ENVIRONMENTAL IMPACT ASSESSMENT PROCESS
FINAL BASIC ASSESSMENT REPORT

PROPOSED TSE DISTRIBUTION SUBSTATION NEAR NOUPOORT, NORTHERN CAPE PROVINCE

(DEA REF NO: 14/12/16/3/3/1/732)

FINAL BASIC ASSESSMENT REPORT
FOR SUBMISSION TO THE DEPARTMENT OF ENVIRONMENTAL AFFAIRS
JUNE 2013

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REPUBLIC OF SOUTH AFRICA

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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 November 2012**. 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.
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 on the electronic copy of the report submitted to the competent authority.

PROJECT DETAILS

DEA Reference No.	:	14/12/16/3/3/1/732
Title	:	Environmental Basic Assessment Process Final Basic Assessment Report: Proposed TSE Distribution Substation on Portion 8 of Farm Damfontein 114, Northern Cape Province
Authors	:	Savannah Environmental Karen Jodas Sheila Muniongo Ravisha Ajodhapersadh Gabrielle Wood Marianne Strohbach
Sub-consultants	:	Eduplan cc Zone Land Solutions Skarab cc Albany Museum Wildskies Ecological Services
Client	:	Geo Solar (Pty) Ltd
Report Status	:	Final Basic Assessment Report for submission to the Department of Environmental Affairs
Date of Submission		10 June 2013

When used as a reference this report should be cited as: Savannah Environmental (2013) Final Basic Assessment Report: Proposed TSE Distribution Substation on Portion 8 of Farm Damfontein 114, Northern Cape Province

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PUBLIC REVIEW PERIOD FOR THE DRAFT BASIC ASSESSMENT REPORT AND PREPARATION OF A FINAL REPORT

The **Draft Basic Assessment Report** was made available for public review for an extended period at the Noupoort Library from **03 December 2012 – 21 January 2013.** The report was also available for download on www.savannahsa.com.

I&APs were also informed via letter that this Final Basic Assessment Report has been prepared and submitted to DEA and is available for comment and for download from the website: www.savannahSA.com. Copies of the Final Basic Assessment Report could be requested, if desired or required by I&APs from the consultant.

SUMMARY AND OVERVIEW OF THE PROPOSED PROJECT

Geo Solar (Pty) Ltd is proposing the establishment of a new 132 kV/66 kV step-down Substation proposed on Portion 8 of Farm Damfontein 114. The site islocated approximately 15 km north-west of Noupoort in the Northern Cape Province of South Africa (refer to Figure 1). Geo Solar (Pty) Ltd is planning to construct the proposed substation in order to connect proposed solar energy facilities into the Eskom grid. The developer will construct the substation and thereafter hand it over to Eskom (who will then own, operate and maintain the substation). The proposed project will be referred to as **TSE Distribution Substation**.

The developer (under separate Special Purpose Vehicles (SPVs) is also proposing five solar energy facilities on farm portions near Noupoort. These facilities were considered within separate Basic Assessment processes under the following applications (most of which have been authorised by DEA):

» Damfontein Solar Energy Facility DEA Ref No.: 14/12/16/3/3/1/728 (Authorised by DEA in March 2013).
» Wonderheuwel Solar Energy Facility DEA Ref No.: 14/12/16/3/3/1/731 (Authorised by DEA in April 2013).
» Carolus Poort Solar Energy Facility DEA Ref No.: 14/12/16/3/3/1/729 (Authorised by DEA in April 2013).
» Gilmer Solar Energy Facility DEA Ref No.: 14/12/16/3/3/1/735 (Authorised by DEA in May 2013).
» Allemans Solar Energy Facility DEA Ref No.: 14/12/16/3/3/1/730 (awaiting decision from DEA).

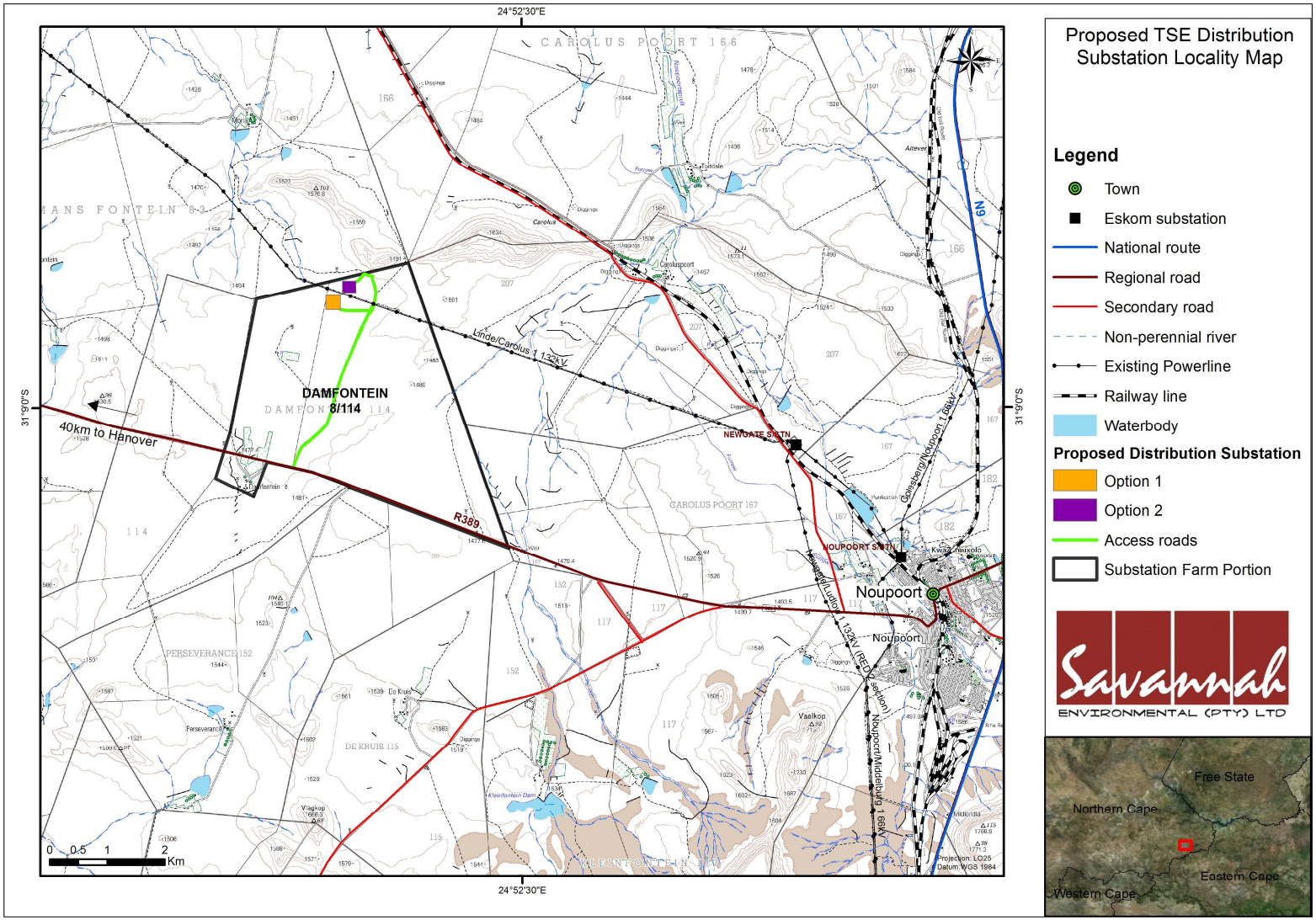

Figure 1: Locality map showing the development area for the proposed TSE Distribution Substation

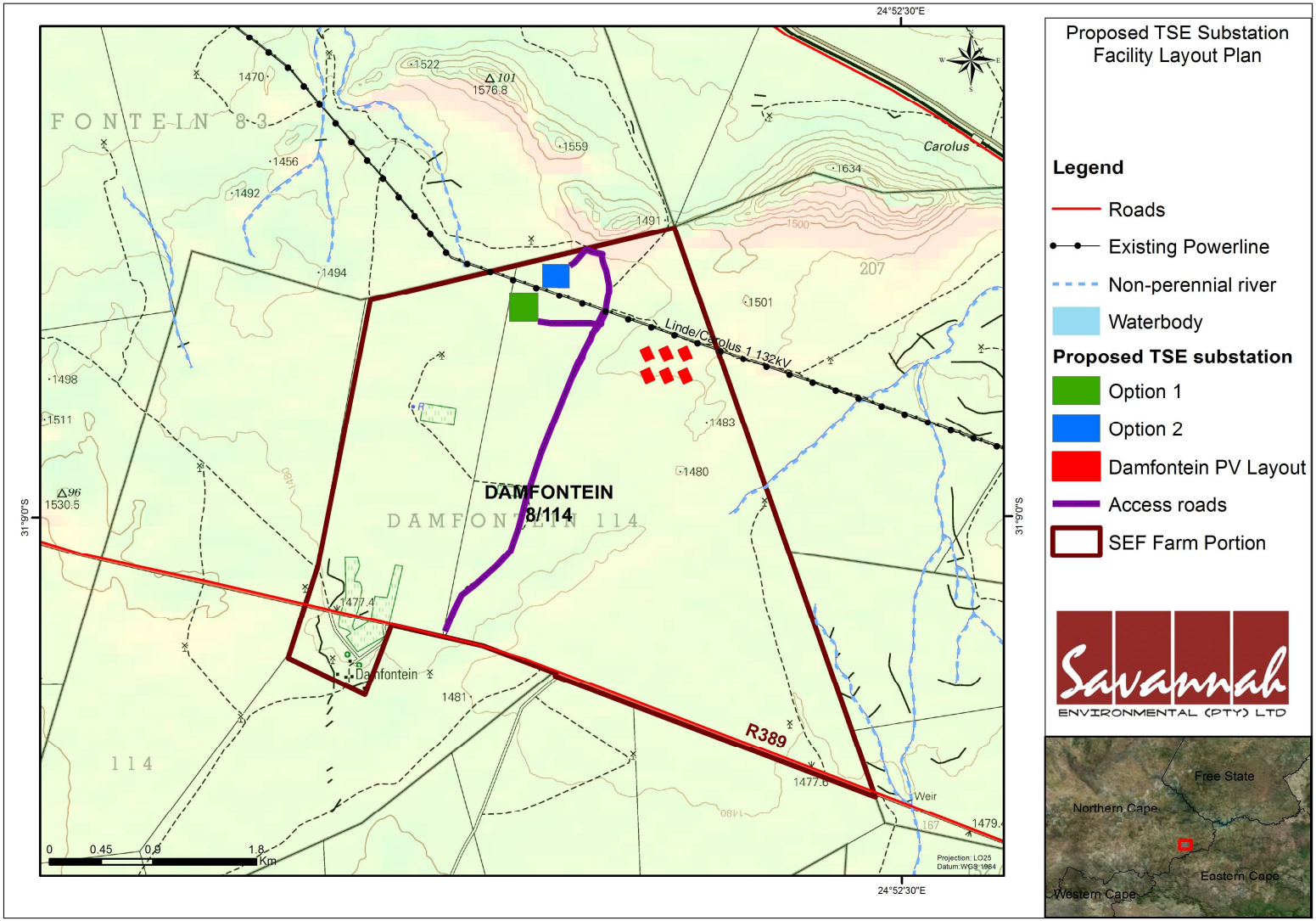

Figure 2: Layout of the proposed TSE Distribution Substation and associated infrastructure on Portion 8 of Farm Damfontein 114

1.1 SUMMARY OF THE PROPOSED DEVELOPMENT

Due to the exploitation of and large scale reliance on non-renewable resources and the potential subsequent impacts on climate, there is increasing pressure globally to increase the share of renewable energy generation. South Africa currently depends on fossil fuels for the supply of approximately 90% of its primary energy needs. With economic development over the next several decades resulting in an ever increasing demand for energy, there is some uncertainty as to the availability of economically extractable coal reserves for future use. Furthermore, several of South Africa's power stations are nearing the end of their economic life which is coupled with the expense of the re-commissioning of older power stations (i.e. Camden, Komati, and Grootvlei which is expected to cost in the region of R20 billion to return on line).

The current electricity imbalances in South Africa highlight the significant role that renewable energy can play in terms of power supplementation. Given that renewables can generally be deployed in a decentralised manner close to consumers, they offer the opportunity for improving grid strength and supply quality, while reducing expensive transmission and distribution losses. At present, South Africa is some way off from exploiting the diverse gains from renewable energy and from achieving a considerable market share in the industry. In order to meet the long-term goal of a sustainable renewable energy industry, a target of 17.8 GW of renewables by 2030 has been set by the Department of Energy (DoE) within the Integrated Resource Plan (IRP) 2010 and incorporated in the IPP Procurement Programme. This energy will be produced from various renewable energy technologies including solar energy facilities (i.e. such as PV or CPV technology). The proposed substation is intended to contribute indirectly towards this goal for renewable energy.

Geo Solar (Pty) Ltd is proposing the establishment of a new 132 kV/66 kV step-down substation on Portion 8 of Farm Damfontein 114 which is located approximately 15 km north-west of Noupoort in the Northern Cape Province of South Africa (refer to Figure 1). Geo Solar (Pty) Ltd is planning to construct the substation in order to connect five of their proposed solar energy facilities into the Eskom grid. The developer will build the substation and thereafter hand it over to Eskom (who will then own, operate and maintain the substation).

The substation is expected to require an area of less than 20 ha (i.e. 250m x 250 m/ 6.2 hectares) within which the following infrastructure will be established:

» Transformers and Auxiliary transformers;
» Isolators (disconnecting switch) and earthing switch;
» Feeder bays for incoming lines;
» Circuit/equipment protection;
» Substation yard boundary fence;
» Small oil spill dam;

» Lighting and surge arrestors; and
» Stringing of conductors (cables).

A preliminary layout for the facility prepared by Geo Solar Energy was considered in this assessment (refer to **Figure 2**).

1.2 REQUIREMENT FOR AN ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

In terms of the EIA Regulations published in terms of Section 24(5) of the National Environmental Management Act (NEMA, Act No. 107 of 1998), authorisation is required from the National Department of Environmental Affairs (DEA) as the competent authority, in consultation with the Northern Cape Department of Environmental and Nature Conservation (NC-DENC), for the establishment of the proposed substation. In terms of sections 24 and 24D of NEMA, as read with the EIA Regulations of GN R544 – R546 (as amended), a Basic Assessment process is required to be undertaken for the proposed project. The project has been registered with the National Department of Environmental Affairs (the competent authority) under application reference number **14/12/16/3/3/1/732**.

In terms of sections 24 and 24D of NEMA, as read with the EIA Regulations of GNR543; GNR544and GNR546, the following 'listed activities' are triggered by the proposed solar facility :

Notice Number	Activity	Description	Relevance of Regulation to Project
GN 544, 18 June 2010	10	The construction of facilities or infrastructure for the transmission and distribution of electricity- (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts;	A 132/66kV distribution substation is proposed to be constructed to connect proposed solar energy facility projects into the Eskom grid.
GN 544, 18 June 2010	13	The construction of facilities or infrastructure for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 but not exceeding 500 cubic metres;	During construction & operations fuel could be stored on site; as well as oils from the transformers.
GN 544, 18 June 2010	22	The construction of a road, outside urban areas; (i) with a reserve wider than 13.5 meters	The facility will require the upgrading of existing road and construction of a section of new access road to the substation site.

Notice Number	Activity	Description	Relevance of Regulation to Project
GN 544, 18 June 2010	23	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 hectares.	The area to be developed for the substation will be greater than 1 ha and less than 20ha in extent.

An environmental impact assessment is an effective planning and decision-making tool for the project developer as it provides the opportunity for the developer to be forewarned of potential environmental issues and to assess if potential environmental impacts can be avoided, minimised or mitigated to acceptable levels. The Basic Assessment process forms part of the feasibility studies for a proposed project and will inform the final design process for the substation. Comprehensive, independent environmental studies are required in accordance with the EIA Regulations to provide the competent authority with sufficient information in order to make an informed decision.

1.3 DETAILS OF ENVIRONMENTAL ASSESSMENT PRACTITIONER AND EXPERTISE TO CONDUCT THE BASIC ASSESSMENT PROCESS

Savannah Environmental was contracted by Geo Solar (Pty) Ltd as the independent environmental assessment practitioners (EAP) to undertake the Basic Assessment process for the proposed substation. Neither Savannah Environmental, nor any of its specialist sub-consultants on this project are subsidiaries of, or are affiliated to Geo Solar (Pty) Ltd. Furthermore, Savannah Environmental does not have any interests in secondary developments that may arise out of the authorisation of the proposed project.

Savannah Environmental is a specialist environmental consultancy which provides a holistic environmental management service, including environmental assessment and planning to ensure compliance with relevant environmental legislation. Savannah Environmental benefits from the pooled resources, diverse skills and experience in the environmental field held by its team that has been actively involved in undertaking environmental studies for a wide variety of projects throughout South Africa and neighbouring countries. Strong competencies have been developed in project management of environmental processes, as well as strategic environmental assessment and compliance advice, and the assessment of environmental impacts, the identification of environmental management solutions and mitigation/risk minimising measures.

The Savannah Environmental team has considerable experience in environmental impact assessments and environmental management, and have been actively involved in undertaking environmental studies, for a wide variety of projects throughout South Africa, including those associated with electricity generation.

The EAPs from Savannah Environmental who are responsible for this project are:

» *Karen Jodas* is a registered Professional Natural Scientist and holds a Master of Science degree. She has 14 years of experience consulting in the environmental field. Her key focus is on strategic environmental assessment and advice; management and co-ordination of environmental projects, which includes integration of environmental studies and environmental processes into larger engineering-based projects and ensuring compliance to legislation and guidelines; compliance reporting; the identification of environmental management solutions and mitigation/risk minimising measures; and strategy and guideline development. She is currently responsible for the project management of EIAs for several renewable energy projects across the country.
» *Ravisha Ajodhapersadh*, the co-author of this report, holds an Honours Bachelor of Science degree in Environmental Management and has 5 years' experience in environmental management. She has undertaken EIAs for other proposed solar energy facilities in South Africa and has been involved in other projects in this area.
» *Sheila Muniongo* - the principle author of this report, holds an Honours Bachelor of Science degree in Environmental Management and two years' experience in the environmental field. Her key focus is on environmental impact assessments, public participation, environmental management plans and programmes, as well as mapping for a variety of environmental projects. She is currently the responsible EAP for several renewable energy projects EIAs across the country.

Savannah Environmental has gained extensive knowledge and experience on potential environmental impacts associated with electricity generation and distribution projects through their involvement in related EIA processes. Savannah Environmental has completed the EIA process and received environmental authorisations for numerous solar energy facilities (including associated power line and substation infrastructure).

Curricula vitae for the Savannah Environmental project team are included in **Appendix H**.

In order to adequately identify and assess potential environmental impacts, several specialists have been appointed to conduct specialist studies, as required:

» Ecology: Marianne Strohbach (of Savannah Environmental)
» Soil & Agricultural Potential: Louis Di Pisani (of Eduplan cc)
» Heritage resources: Celeste Booth (of the Albany Museum)
» Visual: Johan Claassen (of Zone Land Solutions)

» Palaeontology: Francois Durand (of Skarab cc)
» Avifaunal specialist study: Jon Smallie (of WildSkies Ecological Services)

Specialist's declaration of interest and CVs are included in the **Appendix I.**

SECTION A: ACTIVITY INFORMATION

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

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

Describe the project associated with the listed activities applied for

Geo Solar (Pty) Ltd is proposing the establishment of a new 132kV/66kV step-down Substation on Portion 8 of Farm Damfontein 114, which is located approximately 15 km north-west of Noupoort in the Northern Cape Province of South Africa (refer to Figure 1). Geo Solar (Pty) Ltd is planning to construct the proposed substation in order to connect their proposed solar energy facilities into the Eskom grid. The developer will build the substation and thereafter hand it over to Eskom (who will then own, operate and maintain the substation).

The facility as shown on **Figure 3** below is expected to require an area of less than 20 ha (i.e. 250 x 250 m/ / 6.2 hectares) within which the following infrastructure will be established:

» Transformers and Auxiliary transformers;
» Isolators (disconnecting switch) and earthing switch;
» Feeder bays for incoming lines;
» Circuit/equipment protection;
» Substation yard boundary fence;
» Small oil spill dam;
» Lighting and surge arrestors; and
» Stringing of conductors (cables).

Figure 3: Illustration of a 132kV Distribution Substation

1.2 Construction of a Distribution Substation:

An area of approximately 250m x 250m will be cleared and levelled at the proposed site for the proposed TSE substation. Foundations will be installed to accommodate infrastructure, (such as transformers, towers, busbars, and transformer oil spill dams).

A Substations constructed in the following simplified sequence:

Step 1: Survey the area
Step 2: Final design of the substation and placement of the infrastructure
Step 3: Issuing of tenders, and award of contract to construction companies
Step 4: Vegetation clearance and construction of access roads (where required)
Step 5: Construction of foundations
Step 6: Assembly and erection of infrastructure on site
Step 7: Stringing of conductors
Step 8: Rehabilitation of disturbed area and protection of erosion sensitive areas
Step 9: Testing and commissioning
Step 10: Continued maintenance

1.3 Operation Phase

The proposed TSE substation will be operated by Eskom and will require routine

maintenance work throughout this period. The site will be accessed using the access roads established during the construction phase.

1.4 Decommissioning Phase

The substation is expected to have a lifespan of more than 40 years (with maintenance) and the infrastructure would only be decommissioned once it has reached the end of its economic life. If economically feasible/desirable the decommissioning activities would comprise the disassembly and replacement of the individual components with more appropriate technology/ infrastructure available at that time. However, if not deemed so, then the substation would be completely decommissioned which would include the following decommissioning activities.

a) Site Preparation

Site preparation activities will include confirming the integrity of the access to the site to accommodate the required equipment and the mobilisation of decommissioning equipment.

b) Disassemble Components

The components would be disassembled, and reused and recycled (where possible), or disposed of in accordance with regulatory requirements.

c) Rehabilitation

Disturbed area (where infrastructure has been removed) will be rehabilitated, if required, depending on the future eland-use of the facility.

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

Listed activity as described in GN R.544, and 546	Description of project activity
GN544, 18 June 2010 10 (i) The construction of facilities or infrastructure for the transmission and distribution of electricity- (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts;	A 132/66kV distribution substation is proposed to be constructed to connect proposed solar energy facility projects into the Eskom grid.
GN544, 18 June 2010 13 The construction of facilities or infrastructure for the storage, or for the storage and	During construction & operations fuel could be stored on site; as well as oils from the transformers.

Listed activity as described in GN R.544, and 546	Description of project activity
handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 but not exceeding 500 cubic metres;	
GN544, 18 June 2010 22 The construction of a road, outside urban areas; (i) with a reserve wider than 13.5 meters	The facility will require the upgrading of a existing road and construction of a section of new access road to the substation site.
GN544, 18 June 2010 23 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 hectares.	The area to be developed for the substation will be greater than 1 ha and less than 20ha in extent.

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 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

A site alternative refers to the identification of more than one potential site which may be suitable for the establishment of a proposed substation. Two potential locations for the proposed substation on Portion 8 of the Farm Damfontein have been identified as follows:

Alternative(option) 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
This site has been selected based on the following preferences: » This site has been strategically placed in the centre point in order to connect each of the proposed solar energy facilities into the Eskom grid; » The site is located in close proximity to an existing power line which can be connected to the substation to facilitate the distribution of the electricity from the solar facilities into the Eskom grid; » Site access (i.e. the site is easily accessible from the R389 to Noupoort, and then via a secondary gravel road); » Site slope and topography (i.e. the site proposed for the placement of the substation is flat with no hills/mountains in the immediate vicinity and which will facilitate foundation works).	31° 8'0.88"S	24°50'25.59"E
Alternative(option) 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
This site has been selected based on the following preferences: » This site has been strategically placed in the centre point in order to connect each of the proposed solar energy facilities into the Eskom grid; » The site is located in close proximity to an existing power line which can be connected to the substation to facilitate the distribution of the electricity from the solar facilities into the Eskom grid;	31° 7'52.12"S	24°50'36.44"E

» Site access (i.e. the site is easily accessible from the R389 to Noupoort, and then via a secondary gravel road); » Site slope and topography (i.e. the site proposed for the placement of the substation is flat with no hills/mountains in the immediate vicinity and which will facilitate foundation works i.e. slope less than 20%).		
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

In the case of linear activities:

	Latitude (S):			Longitude (E):		
• Starting point of the activity						
• Middle/Additional point of the activity						
• End point of the activity						
Alternative S2 (if any)						
• Starting point of the activity						
• Middle/Additional point of the activity						
• End point of the activity						
Alternative S3 (if any)						
• Starting point of the activity						
• Middle/Additional point of the activity						
• End point of the activity						

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.

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.

See **Appendix J1 for the co-ordinates of the corners of the substation site (Option1 and Option 2)**

b) Lay-out alternatives

Alternative 1 (preferred option)		
Description: The design of substation is relatively standard, since it is required to conform to Eskom's technical standards as it forms part of the national electricity supply network and must fit in with Eskom's existing network systems, technology and infrastructure. Therefore, no feasible and reasonable alternatives were identified for assessment.	Lat (DDMMSS)	Long (DDMMSS)
Alternative 2		
Description The design of substation is relatively standard, since it is required to conform to Eskom's technical standards as it forms part of the national electricity supply network and must fit in with the existing network systems, technology and infrastructure. Therefore, no feasible and reasonable alternatives were identified for assessment.	Lat (DDMMSS)	Long (DDMMSS)
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

c) Technology alternatives

Alternative 1 (preferred option)
Description: Alternative technologies have not been considered as the technology to be used is dictated by Eskom's technical requirements.
Alternative 2
Alternative technologies have not been considered as the technology to be used is dictated by Eskom's technical requirements.
Alternative 3

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

Alternative 1 (preferred alternative)
Description: None applicable
Alternative 2
Description: None applicable
Alternative 3

e) No-go alternative

The no go alternative is the option of not constructing the substation. This alternative is assessed within this report.

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:	**Size of the activity:**
Alternative A1[1] (Option 1)	~62500 m^2
Alternative A2 (Option 2)	~62500 m^2
Alternative A3 (if any)	m^2

or, for linear activities:

Alternative:	Length of the activity:
Alternative A1 (preferred activity alternative)	m
Alternative A2 (if any)	m
Alternative A3 (if any)	m

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

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

Alternative:	**Size of the site/servitude:**
Alternative A1 (preferred activity alternative)	~62500 m^2
Alternative A2 (if any)	~62500 m^2
Alternative A3 (if any)	m^2

4. SITE ACCESS

Does ready access to the site exist?	**YES✓**
If NO, what is the distance over which a new access road will be built	m

Describe the type of access road planned:

The site is accessible directly from the R389 via an the existing entrance and gravel farm access road. Thereafter a section of new access road to the substation will be required. The access road (existing and new section) 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. See **Appendix A.**

A site plan showing the position of the existing and section of the new gravel access road, as well as an indication of the road in relation to the site is included in **Appendix A.**

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).

An A3 Locality Map is attached as **Appendix A**.

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.

A detailed site plan(s) for the activity is attached as **Appendix A**.

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**.

A sensitivity map covering areas within 100m of the site is attached in **Appendix A.**

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.

Colour photographs have been taken from the centre of the proposed site in the eight major compass directions. Annotated photographs are included in **Appendix B**.

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.

A facility illustration which represents a realistic image of the planned substation is attached within **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?		**NO ✓**	Please explain
The site is zoned as agricultural. An application will be required to be made to re-zone the land use rights to accommodate the proposed substation.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	**YES✓**		Please explain
The Northern Cape Province Spatial Development Framework (NCPSDF) makes			

reference to the need to ensure the availability of inexpensive energy. The section notes that in order to promote economic growth in the Northern Cape the availability of electricity to key industrial users at critical localities at rates that enhance the competitiveness of their industries must be ensured. At the same time, the development of new sources of energy through the promotion of the adoption of energy applications that display a synergy with the province's natural resource endowments must be encouraged. In this regard the NCPSDF notes "the development of energy sources such as solar energy, the natural gas fields, bio-fuels, etc., could be some of the means by which new economic opportunity and activity is generated in the Northern Cape". The NCPSDF also highlights the importance of close co-operation between the public and private sectors in order for the economic development potential of the Northern Cape to be realised. The proposed substation will facilitate the connection of various prposed solar energy facilities to the electricity grid.

(b) Urban edge / Edge of Built environment for the area		**NO✓**	Please explain

The site is located ~15km north-west of the urban edge related to the town of Noupoort. The site is proposed outside an urban area. The Farm Damfontein 8/114 is currently utilised for farming (grazing of livestock). Addition of a substation on the Farm Damfontein 8/114 will not significantly alter the urban edge of Noupoort or the Umsombuvo Local Municipality, as the current farming activities will continue on areas of the Farm which will not be occupied by infrastructure for the substation. Therefore the project is considered to be compatible with the farming activities in a rural area which is outside the urban edge of the Umsombuvu Local Municipality.

(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✓**		Please explain

The Umsobomvu Local Municipality (LM) Integrated Development Plan (2012/2013) has identified Basic Service Delivery as a Key Performance Area; this will be achieved through facilitating access to electricity for each consumer within the Municipality. Consequently, this project is in line with the LM IDP by assisting the LM achieves its goal of increasing electricity capacity in the area.

(d) Approved Structure Plan of the Municipality	**YES✓**		Please explain

According to the Umsombuvu Local Municipality strategy plan, a key development objective is to provide access to electricity to all households in the District by 2014. To achieve this, the District Municipality aims to i) Fast track the delivery of free basic electricity and ii) co-ordinate the maintenance and upgrading of the existing electricity infrastructure. While no specific mention is made of the promotion of alternative energy sources, the proposed project would potentially support a number of the development goals and objectives of the Umsombuvu Local Municipality. The project

will be in line with the Municipality's structure plan.			
(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✓**		Please explain
The Umsombuvu Local Municipality does not have an EMF; however an Integrated Environmental Management Programme was compiled by the District Municipality to ensure that land use decision-making must be taken with adequate environmental resource information is available in order to ensure sustainable and appropriate environmental management to the benefit of its residents. One of the set goals for the Programme is ensuring that all environmental issues are appropriately addressed. The proposed TSE substation will assist in collecting electricity from the proposed renewable energy projects in the vicinity. The aim of these projects is to contribute to clean energy generation as a sustainable resource and holds huge benefits for the local region and the country as a whole. Renewable resources generally operate from an unlimited resource base and, as such, can increasingly contribute towards a long-term sustainable energy future. The proposed project aims to achieve the set goals for the municipality Integrated Environmental Management Programme through addressing all possible environmental issues (including socio-economic conditions and cultural heritage component) associated with the development and considering measures to mitigate possible environmental issues.			
(f) Any other Plans (e.g. Guide Plan)	**YES**	**NO**	Please explain
N/A			
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✓**		Please explain
The Umsobomvu Local Municipality Integrated Development Plan (2012/2013) identifies infrastructure (i.e. electricity) as a key priority for the LM. The proposed development will be in line with the key priorities of the ULM IDP.			

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✓**		Please explain
The development of the TE substation is considered pivotal to connect the proposed solar energy facilities proposed by Geo Solar Energy (under SPV's) in the area. Without the substation, the development of various solar energy facilities in the Noupoort area will be compromised as the development of the solar energy facilities is dependent on the TSE substation. Strategically, South Africa is in need on utilising renewable sources of electricity and this substation will contribute positively to this end, to serve the purpose of transmission of the electricity from the solar projects into the Eskom grid. Regarding the local context, there is a need for development and development within the Umsombuvu Local Municipality, which the substation and related solar projects will positively contribute to economically via job creation, skills development and other community benefits.			
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.)		**NO✓**	Please explain
The nearest substation - the Noupoort substation may not have sufficient capacity to support multiple solar projects which have been proposed in the area; therefore Geo Solar (Pty) Ltd is proposing this new substation.			
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.)		**NO✓**	Please explain
The proposed substation is to be developed by a private developer (i.e. Geo Solar (Pty) Ltd) and not the municipality. It therefore does not fall within the infrastructure planning of the municipality. The substationwill not have any implications for the municipality but will assist them in their infrastructural planning priorities through increasing electricity capacity.			
7. Is this project part of a national programme to address an issue of national concern or importance?	**YES✓**		Please explain
The current electricity imbalances in South Africa highlight the significant role that			

renewable energy can play in terms of power supplementation. Given that renewables can generally be deployed in a decentralised manner close to consumers, they offer the opportunity for improving grid strength and supply quality, while reducing expensive transmission and distribution losses. At present, South Africa is some way off from exploiting the diverse gains from renewable energy and from achieving a considerable market share in the industry. In order to meet the long-term goal of a sustainable renewable energy industry, a target of 17.8 GW of renewables by 2030 has been set by the Department of Energy (DoE) within the Integrated Resource Plan (IRP) 2010 and incorporated in the IPP Procurement Programme. This energy will be produced from various renewable energy technologies including solar energy facilities (i.e. such as PV or CPV technology). The proposed substationwill facilitate the connection of ~100MW of solar energy to the electricity grid.

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.)	**YES✓**		Please explain

Site access
The site can be accessed easily via existing access roads from R389 road.

Gradient
A level surface area is preferred for the construction of a substation, this reduces the need for extensive earthworks associated with the levelling of a site, thereby minimising environmental impacts. The proposed area for the substation is generally on a flat location with slopes less than 5 degrees.

Grid Connection
The proposed substation is placed in such a manner that it will be able to accommodate the proposed PV Solar plant facilities as well as future solar facilities in the area. The site is located in close proximity to an existing power line in the area which will facilitate connection to the national grid.

9. Is the development the best practicable environmental option for this land/site?	**YES✓**		Please explain

The broader farm portion (approx. 1425 ha) itself as well as most of the surrounding areas is primarily used for small livestock and game farming. The proposed activity which will occupy an area of approximately 6.25ha will represent a change in land use and land form to what is currently the status quo. The development of the substation on the proposed farm portion is suitable and practicable from an environmental perspective, as the current land-use on the rest of the farm portion will continue.

10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	**YES✓**		Please explain

» No environmental fatal flaws have been identified to be associated with the project

at this stage in the project. The negative impacts for the project include:

- Clearing of natural vegetation for the proposed footprint area, increasing the potential for soil erosion, deterioration of the biotic, abiotic and economic properties of soil, and the long-term loss of natural vegetation;
- Possible destruction of stone artefact occurrences and scatters that are scattered over the extent of the proposed TSE Distribution Substation area and within the existing site access that is proposed to be used as the access road for the project.

» Most of these impacts can be managed and mitigated as outlined in the Impact Assessment and Environmental Management Programme.

» Positive impacts of the proposed substation include:

- Connection of renewable energy facilities to the national grid, thereby facilitating the diversification of power generation technologies which comprise the country's power generation mix.
- Stimulation of the local economy through the supply of a reliable electricity supply, which will assist in the generation of provision of services.

It is considered reasonable that the benefits of the proposed land use/development will outweigh the negative impacts.

11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?		**NO✓**	Please explain
There are similar developments or facilities in the Umsombuvu Local Municipality which are in full operation. It is considered that the precedent for the development of the proposed TSE substation in this area and within this Municipality has already been set.			
12. Will any person's rights be negatively affected by the proposed activity/ies?		**NO✓**	Please explain
The proposed project will be taking place in a private-owned land and will not impact on the surrounding area.			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?		**NO✓**	Please explain
The site is located ~15km north-west of the urban edge related to the town of Noupoort. The site is proposed outside an urban area. The Farm Damfontein 8/114 is currently utilised for farming (grazing of livestock). Addition of a substation on the Farm Damfontein 8/114 will not significantly alter the urban edge of Noupoort or the Umsombuvo Local Municipality, as the current farming activities will continue on areas of the Farm which will not be occupied by the substation infrastructure. Therefore the project compatible with the farming activities in a rural area which is outside the urban edge of the Umsombuvu Local Municipality.			
14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?	**YES✓**		Please explain
SIP 8 looks at green energy in support of South African economy; SIP 9 describes			

Electricity Generation to support socio-economic development; and SIP 10 looks at the expansion of electricity Transmission and Distribution to support economic development. Therefore the proposed activity will contribute to the SIPS. The proposed project will facilitate the connection of solar energy facilities to the electricity grid.

15. What will the benefits be to society in general and to the local communities?	Please explain

Job opportunities, albeit limited, will be created during the construction and operation of the proposed substation. In addition, local and regional economic benefits would be realised through the additional revenue generated as a result of the proposed project (through direct and indirect job opportunities, local spend, local procurement, etc.).

16. Any other need and desirability considerations related to the proposed activity?	Please explain

N/A

17. How does the project fit into the National Development Plan for 2030?	Please explain

One of the National Development Plan for 2030 is the transition to low carbon energy through speeding up and expanding renewable energy. This project will fit into this vision since it aims on increasing electricity supply through carbon-free methods. The proposed project will facilitate the connection of solar energy facilities to the electricity grid.

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

The general objectives of Integrated Environmental Management have been taken into account for this Basic Assessment report by means of identifying, predicting and evaluating the actual and potential impacts on the environment, socio-economic conditions and cultural heritage component. The risks, consequences, alternatives as well as options for mitigation of activities have also been considered with a view to minimise negative impacts, maximise benefits, and promote compliance with the principles of environmental management.

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

The principles of NEMA have been considered in this assessment through compliance with the requirements of the relevant legislation in undertaking the assessment of potential impacts, as well as through the implementation of the principle of sustainable development where appropriate mitigation measures have been recommended for impacts which cannot be avoided. In addition, the successful implementation and appropriate management of this proposed project will aid in achieving the principle of minimisation of pollution and environmental degradation.

This process has been undertaken in a transparent manner and all effort has been

made to involve interested and affected parties, stakeholders and relevant Organs of State such that an informed decision regarding the project can be made by the Regulating Authority.

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:

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
National Legislation			
National Environmental Management Act (Act No 107 of 1998)	The Basic Assessment Regulations have been promulgated in terms of Chapter 5 of the Act. Listed activities which may not commence without an environmental authorisation are identified within these Regulations. In terms of S24(1) of NEMA, the potential impact on the environment associated with these listed activities must be assessed and reported on to the competent authority charged by NEMA with granting of the relevant environmental authorisation. In terms of GN R543, R544 and R546 of 18 June 2010, a Basic Assessment Process is required to be undertaken for the proposed project.	Department of Environmental Affairs – competent authority Department of Environmental and Nature Conservation (DENC)- commenting authority	The listed activities triggered by the proposed substation have been identified and assessed in the Basic Assessment Process. . This Basic Assessment Report will be submitted to the competent and commenting authority in support of the application for authorisation.
National Environmental Management Act (Act No 107 of 1998)	In terms of the Duty of Care Provision in S28(1) the project proponent must ensure that reasonable measures are taken throughout the life cycle of this project to ensure that any pollution or degradation of the environment associated with this project is avoided, stopped or minimised. In terms of NEMA, it has become the legal duty of a project proponent to consider a project holistically, and to consider the cumulative effect of a variety of impacts.	Department of Environmental Affairs	While no permitting or licensing requirements arise directly by virtue of the proposed project, this section has found application during the Basic Assessment Process through the consideration of potential impacts (cumulative, direct, and indirect). It will continue to apply throughout the life

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
			cycle of the project.
Environment Conservation Act (Act No 73 of 1989)	National Noise Control Regulations (GN R154 dated 10 January 1992)	Department of Environmental Affairs Department of Environmental and Nature Conservation (DENC)- Local Authorities	Noise impacts are expected to be associated with the construction phase of the project and are not likely to present a significant intrusion to the local community. Therefore is no requirement for a noise permit in terms of the legislation. On-site activities should be limited to 6:00am - 6:00pm, Monday – Saturday (excluding public holidays). Should activities need to be undertaken outside of these times, the surrounding communities will need to be notified and appropriate approval will be obtained from DEA and the Local Municipality.
National Water Act (Act No 36 of 1998)	Water uses under S21 of the Act must be licensed, unless such water use falls into one of the categories listed in S22 of the Act or falls under the general	Department of Water Affairs	A water use license (WUL) is required to be obtained if wetlands or drainage

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	authorisation (and then registration of the water use is required). Consumptive water uses may include the taking of water from a water resource - Sections 21a and b. Non-consumptive water uses may include impeding or diverting of flow in a water course - Section 21c; and altering of bed, banks or characteristics of a watercourse - Section 21i.	Provincial Department of Water Affairs	lines are impacted on, or if infrastructure lies within 500m of such features. Pans occur on the project site, but outside of the development footprint. Should abstraction of groundwater from boreholes take place this will also require a water use licence.
Minerals and Petroleum Resources Development Act (Act No 28 of 2002)	A mining permit or mining right may be required where a mineral in question is to be mined (e.g. materials from a borrow pit) in accordance with the provisions of the Act. Requirements for Environmental Management Programmes and Environmental Management Plans are set out in S39 of the Act. S53 Department of Mineral Resources: Approval from the Department of Mineral Resources (DMR) may be required to use land surface contrary to the objects of the Act in terms of section 53 of the Mineral and Petroleum Resources Development Act, (Act No 28 of 2002): In terms of the Act approval from the Minister of Mineral Resources is required to ensure that proposed activities do not sterilise a mineral resources that might occur on site.	Department of Mineral Resources	As no borrow pits are expected to be required for the construction of the facility, no mining permit or right is required to be obtained. A Section 53 application to be submitted the Northern Cape DMR office.

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
National Environmental Management: Air Quality Act (Act No 39 of 2004)	Measures in respect of dust control (S32) – no regulations promulgated yet. Measures to control noise (S34) - no regulations promulgated yet.	Department of Environmental Affairs	No permitting or licensing requirements arise from this legislation. The Act provides that an air quality officer may require any person to submit an atmospheric impact report if there is reasonable suspicion that the person has failed to comply with the Act.
National Heritage Resources Act (Act No 25 of 1999)	» Stipulates assessment criteria and categories of heritage resources according to their significance (S7). » Provides for the protection of all archaeological and palaeontological sites, and meteorites (S35). » Provides for the conservation and care of cemeteries and graves by SAHRA where this is not the responsibility of any other authority (S36). » Lists activities which require developers any person who intends to undertake to notify the responsible heritage resources authority and furnish it with details regarding the location, nature, and extent of the proposed development (S38). » Requires the compilation of a Conservation Management Plan as well as a permit from SAHRA for the presentation of archaeological sites as part of tourism attraction (S44).	South African Heritage Resources Agency	An HIA and PIA has been undertaken as part of the Basic Assessment Process to identify heritage sites (See Appendix D2)

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
National Environmental Management: Biodiversity Act (Act No 10 of 2004)	» Provides for the MEC/Minister to identify any process or activity in such a listed ecosystem as a threatening process (S53) » A list of threatened and protected species has been published in terms of S 56(1) - Government Gazette 29657. » Three government notices have been published, i.e. GN R 150 (Commencement of Threatened and Protected Species Regulations, 2007), GN R 151 (Lists of critically endangered, vulnerable and protected species) and GN R 152 (Threatened or Protected Species Regulations). » Provides for listing threatened or protected ecosystems, in one of four categories: critically endangered (CR), endangered (EN), and vulnerable (VU) or protected. The first national list of threatened terrestrial ecosystems has been gazetted, together with supporting information on the listing process including the purpose and rationale for listing ecosystems, the criteria used to identify listed ecosystems, the implications of listing ecosystems, and summary statistics and national maps of listed ecosystems (National Environmental Management: Biodiversity Act: National list of ecosystems that are threatened and in need of protection, (G 34809, GN 1002), 9 December 2011). » This Act also regulates alien and invader species. » Under this Act, a permit would be required for any activity which is of a nature that may negatively	Department of Environmental Affairs	As the applicant will not carry out any restricted activity, as is defined in S1 of the Act, no permit is required to be obtained in this regard. Specialist flora and fauna studies have been undertaken as part of the Basic Assessment Process. As such the potentially occurrence of critically endangered, endangered, vulnerable, and protected species and the potential for them to be affected has been considered.

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	impact on the survival of a listed protected species.		
Conservation of Agricultural Resources Act (Act No 43 of 1983)	» Prohibition of the spreading of weeds (S5) » Classification of categories of weeds & invader plants (Regulation 15 of GN R1048) & restrictions in terms of where these species may occur. » Requirement & methods to implement control measures for alien and invasive plant species (Regulation 15E of GN R1048).	Department of Agriculture	This Act will find application throughout the life cycle of the project. In this regard, soil erosion prevention and soil conservation strategies must be developed and implemented. In addition, a weed control and management plan must be implemented. The permission of agricultural authorities will be required if the Project requires the draining of vleis, marshes or water sponges on land outside urban areas.
National Forests Act (Act No. 84 of 1998)	According to this act, the Minister has declared a tree, group of trees, woodland or a species of trees as protected. The prohibitions provide that 'no person may cut, damage, disturb, destroy or remove any protected tree, or collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a licence granted by the Minister'.	National Department of Forestry	There are no protected trees in the study area.
National Veld and Forest Fire Act (Act	In terms of S12 the applicant must ensure that the	Department of	While no permitting or

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
101 of 1998)	firebreak is wide and long enough to have a reasonable chance of preventing the fire from spreading, not causing erosion, and is reasonably free of inflammable material. In terms of S17, the applicant must have such equipment, protective clothing, and trained personnel for extinguishing fires.	Agriculture, Forestry and Fisheries (DAFF)	licensing requirements arise from this legislation, this act will find application during the construction and operational phase of the project.
Hazardous Substances Act (Act No 15 of 1973)	This Act regulates the control of substances that may cause injury, or ill health, or death due to their toxic, corrosive, irritant, strongly sensitising or inflammable nature or the generation of pressure thereby in certain instances and for the control of certain electronic products. To provide for the rating of such substances or products in relation to the degree of danger; to provide for the prohibition and control of the importation, manufacture, sale, use, operation, modification, disposal or dumping of such substances and products. Group I and II: Any substance or mixture of a substance that might by reason of its toxic, corrosive etc, nature or because it generates pressure through decomposition, heat or other means, cause extreme risk of injury etc., can be declared as Group I or Group II substance Group IV: any electronic product; and Group V: any radioactive material. The use, conveyance, or storage of any hazardous substance (such as distillate fuel) is prohibited without	Department of Health	It is necessary to identify and list all the Group I, II, III, and IV hazardous substances that may be on the site and in what operational context they are used, stored or handled. If applicable, a license is required to be obtained from the Department of Health.

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	an appropriate license being in force.		
Development Facilitation Act (Act No 67 of 1995)	Provides for the overall framework and administrative structures for planning throughout the Republic. S (2 - 4) provide general principles for land development and conflict resolution.	Local Municipality	The applicant must submit a land development application in the prescribed manner and form as provided for in the Act. A land development applicant who wishes to establish a land development area must comply with procedures set out in the Act.
Subdivision of Agricultural Land Act (Act No 70 of 1970)	Details land subdivision requirements and procedures. Applies for subdivision of all agricultural land in the province	Department of Agriculture	Subdivision will have to be in place prior to any subdivision approval in terms of S24 and S17 of the Act.
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)	The Minister may by notice in the *Gazette* publish a list of waste management activities that have, or are likely to have, a detrimental effect on the environment. The Minister may amend the list by – » Adding other waste management activities to the list. » Removing waste management activities from the list. » Making other changes to the particulars on the list.	National Department of Water and Environmental Affairs Provincial Department of Environmental Affairs (general waste)	As no waste disposal site is to be associated with the proposed project, no permit is required in this regard. Waste handling, storage and disposal during construction and operation is required to be undertaken in accordance with the requirements of

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	In terms of the Regulations published in terms of this Act (GN 718), A Basic Assessment or Environmental Impact Assessment is required to be undertaken for identified listed activities. Any person who stores waste must at least take steps, unless otherwise provided by this Act, to ensure that: » The containers in which any waste is stored, are intact and not corroded or in » any other way rendered unlit for the safe storage of waste. » Adequate measures are taken to prevent accidental spillage or leaking. » The waste cannot be blown away. » Nuisances such as odour, visual impacts and breeding of vectors do not arise; and » Pollution of the environment and harm to health are prevented.		the Act, as detailed in the EMP (refer to Appendix G). The volumes of waste to be generated and stored on the site during construction and operation of the facility will not require a waste license (provided these remain below the prescribed thresholds).
National Road Traffic Act (Act No 93 of 1996)	» The technical recommendations for highways (TRH 11): "Draft Guidelines for Granting of Exemption Permits for the Conveyance of Abnormal Loads and for other Events on Public Roads" outline the rules and conditions which apply to the transport of abnormal loads and vehicles on public roads and the detailed procedures to be followed in applying for exemption permits are described and discussed. » Legal axle load limits and the restrictions imposed on abnormally heavy loads are discussed in relation	» South African National Roads Agency Limited (national roads) » Provincial Department of Transport	An abnormal load/vehicle permit may be required to transport the various components to site for construction. These include route clearances and permits will be required for vehicles carrying abnormally heavy or abnormally dimensioned

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	to the damaging effect on road pavements, bridges, and culverts. » The general conditions, limitations, and escort requirements for abnormally dimensioned loads and vehicles are also discussed and reference is made to speed restrictions, power/mass ratio, mass distribution, and general operating conditions for abnormal loads and vehicles. Provision is also made for the granting of permits for all other exemptions from the requirements of the National Road Traffic Act and the relevant Regulations.		loads. Depending on the trailer configuration and height when loaded, some of the substation components may not meet specified dimensional limitations (size and weight).
Promotion of Access to Information Act (Act No 2 of 2000)	All requests for access to information held by state or private body are provided for in the Act under S11.	Department of Environmental Affairs	No permitting or licensing requirements.
Promotion of Administrative Justice Act (Act No 3 of 2000)	In terms of S3 the government is required to act lawfully and take procedurally fair, reasonable, and rational decisions. Interested and affected parties have a right to be heard.	Department of Environmental Affairs	No permitting or licensing requirements.
Provincial Legislation			
Northern Cape Nature Conservation Act, Act No. 9 of 2009	This Act provides for the sustainable utilisation of wild animals, aquatic biota and plants; provides for the implementation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora; provides for offences and penalties for contravention of the Act; provides for the appointment of nature conservators to implement the provisions of the Act; and provides for the issuing of permits and other authorisations. Amongst other regulations, the	Provincial Department of Environmental Affairs	Permitting or licensing requirements arise from this legislation for the proposed activities to be undertaken for the proposed project as there are a succulent plants species on the proposed development site. A

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	following may apply to the current project: » Boundary fences may not be altered in such a way as to prevent wild animals from freely moving onto or off of a property; » Aquatic habitats may not be destroyed or damaged; » The owner of land upon which an invasive species is found (plant or animal) must take the necessary steps to eradicate or destroy such species. » The Act provides lists of protected species for the Province.		permit is required to remove the plants.

12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?	**YES✓**
If YES, what estimated quantity will be produced per month?	Unknown at this stage

Unknown amount of solid construction waste consisting mainly of vegetation, spoil material from clearing activities, foundation excavation and metal and cabling off cuts. Therefore minimal quantities of packaging materials for the various components, excess concrete spillage and excess building materials will be produced on site during the construction phase. The quantity would be readily handled by contractors on site.

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

It is anticipated that construction waste will be comprised mainly of spoil material from cleaning activities as well as metal and cabling offcuts, as well as spoil material from foundation excavation. Non-recyclable waste will be trucked to the nearest registered waste disposal facility for appropriate disposal.

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

In order to comply with legal requirements should there be excess solid construction waste after recycling options have been exhausted, the waste will be transported to the nearest registered waste disposal facility for appropriate disposal.

Will the activity produce solid waste during its operational phase?	**NO✓**
If YES, what estimated quantity will be produced per month?	
How will the solid waste be disposed of (describe)?	

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

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

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.

Can any part of the solid waste be classified as hazardous in terms of the NEM:WA? [ ] **NO✓**

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? [ ] **NO✓**

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? [ ] **NO✓**

If YES, what estimated quantity will be produced per month? m^3

Will the activity produce any effluent that will be treated and/or disposed of on site? [ ] **NO✓**

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? [ ] **NO✓**

If YES, provide the particulars of the facility:

Facility name:			
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:

c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other than exhaust emissions and dust associated with construction phase activities?	[redacted] **NO✓**
If YES, is it controlled by any legislation of any sphere of government?	**NO✓**

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:

During the construction phase, it is expected that there will be short term dust generation and emissions from vehicles and machinery. However the dust and emissions will have a medium to short term duration and have limited impact in terms f extent and severity. The extent of the impact will be restricted to the substation and its immediate surroundings within approximately 500m of the site. Appropriate dust suppression measures will be implemented to reduce the impacts. It is recommended that construction vehicles be serviced and kept in good mechanical condition to minimise possible exhaust emission.

d) Waste permit

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA?	[redacted] **NO✓**

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✓** [redacted]
If YES, is it controlled by any legislation of any sphere of government?	**NO✓**

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.

If NO, describe the noise in terms of type and level:

Short term noise impacts are anticipated during the construction phase of the project. It is however anticipated that the noise will be localised and contained within the substation site and its immediate surroundings. In order to minimise the impacts of noise during the construction phase, construction activities should be restricted to between 06H00 and 18H00 Monday to Friday, and 08h00-13h00 on Saturdays. This is required to avoid noise disturbances outside normal working hours. All construction equipment must be maintained and kept in good working order to minimise associated noise impacts. Should construction work be required to be undertaken outside of these times, surrounding sensitive receptors should be timeously informed. The applicant must adhere to the relevant noise control legislation as well as SANS 10103.

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✓**

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:	
Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs?	**NO✓**
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 that have been taken to ensure that the activity is energy efficient:

N/A

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

N/A

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✓**

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	Northern Cape Province
District Municipality	Pixley ka Seme District Municipality
Local Municipality	Umsobomvu Local Municipality
Ward Number(s)	2
Farm name and number	Damfontein 114
Portion number	8
SG Code	C03000000000114000008

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:

Agriculture, used for grazing of livestock

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✓**

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

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

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

2. LOCATION IN LANDSCAPE

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

Applicable to both alternatives under consideration

2.1 Ridgeline		2.4 Closed valley		**2.7 Undulating plain / low hills**	✓
2.2 Plateau		2.5 Open valley		2.8 Dune	
2.3 Side slope of hill/mountain		**2.6 Plain**	✓	2.9 Seafront	

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):**	
Shallow water table (less than 1.5m deep)		**NO✓**		**NO✓**	YES	NO
Dolomite, sinkhole or doline areas		**NO✓**		**NO✓**	YES	NO
Seasonally wet soils (often close to water bodies)		**NO✓**		**NO✓**	YES	NO

Unstable rocky slopes or steep slopes with loose soil		**NO✓**		**NO✓**	YES	NO
Dispersive soils (soils that dissolve in water)		**NO✓**		**NO✓**	YES	NO
Soils with high clay content (clay fraction more than 40%)	**YES✓**		**YES ✓**		YES	NO
Any other unstable soil or geological feature		**NO✓**		**NO✓**	YES	NO
An area sensitive to erosion	**YES✓**				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.

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).

Applicable to both alternatives under consideration

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.

Three vegetation units could be identified on the broader site (**Figure 4**):

» Unit 1: The *Diospyros austro-africana – Stipagrostis obtusa* shrublands occur on small rocky outcrops and ridges with a variable slope (sensitivity high), and are part of the Besemkaree Koppies Shrublands.

» Unit 2: The *Ruschia intricata – Tragus koelerioides* dwarf shrublands cover large tracts of the study area – primarily on gently undulating plains with shallow soils, and

are referred to by local farmers as 'randjiesveld' (sensitivity medium-low), and overall part of the Eastern Upper Karoo vegetation.

» Unit 3: The *Lycium cinereum – Eragrostis bicolor* grasslands cover equally large portions of the study area, and are situated in the depressions between the slopes (sensitivity medium-high). These are also part of the Eastern Upper Karoo vegetation. Runoff and associated sediment and nutrients from surrounding plains accumulate here, resulting in nutrient enriched, clay-rich soils that can hold larger volumes of moisture after rains and generally also support a denser grass layer. During periods of drought, however, topsoils may become excessively dry and the herb layer may recede significantly to exposes large bare patches. These areas are important as grazing areas to the livestock farmers of the region.

The proposed substation site is located within Unit 2 for Option 1 and unit 2 and 3 for Option 2.

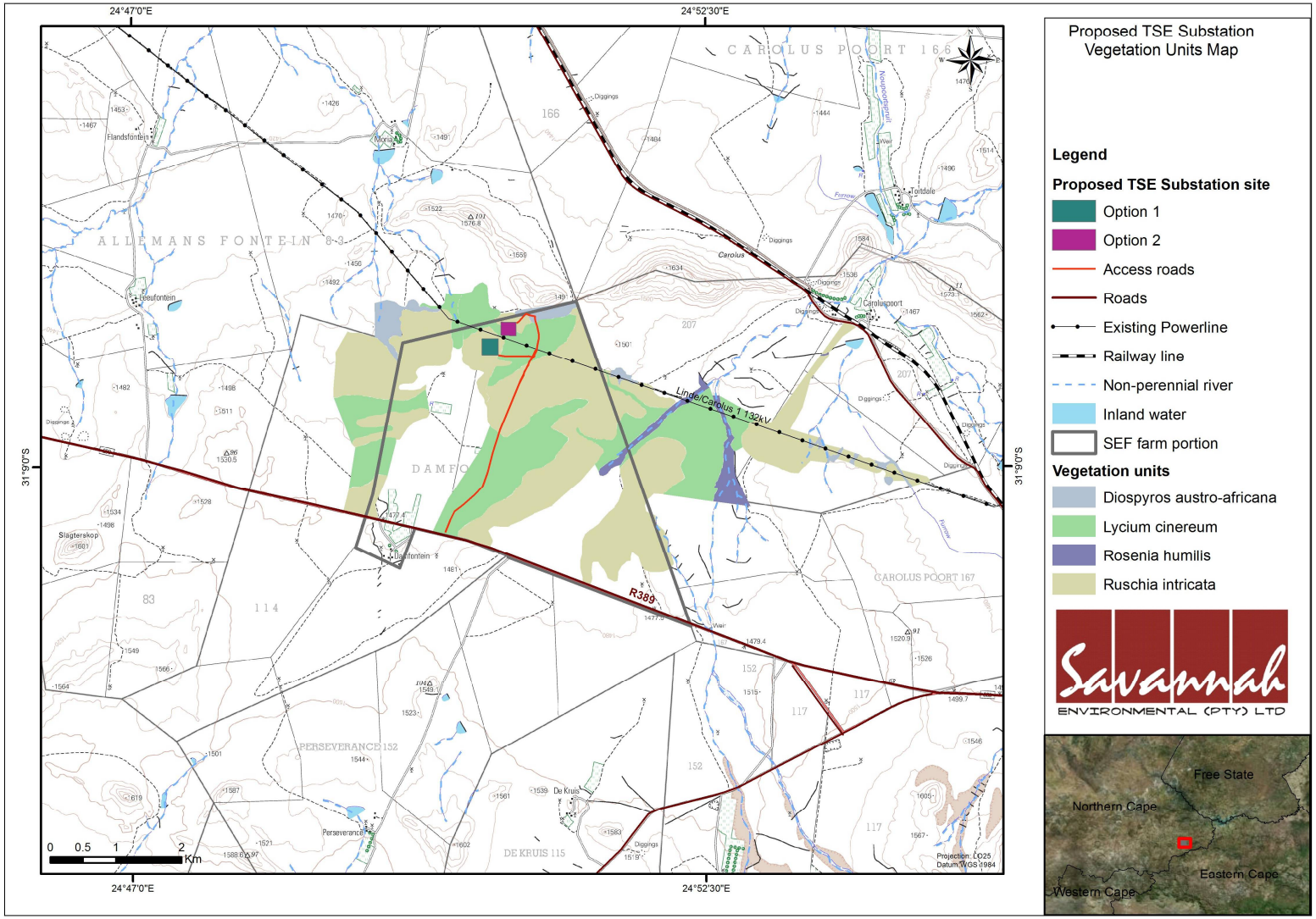

Figure 4: TSE Distribution Substation Vegetation units map.

5. SURFACE WATER

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

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

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

Non-Perennial river: drainage line approx. 2km south west of the site.

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:

Applicable to both alternatives under consideration

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)✓

**An existing 132 kV power line crosses the property.

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

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:

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:

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

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

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

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✓**	[redacted]
	YES✓	

Surface scatters of Middle Stone Age stone artefacts occurred within the immediate and surrounding area proposed for the development. The stone artefacts were all manufactured on a fine-grained black (hornfels or lydianite) raw material and all similarly heavily weathered and patinated. The stone artefacts comprised mostly of varying small and large flakes and miscellaneous retouched pieces. Several of the flakes showed evidence of secondary retouch and some showed evidence of edge-damage that may indicate utilisation. Some prepared core or facetted platform flakes were also identified within the proposed area. Several stone artefacts also showed fresh flaking that may have been caused recently by trampling by domestic stock and/or human and farming activity.

It is unlikely that the stone artefacts would be *in situ* and are regarded as being in a secondary and out of context position as they have been washed into the exposed areas and have been disturbed by domestic animal and human activities. However, the stone artefacts that occurred between the shrubs and dense grass vegetation may be in a less disturbed position. It is also possible that stone artefact may occur below the vegetation cover between the surface and 50 – 80 cm below the ground.

The specialist heritage report contained in **Appendix D2** provides further details.

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:

The stone artefact occurrences and scatters are considered to have a medium-low cultural significance. The stone artefact occurrences and scatters have been allocated a General Protection heritage grading as is standard for all archaeological heritage resources (NHRA No 25 of 1999).

Will any building or structure older than 60 years be affected in any way?	**NO✓**
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	**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:

In 2001 the level of unemployment in the Umsobomvu (UM) LM was 31.12%, which decreased to 25% in 2007. The IDP indicates however, that unemployment is more than 30% in most of the areas and people survive on subsistence farming, pension/welfare payments and labour intensive jobs. The UM IDP notes the level of unemployment the high unemployment rate has serious repercussions on the ability of the residents of Umsobomvu to pay for service and meet their daily needs.

The agricultural sector is the most important sector in terms of employment, followed by the community, social and personal services including government associations and institutions (**Figure 5**). The IDP also notes that there are a large number of pensioners and retired people are in the urban areas.

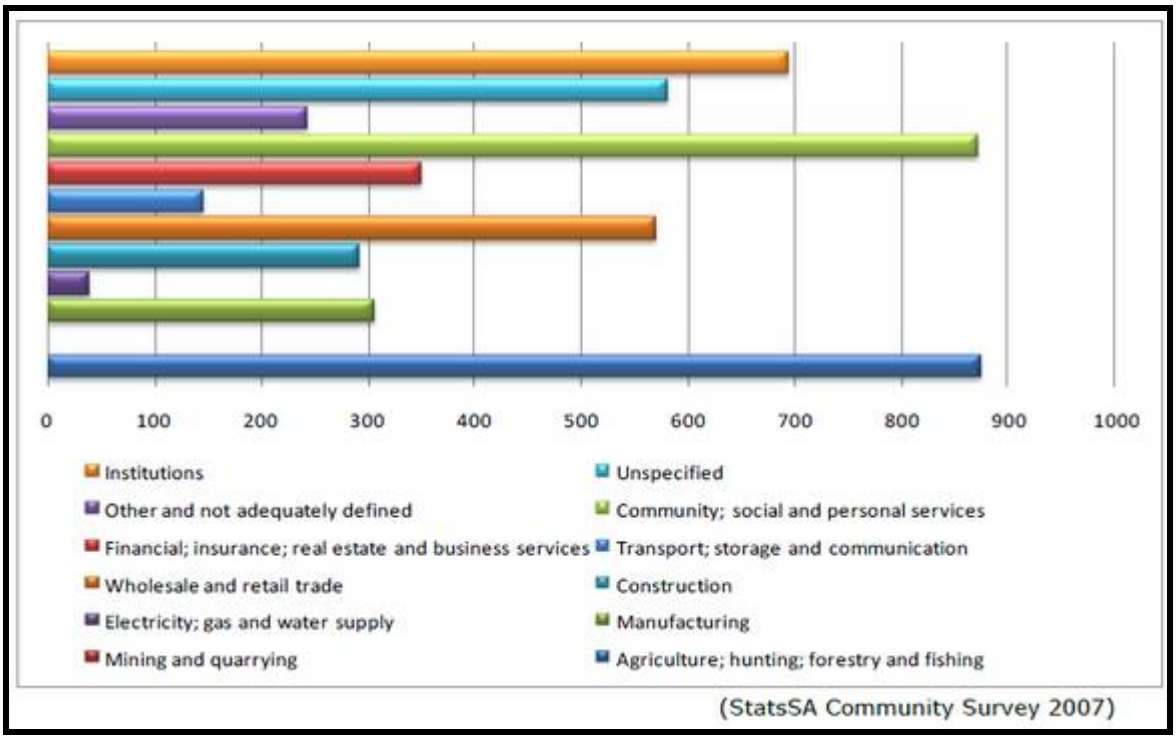

Figure 5: Key economic sectors in terms of employment

Economic profile of local municipality:

The ULM economy is characterised by the following:

» High levels of poverty and low levels of education;
» A declining economy that is largely based on sheep farming;
» An economy that was too dependent on Spoornet in Noupoort, which has since declined because of the withdrawal of Spoornet;
» Promising growth in tourism in Colesberg Area;
» Rapid population growth in Colesberg because of the migration from other parts of the municipal area, which puts a heavy burden on the infrastructure.

Level of education:

In terms of education levels 15.1 % of the population had no education at all, while 71.3% have primary or secondary education. Those with higher educational qualification accounted for 3.7 % of the population. These figures indicate an increase in all categories since 1996, except for the no schooling category, which decreased by 4.9 % indicating a higher percentage of people attending school. In general there has been an improvement in the educational qualifications of the labour force that has a secondary and tertiary education. This would appear to be result of an increase in access to education since 1994, particular, amongst new entrants to the labour force.

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	Unknown
What is the expected yearly income that will be generated by or as a result of the activity?	Not determined
Will the activity contribute to service infrastructure?	**YES✓**
Is the activity a public amenity?	**NO✓**
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	Unknown
What is the expected value of the employment opportunities during the development and construction phase?	Not determined
What percentage of this will accrue to previously disadvantaged individuals?	Not determined
How many permanent new employment opportunities will be created during the operational phase of the activity?	Not determined
What is the expected current value of the employment opportunities during the first 10 years?	Not determined
What percentage of this will accrue to previously disadvantaged individuals?	Not determined

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 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.

Refer to Figure 3 in **Appendix D1**

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)	

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		
Near Natural (includes areas with low to moderate level of alien invasive plants)	98%	Relatively good condition
Degraded (includes areas heavily invaded by alien plants)	0%	
Transformed (includes cultivation, dams, urban, plantation,	2%	Cultivation, roads, homesteads.

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.).
roads, etc.)		

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 Endangered Vulnerable **Least Threatened** ✓	Wetland (including rivers, depressions, channelled and unchanneled wetlands, flats, seeps pans, and artificial wetlands)		Estuary		Coastline
		YES	[redacted]	[redacted]	**NO**	[redacted] **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)

The study site falls within the Eastern Upper Karoo as described by Mucina and Rutherford (2006). Outcrops and ridges towards the north and north-east of the study area contain Besemkaree Koppies Shrubland, merging slightly into Tarkastad Montane Shrubland that is present north-east of the study area.

The Eastern Upper Karoo landscapes, as described in Mucina and Rutherford (2006) consist of gently sloping plains and flats, interspersed with hills, rocky areas and drainage lines of various sizes. Vegetation is dominated by dwarf microphyllous shrubs and a very variable cover of grasses, dominated by the genera *Aristida* and *Eragrostis*. Local grass cover depends on soil properties (preferring sandier soils), and rainfall. As rainfall is very variable in the Karoo, grass cover within one area can vary significantly from one year to the next.

Prominent tall shrubs include *Lycium cinereum* and *L. horridum*; prominent low shrubs include *Eriocephalus ericoides*, *E. spinescens*, *Pentzia* 0species, *Chrysocoma ciliata*, *Phymaspermum parvifolium*, *and Pteronia* and *Selago* species. The succulent shrub

Ruschia intricata is widely spread and may reach high localised densities. A wide variety of geophytes occurs in the area, although only visible for short periods after sufficient rains and thus often overlooked or not detected during surveys.

Overall, this vegetation type is regarded as least threatened and is the largest mapped vegetation unit within South Africa, with up to date an estimated 2% of the vegetation being transformed due to various developments (Mucina and Rutherford 2006), but larger areas may be in various states of degradation (Hoffman and Ashwell 2001, Esler *et al.* 2006). A large factor contributing to this widespread degradation is erosion, with up to 60% of landscapes within the vegetation type being affected by moderate erosion, the remainder by high erosion rates, thus also leading to changes in vegetation composition and requiring active management to combat and reverse degradation. (Refer to **Appendix D1**).

SECTION C: PUBLIC PARTICIPATION

1. Advertisement And Notices

Publication name	Volksblad and De Aar Echo	
Date published	• 26 October 2012 and 02 November 2012 (Project announcement) • 9 November 2012 (Public Open Day) • 3 December 2013 (availability of DBAR)	
Site notice position	**Latitude**	**Longitude**
	31° 9'26.86"S	24°49'21.86"E
Date placed	29 October 2012	

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

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.

The public consultation process has included the publishing of notices regarding the proposed project as well as the distribution of notification letters to identified I&APs. Affected and neighbouring landowners were consulted through one-on-one consultation sessions and via telephone. A public open day was held on the 28th November 2012 at the Hutcheson Hall in Noupoort and all identified I&APs were invited to attend. In addition, the open day was advertised in the local and regional press on the 9 November 2012. The draft BAR was also distributed to organs of state and placed in public places.

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)**
Christiaan Philippus	Adjacent Landowner	
Jim De Villiers	Adjacent Land Owner	
Handre Nieuwoudt	Impacted Land Owner	
Hendrikus Visser	Adjacent Land Owner	
Henk Du Toit	Adjacent Land Owner	
Andries Keun	Impacted Land Owner	

Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (tel number or e-mail address)
Jim De Villiers	Adjacent Land Owner	
Anita Geldenhuis	Adjacent Landowner	
Septimus Van Dyk	Adjacent Landowner	
Fauntleroy Gillmer	Impacted Land Owner	
Jim De Villiers	Adjacent Land Owner	
Dykie De Villiers	Adjacent Land Owner	
Colin Bowes	Adjacent Land Owner	
Jim De Villiers	Adjacent Land Owner	
Pieter Langenhoven	Adjacent Landowner	
Pam Barret	I&AP	
Suzanne Erasmus	I&AP	
Paul Lochner	Council for Scientific and Industrial Research	

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.

3. Issues raised by interested and affected parties

Summary of main issues raised by I&APs	Summary of response from EAP
SKA assessed the project location the proposed side and determined that it is of a low risk to the SKA infrastructure because the solar energy project is more than 100km away from the SKA project infrastructure.	Comment noted, no response required.
Department of Agriculture, Forestry & Fisheries commented that since they are no protected trees that will be affected by the proposed development; the Department has no objection against the proposed development as long as the necessary permits are obtained from the	If permit for the disturbance of specially protected fauna and flora is required, it will be obtained from DENC.

provincial Department of Environment and Nature Conservation for the disturbance of specially protected fauna and flora.	
BirdLife South Africa commented that the proposed solar farm and associated infrastructure have the potential to cause significant habitat loss, displacement and possibly mortality of avifauna.	An avifaunal report for solar project near Noupoort has been done. The report was submitted to BirdLife.
BirdLife South Africa is in support of the findings and recommendations of the avifaunal specialist. However, they note that the study focussed only on Blue Cranes. In the future, they suggest that it would be wise to broaden the scope of the assessments for similar projects to include all bird species potentially affected. Fortunately, the mitigation measures suggested by the specialist (i.e. placing the powerlines and grid connection for Allemans, Damfontein, Wonderheurwel and Caroluspoort underground) will reduce the potential impacts on other collision-prone species in the area. They suggest this should be seen as essential mitigation.	Comment is noted.
The general community of Noupoort were concerned about job prospects the development of the solar energy facility would bring to the area.	The project will create employment opportunities. Approximately 60 – 80 jobs will be created per project during the construction phase. Twenty permanent jobs would be created during the operational phase.
Umsobomvu Local Municipality queried whether the proposed substation would still be constructed regardless of all the various Terrasolar projects being developed.	The alternative would be to connect to the existing power line. This would, however, depend on the grid capacity and Eskom. Detailed grid integration studies are being undertaken by the developer. It is possible, that the Newgate substation will not have sufficient capacity to accommodate all 5 projects, therefore a new substation is proposed. At this point

	the aim is to secure the land for development of the substation and obtain Environmental Authorisation, in the event that is required, this is also dependent on Eskom's input.
SAHRA commented that according to the Desktop Palaeontological Report, the region is characterised by low hills and koppies, often topped by doleritic sills. The geology of the area is dominated by sedimentary rocks of the Adelaide Subgroup of the Beaufort Group of the Karoo Supergroup. The region is relatively fossil rich. Past findings include fossilised wood, leaf and stem imprints as well as vertebrate skeletal material. The area proposed for development falls within the Dicynodon Assemblage Zone of the Adelaide Subgroup which is characterised by herbivorous Synapsid fossils. These palaeontological resources are accorded high significance. As such an interim decision that according to the information provided in the Phase 1 AIA, the likelihood of the proposed development impacting on significant archaeological resources is low. As such, no further archaeological mitigation is required.	These recommendations are included in this Final Basic Assessment Report as well as the Environmental Management Programme (EMP).

4. Comments and Response Report

The practitioner must record all comments received from I&APs and respond to each comment before the Final 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.**

5. Authority Participation

Authorities and organs of state identified as key stakeholders:

Authority/Organ of State	Title	Contact person (Name and Surname)	Tel No	Fax No	e-mail
Council for Scientific and Industrial Research	Mr.	Paul Lochner	021-888-2486		plochner@csir.co.za
Department of Agriculture, Forestry & Fisheries	Ms	Thoko Buthelezi	012-319-7634		thokob@daff.gov.za
Department of Agriculture, Forestry & Fisheries	Ms	Jacoline Mans	054-338-5909	054-334-0030	jacolinema@daff.gov.za
Department of Energy	M	The Director: Northern Cape	053-807-1752	086-562-7065	
Department of Energy		DDG: Programmes and Projects	012-406-7568		
Department of Mineral Resources	Mr	Ntsundeni Ravhugoni	053-807-1700	053-830-0827	Ntsundeni.Ravhugoni@dmr.gov.za
Department of Rural Development and Land Reform	Ms	Debbie Khan	012-312-9490	012-323-6072	dkhan@ruraldevelopment.gov.za
Department of Water Affairs	Mr	A Abrahams		053-831-4534	abrahamsa@dwa.gov.za
Department of Water Affairs	Ms.	Tocky Ngobeni	012-336-7488		ngobenit@dwa.gov.za
Eskom	Mr.	John Geeringh	011-516-7233	086-661-4064	john.geeringh@eskom.co.za
Eskom	Mr.	Andrea van Gensen	051-404-2040		andrea.vangensen@eskom.co.za
Northern Cape Department of Agriculture, Land Reform & Rural Development	Mr.	Ali Diteme	053-838-9106	053-832-4328	aditeme@agri.ncape.gov.za
Northern Cape Department of Environment and Nature Conservation	Ms.	J Mutyorauta	053-807-7431		jmutyorauta@ncpg.gov.za
Northern Cape Department of Environment and Nature Conservation	Mr	Denver van Heerden	053-807-7305	053-807-7367	jriddles@ncpg.gov.za
Northern Cape Department of Environment and Nature Conservation	Ms	Christene Pienaar	053-807-7437	053-807-7416	
Northern Cape Department of Roads and Public Works	Ms	Kholikile Nogwili	053-838-2109	053-838-2117	lucindavanwyk@ncpg.gov.za
Northern Cape Department of Roads and Public Works	Mr.	Kenneth Markman	053-631-1355	053-631-1357	kenneth.markman@vodamail.co.za
Northern Cape Provincial Heritage Resources Agency	Mr.	Andrew Timothy	053-831-2537	053-833-1435	ratha.timothy@gmail.com
Northern Cape Rock Art Trust (NCRA) McGregor Museum	Ms.	David Morris	053-839-2706	053-842-1433	dmorris@inext.co.za
Pixely Ka Seme District Municipality	Mr.	Simphiwe Naude	053-631-0891	053-631-0891	
Pixely Ka Seme District Municipality	Mr.	Maccollan Jack	053-631-0891	053-631-2529	mackjack@vodamail.com
Pixely Ka Seme District Municipality	Mr.	Sandisile Madayo	053-632-9100	052-631-0105	pixley@telkomsa.net
South African Civil Aviation Authority	Mr.	Chris Isherwood	011-545-1028	011-545-1282	isherwoodc@caa.co.za

South African Heritage Resources Agency (SAHRA)	Mr.	Kathryn Smuts	021-462-4502	021-462-4509	ksmuts@sahra.org.za
South African Heritage Resources Agency (SAHRA)	Ms	Mariagrazia Galimberti	021-462-4502	021-462-4509	mgalimberti@sahra.org.za
South African National Parks	Mr.	Peter Novellie	012-426-5066		peter.novellie@sanparks.org
South African National Parks	Mr.	Paul Daphne	012-426-5066	012-343-2832	pauld@sanparks.org
South African National Roads Agency Limited	Ms.	Rene de Kock	021-957-4607	021-946-1630	Dekockr@nra.co.za
South African National Roads Agency Limited	Ms.	Colene Runkel		021-946-1630	runkelc@nra.co.za
Square Kilometre Array (SKA): South Africa	Dr.	Adrian Tiplady	011-442-2434		atiplady@ska.ac.za
Transnet	Mr.	Krishna Reddy	011-308-1065	011-308-2638	krishna.reddy@transnet.net
Umsobomvu Local Municipality	Mr.	Mzawandile Toto	049-843-1056	049-843-1947	mzwandiletoto@gmail.com
Umsobomvu Local Municipality	Mr.	MA Sestile	049-843-1165	049-843-1165	ma.sestile@webmail.co.za
Umsobomvu Local Municipality	Mr.	Manne Rossouw	051-753-0574	051-753-0574	manne@umsobomvumun.co.za
Umsobomvu Local Municipality	Mr.	Ben Malherbe	051-753-0777	051-753-0574	faith@umsobomvumun.co.za
Umsobomvu Local Municipality	Cllr	Annie Fritz	049-843-1219		
Umsobomvu Local Municipality	Cllr	Amos China Mpela	051-753-0777	051-753-1918	
Wildlife and Environment Society of South Africa (WESSA)	Ms	Suzanne Erasmus	053-839-2717	053-842-1433	wessanc@yahoo.com

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.

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 is included as **Appendix E5**.

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

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.

Activity	Impact summary	Significance	Proposed mitigation
Alternative 1 (Option 1)			
PLANNING AND DESIGN PHASE			
Use of vehicles during field survey	***Direct impacts:***		
	Roads and vegetation damage	Medium	Make use of existing access roads only
	Indirect impacts:		
	N/A	N/A	N/A
	Cumulative impacts:		
	N/A	N/A	N/A
CONSTRUCTION PHASE			
Site clearing for construction/placement of: » Access roads; » Foundations; » Underground cabling; » Steel framework i.e. towers or poles.	***Direct impacts:***		
	Loss of vegetation, increase in runoff and erosion	Medium	Make use of existing tracks as far as possible limit vegetation clearance to footprint of development area
	Destruction of stone artefact occurrences and scatters.	Medium	Once the final layout of the proposed TSE Distribution Substation has been finalised, an archaeological ground-truthing should be conducted and further recommendation be made to protect the archaeological heritage within the area proposed for development, if required.
	» Siltation of watercourses and other natural resources downstream as a result of improper storm water management and soil erosion due to increased and concentrated water run-off; » Dust production and dust pollution of grazing plants	Low	» Care must be taken with the ground cover during and after construction on the site. If it is not possible to retain a good plant cover during construction, technologies should be employed to keep the soil covered by other means, i.e. straw, mulch, erosion control mats, etc., until a healthy plant cover is again established. » Care should also be taken to control and contain storm water run-off. Rehabilitate construction sites by establishing these with indigenous grasses. » Compile and implement an appropriate stormwater management plan.
	» Creation of employment and business	Low	» Maximise the use of local labour for low – semi skilled

Activity	Impact summary	Significance	Proposed mitigation
	opportunities » Potential loss of livestock, crops and houses, damage to farm infrastructure and threat to human life associated with increased incidents of veld fires		jobs far as possible. » Geo Solar Energy should enter into an agreement with the affected landowners whereby the company will compensate for damages. This includes losses associated veld fires. In addition, the potential increased risk of veld fires can be effectively mitigated.
	» Destruction of Blue Crane habitat during construction » Disturbance of Blue Cranes during construction and maintenance » Collision of Blue Cranes with overhead power lines	Low	Micro siting of infrastructure to avoid sensitive areas. This should be achieved through an avifaunal walk through as part of the site specific EMP. Strict control of machinery, staff and equipment to ensure no unnecessary damage to vegetation
	Indirect impacts:		
	Ecological degradation/loss of arable land and ecological integrity	Medium	Re-establish vegetation where possible and in so doing increase habitat capabilities.
	Irreplaceable loss of archaeological heritage resources.	Low	Once the final layout of the proposed TSE Distribution Substation has been finalised, an archaeological ground-truthing should be conducted and further recommendation be made to protect the archaeological heritage within the area proposed for development.
	Once the construction phase is complete, locals employed on the site may not be able to find future employment.	Low	The developer should implement a training and skills development programme for locals during the first 5 years of the operational phase. The aim of the programme should be to maximise the number of South African's and locals employed during the operational phase of the project.
	Blue Crane species migrating to other areas	Low	Avoid sensitive areas of site as identified in the avifaunal walk through as part of the site specific EMP.

Activity	Impact summary	Significance	Proposed mitigation
	Cumulative impacts:		
	Possible erosion of areas lower than the access road, possible contamination of lower-lying drainage lines due to oil or other spillage,	Low-Medium	Cumulative impacts of developments on population viability of species can be reduced significantly if new developments are kept as close as possible to existing developed areas or, where such is not possible, different sections of a development be kept as close together as possible.
	Irreplaceable loss of archaeological heritage resources.	Low	Once the final layout of the proposed TSE Distribution Substation has been finalised, an archaeological ground-truthing should be conducted and further recommendation be made to protect the archaeological heritage within the area proposed for development.
	The introduction of the substation, coupled with the transmission lines and PV facilities in the broader region will contribute to an increased cumulative visual impact and possible overall increased reflection in the area.	Medium	Install all steel structures and columns at right angles to the sun and prevent the use of reflective steel columns and structures in the design of the substation.
	The development together with other project in close proximity serves to increase the potential for job creation.	Low	N/A
	Avifaunal cumulative impacts could be quite substantial if more projects are built in the same area. Collectively these facilities could remove quite a lot of habitat from the area. However on a landscape level this is still not believed to be significant in this area.	Low-medium	Avoid sensitive areas of site as identified in the avifaunal walk through as part of the site specific EMP.
» Stripping, levelling and compaction of soil;	***Direct impacts:***		
	Soil erosion on construction sites due to decreased vegetation cover and increased water	Low	» If it is not possible to retain a good plant cover during construction, technologies should be employed to keep

Activity	Impact summary	Significance	Proposed mitigation
» Drilling/excavations; » Usage of construction equipment and vehicles	run-off		the soil covered by other means, i.e. straw, mulch, erosion control mats, etc., until a healthy plant cover is again established. » Compile and implement an appropriate stormwater management plan.
	Dust production and dust pollution of grazing plants	Low	Apply dust control measures, e.g. water spraying or use of commercial dust suppressant.
	Contamination and degradation of the soil due to spillages of oil, petrol, diesel and other contaminants used by vehicles and equipment on the site or stored on the site	Low	Vehicles and equipment must be serviced regularly and maintained in a good running condition. Storage of contaminants must be limited to low quantities and done under strict industry standards. There must be strict control over the safe usage of vehicles and equipment to minimise vehicle accidents and damage to vehicles by rocks and boulders which may cause spillages.
	Destruction of stone artefact occurrences and scatters.	Low	If concentrations of archaeological heritage material and human remains are uncovered during construction, all work must cease immediately and be reported to the Albany Museum and/or the South African Heritage Resources Agency (SAHRA) so that systematic and professional investigation/ excavation can be undertaken.
	Reduction in local air quality as a result of construction activities (dust) and exhaust fumes.	Low	» Vehicles only permitted within demarcated areas or on existing roads; » Construction and delivery vehicles moving on gravel roads outside residential areas should travel at maximum speeds of 60 km/hour.
	Indirect impacts:		
	Altered topsoil characteristics with low moisture infiltration capacity, low niche diversity, and increased runoff and slow plant establishment	Low	Ensure that runoff from compacted or sealed surfaces is slowed down and dispersed sufficiently to prevent accelerated erosion from being initiated (storm water and erosion management plan required)

Activity	Impact summary	Significance	Proposed mitigation
	Damage to roads causes degradation of surrounding environment	Low	» Construction vehicles to maintain a speed of 40 km per through residential areas; » Contractor/proponent will repair any damaged of roads caused by construction vehicles
	Cumulative impacts:		
	N/A	Negligible	N/A
» Storage and usage of hazardous chemicals; » Storage of hazardous waste	***Direct impacts:***		
	Inappropriate storage of hazardous materials and/or waste may lead to leaching and ground water pollution	Low	» A log book on spill events which records volume, nature, petrochemical or location, date, time and clean up action hazardous spill may take is to be updated daily on site. » Hazardous waste will be kept in the hazardous conditions may result correctly sealed storage bins in a shaded and bunded area.
	Contamination and degradation of the soil due to spillages of oil, petrol, diesel and other contaminants used by vehicles and equipment on the site or stored on the site	Low	Vehicles and equipment must be serviced regularly and maintained in a good running condition. Storage of contaminants must be limited to low quantities and done under strict industry standards. There must be strict control over the safe usage of vehicles and equipment to minimise vehicle accidents and damage to vehicles by rocks and boulders which may cause spillages.
	Indirect impacts:		
	Spillage of contaminants will have a long-term residual effect on the natural resources, specifically to the soil and vegetation, and possibly the underground water depending on the quantum of the spillage.		A spill log in which a record is responses to maintained of the volume, nature, petrochemical or location, date, time and clean up action hazardous spill may take is to be daily updated on site.
	Cumulative impacts:		
	Little with the necessary mitigation in place	Negligible	N/A
OPERATION PHASE			

Activity	Impact summary	Significance	Proposed mitigation
» Maintenance of substation; » Use of vehicle during maintenance.	***Direct impacts:***		
	Loss of vegetation, loss of micro-habitat, increase in runoff and erosion, window of opportunity for the establishment of alien invasive species, absence of living soil crusts, altered topsoil characteristics with low moisture infiltration capacity and increased runoff during operation of substation.	Medium	» Reinforce portions of existing access routes that are prone to erosion, create structures or low banks to drain the access road rapidly during rainfall events, yet preventing erosion of the track and surrounding areas. » Compile and implement an appropriate stormwater management plan.
	Creation of employment and business opportunities associated with the operational phase	Medium	The developer should implement a training and skills development programme for locals during the first 5 years of the operational phase. The aim of the programme should be to maximise the number of South African's and locals employed during the operational phase of the project.
	Damage to roads	Low	All staff must make use of existing roads
	Potential visual impact on the intrinsic value and sense of place of the Noupoort region.	Medium	The steel components within the substation should not be painted but be galvanised and allowed to oxidise naturally over time. The grey colour produced in this process will help to reduce the visual impact.
	Indirect impacts:		
	Ecological degradation/loss of arable land and ecological integrity	Medium	Re-establish vegetation where possible and in so doing increasing habitat capabilities.
	Creation of permanent employment and skills and development opportunities for members from the local community and creation of additional business and economic opportunities in the area	Low	N/A
	Cumulative impacts:		
	N/A	N/A	N/A
DECOMMISSIONING AND CLOSURE PHASE			

Activity	Impact summary	Significance	Proposed mitigation
» Disassemble substation component according to regulatory requirements » Disturbed areas will be rehabilitated	***Direct impacts:***		
	The major social impacts associated with the decommissioning phase are linked to the loss of jobs, in addition, the social impacts associated with final decommissioned are likely to be limited due to the relatively small number of permanent employees affected.	Low	» Geo Solar Energy should ensure that retrenchment packages are provided for all staff who stand to lose their jobs when the plant is decommissioned; » The potential impacts associated with the decommissioning phase can also be effectively managed with the implementation of a retrenchment and downscaling programme. With mitigation, the impacts are assessed to be Low (negative).
	Indirect impacts:		
	N/A	N/A	N/A
	Cumulative impacts:		
	N/A	N/A	N/A
Activity	**Impact summary**	**Significance**	**Proposed mitigation**
Alternative 2 (Option 1)			
PLANNING AND DESIGN PHASE			
Use of vehicles during field survey	***Direct impacts:***		
	Roads and vegetation damage	Medium	Make use of existing access roads only
	Indirect impacts:		
	N/A	N/A	N/A
	Cumulative impacts:		
	N/A	N/A	N/A
CONSTRUCTION PHASE			
Site clearing for construction/placement of: » Access roads; » Foundations;	***Direct impacts:***		
	Loss of vegetation, increase in runoff and erosion	Medium	» Make use of existing tracks as far as possible Limit vegetation clearance to footprint of development area
	Destruction stone artefact occurrences and	Medium	Once the final layout of the proposed TSE Distribution

Activity	Impact summary	Significance	Proposed mitigation
» Underground cabling; » Steel framework i.e. towers or poles.	scatters.		Substation has been finalised, an archaeological ground-truthing should be conducted and further recommendation be made to protect the archaeological heritage within the area proposed for development, if required.
	» Siltation of watercourses and other natural resources downstream as a result of improper storm water management and soil erosion due to increased and concentrated water run-off; » Dust production and dust pollution of grazing plants	Low	» Care must be taken with the ground cover during and after construction on the site. If it is not possible to retain a good plant cover during construction, technologies should be employed to keep the soil covered by other means, i.e. straw, mulch, erosion control mats, etc., until a healthy plant cover is again established. » Care should also be taken to control and contain storm water run-off. Rehabilitate construction sites by establishing these with indigenous grasses. » Compile and implement an appropriate stormwater management plan.
	» Creation of employment and business opportunities » Potential loss of livestock, crops and houses, damage to farm infrastructure and threat to human life associated with increased incidents of veld fires	Low	» Maximise the use of local labour for low – semi skilled jobs far as possible; » Geo Solar Energy should enter into an agreement with the affected landowners whereby the company will compensate for damages. This includes losses associated veld fires. In addition, the potential increased risk of veld fires can be effectively mitigated.
	» Destruction of Blue Crane habitat during construction » Disturbance of Blue Cranes during construction and maintenance » Collision of Blue Cranes with overhead	Low	Micro siting of infrastructure to avoid sensitive areas. This should be achieved through an avifaunal walk through as part of the site specific EMP. Strict control of machinery, staff and equipment to ensure no unnecessary damage to vegetation

Activity	Impact summary	Significance	Proposed mitigation
	power lines		
	Indirect impacts:		
	Ecological degradation/loss of arable land and ecological integrity	Medium	Re-establish vegetation where possible and in so doing increase habitat capabilities.
	Irreplaceable loss of archaeological heritage resources.	Low	Once the final layout of the proposed TSE Distribution Substation has been finalised, an archaeological ground-truthing should be conducted and further recommendation be made to protect the archaeological heritage within the area proposed for development.
	Once the construction phase is complete, locals employed on the site may not be able to find future employment.	Low	The developer should implement a training and skills development programme for locals during the first 5 years of the operational phase. The aim of the programme should be to maximise the number of South African's and locals employed during the operational phase of the project.
	Blue Crane species migrating to other areas	Low	Avoid sensitive areas of site as identified in the avifaunal walk through as part of the site specific EMP.
	Cumulative impacts:		
	Possible erosion of areas lower than the access road, possible contamination of lower-lying drainage lines due to oil or other spillage,	Low-Medium	Cumulative impacts of developments on population viability of species can be reduced significantly if new developments are kept as close as possible to existing developed areas or, where such is not possible, different sections of a development be kept as close together as possible.
	Irreplaceable loss of archaeological heritage resources.	Low	Once the final layout of the proposed TSE Distribution Substation has been finalised, an archaeological ground-truthing should be conducted and further recommendation be made to protect the archaeological heritage within the

Activity	Impact summary	Significance	Proposed mitigation
			area proposed for development.
	The introduction of the substation, coupled with the transmission lines and PV facilities in the broader region will contribute to an increased cumulative visual impact and possible overall increased reflection in the area.	Medium	Install all steel structures and columns at right angles to the sun and prevent the use of reflective steel columns and structures in the design of the substation.
	The development together with other project in close proximity serves to increase the potential for job creation.	Low	N/A
	Avifaunal cumulative impacts could be quite substantial if more projects are built in the same area. Collectively these facilities could remove quite a lot of habitat from the area. However on a landscape level this is still not believed to be significant in this area.	Low-medium	Avoid sensitive areas of site as identified in the avifaunal walk through as part of the site specific EMP.
» Stripping, levelling and compaction of soil; » Drilling/excavations; » Usage of construction equipment and vehicles	***Direct impacts:***		
	Soil erosion on construction sites due to decreased vegetation cover and increased water run-off	Low	» If it is not possible to retain a good plant cover during construction, technologies should be employed to keep the soil covered by other means, i.e. straw, mulch, erosion control mats, etc., until a healthy plant cover is again established. » Compile and implement an appropriate stormwater management plan.
	Dust production and dust pollution of grazing plants	Low	Apply dust control measures, e.g. water spraying or use of commercial dust suppressant.
	Contamination and degradation of the soil due to spillages of oil, petrol, diesel and other contaminants used by vehicles and equipment on the site or stored on the site	Low	Vehicles and equipment must be serviced regularly and maintained in a good running condition. Storage of contaminants must be limited to low quantities and done under strict industry standards. There must be strict

Activity	Impact summary	Significance	Proposed mitigation
			control over the safe usage of vehicles and equipment to minimise vehicle accidents and damage to vehicles by rocks and boulders which may cause spillages.
	Destruction of stone artefact occurrences and scatters.	Low	If concentrations of archaeological heritage material and human remains are uncovered during construction, all work must cease immediately and be reported to the Albany Museum and/or the South African Heritage Resources Agency (SAHRA) so that systematic and professional investigation/ excavation can be undertaken.
	Reduction in local air quality as a result of construction activities (dust) and exhaust fumes.	Low	» Vehicles only permitted within demarcated areas or on existing roads; » Construction and delivery vehicles moving on gravel roads outside residential areas should travel at maximum speeds of 60 km/hour.
	Indirect impacts:		
	Altered topsoil characteristics with low moisture infiltration capacity, low niche diversity, and increased runoff and slow plant establishment	Low	Ensure that runoff from compacted or sealed surfaces is slowed down and dispersed sufficiently to prevent accelerated erosion from being initiated (storm water and erosion management plan required)
	Damage to roads causes degradation of surrounding environment	Low	» Construction vehicles to maintain a speed of 40 km per through residential areas; » Contractor/proponent will repair any damaged of roads caused by construction vehicles
	Cumulative impacts:		
	N/A	Negligible	N/A
» Storage and usage of hazardous chemicals; » Storage of hazardous waste	***Direct impacts:***		
	Inappropriate storage of hazardous materials and/or waste may lead to leaching and ground water pollution	Low	» A log book on spill events which records volume, nature, petrochemical or location, date, time and clean up action hazardous spill may take is to be updated daily on site.

Activity	Impact summary	Significance	Proposed mitigation
			» Hazardous waste will be kept in the hazardous conditions may result correctly sealed storage bins in a shaded and bunded area.
	Contamination and degradation of the soil due to spillages of oil, petrol, diesel and other contaminants used by vehicles and equipment on the site or stored on the site	Low	Vehicles and equipment must be serviced regularly and maintained in a good running condition. Storage of contaminants must be limited to low quantities and done under strict industry standards. There must be strict control over the safe usage of vehicles and equipment to minimise vehicle accidents and damage to vehicles by rocks and boulders which may cause spillages.
	Indirect impacts:		
	Spillage of contaminants will have a long-term residual effect on the natural resources, specifically to the soil and vegetation, and possibly the underground water depending on the quantum of the spillage.		A spill log in which a record is responses to maintained of the volume, nature, petrochemical or location, date, time and clean up action hazardous spill may take is to be daily updated on site.
	Cumulative impacts:		
	Little with the necessary mitigation in place	Negligible	N/A
OPERATION PHASE			
» Maintenance of substation; » Use of vehicle during maintenance.	***Direct impacts:***		
	Loss of vegetation, loss of micro-habitat, increase in runoff and erosion, window of opportunity for the establishment of alien invasive species, absence of living soil crusts, altered topsoil characteristics with low moisture infiltration capacity and increased runoff during operation of substation.	Medium	» Reinforce portions of existing access routes that are prone to erosion, create structures or low banks to drain the access road rapidly during rainfall events, yet preventing erosion of the track and surrounding areas. » Compile and implement an appropriate stormwater management plan.
	Creation of employment and business opportunities associated with the operational phase	Medium	The developer should implement a training and skills development programme for locals during the first 5 years of the operational phase. The aim of the programme

Activity	Impact summary	Significance	Proposed mitigation
			should be to maximise the number of South African's and locals employed during the operational phase of the project.
	Damage to roads	Low	All staff will make use of existing roads
	Potential visual impact on the intrinsic value and sense of place of the Noupoort region.	Medium	The steel components within the substation should not be painted but be galvanised and allowed to oxidise naturally over time. The grey colour produced in this process will help to reduce the visual impact.
	Indirect impacts:		
	Ecological degradation/loss of arable land and ecological integrity	Medium	Re-establish vegetation where possible and in so doing increasing habitat capabilities.
	Creation of permanent employment and skills and development opportunities for members from the local community and creation of additional business and economic opportunities in the area	Low	N/A
	Cumulative impacts:		
	N/A	N/A	N/A
DECOMMISSIONING AND CLOSURE PHASE			
» Disassemble substation component according to regulatory requirements » Disturbed areas will be rehabilitated	***Direct impacts:***		
	The major social impacts associated with the decommissioning phase are linked to the loss of jobs, in addition, the social impacts associated with final decommissioned are likely to be limited due to the relatively small number of permanent employees affected.	Low	» Geo Solar Energy should ensure that retrenchment packages are provided for all staff who stand to lose their jobs when the plant is decommissioned; » The potential impacts associated with the decommissioning phase can also be effectively managed with the implementation of a retrenchment and downscaling programme. With mitigation, the impacts are assessed to be Low (negative).
	Indirect impacts:		
	N/A	N/A	N/A

Activity	Impact summary	Significance	Proposed mitigation
	Cumulative impacts:		
	N/A	N/A	N/A

COMPARATIVE ASSESSMENT OF ALTERNATIVES

Impact	Option 1	Option 2
Soils & agricultural potential	Low	Low
Heritage	Low	Low
Social (Job Creation)	Low (positive)	Low (positive)
Ecology	Medium	Medium
Visual	Low-medium	Low-medium

Activity	Impact summary	Significance	Proposed mitigation
NO-GO OPTION			
No construction, operation or decommissioning of the proposed substation	***Direct impacts:*** The No-Development option would represent a lost opportunity for South Africa to supplement its current energy needs with clean, renewable energy. Given South Africa's position as one of the highest per capita producer of carbon emissions in the world, this would represent a High negative social cost.	Low	The mitigation would be to implement the proposed project thereby facilitating the connection of the solar facilities to the national electricity grid. There are no insurmountable environmental or social constraints that prevents the establishment of the proposed TSE Distribution Substation therefore the No-Go option is not proposed
	Indirect impacts: Also referred to as the 'Do nothing' option, this refers to Geo Solar (Pty) Ltd not constructing the substation facility on the identified site. In this scenario the potential positive and negative environmental and social impacts as described in	Low	Same as above

Activity	Impact summary	Significance	Proposed mitigation
	this Basic Assessment Report will not occur and the status quo will be maintained. This would result in the situation where the solar energy facilities in the broader area would not have a mechanism to connect to the national grid. This would have a negative impact in terms of lost opportunities for renewable energy generation sources. This impact would occur at a national scale.		
	Cumulative impacts: Contributing to further unemployment and promoting further unsustainable means for electricity production.	Low	Same as above

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

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.

Alternative A (preferred alternative)

This section provides a summary of the environmental assessment and conclusions drawn for the proposed TSE Substation. In doing so, it draws on the information gathered as part of the Basic Assessment process and the knowledge gained by the environmental consultants during the course of the process and presents an informed opinion of the environmental impacts associated with the proposed project.

The following conclusions can be drawn from the studies undertaken within this Basic Assessment for both the substation alternatives:

» The overall impact on **ecology** is likely to be of **medium significance.** The extent to which vegetation unit 2 will be impacted by the construction of the substation at Option 2 is small compared to its overall distribution, thus the planned development will not likely have an impact on the overall conservation status of the Eastern Upper Karoo, within which is falls. To reduce overall impact on fragmentation, however, it is proposed that the TSE substation be aligned to the north-west of the Geo Solar Energy Facility (i.e. Option 1 - see **Figure 6** below). None of these areas fall within critical biodiversity areas (BGIS 2012). As soils in the area are relatively erodible and vegetation slow to re-establish due to the unpredictability and general low levels of rainfall, due care should be taken to retain a basic functionality of the ecosystem, instead of creating a window of opportunity for degradation, including the establishment of alien invasive species that are up to date very limited on the site. This objective should be achievable by following recommended mitigation measures.

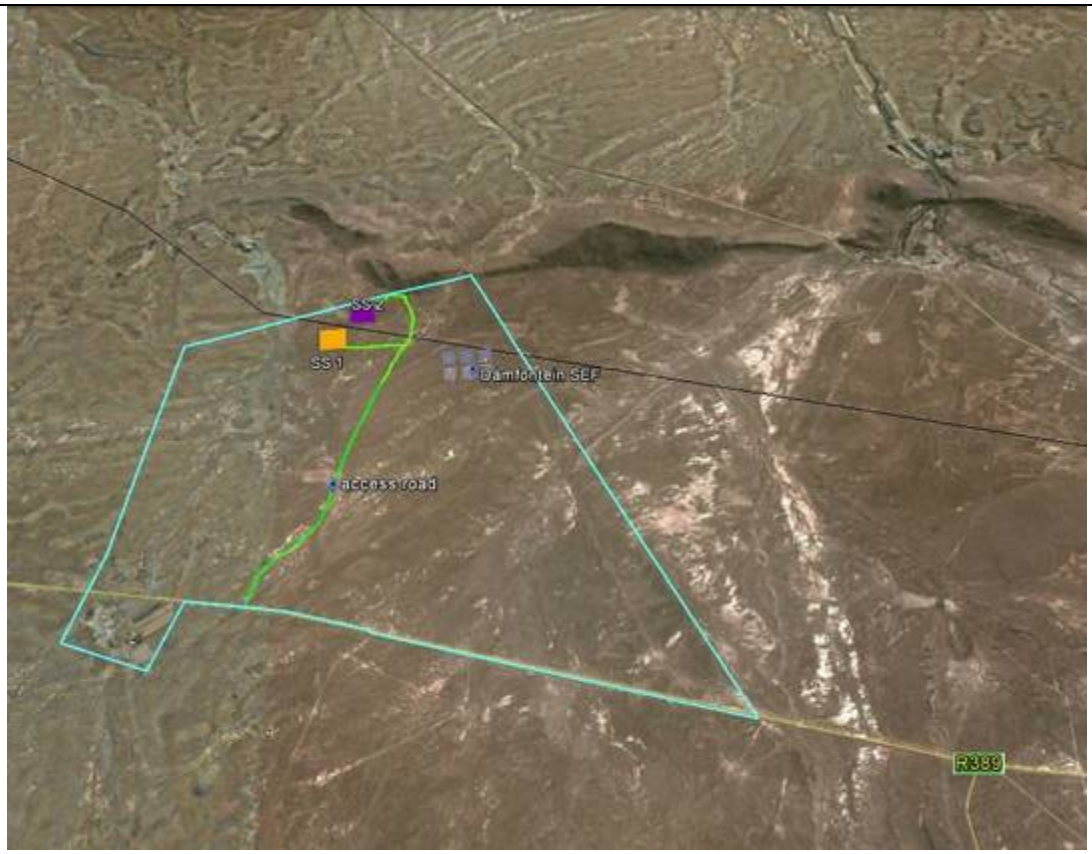

Figure 6: Proposed TSE Distribution substation options (relative to the proposed Damfontein Solar Energy Facility).

» The result of the Soil Impact Assessment for the proposed TSE Substation finds that the proposed activity will have a **low impact** on the immediate and surrounding **soil**. Implementation and management of proposed mitigation measures will minimize loss of topsoil, prevent contamination of topsoil and stockpiled soil and prevent overall soil erosion. Renewable energy projects contribute to clean energy generation as a sustainable resource and holds huge benefits for the local region and the country as a whole. It is recommended that the proposed project be approved subjected to the mitigation measures stipulated in the Environmental Management Programme. The overall impact on **soil and agricultural potential** is likely to be of **low significance** regardless of the option selected for the substation. During construction, the contractor should protect areas susceptible to erosion by installing the necessary temporary and permanent drainage works as soon as possible and by taking other measures necessary to prevent the surface water from being concentrated in streams and from scouring the slopes, banks or other areas. Stabilisation of cleared areas to prevent and control erosion needs to be actively managed. The method of stabilisation shall be determined in consultation with the ECO.

» The overall study area is of **medium cultural (archaeology) sensitivity**; surface

scatters of mainly Middle Stone Age (MSA) stone artefacts extend over the extent of the proposed TSE Distribution Substation areas (options 1 and 2) and within the existing road that is proposed to be used as the access road for the project. No associated archaeological material or organic remains were documented with the stone artefact surface scatters recorded in the site. No other archaeological heritage remains, features or sites were observed within the area proposed for development. The following recommendations must be considered:

- Once the final layout of the proposed TSE Distribution Substation has been finalised an archaeological ground-truthing should be conducted and further recommendation be made to protect the archaeological heritage within the area proposed for development; and / or
- If concentrations of archaeological heritage material and human remains are uncovered during construction, all work must cease immediately and be reported to the Albany Museum and/or the South African Heritage Resources Agency (SAHRA) so that systematic and professional investigation/ excavation can be undertaken.
- Construction managers/foremen should be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites.

» With regards to palaeontology (fossil), the area is characterised by fossiliferous mudstones and sandstones. Several dolerite sills and dykes occur in the region and are often found capping hills and forming ridges. Care should be given however to constructions such as access routes, construction facilities, substations, pylons and buildings which are not limited to dolerite. There is a high probability that fossils would occur on the Damfontein site where construction is proposed (regardless of the option selected) due to the mudstone which dominates the study site. It is recommended that a palaeontologist should be appointed do a site visit to determine whether fossils are exposed in the area earmarked for development. This survey would of course be limited to a surface inspection only. In the event of fossils being uncovered during the construction phase, the ECO should photograph and record the position of fossiliferous material.

» Due to its remoteness and separation from most sensitive receptors, all receptors are located in the background of the project (i.e. more than 3km away). All of the potential impacts therefore relate to the background zone of visual influence. The visual analysis and assessment from all of these observation points found that the proposed activity is unrecognisable from the relevant Observation Points. The results of the **Visual Impact Assessment** for the proposed TSE distribution substation therefore found that the proposed activity will have a **low-medium** impact from all key Observation Points regardless of the option selected. It is recommended that the proposed substation be restricted to a distance greater than 1.3km from the R389 and greater than 3km from the MR73808 in order to create a building envelope that would be most suitable in terms of visual impact.

» The overall **social impact** of the project is likely to be of a predominantly **low significance (positive impact)** with the implementation of appropriate enhancement measures regardless of the option selected. The project will create employment and business opportunities for locals during both the construction and operational phase of the project. The majority of the potential negative impacts can be effectively mitigated if the recommended mitigation measures are implemented. However, the impact on individuals who are directly impacted on by construction workers and or job seekers (i.e. contract HIV/ AIDS) was assessed to be of **Medium-High negative significance** regardless of the option selected. In addition, due to the low population density of the area and the relatively small size of the labour force the potential risk to local family structures and social networks is regarded as low. The establishment of a Community Trust also creates an opportunity to support local economic development in the area. The proposed development also represents an investment in clean, renewable energy infrastructure, which, given the challenges created by climate change, represents a positive social benefit for society as a whole.

» The overall impact on **avifauna** is likely to carry **low significance** due to the limited area that is taken up by the facilities and the relative uniformity of the habitat in the broader area. It will be necessary to check for such breeding just prior to the onset of construction. It is recommended that a final avifaunal walk-through be conducted as part of the site specific EMP for the projects.

Based on the findings of the studies undertaken, in terms of environmental constraints identified through the Environmental Basic Assessment process, no environmental fatal flaws were identified to be associated with the establishment of the proposed substation and associated infrastructure. The two substation options are relatively similar in their impact on the environment and it is expected that the impacts can be adequately mitigated. Therefore, either of the substation options is potentially suitable from an environmental perspective. The preferred option can therefore be selected on the basis of technical considerations.

The significance levels of the majority of identified negative impacts can generally be reduced by implementing the recommended mitigation measures. With reference to the information available at this planning approval stage in the project cycle, the confidence in the environmental assessment undertaken is regarded as acceptable.

Therefore, it is recommended that the project should be authorised. However, a number of issues requiring mitigation have been highlighted. Environmental specifications for the management of these issues / impacts are detailed within the draft Environmental Management Programme (EMP) included within **Appendix G**.

No Go Alternative (Compulsory)

Also referred to as the 'Do nothing' option, this refers to Geo Solar (Pty) Ltd not constructing their proposed TSE substation on the identified site. In this scenario the potential positive and negative environmental and social impacts as described in this Basic Assessment Report will not occur and the status quo will be maintained.

Should the project not proceed, the proposed solar energy facilities proposed in the area surrounding the substation will not be connected to the grid as they are dependent on this substation for this purpose. This will imply that the contribution of up to approx. 100 MW from these solar energy projects towards the Government target for renewable energy will not be realised. As a result the potential local and regional socio-economic and environmental benefits expected to be associated with the proposed project would not be realised. These include:

» **Increased energy security:** The current electricity crisis in South Africa highlights the significant role that renewable energy can play in terms of power supplementation. In addition, given that renewables can often be deployed in a decentralised manner close to consumers, they offer the opportunity for improving grid strength and supply quality, while reducing expensive transmission and distribution losses.

» **Exploitation of South Africa's significant renewable energy resource:** At present, valuable national resources including biomass by-products, solar radiation and wind power remain largely unexploited. The use of these energy flows will strengthen energy security through the development of a diverse energy portfolio.

Within a policy framework, the development of renewable energy in South Africa is supported by the White Paper on Renewable Energy (November 2003), which has set a target of 17MW renewable energy contributions to final energy generation mix by 2030. The target is to be achieved primarily through the development of solar, biomass, solar and small-scale hydro.

The No-Development option would represent a lost opportunity for South Africa to supplement is current energy needs with clean, renewable energy. Given South Africa's position as one of the highest per capita producer of carbon emissions in the world, this would represent a High negative social cost.

The no-development option also represents a lost opportunity in terms of the employment and business opportunities (construction and operational phase) associated with the proposed solar thermal plant and the benefits associated with the establishment of a Community Trust. This also represents a negative social cost.

The 'Do nothing' alternative is, therefore, not a preferred alternative.

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✓	[redacted]

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).

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.

There are no insurmountable environmental or social constraints that prevent the establishment of the proposed TSE Distribution Substation. However, several sensitive areas / features (see **Figure 7**) were identified on the site as follow:

» Natural vegetation (i.e. *Diospyros austro-africana - Stipagrostis obtuse*) on low rocky ridges and outcrops depicted as high sensitivity on figure 7;
» Heritage sites i.e. Middle stone age artefact

The location for the proposed substation has been selected to avoid the above-mentioned sensitive areas which are acceptable in terms of impact avoidance, rather than mitigation. As shown on table 1 below the two substation options are relatively similar in their impact on the environment and it is expected that the impacts can be adequately mitigated. Therefore, either of the substation options is potentially suitable from an environmental perspective however option 1 will be much better from a technical perspective as the lines from the solar facilities would not need to cross the Eskom power line.

Therefore, it is recommended that Substation Site/ Option 1 be authorised.

Table 1: Summary of the significance of impacts for different substation options after mitigation measures has been applied.

Impact	Site Option 1	Site Option 2
Soils & agricultural potential	Low	Low
Heritage	Low	Low
Social (Job Creation)	Low (positive)	Low (positive)
Ecology	Medium	Medium
Visual	Low-medium	Low-medium

The construction of the proposed substation should be implemented according to the EMP to adequately mitigate and manage potential impacts associated with construction

activities. The construction activities and relevant rehabilitation of disturbed areas should be monitored against the approved EMP, the Environmental Authorisation and all other relevant environmental legislation. Relevant conditions to be adhered to include:

Design, Construction, and Decommissioning Phases:

» All relevant practical and reasonable mitigation measures detailed within this report and the specialist reports contained within **Appendix D** must be implemented.
» The draft Environmental Management Programme (EMP) as contained within **Appendix G** of this report should form part of the contract with the Contractors appointed to construct and maintain the proposed substation, and will be used to ensure compliance with environmental specifications and management measures. The implementation of this EMP for all life cycle phases of the proposed project is considered to be key in achieving the appropriate environmental management standards as detailed for this project.
» During construction, unnecessary disturbance to habitats should be strictly controlled and the footprint of the impact should be kept to a minimum.
» Perennial grasses which occur naturally in the area should be used to stabilise the site after it has been cleared. A mix of fast growing annual and perennial grass species could be used, which could include species such as *Cynodon dactylon* and *Cenchrus ciliaris*, which are readily available and easily established.
» Disturbed areas should be rehabilitated as soon as possible once construction is complete in an area.
» An on-going monitoring programme should be established to detect and quantify any alien species.
» Identify areas of high erosion risk (drainage lines, existing problem areas). Only special works to be undertaken in these areas to be authorised by ECO and Engineer's representative (ER).
» Access roads to be carefully planned and constructed to minimise the impacted area and prevent unnecessary degradation of soil.
» Erosion control measures- run-off control and attenuation on slopes (sand bags, logs), silt fences, stormwater channels and catch-pits, shade nets, soil binding, geofabrics, hydroseeding or mulching over cleared areas.
» An appropriate stormwater management plan must be developed and implemented.
» Contractors must be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites.
» A professional archaeologist must be appointed during construction to monitor various activities including vegetation clearing and excavation activities to monitor and identify possible archaeological material remains and features that may occur below the surface. If concentrations of archaeological heritage material and human remains are uncovered, all work must cease immediately and be reported to SAHRA so that systematic and professional investigation/ excavation can be undertaken.

- In terms of palaeontology, a site visit and surface survey by a suitably qualified palaeontologist is required to determine the extent of the exposures or outcroppings of the palaeontologically significant Dicynodon Assemblage Zone of the Adelaide Subgroup in the proposed development area. This palaeontological Phase 1 assessment should include a comprehensive surface survey of the proposed development area, including appropriate mitigation measures and track paths of the area surveyed. The report must reflect the scope of the proposed project.
- An application for all other permits (e.g. those with respect to protected tree species or protected plant species) must be obtained from the relevant authority prior to the commencement of construction activities.
- All declared aliens must be identified and managed in accordance with the Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983), the implementation of a monitoring programme in this regard is recommended.
- Before development can continue the regions need to be checked for the presence of bird nesting sites, particularly those of ground nesting species.
- The Conservation Authorities of the Northern Cape must be contacted regarding any permit regulations that need to be followed regarding the removal of the above species. It is preferable that whenever any of the species need to be removed, they be replanted whenever feasible (succulents and geophytes) to sites nearby in the same type of habitat, but remaining on the same land portion.
- Limit construction, maintenance, and inspection activities to dry periods.
- Develop emergency maintenance operational plan to deal with any event of contamination, pollution, or spillages.
- If large areas are cleared for the storage of equipment, these should be rehabilitated using arid site rehabilitation techniques such as planting cover crops reseeding with local grasses and shrubs.
- Local community members should be provided an opportunity to be included in a list of possible local suppliers and service providers.
- Social benefits in terms of training, skills development and the use of local labour should thus be aspired to. These skills can be transferable to other employment sectors and would result in further sustainable benefits.
- The Umsobomvu Local Municipality and community representatives and neighbouring property owners should be kept informed of the progress, decisions taken with regards to the development and construction schedules. The establishment of a community Management and Monitoring Committee consisting of key community representatives, and representatives of the Umsobomvu Local Municipality could assist in this regard.
- Attention should be given to the extension and improvement of the existing HIV/Aids awareness programmes.
- Compile and implement a detailed waste management plan.
- Compile and implement a traffic management plan.

Operation Phase:

The mitigation and management measures previously listed in this Basic Assessment Report should be implemented in order to minimise potential environmental impacts. The following mitigation measures should also be implemented.

» Maintenance of erosion control measures (i.e. berms).
» Development and implementation of an appropriate storm water management plan.
» On-going maintenance of the facility to minimise the potential for visual impacts.
» On-going monitoring of the site to detect and restrict the spread of alien plant species.
» Training, skills development and the use of local labour.

In the opinion of the Environmental Practitioner, the proposed activity is not fatally flawed and all potential impacts can be mitigated to an acceptable level. As such, it is recommended that the proposed construction of the substation be authorised subject to compliance with the recommendations and mitigation measures proposed in this report.

Is an EMPr attached? **YES✓**

The EMPr must be attached as **Appendix G.**

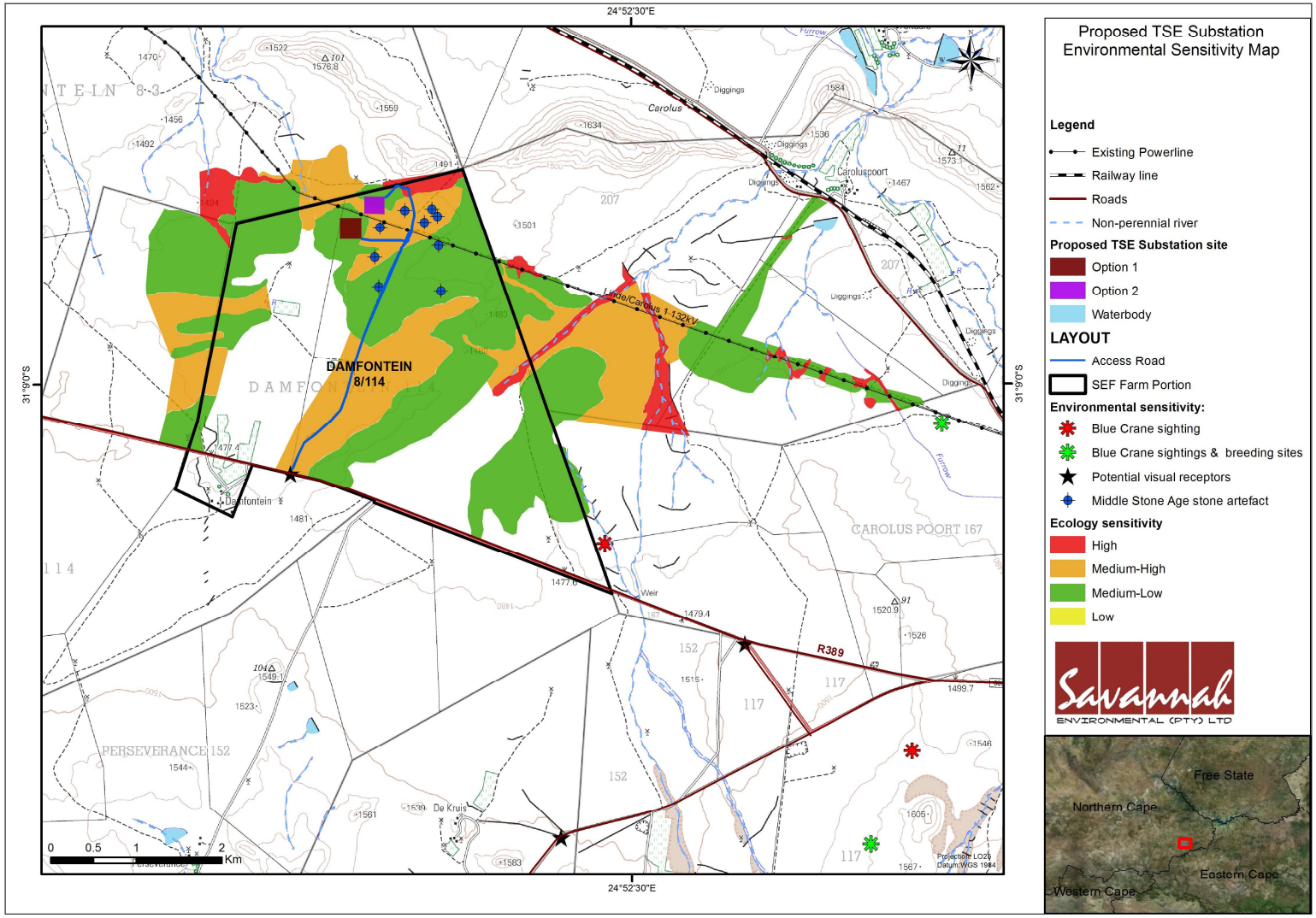

Figure 7: Environmental Sensitivity Map for the TSE Distribution Substation

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**.

Karen Jodas

NAME OF EAP

SIGNATURE OF EAP DATE

SECTION F: APPENDICES

The following appendixes must be attached:

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

Appendix E: Public Participation

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

Appendix J: Additional Information