August 2022

# FINAL

# ENVIRONMENTAL SCOPING REPORT

FOR

## THE PROPOSED RICHARDS BAY MINERALS MAIN SITE WESTERN AREA PHOTOVOLTAIC INFRASTRUCTURE, KWAZULU-NATAL.

**DC28/0008/2022**


**Compiled for**

Richards Bay Minerals

**Compiled by**

Exigent Engineering Consultants CC
PO Box 9514, Richards Bay, 3900

# REPORT DETAILS

| | | |
|---|---|---|
| **Project Title** | FINAL SCOPING REPORT FOR THE PROPOSED RICHARDS BAY MINERALS MAIN SITE WESTERN AREA PHOTOVOLTAIC INFRASTRUCTURE, KWAZULU-NATAL (DC28/0008/2022). | |
| **Versions** | Version 1 | FINAL Scoping report for submission to Competent Authority |
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| **Consultant Details** | Exigent Engineering Consultants<br>Jacolette Adam<br>PO Box 9514<br>Richards Bay; 3900<br>035 788 0398 | |
| **Report Contributors** | Jacolette Adam - Report Writing and Reviewer | |
| | Kelly Joubert – Report Writing | |

## ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| AEL | Atmospheric Emissions License |
| BA | Basic Assessment |
| BID | Background Information Document |
| CA | Competent Authority |
| CARA | Conservation of Agricultural Resources Act |
| CBA | Critical Biodiversity Area |
| CRR | Comments and Response Report |
| DM | District Municipality |
| DMR | Department of Mineral Resources |
| DAFF | Department of Agriculture, Forestry and Fisheries |
| DEDTEA | Department of Economic Development, Tourism and Environmental Affairs |
| DEFF | Department of Environment, Forestry and Fisheries |
| DHS | Department of Human Settlements |
| DHSWS | Department of Human Settlements, Water and Sanitation |
| DRDLR | Department of Rural Development and Land Reform |
| DSR | Draft Scoping Report |
| DWAF | Department of Water Affairs and Forestry |
| DWS | Department of Water Affairs and Sanitation |
| EA | Environmental Authorisation |
| EAP | Environmental Assessment Practitioner |
| ECO | Environmental Control Officer |
| EIA | Environmental Impact Assessment |
| EIAR | Environmental Impact Assessment Report |
| EKZNW | Ezemvelo KZN Wildlife |
| EMPr | Environmental Management Programme |
| ESAs | Ecological Support Areas |
| ESMP | Environmental and Services Management Plan |
| EXIGENT | Exigent Engineering Consultants |
| FSR | Final Scoping Report |
| GN | Government Notice |
| I&AP | Interested and Affected Party |
| IDP | Integrated Development Plan |
| IGR | Inter-governmental relation |
| IWULA | Integrated Water Use License Application |
| KCDM | King Cetshwayo District Municipality |
| KZN | KwaZulu-Natal |
| LED | Local Economic Development |
| MAP | Mean Annual Precipitation |
| MAR | Mean Annual Runoff |
| MLM | Mfolozi Local Municipalities |
| NBA | National Biodiversity Authority |

| | |
|---|---|
| NBF | National Biodiversity Framework |
| NEAS | National Environmental Authorization System |
| NEMA | National Environmental Management Act |
| NEMBA | National Environmental Management: Biodiversity Act |
| NEMAQA | National Environmental Management: Air Quality Act |
| NEMPAA | National Environmental Management Protected |
| NEMWA | National Environmental Management: Waste Act |
| NFEPA | National Freshwater Ecosystem Priority Areas |
| NGOs | Non-Government Organizations |
| NHRA | National Heritage Resources Act |
| NSSD | National Strategy for Sustainable Development and Action Plan |
| NWA | National Water Act, Act 36 of 1998 |
| NWM5 | National Wetland Map 5 |
| PPP | Public Participation Process |
| PV | Photovoltaic |
| SAHRA | South African Heritage Resource Agency |
| SANBI | South African National Botanical Institute |
| SMME | Small, Medium and Micro Enterprises |
| TOR | Terms of References |
| ULM | uMhlathuze Local Municipality |
| WMA | Water Management Area |
| WULA | Water Use License Application |
| WWTA | Waste Water Treatment Works |
| ZO | Zululand Observer |

# EXECUTIVE SUMMARY

Richards Bay Minerals is planning on developing a solar park as an alternative renewable energy source for on-site consumption at Richards Bay Minerals. The proposed site is located within Richards Bay, adjacent to the main Richards Bay Minerals smelter site, within the uMfolozi Local Municipality, King Cetshwayo District Municipality, KwaZulu-Natal province.

Exigent Engineering Consultants CC has been appointed to oversee the environmental legislative processes applicable to the proposed development. The proposed project involves the development of photovoltaic facilities or infrastructure for the generation of electricity of approximately 20 megawatts for an on-site solution. The development of the solar park aims to harvest solar energy as an alternative source of renewable energy for Richards Bay Minerals. The Solar field will comprise of Solar Arrays with a maximum height of approximately 10 m and a footprint of approximately 30 hectares.

The Scoping Phase was undertaken in line with the requirements of the National Environmental Management Act Environmental Impact Assessment Government Notice Regulations 326[1]. The information contained in this Scoping Report[2] provides a comprehensive description of the need and desirability of the proposed project, specifically relating to sustainable development in the economic, social, and environmental spheres.

An important part of any Scoping Phase is public participation. Stakeholder engagement was initiated from the outset of the project to ensure that all stakeholders and Interested and Affected Parties were adequately and effectively consulted. The Draft Scoping Report was made available for public and stakeholder review for a period of 30 days. All comments received and issues raised during the public participation phase have been incorporated into this Final Scoping Report and will be included during the Environmental Impact Assessment Phase.

An Aquatic and Terrestrial biodiversity impact assessment, a Visual impact assessment, and a Heritage impact assessment specialist study will be undertaken, as identified in the environmental sensitivity report which is required in terms of Section 16(1)(b)(v) of the 2014 Environmental Impact Assessment Regulations when applying for an environmental authorization. The Plan of Study for the Environmental Impact Assessment Phase has been included as part of this Scoping Report, indicating the purpose of the Environmental Impact Assessment Phase and providing the framework for the next phase in the authorisation process. The Plan of Study includes the Terms of References for the proposed specialist

[1] GNR326, GG40772 of 7 April 2017
[2] S21(3) of GNR326, GG40772 of 7 April 2017

studies, a description of the risk rating methodology to be used, and details of the overall deliverables of the Environmental Impact Assessment process.

## ISIFINYEZO ESIPHEZULU

iRichards Bay Minerals ihlongoza ukwenza ipulazi elizokhiqiza ugesi ngamandla elanga (Solar farm) njengenye indlela yokuthola ugesi endaweni yase Richards Bay Minerals. Indawo ehlongozwayo ise Richards Bay, eduze neRichards Bay Minerals smelter, engaphansi kukaMasipala uMfolozi, kuMasipala besifunda iKing Cetshwayo, kwisifundazwe iKwaZulu-Natal.

iExigent Engineering Consultants CC iyona emiswe njengomhloli wemvelo kuleprojekthi. Iephrojekthi izoletha ukuthuthukiswa kwengqalasizinda ukuze kuzokhiqizwe ugesi ongamaMegawatts angamashumi amabili (20). Inhloso yaleliplazi lagesi ukuthola amandla elanga ukuze ashintswe enziwe ugesi ozosebenzela iRichards Bay Minerals. I-Solar field izoba nama solar arrays afinyelela ko 10m ubude, kuzothinteka nendawo engango 30 wama hektha.

Isigaba sokuhlola senziwe ngokuhambisana nezidingo zoMthetho Kazwelonke wokuphathwa kwezemvelo kwisaziso sikahulumeni somthethonqubo 326. Ulwazi oluqukethwe kulo mbiko lunikeza incazelo egcwele yesidingo kanye nokufiseleka kwalephrojekthi ehlongozwayo, ikakhulukazi ephathelene nentuthuko esimeme, emkhakheni wezomnotho, wezenhlalakahle, kanye nemvelo.

Ingxenye ebalulekile yanoma yisiphi isigaba sokubheka indlela imvelo ezothinteka ngayo ukuthi umphakathi ubambe iqhaza. Ukuxoxisana naba bambiqhaza kwaqalwa kusukela ekuqaleni kwephrojekthi ukuze kuqinisekiswe ukuthi bonke ababambiqhaza namaqembu anentshisekelo kanye nabathintekayo kuboniswane nabo ngokwanele nangempumelelo. Lombiko watholakala emphakathini kanye nababambiqhaza ukuze ubuyekezwe isikhathi esiyizinsuku ezingama-30. Zonke iziphawulo ezatholakala kanye nezindaba eziphakanyiswa zizofakwa eMbikweni Wokugcina ozobhalwa, futhi uzofakwa phakathi kwisigaba sokuhlola umthelela ongase ube kwimvelo.

Kuzokwenziwa ucwaningo longoti bezinto eziphila emanzini nasemhlabeni, ucwaningo lwezinto ezibonakalayo, nocwaningo lwamagugu, njengoba kuphakamisiwe embikweni wokuzwela kwezemvelo odingekayo ngokweSigaba 16(1)(b)(v) semithethonqubo yokuhlolwa komthelela wendawo ka-2014 mawufaka isicelo sokugunyazwa kwezemvelo. Uhlelo locwaningo lwesigaba sokuhlola umthelela emvelweni lufakiwe njengengxenye yalo mbiko, okhombisa inhloso yokuhlola umthelela emvelweni kanye nokuhlinzeka ngohlaka lwesigaba esilandelayo senqubo yokugunyazwa. Uhlelo locwaningo luhlanganisa imigomo yocwaningo lochwepheshe oluhlongozwayo, incazelo yendlela yokulinganisa ubungozi okufanele isetshenziswe kanye nemininingwane yakho konke okulethwa yinqubo yokuhlolwa komthelela kwezemvelo.

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# 1 INTRODUCTION

Richards Bay Minerals (RBM) is the trading registered company under which Richards Bay Mining (Pty) Ltd (mining company) and Richards Bay Titanium (Pty) Ltd (smelting & processing company) operate (Exigent, 2017). In previous years the stakeholders such as Rio Tinto (Pty) Ltd, BHP Billiton (Pty) Ltd, a BBBEE company and the RBM Employees Trust (EM-TR) jointly owned RBM (Exigent, 2017). BHP Billiton (Pty) Ltd was, however, bought out by Rio Tinto in 2011 whom are presently the managing group by agreement (Exigent, 2017). At RBM high-grade titanium dioxide feed-stocks are produced to world-class metallurgical complexes as well as valuable co-products which include high-purity ductile iron, steel billets, metal powders and zircon (Exigent, 2017). RBM is the largest mineral sand producer and Beneficiation Company in South Africa and the main operations at RBM includes Tisand, Zulti North, the Smelting Processing and Site Logistics operations and the Zulti South lease area (Exigent, 2017).

RBM's core business involves the extraction and processing of the heavy minerals found in the coastal dune sands within the uMhlathuze (ULM) and uMfolozi Local Municipalities (MLM) (Exigent, 2017). The processes at RBM culminate in the production of Titanium dioxide (Slag), High Purity Pig Iron (including Iron Skulls & Prills), Rutile, and Zircon (Exigent, 2017). RBM's activities are divided into seven (7) primary operational components, namely: Tisand mining lease area, Zulti North mine lease area, Zulti South Mine lease area, SP&SL, Water supply infrastructure, Kimony operations and Alton bagging plant (Exigent, 2017).

RBM began mining the Tisand area in 1977 and has a mining right until 2041 (Exigent, 2017). Mining is currently underway in the Zulti North area, and mining reserves are expected to last until 2035 (Exigent, 2017). Town Board Lease has closed and rehabilitated and has received a closure certificate from Department of Mineral Resources (DMR) (Exigent, 2017).

Exigent Engineering Consultants cc (hereafter referred to as Exigent) has been appointed by RBM, as the Environmental Assessment Practitioner (EAP) to oversee the environmental legislative processes applicable to the proposed development of the Photovoltaic (PV) infrastructure at the western area on the main site of RBM (the study area).

The competent authority (CA) responsible for considering this proposal is the Department of Economic Development, Tourism and Environmental Affairs (DEDTEA). The application is undertaken in terms of Environmental Impact Assessment (EIA) Regulations published in terms of Government Notice Regulations (GNR) 362 of 7 April 2017 under Section 24(5), and 44 of the National Environmental Management Act (NEMA) (Act No. 107 of 1998), as amended, the intent to carry out the EIA Process (in terms of Listing Notice 2 – GN R325) for various listed activities.

This Scoping Report has been compiled in accordance with the requirements of NEMA, in particular, S21(3) of GNR 326, published on 7 April 2017, which outlines the requirements of Scoping for purposes of an EIA undertaken to apply for Environmental Authorisation (EA) for activities listed in Government Notice Regulation 324, 325 and 327. Appendix 2 of GNR 326 promulgated in terms of NEMA, Act 107 of

1998 stipulates the minimum requirements and issues that need to be addressed in a scoping report. Table 1-1 indicates the regulations that have been addressed and the section of the scoping report where these requirements can be found.

**Table 1-1. Requirements of Appendix 2 (2) of GNR 326**

| GNR 326 APPENDIX 2 | DESCRIPTION OF REGULATION | SECTION | PAGE |
|---|---|---|---|
| 2 (a) | Details and expertise of the EAP (Appendix A) | Section 1.1 | 12 |
| 2 (d) | Description of the proposed activity | Section 1.4 | 16 |
| 2 (h) | Description of alternatives | Section 5 | 44 |
| 2 (b) | Description of the property and location of the activity on the property | Section 1.3 | 13 |
| 1 (e) | Description of the affected environment | Section 4 | 34 |
| 2 (e) | Consideration of legislation and guidelines | Section 3 | 29 |
| 2(h)(v) | Description of environmental issues and potential impacts | Section 8.1 | 63 |
| 2(h) and (i) to (vii) | Details of the Public Participation Process | Section 0 | 55 |
| 2 (f) | Need and desirability of the proposed activity | Section 6 | 47 |
| 2 (h)(vii) | Identification, advantages and disadvantages of proposed activity. | Section 6.2<br>Section 6.3 | 48 |
| 2(h) (i) | Plan of Study for the EIA | Section 9 | 74 |
| 2 (l) | Required information by the Competent Authority. | N/A | N/A |
| 2 (m) | Any other matters required in terms of sections 24(4)(a) and (b) of the Act. | N/A | N/A |

## 1.1 Environmental Assessment Practitioner

Exigent was established in 1998 providing multidisciplinary engineering and environmental services. The Exigent Environmental Business Unit provides sustainable answers within an environmental developmental framework. Our foundations are built upon ecological principles with wide-ranging expertise in environmental management and assessment processes. The qualifications and experience of the primary assessors and report compilers are listed in Table 1-2.

**Table 1-2. Environmental Assessment Practitioner details**

| EAP | QUALIFICATION | EXPERIENCE |
|---|---|---|
| Ms Jacolette Adam | M.Sc. Zoology<br>LLM (Environmental Law)<br>Pr. Sci. Nat.<br>EAPASA | Jacolette has 22 years of professional experience in the environmental sector and has been a certified Professional Natural Scientist since 2002 (400088/02). She is also a Fellow member of the Water Institute of South Africa, Environmental Law Association of SA, the International Association for Impact Assessment South Africa and |

| | | |
|---|---|---|
| | | has successfully completed numerous environmental assessments throughout South Africa and Internationally for a wide range of clients. |
| Kelly Joubert | M.Env.Man<br>Pr. Sci. Nat. | Kelly is a member of the International Association for Impact Assessments South Africa (IAIASA), Golden Key International Honour Society (GKIHS) and is a certified Professional Natural Scientist since 2021 (142182). She has over 5 years of experience in the field of environmental management. She specifically has experience in data collection, environmental report writing, basic assessment reports, mine closure plans, research and analysis, environmental impact assessments, ecological studies, water sampling, GIS data analysis and water use license application processes. |

## 1.2 Project Motivation

The proposed project involves the construction and operation of a PV solar power electricity generation facility which will harvest solar energy as an alternative source of renewable energy for RBM. With a rapid growing population and upcoming industries relying on the grid (eskom) for electricity, there is a need for "green" energy (such as solar power) to release the pressure on the grid. The need for "green" energy is therefore becoming more prevalent and therefore this project is in support of this and will therefore provide a sustainable, green energy resource to relieve the pressure on the current Grid and feed the renewable energy back into its system. The positive aspects of using solar power, discussed in this report, far outweigh the negative aspects.

## 1.3 Project location

RBM is situated within the uMfolozi Local Municipality, within the King Cetshwayo District Municipality (KCDM), KZN. The study area is located on Portions 0 of Erf 13130 (LOT K45) and Farm portion 0 of Erf 16317 (Figure 1-1). The poposed land-use of the property includes industrial and agricultural. The nearest town to the proposed property is Richards Bay, and directions to the physical site consist of driving on the R34 and heading east on the John Ross Highway/R34 for 16.7 km and continue Via R619 for 21 min (14.6 km).

The study area covers an approximate extent of 36.7 ha and is located within the quaternary catchment W12J, within the Pongola -Mtamvuna Water Management Area (WMA) and quarter degree grid cell 2832CA.

The proposed study area is entirely transformed and consist of areas that have been cleared and used as an RBM Southern Stockpile area, as well as a soccer area for the surrounding community and a commercial forestry area by Sappi.

The development site has the following centre point coordinates:

| Latitude / Longitude | Degrees | Minutes | Seconds |
|---|---|---|---|
| South | 28 | 41 | 14.61 |
| East | 32 | 08 | 07.07 |

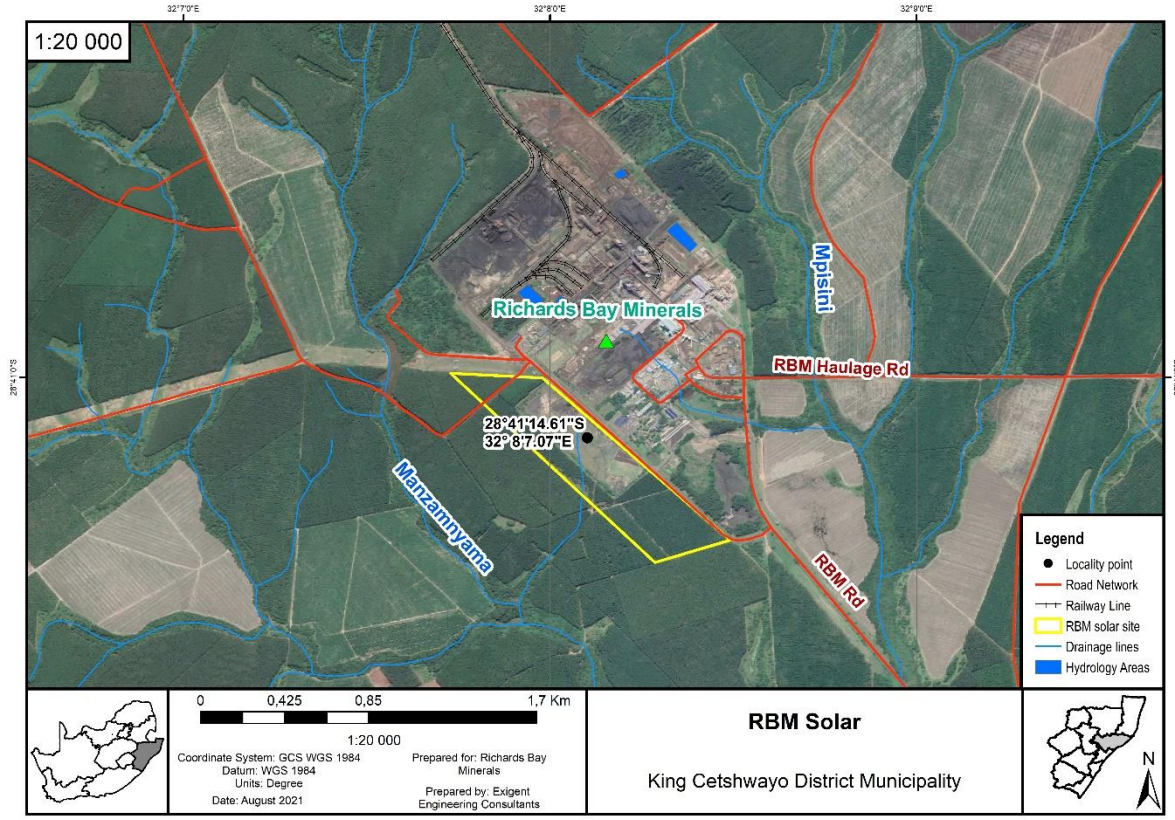
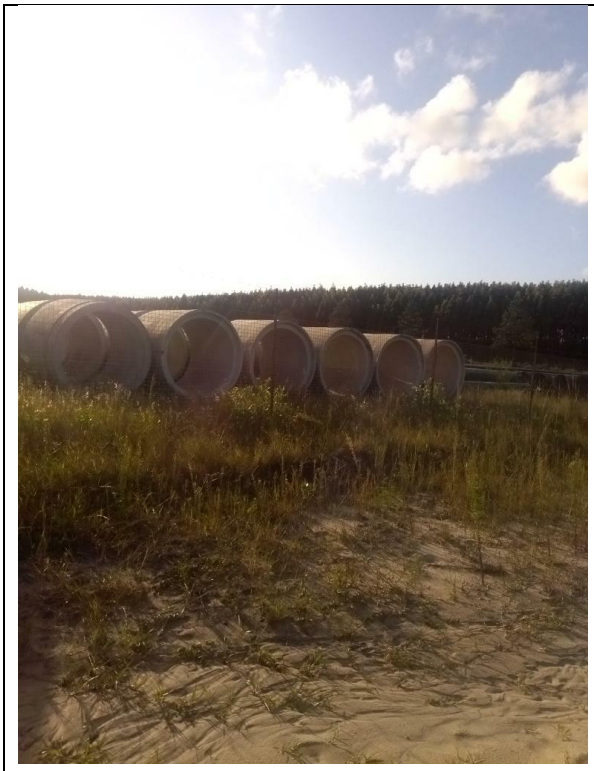


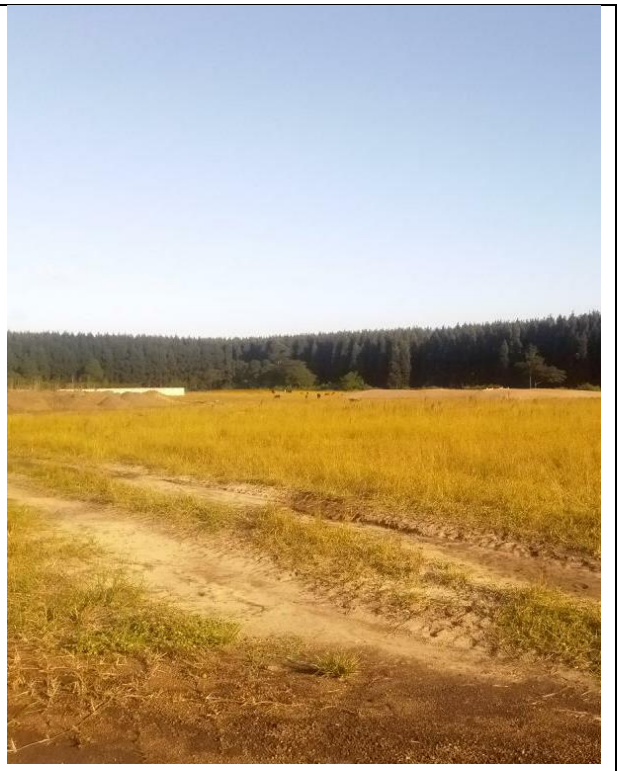

**Figure 1-1 A map of the study area proposed Richards Bay Minerals Main Site Western Area Photovoltaic Infrastructure project.**

**a)**

**b)**



c)



d)

**Figure 1-2. Photos of the study area-a) the site; b) the soil stockpiles on site; c)stored pipes on site; d)cattle grazing on open veld on site**

**Table 1-3. The extent and centre point coordinates of the proposed development sites.**

| Site / Project boundaries | Property Owner | The 21-digit Surveyor General code | Centre Geographical coordinates | |
|---|---|---|---|---|
| | | | Latitude | Longitude |
| **Portions 0 of Erf 13130 (LOT K45)** | Richards Bay Minerals | N0GV00000001313000000 | 28°41'21.34"S | 32° 7'48.00"E |
| **Farm portion 0 of Erf 16317** | Richards Bay Minerals | N0GV00000001631700000 | 28°40'54.05"S | 32° 8'11.07"E |

The 21-digit Surveyor General code of the cadastral land parcels are:

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N | O | G | V | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| N | O | G | V | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 6 | 3 | 1 | 7 | 0 | 0 | 0 | 0 | 0 |

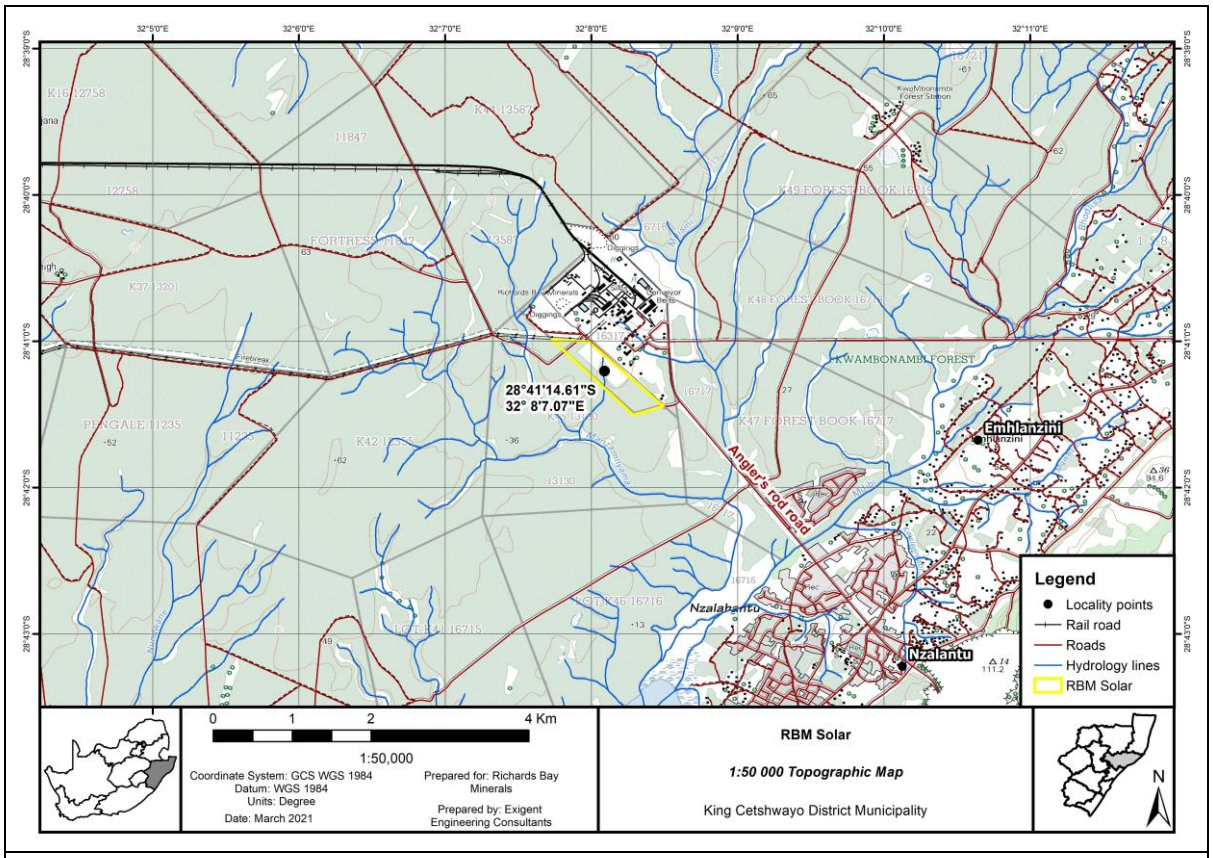



**Figure 1-3. Topographic map of the proposed solar park.**

## 1.4 Surrounding land uses

The immediate area surrounding the study area consists of commercial plantations, with drainage lines transecting the commercial plantations. The RBM plant is located adjacent to the proposed study area, with roads bordering the study area on the east, and an ESKOM powerline servitude on the northern border.

## 1.5 Project description

RBM is planning on developing a solar park as an alternative renewable source of energy for on-site consumption within the KCDM, KZN. The proposed project involves the development of PV facilities or infrastructure for the generation of electricity of approximately 20 MW for an onsite solution. The development of the Solar Farm aims to harvest solar energy as an alternative source of renewable energy for RBM. Depending on the PV panel arrangements selected, the PV arrays could be up to 10 m high and comprise of a maximum footprint of 30 heactares.

**Photovoltaic (PV) Technology:**

Photovoltaic's (PVs) are materials that convert solar radiation directly into electricity. PV solar cells are divided into two distinct groups:- Traditional crystalline silicon solar cells and thin film solar cells. The absorbed solar radiation excites the electrons inside the cells and produces what is referred to as PV effect. The crystalline silicon solar cells are made from monocrystalline silicon or polycrystalline silicon. The thin film technologies comprise of thinner layers of semiconductor material, which are produced using a splutter process.

PV production has been doubling roughly every 2 years, increasing by an average of 48% annualy since 2002, making it the world's fastest-growing energy technology. The volume of new grid-connected PV capacities world-wide rose from 16 GW in 2010 to 27 GW in 2011. This increased the total installed PV capacity world-wide to over 67 GW at the end of 2011. Roughly 90% of PV generating capacity consists of grid-tied electrical systems. Such installations may be ground-mounted (and sometimes integrated with farming and grazing) or built into the roof or walls of a building, known as Building Integrated PV.

PV solar power plants are comprised of solar modules connected together to form solar arrays for the production of electricity. Direct current electricity is produced from the solar array, which in turn is connected to inverters for conversion to alternating current. Power from the inverters is then stepped up via transformers to voltages suitable for injection into the national grid for distribution to consumers.

Solar power plants can either have fixed tilt systems or tracking systems as shown in the diagrams below. Modules in a fixed tilt system are mounted at an optimised angle facing the sun. With tracking systems, the surface of the arrays is moved to follow the sun resulting in large radiation gains. Systems can be set to track the sun's daily path and/or its annual path.

## 1.6 Project Components

Solar Field, comprising Solar Arrays with a maximum height of 10 m and maximum footprint of 30 hectares (detail provided below), including the following:

- PV Modules;
- Single Axis Tracking structures (aligned north-south), Fixed Axis Tracking (aligned east-west), Dual Axis Tracking (aligned east-west and north-south), Fixed Tilt Mounting Structure or Bifacial Solar Modules (all options will be considered in the design);
- Solar module mounting structures comprised of galvanised steel and aluminium; and
- Foundations which will likely be drilled and concreted/stabilised into the ground.
- Building Infrastructure:
    - Offices (maximum height 7 m and footprint of 200 $m^2$);
    - Operational and maintenance control centre (maximum height 7 m and footprint 500 $m^2$);
    - Warehouse/workshop (maximum height 7 m and footprint 200 $m^2$);
    - Ablution facilities (maximum height 7 m and footprint 50 $m^2$);
- String converter/Inverter stations will be utilised and accommodated below the PV structures;
- On-site substation:
    - Medium-Voltage switchgear and control building (footprint 1,000$m^2$); and

    - Option 1: Medium-Voltage air-insulated switchgear for an overhead-line connection or underground cable connection option (footprint 300m$^2$) or
    - Option 2: Medium-Voltage compact switchgear for an overhead-line connection or underground cable connection option to the RBM substation (footprint is part of the 1,000m$^2$ for the Medium-Voltage switchgear and control building above)
- Guard Houses (height 3 m, footprint 40 m$^2$).

### 1.6.1 Associated Infrastructure

- **33 kV overhead or underground power line** to connect to the existing RBM substation to be located within a corridor of approximately 30 m wide. The specific overhead power line option will have the following specifications:
    - Approximate Height = 13 m
    - The servitude for the 33V power line will be 22 m wide. Note that the entire servitude will not need to be cleared of vegetation. Vegetation clearance within the servitude will however be undertaken in compliance with relevant standards and specifications.
    - Length from site to grid connection = approximately 500m.
- On-site substation;
- Internal 33 kV overhead power lines or underground cables (underground to a depth of 1.2 m);
- Underground low voltage cables or cable trays (underground to a depth of 1.0 m);
- Access roads maximum 8 m wide. Total Length of Internal Gravel and Perimeter Roads Length: Approximately 5 000 m;
- Internal gravel roads (width of 4 m);
- Fencing (at least 2.6 – 3m high) - Access points will be managed and monitored by an appointed security service provider. The type of fencing will either be of palisade, mesh type or a fully electrified option;
- Panel maintenance and cleaning area;
- Stormwater channels (Details to be confirmed once the Engineering, Procurement and Construction (EPC) contractor has been selected and the design is finalised. A detailed stormwater management plan would need to be developed); and
- Temporary work area during the construction phase (i.e. laydown area of maximum 2 ha).

## 1.7 Additional specifications

A description of the key components of the proposed project is described below.

### 1.7.1 Solar facility

As noted above, the total footprint of the solar facility is estimated to be approximately 30 hectares (ha). This will include the development of the solar field and building and associated infrastructure, as detailed above. The exact number of solar panels arrays, confirmation of the foundation type and detailed design will follow as the development progresses; however, a preliminary site layout plan has been included in Appendix D of this report.

### 1.7.2 PV Modules

The smallest unit of a PV installation is a cell. A number of cells form a module, and finally a number of modules form the arrays as shown in Figure 1-4 below.

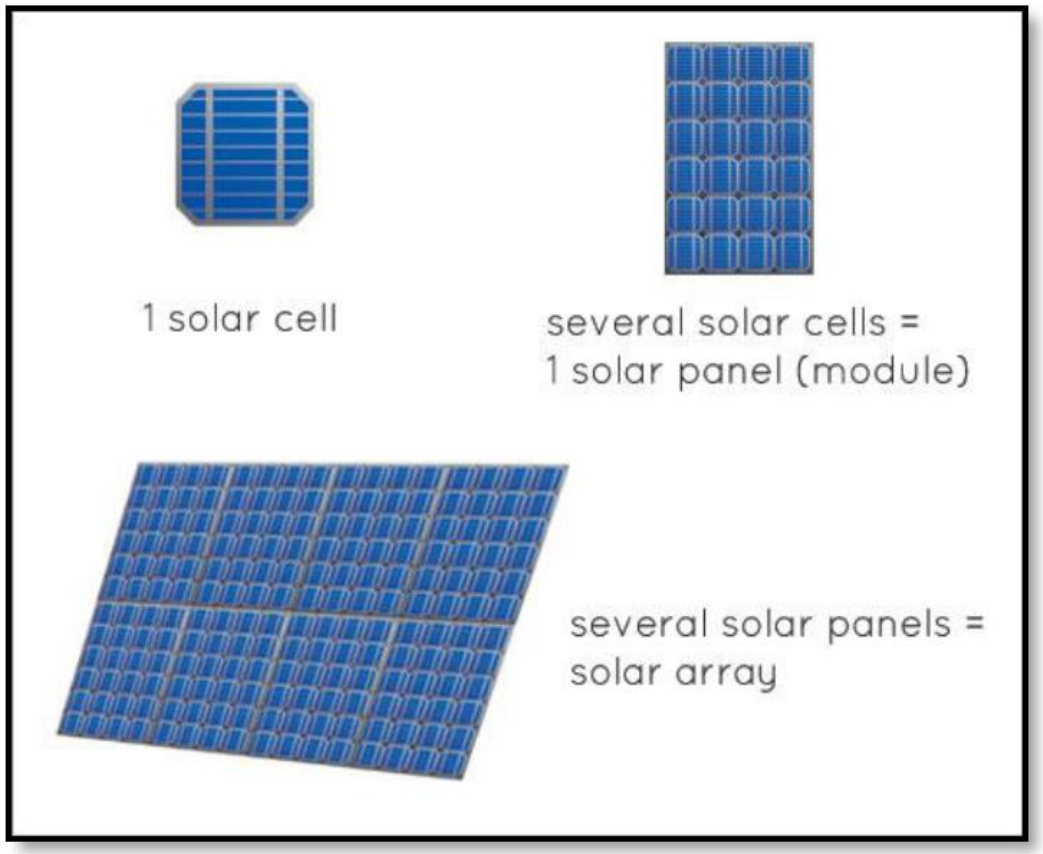



**Figure 1-4: PV modules**

Modules are arranged into strings that form the solar field, and in section sizes of approximately 40 x 5 m called tables and are installed on racks which are made of aluminium or galvanised steel. The arrays and racks will be founded into the ground through either steel or concrete towers (which will be confirmed during the detailed engineering phase). The entire structure is not expected to exceed 10 m in height (measured from the ground), which is considered the worst-case. This system may be fixed, or may track the movement of the sun (either by adopting Fixed Tilt or Single Axis Tracking, Dual Axis Tracking Structures fitted with Monofacial or Bifacial Solar Modules as explained above). All the arrays will be wired to converter/inverter stations that converts DC (Direct Current) into AC (Alternating Current).

### 1.7.3 Electrical Infrastructure within the PV Facility

As mentioned above, the solar arrays are typically connected to each other in strings, which are in turn connected to inverters that convert DC to AC. The strings will be connected to the inverter stations by low voltage underground (internal) DC cables mounted in cable trays or in soil-covered cable trenches. Power from the converter/inverter station will be collected at Medium Voltage (MV) transformers through underground (internal) AC cables, in cable trays or underground soil-covered cable trenches. The MV transformer's role is to increase the voltage of the inverters (400V-600V typically) to 33kV which allows efficient transfer of energy over longer distances.

The inverter stations will in turn be connected to the proposed on-site substation, via medium voltage (33kV) internal underground cables, which will transmit the power produced via an overhead 33kV overhead power lines or underground cables into the RBM electrical network at the RBM Substation.

### 1.7.4 Roads

The proposed project site can be accessed via an existing unnamed tarred road which runs along the eastern border of the site and is connected to RBM Road, which in turn connects to an unnamed tarred road which runs from the R34 in Richards Bay to Nzalabantu, where it connects with RBM Road. All of these roads are standard two lane roads which are 7-8 m wide.

Internal roads extending approximately 4 m wide will be constructed within the project footprint of the proposed PV plant. A perimeter road will also be constructed along the boundary of the proposed PV plant, which will be approximately 2.5 m wide. Overall, the proposed internal roads, the gravel access road, the perimeter roads will have a maximum length of 8 000 m in total.

### 1.7.5 Panel maintenance and cleaning area

During the operational phase, the accumulation of dust on solar panels generally negatively influences the productivity of solar facilities. As such the panels require regular cleaning, typically twice per year.

### 1.7.6 Stormwater, Waste and Municipal Services

Stormwater channels will be constructed on site to ensure that stormwater run-off from site is appropriately managed. Water from these channels will not contain any chemicals or hazardous substances, and will be released into the surrounding environment based on the natural drainage contours.

A storm water management plan will be implemented during the construction and operational phase of the facility. The plan will ensure compliance with applicable regulations and prevent off-site migration of contaminated storm water or increased soil erosion. The plan will include the construction of appropriate design measures that allow surface and subsurface movement of water along drainage lines so as not to impede natural surface and subsurface flows. Drainage measures promote the dissipation of storm water run-off. These actions are incorporated into the Environmental Management Programme (EMPr).

### 1.7.7 Building Infrastructure

The solar field will require on-site buildings, including an operational and maintenance control centre, offices, warehouse/workshop (for storage of equipment), ablution facilities, converter stations, on-site substation and substation building, laydown areas and security enclosures. Dimensions for these are provided above.

### 1.7.8 Electrical infrastructure to Support the PV Facility

An on-site substation will be constructed to support the PV facility's connection to the RBM electrical network. The on-site substation building is expected to extend approximately 12 m in height, with a maximum footprint of 2 000 $m^2$.

As noted above, the on-site substation is proposed to be connected via a 33kV overhead power line or underground cables (single or double circuit) to the RBM substation. The electrical infrastructure includes:

- 33 kV overhead power line or underground cables (single or double circuit) to connect to the existing RBM substation;
- Gravel service road of up to 6 m width beneath the 33kV power line; and
- Associated electrical infrastructure at the RBM Substation (including but not limited to feeders and busbars).

The 33kV power line will be constructed from the solar facility and is expected to extend approximately 500 m in length (between the proposed on-site substation and the RBM substation). The line, whether below or above ground, will be constructed within a 22 m servitude which will run adjacent to the existing 275kV Eskom servitude.

### 1.7.9 Additional infrastructure

The types of materials that will need to be transported to site during the construction phase include the following:

- Materials and equipment transported to the site comprise of:
    - Building materials (concrete aggregates, cement and gravel
    - Construction equipment such as piling rigs and cranes;
    - Solar panels (panels and frames); and
    - Transformer and cables

The following is anticipated:

A. Building materials comprising of concrete materials for strip footings or piles will be transported using conventional trucks which would adhere to legal limits listed above.

B. Solar Panels and frames will likely be transported in containers using conventional heavy vehicles within the legal limits. The number of loads will be a function of the capacity of the solar farm and the extent of the frames (the anticipated number of loads are discussed below).

C. Transformers will be transported by abnormal vehicles.

During the operational phase, fewer materials will need to be transported to site. Trips will also be generated for the transportation of staff during the construction and operational phases.

### 1.7.10 Associated Service Requirements

RBM will consult with the municipality in order to confirm the supply of services (in terms of water, waste removal, sewage and electricity) for the proposed project.

An outline of the services that will be required include:

#### 1.7.10.1 Water Usage

During the construction phase around 50 $m^3$ of water will be required per month. The current proposal is to either supply water from the main RBM site or truck water to site via municipal water supply. If supplied by truck it is estimated that one to two trips per month will be required depending on the size of vehicle used.

During the operational phase for water supply, the PV panels will typically need to be washed twice per year. Each panel requires around two litres of water per wash so in total around 200$m^3$ of water per year will be required.

#### 1.7.10.2 Sewage or Liquid Effluent

The proposed project will require sewage services during the construction and operational phases. Low volumes of sewage or liquid effluent are estimated during both phases. Liquid effluent will be limited to the ablution facilities during the construction and operational phases. Portable sanitation facilities (i.e. chemical toilets) will be used during the construction and operational phases, which will be regularly serviced and emptied by a suitable (private) contractor on a regular basis. The waste water will be transported to a nearby Waste Water Treatment Works (WWTW) for treatment. As the project site is outside the main RBM site, a conservancy tank or septic tank system could be used on site, which is expected to be serviced by the municipality. As the site is not in a municipal area, sewage cannot be disposed in the municipal waterborne sewage system.

#### 1.7.10.3 Solid Waste Generation

During the construction phase, the following waste materials are expected:

- Packaging material, such as the cardboard, plastic and wooden packaging and off-cuts;
- Hazardous waste from empty tins, oils, soil containing oil and diesel (in the event of spills), and chemicals;
- Building rubble, discarded bricks, wood and concrete;
- Domestic waste generated by personnel; and
- Vegetation waste generated from the clearing of vegetation

Solid waste will be managed via the EMPr during the construction and operational phases, which incorporates waste management principles. During the construction phase, general waste will be collected and temporarily stockpiled in skips in a designated area on site and thereafter removed, emptied into trucks, and disposed at a registered waste disposal facility on a regular basis by an approved waste disposal Contractor (i.e. a suitable Contractor). In addition, a skip will be placed on site and any damaged or broken PV panels (i.e. those not returned to the supplier) will be stored in this skip. A specialist waste management company will be commissioned to manage and dispose of this waste.

Any hazardous waste (such as contaminated soil as a result of spillages) will be temporarily stockpiled (for less than 90 days) in a designated area on site (i.e. placed in leak-proof storage skips), and thereafter removed off site by a suitable service provider for safe disposal at a registered hazardous waste disposal facility.

Waste disposal slips and waybills will be obtained for the collection and disposal of the general and hazardous waste. These disposal slips (i.e. safe disposal certificates) will be kept on file for auditing purposes as proof of disposal. The waste disposal facility selected will be suitable and able to receive the specified waste stream (i.e. hazardous waste will only be disposed of at a registered/licenced waste disposal facility). The details of the disposal facility will be finalised during the contracting process, prior to the commencement of construction. Where possible, recycling and re-use of material will be encouraged.

During the operational phase after construction, the facility will produce minor amounts of general waste (as a result of the offices).

#### 1.7.10.4 Electricity Requirements

In terms of electricity supply for the construction phase, the developer could be provided with an auxiliary supply from the nearby existing RBM infrastructure. The exact location of this source as well as the route for provision of such supply is still to be determined by RBM. During the operational phase, the generation aspects of the project will not have any electricity requirements as the project itself will transmit and distribute electricity; however, the auxiliary supply from the nearby existing RBM infrastructure will be maintained to supply electricity to the project offices and control rooms.


**Figure 1-5. The proposed preliminary layout of the PV Infrastructure.**

### 1.8 Overview of the Project Development Cycle

The project can be divided into the following three main phases:

- Construction Phase
- Operational Phase; and
- Decommissioning Phase

Each activity undertaken as part of the above phases may have environmental impacts and, where applicable, has and will therefore be assessed within the specialist studies and adequate mitigation measures and recommendations will be provided to reduce or eliminate the proposed impacts.

#### 1.8.1 Construction Phase

The construction phase will take place subsequent to the issuing of an EA from the DEDTEA. The construction phase for the proposed project is expected to extend 12 to 14 months.
The main activities that will form part of the construction phase are:

- Removal of vegetation for the proposed infrastructure;
- Excavations for infrastructure and associated infrastructure;
- Establishment of a laydown area for equipment
- Stockpiling of topsoil and cleared vegetation
- Creation of employment opportunities
- Transportation of material and equipment to site, and personnel to and from site; and
- Construction of the solar field, 33 kV power line and additional infrastructure.

#### 1.8.2 Operational Phase

The following activities will occur during the operational phase:

- The transmission of electricity generated from the proposed solar facility to the RBM Substation via an overhead or below ground 33 kV power line; and
- Maintenance of the solar field and power line.

During the life span of the project (approximately 20 years), on-going maintenance will be required on a scheduled basis.

#### 1.8.3 Decommissioning Phase

The main aim of decommissioning is to return the land to its original, pre-construction condition. Should the unlikely need for decommissioning arise (i.e. if the actual solar facility becomes outdated or the land needs to be used for other purposes), the decommissioning procedures will be undertaken in line with the EMPr and the site will be rehabilitated and returned to its pre-construction state.

## 2 APPROACH TO SCOPING PHASE

### 2.1 EIA Process and Methodology

An EIA process is a planning and decision-making tool. It identifies potential negative and positive impacts of a proposed project and recommends ways to enhance the positive impacts and mitigate the

negative impacts. The EIA will address the impacts associated with the project and provide an assessment of the project in terms of the biophysical, social and economic environments to assist the environmental authority in making decisions regarding authorization of the proposed project. The process is largely comprised of the Environmental Scoping Phase and the EIA phase.

The aim of the Environmental Scoping Phase is to provide information regarding the current environmental, social and possible economic conditions on the site that is being applied for and to provide information regarding the type and extent of the proposed project. Furthermore, the identification of any possible impacts (environmental, social or economic) that will take place. This possible impact identification is being done in conjunction with stakeholder and public interest involvement through a Public Participation Process (PPP).

The Scoping and EIA process is illustrated in Figure 2-1 below.

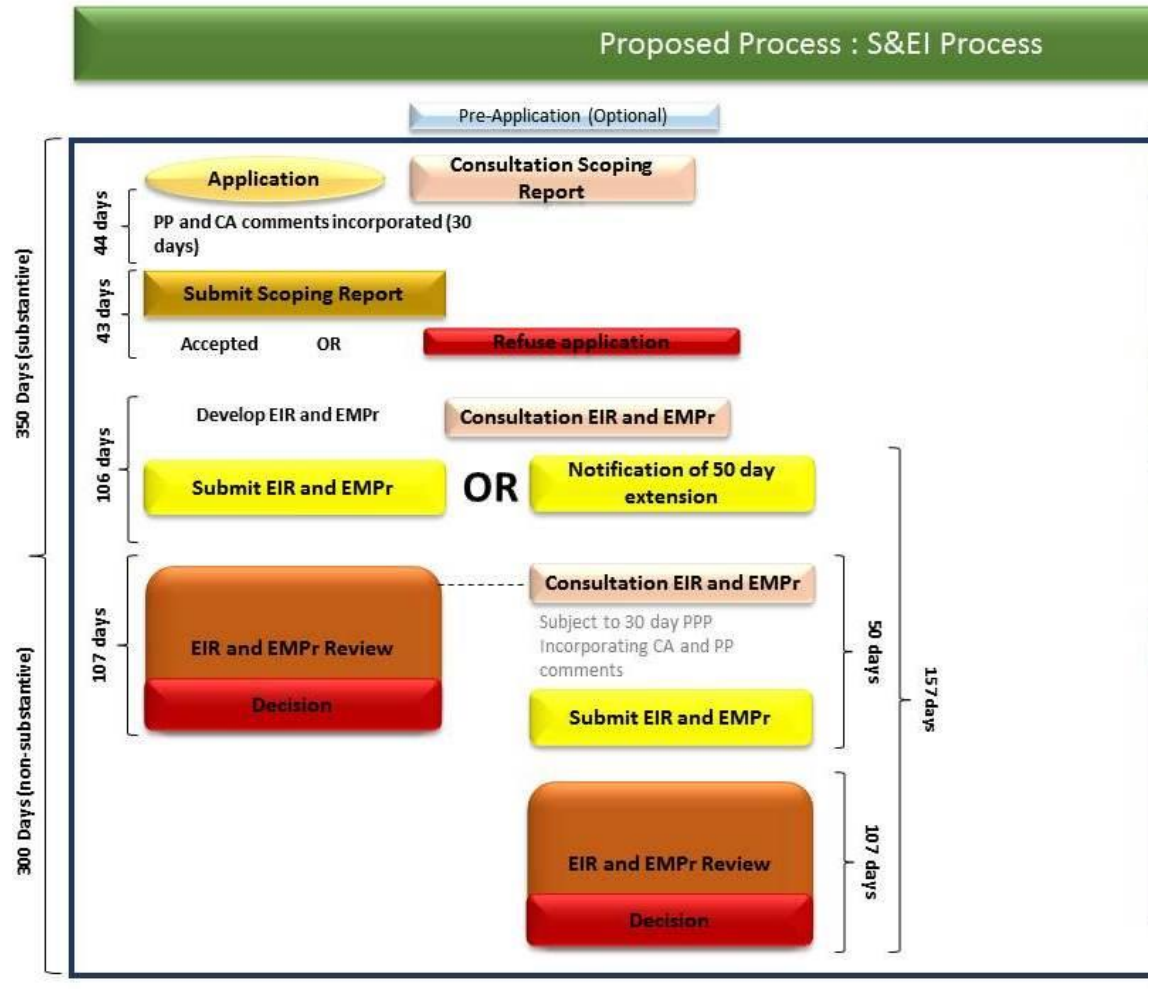



**Figure 2-1. Scoping and Environmental Assessment Process**

## 2.2 Application for Authorisation

An Application for an EA has been submitted to the Competent Authority (DEDTEA) together with the Draft Scoping Report. The application for this project was acknowledged by DEDTEA on 29 June 2022 and was registered by the Department on the National Environmental Authorization System (NEAS).

## 2.3 Stakeholder and Public Engagement

The NEMA EIA Regulations of 2014 (Sections 41-44) require an inclusive, transparent process of engagement. Any and all persons who may be affected by and/or have an interest in a proposed project are entitled to be informed and submit comments.

Procedures for informing stakeholders about a project and engaging their participation have become standard practice. The stakeholder consultation process for this project is being undertaken in both English and isiZulu.

### 2.3.1 Compilation of Stakeholder Database

The compilation of a stakeholder database entails the development and maintenance of an electronic database for the duration of the project where stakeholders and affected parties can register (Appendix E1). The process begins with an initial scan of national, provincial and local authorities, service providers as well as the surrounding businesses to identify potential stakeholders.

The identification and registration of stakeholders will be an on-going activity during the Scoping and EIA phases of the project.

### 2.3.2 Notification

#### 2.3.2.1 Site notices

The NEMA EIA Regulations of 2017 require that a site notice be fixed at a place conspicuous to the public at the boundary of the site where the activity to which the application relates is to be undertaken, and on any alternative sites. The purpose of the site notice is to notify neighbours of the project and to provide details for registration as a stakeholder. Several site notices were placed within the study area. Refer to Appendix E5 for a copy of the site notice placed.

#### 2.3.2.2 Background Information Document (BID)

Notice was given to:

- Owners and occupiers of land adjacent to the site where the activity is to be undertaken via various methods;
- Municipal ward councillor in which the site is situated;
- Municipality who has jurisdiction of the area;
- Any organ of state having jurisdiction in respect of any respect of the activity; and

- Any other party as required by the CA.

The purpose of the BID was to provide written background information to parties interested in and/or affected by the proposed development, to allow them to register and become involved in the EIA process and to provide information of the EIA process to be followed.

The Ward Councillor within the study area, those around the study area, as well as the relevant stakeholders such as KCDM, Ezemvelo KZN Wildlife (EKZNW), Eskom, Department of Energy, MLM, ULM, Nation Energy Regulator of South Africa and the National Department of Forestry, Fisheries and Environmental Affairs (DFFE) received the BID through e-mail. A copy of the BID is included in Appendix E2.

#### 2.3.2.3 Advertisement

The NEMA EIA Regulations require that an advertisement be placed in a local newspaper. An English advert was placed in the Zululand Observer (ZO) on the 21st of May 2021 and an Erratum was placed in the ZO on the 24th of May 2021. The Erratum was to rectify the reference to the Legal Framework and to notify the public of the correct Legal Framework. Refer to Appendix E6 for copies of the newspaper advertisements.

### 2.3.3 Comments and responses

Following the publication of the adverts, placing of the site notices and circulation of the BID and Draft Scoping Report (DSR), I&AP's did register to receive further information during the EIA process andto provide comments on the DSR. All comments received are captured in the comments and response report (CRR) in Appendix E4.

### 2.3.4 Public review of the draft Scoping Report

The DSR was made available to I&APs for a period of 30 calendar days to review it and provide comments during the period of 28 June 2022 till 28 July 2022. Following the period of public review, the DSR is then updated with the comments received and this Final Scoping Report (FSR) will be submitted to DEDTEA. DEDTEA will consider this FSR, where after DEDTEA will indicate whether the project may proceed to the EIA Phase.

## 2.4 Specialist studies

The objective of the Scoping Phase is to identify what information is required to adequately assess the environmental impacts of the project. Thus, this phase is designed to focus subsequent data collection and investigations on issues of concern and importance. Several specialist studies were identified to obtain adequate information to conduct the assessment on the proposed development. The Terms of Reference (TOR) for the specialist studies are included in Appendix G.

The following specialist studies will be included in the EIA study:

- Ecological and Aquatic Assessment (including wetlands);
- Heritage Statement;
- Visual Impact Assessment; and
- Engineering Services Report.

### 2.5 Alternatives

The EIA process requires to identify and evaluate feasible alternatives to the project. This could include alternative locations, activities and sources. The alternatives of the project are discussed in Section 5 of the report.

### 2.6 Identification of potential issues and impacts

Issues were identified as a result of the project team's understanding of the project and previous experience on projects of a similar nature. Potential environmental impacts are addressed in more detail in Section 8.1 of the report.

### 2.7 Plan of study for EIA

The Plan of Study for EIA lays out the process for and inputs to the detailed impact assessment. The Plan of Study is the final product of the Scoping Phase because it must ensure that all issues raised during the stakeholder engagement process and technical scoping are captured in the scope of work for the EIA such that they will be addressed, if found significant, in the management plans.

The details of the completion of the EIA process are laid out in the plan of study for EIA in Section 9.

### 2.8 Submission of scoping report to the competent authority

Following the review and commenting period of 30 days, any comments received were incorporated into this report and responded to. The final version of the Scoping Report will be submitted to DEDTEA for review. If DEDTEA is satisfied that the Scoping Report contains all the necessary information, the report will be accepted, and the EIA Phase will commence.

## 3 LEGAL FRAMEWORK

### 3.1 The Constitution and framework environmental legislation

#### 3.1.1 Constitution of the Republic of South Africa Act (No 108 of 1996)

The Constitution of the Republic of South Africa Act places a duty on the State and citizens to protect the environment. Section 24 provides that:

"*Everyone has the right –*

*(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.*
*iii) secure ecologically sustainable development and use of natural resources while promoting*
*iv) justifiable economic and social development*".

### 3.1.2 National Environmental Management Act (NEMA), Act 107 of 1998

The National Environmental Management Act (NEMA) (Act 107 of 1998) is an all-encompassing act regulating various aspects of natural resource use, integrated environmental management and pollution control. The Act provides for:

- the right to an environment that is not harmful to the health and well-being of the South African people;
- sustainable development, environmental protection, equitable distribution of natural resources; and;
- the formulation of environmental management frameworks.

### 3.1.3 NEMA listing notices

Environmental regulations were promulgated in terms of NEMA in 2014 to guide environmental management. These regulations include:

- GNR. 326. The Minister of Environmental Affairs, hereby make the regulations pertaining to environmental impact assessments, under sections 24(5) and 44 of the National Environmental Management Act,1998 (Act No.107 of 1998).
- GNR. 327. The purpose of this Notice is to identify activities that would require environmental authorizations prior to commencement of that activity and to identify CAs in terms of section 24(2) and 24(D) of the Act.
- GNR. 325. The purpose of this notice is to identify activities that would require an environmental authorization prior to the commencement of that activity and to identify CAs in terms of sections 24(2) and 24(D) of this Act.
- GNR. 324. The purpose of this notice is to list activities and identify CAs under sections 24(2) and 24(D) of the Act, where environmental authorisation is required prior to commencement of that activity in specific identified geographical area only.

Listed activities from these Regulations which will be triggered by the proposed project are provided in Table 3-1.

**Table 3-1. List of GN R984 activities, as amended, applicable to the proposed Renewable Energy project.**

| RELEVANT GOVERNMENT NOTICE | ACTIVITY | LISTED ACTIVITY | APPLICABILITY TO THE PROJECT |
|---|---|---|---|
| Listing Notice 2: No. R. 325 of 2017 | 1 | The development of facilities or infrastructure for the generation of electricity from a renewable resource where the electricity output is 20 megawatts or more, | The proposed project will entail the generation of approximately 20 megawatts of electricity from a renewable resource. |

## 3.2 Other applicable legislation

### 3.2.1 National Water Act, Act 36 of 1998

The National Water Act ([NWA] Act 36, 1998) identifies consumptive and non-consumptive water uses which must be authorised under a tiered authorisation system. Section 27 of the NWA specifies that the following factors regarding water use authorisation must be taken into consideration:

- The efficient and beneficial use of water in the public interest;
- The socio-economic impact of the decision whether or not to issue a licence;
- Alignment with the catchment management strategy;
- The impact of the water use, resource directed measures; and
- Investments made by the applicant in respect of the water use in question.

Section 21 of the NWA identifies water uses for which a Water use License should be obtained. Authorisation of these water uses will form part of a separate process to the DWS.

### 3.2.2 National Heritage Resources Act, Act 25 of 1999

In terms of Section 38 of the Heritage Resources Act (Act No 25 of 1999), a Heritage Impact Assessment has to be undertaken for the following developments:

- Any development or other activity which will change the character of a site
  - Exceeding 5 000 $m^2$ in extent; or
  - Involving three or more existing even or subdivisions thereof; or
  - Involving three or more even or divisions thereof which have been consolidated within the past five years; or
  - The costs of which will exceed a sum set in terms of regulations by the South African Heritage Resource Agency (SAHRA) or a provincial heritage resources authority;
- The re-zoning of a site exceeding 10 000 $m^2$ in extent; or
- Any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

A Heritage statement with motivation will be submitted to the provincial heritage associated, namely Amafa.

### 3.2.3 National Environmental Management: Waste Act, Act 59 of 2008

The National Environmental Management: Waste Act, Act 59 of 2008 (NEMWA, Act 59 of 2008) was implemented on 1 July 2009 and section 20 of the Environment Conservation Act 73 of 1989, under which waste management was previously governed, was repealed.

The objectives of NEMWA, Act 59 of 2008 involve the protection of health, well-being and the environment by providing reasonable measures for the minimization of natural resource consumption, avoiding and minimizing the generation of waste, reducing, recycling and recovering waste, and treating and safely disposal of waste as a last resort.

In general, the act seeks to ensure that people are aware of the impact of waste on their health well-being and the environment, and in the process giving effect to section 24 of the constitution, in ensuring an environment that is not harmful to health and well-being.

Government Notice 718 lists the waste management activities that require licensing. A distinction is made between Category A waste management activities, which require a Basic Assessment (BA), and Category B activities, which require a full EIA (Scoping followed by Impact Assessment). EIA Regulation GNR 982, as amended (GNR 326), defines the process requirements that must be followed for Basic Assessment and full EIA.

The NEMWA has no sections of relevance to the proposed solar park project.

### 3.2.4 National Environmental Management: Air Quality Act, Act 39 of 2004

The National Environmental Management Air Quality Act (NEMAQA) was a landmark act which focused on the ambient air quality and the receptor as opposed to the previous act which defined air quality by regulating the emissions which impact air quality. As a result of the NEMAQA, standards for ambient air quality have been developed which are managed through the local municipalities or provincial municipalities.

The NEMAQA enabled the publication of the Listed Activities and Minimum Emission Requirements, which require emitters to apply for and obtain an Atmospheric Emissions License (AEL) related to installations such as combustion installations in various industries.

The NEMAQA has no sections of relevance to the proposed renewable energy project

### 3.2.5 National Environmental Management: Biodiversity Act (Act 10 of 2004)

The National Environmental Management: Biodiversity Act (Act 10 of 2004) (NEMBA) addresses, amongst others:

- Biodiversity planning and monitoring;
- Protection of threatened or protected ecosystems;
- Protection of threatened or protected species; and
- The control of alien species, invasive species and genetically modified organisms.

### 3.2.6 Conservation of Agricultural Resources Act, Act 43 of 1327

The Conservation of Agricultural Resources Act ([CARA] Act 43, 1327) provides for the:

- Protection of wetlands; and
- Requires the removal of listed alien invasive species.

The National Department of Forestry, Fisheries and the Environment (DFFE) is the responsible authority for enforcing the CARA. This Act also requires that any declared invader species on the proposed site must be controlled according to their declared invader status.

The EMPr, which will be included within the EIAR, will include the compulsory removal of invader plants from the study area. Regulation 2 of CARA deals with the cultivation of virgin soils.

### 3.2.7 National Forest Act, 1998 (Act 84 of 1998)

The National Forest Act, 1998 (Act 84 of 1998), aims to reform the laws on forest protection and relating matters. The Act provides principle guidelines for sustainable forestry management, special measures used to protect forests and trees within natural forests and protected areas. The Act also provides uses for forests. Failure to comply with the Act may result in prosecution under the National Forest Act, 1998 (Act 84 of 1998).

## 3.3 Other applicable environmental guidelines

The following additional guidelines will be considered during the impact assessment phase.

- DEAT, 2002. Integrated Environmental Management, Information series 2: Scoping;
- DEAT, 2002. Integrated Environmental Management, Information series 3: Stakeholder Engagement;
- DEAT, 2002. Integrated Environmental Management, Information series 4: Specialist Studies;
- DEAT, 2002. Integrated Environmental Management, Information series 12: Environmental Management Plans;
- DWAF, 2008. Updated manual for the identification and delineation of wetlands and riparian areas. Department of Water affairs and Forestry. Pretoria. South Africa.
- DEAT, 2004. Integrated Environmental Management Information Series, Department of Environmental Affairs and Tourism (DEAT), Pretoria.
- DEAT, 2010. NEMA Draft Implementation guideline. Public participation.
- DEAT, 2010. NEMA Draft Implementation guideline. Companion Document on the Environmental Impact Assessments Regulations.

# 4 DESCRIPTION OF RECEIVING ENVIRONMENT

The proposed study area is located within the Indian Ocean Coastal Belt Biome and Bioregion as well as within the Forest Biome and the Zonal & Intrazonal Forests Bioregion (Mucina & Rutherford, 2006). The following sections are a description of the characteristics of the study area that may be affected by the proposed solar park project.

## 4.1 Climate

The climate of Richards Bay can be classified as warm and temperate. The Richards Bay area sees most of its rainfall events occurring in the summer months with the maximum precipitation occurring in February, with an average of 137 mm. The average temperatures vary between an average maximum temperature of 25.5°C in the summer months such as January and that of 17.5 °C during the winter months such as July (Climate-Data.org, 09/01/2022).

## 4.2 Geology and soils

The study area falls within the Maputaland Wooded Grassland which is generally a relatively flat landscape of the Maputaland coastal plain. It comprises of quaternary yellowish redistributed sands of the Berea Formations (Maputaland Group). These are dystric regosols building dune crests, slopes and relatively high-lying level plains (Mucina & Rutherford, 2006). In average rainfall years the water table can be found at a depth of 1 .6- 2.0 m below surface (and slightly deeper). The overwhelmingly dominant land type is Ha, followed by Hb land type (Mucina & Rutherford, 2006). The mainland types “Ha” and “Hb” present on-site may include the Constantia, Shepstone and Vilafontes soil forms (Council for Geoscience, 2012).

The area is underlain by the KwaMbonambi Formation, which is light grey-brown and pale yellow. The clay content of the soil increases downward into the soil profile, most probably originating from the Port Durnford sandy clays (Drennan, Maud and Partners, 2008). The KwaMbonambi Formation, as well as the Port Durnford Formation, forms part of the Maputaland Group. The older Port Durnford Formation consists of mainly carbonaceous mudstone and claystone. The KwaMbonambi Formation consists of a variety of grey, orange and red sands (Drennan, Maud and Partners, 2008).

## 4.3 Vegetation

The proposed site according to EKZNW and the vegetation Map of SANBI, (2018), is located within the Maputaland Wooded Grassland (Figure 4-2) which consist of an Endangered conservation status (Figure 4-1 and Figure 4-3).) according to EKZNW, Mucina and Rutherford (2006) and the National Biodiversity Assessment (2018). However, as can be seen from the aerial imagery, the proposed study area is entirely transformed consisting of areas that have been cleared and used as an RBM Southern Stockpile area, as well as a soccer area for the surrounding community and a commercial forestry by Sappi.

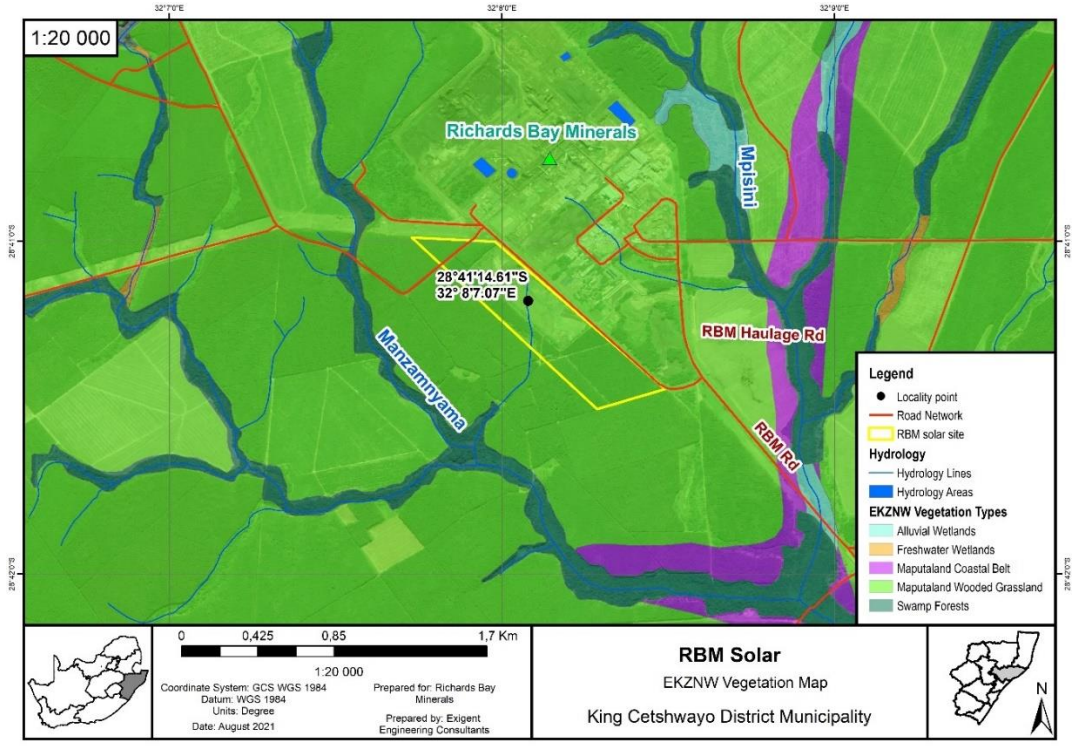



**Figure 4-1. EKZNW vegetation Map of the Study Area.**

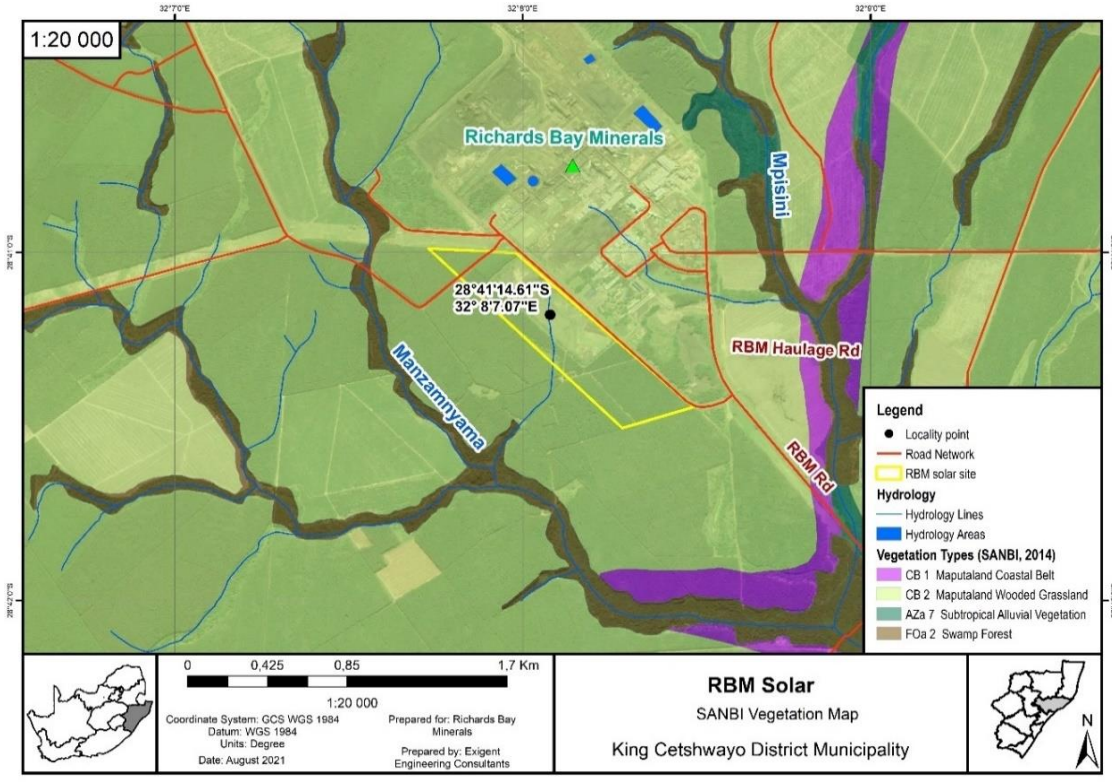



**Figure 4-2. Vegetation map of the study area (SANBI, 2018).**

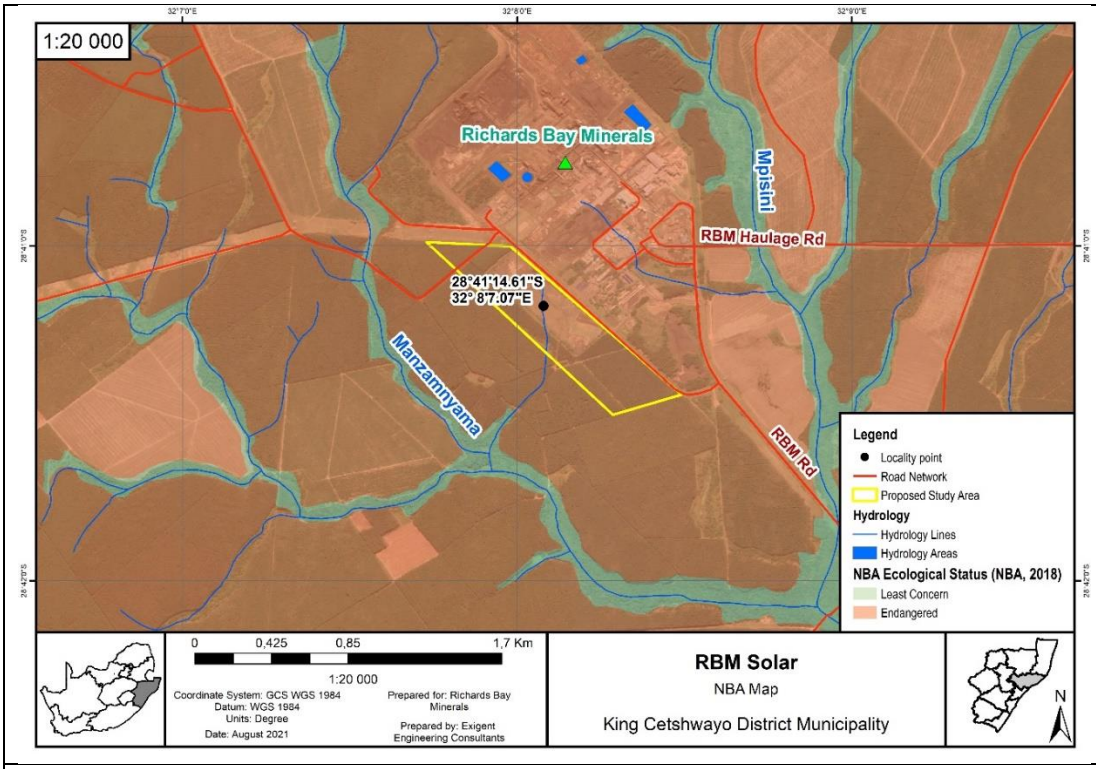



**Figure 4-3. NBA map of the study area (NBA, 2018).**

Based on the EKZNW Spatial Planning data (EKZNW, 2016), the site does not fall within any area identified as a Critical Biodiversity Area or an Ecological Support Area (Figure 4-4).

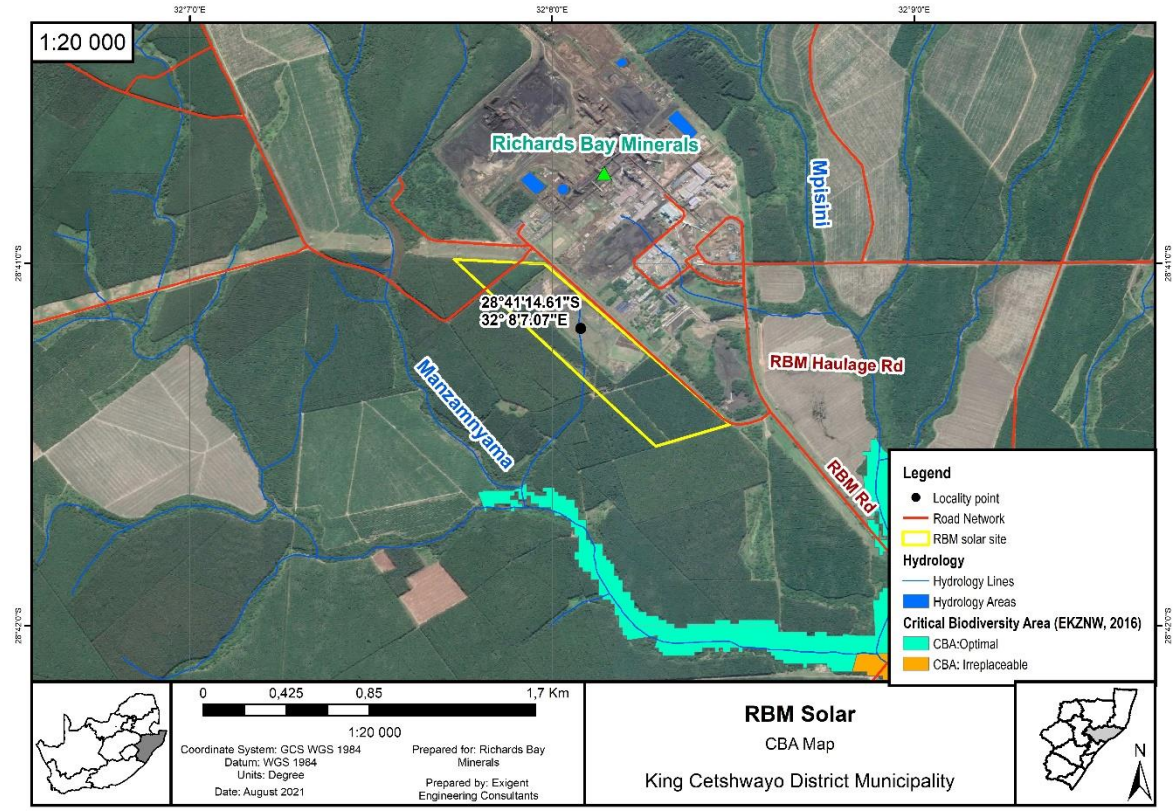



**Figure 4-4. Ezemvelo KZN Wildlife C-Plan: Critical Biodiversity Area (CBA).**

**Table 4-1. The key vegetation type present in the study area based on Mucina and Rutherford (2006) and EKZNW (2011) classifications.**

| Vegetation type | Status | | |
|---|---|---|---|
| | Mucina and Rutherford (2006) | NSBA* (2018) | EKZNW (2011) |
| Maputaland Wooded Grassland | Endangered | Endangered | Endangered |
| | **Description:** | | |
| | Approximately 17% is being conserved in the Nature Reserves such as the iSimangaliso Wetland Park. Approximately 46% of this vegetation type has already been transformed by plantations and partly for cultivated land. 90% of the southernmost portion of this vegetation type is transformed by timber pulp plantations, cane fields and informal settlements. Alien plant infestations include scattered populations of *Chromolaena odorata* and *Lantana camara*. | | |

*National Spatial Biodiversity Assessment

In its undisturbed state, the Maputaland Wooded Grassland vegetation type comprises of coastal sandy grasslands rich in geoxylic suffrutices, dwarf shrubs, small trees and a rich herbaceous flora in its origin state (Mucina & Rutherford, 2006). Table 4-2 lists the species representative from each stratum from the Maputaland Wooded Grassland that one expects to find in its natural state.

**Table 4-2. Dominant species representative from different stratums of the Maputaland Wooded Grassland vegetation type (Mucina & Rutherford, 2006).**

| Grasses | Shrubs | Geoxylic suffrutices |
|---|---|---|
| *Diheteropogon amplectens* | *Agathisanthemum bojeri* | *Eugenia capensis* |
| *Themeda triandra* | *Helichrysum krausii* | *Parinari curatellifolia* |
| *Urelytrum agropyroides* | *Crotolaria monteiroi* var. *monteiroi* | *Salacia krausii* |
| *Aristida stipitata* subsp. *graciliflora* | **Herbs** | **Trees** |
| *Bewsia biflora* | *Cyrtanthus galpinii* | *Achridocarpus natalitius* var. *linearifolius* |
| *Cyperus obtusiflorus* | *Chamaecrista plumosa* | *Dichrostachys cinerea* subsp. *nyassana* |
| *Cyperus tenax* | **Geoxylic suffrutices** | *Diospyros lycoides* subsp. *sericea* |
| *Digitaria natalensis* | *Ancylobotrys petersiana* | *Hyphaene coriacea* |
| *Eustachya paspaloides* | *Diospyros galpinii* | *Terminalia sericea* |
| *Setaria sphacelata* | | *Syzygium cordatum* |
| *Sporobolus fimbriatus* | | |
| *Sporobolus subulatus* | | |

### 4.3.1 Surface Water

The proposed project lies within quaternary catchment W12J within the Pongola -Mtamvuna Water Management Area (WMA). This WMA includes major rivers such as the Pongola, Mhlathuze, Mkuze, Thukela, Mvoti, Mzimayi and Umgeni Rivers amongst various others. The major water resources of the uMhlathuze Catchment is uMhlathuze and Nseleni rivers, Goedertrouw dam and several irrigation dams and impoundments, several lakes and pans (such as Lake Cubhu, Mzingazi Lake, Nhlabane Lake and Nsezi Lake), riparian areas along most of the riverine habitat, hillslope seepages, valley bottom wetland systems and Mhlathuze River Floodplain and Estuary. The most important wetland systems within the uMhlathuze Catchment are Mzingazi, Qhubu and Nhlabane Lake (as it supplies water to Richards Bay and surroundings), Mhlatuze Floodplain, Mhlatuze Estuary and associated valley bottom wetland feeding into it, and Mountainous seeps in the upper reaches of Mhlatuze River (NFEPA) (DWA, 2014).

The dominant land uses in this catchment includes cultivation (communal and commercial), forest plantations; rural communal lands, houses and livestock grazing, urbanisation and developments, infrastructures, nature reserves and dams and impoundments (DWA, 2014).

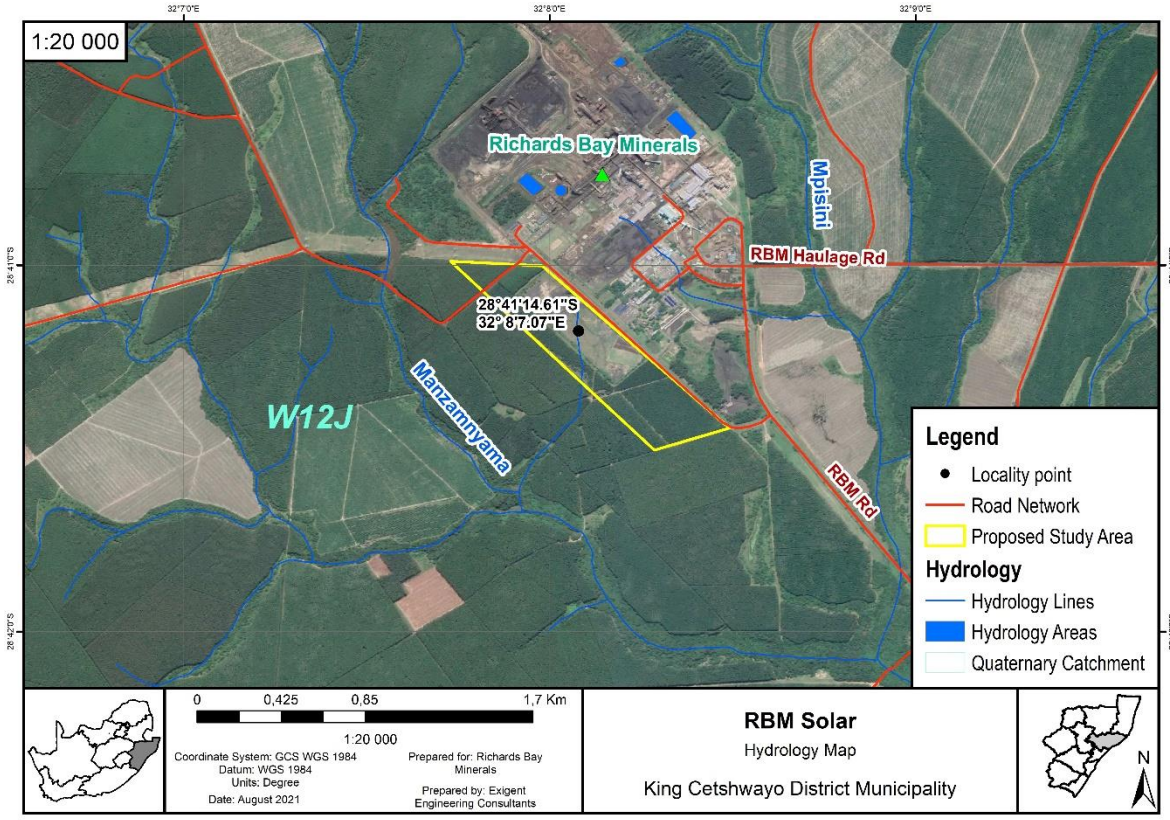



**Figure 4-5. Hydrology map of the study area.**

### 4.3.2 Resource Class, Resource Quality Objectives and Reserve Determination

The water resources within this catchment have been awarded a PES rating of C (Moderately modified) and an EIS rating of Moderate (DWA, 2014). The rivers associated with the study area in the W12J quaternary catchment area includes the Mpisini and Manzamnyama rivers.

It is important that the existing water resources should be protected through water conservation measures such as removal of alien invasive species, rehabilitation of wetlands, limiting groundwater abstraction to the set sustainable yield and minimizing the pollution of water resources (DWA, 2014).

### 4.3.3 Ground Water

The groundwater recharge of South Africa has been mapped and distributed as part of the National Freshwater Ecosystems Priority Areas (NFEPA) in 2011. In KZN, there are no areas of high groundwater recharge. The study area has a groundwater recharge ratio of 156. The aquifer classification map of South Africa has indicated that the study area has been identified as a major aquifer system. The water source in this area is surface water. According to the groundwater quality map of South Africa the electrical conductivity of the groundwater in the area ranges between 0 to 70 mS/m.

### 4.3.4 Wetlands

These databases used for this section included the following:

- NFEPA;
- National biodiversity data, and

#### 4.3.4.1 NFEPA and national wetlands database (map 5)

According to the NFEPA wetland database and the the National Wetland Map 5 (NWM5, 2019) database, there are no wetland located directily within the study area. There are however two wetlands identified to be located within the 500 m DWS regulated Area of the study area which includes a channelled valley-bottom wetland (NWM5)/ Floodplain wetland (NFEPA) and a Flat wetland (NFEPA) (Figure 4-6).

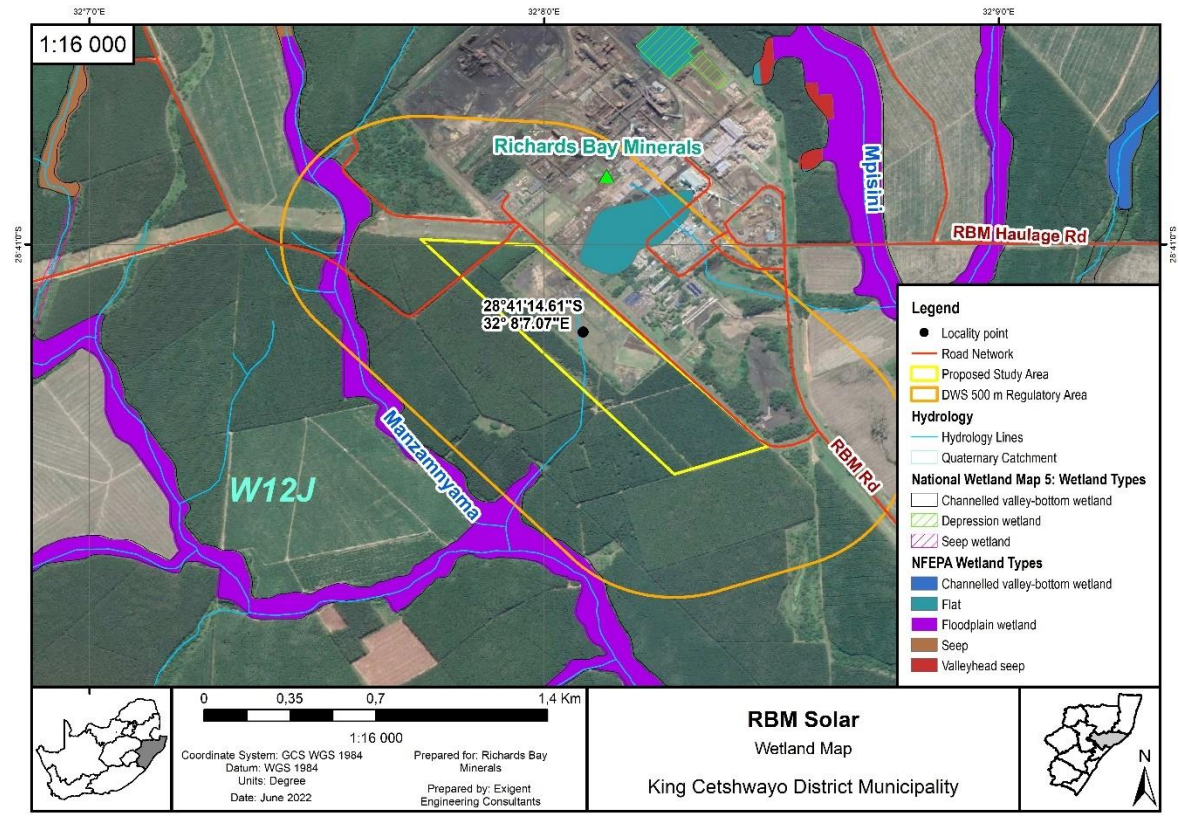



**Figure 4-6. Map of the NFEPA and NWM 5 Wetlands located close to the study area.**

## 4.4 Protected Areas

There are no protected areas identified in terms of the National Environmental Management Protected Areas Act (NEMPAA) within the 10 kilometres proposed project footprint.

## 4.5 Social and socio-economic environment

### 4.5.1 Employment during construction

During the construction phase, both skilled and unskilled temporary employment opportunities will be created. It is difficult to specify the actual number of employment opportunities that will be created at this stage; however, it is estimated that around 30 full time equivalent jobs will be created during the construction phase. It should be noted that the employment opportunities provided in this report are estimates and is dependent on the final engineering design.

### 4.5.2 Employment during operations

As per the jobs created during construction, it is estimated that five full time jobs will be created over the 20 year lifespan of the proposed facility. These jobs will be linked to services such as panel cleaning, maintenance and security.

### 4.5.3 uMfolozi Local Municipality Spatial Development Framework

According to the MLM's Spatial Development Framework (SDF), as updated for the 2019/2020 period, the general trend in rural municipalities is that people residing within the urban town of the municipality benefit from the economic and social opportunities it provides. However in MLM that is not the case as there are only approximately 5355 people living in ward 2 (KwaMbonambi Town). That being said Mbonambi Town unlike other towns is very deprived in economic and social land uses hence people are located within the outskirts of the municipality, furthermore it's in the centre of sugar and timber plantations offering limited space for residential settlements. MLM is one of the poorest municipalities in the province, with more than 90% of the population depending on subsistence farming to feed their families (MLM SDF, 2019).

MLM is dominated by a relatively young population, therefore sustainable development within the municipality, should accommodate the youth and ensure that they are all catered for spatially and empowered to uplift their communities and provide for their families (MLM SDF, 2019). This would entail the urgency to provide adequate educational facilities and libraries to stimulate their knowledge at a young age (MLM SDF, 2019).

Women in rural municipalities such as uMfolozi spend most of their time in reproductive and household work, including time spent obtaining water and fuel, caring for children and the sick as well as processing food. Men are the head of the family and their role is to provide security, safety and financial stability, therefore most men migrate to major cities in search of better job opportunities and those left over practise extreme heavy outdoor chores and provide safety to their families (MLM SDF, 2019). Such data assists planners on the type of population they are providing services for, as well as NGO's especially those which solely aim to empower previously deprived women (MLM SDF, 2019).

The MLM's SDF (2019) furthermore indicates that the average household size for MLM is 5 persons per household. The essence of measuring population density is premised around the ability to cater for the

population within its suitable capacity (MLM SDF, 2019). For example a high population density may lead to environmental pollution and other ecological issues such as illegally building residential units on protected agricultural land (MLM SDF, 2019). Furthermore population density data allows planners to analyse it spatially and make decisions on the areas of highest demand for services and environmental mitigation processes (MLM SDF, 2019).

### 4.5.4 King Cetshwayo District Municipality IDP

There are approximately 225 797 households within the district (King Cetshwayo IDP, 2019/20). The main economic contributors which exist within the district are manufacturing, community services and the finance sector. Other notable sectors in the district include the tourism sector, with several tourist attractions in and around the area. As unemployment is quite high in the King Cetshwayo District, Small, Medium and Micro Enterprises (SMMEs) play a vital role. Adequate attention should therefore be given to entrepreneurs in the development of new and sustainable SMMEs.

The vision of the KCDM is to create an economically viable district which contains effective infrastructure which encourages job creation through economic growth, rural development and which promotes the district's heritage. The core values of the District are that of integrity, transparency, commitment, co-operation, innovation and accountability.

The KCDM extends over 8 213 km$^2$ and houses a population of 917 135 people (King Cetshwayo IDP, 2019/20). The District has a total of 225 797 households whereby 80% of these households are rural population and 20% are within the urban population (King Cetshwayo IDP, 2019/20).

Key challenges which the District faces include:

- Basic service delivery;
- Food Security and Local Economic Development;
- Governance and Public Participation;
- Municipal Transportation and Organizational Development;
- Municipal Financial Viability and Management; and
- Spatial Planning and Spatial Development Frameworks.

The following critical steps in developing and promoting the economic sector in the District are noted:

- Availability of labour in the district;
- Broad-based tourism appeal;
- Strong agricultural sector;
- Good transportation networks (roads and rail);
- Availability of relevant sector plan (Local Economic Development strategy); and
- Effective Inter-governmental relation (IGR) structures.

The proposed development will promote economic growth in the local and district municipal area and also promote sustainable development by providing a sustainable, green energy resource to relieve the pressure on the current Grid and feed the renewable energy back into the operations at RBM.

# 5 ALTERNATIVES

An alternative, in relation to the proposed activity, means different means of meeting the general purpose and requirements of the activity. This can be through identifying an alternative property on which the activity can take place, the type of activity to be undertaken, a change in the design or layout of the activity, the technology used in the activity or the operational aspects of the activity. It also includes the option of not implementing the activity, called the no-go alternative.

## 5.1 Alternative sites for development

There are no site alternatives to be taken into consideration. This environmental assessment will assess the impact which the proposed solar park will have on the environment on the study area which is land owned by the Applicant.

## 5.2 Technology alternatives

The technology alternatives that were considered as part of the proposed developments have been captured in Table 5-1 below.

## Table 5-1. Technology alternatives for the proposed developments.

| Technology component | Description of the alternatives |
|---|---|
| PV Plant | The alternative to PV for producing energy from the sun is the thermal solution. There are different forms of this technology: linear fresnel, parabolic trough or tower. These technologies can also be with or without thermal storage and they can use diathermic oils or, the more sophisticated ones can use water and/or molten salts.<br><br>The final choice made was the PV option because these kinds of projects results in:<br>• Lower construction costs;<br>• Lower operating and maintenance costs;<br>• It is simpler, quicker and more experienced technology; and<br>• Lower environmental impact, considering that, amongst other factores, the PV Solution requires a minor quantity of water. |
| Wind Power | Another alternative to PV for producing energy from the sun is electrical energy form wind. A wind energy facility has a significant visual impact especially where it is located in a relative flat topographical area. Most important, the project site is not windy enough to be considered suitable for a wind farm. The PV option is thus still a better choice than wind energy based on the same reasons given above. |
| Alternatives for the Mounting System of the PV Modules | Preferred technical solutions for the proposed solar park entail PV modules mounted on fixed mounting systems or horizontal single-axis trackers.<br><br>The tracking solution is the best performing in terms of efficiency, because its energy production is approximately 20% more if compared with fixed systems. This type of technology is characterized by higher technical complexity and hgher installing and maintenance costs, if compared with the fixed mounting solution. The selected tracking system is the horizontal single-axis tracker (SAT), which doesn't differ from the fixed system, except for the presence of the tracking devices and the orientation of the rows of the PV arrays (north - south instead of west – east direction). The technology of mounting systems is under continuous evolution. Consequently, the final decision about the mounting system technology will be taken only at the commissioning date.<br><br>The selection of fixed mounting system or horizontal single-axis trackers will not affect the layout of the PV power plant or imply any additional visual or environmental impacts that will necessitate specific or different mitigation measures.<br><br>Both fixed and horizontal single-axis tracking solutions grant the reversibility of the development in respect of the terrain's morphology, geology and hydrogeology. This means that at the end of the PV plant's lifetime, the site can easily be returned to its status prior to the establishment of the PV plant. |
| BESS Technology Alternatives | Batteries store electrical energy in chemical form. The range of electrochemical technologies include:<br>a) batteries with solid electrolyte, as Lithium-ion battery;<br>b) batteries with liquid electrolyte, as Na–S battery, Lead–Acid (PbA) battery, nickel - cadmium (Ni–Cd) battery or other types of liquid metal battery<br><br>The preferred technology for the Battery Energy Storage System ("BESS") is Lithium-ion battery cells, which will be pre-assembled at the supplier factory and installed in the containers prior to delivery to the site. Lithium-ion cells technology offers the highest energy density (compared to the other cell technologies), does not suffer from memory effect and is low maintenance. |

| | |
|---|---|
| | Typical lithium-ion cells used for BESS hold a solid rechargeable electrolyte (the energy accumulator), therefore they don't hold any liquid or gas. The main benefit of solid ceramic electrolytes is that there is no risk of leaks, which is a serious safety issue for batteries with liquid electrolytes.<br><br>A BESS does not emit any gas to the atmosphere during construction and/or normal operation. The containers of the batteries are equipped with a firefighting system conceived to effectively detect smoke and high temperatures and automatically activate the extinguishers to prevent fire. Furthermore, the external metallic surface of the cells is conceived to resist to fire.<br><br>The preferred technology is therefore Lithium-ion battery cells with solid rechargeable electrolyte. Batteries with liquid electrolytes are not preferred for the risk of leakage and consequent potential impacts on environment. |

### 5.3 Alternative layout and land use

The alternative layouts have been amended as per the requirements of specialists during their discussions with municipal services departments in order to ensure the proposed layout is optimal in terms of provision of services and connecting to existing services and future expansion services. The proposed layout will consider the existing roads, infrastructure, as well as sensitive areas, e.g. drainage lines, wetlands, sensitive habitat and topography. These elements will optimise the proposed layout. Maps for the final proposed layouts can only be provided after completion of the specialist studies and will this be included in the Draft EAIR which will be available for public review.

The proposed layout option is included in Appendix D.

### 5.4 No go alternative

The no-go alternative means that proposed solar park project is not undertaken and the current site remains as it is with no development of the proposed project taking place. This would imply that the land is not utilised to provide the renewable energy to RBM, and RBM would remain dependant on ESKOM for their electrivcity needs.

If the proposed project is not undertaken then the study area will remain subject to the current land use of commercial farming and temporary land uses such as storage of equipment and a community soccer field. The development of the study area as a solar park, will ensure that environmental sustainable management strategies are implemented by RBM which will have a a net positive impact on the receiving environment. With the no-go alternative there will be no opportunities of job creation, economic growth, renewable development, which the implementation of the project entails.

## 6 NEED AND DESIRABILITY

The National EIA Regulations require that the Need and Desirability of a proposed project be outlined as part of the Scoping Report. The following section will describe the motivation, benefits, need and desirability of the proposed solar park development as set out in General Notice 891 of 2014. The guideline on need and desirability in terms of the EIA Regulations 2010 will be addressed by answering the questions on the specific impacts.

### 6.1 Key drivers and principles of need and desirability assessment

In the General Notice 891 of 2014, it is stated that consistent with national priorities, environmental authorities must support "increased economic growth and promote social inclusion", whilst ensuring that such growth is "ecologically sustainable". Furthermore, the New Growth Path (2010) highlights that in essence, the aim is to target our limited capital and capacity at activities that maximise the creation of decent work opportunities. To that end, we must use both macro and microeconomic policies to create a favourable overall environment and to support more labour-absorbing activities. The main indicators of success will be jobs (the number and quality of jobs created), growth (the rate, labour intensity and

composition of economic growth), equity (lower income inequality and poverty) and environmental outcomes.

The National Development Plan 2030 (NDP) (2012) stresses that the threat to the "environment and the challenge of poverty alleviation are closely intertwined" and as such environmental policies should not be framed as a choice between the environment or economic growth.

Sustainable development is the process that is followed to achieve the goal of sustainability. Sustainable development implies the selection and implementation of a development option, which allows for appropriate and justifiable social and economic goals to be achieved, based on the meeting of basic needs and equity, without compromising the natural system on which it is based (National Strategy for Sustainable Development and Action Plan 2011 - 2014 (NSSD 1) (2011)).

Consistent with the aim and purpose of EIAs, the concept of "need and desirability" relates to, amongst others, the nature, scale and location of development being proposed, as well as the wise use of land. While essentially, the concept of "need and desirability" can be explained in terms of the general meaning of its two components in which need primarily refers to time and desirability to place, "need and desirability" are interrelated and the two components collectively can be considered in an integrated and holistic manner (GN 891 of 2014).

## 6.2 Motivation for the proposed project

Section 4.5 describes the current status quo of the IDPs of the District and Local municipalities. The project is well-aligned with the objectives of the municipality as it encourages job creation through economic growth, rural development, and service delivery of basic services and good transportation networks linked to sustainable utilisation of resources. The need for “green” energy is also becoming more prevalent and therefore this project is in support of this and will therefore provide a sustainable, green energy resource to relieve the pressure on the current Grid and feed the renewable energy back into its system at RBM.

### 6.2.1 Proposed alternative

This proposed layout incorporates the requirements of the current area, as well as considers the strategic planning documents of the area, such as the IDP and SDF. The proposed solar park project incorporates installation of renewable energy.

## 6.3 Benefits of the proposed project

### 6.3.1 Employment and Economic Benefits of the proposed Alternative

The specific job creation opportunities of the project will be highlighted in the EIA Report.

## 6.4 Need

In providing for the Need for a project, the applicant has to explain how development would benefit the local/regional/national community. By emphasising how communities would benefit from the development, the need for a project is emphasized. It will be dealt with by answering the questions as set out in General Notice 891 of 2014, Guideline on need and desirability in terms of the EIA Regulations 2010.

Table 6-1 summarises the key questions and thought process which has been followed during the Scoping Process and which will be followed further during the EIA Phase to ensure the needs motivation has been adequately assessed.

**Table 6-1 Needs motivation and assessment guideline**

| "SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES" | | | |
|---|---|---|---|
| **Question** | | | **Scoping outcome response** |
| 1. | How will this development (and its separate elements/aspects) impact on the ecological integrity of the area? | | |
| | 1.1. | How were the following ecological integrity considerations taken into account?<br>• Threatened Ecosystems;<br>• Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure;<br>• Critical Biodiversity Areas ("CBAs") and Ecological Support Areas ("ESAs");<br>• Conservation targets;<br>• Ecological drivers of the ecosystem;<br>• Environmental Management Framework;<br>• Spatial Development Framework; and<br>• Global and international responsibilities relating to the environment (e.g. RAMSAR sites, Climate Change, etc.) | • The study site is located within the Maputaland Wooded Grassland which is classified as Endangered.<br>• There are no wetlands located on the study area, however there are wetlands within 500 m of the site.<br>• According to the EKZNW Conservation Plan (C-Plan), the study area does not fall within a Critical Biodiversity Area.<br>• The context of the site locality in terms of vegetation and wetlands will be included in the specialist studies, in order to provide an overall assessment.<br>• An EMPr for management of activities during all phases will be included in the EIA report. |
| | 1.2 | • How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity?<br>• What measures were explored to firstly avoid these negative impacts, and where these negative impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts?<br>• What measures were explored to enhance positive impacts? | • These impacts have been highlighted in the Scoping Report and will be further assessed in the specialist studies. |
| | 1.3 | • How will this development pollute and/or degrade the biophysical environment? | • These impacts have been highlighted in the Scoping Report and will be further assessed in the specialist studies. |

| "SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES" | | | |
|---|---|---|---|
| **Question** | | | **Scoping outcome response** |
| | | • What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts?<br>• What measures were explored to enhance positive impacts? | |
| | 1.4 | • What waste will be generated by this development?<br>• What measures were explored to firstly avoid waste, and where waste could not be avoided altogether, what measures were explored to minimise, reuse and/or recycle the waste?<br>• What measures have been explored to safely treat and/or dispose of unavoidable waste? | • Limited waste will be generated by the proposed project.<br>• During the construction phase of the project, general construction waste will be generated;<br>• No dumping of construction waste material will be allowed on site. All waste must be removed and disposed of at an approved licenced waste facility;<br>• The EMPr of the EIAR will provide measures to prevent or minimise the impact of the proposed project on the environment during the construction and operational phase. |
| | 1.5 | • How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage?<br>• What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts?<br>• What measures were explored to enhance positive impacts? | • The Heritage Statement will assess these potential impacts. |
| | 1.6 | • How will this development use and/or impact on non-renewable natural resources?<br>• What measures were explored to ensure responsible and equitable use of the resources?<br>• How have the consequences of the depletion of the non-renewable natural resources been considered?<br>• What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts?<br>• What measures were explored to enhance positive impacts? | • These impacts have been highlighted in the Scoping Report and will be further assessed in the EIAR. |
| | 1.7 | • How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part? | • The Vegetation and wetland specialist study will consider the sustainable use of resources. |

| "SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES" | | | |
|---|---|---|---|
| **Question** | | | **Scoping outcome response** |
| | | • Will the use of the resources and/or impact on the ecosystem jeopardise the integrity of the resource and/or system taking into account carrying capacity restrictions, limits of acceptable change, and thresholds?<br>• What measures were explored to firstly avoid the use of resources, or if avoidance is not possible, to minimise the use of resources?<br>• What measures were taken to ensure responsible and equitable use of the resources?<br>• What measures were explored to enhance positive impacts?<br>  • Does the proposed development exacerbate the increased dependency on increased use of resources to maintain economic growth or does it reduce resource dependency (i.e. de-materialised growth)? (note: sustainability requires that settlements reduce their ecological footprint by using less material and energy demands and reduce the amount of waste they generate, without compromising their quest to improve their quality of life).<br>  • Does the proposed use of natural resources constitute the best use thereof? Is the use justifiable when considering intra- and intergenerational equity, and are there more important priorities for which the resources should be used (i.e. what are the opportunity costs of using these resources this the proposed development alternative?)<br>  • Do the proposed location, type and scale of development promote a reduced dependency on resources? | |
| | 1.8 | • How were a risk-averse and cautious approach applied in terms of ecological impacts?<br>  • What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)? | • This risk assessment will be concluded based on the outcomes of the various specialist studies. |

| "SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES" | | | |
|---|---|---|---|
| **Question** | | | **Scoping outcome response** |
| | | • What is the level of risk associated with the limits of current knowledge?<br>• Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development? | |
| | 1.9 | • How will the ecological impacts resulting from this development impact on people's environmental right in terms following:<br>○ Negative impacts: e.g. access to resources, opportunity costs, loss of amenity (e.g. open space), air and water quality impacts, nuisance (noise, odour, etc.), health impacts, visual impacts, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?<br>○ Positive impacts: e.g. improved access to resources, improved amenity, improved air or water quality, etc. What measures were taken to enhance positive impacts? | • This assessment will be concluded based on the outcomes of the various specialist studies. |
| | 1.10 | Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socio-economic impacts (e.g. on livelihoods, loss of heritage site, opportunity costs, etc.)? | • This assessment will be concluded based on the outcomes of the various specialist studies. |
| | 1.11 | Based on all of the above, how will this development positively or negatively impact on ecological integrity objectives/targets/considerations of the area? | • This assessment will be concluded based on the outcomes of the various specialist studies. |
| | 1.12 | Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the "best practicable environmental option" in terms of ecological considerations? | • This assessment will be concluded based on the outcomes of the various specialist studies. |
| | 1.13 | Describe the positive and negative cumulative ecological/biophysical impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and existing and other planned developments in the area? | • This assessment will be concluded based on the outcomes of the various specialist studies. |

## 6.5 Desirability

Desirability relates to the placement of an activity. The motivation must indicate why the location of a development in this particular area would be more desirable than establishing in another area. It will be dealt with by answering the questions as set out in GNR 326 of 2014, Guideline on need and desirability in terms of the EIA Regulations 2010. Table 6-2 summarises the key questions and thought process to be followed during the EIA Phase to ensure the desirability of the project has been thoroughly assessed.

**Table 6-2. Assessment for desirability**

| "PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT" | | | |
|---|---|---|---|
| **Question** | | | **Scoping outcome response** |
| 2. | What is the socio-economic context of the area, based on, amongst other considerations, the following considerations? | | |
| | 2.1 | • The IDP (and its sector plans' vision, objectives, strategies, indicators and targets) and any other strategic plans, frameworks of policies applicable to the area;<br>• Spatial priorities and desired spatial patterns (e.g. need for integrated of segregated communities, need to upgrade informal settlements, need for densification, etc.);<br>• Spatial characteristics (e.g. existing land uses, planned land uses, cultural landscapes, etc.); and<br>• Municipal Economic Development Strategy ("LED Strategy"). | • The proposed development aligns with the District IDP with regard to basic service delivery and labour provisions in the district.<br>• The proposed development will provide additional short- and long-term work opportunities for skilled and unskilled labourers. The skills acquired as part of the various phases of the proposed development, will be transferable to future employment opportunities.<br>• The historical land use was agriculture, however, the land has since been allowed to return to it's natural state, with secondary grasslands now covering the majority of the sites. |
| | 2.2 | • Considering the socio-economic context, what will the socio-economic impacts be of the development (and its separate elements/aspects), and specifically also on the socio-economic objectives of the area?<br>• Will the development complement the local socio-economic initiatives (such as local economic development (LED) initiatives), or skills development programs? | • The project will play an important role form a socio-economic perspective as it will provide job creation opportunities and thereby economic growth of the area.<br>• These core principles for the region will be discussed in more detail in the EIAR, however, it is focused on socio-economic impacts in the area. |
| | 2.3 | • How will this development address the specific physical, psychological, developmental, cultural, and social needs and interests of the relevant communities? | • The aim of the proposed development is to provide an additional source of energy to the existing electricity grid. Through the use of PV Power Plant, the proposed development will see to the use of renewable energy sources (solar energy).<br>• The proposed development will provide numerous temporary employment opportunities for both skilled and unskilled individuals during the construction and operational phases of the project. |
| | 2.4 | • Will the development result in equitable (intra- and inter-generational) impact distribution, in the short- and long-term?<br>• Will the impact be socially and economically sustainable in the short- and long-term? | • The aim of the proposed development is to provide an additional source of energy to the existing electricity grid. Through the use of PV Power Plant, the proposed development will see to the use of renewable energy sources (solar energy) |
| | 2.5 | • In terms of location, describe how the placement of the proposed development will: | • The proposed development will provide numerous short-term opportunities for skills development and employment during the construction phase. Skills learned and developed can be carried forward to other job opportunities after this construction has been completed. |

| "PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT" | | | |
|---|---|---|---|
| **Question** | | | **Scoping outcome response** |
| | | ○ result in the creation of residential and employment opportunities in close proximity to or integrated with each other;<br>○ reduce the need for transport of people and goods;<br>○ result in access to public transport or enable non-motorised and pedestrian transport (e.g. will the development result in densification and the achievement of thresholds in terms public transport);<br>○ compliment other uses in the area;<br>○ be in line with the planning for the area;<br>○ for urban related development, make use of underutilised land available with the urban edge;<br>○ optimise the use of existing resources and infrastructure;<br>○ opportunity costs in terms of bulk infrastructure expansions in non-priority areas (e.g. not aligned with the bulk infrastructure planning for the settlement that reflects the spatial reconstruction priorities of the settlement);<br>○ discourage "urban sprawl" and contribute to compaction/densification;<br>○ contribute to the correction of the historically distorted spatial patterns of settlements and to the optimum use of existing infrastructure in excess of current needs;<br>○ encourage environmentally sustainable land development practices and processes;<br>○ take into account special locational factors that might favour the specific location (e.g. the location of a strategic mineral resource, access to the port, access to rail, etc.);<br>○ the investment in the settlement or area in question will generate the highest socio-economic returns (i.e. an area with high economic potential); | • The project is well-aligned with the objectives of the municipality as it encourages job creation through economic growth, rural development, and service delivery of basic services and good transportation networks linked to sustainable utilisation of resources. |

| "PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT" | | | |
|---|---|---|---|
| **Question** | | | **Scoping outcome response** |
| | | ○ impact on the sense of history, sense of place and heritage of the area and the socio-cultural and cultural-historic characteristics and sensitivities of the area; and<br>○ in terms of the nature, scale and location of the development promote or act as a catalyst to create a more integrated settlement? | |
| | 2.6 | • How were a risk-averse and cautious approach applied in terms of socio-economic impacts?<br>○ What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?<br>○ What is the level of risk (note: related to inequality, social fabric, livelihoods, vulnerable communities critical resources, economic vulnerability and sustainability) associated with the limits of current knowledge?<br>○ Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development? | • The impacts of the proposed solar park project and associated infrastructure services will be assessed during the EIAR phase. |
| | 2.7 | • How will the socio-economic impacts resulting from this development impact on people's environmental right in terms following:<br>○ Negative impacts: e.g. health (e.g. HIV-Aids), safety, social ills, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?<br>• Positive impacts. What measures were taken to enhance positive impacts? | • The impacts of the proposed solar park project and associated infrastructure services will be assessed during the EIAR phase. |
| | 2.8 | • Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development's socio-economic impacts will result in ecological impacts (e.g. over utilisation of natural resources, etc.)? | • This assessment will be concluded based on the outcomes of the various specialist studies, such as the ecological and wetland assessment. |

| "PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT" | | | |
|---|---|---|---|
| **Question** | | | **Scoping outcome response** |
| | 2.9 | • What measures were taken to pursue the selection of the "best practicable environmental option" in terms of socio-economic considerations? | • This assessment will be concluded based on the outcomes of the various specialist studies, such as the ecological and wetland assessment. |
| | 2.10 | • What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons (who are the beneficiaries and is the development located appropriately)?<br>• Considering the need for social equity and justice, do the alternatives identified, allow the "best practicable environmental option" to be selected, or is there a need for other alternatives to be considered? | • This assessment will be concluded based on the outcomes of the various specialist studies, such as the ecological and wetland assessment.<br>• The layout alternatives will consider the outcome of the specialist studies and requirements from the various stakeholders. |
| | 2.11 | • What measures were taken to pursue equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing, and what special measures were taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination? | • This assessment will be concluded based on the outcomes of the various specialist studies, such as the ecological and wetland assessment.<br>• The layout alternatives will consider the outcome of the specialist studies and requirements from the various stakeholders. |
| | 2.12 | • What measures were taken to ensure that the responsibility for the environmental health and safety consequences of the development has been addressed throughout the development's life cycle? | • This assessment will be concluded based on the outcomes of the various specialist studies, such as the ecological and wetland assessment.<br>• The layout alternatives will consider the outcome of the specialist studies and requirements from the various stakeholders. |
| | 2.13 | • What measures were taken to:<br>o ensure the participation of all interested and affected parties;<br>o provide all people with an opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation;<br>o ensure participation by vulnerable and disadvantaged persons;<br>o promote community wellbeing and empowerment through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means;<br>o ensure openness and transparency, and access to information in terms of the process; | • The public participation process followed during the Scoping Process has been described within this report.<br>• The process followed hereafter will be included in the EIAR. |

| "PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT" | | | |
|---|---|---|---|
| **Question** | | | **Scoping outcome response** |
| | | ○ ensure that the interests, needs and values of all interested and affected parties were taken into account, and that adequate recognition were given to all forms of knowledge, including traditional and ordinary knowledge; and<br>○ ensure that the vital role of women and youth in environmental management and development were recognised and their full participation therein were be promoted? | |
| | 2.14 | Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community (e.g. a mixture of low-, middle-, and high-income housing opportunities) that is consistent with the priority needs of the local area (or that is proportional to the needs of an area)? | • The project will provide renewable energy to RBM. |
| | 2.15 | What measures have been taken to ensure that current and/or future workers will be informed of work that potentially might be harmful to human health or the environment or of dangers associated with the work, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected? | • These measures will be included in the project-specific EMPr to be included in the EIAR. |
| | 2.16 | • Describe how the development will impact on job creation in terms of, amongst other aspects:<br>• the number of temporary versus permanent jobs that will be created;<br>• whether the labour available in the area will be able to take up the job opportunities (i.e. do the required skills match the skills available in the area);<br>• the distance from where labourers will have to travel;<br>• the location of jobs opportunities versus the location of impacts (i.e. equitable distribution of costs and benefits); and<br>• the opportunity costs in terms of job creation (e.g. a mine might create 100 jobs, but impact on 1000 residential jobs, etc.). | • The detail aspects of this will be assessed during the construction planning details which will be included in the EIAR.<br>• The construction phase of the proposed developments will create employment opportunities during the construction and operational phases.<br>• Where possible, preference must be given to the local affected parties when recruiting labourers. These parties must be trained in such a way as to assist with furthering their skills, where required. |

| "PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT" | | | |
|---|---|---|---|
| **Question** | | | **Scoping outcome response** |
| | 2.17 | • What measures were taken to ensure:<br>  • that there were intergovernmental coordination and harmonisation of policies, legislation and actions relating to the environment; and<br>  • that actual or potential conflicts of interest between organs of state were resolved through conflict resolution procedures? | • All relevant parties have been and will continue to be involved in the stakeholder process and a thorough review was done of the applicable legislation and policies applicable to this application. |
| | 2.18 | What measures were taken to ensure that the environment will be held in public trust for the people, that the beneficial use of environmental resources will serve the public interest, and that the environment will be protected as the people's common heritage? | • The proposed management measures of all specialists will be included in the EIAR and site-specific EMPr. The EMPr will include the long-term operational phase. |
| | 2.19 | Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left? | • The proposed management measures of all specialists will be included in the EIAR and site-specific EMPr. |
| | 2.20 | What measures were taken to ensure that the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects will be paid for by those responsible for harming the environment? | • The proposed management measures of all specialists will be included in the EIAR and site-specific EMPr. |
| | 2.21 | Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the best practicable environmental option in terms of socio-economic considerations? | • This assessment will be concluded based on the outcomes of the various specialist studies, such as the ecological and wetland assessment.<br>• The layout alternatives will consider the outcome of the specialist studies and requirements from the various stakeholders. |
| | 2.22 | Describe the positive and negative cumulative socio-economic impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and other planned developments in the area? | • This assessment will be concluded based on the outcomes of the various specialist studies, such as the ecological and wetland assessment. |

# 7 PUBLIC PARTICIPATION PROCESS

## 7.1 Objectives

The primary objectives of the Public Participation Process (PPP) include:

- Meaningful and timeous participation of I&APs;
- Identification of issues and concerns of key stakeholders and I&AP with regards to the proposed project, i.e., focus on important issues;
- Promotion of transparency and an understanding of the proposed project and it's potential environmental (social and biophysical) impacts;
- Accountability for information used for decision-making;
- To serve as a structure for liaison and communication with I&APs, and
- A meeting in identifying potential environmental (social and biophysical) impacts associated with the proposed project.

## 7.2 Landowners

The landowner is the Applicant, RBM (Title Deeds attached in Appendix C).

## 7.3 Approach

### 7.3.1 Identification of and Consultation with Key Stakeholders and Landowners

The first step in the PPP entails the identification of key I&APs and Stakeholders, including:

- Local and provincial government;
- Affected and neighbouring landowners; and
- Environmental Organisations.

Identification of I&APs takes place through existing databases, responses to newspaper advertisements, networking and a proactive process to identify key I&APs within the study area. All I&AP information (including contact details), together with dates and details of consultations and a record of all issues raised will be recorded within a comprehensive database of affected landowners (and occupiers where relevant). This database is updated on an on-going basis throughout the project process and will act as a record of the communication/involvement process. This database was prepared by Exigent and will be utilised to record I&APs and stakeholder responses.

### 7.3.2 Advertising

In accordance with the EIA Regulations, the commencement of the EIA Process for the project was advertised in the local newspaper. An English advert was placed in the Zululand Observer (ZO) on the 21st of May 2021 and an Erratum, to reflect the correct GNR number, was placed in the ZO on the 24th of May 2021. Copies of the newspaper advertisements and photos of the site notices placed on site are attached in Appendix E.

### 7.3.3 Background Information Document

A BID was compiled and distributed to I&APs and relevant stakeholders providing information regarding the proposed project as well as the environmental authorisation process. The BID aims to provide a brief outline of the proposed project, provide I&APs and stakeholders with a map of the study area, provide preliminary details regarding the EIA, and to explain how I&APs can become involved in the project.

### 7.3.4 Public and Authority review of the draft Scoping and EIA Reports

The DRS was made available for review from 28 June 2022 to 28 July 2022 at the reception desk at RBM and/or for download from public.exigent.co.za. Hard copies were posted to the pre-identified key stakeholders and electronic copies were distributed to all registered I&APs.

A 30-calendar day period was allowed for this review process. All I&AP's and Stakeholders registered on the project database were notified of the availability of this report by letter, facsimile or e-mail. Copies of the draft report were submitted to the DEDTEA. The DEDTEA requests that all state departments that administer a law relating to a listed activity should comment on the draft Scoping and EIA Reports within 30 calendar days from date of submission.

### 7.3.5 Issues Trail (Comments and Response Report)

Issues and concerns raised during the PPP thus far have been captured and compiled into a CRR (Appendix E4), where responses have been provided by Exigent and the project team. Information from the PPP held during the EIA Process will be incorporated into the EIA Report.

From this CRR, an action list will be compiled detailing those actions which are required to be undertaken in order to address specific issues raised.

## 7.4 Key issues from I & AP's and Stakeholders

Following the publication of the adverts, placing of the site notices and circulation of the BID, some comments were received from I&AP's and stakeholders with regards to the proposed solar park project. A summary of these comments is contained and responded to in Table 7-1. A full set of the original comments received are contained within Appendix E4.

**Table 7-1. Summary of comments per subject, received from I&AP's and stakeholders for the proposed project.**

Please note this is a summary of the comments received and not the full record. Kindly refer to Appendix E3 for the full record of comments received from stakeholders and interested parties.

| Date | Institution | Contact Person | Comments | Response |
|---|---|---|---|---|
| **INITIAL NOTIFICATION PHASE** | | | | |
| **Environmental interest in process** | | | | |
| 27 May 2021 | SAPPI | Dutliff Smith | Sappi would like to participate in the process EIA process as an Interested and Affected Party. It would be appreciated if all correspondence in this respect could in future, please be forwarded to me directly. | Thank you for the notification. We will add your details to the I&AP database to keep you informed. |
| 24 May 2021 | Ingonyama Trust Board | Tashveer Bothath | I have been instructed by my Manager to form part of this process as an affected party – kindly ensure that you do direct all correspondence to myself in regards to this EIA. I think I can safely assume that the ITB isn't the landowner in this regard and generally wouldn't have any objection provided that it does affect our land negatively. If you are able to provide land ownership details, that would be great also. | Thank you for the email, kimdly note that the applicant (RBM) is also the land owner. |
| 07 June 2022 | DFFE | T. Sibozana | With reference to the above-mentioned project received on 29 June 2022, notice of environmental impact assessment for the proposed, Richards Bay minerals, on-site renewable photovoltaic (PV) energy project on portion 0 of ERF 13130 Lot K45 and portion 0 of ERF 16317 RBM, Richards Bay. The proposed site is located within the Maputaland wooded grassland which are endangered. It has been noted on the report that there are no protected trees and natural forests in terms of the National Forests Act (Act No.84 of 1998) as amended.<br>Therefore, the department does not object the proposed project hence it does not affect the mandate of the Forestry management Branch (Forestry Regulations and Support) as per the said Act. However, it is recommended that during rehabilitation phase, indigenous trees be planted to promote industrial greening within the City of uMhlathuze. | Thank you for the email, of which the content is noted and recommendations will be incorporated into the EIAR and EMPr of this project. |
| **Services comments** | | | | |

| Date | Institution | Contact Person | Comments | Response |
|---|---|---|---|---|
| 21 May 2021 | Eskom Transmission Division | John Geeringh | Eskom general requirements for works at or near Eskom infrastructure and servitudes were attached. It was also requested that a KMZ file of the proposed location of the PV facility is sent.<br>Eskom requirements for work in or near Eskom servitudes.<br>1. Eskom's rights and services must be acknowledged and respected at all times.<br>2. Eskom shall at all times retain unobstructed access to and egress from its servitudes.<br>3. Eskom's consent does not relieve the developer from obtaining the necessary statutory, land owner or municipal approvals.<br>4. Any cost incurred by Eskom as a result of non-compliance to any relevant environmental legislation will be charged to the developer.<br>5. If Eskom has to incur any expenditure in order to comply with statutory clearances or other regulations as a result of the developer's activities or because of the presence of his equipment or installation within the servitude restriction area, the developer shall pay such costs to Eskom on demand.<br>6. The use of explosives of any type within 500 metres of Eskom's services shall only occur with Eskom's previous written permission. If such permission is granted the developer must give at least fourteen working days prior notice of the commencement of blasting. This allows time for arrangements to be made for supervision and/or precautionary instructions to be issued in terms of the blasting process. It is advisable to make application separately in this regard.<br>7. Changes in ground level may not infringe statutory ground to conductor clearances or statutory visibility clearances. After any changes in ground level, the surface shall be rehabilitated and stabilised so as to prevent erosion. The measures taken shall be to Eskom's satisfaction. | Thank you for your comments. We take note and will include it in the relevant documentation and designs. A kml file was also provided to Mr John Geeringh |

| Date | Institution | Contact Person | Comments | Response |
|---|---|---|---|---|
| | | | 8. Eskom shall not be liable for the death of or injury to any person or for the loss of or damage to any property whether as a result of the encroachment or of the use of the servitude area by the developer, his/her agent, contractors, employees, successors in title, and assignees. The developer indemnifies Eskom against loss, claims or damages including claims pertaining to consequential damages by third parties and whether as a result of damage to or interruption of or interference with Eskom's services or apparatus or otherwise. Eskom will not be held responsible for damage to the developer's equipment.<br>9. No mechanical equipment, including mechanical excavators or high lifting machinery, shall be used in the vicinity of Eskom's apparatus and/or services, without prior written permission having been granted by Eskom. If such permission is granted the developer must give at least seven working days' notice prior to the commencement of work. This allows time for arrangements to be made for supervision and/or precautionary instructions to be issued by the relevant Eskom Manager<br><br>Note: Where and electrical outage is required, at least fourteen work days are required to arrange it.<br>10. Eskom's rights and duties in the servitude shall be accepted as having prior right at all times and shall not be obstructed or interfered with.<br>11. Under no circumstances shall rubble, earth or other material be dumped within the servitude restriction area. The developer shall maintain the area concerned to Eskom's satisfaction. The developer shall be liable to Eskom for the cost of any remedial action which has to be carried out by Eskom. | |

| Date | Institution | Contact Person | Comments | Response |
|---|---|---|---|---|
| | | | 12. The clearances between Eskom's live electrical equipment and the proposed construction work shall be observed as stipulated by Regulation 15 of the Electrical Machinery Regulations of the Occupational Health and Safety Act, 1993 (Act 85 of 1993).<br>13. Equipment shall be regarded electrically live and therefore dangerous at all times.<br>14. In spite of the restrictions stipulated by Regulation 15 of the Electrical Machinery Regulations of the Occupational Health and Safety Act, 1993 (Act 85 of 1993), as an additional safety precaution, Eskom will not approve the erection of houses, or structures occupied or frequented by human beings, under the power lines or within the servitude restriction area.<br>15. Eskom may stipulate any additional requirements to highlight any possible exposure to Customers or Public to coming into contact or be exposed to any dangers of Eskom plant.<br>16. It is required of the developer to familiarise himself with all safety hazards related to Electrical plant.<br>17. Any third party servitudes encroaching on Eskom servitudes shall be registered against Eskom's title deed at the developer's own cost. If such a servitude is brought into being, its existence should be endorsed on the Eskom servitude deed concerned, while the third party's servitude deed must also include the rights of the affected Eskom servitude. | |
| **Marketing opportunity** | | | | |
| 24 May 2021 | Maspet Marketing (PTY)Ltd | Bheki Masikane | Mr Bheki indicated his interest to know more about the proposed project as he is a new entrepreneur who has just started the company Maspet Marketing (PTY) Ltd. He would therefore like to see if there is an opportunity for business during this project as his company has been involved in different activities before, catering for small informal events, planning events, maintenance and | Thank you for your interest in the renewable energy project. We will add you to the database to keep you informed as the process continues. |

| Date | Institution | Contact Person | Comments | Response |
|---|---|---|---|---|
| | | | management of supermarket trolleys. Although Maspet Marketing has not done any solar energy related work, he as the director of the company, attended the Solar energy training (Super Solar School) facilitated by Green Solar Academy in November 2020. He is preparing to write an exam to be a certified installer (SAPVIA PV assessment). Moreover, he is an Electrical Engineer by qualification, recently achieved BTech degree in Electrical Engineering-Light Current.. | |
| **COMMENTS RECEIVED ON THE DRAFT SCOPING REPORT** | | | | |
| **Environmental interest in process** | | | | |
| 29 June 2022 | DFFE | Sibusisiwe Makhubalo | The correspondence served as a notice of receipt for the DSR. | Thank you for the email, of which the content is noted. |
| 22 July 2022 | Ezemvelo KZN Wildlife | Nolwazi Nkosi | Ezemvelo will not be providing comment on this application, but trust that all significant biodiversity related concerns have been clearly identified and made known in this assessment together with appropriate measures (viz. avoid, mitigate and thereafter ameliorate) to safeguard the ecological integrity of the developable area.<br>Please be advised that the potential impacts upon biodiversity will be evaluated by the Competent Authority who may, upon identification of a potential biodiversity concern, refer the biodiversity concern to this organisation for evaluation and advice regarding the specific concern, prior to making a decision. In such case, the environmental principles prescribed in the National Environmental Management Act 107 of 1998, the objectives of the National Environmental Management Biodiversity Act 10 of 2004 and best practice will be applied. | Thank you for the email, of which the content is noted. |
| 25 July 2022 | DEDTEA | Siyanda Nzuza | Mr Siyanda informed Exigent that he is the case officer responsible for your application (DC28/0008/2022) and that any enquiries regarding this application must be directect to him. | Thanks very much, Looking forward to working with you on this project. |
| 27 July 2022 | ULM | Nokubonga Duma | The City of uMhlathuze has reviewed the Environmental Scoping Report, dated June 2022, in the respect of the above application and submitted the following comments:<br>Cumulative Impacts | Thanks very much for your comments of which we acknowledge receipt thereof. Kindly note that these comments made will be addressed based on the outcomes of the various specialist studies, |

| Date | Institution | Contact Person | Comments | Response |
|---|---|---|---|---|
| | | | 1. It is noted that the development will not directly affect the City of Umhlathuze, however the municipality would like to further engage the Environmental Impact report with the specialists report for this application.<br>2. The specialist report must assess the cumulative impact particularly on the water resources within the catchment. | such as the ecological and wetland assessment which will form part of the EIR which will be sent to you for public review. |
| 28 July 2022 | DWS | Lwandle Sibango | DWS has the following comments which must be addressed and responses form part of the subsequent environmental assessment processes.<br><br>1. With reference to the information presented:<br>A. Executive summary and Page 28 of this DSR indicating that, amongst others, specialist studies such as the Aquatic & Terrestrial biodiversity impact assessment, including wetland assessment, will be undertaken.<br>B. Page 17 of this DSR indicating that ablution facilities will form part of proposed infrastructure.<br>C. Page 18 of this DSR indicating that stormwater channels will be confirmed and that a detailed Storm Water Management Plan (SWMP) will be developed.<br>D. Page 22 of this DSR indicating that water will be required for construction and operational phases of this development.<br>E. Page 22 of this DSR indicating that low volumes of sewage will be produced — chemical toilets will be used — conservancy tanks ?? — nearby Waste Water Treatment Works (WWTW)?†.<br>F. Page 34— 41: Description of receiving environment indicating that, amongst others, two wetlands have been identified within 500m of study. | Thanks very much for your comments of which we acknowledge receipt thereof. Kindly note that these comments made will be addressed based on the outcomes of the various specialist studies, such as the ecological and wetland assessment which will form part of the EIR which will be sent to you for public review. |

| Date | Institution | Contact Person | Comments | Response |
|---|---|---|---|---|
| | | | 1.1 DWS looks forward to the comprehensive report as per the Plan of Study for EIA (POSEIA) and the proposed specialist studies.<br>1.2 With regards to Water usage and waste water to be produced, RBM is required to "source" the relevant confirmations (and submit as part of the final assessment stage of this project) proving sustainable provision of such services.<br>1.3 RBM is required to provide DWS with a legible colour Layout Map. Such a Map should, amongst others:<br>(i) Show all watercourses: channels, drainage lines, streams, tributaries, rivers, wetlands, etc. within and around the site of interest;<br>(ii) Show the 1:100 year floodline of all drainage lines, channels, streams, tributaries, rivers (in and around the site) or 100m distance (whiche\/er is greatest);<br>(iii) Show all wetlands (in and around the site), their delineated boundaries as well as the buffer zone(s) to be applied for this development;<br>(i) Superimpose all the existing and proposed infrastructure (temporary & permanent) which forms part of this development. | |

# 8 IMPACT ASSESSMENT

## 8.1 Potential Impacts of the project

The different aspects pertaining to the environment must be considered when assessing the impact of the proposed project on the environment. Table 8-1 indicates some of the environmental issues associated with the project that will be addressed in the EIA and management measures in the EMPr. It also indicates if investigations additional to those already done will be necessary to assess this impact.

**Table 8-1. Potential environmental issues**

| ASPECT | ISSUE TO BE CONSIDERED | INVESTIGATIONS |
|---|---|---|
| **PHYSICAL** | | |
| **Soil** | Loss of commercial forestry land | EAIR |
| | Erosion management | EMPr<br>Engineerign design report |
| **Hydrology and geohydrology** | Potential pollution of the groundwater | EMPr<br>Engineerign design report |
| | Change in runoff and potential impacts on | |
| **BIODIVERSITY** | | |
| **Vegetation** | Habitat fragmentation, clearing of vegetation | Vegetation and wetland Specialist study |
| | Alien species may establish due to disturbance during construction, as well as landscaping activities | |
| | Loss in Red Listed plant species | |
| | Indirect impact on wetlands/drainage channels/watercourses | |
| **NOISE** | | |
| **Noise** | Impact of heavy machinery during the construction phase | EMPr |
| **HERITAGE** | | |
| **Heritage** | The site may impact on heritage artefacts. | Heritage Statement. |
| **TRAFFIC** | | |
| **Traffic** | Increase in traffic congestion during construction | EMPr<br>Engineerign design report |
| **SOCIO-ECONOMIC** | | |
| **Socio-economic** | The impact on the surrounding community regarding the proposed solar park | EAIR |
| **AGRICULTURAL ASPECTS** | | |
| **Agricultural potential** | Loss of agricultural land | EAIR |

## 8.2 Methodology in assessing potential impacts

The impacts of the proposed project and each alternative will be assessed according to the criteria in Table 8-2 and will include the degree to which these impacts can be reversed, may cause irreplaceable loss of resources and can be avoided, managed or mitigated.

**Table 8-2. Criteria by which impacts will be assessed.**

| ASPECT | IMPACT RATING |
|---|---|
| **Status of the impact:**<br>A statement of whether the impact is positive (a benefit), negative (a cost), or neutral. | |
| **Direct impacts** | Impacts that are caused directly by the activity and generally occur at the same time and at the place of the activity. These impacts are usually associated with the construction, operation or maintenance of an activity and are generally obvious and quantifiable. |
| **Indirect impacts** | Impacts of an activity are indirect or induced changes that may occur as a result of the activity. These types of impacts include all the potential impacts that do not **manifest** immediately when the activity is undertaken, or which occur at a different place as a result of the activity. |
| **Cumulative impacts** | Impacts that result from the incremental impact of the proposed activity on a common resource when added to the impacts of other past, present or reasonably foreseeable future activities. Cumulative impacts can occur from the collective impacts of individual minor actions over a period of time and can include both direct and indirect impacts. |
| **Nature of the impact:**<br>The evaluation of the nature is impact specific. Most negative impacts will remain negative, however, after mitigation, significance should reduce:<br>• Positive.<br>• Negative. | |
| **Extent:**<br>A description of whether the impact would occur on a scale limited to within the study area (local), limited to within 5 km of the study area (area); on a regional scale i.e. uMhlathuze Local Municipality & KZN (region); or would occur at a national or international scale. | |
| Local | 1 |
| Area | 2 |
| Region | 3 |
| National | 4 |
| International | 5 |
| **Duration**:<br>A prediction of whether the duration of the impact would be Immediate and once-off (less than one month), more than once, but short term (less than one year), regular, medium term (1 to 5 years), Long term (6 to 15 years), Project life/permanent (> 15 years, with the impact ceasing after the operational life of the development, or should be considered as permanent). | |

| ASPECT | IMPACT RATING |
|---|---|

| | |
|---|---|
| Immediate | 1 |
| Short term | 2 |
| Medium term | 3 |
| Long term | 4 |
| Project life/permanent | 5 |

**Severity (extent +duration + intensity)**

**Intensity:** This provides an order of magnitude of whether or not the intensity (magnitude/size/frequency) of the impact would be negligible, low, medium, high or very high. This is based on the following aspects:

- an assessment of the reversibility of the impact (permanent loss of resources, or impact is reversible after project life);
- whether or not the aspect is controversial;
- an assessment of the irreplaceability of the resource loss caused by the activity (whether the project will destroy the resources which are easily replaceable, or the project will destroy resources which are irreplaceable and cannot be replaced);
- the level of alteration to the natural systems, processes or systems.

| | | |
|---|---|---|
| Negligible | The impact does not affect physical, biophysical or socio-economic functions and processes. | 1 |
| Low/potential harmful | The impact has limited impacts on physical, biophysical or socio-economic functions and processes. | 2 |
| Medium/slightly harmful | The impact has an effect on physical, biophysical and socio-economic functions and processes, but in such a way that these processes can still continue to function albeit in a modified fashion. | 3 |
| High/Harmful | Where the physical, bio-physical and socio-economic functions and processes are impacted on in such a way as to cause them to temporarily or permanently cease. | 4 |
| Very high/Disastrous | Where the physical, bio-physical and socio-economic functions and processes are highly impacted on in such a way as to cause them to permanently cease. | 5 |

**Incidence (frequency + probability)**

**Frequency:** This provides a description of any repetitive, continuous or time-linked characteristics of the impact: Once Off (occurring any time during construction or operation); Intermittent (occurring from

time to time, without specific periodicity); Periodic (occurring at more or less regular intervals); Continuous (without interruption).

| | | |
|---|---|---|
| Once Off | Once | 1 |
| Rare | 1/5 to 1/10 years | 2 |
| Frequent | Once a year | 3 |
| Very frequent | Once a month | 4 |
| Continuous | ≥ Once a day/ per shift | 5 |

**Probability of occurrence**: A description of the chance that consequences of that selected level of severity could occur during the exposure.

| | | |
|---|---|---|
| Highly unlikely | The probability of the impact occurring is highly unlikely due to its design or historic experience. | 1 |
| Improbable | The probability of the impact occurring is low due to its design or historic experience. | 2 |
| Probable | There is a distinct probability of the impact occurring | 3 |
| Almost certain | It is most likely that the impact will occur | 4 |
| Definite | The impact will occur regardless of any prevention measures | 5 |

**Risk rating**

The risk rating is calculated based on input from the above assessments. The incidence of occurrence is calculated by adding the Extent of the impact to the duration of the impact. The Severity of the impact is calculated based on input from the extent of the impact, the duration and the intensity.

**Risk** = Severity (extent +duration + intensity) x Incidence (frequency + probability)

**Significance**: The significance of the risk based on the identified impacts has been expressed qualitatively as follows:

- **low** – the impact is of little importance/insignificant, but may/may not require minimal management
- **medium** - the impact is important, management is required to reduce negative impacts to acceptable levels.
- **high** - the impact is of great importance, negative impacts could render development options or the entire project unacceptable if they cannot be reduced to acceptable levels and/or if they are not balanced by significant positive impacts, management of negative impacts is essential.

| ASPECT | IMPACT RATING | |
|---|---|---|
| | Low risk | 0 – 50 |
| | Medium risk | 51 – 100 |
| | High risk | 101 - 150 |
| | Low positive | 0 – 50 |
| | Medium positive | 51 – 100 |
| | High positive | 101 - 150 |

# 9 PLAN OF STUDY FOR THE ENVIRONMENTAL IMPACT ASSESSMENT

## 9.1 Introduction to the EIA phase

The purpose of this Plan of Study for EIA is to ensure that the EIAR produced satisfies the requirements of the DEDTEA, by ensuring that the DEDTEA is satisfied with the aspects discussed in this document before the study commences.

## 9.2 Key issues identified during the scoping process

The key issues and impact of the proposed project are included in Table 8-1 above. The key issues include:

- Impact on ecology on the study area, including flora and wetlands;
- Impacts on archaeological artefacts and heritage sites;
- Impacts on commercial agricultural land use;
- Traffic impacts during construction;
- Socio-economic aspects
- Noise impacts during construction.

## 9.3 Authority consultation

The process as set out in the NEMA and regulations will be followed in terms of submissions as well as review periods. DEDTEA will therefore be able to provide comments and raise their concerns throughout the EIA process.

## 9.4 Method of assessing impacts

The method of assessing the impacts is included in Section 8.2 above.

## 9.5 Public Participation Process

The comments of the I&APs on the DSR have been included in this FSR which will be submitted to DEDTEA.

The draft EIAR, when completed, will be made available for public review for 30 days. All registered I&APs will be notified of the timeframe for review. Key stakeholders will be issued with a hard copy and an electronic version of the EIAR. All comments will be included in the final EIAR which will be submitted to DEDTEA for review.

## 9.6 Specialist studies

The following specialist studies will be conducted, or have already been conducted to determine the impact of the proposed solar park on the site:

- Ecological Assessment (including wetlands);
- Heritage Statement;
- Visual Impact Assessment; and
- Engineering Services Report.

Available literature and existing specialist studies of the area, will also be used to ensure that all management measures and sensitivities of the area is taken into consideration and incorporated within the EMPr of the EIAR.

## 9.7 Licensing

As part of the NEMA review process, a water use licence application will be submitted to DWS to authorise the identified water uses, as stipulated in Section 21 of the National Water Act (Act No. 36 of 1998).

## 9.8 Environmental Impact Assessment methodology

As outlined in Section 26 of GNR. 326 the EIAR will include the following:

- Details and expertise of the EAP who conducted the EIA and compiled the report;
- A detailed description of the proposed activity;
- A description of the proposed project and distribution lines;
- A description of the environment that may be affected by the activity and the manner in which the physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed activity. Details of the public participation process conducted;
- A description of the need and desirability of the proposed activity and identified potential alternatives to the proposed activity, including advantages and disadvantages that the proposed activity or alternatives may have on the environment and the community that may be affected by the activity;

- An indication of the methodology used in determining the significance of potential environmental impacts;
- A description and comparative assessment of all alternatives identified during the EIA process;
- A summary of the findings and recommendations of any specialist report or report on a specialised process;
- A description of all environmental impacts and risks that were identified during the EIA process, in terms of nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts:
    - can be reversed;
    - may cause irreplaceable loss of resources; and
    - can be avoided, managed or mitigated.
- A description of any assumptions, uncertainties and gaps in knowledge;
- An opinion as to whether the activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;
- An EIA statement;
- A draft EMP;
- Copies of any specialist reports and reports on specialised processes;

An EMPr will be prepared in accordance with Appendix 4 of GNR. 326 and incorporated into the EIAR to include the following:

- Details and expertise of the person who prepared the EMPr;
- A detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;
- A map indicating the proposed activity with its associated structures and infrastructures on the environmental sensitivities including buffer zones;
- A description of impact management objectives, management statements, management outcomes and management actions, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the EIA process for all phases including:
    - planning and design;
    - pre-construction and construction activities;
    - rehabilitation of the environment after construction and where applicable post closure; and
    - where relevant, operation activities.
- The method and frequency of monitoring the implementation of the impact management actions which includes:
    - avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;
    - comply with any prescribed environmental management standards or practices;
    - comply with any prescribed provisions of the Act regarding closure or financial provisions for rehabilitation, where applicable.

- An indication who will be responsible for the implementation of the impact management actions, the time periods in which it must be implemented and the mechanism for monitoring the compliance. It will also include a program for reporting compliance.
- An environmental awareness plan describing the manner in which
    - the applicant intends to inform his/her employees of the environmental risk which may result from their work; and
    - risks must be dealt with in order to avoid pollution or degradation of the environment.
- Any other specific information that may be required by the CA.

# 10 CONCLUSION

The Scoping Phase was undertaken in line with the requirements of the NEMA EIA Regulations R326. The proposed development requires environmental authorisation in terms of the NEMA Regulations (GNR 326). The information contained in this Scoping Report provides a comprehensive description of the need and desirability of the proposed solar park project, specifically relating to sustainability in the economic, social and environmental spheres. The project is well-aligned with the objectives of national governent, as it encourages renewable energy through economic growth linked to sustainable utilisation of resources.

An important part of any Scoping Phase is public participation. Stakeholder engagement was initiated from the outset of the project to ensure that all stakeholders were adequately and effectively consulted. The DRS was made available for public and stakeholder review for a period of 30 days during the period of 28 June 2022 till 28 July 2022. All comments received and issues raised has been documented and addressed and responded to in the CRR of this FSR. The Scoping Report also aims to identify the main impacts associated with the project. Further investigation is required as part of the impact assessment phase to assess significant issues, for example, loss of agricultural soil, impact on wetlands and vegetation, socio-economic impacts such as during construction. Several specialist studies will be undertaken and measures for mitigation and management will be identified for inclusion in an EMPr.

The Plan of Study for the EIA Phase has been included as part of this Scoping Report, indicating the purpose of the EIA Phase and providing the framework for the next phase in the authorisation process. The Plan of Study includes the TORs for the proposed specialist studies, a description of the risk rating methodology to be used and details of the overall deliverables of the EIA process.

# 11 REFERENCES


Department of Water Affairs (DWA). 2014. Resource Directed Measures: Reserve determination study of selected surface water and groundwater resources in the Usutu/Mhlathuze Water Management Area. Wetland Prioritisation. Report produced by Tlou Consulting (Pty) Ltd. Report no: RDM/WMA6/CON/COMP/1013.

Department of Water Affairs and Forestry. Institute of Water Quality Studies, 2002. National water resource quality status report.

Exigent. 2017. Closure Management Plan 2017 Update For Richards Bay Minerals.

King Cetshwayo District Municipality, 2017. Integrated Development Plan 2017/18.

Mucina, L. & Rutherford, M. (eds) 2006. The vegetation of South Africa, Lesotho and Swaziland. Strelitzia

National Strategy for Sustainable Development and Action Plan 2011 - 2014 (NSSD 1) (2011)

New Growth Path. 2010.

uMfolozi Local Municipality. Spatial Development Framework (SDF). 2019

**Websites:**

http://www.statssa.gov.za/