



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

(For official use only)

File Reference Number:

Application Number:

Date Received:

Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2010, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2010 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of **1 August 2014**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
3. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
4. Where applicable **tick** the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. The use of “not applicable” in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.
11. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
13. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.

BASIC ASSESSMENT REPORT

14. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.
15. Shape files (.shp) for maps must be included in the electronic copy of the report submitted to the competent authority.

SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section?

YES	NO ✓
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 If YES, please complete the form entitled "Details of specialist and declaration of interest" for the specialist appointed and attach in Appendix I.

1. PROJECT DESCRIPTION

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

Property description

The proposed solar plant, the SACE Ranger Solar PV Plant, will be located on Portion 3 of the Farm Bauwerskraal, No 234, Uitenhage situated within the Nelson Mandela Bay Municipality, Eastern Cape. The 21 digit Surveyor General code for the property is C0760000000023400003.

Proposed project description

South African Clean Energy Solutions (SACE) are proposing the development of a small scale, pilot solar (photovoltaic, PV) plant, in order to generate 2.46MW net capacity of electricity.

The total project site is approximately 19.2 ha in extent, and within this area approximately 9.5 ha will be used for the solar array area (footprint area) and 0.3 ha for the construction camp area.

The proposed solar production entails a solar panel tracker mounting system (automatic), 1000V DC PV system and 11kV distribution system and transmission / distribution line to connect to the existing 11kV transmission / distribution line (Eskom). The existing Eskom 11kV transmission / distribution line is located adjacent to the proposed solar array area.

The proposed solar plant will convert sunlight into electricity, through photovoltaics (PV). Photovoltaics convert light into electric current. Solar cells produce direct current (DC) power which fluctuates with the sunlight's intensity. For practical use this usually requires conversion to certain desired voltages or alternating current (AC), through the use of inverters. Multiple solar cells are connected inside modules. Modules are wired together to form arrays (rows), then tied to an inverter, which produces power at the desired voltage, and for AC, the desired frequency/phase.

The solar tracking system would consist of a single axis PV system. The system is a simplified mechanical structure with pre-assembled components. The system mounting components are able to withstand changes in topography and settling. Examples of a solar PV tracking system are presented in Figure 1. The distance between the PV frame arrays (rows) is approximately five (5) meters to ensure that each row to the north does not cast a shadow on the row to the south during periods of the day when the sun is at a lower angle in the sky. This also provides sufficient space for maintenance purposes, e.g. replacing panels or mowing grass with a tractor.



Figure 1: Examples of SolarPV Tracking System (Source: First Solar)

The solar panels or PV modules consists of thin film solar module technology, certified for use in 1000V DC systems. The PV modules are manufactured off-site, and certified for reliability and safety by

international institutes. Each PV module (panel) is approximately 1200mm by 600mm 1956×992×40mm in size and will be positioned in rows to form the solar array area. The operational lifespan is approximately 25 years. The solar panels will be positioned approximately 0.5m above ground level. Figure 2 presents an example of a solar panel (PV module).

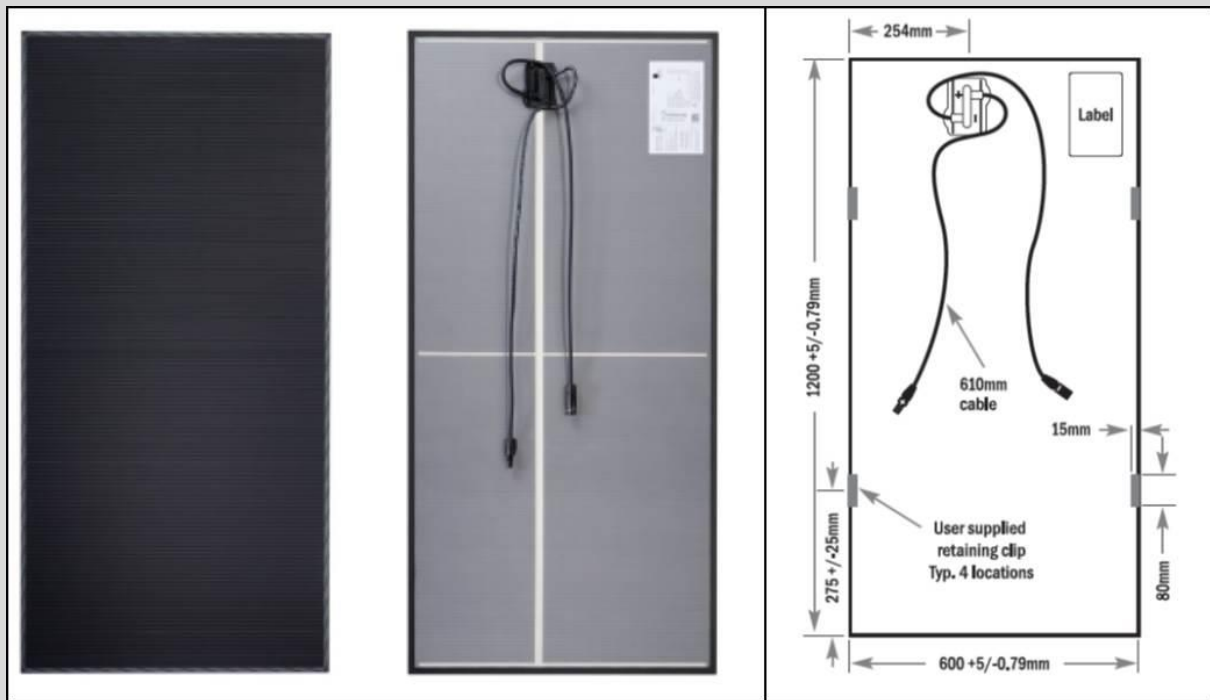


Figure 2: Example of Solar Panel or PV Module (Source: First Solar)

Solar panels are connected to inverters with special DC solar cables (as per the manufacturer's guideline). The inverters are located within the solar plant / array area. Decentralized inverters are typically mounted to the back or beneath of the panel racking structures, while larger centralized inverters are installed on the ground, both within a fenced off area. The proposed PV plant would generate 400V and would be inverted to 11kV. The "substation" for low or medium voltage is typically referred to as the transformer, which adapts the voltage to the required voltage. The turnkey provider will plan, design, procure and construct the PV plant including appropriate transformers. The PV plant can be flexibly designed to meet either under or above ground requirements without negatively influencing the effectiveness of the PV plant. It is anticipated that the connecting cables (from the inverters to the transformer) will be underground. The transformer will adapt the voltage to the voltage required. It is anticipated that the connecting transmission / distribution line will be underground.

The proposed tracking system will consist of the following:

- a) Electrical Work
 - i. String combiners
 - ii. Cabling from / to Inverter
 - iii. Cabling from modules to string combiner
- b) Control for tracking system
 - i. Control panels
 - ii. SPS control
 - iii. Electromotors
- c) Steel construction
 - i. Steel fundamentals
- d) Inverter
- e) Remote monitoring

- f) Generator combiner box (safety class II), voltage rating 900V, current rating 36A, short circuit protection
- g) DC main ground cable
- h) Solar panels or PV modules are mounted with clamps and screws
- i) Solar cable, double insulation, UV protected, without halogens

The Transformer and Civil Works include:

- a) Step up transformer / Minisub with switchgear and breakers, 1000kVA
- b) Housing for LV Breakers and switchgear
- c) Concrete plinth
- d) Medium voltage cabling
- e) Fencing
- f) Site clearing
- g) Drilling per hole, approximately 1.2m in depth, 200mm diameter
- h) Medium voltage measurement, metering equipment and connection to overhead line

Construction Phase

The construction phase will be undertaken in three (3) phases, and is anticipated to be undertaken in four (4) months. During the assembly of the solar panels 30 trucks are expected to transport components to the site, this entails two (2) trucks per day over a period of two (2) to three (3) weeks.

Phase 1: Preparation of the site for construction, surveying and mapping the foundation points with GPS co-ordinates, on-site secured storage facilities, mashes and toilets. Clearing of site of vegetation. Areas that may require clearing include solar array area, trenches for cabling, construction and laydown areas in order to undertake the required construction.

Phase 2: Construction of all civil activities. This phase includes lengthening and widening of the access road, trenching for cables, setting racking foundations, mounting PV panels to each new row of standing racks, installing the inverters to the racks, stringing the panels, pulling the cables, and ends with completing all the PV plant electrical works.

Phase 3: Testing and commissioning of equipment. The PV plant's performance is measured, review of as-built plans. Detected failures will be repaired prior to issuing the provision acceptance certificate (PAC).

Operation and Maintenance Phase

Monitoring, inspections and regular maintenance of solar equipment. A data collection system is used to monitor the functioning of the tracking system.

Reactive repairs – measures are taken to restore the operation and safety of solar park immediately after becoming aware they have been affected by a malfunction.

Ground maintenance includes trimming (mowing or cutting) of vegetation to avoid shading (i.e. shadows) or affecting operations (e.g. creating barriers). Pathways (approximately 5m in width) between arrays are left unobstructed, ensuring maintenance staff have access to all portions of each array. Shrubs and trees immediately adjacent to the solar panels will also be physically cut in order to prevent shadows being cast onto the panels.

Once the solar farm is operational, it is assumed that a maximum of two vehicle trips will arrive on site during the AM peak hour and depart during the PM peak hour.

No chemical cleaning agents are utilised during the operational phase. The solar panels are cleaned with water and sponges.

BASIC ASSESSMENT REPORT

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

Listed activity as described in GN R.544, 545 and 546	Description of project activity
GN R.544 Item 1: The construction of facilities or infrastructure for the generation of electricity where: (ii) the output is 10 megawatts or less but the total extent of the facility covers an area in excess of 1 hectare.	The construction of a solar (photovoltaic, PV) plant, with a 2.46MW net capacity, and 11kV distribution and transmission. The solar array footprint area is 9.5 ha in extent.
GN R.544 Item 22: The construction of a road, outside urban areas, (ii) where no reserve exists where the road is wider than 8 metres.	The proposed site is located outside an urban area, however the road width will be less than 8m. Approximately 400m of the existing access road will be widened by 2 to 3m. The existing access road will be lengthened by approximately 1600m, with a width of 3 to 4m, around the proposed solar plant. The access road will be a gravel road.
GN R.544 Item 23(ii): The transformation of undeveloped, vacant or derelict land to (ii) residential, retail, commercial, recreational, industrial or institutional use, outside an urban area and where the total area to be transformed is bigger than 1 hectare but less than 20 ha.	The project site is located outside an urban area, to be rezoned from agriculture and is approximately 19.2 ha in extent. The solar array area is 9.5ha in extent.
GN R.544 Item 47: The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre (i) where the existing reserve is wider than 13,5 metres; or (ii) where no road reserve exists, where the existing road is wider than 8 meters.	Approximately 400m of the existing access road will be widened by 2 to 3m. The existing access road will be lengthened by approximately 1600m, with a width of 3 to 4m, around the proposed solar plant.
GN R.546 Item 4(a)(ii): The construction of a road wider than 4 metres with a reserve less than 13,5 metres. Within the (a) Eastern Cape, (ii) outside urban areas, in: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (gg) Areas ... within 5 kilometres from any other protected area identified in terms of NEMPAA.	Approximately 400m of the existing access road will be widened by 2 to 3m. The existing access road will be lengthened by approximately 1600m, with a width of 3 to 4m, around the proposed solar plant. The access road will be a gravel road. The site is located within a CBA2 area of the Eastern Cape Biodiversity Conservation Plan (ECBCP) and is located within 5km of The Springs Local Authority Nature Reserve. The site does not fall within a CBA of the NMBM Bioregional Plan.
GN R.546 Item 12(b): The clearance of an area of 300 square meters or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation. (b) Within critical biodiversity areas identified in bioregional plans.	The site is located within a CBA2 area of the ECBCP. The site does not fall within a CBA of the NMBM Bioregional Plan. An area of approximately 10ha will be cleared of vegetation for the solar array area and construction camp.
GN R.546 Item 13(a)&(c): The clearance of an area of 1 hectare or more of vegetation where 75% or more of the vegetative cover constitutes	The site is located within a CBA2 area of the ECBCP and located within 5km of The Springs Local Authority Nature Reserve. The site does not

BASIC ASSESSMENT REPORT

Listed activity as described in GN R.544, 545	Description of project activity
indigenous vegetation. (a) Critical biodiversity areas as identified in systematic bioregional plans adopted by the competent authority. (c) Eastern Cape, (ii) Outside urban areas in: (ff) Areas ... within 5 kilometres from any other protected area identified in terms of NEMPAA.	fall within a CBA of the NMBM Bioregional Plan. An area of approximately 10ha will be cleared of vegetation for the solar array area and construction camp.
GN R.546 Item 14(a)(i): The clearance of an area of 5 hectares or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation. (a) Eastern Cape, (i) All areas outside urban areas	The site is located outside an urban area and an area of approximately 10ha will be cleared of vegetation for the solar array area and construction camp.
GN R.546 Item 19(a)(ii): The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre. (a) Eastern Cape, (ii) outside urban areas, in: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (gg) Areas ... within 5 kilometres from any other protected area identified in terms of NEMPAA. (ii) Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined.	Approximately 400m of the existing access road will be widened by 2 to 3m. The existing access road will be lengthened by approximately 1600m, with a width of 3 to 4m, around the proposed solar plant. The access road will be a gravel road. The site is located within a CBA2 area of the ECBCP and is located within 5km of The Springs Local Authority Nature Reserve. The site does not fall within a CBA of the NMBM Bioregional Plan. A drainage line is located within 100m of the proposed access road.

2. FEASIBLE AND REASONABLE ALTERNATIVES

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

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

Describe alternatives that are considered in this application as required by Regulation 22(2)(h) of GN R.543. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

The determination of whether site or activity (including different processes, etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the, competent authority may also request the applicant to assess additional alternatives that

BASIC ASSESSMENT REPORT

could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

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

a) Site alternatives

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
The proposed activity is located on Portion 3 of the Farm Bauerskraal No. 234, Ward 53, in the Nelson Mandela Bay Municipality, Eastern Cape. The site is approximately 7km north of the urban area of Uitenhage. Advantages: The site is located outside of the urban edge on private land, with a portion of the land being used to stockpile discarded equipment. The proposed site is easily accessed from the Hillwacht Road (DR01940). Disadvantages: A long term lease agreement between the developer and land owner will be required. Centre Point:	33°40'01"S	25°25'08"E
Corner A:	33°39'46"S	25°25'12"E
Corner B:	33°39'50"S	25°25'02"E
Corner C:	33°40'03"S	25°25'00"E
Corner D:	33°40'06"S	25°25'04"E
Corner E:	33°40'11"S	25°25'07"E
Corner F:	33°40'12"S	25°25'14"E
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
The proposed activity is site specific and no alternative sites have been assessed.		
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)
The proposed activity is site specific and no alternative sites have been assessed.		

In the case of linear activities:

Alternative:	Latitude (S):	Longitude (E):
Alternative S1 (preferred)		
Access Road	The access road will be a gravel road. Alternatives have not been considered due to the existing access road.	
• Starting point of the activity	33° 40' 19"S	25° 25' 15"E
• Middle/Additional point of the activity	33° 39' 49"S	25° 25' 12"E
• End point of the activity	33° 40' 03"S	25° 25' 12"E

BASIC ASSESSMENT REPORT

Alternative S2 (if any)

- Starting point of the activity
- Middle/Additional point of the activity
- End point of the activity

N/A	

Alternative S3 (if any)

- Starting point of the activity
- Middle/Additional point of the activity
- End point of the activity

N/A	

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

Please refer to **Appendix J-1** for additional co-ordinates (250m and turning points) of the route.

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

Please refer to **Appendix A** for the layout map.

b) Lay-out alternatives

Alternative 1 (preferred alternative)							
Description		Lat (DDMMSS)			Long (DDMMSS)		
The total project site is approximately 19.2 ha in extent, and within this area approximately 9.5 ha will be used for the solar array area (footprint area) and 0.3 ha for the construction camp area. Advantages: The larger project site provides an opportunity to reposition the solar PV modules, should this be required due to sensitive areas or geotechnical requirements. A portion of the site is transformed, where discarded equipment is being stockpiled, and this area forms part of the solar array footprint area. Disadvantages: Certain sections of the site and surrounding area present steeper topography which thereby limits the available area to be utilised.							
Corner Point	Proposed Area						
A	Site	33 °	39 '	46 "	25 °	25 '	12 "
B	Site	33 °	39 '	50 "	25 °	25 '	2 "
C	Site	33 °	40 '	3 "	25 °	25 '	0 "
D	Site	33 °	40 '	6 "	25 °	25 '	4 "
E	Site	33 °	40 '	11 "	25 °	25 '	7 "
F	Site	33 °	40 '	12 "	25 °	25 '	14 "
G	Footprint	33 °	39 '	49 "	25 °	25 '	12 "
H	Footprint	33 °	39 '	50 "	25 °	25 '	5 "
I	Footprint	33 °	39 '	52 "	25 °	25 '	2 "
J	Footprint	33 °	40 '	0 "	25 °	25 '	2 "

BASIC ASSESSMENT REPORT

K	Footprint	33 °	40 ' 0 "	25 °	25 ' 7 "
L	Footprint	33 °	40 ' 3 "	25 °	25 ' 8 "
M	Footprint	33 °	40 ' 3 "	25 °	25 ' 12 "
N	Construction Camp	33 °	40 ' 4 "	25 °	25 ' 9 "
O	Construction Camp	33 °	40 ' 5 "	25 °	25 ' 10 "
P	Construction Camp	33 °	40 ' 5 "	25 °	25 ' 12 "
Q	Construction Camp	33 °	40 ' 4 "	25 °	25 ' 12 "
Alternative 2					
Description		Lat (DDMMSS)		Long (DDMMSS)	
No alternative layouts have been assessed.					
Alternative 3					
Description		Lat (DDMMSS)		Long (DDMMSS)	
No alternative layouts have been assessed.					

c) Technology alternatives

Alternative 1 (preferred alternative)	
<p>The preferred technology alternative is the Photovoltaic system. Photovoltaics (PV) is a method of generating electrical power by converting solar radiation into direct current electricity using semiconductors that exhibit the photovoltaic effect. Photovoltaic power generation employs solar panels composed of a number of solar cells containing a photovoltaic material. The solar PV panels are flat-plate structures that can be either mounted at a fixed angle, or they can be mounted on a tracking device that follows the sun, allowing capture of the most sunlight over the course of a day.</p> <p>Advantages: The solar PV system can be utilised on a small or large scale and requires low maintenance. The proposed solar PV system is a tracking system that will track the sun's path in order to capture the most sunlight.</p> <p>Disadvantages: A large number of solar panels are required.</p>	
Alternative 2	
<p>An alternative solar technology is solar thermal energy or Concentrating Solar Power (CSP) systems.</p> <p>Advantages: These systems use lenses or mirrors and tracking systems to focus a large area of sunlight into a small beam. The concentrated heat is then used as a heat source. Various techniques are used to track the sun and focus light.</p> <p>Disadvantages: In the CSP system a working fluid is heated by the concentrated sunlight, and is then used for power generation or energy storage. A CSP plant operates most efficiently, and thus most cost-effectively, when built in sizes of 100 MW and higher; but in turn a 100MW plant would require an area of approximately 400ha. The larger area of land is to accommodate the thermal energy storage needed.</p> <p>As the proposed activity is the generation of 2.46MW, the CSP technology alternative is not considered feasible for the small scale production and as a result will not be assessed further.</p>	
Alternative 3	
No additional technology alternatives have been assessed.	

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

Alternative 1 (preferred alternative)	
There are no other feasible or reasonable alternatives, e.g. operational alternatives.	
Alternative 2	
No additional alternatives have been assessed.	

BASIC ASSESSMENT REPORT

Alternative 3
No additional alternatives have been assessed.

e) No-go alternative

The 'no-go' option assumes the site remains in its current state, i.e. agriculture zoned, with the existing land use continuing, i.e. stockpiling of discarded equipment and game farming.
 Advantages: No protected or endangered species will be physically removed, however a risk remains that these species will be lost to animals as a food source.
 Disadvantages: The socio-economic benefits associated with this project would not accrue, i.e. an alternative energy source and limited employment opportunities during construction and operations.

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

3. PHYSICAL SIZE OF THE ACTIVITY

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

Alternative:

Alternative A1¹ (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

Size of the activity:

98 000 m ²
m ²
m ²

or, for linear activities:

Alternative:

Alternative A1 (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

Length of the activity:

2 000 m
m
m

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

Alternative:

Alternative A1 (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

Size of the site/servitude:

192 000 m ²
m ²
m ²

4. SITE ACCESS

Does ready access to the site exist?

If NO, what is the distance over which a new access road will be built

YES ✓	NO
1 600 m	

¹ "Alternative A.." refer to activity, process, technology or other alternatives.

BASIC ASSESSMENT REPORT

Describe the type of access road planned:

The site is accessed from a gravel road, the Hillwacht Road (DR01940) which links to the R75 (Uitenhage Road). The DR01940 is approximately 6 to 7m wide, and has a speed limit 60km/h. An access road exists from the Hillwacht Road into the property / site. Approximately 400m of this existing access road will be widened by 2 to 3m. The existing access road will be lengthened by approximately 1600m, with a width of 3 to 4m. The access road will be a gravel road.

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

5. LOCALITY MAP

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

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

Please refer to **Appendix A** for the locality map.

6. LAYOUT/ROUTE PLAN

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

The site or route plans must indicate the following:

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

- a legend; and
- a north arrow.

Please refer to **Appendix A** for the layout map.

7. SENSITIVITY MAP

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

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

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

Please refer to **Appendix A** for the sensitivity map.

8. SITE PHOTOGRAPHS

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

Please refer to **Appendix B** for site photographs.

9. FACILITY ILLUSTRATION

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

Please refer to **Appendix C**.

10. ACTIVITY MOTIVATION

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

1. Is the activity permitted in terms of the property's existing land use rights?	YES	NO ✓	Please explain
The current land use (zoning) is Agricultural and the footprint / project site will require rezoning for the life span of the proposed solar plant. The application for rezoning falls outside the EIA process, however Environmental Authorisations (if required) are needed to finalise any rezoning application.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	YES ✓	NO	Please explain
The proposed activity is in line with alternative energy sources identified in the Eastern Cape Provincial Development Framework (PSDF, 2010). Although the proposed activity is located within a Critical Biodiversity Area (CBA) 2 in terms of the Eastern Cape Biodiversity Conservation Plan (ECBCP, 2007), it does not fall within a core biodiversity area, i.e. CBA 1, identified in the PSDF and ECBCP. The proposed activity is located in non-arable agricultural land (PSDF).			
(b) Urban edge / Edge of Built environment for the area	YES ✓	NO	Please explain
The proposed activity is located outside of the NMBM urban edge / edge of built environment. In terms of the NMBM Rural Management Policy (2007), the proposed activity is in line with being located outside the urban edge, in the Agricultural Development Zone.			
(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).	YES ✓	NO	Please explain
The proposed activity is in line the NMBM's IDP (2014) regarding renewable energy sources within the NMBM. The proposed activity is aligned with the NMBM SDF (2009) as an alternative and more sustainable source for energy.			
(d) Approved Structure Plan of the Municipality	YES ✓	NO	Please explain
The NMBM has embarked on a renewable energy campaign that aims to source at least 10% of its energy from renewable sources, with solar being one of these renewable energy sources.			
(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)	YES ✓	NO	Please explain
The proposed activity is in line with the NMBM EMF, and would not compromise the integrity of identified biodiversity management units. The proposed site is located outside of any critical biodiversity areas indicated in the NMBM EMF or Bioregional Plan.			

BASIC ASSESSMENT REPORT

(f) Any other Plans (e.g. Guide Plan)	YES✓	NO	Please explain
Although the proposed activity is located within a CBA2 in terms of the Eastern Cape Biodiversity Conservation Plan (ECBCP, 2007), it does not fall within a core/critical biodiversity area, i.e. CBA 1, identified in the PSDF and ECBCP.			
3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?	YES	NO✓	Please explain
The proposed activity in itself is not identified as a priority project in terms of the NMBM's IDP (2014-2015) and SDF (2009). However the proposed activity does fall within the overall objective of renewable energy sources for the NMBM.			
4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)	YES✓	NO	Please explain
<p>The Eastern Cape Province is reliant on electricity imports from other provinces yet houses significant industrial and rural development potential. Power from the national grid is largely generated from coal power stations, and transmitted considerable distances to the Eastern Cape (e.g. from Mpumalanga). This leads to significant transmission losses and local grid instabilities. Electricity supply to the Eastern Cape Province and the Nelson Mandela Bay Metro (NMBM) in particular, is further constrained by transmission infrastructure. Eskom currently supplies approximately 1,400 MW of electricity to the Eastern Cape Province, with approximately 600 to 700 MW utilised by the Nelson Mandela Metro (which includes the Coega IDZ). With the development of the IDZ, the Coega Development Corporation (CDC) has projected an ultimate demand for the IDZ and the Metro of up to 5000MW. Faced with such an increase in electricity demand, the Eastern Cape Province will need to import more power from the national grid (in particular for base-load power supply for large industrial projects), as well as increase local generation capacity.</p> <p>Although only 2.46MW will be fed into the electrical grid, the surrounding community will benefit from the additional electrical supply. Further benefits are the limited employment opportunities during construction and operation.</p>			
5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)	YES✓	NO	Please explain
<p>There is currently adequate service capacity available:</p> <p>There are existing access roads and the developer would upgrade the access road on the site.</p> <p>Electrical transmission lines are located within the site area and the developer would provide for the connecting transmission line.</p> <p>The landowner will provide the water required for construction and operations, from the municipal water supply.</p>			

BASIC ASSESSMENT REPORT

<p>6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</p>	YES	NO✓	Please explain
<p>The developer is South African Clean Energy Solutions (SACE), a private developer, and no infrastructure planning is required by the NMBM.</p>			
<p>7. Is this project part of a national programme to address an issue of national concern or importance?</p>	YES	NO✓	Please explain
<p>The proposed project in itself does not form part of a national programme, e.g. the Department of Energy's Small Projects REIPPP Programme. The proposed project will however contribute to the sustainable renewable energy industry and thereby would contribute to meeting the overall renewables target within the Integrated Resource Plan (2010).</p>			
<p>8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)</p>	YES✓	NO	Please explain
<p>The site is not actively being utilized for agricultural purposes, i.e. cultivation of crops or livestock farming. The proposed site will be leased to the developer. The site is accessed from an existing gravel road, i.e. Hillwacht Road (DR01940), thereby providing access for the transportation. An existing 11kV transmission line is located in the vicinity of the site, thereby providing a connecting point to feed into. The site is located within an area where the solar insolation (solar radiation) value is approximately 1835kWh/m². Sources of potential shading include tree clumps within the site, there are no buildings surrounding the proposed site that may be a source of shading.</p>			
<p>9. Is the development the best practicable environmental option for this land/site?</p>	YES✓	NO	Please explain
<p>Agricultural potential of the site is low as it is classed as non-arable agricultural land, classification VIII. As such, the site is not suitable for cultivations purposes. The site does not fall within a CBA area of the NMBM Bioregional Plan, and no critically endangered or endangered vegetation types occur within the project site.</p>			
<p>10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?</p>	YES✓	NO	Please explain
<p>The negative impacts identified can be mitigated to a lower negative significance or positive significance if all mitigation measures identified are implemented. The positive impacts include the production of cleaner energy and employment opportunities, although limited.</p>			

BASIC ASSESSMENT REPORT

11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?	YES ✓	NO	Please explain
<p>The proposed development is for a small scale pilot solar (photovoltaic, PV) plant, in order to generate 2.46MW. There is a possibility that similar small scale solar plants could be proposed within the broader area, however due to the topography of the surrounding area no large scale solar plants are likely to be proposed.</p>			
12. Will any person's rights be negatively affected by the proposed activity/ies?	YES ✓	NO	Please explain
<p>The proposed activity would impact directly on the adjacent landowner to some extent (e.g. visually). With the implementation of the mitigation measures, these impacts would be lowered to the extent where the impacts would be low.</p>			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?	YES	NO ✓	Please explain
<p>The proposed activity is located outside of the NMBM urban edge / edge of built environment. In terms of the NMBM Rural Management Policy (2007), the proposed activity is in line with being located outside the urban edge, in the Agricultural Development Zone.</p>			
14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?	YES	NO ✓	Please explain
<p>The proposed activity could potentially fall within the SIP 8 category of green energy in support of the South African economy, but does not form part of the Department of Energy's Small Projects REIPPP Programme.</p>			
15. What will the benefits be to society in general and to the local communities?	Please explain		
<p>Although only 2.46MW will be fed into the electrical grid, the surrounding community will benefit from the additional electrical supply. Further benefits are the limited employment opportunities during construction and operation.</p> <p>The proposed project forms a source of zero carbon electricity generation, and thereby reduces carbon emissions associated with coal power stations.</p>			
16. Any other need and desirability considerations related to the proposed activity?	Please explain		
None			
17. How does the project fit into the National Development Plan for 2030?	Please explain		
<p>A long term priority of the National Development Plan is to procure at least 20,000MW of renewable energy. This forms part of the move to a less carbon-intensive electricity production.</p> <p>The proposed project will contribute to the renewable energy target, and forms a source of zero carbon electricity generation.</p>			

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

Impacts on the environment, socio-economic conditions and cultural heritage have been identified, considered and assessed. Mitigation measures have been recommended in order to minimise negative impacts and to maximise positive impacts. These mitigation measures have been carried over to the Environmental Management Programme (EMPr), which is a management tool for the developer and contractors who will be appointed to undertake the required work. The EMPr, which includes compliance procedures, ensures that environmentally acceptable practices are followed during all phases of the project.

Opportunities for public participation are provided throughout the assessment process. These include an initial 30 day comment and registration period at the project announcement, a 40 day review period of the draft basic assessment report and a 21 day review period of the final basic assessment report.

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

The environmental management principles have been into account through the assessment of biophysical and socio-economic impacts, thereby considering impacts on the physical environment as well as impacts on the social, cultural and economic environments. Mitigation measures have been recommended in order to minimise negative impacts and to maximise positive impacts.

The EMPr, which includes the recommended mitigation measures, ensures the implementation of environmental practices that are aimed at the best form of environmental protection. The aim is to ensure that the Applicant and the Contractor take reasonable measures to protect the environment and to remedy impacts on the environment, as required by NEMA. Other objectives of the EMPr are to:

- a) avoid, minimise or correct the disturbance of ecosystems and loss of biodiversity;
- b) avoid, minimise or correct pollution and degradation of the environment;
- c) avoid or minimise waste, to reuse or recycle waste where possible and to dispose of waste in a responsible manner;
- d) apply a risk-averse and cautious approach; and
- e) anticipate and prevent negative impacts on the environment and on people's environmental rights. Where impacts cannot be prevented, such impacts are minimised and mitigated.

The EMPr is attached as **Appendix G**.

11. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

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

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
National Environmental Management Act (NEMA, No. 107 of 1998, as amended)	In terms of Section 24 of NEMA the impacts associated with listed activities must be considered, investigated, assessed and reported on to the competent authority. This is required in order to obtain an	Department of Environmental Affairs (DEA) – Competent Authority Eastern Cape Department of	1998

BASIC ASSESSMENT REPORT

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
	Environmental Authorisation for the undertaking of the proposed activities.	Economic Development, Environmental Affairs & Tourism (DEDEAT) – Commenting Authority	
GNR 544 of the EIA Regulations (2010) promulgated in terms of NEMA	Listed activities 1, 22, 23 and 47 per GNR 544, require a basic assessment to be undertaken.	DEA – Competent Authority DEDEAT – Commenting Authority	2010
GNR 546 of the EIA Regulations (2010) promulgated in terms of NEMA	Listed activities 4, 12, 13, 14 and 19 per GNR 546, require a basic assessment to be undertaken.	DEA – Competent Authority DEDEAT – Commenting Authority	2010
National Environmental Management: Air Quality Act [NEM:AQA] (Act No. 39 of 2004) and Regulations	The listed activities promulgated under NEM:AQA are not applicable to the proposed project. Sections 32 and 34 regarding dust and noise control may be applicable during the construction phase.	DEA	2004
National Heritage Resources Act, 1999 (Act No. 25 of 1999) [NHRA]	Section 38 of NHRA refers to the following activities that require correspondence with the heritage authorities: 38(a) The construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length 38(c)(i) Any development or other activity which will change the character of a site exceeding 5 000 m ² in extent 38(d) The re-zoning of a site exceeding 10 000 m ² in extent. A heritage impact assessment has been undertaken. No objects or artefacts were identified that require a heritage permit for removal or destruction.	South African Heritage Resource Agency (SAHRA) Eastern Cape Provincial Heritage Resources Authority (ECPHRA)	1999
National Environmental Management: Biodiversity Act (Act No. 10 of 2004) [NEMBA]	NEMBA provides for the management and conservation of South Africa's biodiversity within the framework of NEMA. This involves the protection of	DEA	2004

BASIC ASSESSMENT REPORT

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
	species and ecosystems that warrant national protection. NEMBA also regulates alien and invader species. No species under NEMBA were identified.		
National Forest Act (Act84 of 1998) [NFA]	The NFA recognises that natural forests and woodlands form an important part of the environment and need to be conserved and developed according to the principles of sustainable management. The NFA in this regard protects indigenous trees from destruction, damage or removal, and require permits prior to their removal, etc.	Department of Agriculture, Forestry and Fisheries (DAFF)	1998
Eastern Cape Environmental Conservation Act of 2003, Nature & Environmental Conservation Ordinance (No. 19 of 1974) [NECO]	These provide for the protection of species and require permits prior to the removal thereof.	Eastern Cape DEDEAT	1974
National Environmental Management: Waste Act No. 59 of 2008 (NEM:WA)	The NEM:WA regulates waste management in order to protect human and environmental health, by providing reasonable measures for the prevention of pollution and ecological degradation, and for securing ecologically sustainable development. It also provides for national norms and standards for regulating the management of waste by all spheres of government, providing for specific waste management measures for licensing and the control of waste management and remediation activities associated with contaminated land. This legislation provides for compliance and enforcement of the above requirements. No person may	National DEA, Eastern Cape DEDEAT	2008

BASIC ASSESSMENT REPORT

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
	commence, undertake or conduct a waste management activity, except in accordance with the requirements or standards prescribed and a waste management licence issued in respect of that activity, if a licence is required. There are no activities listed in the waste management listed activities that are applicable to the proposed development.		
National Water Act, 1998 (Act No. 36 of 1998)	Provides for tiered regulatory control over 11 water uses, as identified in Section 21 of the NWA. A person who wishes to use or who uses water in a manner that is not covered under Schedule 1, General Authorisations, or in a manner that is not regarded or declared as an existing lawful use, may only use that water under the authority of a Water Use Licence.	Department of Water and Sanitation	1998
Land Use Planning Ordinance, 1985 (Ordinance 15 of 1985) [LUPO]	LUPO requires applications for the rezoning and subdivision of land.	Nelson Mandela Bay Municipality (NMBM)	1985
Conservation of Agricultural Resources Act (No 43 of 1983) and regulations [CARA]	CARA provides for the implementation of control measures for alien and invasive plant species.	DAFF	1983
Fertilisers, Farm Feeds, Agricultural Remedies and Stock Remedies Act (No 36 of 1947) and regulations	Sections 3 to 10 relates to the control of the use of registered pesticides, herbicides (weed killers) and fertilisers. Special precautions must be taken to prevent workers from being exposed to chemical substances in this regard.	DAFF	1947
Occupational Health and Safety Act (No 85 of 1993) and regulations	Sections 8 and 9 relates to general duties of employers and employees. The construction regulations would be applicable during the construction phase.	Department of Labour	1993
Guideline 5: Companion to the Environmental Impact	This guideline provides clarity on the processes to be	DEA – Competent Authority	2010

BASIC ASSESSMENT REPORT

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
Assessment Regulations, 2010. Integrated Environmental Management Guideline Series, Department of Environmental Affairs (DEA), Pretoria	followed when applying for an environmental authorisation, and provides a comprehensive interpretation of the listed activities.	DEDEAT – Commenting Authority	
Guideline 7: Public Participation in the EIA Process. Integrated Environmental Management Guideline Series, Department of Environmental Affairs (DEA), Pretoria	This guideline provides guidance on the procedure and the provisions of the public participation process.	DEA – Competent Authority DEDEAT – Commenting Authority	2010

12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?

YES ✓	NO
10 m ³	

If YES, what estimated quantity will be produced per month?

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

Construction waste will be removed from site by the appointed contractor to a registered waste disposal site. Where possible, excavated material or inert construction waste material to be used as fill material **or in site levelling**. It is recommended that the contractor register on the NMBM waste exchange project where construction rubble can be recycled and/or re-used.

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

Solid waste that cannot be reused or recycled will be disposed of (within 14 days) at the closest licensed waste disposal (landfill) site, i.e. Koedoeskloof landfill

Will the activity produce solid waste during its operational phase?

YES	NO ✓
N/A m ³	

If YES, what estimated quantity will be produced per month?

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

N/A

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

N/A

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

N/A

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

BASIC ASSESSMENT REPORT

Can any part of the solid waste be classified as hazardous in terms of the NEM:WA?

YES	NO✓
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 If YES, inform the competent authority and request a change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

Is the activity that is being applied for a solid waste handling or treatment facility?

YES	NO✓
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 If YES, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?

YES	NO✓
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 If YES, what estimated quantity will be produced per month?

m ³	
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 Will the activity produce any effluent that will be treated and/or disposed of on site?

YES	NO✓
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If YES, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Will the activity produce effluent that will be treated and/or disposed of at another facility?

YES	NO✓
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If YES, provide the particulars of the facility:

Facility name:	N/A	
Contact person:		
Postal address:		
Postal code:		
Telephone:	Cell:	
E-mail:	Fax:	

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

No waste water will be utilised or produced.
 Water will be required for dust suppression during construction and to clean the solar panels once a year during the operation phase. **No chemical cleaning agents are utilised during the operational phase. The solar panels are cleaned with water and sponges.**

c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other than exhaust emissions and dust associated with construction phase activities?

YES	NO✓
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 If YES, is it controlled by any legislation of any sphere of government?

YES	NO
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 If YES, the applicant must consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.
 If NO, describe the emissions in terms of type and concentration:

BASIC ASSESSMENT REPORT

Dust will occur during the construction phase as a result of clearing of vegetation, construction vehicles and/or equipment movement. Dust will also occur during the rehabilitation phase until vegetation has been established. Dust levels are not to exceed 600mg/m²/day for industrial and rural areas.
Standard emissions from construction vehicles and generators will be at low levels during construction.

d) Waste permit

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA?

YES	NO ✓
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If YES, please submit evidence that an application for a waste permit has been submitted to the competent authority

e) Generation of noise

Will the activity generate noise?

YES	NO ✓
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If YES, is it controlled by any legislation of any sphere of government?

YES	NO
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Describe the noise in terms of type and level:

During construction, noise will be generated by generators and construction equipment (e.g. grader). This will, however, be limited to daylight hours and will be temporary, i.e. occurring only during the construction period.
No noise impacts are anticipated during the operational phase.

13. WATER USE

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

Municipal ✓	Water board	Groundwater	River, stream, dam or lake	Other	The activity will not use water
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Water tanks (5000L) will be provided on site for the duration of the construction and operational phases, and will be filled with water obtained from a municipal supply.
No chemical cleaning agents are utilised during the operational phase. The solar panels are cleaned with water and sponges. Approximately 60m³ of water will be utilised per year. The water used for cleaning cannot be harvested for re-use.

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:

N/A litres	
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Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs?

YES	NO ✓
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If YES, please provide proof that the application has been submitted to the Department of Water Affairs.

14. ENERGY EFFICIENCY

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

The proposed activity is to generate electricity from a renewable energy source, i.e. solar radiation.

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

Additional alternative energy sources have not been considered as the proposed activity is to utilise a renewable energy source for the production of electricity.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

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

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

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

3. Has a specialist been consulted to assist with the completion of this section?

YES ✓	NO
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If YES, please complete the form entitled “Details of specialist and declaration of interest” for each specialist thus appointed and attach it in Appendix I. All specialist reports must be contained in Appendix D.

Property description/physical address:

Province	Eastern Cape
District Municipality	Nelson Mandela Bay Municipality
Local Municipality	Nelson Mandela Bay Municipality
Ward Number(s)	53
Farm name and number	Farm Bauerskraal No 234
Portion number	3
SG Code	C07600000000023400003

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

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

Agricultural

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

Is a change of land-use or a consent use application required?

YES ✓	NO
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BASIC ASSESSMENT REPORT

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1:

Flat	1:50 – 1:20	1:20 1:15✓	–	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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Alternative S2 (if any):

Flat	1:50 – 1:20	1:20 – 1:15		1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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Alternative S3 (if any):

Flat	1:50 – 1:20	1:20 – 1:15		1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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2. LOCATION IN LANDSCAPE

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

2.1 Ridgeline	<input type="checkbox"/>	2.4 Closed valley	<input type="checkbox"/>	2.7 Undulating plain / low hills	<input checked="" type="checkbox"/>
2.2 Plateau	<input type="checkbox"/>	2.5 Open valley	<input type="checkbox"/>	2.8 Dune	<input type="checkbox"/>
2.3 Side slope of hill/mountain	<input type="checkbox"/>	2.6 Plain	<input type="checkbox"/>	2.9 Seafront	<input type="checkbox"/>
2.10 At sea	<input type="checkbox"/>				

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

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

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

BASIC ASSESSMENT REPORT

4. GROUNDCOVER

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

Please refer to **Appendix A, Sensitivity Map – Sensitive Areas** for the location of identified protected species.

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

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

5. SURFACE WATER

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

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

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

A non-perennial drainage line is located adjacent to the site on the western and northern boundary. The drainage line forms part of the Coega River catchment area. There are no identified watercourses in terms of the National Freshwater Ecosystem Priority Areas (NFEPA), within or adjacent to the site. The Subtropical Thicket Ecosystem Project (STEP, 2007) identifies the drainage areas adjacent to the site as Process Areas, and this is reflected similarly in the NM MOSS / NMBM Bioregional Plan, 2010 as a riverine corridor. Thicket clumps become denser along the western and northern drainage lines. The proposed development falls outside of these areas and the associated 32m buffer.

An artificial wetland is located in the adjacent property to the south, and has a NFEPA condition of Z3 and NFEPA rank of 6 (NFEPA, 2011). The artificial wetland is a man-made structure that provides a watering point for game and/or livestock.

A man-made dam is located in the south eastern corner of the property, that provides a watering point for game within the property.

There are no functional wetlands within 500m of the proposed site.

The site is located in the M30A Quaternary Catchment.

BASIC ASSESSMENT REPORT

6. LAND USE CHARACTER OF SURROUNDING AREA

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

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

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

N/A

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

N/A

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

N/A

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

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

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

Please refer to **Appendix A, Sensitivity Map - CBAs**.

7. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or paleontological sites, on or close (within 20m) to the site? If YES, explain:	YES ✓	NO
	Uncertain	
A few isolated weathered quartzite stone tools (most probably of Middle Stone Age origin) were observed in tracks or where the yellowish top soils were disturbed. These stone tools were in secondary context and not associated with any other archaeological material. There are no known graves or historical buildings older than 60 years on the site.		

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

<p>A few isolated weathered quartzite stone tools (most probably of Middle Stone Age origin) were observed in tracks or where the yellowish top soils were disturbed. These stone tools were in secondary context and not associated with any other archaeological material. There are no known graves or historical buildings older than 60 years on the site.</p> <p>It is recommended that the proposed construction of the SACE Ranger photovoltaic (solar) plant near Uitenhage, Nelson Mandela Bay Municipality, Eastern Cape Province, is exempted from a full Phase 1 Archaeological Heritage Impact Assessment. The proposed area for development is of low cultural sensitivity and it is unlikely that any significant archaeological remains will be found on the property. The proposed development may proceed as planned.</p> <p>Although it is unlikely that any significant archaeological heritage remains will be exposed during the development, there is always a possibility that human remains and/or other archaeological and historical material may be uncovered during the development. Such material must be reported to the archaeologist at the Albany Museum (046 6222312) and/or to the Eastern Cape Provincial Heritage Resources Authority (043 6422811) immediately. All work must stop to allow an archaeologist to conduct a systematic and professional investigation. Sufficient time should be allowed to remove/collect such material (See Appendix B for a list of possible archaeological sites that may be found in the area).</p>
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Will any building or structure older than 60 years be affected in any way?	YES	NO ✓
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	YES	NO ✓
If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.		

8. SOCIO-ECONOMIC CHARACTER

a) Local Municipality

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

Level of unemployment:

36,6% unemployment rate in the NMBM (Statistic South Africa, 2011 Census)

Economic profile of local municipality:

The main economic assets of the Metro are the Coega Industrial Development Zone (IDZ), the Port Elizabeth Harbour, the Port of Ngqura, and the various tourism areas. The NMBM is considered the economic powerhouse of the Eastern Cape, and contributes 3.2% to the national economy, and 41.3% to the regional economy (GDP). The average growth rate in the NMBM is 3.7%. The largest economic sectors are (IDP, 2014-15):

- a) Manufacturing: 59.78%
- b) Transport: 59.23%
- c) Finance: 43.31%
- d) Trade: 38.80%
- e) Community services: 31%

Level of education:

3% of the NMBM population have no or limited schooling.
30.5% of the NMBM population have a Matric qualification.
12% of the NMBM population have a Higher Education (Statistic South Africa, 2011 Census)

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	R 52 million
What is the expected yearly income that will be generated by or as a result of the activity?	R 5 million
Will the activity contribute to service infrastructure?	YES ✓ NO
Is the activity a public amenity?	YES NO ✓
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	50
What is the expected value of the employment opportunities during the development and construction phase?	To be determined
What percentage of this will accrue to previously disadvantaged individuals?	50%
How many permanent new employment opportunities will be created during the operational phase of the activity?	6
What is the expected current value of the employment opportunities during the first 10 years?	R 7 million
What percentage of this will accrue to previously disadvantaged individuals?	50%

9. BIODIVERSITY

Please note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed activity/ies. To assist with the identification of the biodiversity occurring on site and the ecosystem status consult <http://bgis.sanbi.org> or BGIShelp@sanbi.org. Information is also available on compact disc (cd) from the Biodiversity-GIS Unit, Ph (021) 799 8698. This information may be updated from time to time and it is the applicant/EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity

BASIC ASSESSMENT REPORT

information (including an indication of the habitat conditions as per (b) below) and must be provided as an overlay map to the property/site plan as Appendix D to this report.

Please refer to **Appendix A, Sensitivity Map - CBAs.**

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

Systematic Biodiversity Planning Category				If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan
Critical Biodiversity Area (CBA) ✓	Ecological Support Area (ESA)	Other Natural Area (ONA)	No Natural Area Remaining (NNR)	<p>The Eastern Cape Provincial Biodiversity Conservation Plan (2007) classes the site as falling within Terrestrial Critical Biodiversity Area 2 (Corridor 2), and Aquatic CBA 2 (A2a). This places it within Terrestrial Biodiversity Land Management Class 2: 'maintain near natural state' i.e. with minimal loss in ecosystem integrity and functioning, and Aquatic BLMC 2a: 'important sub-catchments' (Coega River) i.e. support zones required for preventing degradation of A1 rivers, requiring moderate or high protection.</p> <p>According to the Nelson Mandela Bay Municipality's Bioregional Plan (2010), the site does not fall within a Critical Biodiversity Area or Ecological Support Area.</p>

- b) Indicate and describe the habitat condition on site

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	68 %	Vegetation on site is largely intact. This is evident from the 1.) high percentage grass cover on site, including <i>Themeda triandra</i> (Rooigras), 2.) the presence of natural grazers/browsers on site; 3.) the presence and persistence of a number of succulent and geophyte species that are usually vulnerable to disturbance, such as overgrazing, and 4.) the overall high plant species diversity, which is usually associated with mosaic vegetation types i.e. a mixture of Fynbos and Thicket species.
Near Natural	1 %	A low level of alien plant invasion is scattered across the

BASIC ASSESSMENT REPORT

(includes areas with low to moderate level of alien invasive plants)		site. Past land uses include grazing.
Degraded (includes areas heavily invaded by alien plants)	30 %	A portion of site consists of a scrap metal stockpiling / dumping area, with signs of past overgrazing, and prolonged disturbance.
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	1 %	An existing access road and foot paths are present as well as a building.

c) Complete the table to indicate:

- (i) the type of vegetation, including its ecosystem status, present on the site; and
- (ii) whether an aquatic ecosystem is present on site.

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

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

Vegetation Description

Vegetation on site includes plant groups that are characteristic of the Fynbos and Albany Thicket Biomes. Mucina and Rutherford (2006) class the vegetation type on site as Kouga Grassy Sandstone Fynbos FFs28, which is given a threat status of Least Threatened, and a protection status of Moderately Protected. Vegetation to the north-eastern border of the site is identified as Sundays Thicket AT6, which is given a threat status of Least Threatened, and a protection status of Poorly Protected (Mucina and Rutherford, 2006).

Sundays Thicket AT6, as defined by Mucina & Rutherford (2006), is the equivalent of Sundays Spekboomveld, as defined by Subtropical Thicket Ecosystem Project (STEP, 2007) – there is, however, a very low Spekboom (*Portulacaria afra*) component on site, and the sloping nature, and shallow soils, of the surrounding area suggests the presence of Valley Thicket, rather than Thicket proper, which is found on level areas with deeper soils. The solar farm site is mapped as bordering on Sundays Valley Thicket (ecosystem threat status Vulnerable), as defined by STEP (2007), and adopted in the Nelson Mandela Metropolitan Open Space System (NM MOSS, 2010). Vegetation on the immediate solar farm site is classed as Groendal Fynbos Thicket (ecosystem threat status Vulnerable; STEP, 2007; NM MOSS, 2010), and vegetation to the west and south of the site is classed as Groendal Fynbos (ecosystem threat status Least Threatened) (NM MOSS, 2010).

Subsequent to a site visit, vegetation on site can be defined as Groendal Fynbos Thicket (STEP, 2007; NM MOSS, 2010). Groendal Fynbos Thicket could further be described as a mixture of Kouga Grassy Sandstone Fynbos (Mucina and Rutherford, 2006) and Sundays Valley Thicket (STEP 2007; NM MOSS, 2010) – hence 'Fynbos Thicket'. The Fynbos vegetation on site does consist of a high proportion of grasses and succulents in rocky areas, interspersed with Thicket clumps, becoming denser towards the northern and southern slopes and

drainage areas.

Groendal Fynbos Thicket (STEP, 2007) is restricted to sandy to sandy-loamy soils, and characterised by the presence of the following dominant fynbos (matrix) species: *Agathosma puberula*, *Aspalathus nivea*, *Erica sparsa*, *Euryops algoensis*, *Polygala myrtifolia*, *Passerina obtusifolia*, *Protea neriifolia* and *Protea repens*, with smaller succulents occurring on rocky outcrops (Vlok and Euston-Brown, 2002). Thicket patches are restricted to fire-protected valleys with deeper loamy soils (Vlok and Euston-Brown, 2002). Endemics to Groendal Fynbos Thicket include: *Cyrthanthus flammus*, *Gladiolus uitenhagensis* and *Huernia longii* (Vlok and Euston-Brown, 2002). Of the abovementioned species, only *Passerina obtusifolia* was identified on site, with no *Erica* species or proteoids identified.

Kouga Grassy Sandstone Fynbos is described as low shrubland dominated by grasses, with a few taller shrubs, and mostly low ericoid shrubs, present on acidic lithosol soils (Mucina and Rutherford, 2006). Of the plant species described as characteristic of Kouga Grassy Sandstone Fynbos, the following were identified on site: *Aloe ferox*, *Bobartia orientalis subsp. orientalis*, *Brachiaria serrata*, *Eragrostis curvula*, *Melinis repens*, *Passerina obtusifolia*, *Phylica axillaris*, *Pteronia incana*, *Tephrosia capensis* and *Themeda triandra*.

Sundays Valley Thicket (STEP, 2007) and Sundays Thicket AT6 (Mucina and Rutherford, 2006), are described as present on deep, red, loamy to clayey soils, with spinescent woody trees, climbers, shrubs and succulents. Plant species described as characteristic of Sundays Valley Thicket and Sundays Thicket, and identified on site, include: *Aristida congesta*, *Asparagus crassycladus*, *Asparagus racemosus*, *Blepharis capensis*, *Carissa bispinosa*, *Chrysocoma ciliata*, *Crassula mesembryanthoides*, *Crassula ovata*, *Crassula perfoliata*, *Crassula perforata*, *Cussonia spicata*, *Ehretia rigida*, *Eragrostis curvula*, *Euclea undulata*, *Euphorbia ledienii*, *Euphorbia mauritanica*, *Eustachys paspaloides*, *Grewia occidentalis*, *Gymnosporia capitata*, *Gymnosporia polyacantha*, *Hermannia althaeoides*, *Hibiscus pusillus*, *Mystroxyton aethiopicum*, *Olea europaea subsp. africana*, *Osteospermum imbricatum*, *Osyris compressa*, *Pappea capensis*, *Plumbago auriculata*, *Portulacaria afra*, *Putterlickia pyracantha*, *Rhoicissus tridentata*, *Sansevieria hyacinthoides*, *Schotia afra var. afra*, *Searsia longispina*, *Searsia pterota*, *Scutia myrtina*, *Senecio linifolius*, *Sideroxylon inerme*, *Solanum tomentosum* and *Themeda triandra*.

The grassy fynbos (matrix) component of vegetation on the solar farm site is dominant grasses (though it is likely that there are more grass species present on site, as conditions were dry and grasses were dormant, or lacked inflorescences at the time of the site visit). Dominant shrubs on site include: *Searsia pallens*, *Passerina obtusifolia*, *Diospyros scabrida*, *Pteronia incana*, *Elytropappus rhinocerotis*, *Aspalathus cinerascens*, *Struthiola parviflora*, *Gnidia styphelioides*, *Oedera genistifolia*, *Felicia fascicularis*, *Chrysocoma ciliata*, *Metalasia muricata*, *Helichrysum rosom*, *H. zeyheri*, and *Indigofera denudata*. Dominant geophytes include *Brunsvigia gregaria*, *Bobartia orientalis subsp. orientalis*, *Pachypodium bispinosum*, *Babiana sambucina subsp. sambucina*, and *Albuca sp.*, and succulents on site include a number of mesembs, *Crassula ericoides*, and *Euphorbia rhombifolia*.

Thicket clumps on site, which turn to solid thicket along the western and northern drainage lines, are dominated by large trees and shrubs i.e. *Sideroxylon inerme subsp. inerme*, *Schotia afra var. afra*, *Gymnosporia spp.*, *Euclea undulata*, *Searsia spp.* and *Coddia rudis*, as well as succulent shrubs and climbers i.e. *Aloe ferox*, *Euphorbia ledienii*, *Euphorbia mauritanica*, *Rhoicissus tridentata*, *Jatropha capensis*, *Sansevieria hyacinthoides*, and *Asparagus spp.*

Protected Plants and Species of Conservation Concern (SCC's)

One hundred and thirty plant species were identified on site (see **Appendix J-2**). Four are SCC's i.e. species listed in the Red List of South African Plants (2013.1) as Declining, Data Deficient Taxonomically Problematic, and Critically Endangered Possibly Extinct. Twenty seven species are protected plants, listed in the Eastern Cape Environmental Conservation Act of 2003, and the Eastern Province Nature and Environmental Conservation Ordinance of 1974. One protected tree species i.e. *Sideroxylon inerme subsp. inerme*, was identified on site (National Forests Act No. 84 of 1998).

Exotic and Invasive Species

Five alien invasive species were identified on site i.e. *Opuntia ficus-indica (L.) Mill.*, *Acacia cyclops A.Cunn. ex G.Don*, *Acacia mearnsii De Wild.*, *Acacia saligna (Labill.) H.L.Wendl.* and *Eucalyptus camaldulensis Dehnh.* (see **Appendix J-2**). Plants are scattered, with a low level of alien plant invasion across the site.

BASIC ASSESSMENT REPORT

Aquatic Environment

The Subtropical Thicket Ecosystem Project (STEP, 2007) identifies the drainage areas adjacent to the site as Process Areas, and this is reflected similarly in the NM MOSS / NMBM Bioregional Plan, 2010 as a riverine corridor. Thicket clumps become denser along the western and northern drainage lines. It is recommended that the proposed development falls outside of these areas and the associated 32m buffer.

The site is located within 500m of an artificial wetland (manmade dam), located to the south and has a NFEPA condition of Z3 and NFEPA rank of 6 (NFEPA, 2011).. The proposed development will not impact on this artificial and non-functional wetland. The artificial wetland is a man-made structure that provides a watering point for game and/or livestock. There are no functional wetlands within 500m of the proposed site.

The site is located in the M30A Quaternary Catchment.

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICE

Publication name	The Herald (English) and Die Burger (Afrikaans)	
Date published	12 September 2013	
Site notice position	Latitude	Longitude
Site Notice 1:	33° 40' 19.43"S	25° 25' 15.18"E
Site Notice 2:	33° 39' 50.79"S	25° 27' 25.41"E
Date placed	13 September 2013	

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

Please refer to **Appendix E-1** for copies of the advertisements and site notices as well as a map indicating the relative positions of the site notices.

2. DETERMINATION OF APPROPRIATE MEASURES

Provide details of the measures taken to include all potential I&APs as required by Regulation 54(2)(e) and 54(7) of GN R.543.

Initial notifications were disseminated to Interested and Affected Parties (I&APs) together with a Background Information Document (BID). A BID provides background information on the proposed project, the processes to be followed and a registration/comment sheet. Contact details of the Environmental Consultant were included in the BID to ensure on-going interaction with I&APs. A 40 day comment and registration period was provided from 10 September – 20 October 2013.

Notifications will be distributed to I&APs indicating the availability of the Draft and Final Basic Assessment Reports for public and state department review.

The Draft Basic Assessment Report was made available for a 40 day review period to state departments and registered I&APs from 25 August – 6 October 2014.

The Final Basic Assessment Report will be available for a 21 day review period.

Key stakeholders (other than organs of state) identified in terms of Regulation 54(2)(b) of GN R.543:

Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (tel number or e-mail address)
Mr G Ranger	Landowner	rangerclutchandbrake@telkomsa.net
M. & C. Hurn	Adjacent landowner / occupier	mariahurn@gmail.com
V. Naude	Adjacent landowner / occupier	adriaan@omnia.co.za
C. Ranger	Adjacent landowner / occupier	ranger2@mweb.co.za
F.S. Potgieter	Adjacent landowner / occupier	fspotgieter@yahoo.com
B. Hurn	Adjacent landowner / occupier	bhurn@preprop.co.za
D. Lennard	Councillor Ward 53	dlennard@mandelametro.gov.za
M. Griffiths	WESSA	morgan@wessaep.co.za
S. Matthews	Agri EC	sharlene.matthews@agriec.co.za

BASIC ASSESSMENT REPORT

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

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

Please refer to **Appendix E-2** for proof of written notifications and a copy of the Background Information Document.

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summary of main issues raised by I&APs	Summary of response from EAP
Requires rezoning application to be submitted to the NMBM for consideration.	A rezoning application will be submitted.
Impacts to property values.	There is no evidence that solar farms affect property prices either positively or negatively. The impact can be mitigated to a low negative impact significance.
Visual impacts relating to: <ul style="list-style-type: none"> a) Adjacent landowners b) Hikers on trails in the Groendal Wilderness Area, Vermaaksop, Lady Slipper c) Sun glinting off the solar panels 	Visibility of the solar infrastructure will be dependent on the height from which the development will be viewed. The solar panel frames are low in height, below 1m. Solar PV panels are dark rather than reflective, and are designed to absorb rather than reflect sunlight. However there may still be a limited amount of light being reflected from the glass outer casing, and likely to be visible at higher elevations. The visual impact can be offset by vegetation providing a natural screening. The solar infrastructure may be visible from the Groendal Wilderness Area (located approximately 6.7km to the west), specifically Vermaakskop being at a higher elevation than the solar plant. However the visibility may be reduced due to the undulating topography of the area. The solar infrastructure would not be visible from the Springs Local Nature Reserve. The impact can be mitigated to a low negative impact significance, from a medium negative impact.
Noise impacts on adjacent landowners.	The nearest residential building is 206m to the east of the proposed site. Noise creation from construction workers and vehicles may impact on surrounding landowners during the construction phase. This includes noise emanating from construction machinery,

BASIC ASSESSMENT REPORT

	<p>power tools and compressors, construction vehicles and general construction activity. Noise activities during the operational phase would be limited to periods when maintenance activities are being undertaken. No significant noise levels are expected from the operating solar tracking system. The impact can be mitigated to a low negative impact significance.</p>
<p>Clarification on the position and extent of the site.</p>	<p>The proposed solar 2.46MW plant will be located on Portion 3 of the Farm Bauwerskraal, No 234, Uitenhage situated within the Nelson Mandela Bay Municipality, Eastern Cape. The proposed site is easily accessed from the Hillwacht Road (DR01940). The site is approximately 7km north of the urban area of Uitenhage. The total project site is approximately 19.2 ha in extent, and within this area approximately 9.5 ha will be used for the solar array area (footprint area).</p>
<p>Fire risks and/or fire hazards.</p>	<p>Fire is a potential risk with any electrical system. Veld fires are a potential risk considering the vegetation types occurring within and adjacent to the site. During construction the risk may be attributed to inappropriate construction activities (e.g. hot work, welding) on dry, windy days. During the operational phase, fire risks may be associated with incorrect or loose wiring of the solar panels or transmission lines, or when wiring is inadequate and cannot withstand electricity generation. The impact can be mitigated to a low negative impact significance, from a medium negative impact.</p>
<p>Impacts to fauna and avifauna.</p>	<p>Potential impacts to avifauna include sun glinting from the solar panels and connecting transmission line interrupting flight during the operational phase. Solar PV panels are dark rather than reflective, and are designed to absorb rather than reflect sunlight. However there may still be a limited amount of light being reflected from the glass outer casing. Overhead transmissions lines may present a potential collision risk or electrocution to avifauna. The impact can be mitigated to a low negative impact significance.</p> <p>Fauna will need to remain out of the solar panel (solar array) area, as a result the solar array (approximately 10ha) will be fenced. The fence line is to be checked on a weekly basis for any fauna species caught in the strands.</p> <p>The solar site will be positioned in a degraded vegetation area and presents little grazing value</p>

BASIC ASSESSMENT REPORT

	<p>to animals. A search and rescue will be undertaken prior to construction and animals will be removed from the solar site. Tortoises will move back to the area but will move again when disturbed.</p>
<p>Dust management measures during construction.</p>	<p>Mitigation measures for dust impacts include:</p> <ul style="list-style-type: none"> a) Prompt rehabilitation and wetting down of recently cleared areas to minimize dust creation. b) Until vegetation used in rehabilitation efforts has established, temporary stabilization methods must be used (e.g. protecting exposed soils with coarse granular materials, mulches, or straw). c) Construction should be undertaken in a phased manner, so as to limit the size of the area to be exposed at any one time. d) Dust levels are not to exceed 600mg/m²/day averaged over an annual period for rural areas. e) Dust suppression techniques (e.g. wetting of areas) to be used on all dust generating surfaces. Potable and contaminated water not to be used as a dust-suppressing agent. f) All work must stop during high wind conditions (i.e. when wind speeds exceed 35km/h). g) Construction vehicles must adhere to speed limits.
<p>Health related impacts.</p>	<p>Potential health and safety risks (e.g. exposure to toxic chemicals and gases) related to the solar panels are prevalent with the manufacturing process of the solar panels. The risks associated with the manufacturing process are not applicable as manufactured solar panels will be installed. Although tiny amounts of semiconductor materials are imbedded in the solar panel / module, toxic compounds cannot cause any adverse health effects unless they enter the human body in harmful doses through ingesting flakes or dust particles; or inhaling dust and fumes. The solar panels or modules are enclosed by thick layers of glass or plastic and unless these components are ground into particles or exposed to fire, the risk of ingestion or inhalation is minimal. Solar PV panels have a zero vapour pressure at ambient conditions and the risk of inhalation of any vapours or dust during normal use of solar PV panels are minimal (Markvart and Castaner, 2003). No chemical cleaning agents are utilised during the operational phase. The solar panels are cleaned with water. The impact can be mitigated to a low negative impact significance, from a medium negative impact.</p>

BASIC ASSESSMENT REPORT

<p>Contamination of soils, ground and surface water.</p>	<p>Soil and water pollution impacts relate to spillages from construction materials, such as diesel, oils and cement, if dispersed via surface run-off, or are allowed to permeate into the soils and groundwater. The potential negative changes to water quality during the operational phase would be limited to sedimentation. The potential risk of trace metals leaching from installed solar PV panels into soils, surface or groundwater is low due to the sealed nature of the solar PV panels, however this risk may increase with broken or aged solar panels. The impact can be mitigated to a low negative impact significance, from a medium negative impact.</p> <p>There is no problem with toxins from the solar farm. Toxins are a problem in the actual manufacturing process of the solar panels. There would be no pollution for to the borehole water. No chemical cleaning agents are utilised during the operational phase. The solar panels are cleaned with water and sponges.</p> <p>The recommendation has been made for the developer to take a borehole water sample prior to construction and then annually for an agreed period, to test the water quality for any pollution coming from the solar farm. If any pollution is found and is associated with the solar farm then the developer will need to correct the pollution.</p>
<p>Waste management practices and vermin control.</p>	<p>Impacts relating to ineffective waste management procedures may lead to the dumping of building rubble, littering and pollution of the surrounding areas as well as unsanitary (toilet) conditions and an increase in vermin. No vermin will be attracted during the operational phase. Decommissioned, faulty or broken solar panels, equipment or cabling will be taken off site and recycled. If items are unable to be recycled, to be disposed of at an appropriate landfill site. No illegal dumping, burying or burning of waste is allowed. No hazardous waste material will be disposed of as general waste. The impact can be mitigated to a low negative impact significance, from a medium negative impact.</p> <p>Old waste equipment will be removed from site and recycled. Waste that cannot be recycled will be disposed of at a registered landfill site.</p>
<p>Soil erosion.</p>	<p>Soil exposed by the clearing of vegetation during construction and maintaining vegetation cleared areas during the operational phase will have substantially elevated erosion levels. The risk of</p>

BASIC ASSESSMENT REPORT

	<p>soil erosion increases in areas where vegetation and rocks are removed on steeper slopes in order to cater for solar PV infrastructure and access road. The impact can be mitigated to a low negative impact significance, from a medium negative impact.</p>
<p>Safety and security impacts during construction.</p>	<p>Security aspects relate to potential theft of construction materials and theft of neighbouring farmers livestock or equipment. The presence of workers on the site for construction related activities, irrespective of whether or not they are local, may create an increased safety and security risk to local households in the area. In addition, any changes in the local crime rates are likely to be attributed to the influx of construction workers, whether such changes can be attributed to their presence or not. The impact can be mitigated to a low negative impact significance, from a medium negative impact.</p> <p>The security risks would be higher during the construction phase. The contractor would have security on-site full time during the construction phase. During the operational phase the operational contractor would check the site periodically. It is not known if security personnel will be on site full time, however it is anticipated that some security checks will be made.</p>
<p>Impact of heavy vehicles.</p>	<p>Traffic impacts relate to potential increases in traffic within the area, with resultant potential congestion, road damage, road safety noise, etc. issues. During the assembly of the solar panels 30 trucks are expected to transport components to the site, this entails two (2) trucks per day over a period of two (2) to three (3) weeks. Once the solar farm is operational, it is assumed that a maximum of two vehicle trips will arrive on site during the AM peak hour and depart during the PM peak hour. A Traffic Impact Study (Appendix D) has been undertaken with the following main results. The DR01940 presently carries low traffic volumes related to the farms situated along the road. The results from the traffic survey undertaken on 20 November 2014 at the DR01940 and R75 intersection indicate four vehicles exiting the DR01940. In terms of the Rural Road Category (as defined by traffic volumes) the DR01940 is categorised in the 'low' category, i.e. 0-50 vehicles per day. During the construction phase, the additional daily traffic will increase current daily volumes between the R75</p>

BASIC ASSESSMENT REPORT

	<p>and the solar site by 4 heavy vehicle trips per day. During the operational phase, the additional daily traffic is anticipated to be 4 vehicle trips per day. Additional vehicle (predominantly heavy vehicles / trucks) trips generated by the proposed development will have a low impact in terms of peak hour intersection capacity given the low peak hour volumes at the affected intersection (R75 and DR01940). In addition to safety aspects related to lack of advanced warning road signage and possible deterioration of the road due to a lack of maintenance, the following safety issues may arise as a result of additional vehicle movements along DR01940:</p> <ul style="list-style-type: none"> • Heavy vehicles travelling through sections with limited sight distance albeit that truck drivers will have better visibility due to their higher seat position. • Lack of maintenance leads to a loss of fine material which creates dusty and slippery conditions in dry and wet weather conditions respectively. <p>The surface of the DR01940 appears to be in a poor condition based on the visual condition assessments conducted, and is conducive to relatively low operating speeds. Substantial loose material is evident along the whole length of the DR01940. Given the status of DR01940, it is assumed that DR01940 has been constructed to primarily cater for access to agricultural properties along its length. Based on the surveyed peak hour traffic volumes, the road accommodates between 0 and 50 vehicles per day – a low category gravel road – with a gravel pavement layer of 75mm. Construction vehicles transporting materials to the site for use during construction may also damage the road. The related traffic impacts can be mitigated to a low negative impact significance.</p>
Protected trees	<p>The Basic Assessment Report (Section D: Impact Assessment) and Environmental Management Programme (Chapter 4) includes the requirement for obtaining a licence from DAFF for protected trees that need to be removed or disturbed.</p>
Eskom infrastructure	<p>The Eskom requirements for works at or near Eskom infrastructure has been included in the Environmental Management Programme (Appendix G).</p> <p>The proposed solar production entails a solar panel tracker mounting system, 1000V DC PV</p>

BASIC ASSESSMENT REPORT

	<p>system and 11kV distribution system and transmission / distribution line to connect to the existing 11kV transmission / distribution line (Eskom). The existing Eskom 11kV transmission / distribution line is located adjacent to the proposed solar array area. There are no Eskom substations within 5km of the proposed solar plant. The impact relates to disruption of or damage to existing services and infrastructure, e.g. Eskom 11kV distribution line and can be mitigated to a low negative impact.</p>
<p>Additional detail on the proposed Solar PV Infrastructure</p>	<p>Each PV module (panel) is approximately 1956×992×40mm in size. The solar panels will be positioned approximately 0.5m above ground level. The distance between the PV frame arrays (rows) is approximately five (5) meters to ensure that each row to the north does not cast a shadow on the row to the south during periods of the day when the sun is at a lower angle in the sky. This also provides sufficient space for maintenance purposes, e.g. replacing panels or mowing grass with a tractor. The solar tracking system is automatic. Solar panels are connected to inverters with special DC solar cables (as per the manufacturer's guideline). The inverters are located within the solar plant / array area. Decentralized inverters are typically mounted to the back or beneath of the panel racking structures, while larger centralized inverters are installed on the ground, both within a fenced off area. The proposed PV plant would generate 400V and would be inverted to 11kV. The "substation" for low or medium voltage is typically referred to as the transformer, which adapts the voltage to the required voltage. The turnkey provider will plan, design, procure and construct the PV plant including appropriate transformers. The PV plant can be flexibly designed to meet either under or above ground requirements without negatively influencing the effectiveness of the PV plant. It is anticipated that the connecting cables (from the inverters to the transformer) will be underground. The transformer will adapt the voltage to the voltage required. It is anticipated that the connecting transmission / distribution line will be underground.</p>
<p>Vegetation</p>	<p>Approximately 10ha will be cleared of vegetation for the solar array area, extension of the access road and construction camp. Vegetation in areas that have not been disturbed is largely intact,</p>

BASIC ASSESSMENT REPORT

	<p>approximately 4ha of this vegetation will be cleared. The remaining footprint area (approximately 6ha) consists of degraded and transformed areas. Bushes and trees will need to be removed, whilst grass will be cut. Vegetation under and between the frames will be physically mowed or cut in order to prevent casting of shadows on the panels or from vegetation creating barriers. Ground maintenance includes trimming (mowing or cutting) of vegetation to avoid shading or affecting operations, i.e. vegetation under and between the frames will be mowed or cut during the year to keep it short in order not to cast shadows on the panels. No threatened ecosystems are identified within the site. The ecosystem within the site is identified as Least Threatened. Measures to remove and control of alien species include physical or chemical means. The preferred option is physical removal.</p>
<p>Water use authorisation requirements</p>	<p>A non-perennial drainage line is located adjacent to the site on the western and northern boundary. The drainage line forms part of the Coega River catchment area. There are no identified watercourses in terms of the National Freshwater Ecosystem Priority Areas (NFEPA), within or adjacent to the site. An artificial wetland is located in the adjacent property to the south, and has a NFEPA condition of Z3 and NFEPA rank of 6 (NFEPA, 2011). The artificial wetland is a man-made structure that provides a watering point for game and/or livestock. A man-made dam is located in the south eastern corner of the property, that provides a watering point for game within the property. There are no functional wetlands within 500m of the proposed site. The 1:100 year floodline is undetermined for this unnamed tributary. The Subtropical Thicket Ecosystem Project (STEP, 2007) identifies the drainage areas adjacent to the site as Process Areas, and this is reflected similarly in the NM MOSS / NMBM Bioregional Plan, 2010 as a riverine corridor. Thicket clumps become denser along the western and northern drainage lines. The proposed development falls outside of these areas and the associated 32m buffer. The proposed development does not trigger any of the exclusions provided in the General Authorisation for Section 21 c and i activities (i.e.</p>

BASIC ASSESSMENT REPORT

	impeding or diverting flow and altering the bed, banks, course or characteristics), GN 1199 of 18 December 2009; and as a result would not require a Water Use Licence. Should any activity fall within the riverine corridor, the General Authorisation would be applicable and the associated conditions therein.
Implementation of conditions and recommendations.	An environmental officer is appointed during the construction phase to undertake regular audits, in order to ensure the authorisation conditions and recommendations are being complied with. The environmental officer reports non-compliance to the authorities.

4. COMMENTS AND RESPONSE REPORT

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

Please refer to **Appendix E-3** for the Comments and Response Report, and **Appendix E-6** for I&AP Correspondence.

5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

Authority/ Organ of State	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail	Postal address
DEDEAT	A. Struwig	041 508 5800	041 508 5865	andries.struwig@deaet.ecape.gov.za	P/Bag X5001, Greenacres, 6057
DEDEAT	D. Govender	041 508 5800	041 508 5865	dayalan.govender@deaet.ecape.gov.za	P/Bag X5001, Greenacres, 6057
NMBM	B. Martin	041 506 5435	041 506 5647	bmartin@mandelametro.gov.za	PO Box 7, PE, 6001
NMBM	D. McCarthy	041 506 2352	041 506 2403	dmccarth@mandelametro.gov.za	PO Box 116 PE, 6000
NMBM	J. Miller	041 506 1332	041 585 7261	jmiller@mandelametro.gov.za	PO Box 11, PE, 6000
NMBM	J. Mkosana	041 506 5464	041 585 7261	jmkosana@mandelametro.gov.za	PO Box 11, PE, 6000
NMBM	S. Potgieter	041 506	041 506	spotgiet@mandelametro.gov.za	PO Box 116

BASIC ASSESSMENT REPORT

		2168	3469		PE, 6000
NMBM	T. Titima	041 506 5207	041 585 7261	ttitima@mandelametro.gov.za	PO Box 11, PE, 6000
DAFF	T. Nokoyo	041 586 4884		nokoyot@dwa.gov.za	7th Floor, 140 Starport Bldg, Govan Mbeki Ave
DAFF	I. van der Merwe	012 309 5771		lzakVDM@daff.gov.za	Private Bag x250, Pretoria, 0001
DAFF (Agriculture, Land Use & Soil Management)	A. Collet	012 319 7508	012 329 5938	annelizac@nda.agric.za	P/Bag X120, Pretoria, 0001
DWA	L. Fourie	043 701 0248		fouriel@dwaf.gov.za	PO Box 7019, EL, 5200
DRPW	M. Keyser	083 666 1598	041 456 1666	maris.keyser@dpw.ecape.gov.za	PO Box 11100, Algoa Park, 6005
SAHRA	M. Galimberti	021 462 4502	021 462 4509	mgalimberti@sahra.org.za	PO Box 4637, CT, 8000
ECPHRA	S. Mokhanya	043 642 2811	043 642 2812	smokhanya@ecphra.org.za	P.O. Box 16208, Amathole Valley, 5616
Eskom	M. Sitole J. Geeringh			sitolerm@eskom.co.za John.geeringh@eskom.co.za	
SKA	T Monama	011 442 2434		temonama@ska.ac.za	
ECPTA	B. Reeves	041 364 2570	041 364 2543	Brian.reeves@ecpta.co.za	

Include proof that the Authorities and Organs of State received written notification of the proposed activities as appendix E4.

In the case of renewable energy projects, Eskom and the SKA Project Office must be included in the list of Organs of State.

6. CONSULTATION WITH OTHER STAKEHOLDERS

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

BASIC ASSESSMENT REPORT

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

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

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

A Focus Group Meeting was held with the neighbouring landowner as well with direct family members, i.e. the Hurn Family, on 22 December 2014. Please note this was the only date available as one of the family members lives in Gauteng and was in the Eastern Cape during the 15 December to 2 January exclusion period. The date was suggested by the Hurn Family. Please refer to Appendix E6 for a copy of the minutes.

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2010, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

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

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

BASIC ASSESSMENT REPORT

ACTIVITY	IMPACT SUMMARY	SIGNIFICANCE	PROPOSED MITIGATION
ALTERNATIVE 1 (PREFERRED ALTERNATIVE)			
<p>Infrastructure for the generation of electricity, i.e. Solar (PV) plant, 2.46MW, and 11kV distribution and transmission.</p> <p>Approximately 400m of the existing access road will be widened by 2 to 3m. The existing access road will be lengthened by approximately 1600m, with a width of 3 to 4m, around the proposed solar plant.</p>	PLANNING AND DESIGN PHASE: DIRECT IMPACTS		
	Liquid and solid waste, vermin control - Removal of old equipment remaining on site	Before mitigation: Medium (-) After mitigation: Low (+)	Old waste equipment to be recycled. Waste that cannot be recycled will be disposed of at a registered landfill site.
	Disruption of or damage to existing services and infrastructure, e.g. Eskom 11kV distribution line.	Before mitigation: Medium (-) After mitigation: Low (-)	Eskom approval per requirements for work in or near Eskom servitudes or infrastructure.
	CONSTRUCTION & DECOMMISSIONING PHASES: DIRECT IMPACTS		
Pollution of soils, surface and groundwater	Before mitigation: Medium (-) After mitigation: Low (-)	Chemicals must be stored safely on site, on an impermeable lined surface and surrounded by lined bunds, as per SANS 10128. Chemical storage containers must be regularly inspected so that any leaks are detected early. Littering and contamination of water sources during construction must be prevented by effective construction camp and site management. Emergency plans must be in place in case of spillages onto road surfaces and drainage lines. No stockpiling within 32 m of a drainage line. All stockpiles must be protected from erosion, stored on flat areas where run-off will be minimised. Stormwater must be directed around the stockpiles. The construction camp and temporary ablution facilities meant for construction workers must be beyond 32m of the drainage line. The topsoil layer (300mm of the top surface layer, including organic matter)	

BASIC ASSESSMENT REPORT

ACTIVITY	IMPACT SUMMARY	SIGNIFICANCE	PROPOSED MITIGATION
ALTERNATIVE 1 (PREFERRED ALTERNATIVE)			
			<p>must be stockpiled separately from the subsoil layers and used during reinstatement thus allowing plants to rapidly re-colonise the bare soil areas.</p> <p>Spill kits for small spills to be kept on site.</p> <p>Borehole water samples are to be taken prior to construction to determine a baseline for the water quality.</p>
	Disturbance to Fauna and Avifauna	<p>Before mitigation: Low (-)</p> <p>After mitigation: Low (-)</p>	<p>Work areas must be clearly demarcated, e.g. with droppers and/or orange netting but not with danger tape, so that construction workers limit their impact to these areas alone.</p> <p>All construction vehicles must stay on single demarcated access tracks to avoid small fauna.</p> <p>The site camp to be located in an already disturbed area with existing access.</p> <p>Fires are to be prohibited on and adjacent to the site.</p> <p>Vegetation that was cleared may provide useful fauna habitat. Logs, limbs and stumps should be cleared and stockpiled separately to the topsoil stripping operation.</p> <p>An expert who holds a Competency Certificate to handle Dangerous and Venomous Reptiles should be contracted to remove animals.</p> <p>A search and rescue to be undertaken prior to construction and animals to be removed from the solar site.</p>
	Air Pollution	<p>Before mitigation: Medium (-)</p> <p>After mitigation: Low (-)</p>	<p>No materials shall be burnt.</p> <p>Trucks transporting any form of soil or waste should be covered with a tarpaulin.</p> <p>Vehicles and machinery will be maintained in good running condition.</p>

BASIC ASSESSMENT REPORT

ACTIVITY	IMPACT SUMMARY	SIGNIFICANCE	PROPOSED MITIGATION
ALTERNATIVE 1 (PREFERRED ALTERNATIVE)			
			<p>Vehicles must adhere to speed limits on gravel roads.</p> <p>No waste may be buried.</p> <p>Contact details (e.g. telephone number) should be located at the entrance of the site for reporting of excessive dust after hours.</p>
	Loss of heritage resources	<p>Before mitigation: Low (-)</p> <p>After mitigation: Very Low (-)</p>	<p>Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the find brought to the immediate attention of the Resident Engineer or his representative who will report it to the Eastern Cape Provincial Heritage Resources Authority (043 6422811). The area will be fenced off with a radius of 20m around the unearthed item, demarcated as a no-go area and access will be prohibited.</p> <p>Human remains confirmed younger than 60 years (to be confirmed by the police forensic unit or archaeologist) are to be reported directly to the nearest police station.</p> <p>Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural historical artefacts, as set out in the NHRA</p>
	Liquid and solid waste, vermin control	<p>Before mitigation: Medium (-)</p> <p>After mitigation: Low (-)</p>	<p>Cleared vegetation to be mulched or disposed of at the Koedoeskloof licensed landfill site. Stockpiles of vegetation not to be left on site due to fire hazard.</p> <p>Good housekeeping to be undertaken at all times.</p> <p>No illegal dumping or burning of waste allowed. Waste is not to be buried.</p> <p>Where possible, the contractor must register with the local waste exchange programme for re-use and recycling of construction rubble.</p> <p>Awareness raising to be undertaken with the construction workers regarding health and environmental impacts from illegal dumping.</p>

BASIC ASSESSMENT REPORT

ACTIVITY	IMPACT SUMMARY	SIGNIFICANCE	PROPOSED MITIGATION
ALTERNATIVE 1 (PREFERRED ALTERNATIVE)			
			<p>Any excavated material not reused on site, to be disposed of at the Koedoeskloof licenced landfill site in Uitenhage.</p> <p>Waste bins are to be located at the construction camp and construction site. Bins are to have secured lids to prevent waste from being blown into the surrounding area and to prevent animals scavenging in the bins.</p> <p>Domestic and general construction waste to be disposed of at the Koedoeskloof licensed landfill site. The Contractor may not utilise the municipal waste collection services. Proof of disposal must be kept at the site office by the Contractor.</p> <p>Chemical Toilet facilities to be provided at construction areas and secured to the ground, cleaned at least weekly. Water should be provided for washing and sanitary bins for women. Waste to be disposed of at a wastewater treatment works.</p> <p>No hazardous waste material to be disposed of as general waste. Hazardous waste (e.g. old oil) to be stored separately in impermeable (i.e. leak proof) containers, and sent for recycling.</p> <p>Proof of waste disposal must be kept on site.</p> <p>A Waste Management Method Statement must be submitted by the appropriate contractor to the Resident Engineer or his representative for approval.</p>
	Increased traffic in greater area	Before mitigation: Medium (-) After mitigation: Low (-)	<p>Flagmen to be posted when construction works are being undertaken adjacent to roads.</p> <p>Signage is to be displayed regarding construction activities.</p> <p>Construction vehicles are to keep to the speed limits.</p> <p>Regular maintenance of road during construction phase.</p>

BASIC ASSESSMENT REPORT

ACTIVITY	IMPACT SUMMARY	SIGNIFICANCE	PROPOSED MITIGATION
ALTERNATIVE 1 (PREFERRED ALTERNATIVE)			
	Traffic safety impact due to construction traffic	Before mitigation: Medium (-) After mitigation: Low (-)	<p>Flagmen to be posted when construction works are being undertaken adjacent to roads.</p> <p>Signage is to be displayed regarding construction activities.</p> <p>Construction vehicles are to keep to the speed limits.</p> <p>Regular maintenance of road during construction phase.</p> <p>Additional warning signage regarding sharp bends in road.</p> <p>Vegetation is cleared on the DR01940 road verge at the entrance to the solar site.</p>
	Deterioration of public road network	Before mitigation: Medium (-) After mitigation: Low (-)	<p>Construction vehicles are to keep to the speed limits.</p> <p>Regular maintenance of road during construction phase.</p> <p>Contractor to leave the road in the same state as when construction started.</p>
	Visual Intrusion	Before mitigation: Medium (-) After mitigation: Low (-)	<p>Construction workers are not to be accommodated on-site.</p> <p>Only shrubs are to be removed for the construction camp area and laydown areas.</p> <p>Shrubs and trees located on the boundary of the site should be left intact.</p> <p>Cleared areas not required for operational use to be re-vegetated with indigenous vegetation.</p>
	Disruption of or damage to existing services and infrastructure, e.g. Eskom 11kV distribution line.	Before mitigation: Medium (-) After mitigation: Low (-)	Eskom approval per requirements for work in or near Eskom servitudes or infrastructure.

BASIC ASSESSMENT REPORT

ACTIVITY	IMPACT SUMMARY	SIGNIFICANCE	PROPOSED MITIGATION
ALTERNATIVE 1 (PREFERRED ALTERNATIVE)			
CONSTRUCTION & DECOMMISSIONING PHASES: INDIRECT IMPACTS			
	Noise pollution	Before mitigation: Medium (-) After mitigation: Low (-)	<p>Limit intrusive construction activity to daylight hours and normal working days; i.e. weekdays between 07:00 and 17:00; and Saturdays until 13:00.</p> <p>To limit the impact on adjacent sensitive receptors, construction not to occur on Sundays or public holidays.</p> <p>No construction staff to be housed on site.</p> <p>All construction vehicles must be in sound working order with the prescribed mufflers and silencers.</p>
	Health, safety and security	Before mitigation: Medium (-) After mitigation: Low (-)	<p>Health and Safety:</p> <p>A general STD and HIV/AIDS awareness programme should be provided to all workers prior to the commencement of the construction phase.</p> <p>Construction vehicles must adhere to speed limits and must be made aware of the possibility of people walking and living in close proximity to the site.</p> <p>A health and safety method statement/program is essential.</p> <p>Signage is to be displayed regarding construction activities.</p> <p>General risks associated with the construction activities should be addressed through compliance with the relevant health and safety procedures and regulations.</p> <p>Installation of solar panels to be undertaken by trained personnel only.</p> <p style="background-color: yellow;">Borehole water samples are to be taken prior to construction to determine a baseline for the water quality.</p> <p>Security:</p> <p>No construction workers, apart from security personnel, should be allowed to overnight at the construction site.</p>

BASIC ASSESSMENT REPORT

ACTIVITY	IMPACT SUMMARY	SIGNIFICANCE	PROPOSED MITIGATION
ALTERNATIVE 1 (PREFERRED ALTERNATIVE)			
			<p>Access to and from the construction site(s) should be closely monitored and contractors should be required to make the necessary arrangements for the transport of workers to and from the site on a daily basis.</p> <p>The construction area must be demarcated and access controlled for the duration of the construction period.</p> <p>Visitors to report to the Site Office, and appropriate Protective Personal Equipment to be worn by visitors.</p> <p>Discuss the safety and security issues, as well as construction schedule with the local community policing forum and local SAPS.</p> <p>The solar security to check with the Hurn family during construction.</p> <p>Adjacent landowners are to be notified 14 days prior to construction commencement.</p> <p>Fire:</p> <p>Fire-fighting equipment in proportion to the fire risk that is presented by the type of construction and other on-site activities and materials used on site is to be available and kept in good operating order at all times.</p> <p>Any welding or other sources of heating of materials must be done in a controlled environment, under appropriate supervision, in such a manner as to minimise the risk of fires and/or injury to staff. No “hot work” is to be undertaken on days where the Fire Danger Index is “orange” or “red”.</p> <p>Smoking will not be permitted in those areas where there is a fire hazard. These areas include the fuel storage areas and any area where the vegetation or other material may support the rapid spread of an initial flame. Where possible, these areas (e.g. at the chemical and hazardous substances storage area) are to be demarcated with no-smoking signs.</p> <p>Installation of solar panels to be undertaken by trained personnel only and in</p>

BASIC ASSESSMENT REPORT

ACTIVITY	IMPACT SUMMARY	SIGNIFICANCE	PROPOSED MITIGATION
ALTERNATIVE 1 (PREFERRED ALTERNATIVE)			
			accordance with the manufacturer's guide.
	Employment Opportunities	Before mitigation: Medium (+) After mitigation: Medium (+)	Local labour from the surrounding community to be used for unskilled positions.
OPERATIONAL PHASE: DIRECT IMPACTS:			
	Pollution of soils, surface and groundwater	Before mitigation: Medium (-) After mitigation: Low (-)	<p>Sedimentation into drainage lines must be minimised through the effective stabilisation (e.g. gabions and Reno mattresses) and the re-vegetation of cleared areas.</p> <p>Broken, cracked or aged solar panels are to be replaced immediately.</p> <p style="background-color: yellow;">Borehole water sample testing to be done annually for an agreed period, to test the water quality and determine if any pollution is coming from the solar farm. If any pollution is found and is associated with the solar farm, then the developer is responsible to correct the pollution.</p>
	Air Pollution	Before mitigation: Medium (-) After mitigation: Low (-)	<p>Vehicles must adhere to speed limits on gravel roads.</p> <p>No materials shall be burnt.</p> <p style="background-color: yellow;">No waste may be buried.</p> <p style="background-color: yellow;">Contact details (e.g. telephone number) should be located at the entrance of the site for reporting of excessive dust after hours.</p>
	Liquid and solid waste, vermin control	Before mitigation: Medium (-) After mitigation: Low (-)	<p>Decommissioned, faulty or broken solar panels, equipment or cabling is to be taken off site and recycled. If items are unable to be recycled, to be disposed of at an appropriate landfill site.</p> <p>No illegal dumping, burying or burning of waste allowed. Waste is not to be buried.</p> <p>No hazardous waste material to be disposed of as general waste.</p>

BASIC ASSESSMENT REPORT

ACTIVITY	IMPACT SUMMARY	SIGNIFICANCE	PROPOSED MITIGATION
ALTERNATIVE 1 (PREFERRED ALTERNATIVE)			
			Proof of waste disposal must be kept.
	Increased traffic in greater area	Before mitigation: Low Medium (-) After mitigation: Low (-)	Vehicles are to keep to the speed limits. Maintenance of road immediately after construction period
	Traffic safety impact due to additional traffic	Before mitigation: Medium (-) After mitigation: Low (-)	Vehicles are to keep to the speed limits. Maintenance of road immediately after construction period. Additional warning signage regarding sharp bends in road. Vegetation is cleared on the DR01940 road verge at the entrance to the solar site.
	Deterioration of public road network	Before mitigation: Medium (-) After mitigation: Low (-)	Vehicles are to keep to the speed limits. Maintenance of road immediately after construction period.
	Visual Intrusion	Before mitigation: High (-) After mitigation: Low (-)	Shrubs and trees located on the boundary of the site should be left intact and not removed. Area surrounding the solar array to be grassed with an indigenous grass. Additional trees to be planted along the property boundary for screening.
	Disruption of or damage to existing services and infrastructure, e.g. Eskom 11kV distribution line.	Before mitigation: Medium (-) After mitigation: Low (-)	Eskom approval per requirements for work in or near Eskom servitudes or infrastructure.
	Production of cleaner energy	Before mitigation: Medium (+) After mitigation: High (+)	Implementation of identified mitigation measures and EMPr.

BASIC ASSESSMENT REPORT

ACTIVITY	IMPACT SUMMARY	SIGNIFICANCE	PROPOSED MITIGATION
ALTERNATIVE 1 (PREFERRED ALTERNATIVE)			
OPERATIONAL PHASE: INDIRECT IMPACTS			
	Disturbance to Fauna and Avifauna	Before mitigation: Low (-) After mitigation: Low (-)	<p>All overhead power lines to include bird deflectors.</p> <p>Electrical cabling and connecting distribution lines to be underground.</p> <p>The fence line is to be checked on a weekly basis for any fauna species caught in the strands.</p> <p>An expert who holds a Competency Certificate to handle Dangerous and Venomous Reptiles should be contracted to remove animals.</p>
	Noise pollution	Before mitigation: Low (-) After mitigation: Low (-)	Maintenance activities not to occur on Sundays or public holidays.
	Health, safety and security	Before mitigation: Medium (-) After mitigation: Low (-)	<p>Health and Safety:</p> <p>Maintenance to be undertaken by trained personnel only.</p> <p>Only properly trained personnel who understand the risks of applying water to electrical components should clean modules.</p> <p>Trained personnel shall wear appropriate electrically insulating Personal Protective Equipment (PPE) during cleaning and inspection operations.</p> <p>Before cleaning, thoroughly inspect modules for cracks, damage, and loose connections.</p> <p>Cleaning of solar panels to be undertaken per the manufacturer's guidelines.</p> <p>Borehole water sample testing to be done annually for an agreed period, to test the water quality and determine if any pollution is coming from the solar farm. If any pollution is found and is associated with the solar farm, then the developer is responsible to correct the pollution.</p> <p>Security:</p>

BASIC ASSESSMENT REPORT

ACTIVITY	IMPACT SUMMARY	SIGNIFICANCE	PROPOSED MITIGATION
ALTERNATIVE 1 (PREFERRED ALTERNATIVE)			
			<p>Solar PV site to be enclosed by a fence with a locked gate.</p> <p>The solar security to check with the Hurn family during operations.</p> <p>Adjacent landowners are to be notified 14 days prior to operational commencement.</p> <p>If work needs to be undertaken on the perimeter fence then the neighbouring landowners to be notified.</p> <p>Additional security aspects to be considered, e.g. security to check the site on a regular basis for any breaks in the fence and security alarms to be considered.</p> <p>Fire:</p> <p>Fire-fighting equipment in proportion to the fire risk that is presented by the type of materials used on site is to be available and kept in good operating order at all times.</p> <p>The access road surrounding the solar array area to act as a potential firebreak.</p> <p>Maintenance procedures to include regular inspection of electrical connections.</p> <p>Faulty solar panels or wiring to be replaced immediately.</p> <p>Proper grounding of the electrical system to reduce the risk of fire.</p> <p>Maintenance to be undertaken in accordance with the manufacturer's guide.</p> <p>A Fire Management Plan be compiled and implemented.</p>
	Employment Opportunities	Before mitigation: Medium (+) After mitigation: Medium (+)	Up skilling of local labour to skilled positions.

BASIC ASSESSMENT REPORT

ACTIVITY	IMPACT SUMMARY	SIGNIFICANCE	PROPOSED MITIGATION
ALTERNATIVE 1 (PREFERRED ALTERNATIVE)			
	Reduction in property values	Before mitigation: Low (-) After mitigation: Low (-)	Mitigation measures related to visual and noise impacts to be implemented.
Transformation of undeveloped outside an urban area.	PLANNING AND DESIGN PHASE: INDIRECT IMPACTS		
	Soil erosion	Before mitigation: Medium (-) After mitigation: Low (-)	Solar PV infrastructure and access road surrounding the solar array area to be located outside of steep terrain.
	CONSTRUCTION & DECOMMISSIONING PHASES: INDIRECT IMPACTS		
	Soil erosion	Before mitigation: Medium (-) After mitigation: Low (-)	No access or activities allowed in areas with steep terrain. Anti-erosion measures to be included to disperse run-off so as to reduce the volume and velocity of surface water flow and vulnerable areas to be stabilised. During construction silt fences to be included around stock piles and along the western and northern boundary adjacent to the drainage line. Maintenance of erosion control structures. Areas not required to be kept cleared of vegetation are to be re-vegetated.
	OPERATIONAL PHASE: DIRECT IMPACTS		
	Loss of agricultural land	Before mitigation: Medium (-) After mitigation: Medium (-)	No mitigation measures.
	OPERATIONAL PHASE: INDIRECT IMPACTS		
Soil erosion	Before mitigation: Medium (-) After mitigation: Low (-)	No access or activities allowed in areas with steep terrain. Anti-erosion measures to be included to disperse run-off so as to reduce the volume and velocity of surface water flow and vulnerable areas to be stabilised.	

BASIC ASSESSMENT REPORT

ACTIVITY	IMPACT SUMMARY	SIGNIFICANCE	PROPOSED MITIGATION
ALTERNATIVE 1 (PREFERRED ALTERNATIVE)			
			Maintenance of erosion control structures. Areas not required to be kept cleared of vegetation are to be re-vegetated.
Clearance of vegetation activities for construction and operation of solar PV plant and associated infrastructure	PLANNING AND DESIGN PHASE: DIRECT IMPACTS:		
	Loss of habitat containing Species of Special Concern	Before mitigation: High (-) After mitigation: Medium (-)	Permits must be obtained from the DAFF and/or DEDEAT prior to the removal of protected trees and Species of Special Concern (SSCs) . The access road to be aligned away from SSCs.
	Changes to the hydrological systems - Potential loss of aquatic habitats	Before mitigation: Medium (-) After mitigation: Very Low (-)	The access road and perimeter fence to be located outside of the 32m buffer of the drainage line.
	CONSTRUCTION & DECOMMISSIONING PHASES: DIRECT IMPACTS:		
	Loss of vegetation	Before mitigation: Medium (-) After mitigation: Low (-)	The site camp to be located in an already disturbed area with existing access, to minimise additional disturbance and clearing of vegetation. Only shrubs are to be removed for the construction camp area and laydown areas. Grass is to be left in place. Work areas must be clearly demarcated, e.g. with droppers and/or orange netting but not with danger tape, so that construction workers limit their impact to these areas alone. All construction vehicles must stay on single demarcated access tracks to avoid compaction of soil and roots. Limit any disturbance to the vegetation only to that which is essential for the development. All remaining indigenous vegetation to be left intact. Rehabilitation should be undertaken in a progressive manner. Re-vegetation of the disturbed areas with indigenous material should be undertaken as soon as construction activities at an individual site have been completed

BASIC ASSESSMENT REPORT

ACTIVITY	IMPACT SUMMARY	SIGNIFICANCE	PROPOSED MITIGATION
ALTERNATIVE 1 (PREFERRED ALTERNATIVE)			
	Loss of habitat containing Species of Special Concern	Before mitigation: Medium (-) After mitigation: Low (-)	<p>The site camp to be located in an already disturbed area with existing access, to minimise additional disturbance to habitat and SSCs.</p> <p>Only shrubs are to be removed for the construction camp area and laydown areas. Grass is to be left in place.</p> <p>Work areas must be clearly demarcated, e.g. with droppers and/or orange netting but not with danger tape, so that construction workers limit their impact to these areas alone.</p> <p>All construction vehicles must stay on single demarcated access tracks to avoid creep into surrounding areas.</p> <p>Limit any disturbance to the vegetation only to that which is essential for the development. All remaining indigenous vegetation to be left intact.</p> <p>Rehabilitation should be undertaken in a progressive manner. Re-vegetation of the disturbed areas with indigenous material should be undertaken as soon as construction activities at an individual site have been completed</p>
	Potential spread of alien vegetation	Before mitigation: Medium (-) After mitigation: Low (-)	<p>Disturbed areas should be kept to a minimum, keeping the width and length of the earth works to a minimum.</p> <p>Rehabilitation should be undertaken in a progressive manner. Re-vegetation of the disturbed areas with indigenous material should be undertaken as soon as construction activities at an individual site have been completed.</p> <p>The shallow topsoil layer to be stockpiled separately from the subsoil layers, should the excavation exceed 0.5m. When the construction has been completed, then the topsoil layers, which contain seed and vegetative material, should be reinstated last thus allowing plants to rapidly re-colonise the bare soil areas.No stockpiling within 32 m of a drainage line.</p> <p>Alien plant regrowth is to be monitored during construction on-site by the Contractor's Environmental Officer and any such species to be removed</p>

BASIC ASSESSMENT REPORT

ACTIVITY	IMPACT SUMMARY	SIGNIFICANCE	PROPOSED MITIGATION
ALTERNATIVE 1 (PREFERRED ALTERNATIVE)			
			either by physical or chemical means by the Contractor
	Changes to the hydrological systems - Potential loss of aquatic habitats	Before mitigation: Medium (-) After mitigation: Very Low (-)	<p>The construction camp and temporary toilet facilities to be located outside the 32m buffer of the drainage line.</p> <p>No access, construction activities or stockpiling to occur within 32 m of the drainage line.</p> <p>Sedimentation into drainage line to be minimised through the effective stabilisation and re-vegetation of cleared areas.</p>
	Dust	Before mitigation: Medium (-) After mitigation: Low (-)	<p>Prompt rehabilitation and wetting down of recently cleared areas to minimize dust creation.</p> <p>Until vegetation used in rehabilitation efforts has established, temporary stabilization methods must be used (e.g. protecting exposed soils with coarse granular materials, mulches, or straw).</p> <p>Construction should be undertaken in a phased manner, so as to limit the size of the area to be exposed at any one time.</p> <p>Dust levels are not to exceed 600mg/m²/day averaged over an annual period for rural areas.</p> <p>Dust suppression techniques (e.g. wetting of areas) to be used on all dust generating surfaces. Potable and contaminated water not to be used as a dust-suppressing agent.</p> <p>All work must stop during high wind conditions (i.e. when wind speeds exceed 35km/h).</p> <p>Construction vehicles must adhere to speed limits.</p>

BASIC ASSESSMENT REPORT

ACTIVITY	IMPACT SUMMARY	SIGNIFICANCE	PROPOSED MITIGATION
ALTERNATIVE 1 (PREFERRED ALTERNATIVE)			
OPERATIONAL PHASE: DIRECT IMPACTS:			
	Loss of vegetation	Before mitigation: Medium (-) After mitigation: Low (-)	Vegetation regrowth within the solar array area to be controlled, i.e. removed physically or through chemical means by operational contractor
	Loss of habitat containing Species of Special Concern	Before mitigation: Medium (-) After mitigation: Low (-)	Shrubs and trees located on the boundary of the site should be left intact and not removed. Area surrounding the solar array should be grassed with an indigenous grass species.
	Potential spread of alien vegetation	Before mitigation: Medium (-) After mitigation: Low (-)	Alien plant growth to be monitored and area to be kept free of alien invasive and noxious plants by the operational contractor.
	Changes to the hydrological systems - Potential loss of aquatic habitats	Before mitigation: Medium (-) After mitigation: Very Low (-)	No access, maintenance activities or stockpiling to occur within 32 m of the drainage line.
	Dust	Before mitigation: Medium (-) After mitigation: Low (-)	Vehicles must adhere to speed limits on gravel roads. Maintaining re-vegetated areas to limit exposed soils.

ACTIVITY	IMPACT SUMMARY	SIGNIFICANCE	PROPOSED MITIGATION
ALTERNATIVE 2			
An alternative solar technology identified was solar thermal energy or Concentrating Solar Power (CSP) systems. As the proposed activity is the generation of 2.46MW, the CSP technology alternative is not considered feasible for the small scale production and as a result has not be assessed further.			

BASIC ASSESSMENT REPORT

ACTIVITY	IMPACT SUMMARY	SIGNIFICANCE	PROPOSED MITIGATION
ALTERNATIVE 3			
No feasible alternatives.			

ACTIVITY	IMPACT SUMMARY	SIGNIFICANCE	PROPOSED MITIGATION
NO-GO OPTION			
<p>Infrastructure for the generation of electricity, i.e. Solar (PV) plant, 2.46MW, and 11kV distribution and transmission.</p> <p>Approximately 400m of the existing access road will be widened by 2 to 3m. The existing access road will be lengthened by approximately 1600m, with a width of 3 to 4m, around the proposed solar plant.</p>	DIRECT IMPACTS		
	Dust and Air Pollution - Periodic burning of waste materials	Before mitigation: Medium (-) After mitigation: Very low (+)	No burning of waste materials.
	Loss of / damage to artefacts due to additional stockpiling of old equipment / waste	Before mitigation: Low (-) After mitigation: Low (-)	No mitigation measures.
	Waste Management - Old equipment remaining on site	Before mitigation: Medium (-) After mitigation: Low (+)	Old waste equipment to be recycled.
	Production of cleaner energy - Electricity production reliant on coal power stations	Before mitigation: Medium (-) After mitigation: Medium (-)	No mitigation measures.
	INDIRECT IMPACTS		
Employment opportunities will not be created during the construction and operational phases	Before mitigation: Medium (-) After mitigation: Medium (-)	No mitigation measures.	

BASIC ASSESSMENT REPORT

ACTIVITY	IMPACT SUMMARY	SIGNIFICANCE	PROPOSED MITIGATION
NO-GO OPTION			
Transformation of undeveloped outside an urban area.	DIRECT IMPACTS		
	Area for stockpiling of old equipment and waste materials increases	Before mitigation: Medium (-) After mitigation: Low (+)	Removal of old equipment and waste materials.
Clearance of vegetation activities for construction and operation of solar PV plant and associated infrastructure	DIRECT IMPACTS:		
	Loss of vegetation	Before mitigation: Medium (+) After mitigation: Medium (+)	No mitigation measures.
	Loss of protected species and SSC from wildlife grazing	Before mitigation: Medium (-) After mitigation: Medium (-)	No mitigation measures.
	Potential spread of alien vegetation	Before mitigation: Medium (-) After mitigation: Low (-)	Alien plant growth to be monitored and area to be kept free of alien invasive and noxious plants by the landowner.

A complete impact assessment in terms of Regulation 22(2)(i) of GN R.543 must be included as Appendix F.

Please refer to **Appendix F** for the complete Impact Assessment, including methodology and criteria.

BASIC ASSESSMENT REPORT

2. ENVIRONMENTAL IMPACT STATEMENT

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

Please refer to **Appendix F** for the impact assessment tables which include types, duration of impacts, likelihood of potential impacts and significance.

SUMMARY OF IMPACTS & SIGNIFICANCE				
Phase	Alternative 1 (Preferred)			No Go
	Planning & Design	Construction & Decommiss.	Operational	
Ecological : Loss of vegetation				
Significance before mitigation	Neutral	Medium (-)	Medium (-)	Medium (+)
Significance after mitigation	Neutral	Low (-)	Low (-)	Medium (+)
Ecological : Loss of habitat containing Species of Special Concern				
Significance before mitigation	High (-)	High (-)	High (-)	Medium (-)
Significance after mitigation	Medium (-)	Medium (-)	Medium (-)	Medium (-)
Ecological : Potential spread of alien vegetation				
Significance before mitigation	Neutral	Medium (-)	Medium (-)	Medium (-)
Significance after mitigation	Neutral	Low (-)	Low (-)	Low (-)
Ecological : Changes to the hydrological systems				
Significance before mitigation	Medium (-)	Medium (-)	Medium (-)	Neutral
Significance after mitigation	Very low (-)	Very low (-)	Very low (-)	Neutral
Ecological : Pollution of soils, surface and groundwater				
Significance before mitigation	Neutral	Medium (-)	Medium (-)	Neutral
Significance after mitigation	Neutral	Low (-)	Low (-)	Neutral
Ecological : Disturbance to Fauna and Avifauna				
Significance before mitigation	Neutral	Low (-)	Low (-)	Neutral
Significance after mitigation	Neutral	Low (-)	Low (-)	Neutral
Air Quality : Dust and Air Pollution				
Significance before mitigation	Neutral	Medium (-)	Medium (-)	Medium (-)
Significance after mitigation	Neutral	Low (-)	Low (-)	Very Low (-)
Heritage Resources : Loss of heritage resources				
Significance before mitigation	Neutral	Low (-)	Neutral	Low (-)
Significance after mitigation	Neutral	Very Low (-)	Neutral	Low (-)
Land Use : Loss of agricultural land				
Significance before mitigation	Neutral	Neutral	Medium (-)	Medium (-)
Significance after mitigation	Neutral	Neutral	Medium (-)	Low (+)

BASIC ASSESSMENT REPORT

SUMMARY OF IMPACTS & SIGNIFICANCE				
Phase	Alternative 1 (Preferred)			No Go
	Planning & Design	Construction & Decommis.	Operational	
Land Use : Soil erosion				
Significance before mitigation	Medium (-)	Medium (-)	Medium (-)	Neutral
Significance after mitigation	Low (-)	Low (-)	Low (-)	Neutral
Waste Management : Liquid and solid waste, vermin control				
Significance before mitigation	Medium (-)	Medium (-)	Medium (-)	Medium (-)
Significance after mitigation	Low (+)	Low (-)	Low (-)	Low (+)
Traffic : Increased traffic in greater area				
Significance before mitigation	Neutral	Medium (-)	Low Medium (-)	Neutral
Significance after mitigation	Neutral	Low (-)	Low (-)	Neutral
Traffic : Traffic safety impact due to additional traffic				
Significance before mitigation	Neutral	Medium (-)	Medium (-)	Neutral
Significance after mitigation	Neutral	Low (-)	Low (-)	Neutral
Traffic : Deterioration of public road network				
Significance before mitigation	Neutral	Medium (-)	Medium (-)	Neutral
Significance after mitigation	Neutral	Low (-)	Low (-)	Neutral
Social : Noise pollution				
Significance before mitigation	Neutral	Medium (-)	Low (-)	Neutral
Significance after mitigation	Neutral	Low (-)	Low (-)	Neutral
Social : Visual Intrusion				
Significance before mitigation	Neutral	Medium (-)	High (-)	Neutral
Significance after mitigation	Neutral	Low (-)	Low (-)	Neutral
Social : Health, safety and security				
Significance before mitigation	Neutral	Medium (-)	Medium (-)	Neutral
Significance after mitigation	Neutral	Low (-)	Low (-)	Neutral
Social : Employment Opportunities				
Significance before mitigation	Neutral	Medium (+)	Medium (+)	Medium (-)
Significance after mitigation	Neutral	Medium (+)	Medium (+)	Medium (-)
Social : Reduction in property values				
Significance before mitigation	Neutral	Neutral	Low (-)	Neutral
Significance after mitigation	Neutral	Neutral	Low (-)	Neutral
Social : Existing Services and Infrastructure				
Significance before mitigation	Medium (-)	Medium (-)	Medium (-)	Neutral
Significance after mitigation	Low (-)	Low (-)	Low (-)	Neutral
Renewable Energy Infrastructure : Production of cleaner energy				
Significance before mitigation	Neutral	Neutral	Medium (+)	Medium (-)

BASIC ASSESSMENT REPORT

SUMMARY OF IMPACTS & SIGNIFICANCE				
Phase	Alternative 1 (Preferred)			No Go
	Planning & Design	Construction & Decommiss.	Operational	
Significance after mitigation	Neutral	Neutral	High (+)	Medium (-)

Alternative A (preferred alternative)

The construction phase would have the greatest impact on the clearance of vegetation. The operational phase of the project would have a limited impact on vegetation regrowth within the solar array area and immediate adjacent area, as vegetation will need to be kept clear of tall bushes and trees as these would contribute to shaded areas over the solar panels. Vegetation underneath the solar panels would also need to be controlled in order not to interfere with the tracking system. With the mitigation measures in place, the impact on the loss of vegetation would remain localised resulting in a low impact.

One hundred and thirty plant species were identified on site. Of these four (4) are Species of Special Concern (SSC), twenty seven (27) species are protected plants, and one (1) protected tree species, was identified on site. The majority of these species are located on the boundaries of the proposed site, and a few are scattered within the proposed solar array area. With the mitigation measures in place, the impact on the loss of habitat and SSCs would remain localised resulting in a medium impact.

A low level of alien plant invasion is scattered across the site. Five alien invasive species were identified on site. The potential of alien plants spreading is likely if not managed during the site establishment, construction and operational phases. With the mitigation measures in place, the impact on the spreading of alien plants into the indigenous vegetation would remain localised, with natural re-vegetation happening within a short time period, resulting in a low risk and low impact significance.

Sediment entering the dry drainage line located to the west and north of the site may impact on water quality and aquatic ecosystem functioning. The proposed activities fall outside of the 32m buffer of the nearest drainage line (located to the west and north of the site), and no removal of riverine vegetation will be undertaken. Although the proposed site is located within 500m of an artificial wetland (manmade dams), located to the south, the proposed development will not impact on this area. The impact on changes to the hydrological system: potential loss of aquatic habitat can be mitigated to a very low negative impact significance, from a medium negative impact.

Soil and water pollution impacts relate to spillages from construction materials, such as diesel, oils and cement, if dispersed via surface run-off, or are allowed to permeate into the soils and groundwater. The potential negative changes to water quality during the operational phase would be limited to sedimentation. The potential risk of trace metals leaching from installed solar PV panels into soils, surface or groundwater is low due to the sealed nature of the solar PV panels, however this risk may increase with broken or aged solar panels. The impact can be mitigated to a low negative impact significance, from a medium negative impact.

Faunal impacts relate to the disturbance and restriction of fauna movement due to the area being fenced. Construction activities may disturb any fauna and avifauna located within the immediate location, however this will be limited to the construction phase. Potential impacts to avifauna include sun glinting from the solar panels and connecting transmission line interrupting flight during the operational phase. Solar PV panels are dark rather than reflective, and are designed to absorb rather than reflect sunlight. However there may still be a limited amount of light being reflected from the

glass outer casing. Overhead transmission lines may present a potential collision risk or electrocution to avifauna. Impacts to fauna and avifauna can be mitigated to a low negative impact significance.

Dust and air pollution impacts relate to the generation of dust during construction related activities, poorly maintained construction vehicles and burning materials for warmth during winter by contraction staff. In relation to operational phase activities, the impact relates mainly to dust from cleared areas, e.g. the gravel access road and solar array area. The operation of solar PV systems does not produce any emissions. Dust and air pollution impacts can be mitigated to a low negative impact significance, from a medium negative impact.

The loss of heritage resources relates to the possible loss of cultural heritage resources, including archaeological artefacts. A few isolated weathered quartzite stone tools (most probably of Middle Stone Age origin) were observed in tracks or where the yellowish top soils were disturbed. These stone tools were in secondary context and not associated with any other archaeological material. The stone tools are of low cultural significance and no further action is required. The area is of low cultural sensitivity and it is highly unlikely that any archaeological remains of any significance will be found in situ or exposed during the development. There are no known graves or historical buildings older than 60 years on the site. The Heritage Specialist has recommended that the proposed construction of the SACE Ranger photovoltaic (solar) plant near Uitenhage, Nelson Mandela Bay Municipality, Eastern Cape Province, is exempted from a full Phase 1 Archaeological Heritage Impact Assessment. The impact to heritage resources can be mitigated to a very low negative impact significance, from a low negative impact.

Agricultural potential of the site is low as it is classified as non-arable agricultural land, classification VIII (8), according to the land capability classification. As such, the site is not suitable for cultivation purposes. The site is currently utilised partially as a grazing area for game / wildlife, and historically has been utilised as a grazing area for livestock. A large portion of the site is currently being used to stockpile old equipment and waste materials. The proposed solar PV site is currently zoned as Agriculture and will require subdivision and rezoning. The loss of agricultural land impact remains as a medium negative impact.

Soil exposed by the clearing of vegetation during construction and maintaining vegetation cleared areas during the operational phase will have substantially elevated erosion levels. The risk of soil erosion increases in areas where vegetation and rocks are removed on steeper slopes in order to cater for solar PV infrastructure and access road. The impact of soil erosion can be mitigated to a low negative impact significance, from a medium negative impact.

Impacts relating to ineffective waste management procedures may lead to the dumping of building rubble, littering and pollution of the surrounding areas as well as unsanitary (toilet) conditions and an increase in vermin. Domestic and construction waste as well as decommissioned solar panels and batteries will increase the amount of waste disposed to landfill, including old equipment and cleared vegetation. No vermin will be attracted during the operational phase. Waste management impacts can be mitigated to a low negative impact significance, from a medium negative impact.

Traffic impacts relate simply to potential increases in traffic within the area, with resultant potential congestion, road damage, noise, etc. issues. The DR01940 presently carries low traffic volumes related to the farms situated along the road. The results from the traffic survey undertaken on 20 November 2014 at the DR01940 and R75 intersection indicate four vehicles exiting the DR01940. In terms of the Rural Road Category (as defined by traffic volumes) the DR01940 is categorised in the 'low' category, i.e. 0-50 vehicles per day. During the construction phase, the additional daily traffic will increase current daily volumes between the R75 and the solar site by 4 heavy vehicle trips per day. During the operational phase, the additional daily traffic is anticipated to be 4 vehicle trips per day.

Additional vehicle (predominantly heavy vehicles / trucks) trips generated by the proposed development will have a low impact in terms of peak hour intersection capacity given the low peak hour volumes at the affected intersection (R75 and DR01940). In addition to safety aspects related to lack of advanced warning road signage and possible deterioration of the road due to a lack of maintenance, the following safety issues may arise as a result of additional vehicle movements along DR01940:

- Heavy vehicles travelling through sections with limited sight distance albeit that truck drivers will have better visibility due to their higher seat position.
- Lack of maintenance leads to a loss of fine material which creates dusty and slippery conditions in dry and wet weather conditions respectively.

The surface of the DR01940 appears to be in a poor condition based on the visual condition assessments conducted, and is conducive to relatively low operating speeds. Substantial loose material is evident along the whole length of the DR01940. Given the status of DR01940, it is assumed that DR01940 has been constructed to primarily cater for access to agricultural properties along its length. Based on the surveyed peak hour traffic volumes, the road accommodates between 0 and 50 vehicles per day – a low category gravel road – with a gravel pavement layer of 75mm. Construction vehicles transporting materials to the site for use during construction may also damage the road. The traffic related impacts can be mitigated to a low negative impact significance.

Noise impacts relates to potential changes in the nuisance impacts from noise generation from the site. Noise creation from construction workers and vehicles may impact on surrounding landowners during the construction phase. This includes noise emanating from construction machinery, power tools and compressors, construction vehicles and general construction activity. Noise activities during the operational phase would be limited to periods when maintenance activities are being undertaken. No significant noise levels are expected from the operating solar tracking system. Noise impacts can be mitigated to a low negative impact significance.

During construction visual impacts are associated with cleared areas of vegetation, the construction camp; and during the operational phase visual impacts are associated with the solar array area consisting of the solar panels impacting on aesthetics and potential glinting of the sun off the solar panels. The current landscape can be defined as a very attractive landscape and with the proposed solar array area would be changed to that of a good quality landscape. Visibility of the solar infrastructure will be dependent on the height from which the development will be viewed. The solar panel frames are low in height, below 1m. The visibility of the solar array area may be reduced due to vegetation screening on the boundaries of the site and the undulating topography of the area. Solar PV panels are dark rather than reflective, and are designed to absorb rather than reflect sunlight. However there may still be a limited amount of light being reflected from the glass outer casing, and likely to be visible at higher elevations. The visual impacts can be mitigated to a low negative impact significance, from a medium negative impact.

Public health, safety and security impacts include linkages to fire management, crime and promiscuous sexual behaviour during construction. Fire management is further considered during the operation phase. General safety of persons is a concern due to construction activities, e.g. open excavations and machinery, resulting in potential injury to construction staff; health and safety aspects relate to the potential spread of HIV and STDs. Potential health and safety risks (e.g. exposure to toxic chemicals and gases) related to the solar panels are prevalent with the manufacturing process of the solar panels. The risks associated with the manufacturing process are not applicable as manufactured solar panels will be installed. The solar panels or modules are enclosed by thick layers of glass or plastic and unless these components are ground into particles or exposed to fire, the risk of ingestion or inhalation is minimal. No chemical cleaning agents are utilised

during the operational phase. The solar panels are cleaned with water. During the operational phase, cleaning activities create a risk of damage to the solar panels and array components, as well as the potential for electric shock. Cracked or broken modules represent a shock hazard due to leakage currents, and the risk of shock is increased when modules are wet. The manufacturer's user guide details the correct procedures to be undertaken for installation, maintenance and cleaning procedures. Security aspects relate to potential theft of construction materials and theft of neighbouring farmers livestock or equipment. The presence of workers on the site for construction related activities, irrespective of whether or not they are local, may create an increased safety and security risk to local households in the area. In addition, any changes in the local crime rates are likely to be attributed to the influx of construction workers, whether such changes can be attributed to their presence or not. Fire is a potential risk with any electrical system. Veld fires are a potential risk considering the vegetation types occurring within and adjacent to the site. During construction the risk may be attributed to inappropriate construction activities (e.g. hot work, welding) on dry, windy days. During the operational phase, fire risks may be associated with incorrect or loose wiring of the solar panels or transmission lines, or when wiring is inadequate and cannot withstand electricity generation. Public health, safety and security impacts can be mitigated to a low negative impact significance, from a medium negative impact.

Approximately 50 and 6 employment opportunities will be created during the construction and operational phases respectively. An adverse effect on this impact may occur in that high expectations are formed regarding construction employment opportunities and that these expectations cannot be sustained. The impact related to employment opportunities can be mitigated to a medium positive impact.

There is no evidence that solar farms affect property prices either positively or negatively. The impact of the reduction of surrounding property values due to the solar infrastructure can be mitigated to a low negative impact significance.

The proposed solar production entails a solar panel tracker mounting system, 1000V DC PV system and 11kV distribution system and transmission / distribution line to connect to the existing 11kV transmission / distribution line (Eskom). The existing Eskom 11kV transmission / distribution line is located adjacent to the proposed solar array area. There are no Eskom substations within 5km of the proposed solar plant. The impact relates to disruption of or damage to existing services and infrastructure, e.g. Eskom 11kV distribution line and can be mitigated to a low negative impact.

Renewable energy infrastructure relates to the production of cleaner energy from renewable sources, and moving to a less carbon-intensive electricity production (i.e. reducing carbon emissions associated with coal power stations). Although only 2.46MW will be fed into the electrical grid, the proposed project forms a source of zero carbon electricity generation and contribution to the renewable energy targets. The impact relating to the production of cleaner energy from renewable energy sources can be mitigated to a high positive impact significance.

The negative impacts identified can be mitigated to a lower negative significance or positive significance if all mitigation measures identified and as included in the Environmental Management Programme (EMPr) attached in **Appendix G** are implemented.

Alternative B

No feasible alternatives.

Alternative C

No feasible alternatives.

No-go alternative (compulsory)

No indigenous vegetation will be cleared, and impact relating to the loss of vegetation remains at a medium positive significance.

No protected or endangered species will be physically removed, however a risk remains that these species will be lost to animals as a food source. The impact on the loss of habitat and SSCs remains at a medium negative significance.

The risk remains that the current alien vegetation may spread into surrounding areas, if not controlled. The potential spread of alien vegetation can be reduced to a low negative significance.

Evidence of burning of waste was noted on site, and the risk remains that periodic burning of waste materials may continue. The impact to air quality can be reduced to a very low negative significance.

There is a potential risk that loss or damage of artefacts may occur with the current land use, however this is of low negative significance.

The stockpiling of old equipment or waste materials continues, with the risk that these areas may increase. The related waste management impact can be reduced to a low positive significance.

Employment opportunities will not be created during the construction and operational phases. The impact remains at a medium negative significance.

Other renewable energy sources will need to be sourced to contribute to the renewable energy targets, and reduction of carbon-intensive electricity production. The impact remains at a medium negative significance.

SECTION E. RECOMMENDATION OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?

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

Not applicable

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

It is recommended that that the activity (Alternative 1) is granted with the following recommendations:

- a) All mitigation measures in the Environmental Management Programme (EMPr, **Appendix G**) are followed.
- b) An experienced Environmental Officer is appointed by the Contractor and an experienced independent ECO is appointed by the developer to monitor compliance with the EMPr during construction.
- c) Alien plant regrowth is to be monitored and managed during the construction phase by the Contractor and operational phases by the developer.
- d) Only indigenous plant species must be used in the re-vegetation process.
- e) No activities within 32m of the drainage lines.
- f) The developer install additional road warning traffic signs as indicated in the Traffic Impact Assessment and that such signage be installed as soon as development commences.
- g) Temporary signs warning motorists of construction vehicles be erected on the approaches to the access road.
- h) Vegetation is cleared on the DR01940 road verge at the entrance to the solar site.
- i) The developer ensures that the DR01940 is left in an acceptable state once construction has been completed.
- j) Proposed road upgrade and/or maintenance meets the approval of the Department of Roads and Public Works.
- k) Eskom approval per requirements for work in or near Eskom servitudes or infrastructure.
- l) Old waste equipment to be recycled. Waste that cannot be recycled will be disposed of at a registered landfill site.
- m) Decommissioned, faulty or broken solar panels, equipment or cabling is to be taken off site and recycled. If items are unable to be recycled, to be disposed of at an appropriate landfill site.
- n) All overhead power lines to include bird deflectors. Electrical cabling and connecting distribution lines to be underground.
- o) A Fire Management Plan be compiled and implemented.
- p) Solar PV infrastructure and access road surrounding the solar array area to be located outside of steep terrain.

BASIC ASSESSMENT REPORT

- q) Permits must be obtained from the DAFF and/or DEDEAT prior to the removal of protected trees and Species of Special Concern (SSCs).
- r) Borehole water samples are to be taken prior to construction to determine a baseline for the water quality.
- s) Borehole water sample testing to be done annually for an agreed period, to test the water quality and determine if any pollution is coming from the solar farm. If any pollution is found and is associated with the solar farm, then the developer is responsible to correct the pollution.

Is an EMPr attached?

YES ✓	NO
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The EMPr must be attached as Appendix G.

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

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

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

Michael Cohen

NAME OF EAP

SIGNATURE OF EAP

22/01/2015

DATE

SECTION F: APPENDIXES

The following appendixes must be attached:

Appendix A: Maps

- A-1: Locality Map
- A-2: Layout Map
- A-3: Landuse Map
- A-4: Sensitivity Map
- A-5: Sensitivity: CBAs
- A-6: Sensitivity: Vegetation
- A-7: Regional Services & Infrastructure
- A-8: Regional Critical Biodiversity Areas (CBAs)
- A-9: Regional Endangered Vegetation
- A-10: Regional Agriculture
- A-11: Visual Assessment

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

- Archaeological Heritage Impact Assessment
- Traffic Impact Study

Appendix E: Public Participation

- E-1: Copies of the advertisements & site notices
- E-2: Proof of notifications to key stakeholders
- E-3: Comments and response report
- E-4: Proof of notifications to authorities & organs of state
- E-5: Interested and affected parties database
- E-6: I&AP correspondence

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

- Archaeologist's declaration of interest
- Traffic specialist's declaration of interest

Appendix J: Additional Information

- J-1: Routes longer than 500m and additional points
- J-2: List of plant species (indigenous and exotic) identified on site
- J-3: Assumptions, uncertainties and gaps in knowledge
- J-4: Reference list