ABO NYALA SOLAR ENERGY FACILITY 3 (PTY) LTD

PROPOSED ESTABLISHMENT OF THE ABO NYALA SOLAR ENERGY FACILITY 3 AND ASSOCIATED INFRASTRUCTURE ON THE REMAINING EXTENT OF FARM LEEUWKOPJE NO. 415 AND PORTION 5 (BRALBIN) OF FARM LEEUWKOPJE NO. 415 NEAR NORTHAM, LIMPOPO PROVINCE

LANDSCAPE & VISUAL IMPACT BASELINE REPORT

MAY 2023

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1 INTRODUCTION

1.1 GENERAL

This Landscape and Visual Impact Scoping stage study forms part of the Scoping and Environmental Impact Assessment that is being undertaken for the proposed establishment of the ABO Nyala Solar Energy Facility 3 project with a generation capacity of up to 55MW on the Remaining Extent of the Farm Leeuwkopje No. 415 and Portion 5 (Bralbin) of the Farm Leeuwkopje No. 415 situated 1.5km north of Northam within the Limpopo Province by Praxos 373 (Pty) Ltd on behalf of ABO Nyala Solar Energy Facility 3 (Pty) Ltd.

The Nyala Solar Solar Energy Facility 3 project is one of three projects being considered in the vicinity. The other projects include:

- ABO Nyala Solar Energy Facility 1 project: and
- ABO Nyala Solar Energy Facility 2 project.

The other two projects will be subject to separate applications.

In terms of the amended National Environmental Management Act (NEMA) Act No. 107 of 1998, the proposed development requires environmental authorisation. A key impact to be assessed comprises the landscape and visual impact that the facility will have on surrounding areas.

This Landscape and Visual Impact Assessment Baseline Report has been prepared for inclusion in the project Environmental Impact Assessment Scoping Report.

1.2 PROJECT LOCATION

The geographic co-ordinates of the proposed solar project (approximately centre of the site) are:

Latitude	Longitude
24º 55’ 47.60” S	27º 16’17.37” E

The above mentioned site is indicated on the Site location Plan **(Map 1)**.

1.3 BACKGROUND OF SPECIALIST

Jon Marshall qualified as a Landscape Architect in 1978. He has also had extensive experience of environmental impact assessment processes in South Africa. He has been involved in Visual Impact Assessment over a period of more than 30 years. He has developed the necessary computer skills to prepare viewshed analysis and three dimensional modelling to illustrate impact assessments. He has undertaken landscape and visual impact assessments for major buildings, industrial developments, mining, infrastructure projects and numerous renewable energy projects.

A brief Curriculum Vitae outlining relevant projects is included as **Appendix I.**

1.4 THE NATURE OF VISUAL IMPACT

Visual impacts may relate to a general change in the character of an area or in the change in a specific view for a person or group of people.

Visual impacts can be positive or negative and a degree of subjectivity is required in deciding this point. The approach of any visual assessment should, as objectively as

possible, describe a landscape and as far as is possible reflect the likely majority view regarding positive / negative aspect of an impact. This can be difficult particularly in South Africa due to different values and cultures associated with various sectors of the population. For example, poorer and particularly rural based sectors of the population are possibly more concerned with the productive nature of a landscape than its appearance, whereas the wealthier sectors might be more concerned with scenic value particularly as it is associated with property values. If possible the values and opinions of all impacted sectors of the community should be considered.

General change to a landscape might have greater or lesser significance subject to;

a) Numbers of people that might use the landscape,
b) The use of the landscape,
c) The level of protection afforded the landscape,
d) The rarity of the landscape.

In terms of change to a specific view this might be defined as either visual intrusion or visual obstruction.

a) Visual intrusion is a change in a view of a landscape that reduces the quality of the view. This can be a highly subjective judgement, subjectivity has been removed as far as is possible in this assessment by classifying the landscape character of each area and providing a description of the change in the landscape that will occur due to the proposed development.
b) Visual obstruction is the blocking of views or foreshortening of views. This can generally be measured in terms of extent.

More often than not such an impact will be a combination of intrusion and obstruction. Obstruction can be measured in terms of the extent of an existing view that is screened by a development. However, judging intrusion requires a degree of subjectivity. It is however possible to relate this judgement to the manner in which proposed change would impact on the use or enjoyment of an area which again requires an understanding or local values.

1.5 RELEVANT GUIDELINES

Work is to be undertaken in accordance with the following guideline documents;

a. The Government of the Western Cape Guideline for Involving Visual and Aesthetic Specialists in EIA Processes (Western Cape Guideline), which is the only local relevant guideline, setting various levels of assessment subject to the nature of the proposed development and surrounding landscape (**Appendix II**), and

b. The Landscape Institute and Institute of Environmental Management and Assessment (UK) Guidelines for Landscape and Visual Impact Assessment which provides detail of international best practice (UK Guidelines).

Together, these documents provide a basis for the level and approach of a VIA as well as the necessary tools for assessment and making an assessment legible to stakeholders.

In addition to the above, this document complies with Appendix 6 of the EIA Regulations which lists requirements of Specialist Reports, see schedule below.

Regulation GNR 982 of 4 December 2014, as amended, Appendix 6	**Section of Report**
1. (1) A specialist report prepared in terms of these Regulations must contain- a) details of- i. the specialist who prepared the report; and ii. the expertise of that specialist to compile a specialist report including a curriculum vitae;	1
b) a declaration that the specialist is independent in a form as may be specified by the competent authority;	Separate document.
c) an indication of the scope of, and the purpose for which, the report was prepared;	1
(cA) an indication of the quality and age of base data used for the specialist report;	1
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	5
d) the date and season of the site investigation and the relevance of the season to the outcome of the assessment;	1
e) a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used;	1
f) details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives;	5
g) an identification of any areas to be avoided, including buffers;	none
h) a map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	Maps 4
i) a description of any assumptions made and any uncertainties or gaps in knowledge;	1
j) a description of the findings and potential implications of such findings on the impact of the proposed activity, (including identified alternatives on the environment) or activities;	5
k) any mitigation measures for inclusion in the EMPr;	To be completed during the assessment stage
l) any conditions for inclusion in the environmental authorisation;	To be completed during the assessment stage
m) any monitoring requirements for inclusion in the EMPr or environmental authorisation;	To be completed during the

	assessment stage
n) a reasoned opinion- i. whether the proposed activity, activities or portions thereof should be authorised; (iA) regarding the acceptability of the proposed activity or activities; and ii. if the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan;	To be completed during the assessment stage
o) a description of any consultation process that was undertaken during the course of preparing the specialist report;	none
p) a summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	none
q) any other information requested by the competent authority.	none
2) Where a government notice *gazetted* by the Minister provides for any protocol or minimum information requirement to be applied to a specialist report, the requirements as indicated in such notice will apply.	1

1.6 SCOPING OBJECTIVES

This Scoping Study identifies and evaluates potential environmental impacts associated with all aspects of the proposed Project. In terms of the EIA Regulations, feasible and reasonable alternatives should be assessed within the Scoping Study. The scope of an environmental assessment is defined by the range of issues and feasible alternatives to be considered, and the approach towards the assessment that will follow.

The characteristics of a scoping exercise are as follows:

a) Feasible and reasonable alternatives are identified and selected for further assessment;
b) Important characteristics of the affected environment are identified;
c) Significant issues that are to be examined in the assessment procedure are identified; and
d) It provides the basis for determining terms of reference for the assessment procedure.

1.7 LIMITATIONS AND ASSUMPTIONS

A site visit was undertaken over a single day period (14th May 2023) to verify the likely visibility of the proposed development, the nature of the affected landscape and affected receptors.

The site visit was planned to ensure that weather conditions were clear ensuring reasonable visibility.

The timing of photography was planned to ensure that the sun was as far as possible behind the photographer. This was to ensure that as much detail as possible was recorded in the photographs.

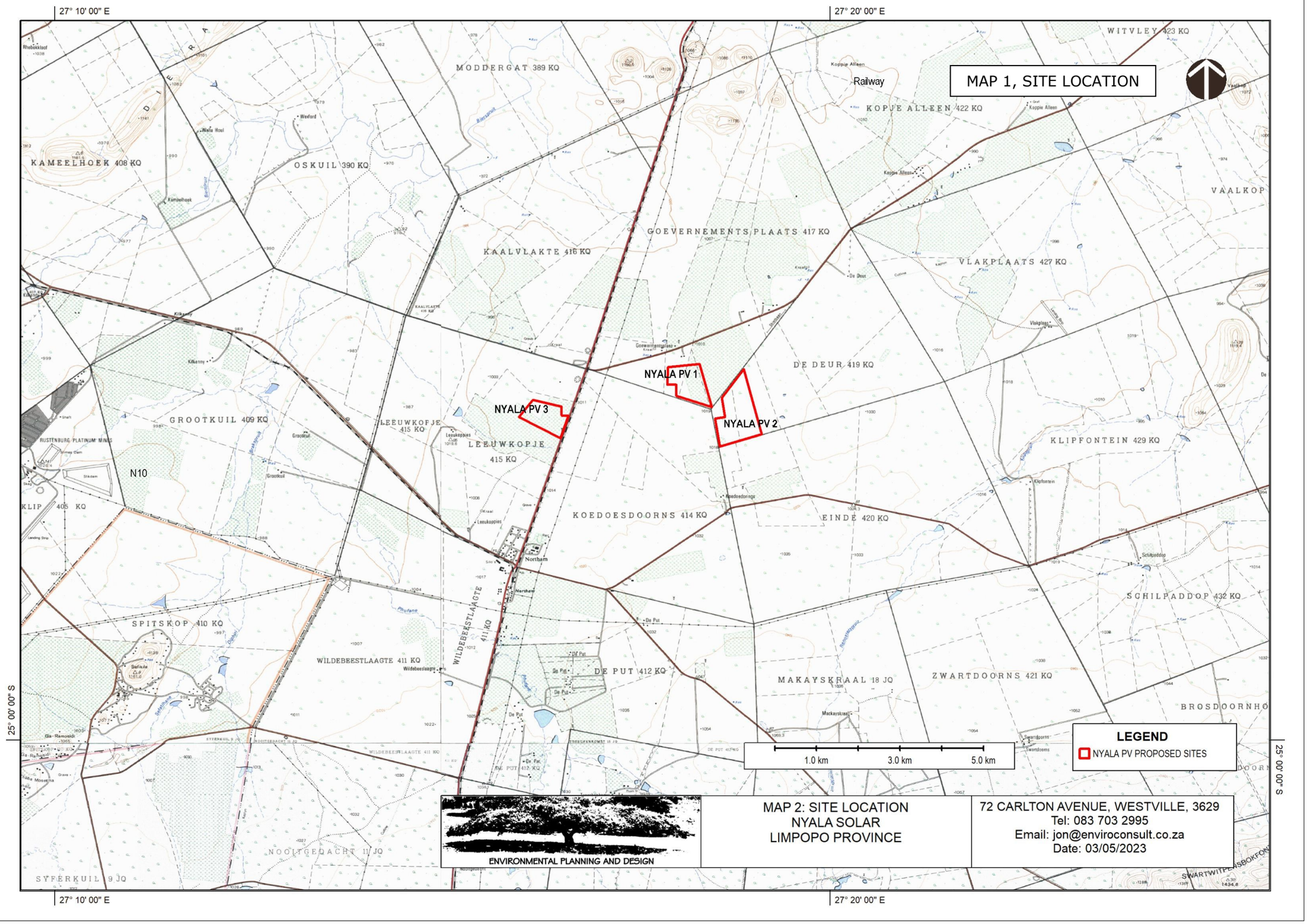
Visibility of the proposed facility has been assessed using the Global Mapper Viewshed tool.

The visibility assessment is based on terrain data that has been derived from satellite imagery. This data was originally prepared by NASA and is freely available on the CIAT-CCAFS website (http://www.cgiar-csi.org). This data has been ground truthed using a GPS as well as online mapping.

Calculation of visibility is based purely on the Digital Elevation Model and does not take into account the screening potential of vegetation or other development.

The following GIS data sets were used in undertaking and presenting the assessment:

DATA SET	SOURCE	YEAR
South Africa Protected Areas Database (SAPAD)	Department of Environmental Affairs	2021
SRTM Worldwide Elevation Data	CIAT-CCAFS	2018
World Imagery	ESRI	2009 (updated 2021)
SA NLC (National Land Cover)	Department of Environmental Affairs	2018
1:50,000 raster mapping	Chief Directorate National Geo-Spatial Information of South Africa	Unknown
South African rivers in drainage region ALL	Department of Water Affairs	2012
Update of vegm2009	South African National Biodiversity Institute	2015
South Africa /Lesotho Roads	Open Street Map	2014


27° 10' 00" E
27° 20' 00" E
25° 00' 00" S
MAP 1, SITE LOCATION
Railway
NYALA PV 1
NYALA PV 2
NYALA PV 3
MODDERGAT 389 KQ
KAMEELHOEK 408 KQ
OSKUIL 390 KQ
KAALVLAKTE 416 KQ
GOEVERNEMENTS PLAATS 417 KQ
KOPJE ALLEEN 422 KQ
WITVLEY 423 KQ
VAALKOP
VLAKPLAATS 427 KQ
DE DEUR 419 KQ
KLIPFONTEIN 429 KQ
GROOTKUIL 409 KQ
LEEUWKOPJE 415 KQ
LEEUWKOPJE 415 KQ
RUSTENBURG PLATINUM MINES
N10
KLIP 405 KQ
KOEDOESDOORNS 414 KQ
EINDE 420 KQ
SCHILPADDOP 432 KQ
SPITSKOP 410 KQ
WILDEBEESTLAAGTE 411 KQ
WILDEBEESTLAAGTE 411 KQ
DE PUT 412 KQ
MAKAYSKRAAL 18 JQ
ZWARTDOORNS 421 KQ
BROSDOORNHO
NOOITGEDACHT 11 JQ
SYFERKUIL 9 JQ
SWARTWITPLAASBOKFON
1.0 km
3.0 km
5.0 km
LEGEND
NYALA PV PROPOSED SITES
ENVIRONMENTAL PLANNING AND DESIGN
MAP 2: SITE LOCATION
NYALA SOLAR
LIMPOPO PROVINCE
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Tel: 083 703 2995
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Date: 03/05/2023

2. PROJECT DESCRIPTION

2.1 PROJECT COMPONENTS

Infrastructure associated with the proposed Solar Energy Facility will include the following:

- Solar Field/Solar Arrays (Note that the foundations, mounting structures and module types would be confirmed during detail design, however, would remain within the proposed development footprint and be up to approximately 3.5m in height);
- Internal access roads (noting that existing farm roads would be used as far as possible, and that the maximum road width would be up to approximately 10m);
- An access road (noting that existing farm roads would be used as far as possible, and the road width would be up to approximately 10m). Two alternative access roads are under assessment;
- Internal electrical reticulation (i.e., low- and medium voltage lines) to be placed underground where feasible;
- An on-site substation hub and associated infrastructure (such as substation, transformation infrastructure, collector infrastructure, step-up infrastructure, battery energy storage system etc.) including auxiliary buildings (such as operation & maintenance buildings, admin buildings, workshops, gatehouse, security building, offices, visitor centre, warehouses, etc.) contained within up to approximately a **3 ha** footprint; and
- Perimeter fencing.

A temporary laydown area would be established during the construction period but would be within the development footprint i.e., within the fenced area allocated for development. The laydown area would move as required while construction is underway.

In terms of connecting to the electricity grid, technical alternatives are available and application for grid connection will be made through a separate process and assessed accordingly. Connecting via a new overhead line to a nearby substation or a LILO ("loop-in-loop-out") connection into a nearby 132kV or 88kv overhead line are alternatives under consideration.

The operations of the proposed facility would require some servicing, noting that the operational electrical requirements would be nominal and would be supplied by the facility.

The following alternatives are under consideration:

1) Layout: Two alternative access roads are under assessment:

   - Access road 1: Accessing the site from the east, directly off the R510 via a new access road.
   - Access road 2: Accessing the site from a new road which would connect to the R510 at an existing intersection approximately 1 km north-east of the facility. The new road would run parallel to the R510.

2) Technology: With regard to the proposed BESS, the technology thereof is dynamic and so the specific type/technology to be developed would be selected based on market demands and technology availability at the time of construction. Therefore, both Lithium-ion and redox-flow are assessed as technology alternatives, with Lithium-ion being the current preferred technology.

The No-go alternative will also be assessed.

2.2 OVERVIEW OF SOLAR PV TECHNOLOGY

Solar energy facilities, such as those which utilise PV technology use the energy from the sun to generate electricity through a process known as the **Photovoltaic Effect**. Generating electricity using the Photovoltaic Effect is achieved through the use of the following components:

Photovoltaic Modules

PV cells are made of crystalline silicon, the commercially predominant PV technology, that includes materials such as polycrystalline and monocrystalline silicon or thin film modules manufactured from a chemical ink compound. PV cells are arranged in multiples / arrays and placed behind a protective glass sheet to form a PV module (Solar Panel). Each PV cell is positively charged on one side and negatively charged on the opposite side, with electrical conductors attached to either side to form a circuit. This circuit captures the released electrons in the form of an electric current (i.e. Direct Current (DC)). When sunlight hits the PV panels free electrons are released and flow through the panels to produce direct electrical (DC) current.

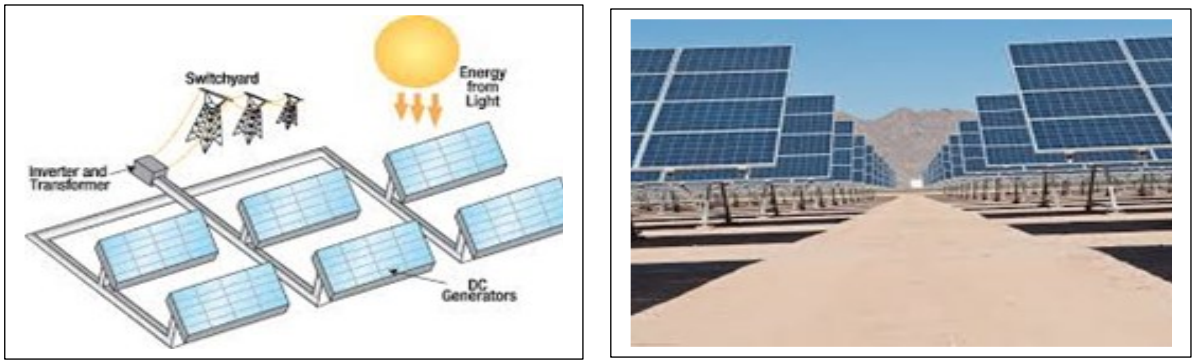


Figure 1: Overview of a typical/generic PV cell, module, and array/panel, noting that the photograph on the right appears to depict a single axis tracking mount, but it is not clear from the angle of the photograph. Whether these depict mono- or bi- facial modules is also unclear (pveducation.com).

Inverters

Inverters are used to convert electricity produced by the PV panels from Direct Current (DC) into Alternating Current (AC), to enable the facility to be connected to the national electricity grid. In order to connect a large solar facility such as the one being proposed to the national electricity grid, numerous inverters will be arranged in several arrays to collect, and convert power produced by the facility.

Support Structures

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

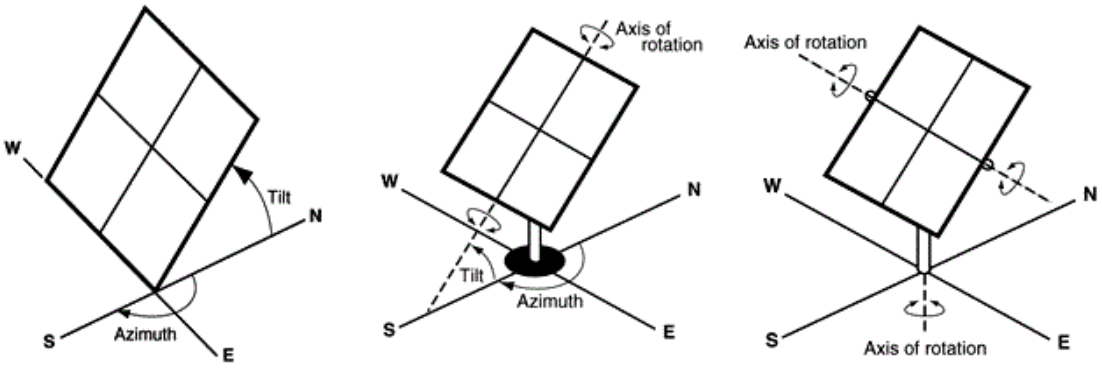


Figure 2: Overview of different PV tracking systems (from left to right: fixed-tilt, single-axis tracking, and double-axis tracking (Source: pveducation.com)).

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

On Site Electrical Infrastructure Compound:
An on-site electrical infrastructure compound typically comprises of a substation and associated infrastructure and could include additional collector infrastructure and / or a Battery Energy Storage System (BESS).

The on-site substation would serve as a collection point for the AC current from each inverter and includes step-up infrastructure (internal reticulation would be low voltage, which would be stepped up by the sub-station for evacuation into the grid network / proposed collector sub-station) and typically it would be a maximum of 8m in height.

A substation can have circuit breakers that are used to switch generation and transmission circuits in and out of service as needed or for emergencies requiring shut-down of power to a circuit or redirection of power.

The need for a BESS stems from the fact that electricity is only produced by the Renewable Energy Facility while the sun is shining, while the peak demand may not necessarily occur during the daytime. Therefore, the storage of electricity and supply thereof during peak-demand will mean that the facility is more efficient, reliable and electricity supply more constant.

The BESS will store and integrate a greater amount of renewable energy from the Solar PV Facilities into the electricity grid. This will assist with the objective to generate electricity by means of renewable energy to feed into the National Grid via relevant available procurement programs applicable at the time.

2.3 THE LIKELY NATURE OF VIEWS OF THE PROPOSED PROJECT

The elements that are likely to be most visually obvious include the solar array and the electrical infrastructure compound.

2.3.1 Solar Array

Continuous supports aligned in rows are generally used when the PV panels are fixed and are set at an angle and direction to maximise the average efficiency during the day or have a basic tracking set up that varies the angle of tilt of the unit in order to improve efficiency.

From areas to the north a solar array, whether constructed on individual supports or continuous rows, is likely to appear as a continuous structure in the landscape.

The nature of the impact is also likely to vary with location and elevation;

- If the array is located on a hillside or if it is viewed from a higher level, the rows of PV units are likely to visually combine and will be read as a single unit. From a distance this results in a PV array having a similar appearance as a large industrial structure when viewed from above. It should be noted that the proposed project will not be viewed from a higher elevation and so this type of view will not apply;

- From the north and if the project is viewed from a similar level, the front row of PV units will be seen in elevation. This is likely to result in the project being seen as a continuous dark line in the landscape possibly with slightly higher elements such as the on-site electrical infrastructure compound extending above the line. How prominent the dark line is, is likely to be dependent on the distance of the viewer from the project as well as the extent to which the view of the elevation is broken by other elements such as vegetation and landform.

- From the south, east and west the dark face of the PV units is not obvious and subject to the colour of the undersides of the units, the supporting structures are likely to become more apparent. With distance however, the shadow cast by the structures is likely to be more obvious and the facility will probably appear much as the northern face, a long dark structure.

- If the landscape does not have significant Visual Absorption Capacity (VAC), because of the contrast in colour with the surrounding landscape, the array could be visible to the limit of visibility. Subject to the colour and reflectivity of the underside of the PV units and supporting structure, it is possible that a similar level of impact could also be experienced from the south, east and west. It should be noted that the VAC of the landscape surrounding the proposed development is largely dependent on minor ridgelines.

- Mitigation or screening of views is possible at least from close views. This can be achieved either by earthworks berms by planting or by a combination of both. From a distance and particularly from elevated viewpoints as views over screening may be possible and excessively tall screening is likely to be less feasible as the it is likely to cast shadow over the PV units.

- In addition to the way that a solar array may change a landscape, the nuisance factor associated with resulting glare is often raised by stakeholders on similar projects. PV units, however, are designed to absorb as much energy as possible and are designed not to reflect light. This issue is generally more likely to be associated with a focussed array which tracks the sun's path during the day and uses reflective surfaces to focus energy onto receptors. It is therefore not expected that this will be a significant issue with a PV array such as the one proposed.

Due to relatively dense and consistent vegetation cover, the landscape has relatively high VAC which is likely to mean that the proposed development will be largely screened from surrounding areas.

Where it is visible however, because the site and surrounding area is relatively flat. the array is likely to be largely viewed either in elevation or at an acute elevated view from minor ridgelines.

A new solar array has been developed adjacent to Upington Airport. This array has been developed in two sections on either side of the airport runway. It is probably somewhat smaller than the subject project, covering approximately 25ha and the longest edge of the array being approximately 500m long. The PV panels are mounted on fixed frames approximately 2m high. Despite obvious differences compared with the proposed project, it does illustrate the effect of distance in mitigating the visibility of the solid line of solar panels.

Plate 1 indicates the location of the existing array at Upington Airport. **Plates 2, 3 and 4**, illustrate how the array is seen from distances of approximately 700m, 1500m and 5000m respectively.

The pictured project has solar panels approximately 2.0m high. The proposed project will have solar panels approximately 3.5m high which will increase their visibility.

The following effects are noted:

- From 700m the array is clearly visible. For the same effect relative to a 3.5m high array, this distance will be approximately 1225m.
- From 1500m, the array is visible but even with the minimal vegetation providing screening at the airport, the dark line of panels is starting to blend into the background. The array is visible but might be missed by a casual viewer. For the same effect relative to a 3.5m high array, this distance will be approximately 2625m.
- From 5000m, the line of panels is indistinguishable from the horizon. For the same effect relative to a 3.5m high array, this distance will be approximately 8750m.

These images provide an indication of potential levels of impact relative to the height and distance of the viewer from the facility.

Should a tracking array be used the height of panels will vary during the day. **Plate 5** indicates a single axis tracking array with panels lying flat at approximately mid-day. At this point in time the panels are approximately half the height that they would be early in the morning or late in the afternoon.

Plate 1, **Existing solar arrays at Upington Airport as seen from the air**

Plate 2, **Existing array seen in a flat landscape from approximately 700m. The array is clearly visible**.

Plate 3, Existing array seen in a flat landscape from approximately 1500m. The array is visible but even with the minimal vegetation providing screening at the airport, the dark line of panels is starting to blend into the

background. The array is clearly visible but might be missed by a casual viewer who was not aware of its existence.

Plate 4, **Existing array seen in a flat landscape from approximately 5000m**. The line of panels is barely distinguishable. The viewer would have to know where to look to be able to differentiate the array from surrounding landscape features.

Plate 5, A single axis tracking solar PV project in the North West Province (Bokamoso Solar PV Plant) photographed at approximately mid-day Note: solar panels are almost lying flat.

2.3.2 The Electrical Infrastructure Compound

The main elements of the on-site Substation that may have visual implications include:

- The outgoing power line which is likely to be overhead and could be up to 28m high (noting that this would be assessed as part of a separate application to this application for the PV facility).
- A security fence line which typically will be a steel palisade or mesh fence approximately 3m high;
- Transformers that will be used to step the power up for evacuation to the grid. These are likely to be large solid structures in the order of 5m high.
- Buildings to house control and switching infrastructure, stores, restrooms and staff facilities. These are likely to be single storey buildings up to approximately 6m high.
- Security lighting which is likely to be mounted on masts surrounding the compound. These are likely to be in the order of 10m high.
- Bus bars that will support the outgoing power transmission lines in order that they can link to the national grid. These are likely to be comprised of a steel tower structure in the order of 8m high.

The various elements can therefore be divided into:

- Lower transparent and opaque elements up to approximately 5-6m high including the security fence, buildings, and transformers; and
- Taller relatively transparent elements up to approximately 8m high including bus bars, and lighting towers.
- The out-going overhead power line which could be in the order of 28m high.

Plate 6, View of on-site substation and exiting overhead power lines via Bus Bars at the substation

Because of their visual mass, the lower elements are likely to be highly visible whereas taller more transparent elements are not likely to be as visible over a distance. The relative slenderness and colouring (galvanised grey) of taller infrastructure have a major effect in reducing visibility to the human eye. This is likely to significantly modify the ALV of the various elements of the proposed project.

The BESS will appear as a series of structures within which the battery infrastructure will be contained. The BESS structures could be in the order of 5m high.

Plate 7 - Typical Battery Energy Storage System

2.3.3 Glint and Glare

Glint and glare occur when the sun reflects off surfaces with specular (mirror-like) properties. Examples of these include glass windows, water bodies and potentially some solar energy generation technologies (e.g. parabolic troughs and CSP heliostats). Glint is generally of shorter duration and is described as "a momentary flash of bright light", whilst glare is the reflection of bright light for a longer duration.

The visual impact of glint and glare relates to the potential it has to negatively affect sensitive visual receptors in relatively close proximity to the source (e.g. residents of neighbouring properties), or aviation safety risk for pilots (especially where the source interferes with the approach angle to the runway). The Federal Aviation Administration (FAA) of the United States of America have researched glare as a hazard for aviation pilots on final approach and may prescribe specific glint and glare studies for solar energy facilities in close proximity to aerodromes (airports, airfields, airbases, etc.). It is generally possible to mitigate the potential glint and glare impacts through the design and careful placement of the infrastructure.

PV panels are designed to generate electricity by absorbing the rays of the sun and are therefore constructed of dark-coloured materials and are covered by

anti-reflective coatings. Indications are that as little as 2% of the incoming sunlight is reflected from the surface of modern PV panels[1].

Because of the nature of tracking arrays that orientate the PV panels to capture as much energy as possible throughout the day, the glare associated with these systems is likely to vary and may be less than the glare associated with a fixed array.

Research indicates that glint and glare problems are most likely to occur to the west and south-west of a facility in the morning, to the east and south-east in the afternoon and evening. Glint and glare that is likely to be most problematic is likely to occur in the early morning and late afternoon/ evening as the sun is lowest in the north and light is reflected at a low level along the PV panels.

It is unlikely that glint and glare will be problematic. However if it does, mitigation in the form of screening might be provided.

2.4 VISUAL LIMITS

From the analysis of likely visibility of elements in 2.3, the following visual limits have been adopted in order to provide an initial study area:

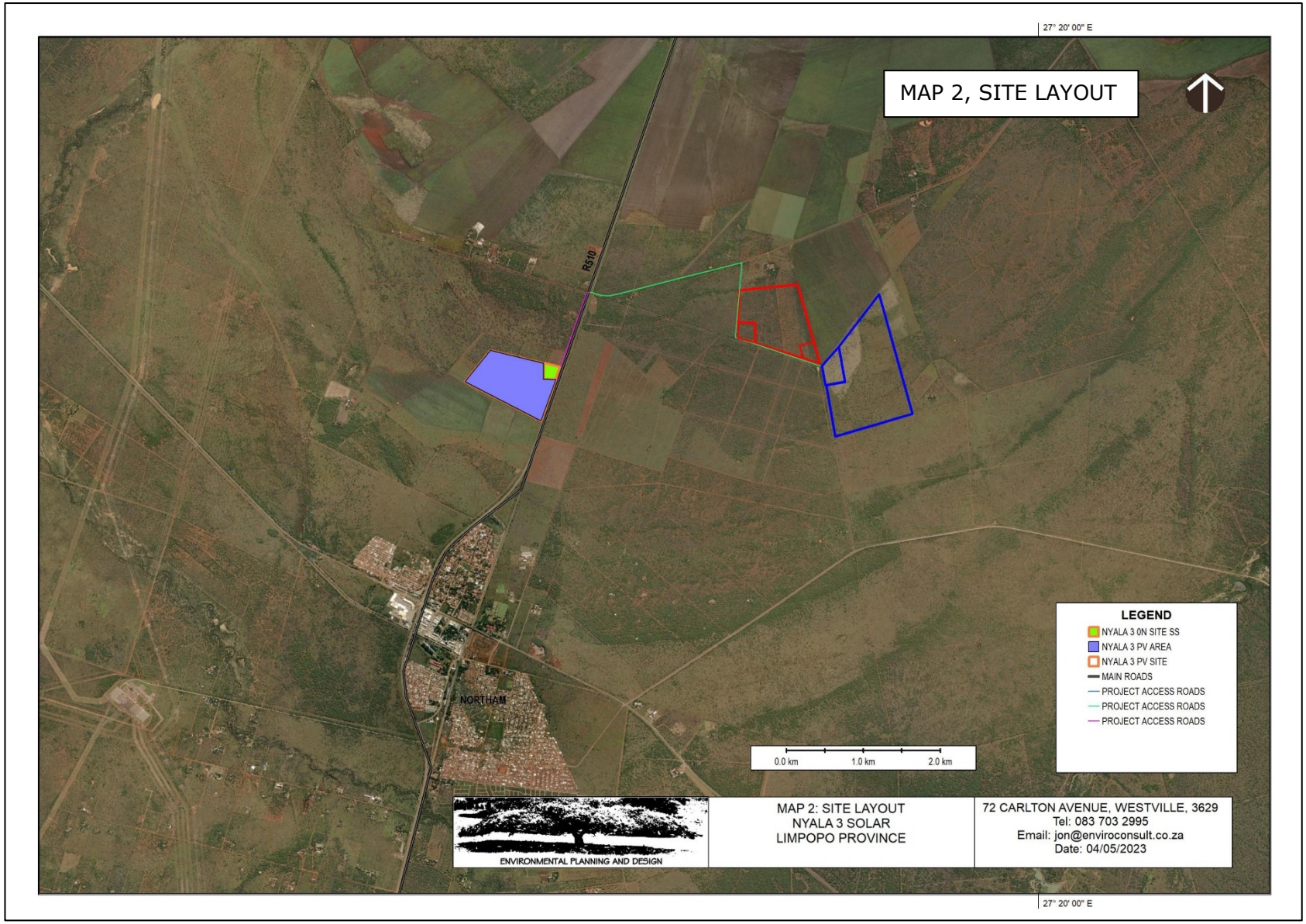
ELEMENT	APPROXIMATE LIMIT OF VISIBILITY (ALV)
Solar Array, up to 3.5m high	6.7 kilometres
Higher relatively transparent substation bus bars, up to 8.0m high	10.1 kilometres
Lower relatively opaque substation and BESS infrastructure, up to 6.0m high	8.7 kilometres

With the exception of the higher substation elements limits, the ALVs indicated above are highlighted on assessment mapping.

The powerline alignment is not known and the visual limit for the higher sections of the substation will be within the other limits. It is therefore not critical at this stage in the definition of the study area.

These limits have been calculated using a recognised mathematical formula (**Appendix III**).

[1] *Blue Oak Energy, FAA and Meister Consultants Group*


27° 20' 00" E
MAP 2, SITE LAYOUT
R510
NORTHAM
LEGEND
NYALA 3 0N SITE SS
NYALA 3 PV AREA
NYALA 3 PV SITE
MAIN ROADS
PROJECT ACCESS ROADS
PROJECT ACCESS ROADS
PROJECT ACCESS ROADS
0.0 km
1.0 km
2.0 km
ENVIRONMENTAL PLANNING AND DESIGN
MAP 2: SITE LAYOUT
NYALA 3 SOLAR
LIMPOPO PROVINCE
72 CARLTON AVENUE, WESTVILLE, 3629
Tel: 083 703 2995
Email: jon@enviroconsult.co.za
Date: 04/05/2023
27° 20' 00" E

3. DESCRIPTION OF RECEIVING ENVIRONMENT AND RECEPTORS

It is possible that landscape change due to the proposed development could impact the character of the surrounding landscape. Landscape character can be derived from specific features relating to the urban or rural setting and may include key natural, historic or culturally significant elements. Importance might also relate to landscapes that are uncommon or under threat from development.

This section will;

- describe the types of landscapes that may be impacted: and
- indicate likely degree of sensitivity .

3.1 LANDSCAPE CHARACTER

Landscape character is defined as "a distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another"[2].

Landscape character has been defined using a desk top assessment using existing data sets and aerial photography as well as from knowledge of the area.

The affected area has a strong rural character, interspersed with agriculture and industrial activities particularly mining, and settlement.

Landscape Character is a composite of a number of influencing factors including;

- Landform and drainage
- Nature and density of development
- Vegetation patterns

3.1.1 Landform and Drainage

Refer to Map 3 for analysis of the landform and drainage.

The proposed site is located close to a watershed that runs in an approximate north-east to south-west direction. The watershed is marked by a low, flat ridgeline.

The proposed site is located on the west side of the watershed.

Drainage to the west falls into the Brakspruit which is a non-perennial water course and to the east drainage falls into the Klipspruit which is a also a non-perennial watercourse.

Topography is relatively flat generally falling towards the south.

Visual implications of topography include:

[2] UK Guidelines

- Topography is unlikely to provide significant screening.

3.1.2 Landcover

Refer to Map 4 for analysis of Landcover.

The proposed site is located within an area of relatively natural landcover types including woodland, natural grassland and fallow land which is largely comprised of regenerating thornveld.

Within the matrix are large areas that have been cleared for commercial cultivation.

The urban area of Northam is located approximately 4.2km to the south-west of the proposed site. Northam is a busy small town that is a service centre for surrounding rural areas.

There are a number of protected areas in the vicinity of the proposed project including:

- **The Sharme Private Nature Reserve** which is located approximately 6.7km to the east-north-east of the proposed site;
- **The Koerooi Private Nature Reserve** which is located approximately 8.3km to the east of the proposed site; and
- **The Leeuwkopje Private Nature Reserve** which is located approximately 200m to the north and west of the proposed site;

Infrastructure includes:

- The R510 regional distributor route that links Rustenburg in the south to Lephalale to the north;
- High voltage overhead power lines including the 400kV Bighorn / Spitskop1, the 400kV Mdupi Spitskop 2 and the 400kV Mdupi / Marang lines.

There are also numerous homesteads scattered throughout the area. These are generally associated with agricultural operations, however, there are also homesteads within that are possibly associated with game farming and / or tourist accommodation and lodges.

Visual implications of landcover include:

- The largely woodland, grassland and fallow land in the vicinity of the proposed site provides a relatively natural setting; and
- The woodland areas (thornveld) are likely to be the main landscape element that could help to screen the proposed project.

3.1.3 Vegetation Patterns

Natural Vegetation within the study area is comprised of Dwaalbloom Thornveld[3]. This vegetation type is characterised by Plains with layer of scattered, low to medium high, deciduous *microphyllous* trees and shrubs with

[3] Mucina and Rutherford

a few broad-leaved tree species, and an almost continuous herbaceous layer dominated by grass species.

This type of vegetation generally covers the "woodland" areas indicated on Map 3.

It is also the type of vegetation that is generally regenerating on areas indicated as Fallow Land.

Homestead Vegetation is largely comprised of a mix of alien and indigenous tree species with a mix of ornamental shrub vegetation. It also includes vegetable production

Arable cropping occurs in small areas in the vicinity of the proposed site. The main commercial crops include maize and vegetables.

Visual implications include;

- The natural areas in the vicinity of the proposed site help to create an over-riding natural landscape character;
- Where Thornveld occurs, the small trees in the vegetation matrix could provide significant screening.
- Other vegetation types combined with the relatively flat topography are likely to create an open landscape.

3.2 LANDSCAPE CHARACTER AREAS & VISUAL ABSORPTION CAPACITY

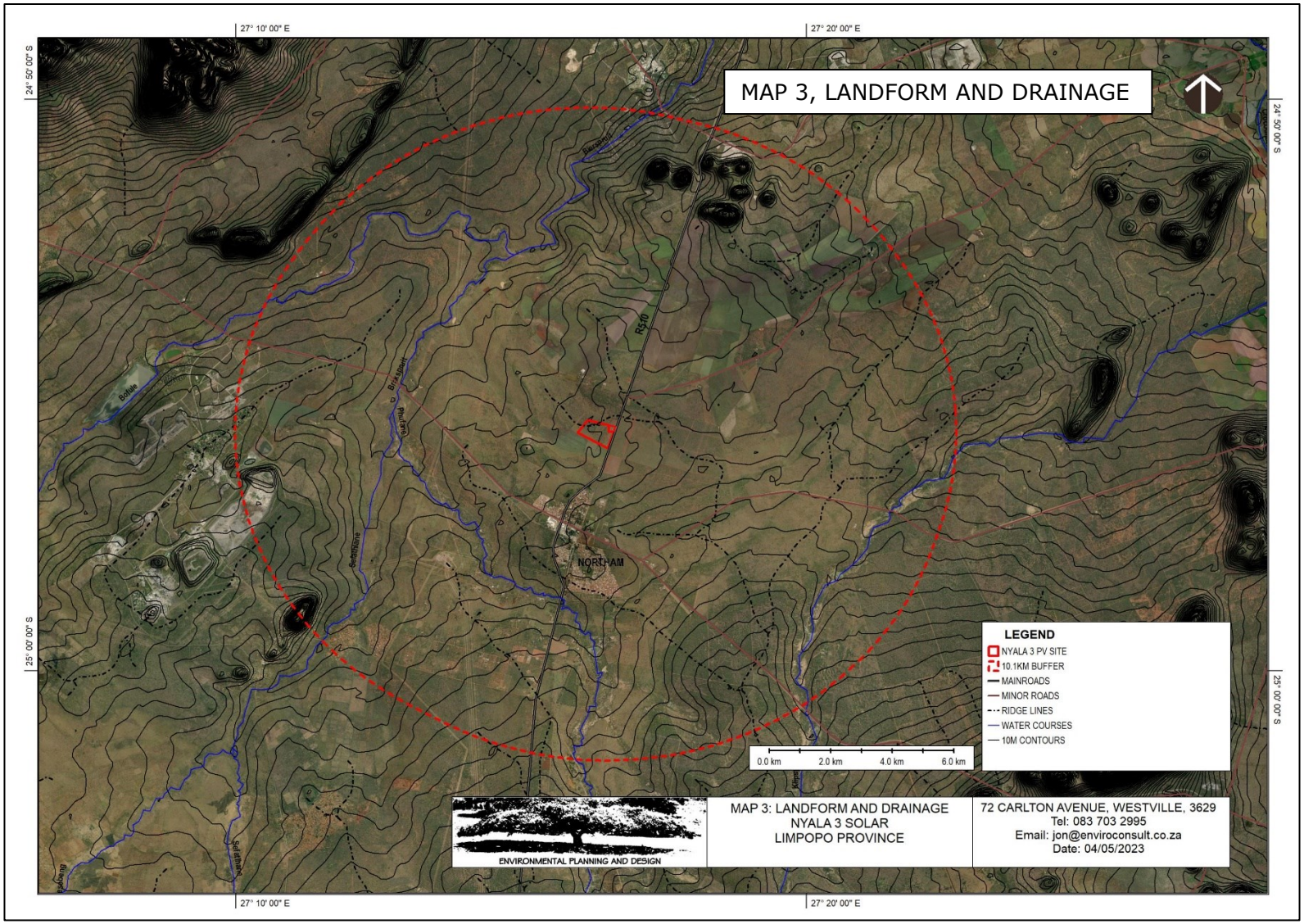
Landscape Character Areas (LCAs) are defined as "single unique areas which are the discrete geographical areas of a particular landscape type"[4].

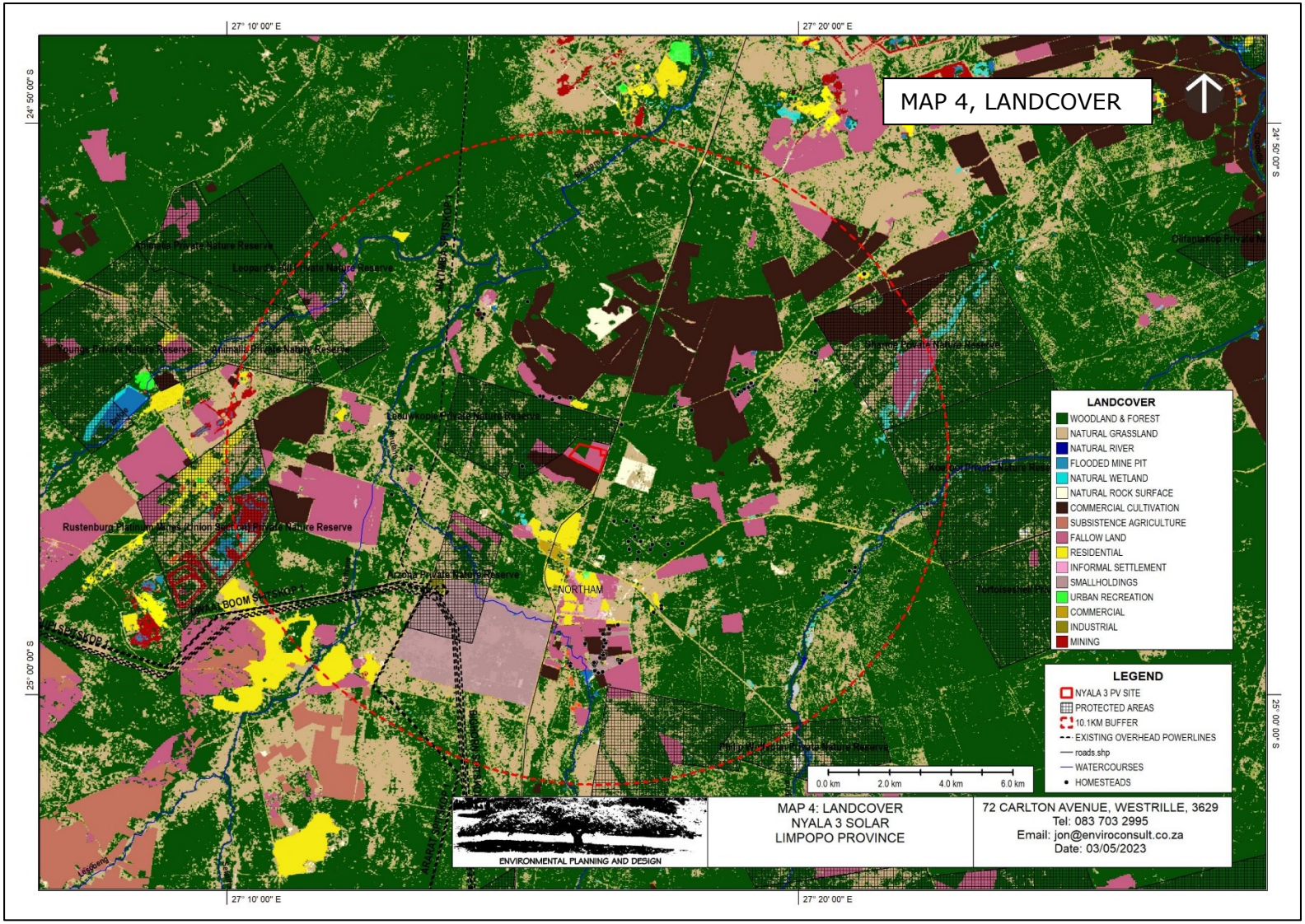
Visual Absorption Capacity (VAC) is defined as the landscape's ability to absorb physical changes without transformation in its visual character and quality. Where elements that contrast with existing landscape character are proposed, VAC is dependent on elements such as landform, vegetation and other development to provide screening of a new element. The scale and texture of a landscape is also critical in providing VAC, for example; a new large scale industrial development located within a rural small scale field pattern is likely to be all the more obvious due to its scale.

The affected landscape can be broadly divided into the following LCAs that are largely defined by landuse:

- **Natural Landscape Character Area** which is comprised of flat topography and thornveld vegetation. The low tree cover is likely to provide significant screening. This LCA includes protected areas;
- **Cleared and Cultivated LCA** which is comprised of areas of arable agriculture. Crops are generally low providing little or no enclosure or screening.

[4] Landscape Institute & Institute of Environmental Management and Assessment


MAP 3, LANDFORM AND DRAINAGE
27° 10' 00" E
27° 20' 00" E
24° 50' 00" S
25° 00' 00" S
R510
NORTHAM
LEGEND
NYALA 3 PV SITE
10.1KM BUFFER
MAINROADS
MINOR ROADS
RIDGE LINES
WATER COURSES
10M CONTOURS
0.0 km
2.0 km
4.0 km
6.0 km
ENVIRONMENTAL PLANNING AND DESIGN
MAP 3: LANDFORM AND DRAINAGE
NYALA 3 SOLAR
LIMPOPO PROVINCE
72 CARLTON AVENUE, WESTVILLE, 3629
Tel: 083 703 2995
Email: jon@enviroconsult.co.za
Date: 04/05/2023


MAP 4, LANDCOVER
27° 10' 00" E
27° 20' 00" E
24° 50' 00" S
25° 00' 00" S
LANDCOVER
WOODLAND & FOREST
NATURAL GRASSLAND
NATURAL RIVER
FLOODED MINE PIT
NATURAL WETLAND
NATURAL ROCK SURFACE
COMMERCIAL CULTIVATION
SUBSISTENCE AGRICULTURE
FALLOW LAND
RESIDENTIAL
INFORMAL SETTLEMENT
SMALLHOLDINGS
URBAN RECREATION
COMMERCIAL
INDUSTRIAL
MINING
LEGEND
NYALA 3 PV SITE
PROTECTED AREAS
10.1KM BUFFER
EXISTING OVERHEAD POWERLINES
roads.shp
WATERCOURSES
HOMESTEADS
0.0 km
2.0 km
4.0 km
6.0 km
ENVIRONMENTAL PLANNING AND DESIGN
MAP 4: LANDCOVER
NYALA 3 SOLAR
LIMPOPO PROVINCE
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Date: 03/05/2023

LANDSCAPE CHARACTER AREAS

SEMI-NATURAL LCA

CLEARED AND CULTIVATED LCA

LANDSCAPE CHARACTER AREAS

URBAN LCA

3.3 LANDSCAPE QUALITY AND IMPORTANCE

The landscape in the vicinity of the proposed site is relatively natural. This is important for the game farms and lodges in the area that depend on the natural landscape to rear animals and draw tourists.

There are a number of protected areas located close to the proposed site. These areas have significant importance for biodiversity, tourism and local recreation.

3.4 VISUAL RECEPTORS

3.4.1 Definition

Visual Receptors are defined as "individuals and / or defined groups of people who have the potential to be affected by the proposal"[5].

Certain areas are also sensitive due to an existing use. The nature of an outlook is generally more critical to areas that are associated with recreation, tourism and in areas where outlook is critical to land values.

3.4.2 Visual receptors

The following visual receptors were noted from the site visit:

Area Receptors:

Area receptors are places that cannot be defined by a point or a line. They might include settlements or protected areas. From the site visit possible area receptors include:

- Protected areas including:
  - **The Sharme Private Nature Reserve;**
  - **The Koerooi Private Nature Reserve**; and

[5] Landscape Institute & Institute of Environmental Management and Assessment

- **The Leeuwkopje Private Nature Reserve**

Linear Receptors:
Linear receptors generally include routes through the area:

- The R510: and
- Local Roads that are generally un-surfaced roads that link the area to the R510.

Point Receptors,
Point receptors include isolated, homesteads most of which are likely to be associated with agriculture, however, a number are likely to have a tourism use (Lodges) particularly those within more natural areas.

3.5 LIKELY SENSITIVITY OF LCA'S AND RECEPTORS

The sensitivity of receptors to likely changes in view due to the proposed development is partly subjective. However, in order to provide clarity for the assessment, the following table indicates the manner in which sensitivities have been considered in the assessment.

Landscape & Receptor Sensitivity

SIGNIFICANCE	LCA	RECEPTORS
Low	Landscape value is not recognised or the landscape is very tolerant of change. These areas include: • **Urban LCA: and** • **Cleared and Cultivated LCA.**	Small number or low sensitivity of viewers assumed. Viewers' attention not focused on landscape. These include: • **People visiting and travelling through the area for business, work, and commercial reasons on local and main roads.**
Medium	Landscape value is recognised locally, but is not protected; the landscape is relatively intact, with a distinctive character; and the landscape is reasonably tolerant of change. **There are no LCAs with medium sensitivity**.	Viewer's attention is may be generally focused on the landscape. These include: • **Homesteads** • **People visiting and travelling through the area for recreational / tourism reasons on main and local roads.**
High	Landscape value recognised by existing or proposed national or regional designation. Sense of tranquillity or remoteness specifically noted in Landscape Character Assessment. High sensitivity to disturbance. The qualities for which the landscape is valued are in a good condition, with a clearly apparent distinctive character. This distinctive character is susceptible to relatively small changes. These areas include: • **Natural LCA.**	Viewer's attention very likely to be focused on the landscape. e.g. users of public rights of way and access land, strategic recreational footpaths; people experiencing views from important landscape features of physical, cultural or historic interest, beauty spots and picnic areas. Large number of viewers and/or location in highly valued landscape could elevate viewer sensitivity to highest level. These include: • **Visitors to protected areas.**

POSSIBLE VISUAL RECEPTORS

MAIN ROADS (R510)

PROTECTED AREAS

HOMESTEADS

LOCAL ROADS

4 SITE SENSITIVITY

The review of the proposed project indicates that the following issues need to be considered during site planning and assessment.

The DFFE Screening Tool indicated that the site was likely to have a very high sensitivity to landscape and visual impacts associated with the proposed development. This is probably due to its proximity to existing nature reserves. However, from the site visit, it was obvious that the proposed development is unlikely to be visible from within existing reserves. The assessment indicates that it is likely to have a low to medium sensitivity to the proposed development.

4.1 NO GO DEVELOPMENT AREAS

The directly affected landscape is neither protected nor is it rare so from a landscape perspective there are no no-go areas.

4.2 SITE DEVELOPMENT SENSITIVITY

Sensitivity to development relates to:

- Guiding development away from areas of the site that would make it most obvious to surrounding sensitive receptors.

Highly Sensitivity Areas include:

There are no areas of high sensitivity

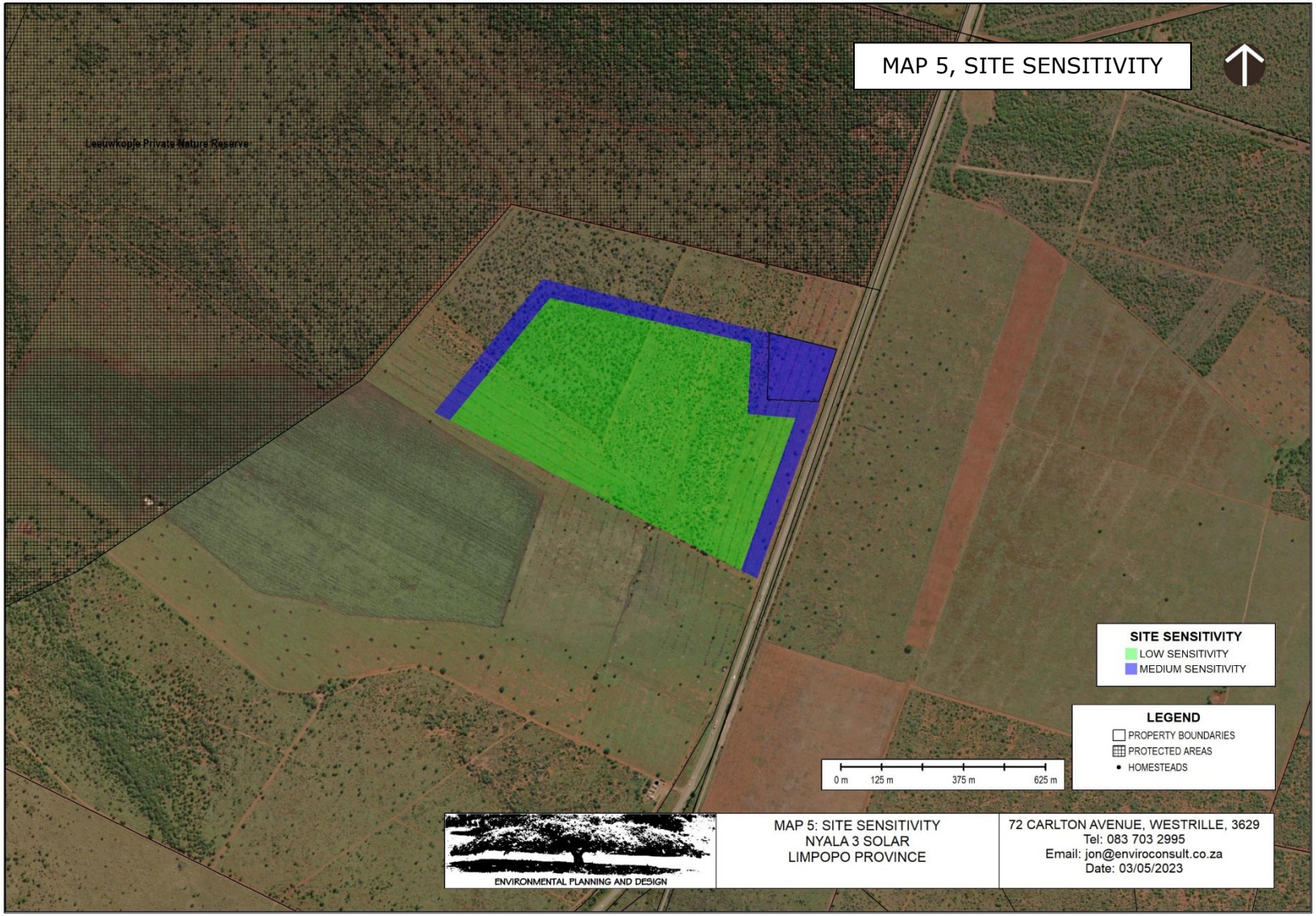
Medium Sensitivity Areas include:

Because the proposed project site borders the Leeuwkopje Private Nature Reserve on two sides and the R510 on one side, these edges have medium sensitivity. It is noted that regenerating thornveld exists both within the site and immediately outside it between the reserve and the proposed site. It is recommended that a buffer of thornveld 50m wide is retained on the outer edge and that taller elements including the electrical compound are not developed in the area of medium sensitivity.

Low Sensitivity Areas include:

Low sensitivity areas include:

- All other areas of the proposed site.


MAP 5, SITE SENSITIVITY
Leeuwkopje Private Nature Reserve
SITE SENSITIVITY
LOW SENSITIVITY
MEDIUM SENSITIVITY
LEGEND
PROPERTY BOUNDARIES
PROTECTED AREAS
HOMESTEADS
0 m
125 m
375 m
625 m
ENVIRONMENTAL PLANNING AND DESIGN
MAP 5: SITE SENSITIVITY
NYALA 3 SOLAR
LIMPOPO PROVINCE
72 CARLTON AVENUE, WESTRILLE, 3629
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Email: jon@enviroconsult.co.za
Date: 03/05/2023

Plate 8, Regenerating thornveld around the proposed site.

5 IDENTIFICATION AND INITIAL ASSESSMENT OF ISSUES

5.1 IMPACTS TO BE CONSIDERED

Possible impacts identified include:

a) Potential change to the landscape;
b) Potential visual impacts as experienced by travellers on local roads in close proximity to the proposed site;
c) Potential visual impacts as experienced by travellers on Main roads in close proximity to the proposed site;
d) Potential visual impacts as experienced by residents and visitors to homesteads and lodges;
e) Potential visual impacts as experienced by residents and visitors to protected areas.

Subject to the proposed layout and the visibility of the proposed project, these issues will be considered in the context of possible degradation of Landscape Character Areas, visual effects identified and possible cumulative influence of other possible projects that exist or are planned in the vicinity.

At this stage of the project, there is only a high-level indication of the proposed layout. Possible impacts can therefore only be discussed at a generic level.

5.2 SIGNIFICANCE OF ISSUES

Sensitivity mapping provides an indication of the likelihood of significant issues; however, without an indication of the possible location and layout of the project, it is not possible to be confident regarding the significance of impacts.

5.3 INITIAL ASSESSMENT OF ISSUES

5.3.1 Landscape Change

Potential Impact			
Issue	**Nature of Impact**	**Extent of Impact**	**No-Go Areas**
Further general degradation of the local landscape	<u>Direct impacts:</u> **increase in industry and loss of natural landscape**. The project will marginally increase the area of industry in the area and reduce the area of natural vegetation. However, due to its location and screening provided by small trees within thornveld and regenerating thornveld, the proposed project is unlikely to be highly obvious to	Local	None identified at this stage

	surrounding areas to the west, north and south. Indirect impacts: No indirect impacts		

Description of expected significance of impact

The landscape in the vicinity of the proposed site is relatively natural. The project is likely to result in loss of natural areas.

Gaps in knowledge & recommendations for further study

Detailed Assessment.

Recommendations with regards to general field surveys

Assessing the extent of change that will be obvious.

5.3.2 Main Roads

Potential Impact			
Issue	**Nature of Impact**	**Extent of Impact**	**No-Go Areas**
Degradation of views from the R510 in proximity to the proposed site. **Only this short section of road may be affected.**	Direct impacts: **Loss of views of natural landscape**. Indirect impacts: **No indirect impacts**	Local	None identified at this stage

Description of expected significance of impact

Only the R510 will be impacted.

The project is immediately adjacent to the R510. It is likely that the project will be visually obvious from the road. The potentially affected section of the road is less that 1km in length.

Mitigation might include retention of existing mature trees between the road edge and the proposed site and setting back taller elements associated with the electrical compound /substation from the road edge.

The significance of the impact is likely to be medium to low.

Gaps in knowledge & recommendations for further study

Detailed Assessment.

Recommendations with regards to general field surveys

None.

5.3.3 Local Roads

Potential Impact			
Issue	**Nature of Impact**	**Extent of Impact**	**No-Go Areas**
Further degradation of the local landscape as viewed from adjacent local roads	Direct impacts: **Further industrialisation of views from local roads**. Indirect impacts: **No indirect impacts**	Local	None identified at this stage
Description of expected significance of impact The closest local road that runs approximately 1km to the north of the proposed site. The majority of the potentially affected section of road has dense trees between it and the proposed project that will screen the development. The significance of the likely impact is anticipated to be low.			
Gaps in knowledge & recommendations for further study Detailed Assessment. **Recommendations with regards to general field surveys** Assessing the extent of change that will be obvious.			

5.3.4 Homesteads

Potential Impact			
Issue	**Nature of Impact**	**Extent of Impact**	**No-Go Areas**
Further degradation of the local landscape as viewed from homesteads	Direct impacts: **Industrialisation of views from homesteads**. Indirect impacts: **No indirect impacts**	Local	None identified at this stage
Description of expected significance of impact The closest homestead is approximately 670m to the south of the proposed site. It does not appear that this homestead is used for tourist accommodation. The area between the homestead and the site has isolated mature trees. Over the distance involved these trees will provide a significant cumulative screening effect. The significance of potential visual impacts is anticipated to be low.			

Gaps in knowledge & recommendations for further study

Detailed Assessment.

Recommendations with regards to general field surveys

Assessing the extent of change that will be obvious.

5.3.5 Protected Areas

Potential Impact

Issue	Nature of Impact	Extent of Impact	No-Go Areas
Degradation of views from the Private Nature Reserves.	Direct impacts: **Views over the proposed project**. Indirect impacts: **No indirect impacts**	Local	None identified at this stage

Description of expected significance of impact

The proposed project is approximately 200m south and east of the Leeuwkopje Private Nature Reserve and in excess of 6.5km west of the Sharme and Koerooi Private Nature Reserves. At these distances and given the extent of intervening vegetation, the Sharme and Koerooi reserves will not be affected.

The Leeuwkopje reserve has a substantial amount of natural vegetation which should provide substantial screening from within the reserve. There is also a substantial amount of regenerating thornveld between the reserve and the proposed site. It is recommended that a buffer of this vegetation a minimum 50m wide is retained and taller elements associated with the proposed project are set back a minimum 50m from the site edge.

Without mitigation, and from overlooking edges of the reserve, the proposed project is likely to have a greater impact than indicated in Plate 2.

The significance of the impact is likely to have a medium significance without and low significance with mitigation.

Gaps in knowledge & recommendations for further study

Detailed Assessment.

Recommendations with regards to general field surveys

None.

5.3.6 Glint and Glare affecting the R510 north of the PV array

Potential Impact

Issue	Nature of Impact	Extent of Impact	No-Go Areas
Nuisance and road safety .	Direct impacts: **Glare affecting drivers of south bound vehicles during late afternoons**. Indirect impacts: **No indirect impacts**	Local	None identified at this stage
Description of expected significance of impact Glint and glare could be problematic during late afternoons / early evenings due to the proximity of the proposed project to the R510. It is unlikely that the homesteads will be affected. The use of non-reflective treatment / surfaces on solar panels should be utilised. Should glint and glare prove problematic, additional mitigation might include screening at source with an opaque fence. Should a tracking system be used the likelihood of glint and glare being problematic should be minimised. With mitigation the significance of the impact is likely to be low.			
Gaps in knowledge & recommendations for further study None. **Recommendations with regards to general field surveys** None.			

5.3.7 Lighting

Potential Impact			
Issue	**Nature of Impact**	**Extent of Impact**	**No-Go Areas**
Lighting Impacts.	Direct impacts:	Local	None identified

	Light pollution affecting adjacent roads and homesteads. Indirect impacts: **No indirect impact.**		at this stage

Description of expected significance of impact

Lighting is likely to be required for security, maintenance and the safety / convenience of workers.

It is possible to mitigate lighting impacts to a large degree through design, the use of motion sensors for security lighting and ensuring that lighting is only used in areas where workers are located / working.

Most homesteads and roads are in excess of 500m from the proposed project. With careful design to minimise light spill, this should be sufficient distance to ensure that nuisance impacts are minimal.

One homestead is approximately 230m from the project boundary. It is proposed that the substation / electrical compound is set back a minimum 500m from this homestead.

Without an indication of the possible location and layout of the project it is not possible to be confident regarding possible significance of impacts. However, if suitable mitigation measures are used, it is unlikely that lighting impacts will be significant.

Gaps in knowledge & recommendations for further study

Confirmation of the nature of proposed lighting.

Recommendations with regards to general field surveys

Assess existing levels of impact.

6 RECOMMENDED ASSESSMENT METHODOLOGY

6.1 REQUIREMENTS IN ACCORDANCE WITH THE WESTERN CAPE GUIDELINES

The criterion recommended by the Western Cape Guidelines for justification of level of input for a VIA is the expected level of visual impact. This categorisation is derived from the following matrices;

Type of environment	Type of development (see Box 3) Low to high intensity				
	Category 1 development	Category 2 development	Category 3 development	Category 4 development	Category 5 development
Protected/wild areas of international, national, or regional significance	Moderate visual impact expected	High visual impact expected	High visual impact expected	Very high visual impact expected	Very high visual impact expected
Areas or routes of high scenic, cultural, historical significance	Minimal visual impact expected	Moderate visual impact expected	High visual impact expected	High visual impact expected	Very high visual impact expected
Areas or routes of medium scenic, cultural or historical significance	Little or no visual impact expected	Minimal visual impact expected	Moderate visual impact expected	High visual impact expected	High visual impact expected
Areas or routes of low scenic, cultural, historical significance / disturbed	Little or no visual impact expected. Possible benefits	Little or no visual impact expected	Minimal visual impact expected	Moderate visual impact expected	High visual impact expected
Disturbed or degraded sites / run-down urban areas / wasteland	Little or no visual impact expected. Possible benefits	Little or no visual impact expected. Possible benefits	Little or no visual impact expected	Minimal visual impact expected	Moderate visual impact expected

Category 1 development:
e.g. nature reserves, nature-related recreation, camping, picnicking, trails and minimal visitor facilities.

Category 2 development:
e.g. low-key recreation / resort / residential type development, small-scale agriculture / nurseries, narrow roads and small-scale infrastructure.

Category 3 development:
e.g. low density resort / residential type development, golf or polo estates, low to medium-scale infrastructure.

Category 4 development:
e.g. medium density residential development, sports facilities, small-scale commercial facilities / office parks, one-stop petrol stations, light industry, medium-scale infrastructure.

Category 5 development:
e.g. high density township / residential development, retail and office complexes, industrial facilities, refineries, treatment plants, power stations, wind energy farms, power lines, freeways, toll roads, large-scale infrastructure generally. Large-scale development of agricultural land and commercial tree plantations. Quarrying and mining activities with related processing plants.

From reference to the categorisation of development included in the Western Cape Guidelines as indicated in the table above, the proposed development if standing on its own should be considered as a Category 4 development.

Based on the predicted visual impacts described in this report, and on the basis that the proposed new facility, it seems likely that the proposed development is likely to have minimal to moderate landscape and visual impact.

Due to the anticipated low levels of impact, it is recommended that a Level 3 Input is undertaken. Should significant issues be identified during the assessment stage, the input may be elevated to Level 4.

Level 3 input requires the following;

- Identification of issues raised in scoping phase, and site visit;
- Description of the receiving environment and the proposed project;
- Establishment of view catchment area, view corridors, viewpoints and receptors;
- Indication of potential visual impacts using established criteria;
- Inclusion of potential lighting impacts at night;
- Description of alternatives, mitigation measures and monitoring programmes.
- Review by independent, experienced visual specialist (if required).

Level 4 input requires the same as Level 3 plus 3D modeling with and without mitigation.

6.2 DETAILED METHODOLOGY

As indicated above, confirmation of the following is required in order to investigate and finalise the issues and impacts highlighted by this initial LVIA scoping exercise:

a) Confirmation of the layout of the facility.

The following methodology will be used in preparation of the LVIA report.

6.2.1 Identification of issues raised in scoping phase, and site visit

Likely issues have already been identified in this scoping analysis. These issues will be verified from a site visit as well as responses from stakeholders to the scoping documentation.

It is possible that additional impacts might be identified form the site visit and from comments by stakeholders.

6.2.2 Description of the receiving environment and the proposed project

The receiving environment has been described and categorised. This will be verified from a site visit.

6.2.3 Establishment of view catchment area, view corridors, viewpoints and receptors

Zones of theoretical visibility will be prepared and visual receptors have been established from GIS analysis. These will be verified from a site visit. Existing large scale industrial development should help to provide a useful guide as to likely visibility of the proposed development.

Viewpoints will be identified from a site visit to represent views of visual receptors.

6.2.4 Indication of Potential Visual Impacts using Established Criteria

Given that the existing landscape character is a relatively cohesive rural landscape, it will be assumed that affected receptors are likely to prefer views of a rural landscape rather than an industrial landscape

Criteria will include:

- The extent of likely industrialisation as seen by each receptor; and
- The sensitivity of each receptor to change.

Impacts will be assessed using a numerical assessment system that has been adopted by Praxos for the overall EIA assessment.

6.2.5 Inclusion of Potential Lighting Impacts at night

This will be assessed through comparison of the likely change in night time lighting patters due to the proposed development.

6.2.6 Description of Alternatives, Mitigation Measures and Monitoring Programme

This will be compiled from experience of similar projects and through discussion with the applicant.

REFERENCES

Guidelines for involving visual and aesthetic specialists in EIA processes,
Author; Bernard Oberhozer. Published by the Provincial Government of the Western Cape: Department of Environmental Affairs and Development Planning, 2005

Guidelines for landscape and visual impact assessment (third edition), authors; the Landscape Institute and Institute of Environmental Assessment and Management, published by E & FN Spon, 2013.

The vegetation of South Africa, Lesotho and Swaziland(Strelitzia series; no. 19), Mucina, L. & Rutherford, M.C. (eds.), 2006, South African National Biodiversity Institute, Pretoria.

Best Management Practices for Reducing Visual Impacts of Renewable Energy Facilities on BLM Administered Lands *United States Department of the Interior, Bureau of Land Management*, 2013.

Appendix 6, EIA Regulations (2014) as amended, promulgated under section 24 of the National Environmental Management Act, 107 of 1998. Department of Forestry Fisheries and the Environment.

APPENDIX I

ASSESSOR'S CURRICULUM VITAE

ENVIRONMENTAL PLANNING AND DESIGN

Name	JONATHAN MARSHALL
Nationality	British
Year of Birth	1956
Specialisation	Landscape Architecture / Landscape & Visual Impact Assessment / Environmental Planning / Environmental Impact Assessment.
Qualifications	
Education	Diploma in Landscape Architecture, Gloucestershire College of Art and Design, UK (1979) Environmental Law, University of KZN (1997)
Professional	Registered Professional Landscape Architect (SACLAP) Chartered Member of the Landscape Institute (UK)
Languages	English- Speaking - Excellent - Reading - Excellent - Writing - Excellent
Contact Details	Post: 13 Askew Grove Glenwood Durban 4001 Cell: +27 83 7032995

General

Jon qualified as a Landscape Architect (Dip LA) at Cheltenham (UK) in 1979. He has been a chartered member of the Landscape Institute UK since 1986. He is also a Registered Landscape Architect and has had extensive experience of Environmental Assessment within South Africa.

During the early part of his career (1981 - 1990) He worked with Clouston (now RPS) in Hong Kong and Australia. During this period he was called on to undertake visual impact assessment (VIA) input to numerous environmental assessment processes for major infrastructure projects. This work was generally based on photography with line drawing superimposed to illustrate the extent of development visible.

He has worked in the United Kingdom (1990 - 1995) for major supermarket chains including Sainsbury's and prepared CAD based visual impact assessments for public enquiries for new store development. He also prepared the VIA input to the environmental statement for the Cardiff Bay Barrage for consideration by the UK Parliament in the passing of the Barrage Act (1993).

His more recent LVIA work (1995 to present) includes a combination of CAD and GIS based work for a new international airport to the north of Durban, new heavy industrial operations, overhead electrical transmission lines, mining operations in West Africa and numerous commercial and residential developments.

VIA work undertaken during the last twelve months includes wind energy projects, numerous solar plant projects (CSP and PV) and electrical infrastructure.

Select List of Landscape & Visual Impact Assessment Projects

- **Coega Power Ship** – Landscape and Visual Impact Assessment for the proposed Coega Power Ship project in the Eastern Cape Province.
- **Saldanha Power Ship** - Landscape and Visual Impact Assessment for the proposed Coega Power Ship project in the Western Cape Province.
- **Modderfontein Wind Energy Facility** - Landscape and Visual Impact Assessment for a proposed amendment to the layout and wind turbine specification of a previously authorised project near Beaufort West.
- **Western Cape Wind Energy Facility** – Due diligence assessment for a proposed wind energy facility near Swellendam in the Western Cape Province.
- **Hyperion Thermal Generation Facility** - Landscape and Visual Impact Assessment for a proposed gas powered power generation plant near Kathu in the Northern Cape Province.
- **Beachfront House on ERF 766 Scarborough -** Landscape and Visual Impact Assessment for a proposed development of beachfront house on the edge of the Table Mountain National Park in Scarbourough, Western Cape Province.
- **Springs Special Economic Zone -** Landscape and Visual Impact Assessment for the proposed Springs SEZ in the Gauteng Province.
- **Makapanstad Agri- Hub –** Landscape and Visual Impact Assessment for proposed Agri-Hub development at Makapanstad in the North West Province for the Department of Rural Development and Land Reform.
- **Madikwe Sky Bubble -** Landscape and Visual Impact Assessment for proposed development of up-market accommodation at the Molori concession within the Madikwe Game Reserve.
- **Hartebeest Wind Energy Facility** – Landscape and Visual Impact Assessment Addendum Report for the proposed upgrading of turbine specifications for an authorised WEF near Mo0rreesburg in the Western Cape Province for a private client.
- **Selati Railway Bridge** - Landscape and Visual Impact Assessment for proposed development of up-market accommodation on a railway bridge at Skukuza in the Kruger Park.
- **Kangala Mine Extension -** Landscape and Visual Impact Assessment for a proposed extension to the Kangala Mine in Mpumalanga for Universal Coal.
- **Khunab Solar Developments** – Landscape and Visual Impact Assessment for four proposed solar PV projects near Upington in the Northern Cape Province for a private client.
- **Sirius Solar Developments** – Landscape and Visual Impact Assessment for four proposed solar PV projects near Upington in the Northern Cape Province for Sola Future Energy.
- **Aggeneys Solar Developments** – Landscape and Visual Impact Assessment for two proposed solar PV projects near Aggeneys in the Northern Cape Province for a private client.
- **Hyperion Solar Developments** – Landscape and Visual Impact Assessment for four proposed solar PV projects near Kathu in the Northern Cape Province for Building Energy South Africa.
- **Eskom Combined Cycle Power Plant** - Landscape and Visual Impact Assessment for proposed gas power plant in Richards Bay, KwaZulu Natal Province.
- **N2 Wild Coast Toll Road, Mineral Sources and Auxiliary Roads – L**VIA for the Pondoland Section of this project for the South African National Roads Agency.
- **Mpushini Park Ashburton –** LVIA for a proposed amendment to an authorised development plan which included residential, office park and light industrial uses to logistics and warehousing.
- **Moedeng PV Solar Project -** LVIA for a solar project near Vryburg in the North West Province for a private client.
- **Establishment of Upmarket Tourism Accommodation on the Selati Bridge, Kruger National Park**

– Assessment of visual implications of providing tourism accommodation in 12 railway carriages on an existing railway bridge at the Skukuza Rest Camp in the Kruger Park.

- **Jozini TX Transmission Tower** – Assessment of visual implications of a proposed MTN transmission tower on the Lebombo ridgeline overlooking the Pongolapoort Nature reserve and dam.
- **Bhangazi Lake Development** – LVIA for a proposed tourism development within the iSimangaliso Wetlend Park World Heritage Site.
- **Palesa Power Station** - LVIA for a new 600MW power station near Kwamhlanga in Mpumalanga for a private client.
- **Heuningklip PV Solar Project** – LVIA for a solar project in the Western Cape Province for a private client.
- **Kruispad PV Solar Project** – LVIA for a solar project in the Western Cape Province for a private client.
- **Doornfontein PV Solar Project** – LVIA for a solar project in the Western Cape Province for a private client.
- **Olifantshoek Power Line and Substation** – LVIA for a new 10MVA 132/11kV substation and 31km powerline, Northern Cape Province, for Eskom.
- **Noupoort Concentrating Solar Plants -** Scoping and LVIAs for two proposed parabolic trough projects.
- **Drakensberg Cable Car –** Preliminary LVIA and draft terms of reference as part of the feasibility study.
- **Paulputs Concentrating Solar Plant (tower technology)** – LVIA for a new CSP project near Pofadder in the Northern Cape.
- **Ilanga Concentrating Solar Plants 1, 2, 3, 4 & 5** – Scoping and LVIAs for the proposed extension of five authorised CSP projects including parabolic trough and tower technology within the Karoshoek Solar Valley near Upington in the Northern Cape.
- **Ilanga Concentrating Solar Plants 1, 2, 3, 4 & 5 Shared Infrastructure** –LVIA for the necessary shared infrastructure including power lines, substation, water pipeline and roads for these projects.
- **Ilanga Concentrating Solar Plants 7, 8 & 9** - Scoping and LVIAs for three new CSP projects including parabolic trough and tower technology within the Karoshoek Solar Valley near Upington in the Northern Cape.
- **Sol Invictus Solar Plants** - Scoping and LVIAs for three new Solar PV projects near Pofadder in the Northern Cape.
- **Gunstfontein Wind Energy Facility** – Scoping and LVIA for a proposed WEF near Sutherland in the Northern Cape.
- **Moorreeesburg Wind Energy Facility** – LVIA for a proposed WEF near Moorreeesburg in the Western Cape.
- **Semonkong Wind Energy Facility** - LVIA for a proposed WEF near Semonkong in Southern Lesotho.
- **Great Karoo Wind Energy Facility** – Addendum report to the Visual Impact Assessment Report for amendment to this authorised WEF that is located near Sutherland in the Northern Cape. Proposed amendments included layout as well as rotor diameter.
- **Perdekraal East Power Line** – LVIA for a proposed power line to evacuate power from a wind energy facility near Sutherland in the Northern Cape.
- **Tshivhaso Power Station** – Scoping and LVIA for a proposed new power station near Lephalale in Limpopo Province.
- **Saldanha Eskom Strengthening** – Scoping and LVIA for the upgrading of strategic Eskom infrastructure near Saldanha in the Western Cape.
- **Eskom Lethabo PV Installation** - Scoping and LVIA for the development of a solar PV plant within Eskom's Lethabo Power Station in the Free State.

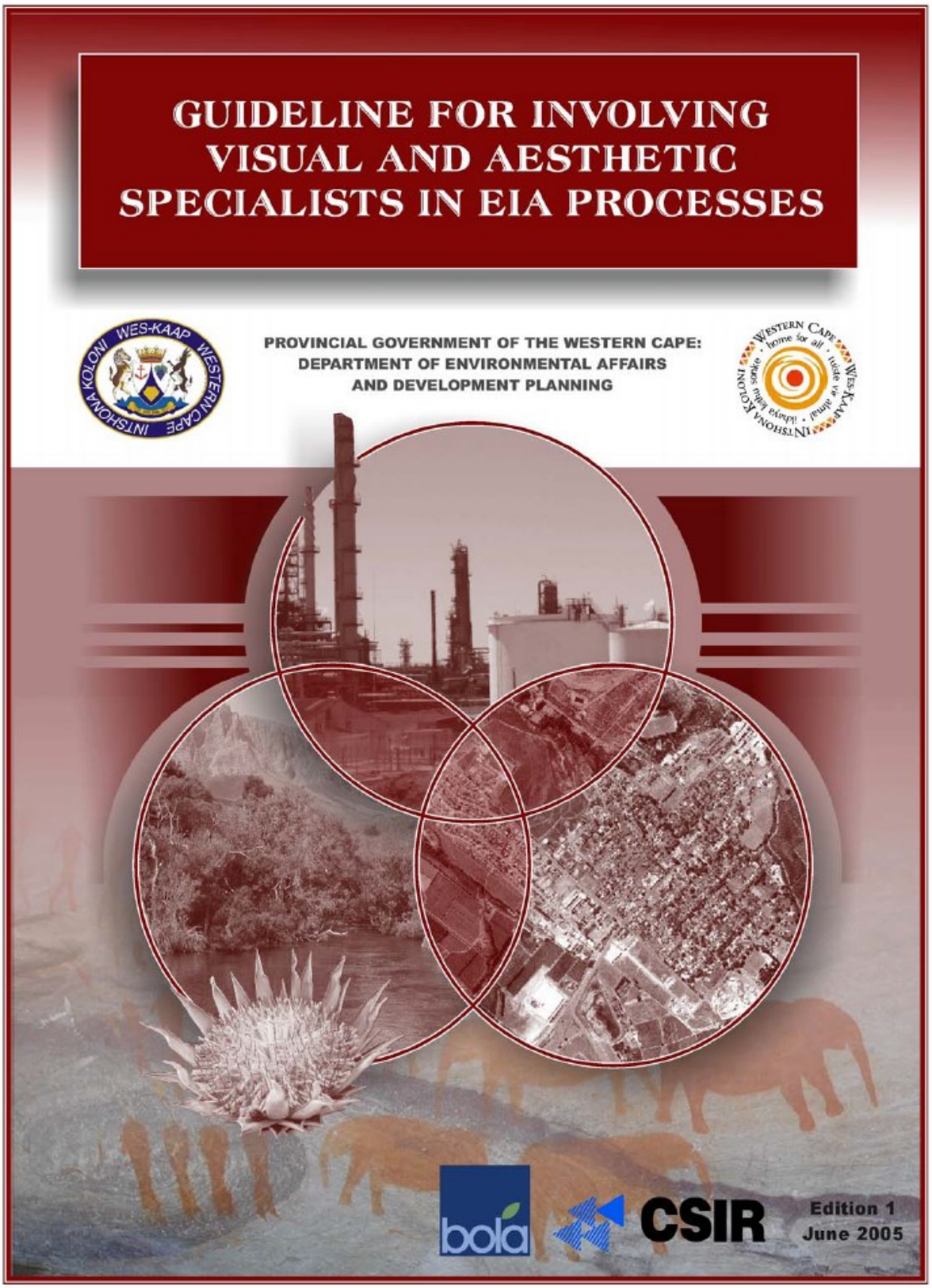
- **Eskom Tuthuka PV Installation** - Scoping and LVIA for the development of a solar PV plant within Eskom's Thutuka Power Station in Mpumalanga.
- **Eskom Majuba PV Installation** - Scoping and LVIA for the development of a solar PV plant within Eskom's Majuba Power Station in Mpumalanga.
- **Golden Valley Power Line** - LVIA for a proposed power line to evacuate power from a wind energy facility near Cookhouse in the Eastern Cape.
- **Mpophomeni Shopping Centre** – LVIA for a proposed new shopping centre close to the southern shore of Midmar Dam in KwaZulu Natal.
- **Rheeboksfontein Power Line** - Addendum report to the Visual Impact Assessment Report for amendment to this authorised power line alignment located near Darling in the Western Cape.
- **Woodhouse Solar Plants** – Scoping and LVIA for two proposed solar PV projects near Vryburg in the North West Province.
- **AngloGold Ashanti, Dokyiwa (Ghana)** – LVIA for proposed new Tailings Storage Facility at a mine site working with SGS as part of their EIA team.
- **Gateway Shopping Centre Extension (Durban)** – LVIA for a proposed shopping centre extension in Umhlanga, Durban.
- **Kouroussa Gold Mine (Guinea)** – LVIA for a proposed new mine in Guinea working with SGS as part of their EIA team.
- **Mampon Gold Mine (Ghana)** - LVIA for a proposed new mine in Ghana working with SGS as part of their EIA team.
- **Telkom Towers** – LVIAs for numerous Telkom masts in KwaZulu Natal.
- **Eskom Isundu Substation** – LVIA for a proposed major new Eskom substation near Pietermaritzburg in KwaZulu Natal.
- **Eskom St Faiths Power Line and Substation** – LVIA for a major new substation and associated power lines near Port Shepstone in KwaZulu Natal.
- **Eskom Ficksburg Power Line** – LVIA for a proposed new power line between Ficksburg and Cocolan in the Free State.
- **Eskom Matubatuba to St Lucia Power Line** – LVIA for a proposed new power line between Mtubatuba and St Lucia in KwaZulu Natal.
- **Dube Trade Port, Durban International Airport** – Landscape & Visual Impact Assessment.
- **Sibaya Precinct Plan** – LVIA as part of Environmental Impact Assessment for a major new development area to the north of Durban.
- **Umdloti Housing** – LVIA as part of Environmental Impact Assessment for a residential development beside the Umdloti Lagoon to the north of Durban.
- **Tata Steel Ferrochrome Smelter** - LVIA of proposed new Ferrochrome Smelter in Richards Bay as part of EIA undertaken by the CSIR.
- **Durban Solid Waste Large Landfill Sites –** LVIAs of proposed development sites to the North and South of the Durban Metropolitan Area. The project utilised 3d computer visualisation techniques.
- **Hillside Aluminium Smelter, Richards Bay -** LVIA of proposed extension of the existing smelter. The project utilised 3d computer visualisation techniques.
- **Estuaries of KwaZulu Natal Phase 1 –** Visual character assessment and GIS mapping as part of a review of the condition and development capacity of eight estuary landscapes for the Town and Regional Planning Commission. The project was extended to include all estuaries in KwaZulu Natal.
- **Signage Assessments** – Numerous impact assessments for proposed signage developments for Blast Media.

- **Signage Strategy** – Preparation of an environmental strategy report for a national advertising campaign on National Roads for Visual Image Placements.
- **Zeekoegatt, Durban** - EDP acted as advisor to the Province of KwaZulu Natal in an appeal brought about by a developer to extend a light industrial development within a 60 metre building line from the National N3 Highway.
- **La Lucia Mall Extension** - LVIA using three dimensional computer modelling / photo realistic rendering and montage techniques for proposed extension to shopping mall for public consultation exercise.
- **Redhill Industrial Development** - LVIA assessment using three dimensional computer modelling / photo realistic rendering and montage techniques for proposed new industrial area for public consultation exercise.
- **Avondale Reservoir** - LVIA using three dimensional computer modelling / photo realistic rendering and montage techniques for proposed hilltop reservoir as part of Environmental Impact Assessment for Umgeni Water.
- **Hammersdale Reservoir** - LVIA using three dimensional computer modelling / photo realistic rendering and montage techniques for proposed hilltop reservoir as part of Environmental Impact Assessment for Umgeni Water.
- **Southgate Industrial Park, Durban** - LVIA and Landscape Design for AECI.
- **Sainsbury's Bryn Rhos** - Computer Aided Landscape & Visual Impact Assessment/ Planning Application for the development of a new store within the Green Wedge North of Swansea.
- **Ynyston Farm Access** - Computer Aided Landscape & Impact Assessment of visual intrusion of access road to proposed development of Cardiff for the Land Authority for Wales.
- **Cardiff Bay Barrage** – Preparation of the Visual Impact Statement for inclusion in the Impact Statement for debate by parliament (UK) prior to the passing of the Cardiff Bay Barrage Bill.
- **A470, Cefn Coed to Pentrebach** - Preparation of landscape frameworks for the assessment of the impact of the proposed alignment on the landscape for The Welsh Office.
- **Sparkford to Illchester Bye Pass** - The preparation of the landscape framework and the draft landscape plan for the Department of Transport.
- **Green Island Reclamation Study** - Visual Impact Assessment of building massing, Urban Design Guidelines and Masterplanning for a New Town extension to Hong Kong Island.
- **Route 3** - Visual Impact Assessment for alternative road alignments between Hong Kong Island and the Chinese Border.
- **China Border Link** - Visual Impact Assessment and initial Landscape Design for a new border crossing at Lok Ma Chau.
- **Route 81, Aberdeen Tunnel to Stanley** - Visual Impact Assessment for alternative highway alignments on the South side of Hong Kong Island.

APPENDIX II

GUIDELINES FOR INVOLVING VISUAL AND AESTHETIC SPECIALISTS IN EIA PROCESSES

(Preface, Summary and Contents for full document go to the Provincial Government of the Western Cape, Department of Environmental Affairs and Development Planning web site, http://eadp.westerncape.gov.za/your-resource-library/policies-guidelines)


GUIDELINE FOR INVOLVING VISUAL AND AESTHETIC SPECIALISTS IN EIA PROCESSES
PROVINCIAL GOVERNMENT OF THE WESTERN CAPE:
DEPARTMENT OF ENVIRONMENTAL AFFAIRS
AND DEVELOPMENT PLANNING
bola
CSIR
Edition 1
June 2005

GUIDELINE FOR INVOLVING VISUAL AND AESTHETIC SPECIALISTS IN EIA PROCESSES

Edition 1

Issued by:

Provincial Government of the Western Cape
Department of Environmental Affairs and Development Planning
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ACKNOWLEDGEMENTS

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Stakeholders engaged in the guideline development process:

These guidelines were developed through a consultative process and have benefited from the inputs and comments provided by a wide range of individuals and organizations actively working to improve EIA practice. Thanks are due to all who took the time to engage in the guideline development process.

In particular, thanks are due to Jan Glazewski (University of Cape Town), Keith Wiseman (City of Cape Town), Paul Britton (SANPARKS), Graham Young (University of Pretoria), Lisa Parkes (Ninham Shand) and Paul Claassen (Environomics) for providing useful information and in-depth comments.

Finalisation of report figures and formatting:

Magdel van der Merwe and Elna Logie, DTP Solutions

PREFACE

The purpose of an Environmental Impact Assessment (EIA) is to provide decision-makers (be they government authorities, the project proponent or financial institutions) with adequate and appropriate information about the potential positive and negative impacts of a proposed development and associated management actions in order to make an informed decision whether or not to approve, proceed with or finance the development.

For EIA processes to retain their role and usefulness in supporting decision-making, the involvement of specialists in EIA needs to be improved in order to:

- Add greater value to project planning and design;
- Adequately evaluate reasonable alternatives;
- Accurately predict and assess potential project benefits and negative impacts;
- Provide practical recommendations for avoiding or adequately managing negative impacts and enhancing benefits;
- Supply enough relevant information at the most appropriate stage of the EIA process to address adequately the key issues and concerns, and effectively inform decision-making in support of sustainable development.

It is important to note that not all EIA processes require specialist input; broadly speaking, specialist involvement is needed when the environment could be significantly affected by the proposed activity, where that environment is valued by or important to society, and/or where there is insufficient information to determine whether or not unavoidable impacts would be significant.

The purpose of this series of guidelines is to improve the efficiency, effectiveness and quality of specialist involvement in EIA processes. The guidelines aim to improve the capacity of roleplayers to anticipate, request, plan, review and discuss specialist involvement in EIA processes. Specifically, they aim to improve the capacity of EIA practitioners to draft appropriate terms of reference for specialist input and assist all roleplayers in evaluating whether or not specialist input to the EIA process is appropriate for the type of development and environmental context. Furthermore, they aim to ensure that specialist inputs support the development of effective, practical Environmental Management Plans where projects are authorised to proceed (refer to *Guideline for Environmental Management Plans*).

The guidelines draw on best practice in EIA in general, and within specialist fields of expertise in particular, to address the following issues related to the timing, scope and quality of specialist input. The terms "specialist involvement" and "input" have been used in preference to "specialist assessment" and "studies" to indicate that the scope of specialists' contribution (if required) depends on the nature of the project, the environmental context and the amount of available information and does not always entail detailed studies or assessment of impacts.

The guidelines draw on best practice in EIA in general, and within specialist fields of expertise in particular, to address the following issues related to the timing, scope and quality of specialist input. The terms "specialist involvement" and "input" have been used in preference to "specialist

assessment" and "studies" to indicate that the scope of specialists' contribution depends on the nature of the project, the environmental context and the amount of available information.

	ISSUES
TIMING	▪ When should specialists be involved in the EIA process; i.e. at what stage in the EIA process should specialists be involved (if at all) and what triggers the need for their input?
SCOPE	▪ Which aspects must be addressed through specialist involvement; i.e. what is the purpose and scope of specialist involvement? ▪ What are appropriate approaches that specialists can employ? ▪ What qualifications, skills and experience are required?
QUALITY	▪ What triggers the review of specialist studies by different roleplayers? ▪ What are the review criteria against which specialist inputs can be evaluated to ensure that they meet minimum requirements, are reasonable, objective and professionally sound?

The following guidelines form part of this first series of guidelines for involving specialists in EIA processes:

- Guideline for determining the scope of specialist involvement in EIA processes
- Guideline for the review of specialist input in EIA processes
- Guideline for involving biodiversity specialists in EIA processes
- Guideline for involving hydrogeologists in EIA processes
- Guideline for involving visual and aesthetic specialists in EIA processes
- Guideline for involving heritage specialists in EIA processes
- Guideline for involving economists in EIA processes

The *Guideline for determining the scope of specialist involvement in EIA processes* and the *Guideline for the review of specialist input in EIA processes* provide generic guidance applicable to any specialist input to the EIA process and clarify the roles and responsibilities of the different roleplayers involved in the scoping and review of specialist input. It is recommended that these two guidelines are read first to introduce the generic concepts underpinning the guidelines which are focused on specific specialist disciplines.

Who is the target audience for these guidelines?

The guidelines are directed at authorities, EIA practitioners, specialists, proponents, financial institutions and other interested and affected parties involved in EIA processes. Although the guidelines have been developed with specific reference to the Western Cape province of South Africa, their core elements are more widely applicable.

What type of environmental assessment processes and developments are these guidelines applicable to?

The guidelines have been developed to support project-level EIA processes regardless of whether they are used during the early project planning phase to inform planning and design decisions (i.e. during pre-application planning) or as part of a legally defined EIA process to obtain statutory approval for a proposed project (i.e. during screening, scoping and/or impact assessment). Where specialist input may be required the guidelines promote early, focused and appropriate involvement of specialists in EIA processes in order to encourage proactive consideration of potentially significant impacts, so that negative impacts may be avoided or

effectively managed and benefits enhanced through due consideration of alternatives and changes to the project.

The guidelines aim to be applicable to a range of types and scales of development, as well as different biophysical, social, economic and governance contexts.

What will these guidelines not do?

In order to retain their relevance in the context of changing legislation, the guidelines promote the principles of EIA best practice without being tied to specific legislated national or provincial EIA terms and requirements. They therefore do not clarify the specific administrative, procedural or reporting requirements and timeframes for applications to obtain statutory approval. They should, therefore, be read in conjunction with the applicable legislation, regulations and procedural guidelines to ensure that mandatory requirements are met.

It is widely recognized that no amount of theoretical information on how best to plan and coordinate specialist inputs, or to provide or review specialist input, can replace the value of practical experience of coordinating, being responsible for and/or reviewing specialist inputs. Only such experience can develop sound judgment on such issues as the level of detail needed or expected from specialists to inform decision-makers adequately. For this reason, the guidelines should not be viewed as prescriptive and inflexible documents. Their intention is to provide best practice guidance to improve the quality of specialist input.

Furthermore, the guidelines do not intend to create experts out of non-specialists. Although the guidelines outline broad approaches that are available to the specialist discipline (e.g. field survey, desktop review, consultation, modeling), specific methods (e.g. the type of model or sampling technique to be used) cannot be prescribed. The guidelines should therefore not be used indiscriminately without due consideration of the particular context and circumstances within which an EIA is undertaken, as this influences both the approach and the methods available and used by specialists.

How are these guidelines structured?

The specialist guidelines have been structured to make them user-friendly. They are divided into six parts, as follows:

- **Part A**: Background;
- **Part B**: Triggers and key issues potentially requiring specialist input;
- **Part C**: Planning and coordination of specialist inputs (drawing up terms of reference);
- **Part D**: Providing specialist input;
- **Part E**: Review of specialist input; and
- **Part F**: References.

Part A provides grounding in the specialist subject matter for all users. It is expected that authorities and peer reviewers will make most use of Parts B and E; EIA practitioners and project proponents Parts B, C and E; specialists Part C and D; and other stakeholders Parts B, D and E. Part F gives useful sources of information for those who wish to explore the specialist topic.

SUMMARY

This guideline document, which deals with specialist visual input into the EIA process, is organised into a sequence of interleading sections. These follow a logical order covering the following:

- the background and context for specialist visual input;
- the triggers and issues that determine the need for visual input;
- the type of skills and scope of visual inputs required in the EIA process;
- the methodology, along with information and steps required for visual input;
- finally, the review or evaluation of the visual assessment process.

Part A is concerned with defining the visual and aesthetic component of the environment, and with principles and concepts relating to the visual assessment process. The importance of the process being logical, holistic, transparent and consistent is stressed in order for the input to be useful and credible.

The legal and planning context within which visual assessments take place indicate that there are already a number of laws and bylaws that protect visual and scenic resources. These resources within the Western Cape context have importance for the economy of the region, along with the proclaimed World Heritage Sites in the Province.

The role and timing of specialist visual inputs into the EIA process are outlined, with the emphasis being on timely, and on appropriate level of input, from the early planning stage of a project, through to detailed mitigation measures and management controls at the implementation stage.

Part B deals with typical factors that trigger the need for specialist visual input to a particular project. These factors typically relate to:

(a) the nature of the receiving environment, in particular its visual sensitivity or protection status;
(b) the nature of the project, in particular the scale or intensity of the project, which would result in change to the landscape or townscape.

The correlation between these two aspects are shown in a table, in order to determine the varying levels of visual impact that can be expected, i.e. from little or no impact, to very high visual impact potential.

Part C deals with the choice of an appropriate visual specialist, and the preparation of the terms of reference (TOR) for the visual input. Three types of visual assessment are put forward, each requiring different expertise, namely:

Type A: assessments involving large areas of natural or rural landscape;
Type B: assessments involving local areas of mainly built environment;
Type C: assessments involving smaller scale sites with buildings, or groups of buildings.

The scope of the visual input would in summary relate to the following:

- the issues raised during the scoping process;
- the time and space boundaries, i.e. the extent or zone of visual influence;

- the types of development alternatives that are to be considered;
- the variables and scenarios that could affect the visual assessment;
- the inclusion of direct, indirect and cumulative effects.

Approaches to the visual input relate to the level of potential impact and range from minimal specialist input, to a full visual impact assessment (VIA). A list of the typical components of a visual assessment is given, and the integration with other studies forming part of the EIA process is discussed.

Part D provides guidance for specialist visual input, and on the information required by specialists. Notes on predicting potential visual impacts are given, along with suggested criteria for describing and rating visual impacts. The assessment of the overall significance of impacts, as well as thresholds of significance are discussed.

Further aspects that need to be considered by visual specialists in EIA processes include:

- affected parties who stand to benefit or lose,
- risks and uncertainties related to the project,
- assumptions that have been made, and their justification,
- levels of confidence in providing the visual input or assessment,
- management actions that can be employed to avoid or mitigate adverse effects and enhance benefits, and
- the best practicable environental option from the perspective of the visual issues and impacts.

Finally, pointers for the effective communication of the findings are given.

Part E lists specific evaluation criteria for reviewing visual input by a specialist, where this becomes necessary. Further guidance on this is given in the document on *Guideline for the review of specialist input in EIA processes.*

CONTENTS

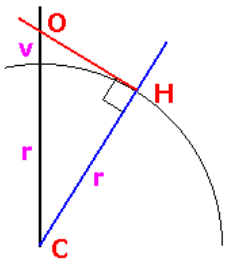
APPENDIX III

FORMULA FOR DERIVING THE APPROXIMATE VISUAL HORIZON

The Mathematics behind this Calculation

This calculation should be taken as a guide only as it assumes the earth is a perfect ball 6378137 metres radius. It also assumes the horizon you are looking at is at sea level. A triangle is formed with the centre of the earth (C) as one point, the horizon point (H) is a right angle and the observer (O) the third corner. Using Pythagoras's theorem we can calculate the distance from the observer to the horizon (OH) knowing CH is the earth's radius (r) and CO is the earth's radius (r) plus observer's height (v) above sea level.

Sitting in a hotel room 10m above sea level a boat on the horizon will be 11.3km away. The reverse is also true, whilst rowing across the Atlantic, the very top of a mountain range 400m high could be seen on your horizon at a distance of 71.4 km assuming the air was clear enough.



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

DETAILS OF THE SPECIALIST, DECLARATION OF INTEREST AND UNDERTAKING UNDER OATH

	(For official use only)
File Reference Number:	
NEAS Reference Number:	DEA/EIA/
Date Received:	

Application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended (the Regulations)

PROJECT TITLE

Nyala 3 Solar Energy Facility

Kindly note the following:

1. This form must always be used for applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting where this Department is the Competent Authority.
2. This form is current as of 01 September 2018. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at https://www.environment.gov.za/documents/forms.
3. A copy of this form containing original signatures must be appended to all Draft and Final Reports submitted to the department for consideration.
4. All documentation delivered to the physical address contained in this form must be delivered during the official Departmental Officer Hours which is visible on the Departmental gate.
5. All EIA related documents (includes application forms, reports or any EIA related submissions) that are faxed; emailed; delivered to Security or placed in the Departmental Tender Box will not be accepted, only hardcopy submissions are accepted.

Departmental Details

Postal address:
Department of Environmental Affairs
Attention: Chief Director: Integrated Environmental Authorisations
Private Bag X447
Pretoria
0001

Physical address:
Department of Environmental Affairs
Attention: Chief Director: Integrated Environmental Authorisations
Environment House
473 Steve Biko Road
Arcadia

Queries must be directed to the Directorate: Coordination, Strategic Planning and Support at:
Email: EIAAdmin@environment.gov.za

1. SPECIALIST INFORMATION

Specialist Company Name:	Environmental Planning and Design			
B-BBEE	Contribution level (indicate 1 to 8 or non-compliant)	4	Percentage Procurement recognition	
Specialist name:	Jonathan Marshall			
Specialist Qualifications:	Dip.LA.			
Professional affiliation/registration:	Chartered Member of the Landscape Institute (UK). Registered Professional Landscape Architect (South Africa).			
Physical address:	7 Carlton Avenue, Westville, 3629			
Postal address:	PO Box 50910, Musgrave Road, Durban			
Postal code:	3629	Cell:	083 703 2995	
Telephone:		Fax:		
E-mail:	jon@enviroconsult.co.za			

2. DECLARATION BY THE SPECIALIST

I, Jonathan Marshall, declare that –

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

Signature of the Specialist

Environmental Planning and Design

Name of Company:

19th May 2023

Date

3. UNDERTAKING UNDER OATH/ AFFIRMATION

I, Jonathan Marshall, swear under oath / affirm that all the information submitted or to be submitted for the purposes of this application is true and correct.

Signature of the Specialist

Environmental Planning and Design

Name of Company

19th May 2023

Date

Signature of the Commissioner of Oaths

19/05/2023

Date

SOUTH AFRICAN POLICE SERVICE
STATION COMMANDER
2023 -05- 19
WESTVILLE
KWAZULU-NATAL