 3: Overview of different PV tracking systems (from left to right: fixed-tilt, single-axis tracking, and double-axis tracking (Source: pveducation.com)).



Bifacial and Monofacial Solar Panel Technology

Bifacial (“two-faced”) modules produce solar power from both sides of the panel. Bifacial solar panels have solar cells on both sides, which enables the panels to absorb light from the back and the front (refer to **Figure 4**). Practically speaking, this means that a bifacial solar panel can absorb light reflected off the ground or another material. The ability of surfaces to reflect sunlight (heat from the sun) is known as the albedo effect. Light coloured surfaces return a large part of the sunrays back to the atmosphere (high albedo) and dark surfaces absorb the rays from the sun (low albedo) . In general, more power can be generated from bifacial modules for the same area, without having to increase the development footprint.

The optimum tilt for a bifacial module has to be designed so as to capture a big fraction of the reflected irradiation. Monofacial solar panels capture sunlight on one light-absorbing side. The light energy that cannot be captured is simply reflected away (refer to **Figure 4**).

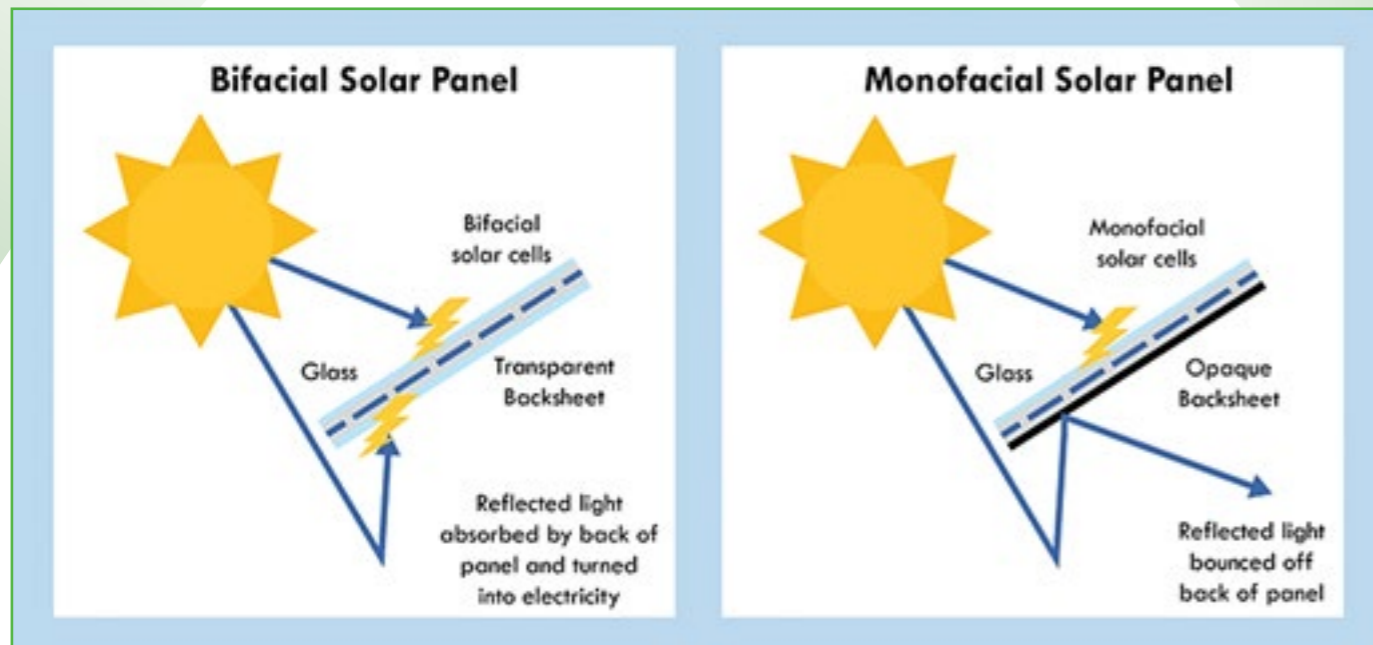


Figure 4: Diagram showing how bifacial and monofacial Solar PV panels work (Source: <https://www.solarkobo.com/post/bifacial-solar-panels>)

BATTERY ENERGY STORAGE SYSTEM

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

The BESS will:

- » Store and integrate a greater amount of renewable energy from the Solar PV Energy Facility into the mine distribution system.
- » This will assist with the objective to generate electricity by means of renewable energy to feed into the mine distribution system.
- » Proposed footprint of battery storage area: up to 2ha.
- » Proposed capacity of battery storage: 30MW / 4h of usable energy at Beginning of Life.
- » Proposed technology to be used: Lithium - Ion Battery or Lithium-iron-phosphate Battery or Redox vanadium.
- » Battery types to be considered: Solid State Batteries and Redox Flow Batteries.

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

In accordance with the EIA Regulations, 2014 (as amended) published in terms of Section 24(5) of the National Environmental Management Act (No. 107 of 1998) (NEMA), the applicant requires Environmental Authorisation (EA) from the North-West Department of Economic Development, Environment, Conservation and Tourism (DEDECT) for the development of the proposed Project. In terms of Section 24(5) of NEMA, the EIA Regulations 2014 (as amended) and Listing Notice 1 (GNR 327), Listing Notice 2 (GNR 325) and Listing Notice 3 (GNR 324), the application for the EA for the Buffelspoort Solar PV Energy Facility is subject to the completion of a S&EIA process. The application for EA is required to be supported by comprehensive, independent environmental studies undertaken in accordance with Appendix 6 of the EIA Regulations, 2014, as amended, and where relevant, in line with the gazetted protocols.

A S&EIA is an effective planning and decision-making tool. It allows for potential environmental consequences resulting from a proposed activity to be identified and appropriately managed during the construction, operation, and decommissioning phases of development. It also provides an opportunity for the project applicant to be forewarned of potential environmental issues and allows for the resolution of issue(s) identified and reported on as part of the S&EIA process, as well as provides opportunity for dialogue with key stakeholders and Interested and Affected Parties (I&APs).



Savannah Environmental has been appointed as the independent environmental consultant responsible for managing the application for EA and undertaking the supporting S&EIA process required to identify and assess potential environmental impacts associated with the project, as well as propose appropriate mitigation and management measures to be contained within the Environmental Management Programme (EMPr) for the facility.

WHAT ARE THE POTENTIAL ENVIRONMENTAL IMPACTS ASSOCIATED WITH THE PROPOSED PROJECTS?

Site-specific studies will be undertaken to assess the potential impact of the proposed Project in order to delineate areas of sensitivity within the development footprint, assess impacts associated with the Project and make recommendations regarding avoidance, management and mitigation of impacts. Studies will be informed by available information and detailed field investigations undertaken in accordance with the relevant guidelines and protocols. Once the constraining environmental factors have been determined, the layout for the proposed facility can be determined and presented in the S&EIA reporting. Specialist studies that are proposed as part of the S&EIA process include the following:

- » Terrestrial Ecology Impact Assessment – includes ecology, fauna and flora and assesses the potential impact and the associated disturbance of vegetation on the biodiversity of the area (including critical biodiversity areas and broad-scale processes).
- » Freshwater Impact Assessment – includes an assessment of impacts and associated disturbance to drainage lines, rivers, and wetlands at a broad and fine scale.
- » Avifauna Impact Assessment – includes pre-construction monitoring in terms of the relevant guidelines and assesses the impact on avifaunal habitats and sensitive species.
- » Soils and Agricultural Potential Impact Assessment – includes land types and assesses the significance of loss of agricultural land and soil degradation and/or erosion.
- » Heritage Impact Assessment – includes archaeology and palaeontology and assesses the potential of disturbance to or destruction of heritage sites and fossils during the construction phase through excavation activities.
- » Visual Impact Assessment – includes the visual quality of the area and assesses the impact of the Solar PV Energy Facility and associated infrastructure on the aesthetics within the area.
- » Social Impact Assessment – assesses the positive and negative social impacts.

PUBLIC PARTICIPATION PROCESS

The sharing of information forms the basis of the public participation process and offers I&APs the opportunity to become actively involved in the S&EIA process. Comments and inputs from I&APs are encouraged in order to ensure that potential impacts are considered throughout the assessment process. The public participation process aims to ensure that:

- » Information containing all relevant facts in respect of the application is made available to I&APs for review.
- » I&AP participation is facilitated in such a manner that they are provided with reasonable opportunity to comment on the proposed Project.
- » An adequate review period is provided for I&APs to comment on the findings of the S&EIA Reports.

To ensure effective participation, the process will include the following:

- » Identifying I&APs, including affected and adjacent landowners and occupiers of land, and relevant Organs of State, and recording details within a database.
- » Notifying registered I&APs of the commencement of the S&EIA process and distributing the Background Information Document (BID).
- » Providing registered parties with access to an online stakeholder engagement platform, which centralises project information and stakeholder input in a single digital platform.
- » Providing an opportunity for I&APs to engage with the EIA project consulting team.
- » Placing site notices at the affected property and around the study area.
- » Placing an advertisement in the local newspaper.



- » Notifying I&APs of the release of the Scoping and EIA Reports for review and comment, meetings to be held and the closing dates by which comments must be received.
- » Providing an opportunity to engage with the EIA project consulting team via an appropriate virtual platform (to reduce the risks associated with COVID-19) or by telephone.
- » Notifying I&APs of the North-West DEDECT's decision on whether to grant or refuse the EA, and the manner in which such decision may be appealed.

YOUR RESPONSIBILITIES AS AN I&AP

In terms of the EIA Regulations, 2014 (as amended) and the Public Participation Guidelines, 2014, your attention is drawn to your responsibilities as an I&AP:

- » To participate in the S&EIA process, you must register yourself on the I&AP database.
- » You are required to disclose any direct business, financial, personal, or other interest that you may have in the approval or refusal of the application.
- » You must ensure that any comments regarding the proposed Project are submitted within the stipulated timeframes.

HOW TO BECOME INVOLVED

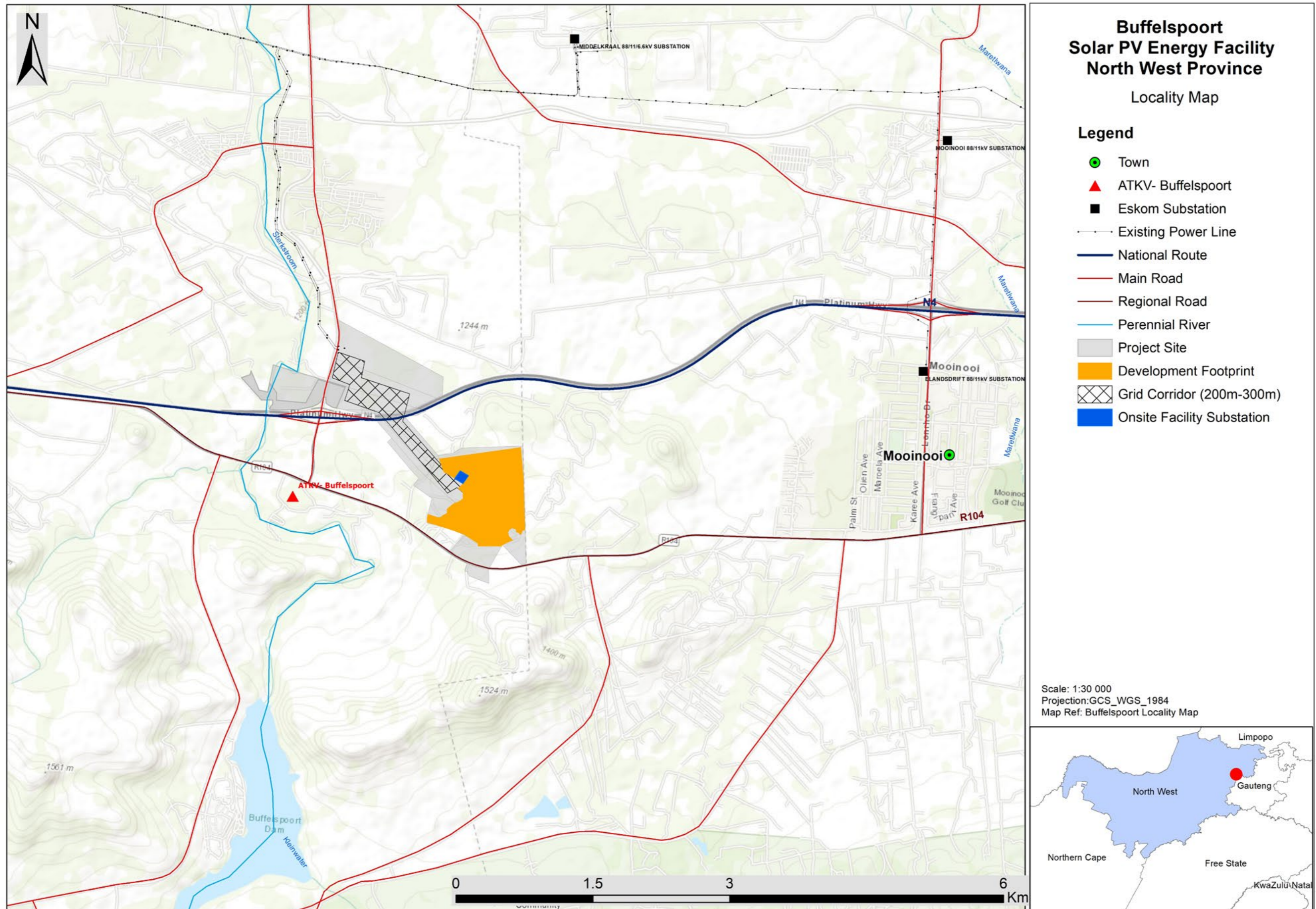
- » By responding by phone, or e-mail to the invitation for your involvement.
- » By returning the reply form to relevant contact person.
- » By engaging with the project team during the S&EIA process.
- » By contacting the independent environmental consultant with queries or comments.
- » By reviewing and commenting on the Reports within the stipulated review and comment periods.

If you consider yourself an I&AP for the proposed Project, we urge you to make use of the opportunities created by the public participation process to provide comment, raise issues and concerns which affect and / or interest you, or request further information. Your input forms a key element of the S&EIA process.

By completing and submitting the accompanying registration form, you automatically register yourself as an I&AP for the proposed Project, and are ensured that your comments, concerns, or queries raised regarding the Project will be noted. Please note that all comments received will be included in the project documentation. This may include personal information .



Figure 1: Locality map for the proposed Buffelspoort Solar PV Energy Facility





COMMENTS AND QUERIES

Direct all comments, queries or responses to:

Savannah Environmental
Nondumiso Bulunga
P.O. Box 148, Sunninghill, 2157
Tel: 011 656 3237
Mobile: 060 978 8396
Fax: 086 684 0547
E-mail: publicprocess@savannahsa.com

To visit the online stakeholder engagement platform and
view project documentation, visit
www.savannahSA.com

