



NALEDZI
ENVIRONMENTAL CONSULTANTS (Pty) Ltd

BACKGROUND INFORMATION DOCUMENT (BID)

ENVIRONMENTAL IMPACT ASSESSMENT (EIA) & WATER USE LICENSE APPLICATION (WULA) FOR THE PROPOSED DEVELOPMENT OF BOSCH HOEK 33MW PHOTOVOLTAIC SOLAR PLANT, BALGOWAN, UMGENI LOCAL MUNICIPALITY, UMGUNGUNDLOVU DISTRICT, KWAZULU-NATAL MIDLANDS

ISSUE DATE: AUGUST 2021



Example of a Photovoltaic Solar plant: Image shows the De Wildt 50MW PV Solar Plant situated near Brits in North West Province. Image obtained from #<https://www.engineeringnews.co.za/article/50-mw-de-wildt-solar-farm-enters-commercial-operation-2021-01-27>

1. INTRODUCTION

Fuze Business Initiative (Pty) Ltd (Fuze) proposes to develop a 33MW photovoltaic (PV) solar plant on a 60 hectare piece of land covering Portions 69, 92, 93 and 84 of the farm Bosch Hoek 1219FT. The project site is located located at Balgowan within the municipal area of uMngeni in the Umgungundlovu District of the KwaZulu-Natal Midlands, approximately 30km northwest of Howick and 7km south east of 'Nottingham Road' (see **Figure 1, 2 and 3**).

The PV solar plant will generate 33MW of renewable energy and will provide electricity to the local government distribution system (not for national usage).

Fuze is the surface right owner of the project site and will be required to apply for a generation license from the National Energy Regulator of South Africa (NERSA) for the solar energy generation facility.

The project also requires environmental authorisation in terms of the National Environmental Management Act (Act107/1998) (NEMA) and its promulgated EIA Regulations of 2014 (GNR 326) from the KZN Department of Economic Development, Tourism and Environmental Affairs (EDTEA) before it can be commissioned. The application process requires a full EIA process in line with Regulation 21 of the EIA Regulations of 2014.

A Water Use License Application (WULA) will also be required under the provision of the National Water Act 36 of 1998 (NWA) for Section 21 (c), (i) water uses due to the presence of two wetlands on the project site and the potential risk of the project impacting on these wetlands. The application will be submitted to the KZN Department of Water & Sanitation (DWS) and will be subject to a WULA Procedure as set out in NWA WULA Regulations of 2017 (GNR 267). Both the EIA process and WULA is to be subject to a public participation process.

Naledzi Environmental Consultants (Pty) Ltd has been appointed by Fuze to undertake the EIA process and WULA Procedure. The application processes will be conducted concurrently and an integrated PPP will be conducted during the EIA process which fulfils both the requirements of NEMA and NWA.

PROJECT APPLICANT



Fuze Business Initiative (Pty) Ltd
University of KwaZulu Natal
Howard College Campus, Gate No. 9,
Innovation Centre
311 Rick Turner Road, Durban, 4001
Contact person: Thandi Ngcobo
Email: thandi@fuze.edu.za
Website: www.fuze.edu.za

ENVIRONMENTAL ASSESSMENT PRACTITIONER



Contact: Marissa Botha
Southdown's Ridge Office Park, Ground
Floor, C/o John Vorster &
Nellmapius Drive, Irene, Centurion,
Gauteng, South Africa
Tel: 012 003 93383 / 084 226 5584
Email: botham@naledzi.co.za
www.naledzi.co.za

PURPOSE OF THIS BID

The purpose of this document is to provide the public with project information and brief any potential Interested and Affected Parties (I&APs) about the EIA process and WULA Procedure to be conducted for the project.

The BID indicates how you can become actively involved in the EIA process through the PPP, and raise issues that may concern and / or interest you. You can achieve this by:

- Reviewing the BID and registering as an I&AP by completing the attached Comments & Registration Form
 - Please also state why you should be considered interested / affected by the project
- Contacting us / by sending us an email;
- Giving comments, raising issues / concerns about the project

You can register, complete a response form, write a letter, call or email Naledzi if you wish to register. Registrations and comments must be submitted on or before 13 September 2021

2. LOCALITY PLANS

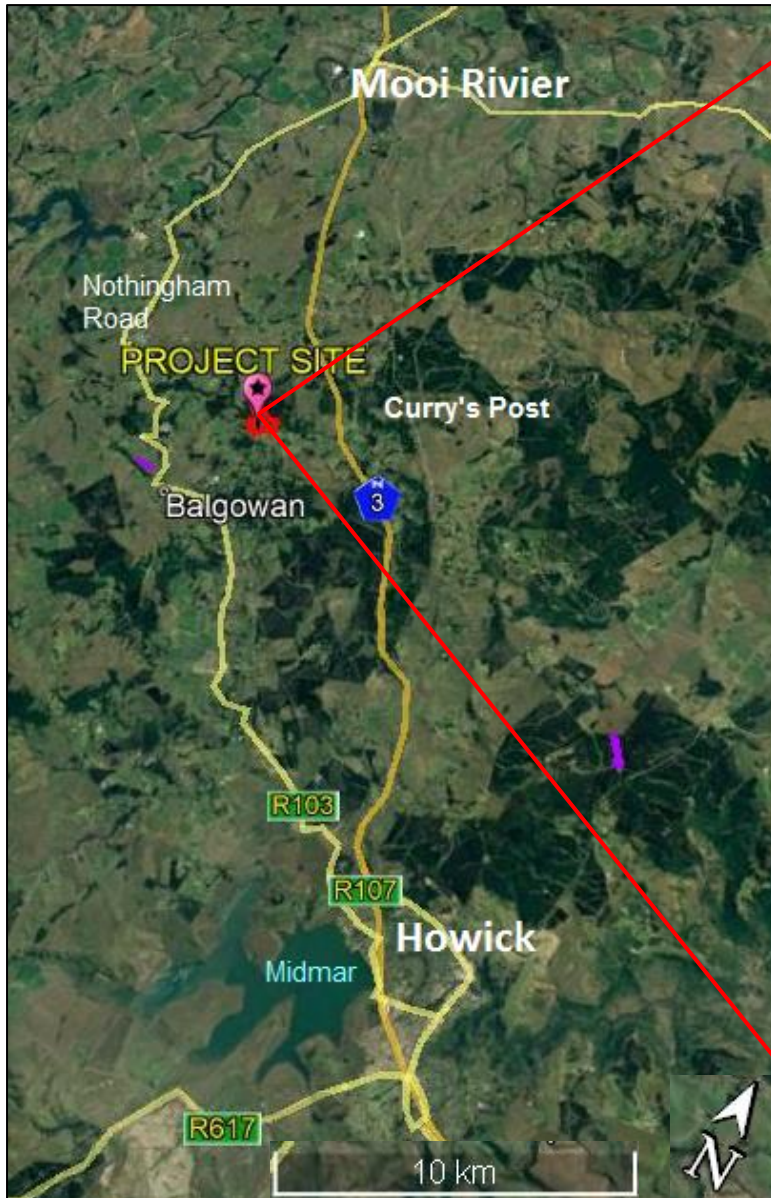


Figure 1: Satellite image showing the location of the project site north west of Howick.

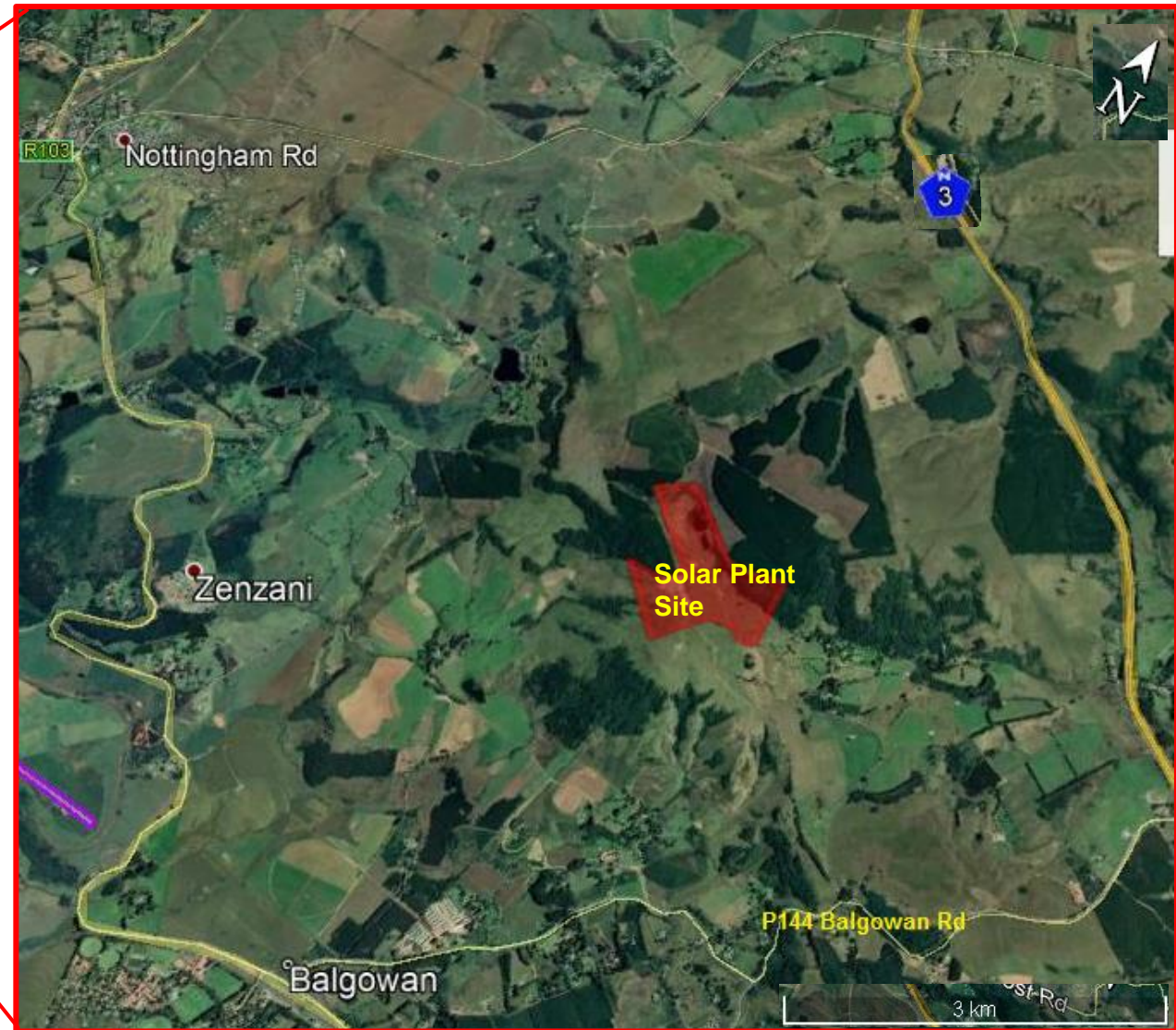


Figure 2: Satellite image showing the location of the project site (red polygon) at Balgowan, approximately 7km south east of Nottingham Road in the KwaZulu-Natal Midlands.

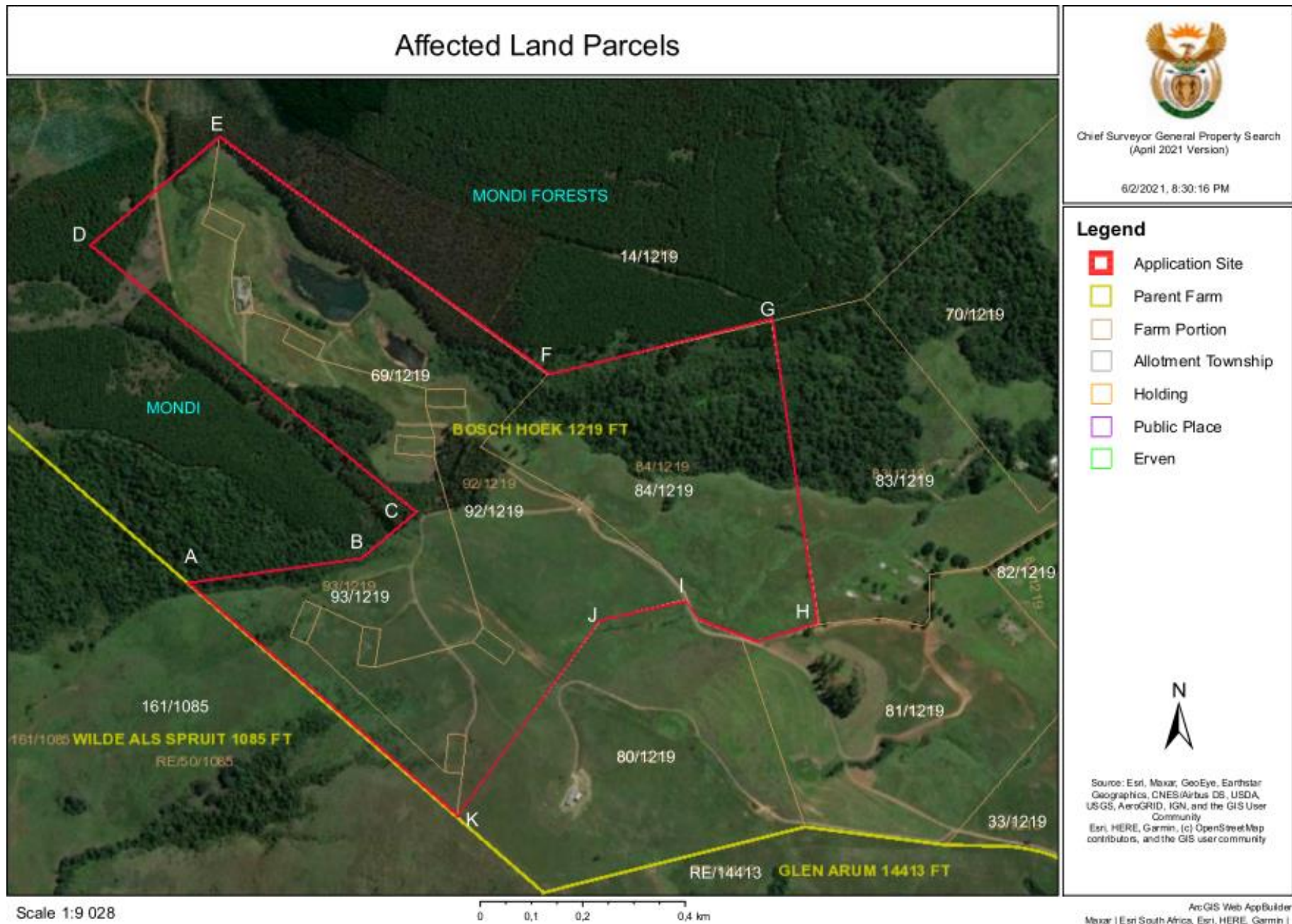


Figure 3: Land parcel map showing the project site (red polygon) and affected land parcels

3. PROJECT DESCRIPTION

The proposed Bosch Hoek 33MW PV Solar Plant will consist of 60 000 PV panels combined in units of 9 modules, arranged in arrays upon tracked mounting structures/poles in landscape orientation across the project site to capture solar energy. The solar plant will have a footprint area of approximately 45 hectares.

The project will also comprise the following ancillary components:

- Foundations to support the PV panels
- Underground cabling between system components
- On-site inverter/s, to produce power at the desired voltage
- Battery Storage Facility (to be confirmed)
- On-site substation to connect the solar plant to the local government distribution system
- Operation Building (i.e. control room, workshop, office, maintenance and storage)
- Storm water infrastructure
- Perimeter fence and internal access roads
- For construction: Temporary laydown area

The project is anticipated to take 24 months to complete construction and to commission. The overall lifespan of the solar plant will be 20 years. The plant can either be upgraded or decommissioned after it has reached its lifespan.

An electricity grid connection will be required from the solar plant to the local government distribution system and will require the future construction of a new overhead power line. The new grid connection would need to be authorised through a separate EIA application process once the solar plant is approved and grid connection can be confirmed.

Figure 4 provides an illustration of the typical components of a solar plant including the energy generation process.

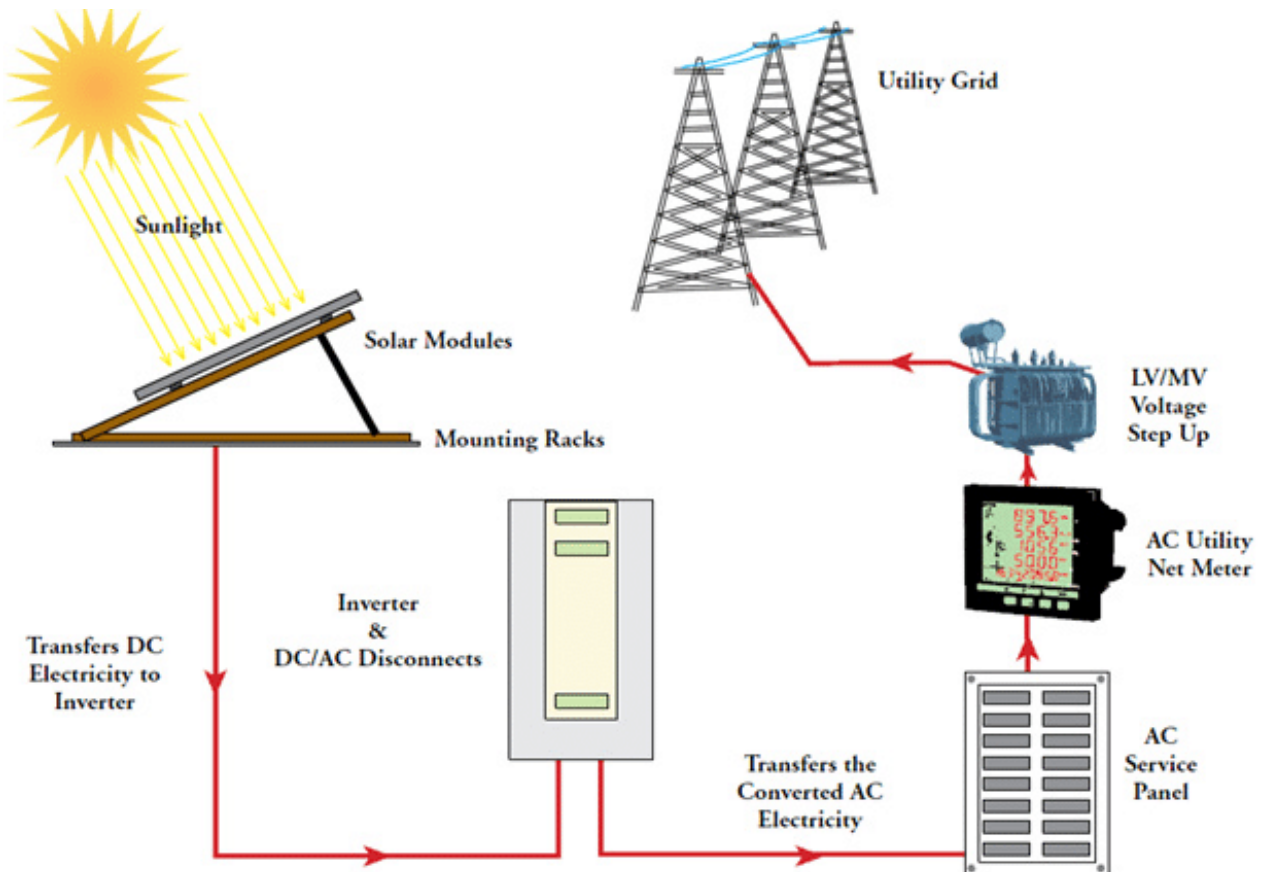


Figure 4: Illustration of typical PV solar plant components and process. Image courtesy of https://www.researchgate.net/figure/b-A-Conventional-Solar-PV-Power-Plant-15_fig2_325348853

The project site comprises hilly terrain with mostly South facing slopes. The steepest South facing slopes onsite are 19° (**Figure 6**). Although easier to install on flat terrain, hills and undulating ground are considered feasible solar sites. Workarounds for undulating topography exist such as non-instructive mounting options i.e. extended pole length (on mounting racks/poles), installation of custom brackets or installation of panels in smaller rows or single-bay tables (**Figure 5**) as appose to costly grading.

The focus areas for the PV models would be on the Southern facing slopes on the project site with modules facing North (**Figure 7**)



Figure 5: Image showing an example of a ground-mounted solar array ascending up a hill. (Source: RBI Solar, www.solarpowerworldonline.com)

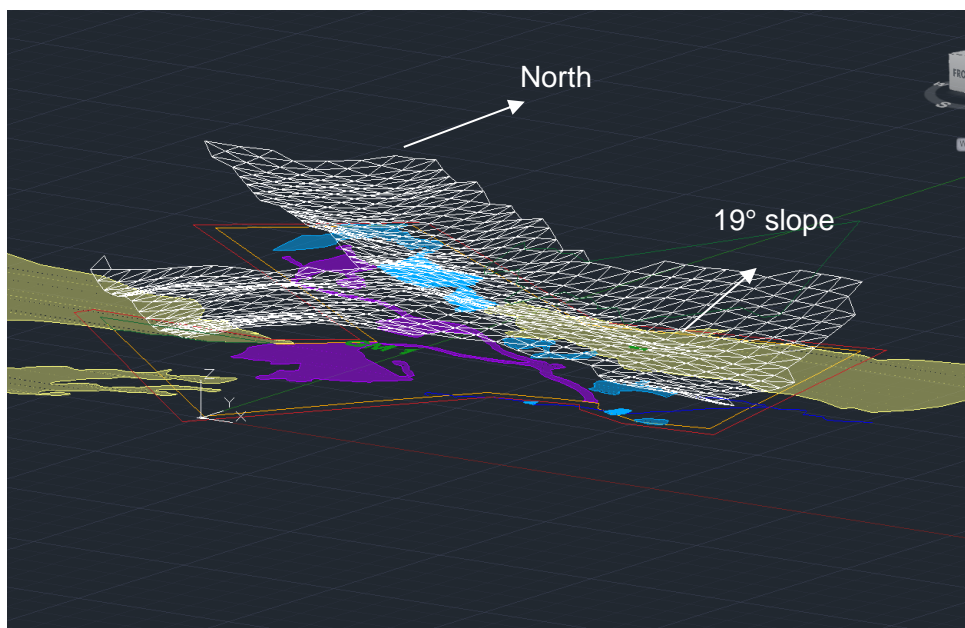


Figure 6: 3D analysis of project site

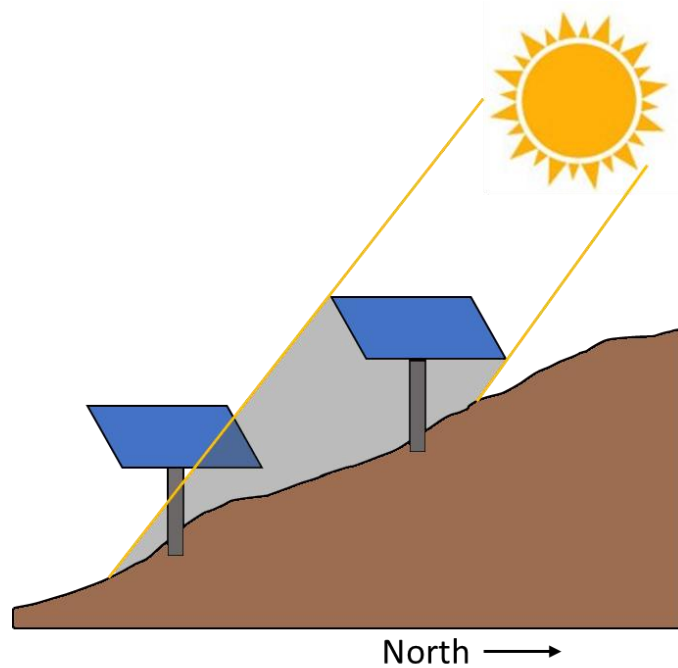


Figure 7: Row shading on Southern facing slopes. PV modules will be placed facing north.

4. LAYOUT DESIGN AND CAPACITY CONSIDERATIONS

Based on the results of Naledzi’s prior site verification, the project site has several environmental features and existing infrastructure which need to be delineated and considered in the PV solar plant layout plan and capacity analysis i.e. natural forest, 10m firebreak, wetlands/drainage lines, dams, roads and infrastructure) (Figure 8).

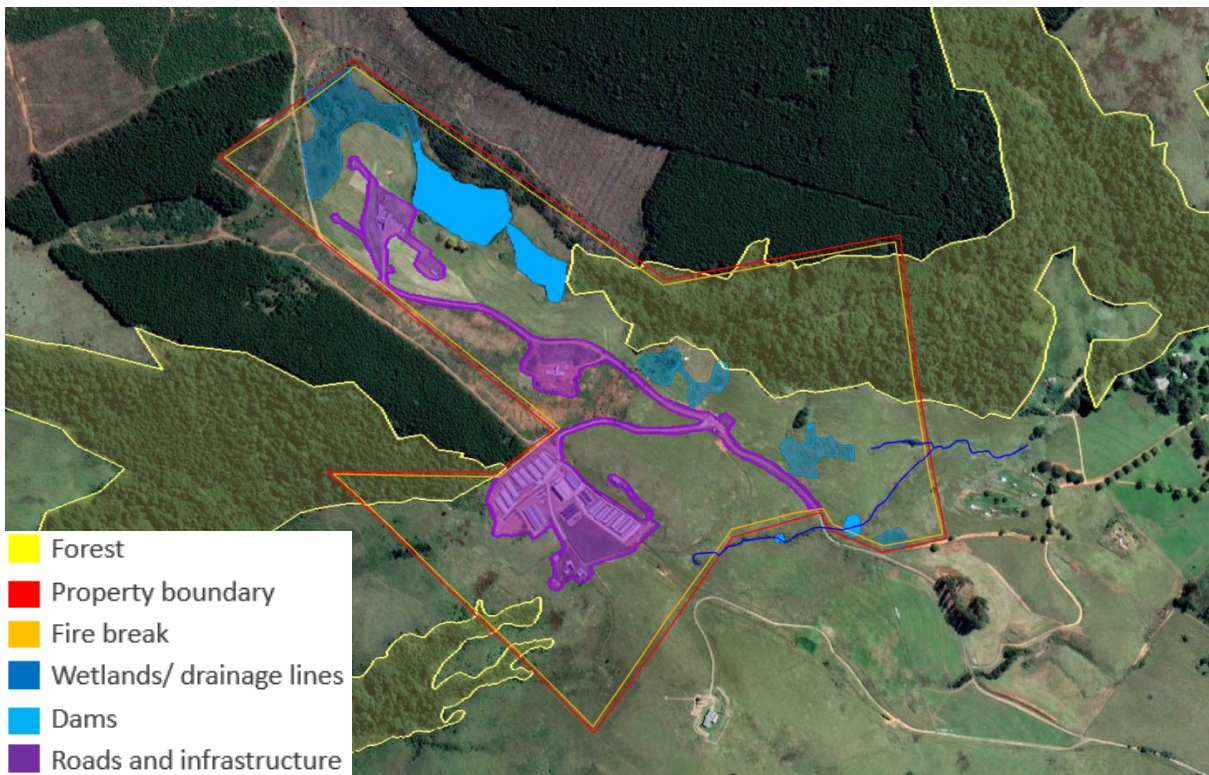


Figure 8: Environmental features and infrastructure of the project site that need to be considered for the PV plant site layout.

Two layout design and capacity alternatives are being considered for the solar plant, one which includes the indigenous forest area and one which excludes these areas (**Table 1**). Option 1 is the preferred design and capacity option for the Bosch Hoek Solar Plant since it yields a higher plant capacity which is more economically feasible for the applicant. Option 1 is therefore detailed under Section 3 'Project Description' as the preferred alternative.

Table 1: Layout Design and Capacity Considerations

Option	Option 1	Option 2
Capacity	32.39MW (33MW)	24.51 MW (25MW)
PV panels	60 000 PV panels	45 000 PV panels
Features	Includes the indigenous forest area	Excludes indigenous forest area
Layout Plan	See Figure 9	See Figure 10
Technical Preference	PREFERRED, yields a higher plant capacity	Less preferred, yields much lower plant capacity

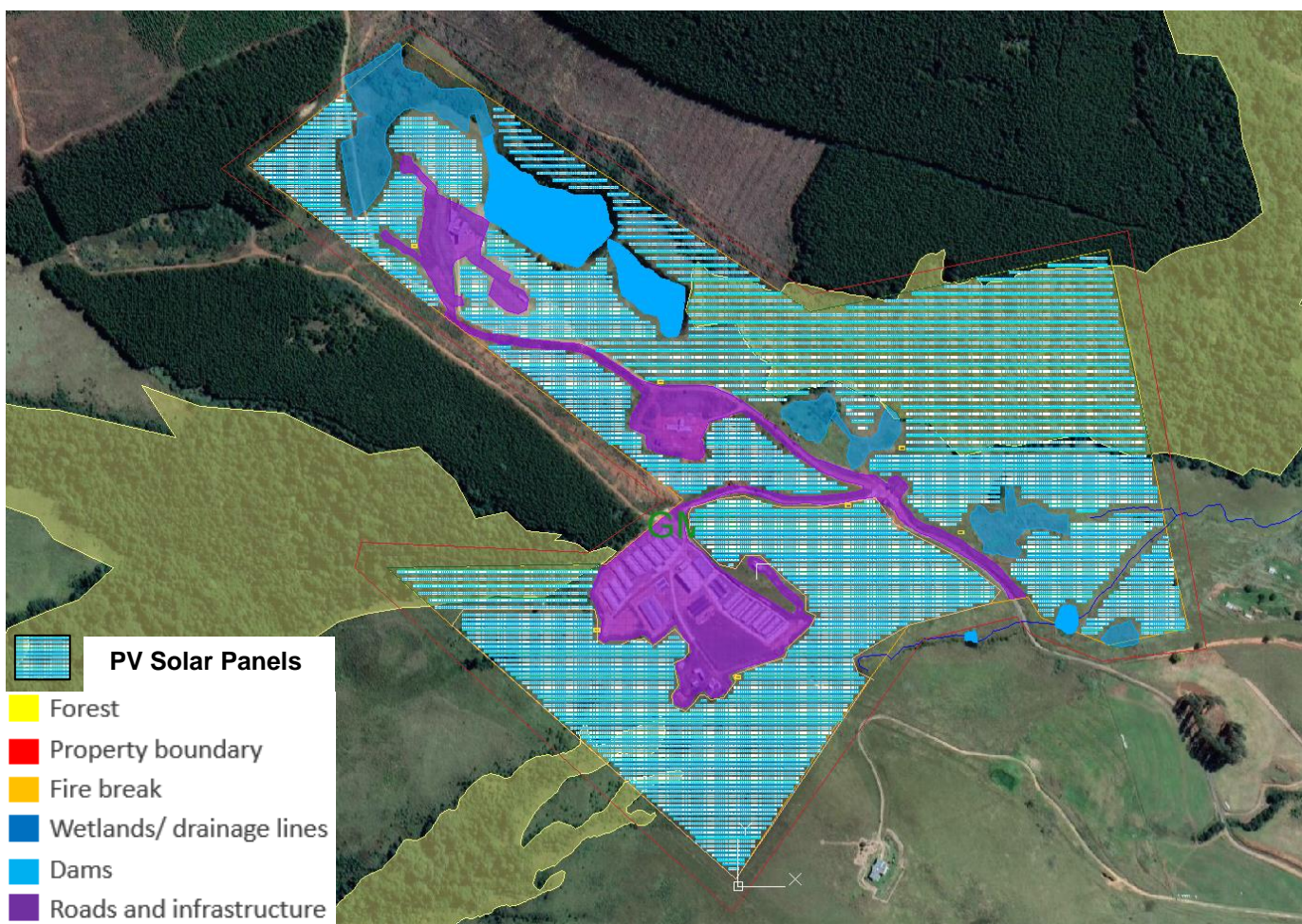


Figure 9: Bosch Hoek PV Solar Plant Layout Option 1 which includes the indigenous forest area.

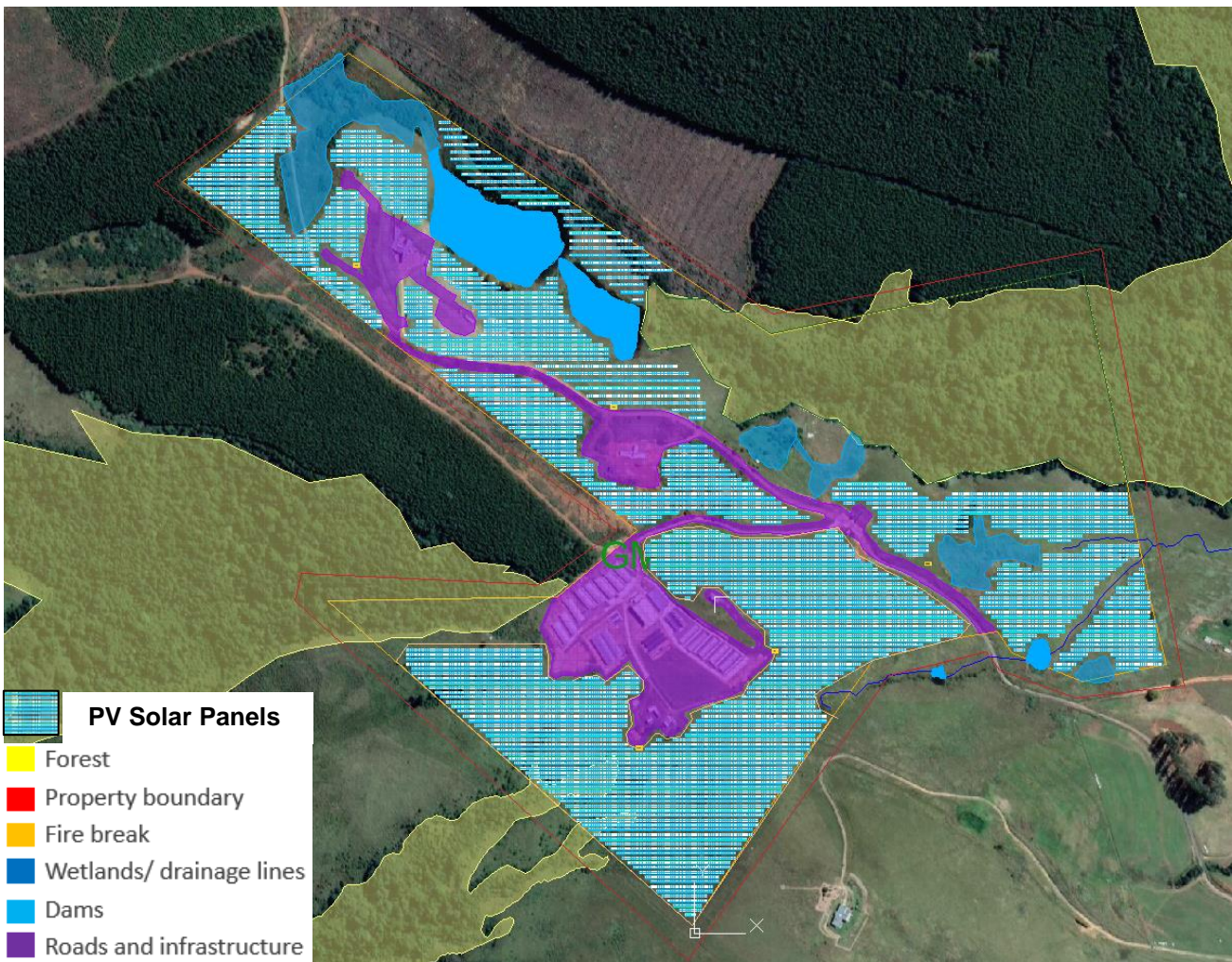


Figure 10: Bosch Hoek PV Solar Plant layout Option 2 which excludes the indigenous forest area.

5. SERVICE REQUIREMENTS

Access Roads: Access to the project site is available via the N3 Highway, P144 Balgowan road and the D2078 route, a two-track dirt road, leading directly to the project site. No access road construction will be required nor any upgrades to existing roads. A temporary increase in traffic is expected during the construction of the plant owned to freight transport to site, yet can be accommodated on the existing roads. Very low traffic volumes are expected during the operation phase and the impact on the road network would be negligible.

Water: The water requirements for the project is expected to be 10 000m³ during construction (24 Months) and approximately 5000m³/annum during the operational phase for maintenance and cleaning of solar panels over the average 20 year lifespan of the plant. Water at the project site is presently sourced from two (2) boreholes and two (2) dams and its capacity to supply the proposed solar plant will be investigated.

Wastewater management: Sewage/wastewater from existing infrastructure on the project site is disposed into septic tanks and French drains. Given the project's remote location, it is anticipated that the same system would be constructed for the proposed solar plant Operations building to manage and dispose of sewage.

Labour Requirements: A specialist company will be contracted to build and maintain the solar energy facility. There will also be local labour requirements during construction of approximately 20 skilled people and 395 un-skilled employment opportunities. During the operational phase, approximately 4 skilled people would be permanently employed to operate and maintain the facility (i.e. 3 full time technicians and one electrical engineer) with the addition of 25 un-skilled employment opportunities.

6. NEED FOR EIA PROCESS

Application for environmental authorisation is required for the solar project and will be submitted to the KZN EDTEA in terms of the NEMA EIA Regulations of 2014. The regulations schedule several listed activities under GNR 327, GNR 325 and GNR 324 which require authorisation subject to either a Basic Assessment or Scoping and EIA process. The solar project triggers activities under all three listing notices, specifically GNR 325, and will follow a full EIA process. The relevant triggered activities specific to the project are stated in 'Box 1'.

The project site does not fall within any gazetted Renewable Energy Development Zones (REDZ) set out in GNR 113, 114 (February 2018) or GNR 142, 144 and 145 (February 2021) for wind and solar renewable energy developments and therefore its requirements don't apply.

EIA Process

The EIA process identifies the potential environmental impacts of a proposed activity and recommends mitigation measures to minimise/avoid such impacts. Its main purpose is to inform the decision making authority and the public of the project's environmental consequences, should it be authorised. The EIA process is conducted in line with Regulation 21 – 24 of the EIA Regulations of 2014 and comprises three phases, the Scoping Phase, Impact Phase and decision making. The Bosch Hoek solar project is currently in the Scoping phase of the EIA process.

The EIA process steps are illustrated in **Figure 6** and include:

Scoping Phase

- Environmental screening of the project site
- Engaging with the relevant competent authority
- I&AP registration and circulation of a BID
- Publicising the project in the local newspaper and placement of onsite notices
- Drafting of a Scoping Report (SR)
- Submission of the application for environmental authorisation to the competent authority;
- Releasing the SR to registered I&APs for 30 days public review
- Conducting a public participation meeting
- Updating SR based on I&AP comments and submit final SR to authorities.

Impact Phase: Once the authority accepts the SR the impact phase will commence by conducting specialist studies and preparing the draft Environmental Impact Report (EIR) which evaluates all issues and alternatives identified during the Scoping Phase, provides an overview of the potential impacts, rank and quantify the impacts and prescribe mitigation measures to minimise negative impacts to acceptable levels.

An Environmental Management Programme (EMPR) will also be prepared that recommend environmental management requirements for the construction and operation of the solar plant. The reports will be released for 30-days public review, followed by a second round of public engagement. The reports will be updated with the public inputs and submitted to EDTEA for decision making. EDTEA will reach a **decision** on the application within 107 days. I&APs will be notified of the outcome and afforded a 20-day appeal period on the decision.

BOX 1 – RELEVANT LISTED ACTIVITIES

GNR 325 – Activity 1: The development of facilities or infrastructure for the generation of electricity from a renewable resource where the electricity output is 20 megawatts or more. *The solar plant will generate 33MW.*

Activity 15: Clearance of an area of more than 20 hectares or more of indigenous vegetation. *The project requires the clearance of approximately 45 ha of indigenous vegetation (Mooi River Highland Grassland, Southern Mistbelt Forest).*

GNR 327 - Activity 11: Development of infrastructure for the transmission and distribution of electricity – (i) outside urban areas with a capacity of more than 33 but less than 275kilovolts. *An on-site substation will be required to facilitate the connection between the solar plant and the local government distribution system.*

Activity 28: Commercial/ industrial developments where such land was used for afforestation on or after 01 April 1998 and where such development: (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare. *The project is situated in a rural area and a minor section of the site, until recently (2020) comprised forestry.*

GNR 324 (Geographic areas) – Activity 4: Development of a road wider than 4m in KZN in a Critical Biodiversity area as set out in a bioregional plan, outside urban areas and or within 5km of terrestrial protected areas as identified in terms of NEMPAA. *Internal access road/s will be constructed of approximately 5m wide within an 'irreplaceable critical biodiversity area' (2014 KZN Biodiversity Sector Plan) and within 5km from the 'Blue Crane National Reserve', the 'Bill Barnes Game and Oribi Nature Reserve; and Michaelhouse protected area which are protected areas in terms of NEMPAA.*

Activity 12: The clearance of an area of 300m² or more of indigenous vegetation in KZN within an endangered ecosystem in terms of Section 52 of NEMBA, critical biodiversity areas as set out in bioregional plans and sensitive areas identified in an environmental management framework (EMF) adopted by the competent authority. *Approximately 45 ha of combined Mooi River Highveld Grassland and Southern Mistbelt Forest will be cleared for the project. The site falls with the nationally threatened ecosystem 'Easingwold Grassland', including an irreplaceable critical biodiversity area (2014 KZN Biodiversity Sector Plan). The site is also located within a sensitive area (High Wetland Sensitivity area) as identified in the uMgungundlovu District EMF.*

Activity 14: The development of infrastructure with a physical footprint of 10m² or more within 32m of a watercourse, measured from the edge of a watercourse; in KZN in sensitive areas identified in an EMF as adopted by the competent authority, outside urban areas and or within 5km of terrestrial protected areas as identified in terms of NEMPAA. *Project infrastructure may be placed within 32m of a wetland and a non-perennial stream. Areas on the project site comprising delineated wetlands fall with High Wetland Sensitivity areas as identified in the uMgungundlovu District EMF. The site is also located within 5km from a protected area as per activity 4.*

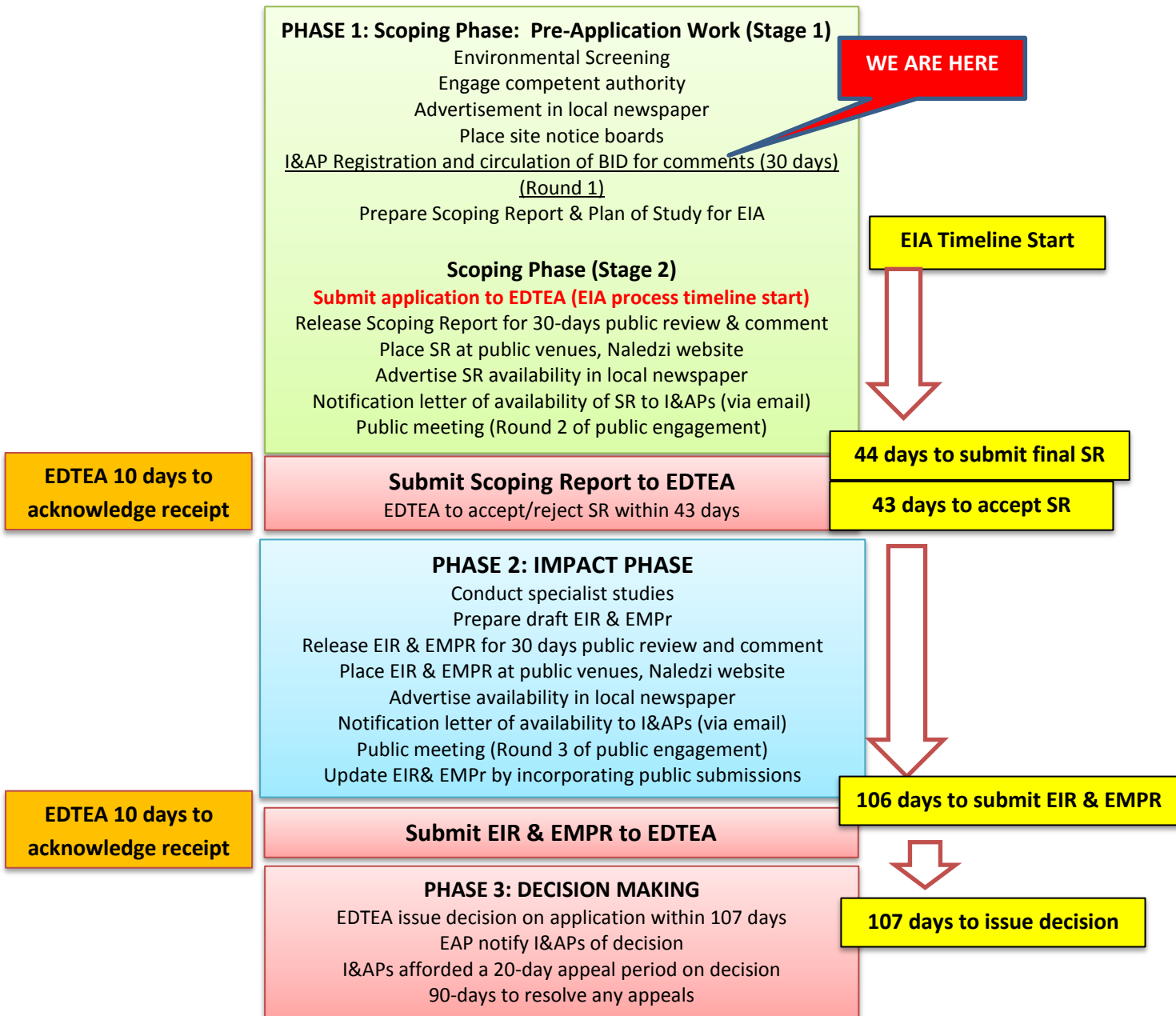
Site Environmental Sensitivity and Specialist Studies

Specialist Studies are a crucial component of the EIA process and forms the basis of the integrated EIR and EMPr for the proposed project. Based on the DEFF GIS-based 'National web-based Environmental Screening Tool the site has a four-tier environmental sensitivity rating and several specialist studies will be commissioned as part of the EIA process to evaluate these above environmental sensitivity themes. (See **Table 2**)

Table 2: Project related sensitivity themes and required specialist studies

Environmental Sensitivity Themes	Specialist Studies to be commissioned:
<ul style="list-style-type: none"> • Very High Agricultural • Very High Terrestrial Biodiversity, • Very High Aquatic Biodiversity • Very High Landscape (Solar) theme • High Avian and Bat Theme • Medium Civil Aviation Theme • Low Cultural and Heritage Theme 	<ul style="list-style-type: none"> • Visual Impact Assessment • Terrestrial Biodiversity Impact Assessment (inclusive of a plant and animal species survey) • Avifauna Impact Assessment • Wetland Delineation and Assessment • Soil, Agricultural Potential and Land Use Capability Impact Assessment • Heritage Impact Assessment • Geotechnical Investigation; • Storm Water Management Plan

Figure 11: EIA process flow diagramme



7. WATER USE LICENSE APPLICATION

The WULA will be submitted to the KZN DWS in Durban once the PV solar plant infrastructure positions have been determined. Application will be made for the following Section 21 water uses:

- Section 21 c - Impeding or diverting the flow of water in a watercourse (Activities within 500m of two NFEPA wetland)
- Section 21 i - Altering the bed, banks, course or characteristics of a watercourse (Activities within 500m of two NFEPA wetlands)
- Section 21g - Disposing of waste in a manner which may detrimentally impact on a water resource (potentially triggered if the ablution facilities are to include a septic tank, French drain etc.)

The basic WULA procedure is illustrated in **Figure 13**. As of April 2021, the procedure is regulated at 90 days. The procedure will be conducted as per the following steps:

- Pre-application meeting with DWS to discuss the water uses;
- Submit of a pre-application enquiry to DWS;
- Submit application for water use license to DWS;
- Conduct DWS site inspection;
- Compile a Water Use Technical Report in support of the relevant water uses;
- Submit the Water Use Technical Report, water related specialist studies and supporting documents to DWS;
- DWS will review the application and issue a decision;
- Notify I&APs of the decision.

The water use technical report and details of the WULA will be subject to public review together with the draft EIR & EMPr documents.

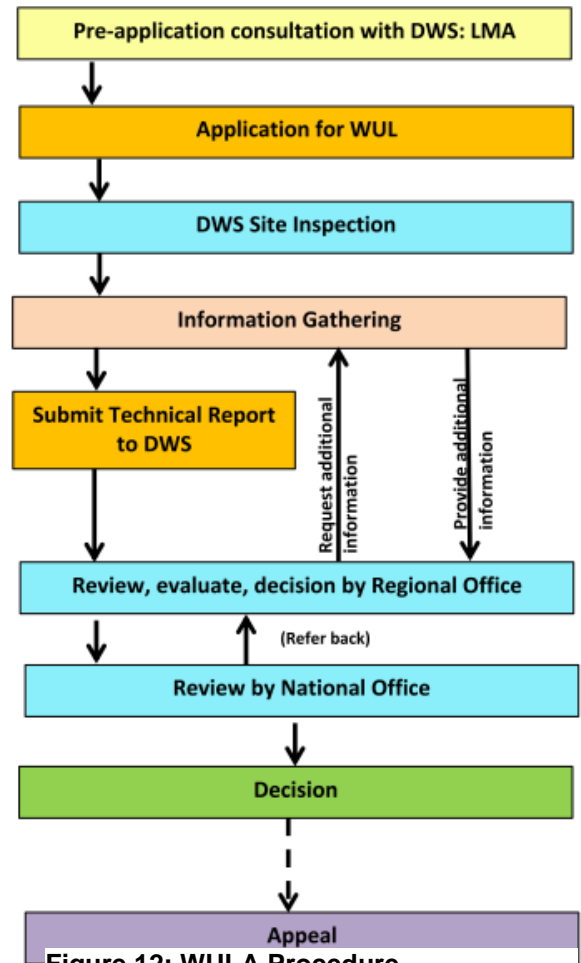


Figure 12: WULA Procedure

8. EIA PROCESS SCHEDULE

	Requirement	Status / Anticipated date
SCOPING PHASE	Environmental Screening Engagement with authorities PPP Round 1: Registration of I&APs, circulation of BID for public review	May 2021 July to August 2021 August to September 2021
	Submission of application environmental authorisation PPP Round 2: Release draft Scoping Report for 30-day public comment Public engagement	Mid-October 2021 October – November 2021 November 2021
	Submit Final Scoping Report to EDTEA EDTEA accept Scoping Report	Start of December 2021 February 2021
IMPACT PHASE	Conduct specialist studies PPP Round 3: Release Draft EIR & EMPr for 30-day public comment Public Engagement	October – November 2021 April 2022
	Submit Final EIR & EMPr report to EDTEA	End of May 2022
	EDTEA issue decision (environmental authorisation)	October 2022

9. PUBLIC PARTICIPATION PROCESS (PPP)

Public Participation is a key requirement of the EIA process. The PPP needs to be conducted in line the NEMA EIA Regulations 2014, (Regulation 39-44).

The aim of the PPP is to engage stakeholders or I&APs and provide an opportunity for expression of public views on the environmental impacts of the applications. All public issues, comments and views on impacts and alternatives are documented, addressed and responded to in the EIA process and incorporated into environmental reports for consideration by the decision-making authorities (i.e., KZN EDTEA and DWS). It is therefore important that relevant I&APs are identified and involved in the PPP from the beginning of the EIA process to help focus the EIA plan.

PPP Plan

Three rounds of public consultation are planned as part of the EIA process to satisfy both the NEMA and NWA requirements. (See EIA process Schedule provided under Section 7)

1st Round - I&AP Registration, Circulation of BID for 30-days review and comment

The project will be announced to the public through the following means:

- Newspaper advertisement in the Village Talk local newspaper (issued on Fridays)
- Placement of on-site notices in the project area;
- A BID (this document) will be available at public venues in the project and on the Naledzi website (www.naledzi.co.za/publicdocuments) under the project description 'Bosch Hoek 33MW Solar Plant'.
- Distribution of the BID to stakeholders for comment and review (30 calendar day review period);

2nd Round – Released of Draft Scoping Report for 30-days review and comment

The second round of consultation will entail the following:

- Newspaper advertisement in the Village Talk local newspaper (issued on Fridays)
- Emailing of notification letters to registered I&APs of the availability of the draft SR
- Availability of Draft Scoping Report for public review and comment at public venues and Naledzi website;
- Public meeting, wherein the findings of the Scoping Report will be presented;

3rd Round - Released of Draft EIR & EMPr for 30-days review and comment

The third round of consultation will entail the following:

- Newspaper advertisement in the Village Talk local newspaper (issued on Fridays)
- Emailing of notification letters to registered I&APs of the availability of the draft EIR & EMPR
- Availability of Draft EIR & EMPR for public review and comment;
- Public meeting, wherein the findings of the EIR & EMPR will be presented (if necessary);

A public meeting will take place during the SR and EIR & EMPR public review periods (if necessary) to facilitate comments on the project and reports. The public meeting will be scheduled in the project area, in the event that Covid-19 restrictions/regulations prohibit gatherings, virtual meetings will be scheduled with key stakeholders.

You can become involved by:

- Registering yourself by e-mail or phone as an I&AP;
- Reviewing the BID and submitting your initial comments on the attached Comment & Registration Form via email to the contact person provided;
- Attending the public meetings (if necessary). As a registered I&AP you will automatically be invited to these events;
- Reviewing and commenting on the draft Scoping Report, draft EIA Report and Environmental Management Programme within the allowed review periods;

- Contacting the contact persons below with your comments, queries, suggestions, or request for further project information.

Invitation to Register as an I&AP

You are invited to register as an Interested and Affected Party (I&AP). For a period of 30 days, from 13 August to 13 September 2021, the BID is presently available for review and for submission of comments regarding the proposed project.

I&APs are requested to please provide comments together with their name, contact details and an indication of any direct business, financial, personal or other interest which they have in the application, to the contact person provided, within the review period. The preferred method of communication is either by telephone or email correspondence, which will also allow tracking of submissions.

What is next?

All comments and issues received during the public registration and comment period on the BID will be incorporated into an Issues and Response Report (IRR), and responded to. We will prepare a draft Scoping Report which will be made available for public review for 30 calendar days. The IRR will be attached to the Scoping Report. The report and supporting documentation will be made available on the Naledzi website and at public venues. A public meeting will be scheduled to facilitate comments on the Scoping Report. The details of these tasks will be communicated to I&APs via email.



ENVIRONMENTAL IMPACT ASSESSMENT (EIA) & WATER USE LICENSE APPLICATION (WULA) FOR THE PROPOSED DEVELOPMENT OF BOSCH HOEK 33MW PHOTOVOLTAIC SOLAR PLANT, BALGOWAN, UMGENI LOCAL MUNICIPALITY, UMGUNGUNDLOVU DISTRICT, KWAZULU-NATAL MIDLANDS

Naledzi Environmental Consultants (Pty) Ltd

Contact: Marissa Botha
Southdown's Ridge Office Park, Ground Floor, C/o John Vorster &
Nellmapius Drive, Irene, Centurion, Gauteng, South Africa
Tel: 012 003 93383 / 084 226 5584
Email: botham@naledzi.co.za
www.naledzi.co.za

TITLE (Prof/Mr/Mrs)		FIRST NAME	
SURNAME			
CAPACITY (eg. Director/Secretary)			
ORGANISATION			
POSTAL ADDRESS		POSTAL CODE	
TEL NO:		CELL NO:	
FAX NO:		EMAIL ADDRESS:	
COMMENTS/ISSUES / CONCERNS (Please use separate sheet, if required)			

Please add the following of my colleagues/friends/neighbours on your mailing list:

Name:	Organisation:	
Contact details		
Address:		
Tel:	Fax:	Cell:
Email:		