Johann Lanz
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South Africa

SPECIALIST AGRICULTURAL IMPACT ASSESSMENT FOR PROPOSED VELD PV NORTH SOLAR ENERGY FARM, NAMAKWA DISTRICT NORTHERN CAPE

IMPACT ASSESSMENT REPORT

Report by
Johann Lanz

August 2019

Johann Lanz
Professional profile

Education

• M.Sc. (Environmental Geochemistry)	University of Cape Town	1996 - June 1997
• B.Sc. Agriculture (Soil Science, Chemistry)	University of Stellenbosch	1992 - 1995
• BA (English, Environmental & Geographical Science)	University of Cape Town	1989 - 1991
• Matric Exemption	Wynberg Boy's High School	1983

Professional work experience

I am registered as a Professional Natural Scientist (Pri.Sci.Nat.) in the field of soil science, registration number 400268/12, and am a member of the Soil Science Society of South Africa.

- **Soil Science Consultant Self employed 2002 - present**

  I run a soil science consulting business, servicing clients in both the environmental and agricultural industries. Typical consulting projects involve:

- Soil specialist study inputs to EIA's, SEA's and EMPR's. These have focused on impact assessments and rehabilitation on agricultural land, rehabilitation and re-vegetation of mining and industrially disturbed and contaminated soils, as well as more general aspects of soil resource management. Recent clients include: CSIR; SRK Consulting; Aurecon; Mainstream Renewable Power; SiVEST; Savannah Environmental; Subsolar; Red Cap Investments; MBB Consulting Engineers; Enviroworks; Sharples Environmental Services; Haw & Inglis; BioTherm Energy; Tiptrans.
- Soil resource evaluations and mapping for agricultural land use planning and management. Recent clients include: Cederberg Wines; Unit for Technical Assistance - Western Cape Department of Agriculture; Wedderwill Estate; Goedgedacht Olives; Zewenwacht Wine Estate, Lourensford Fruit Company; Kaarsten Boerdery; Thelema Mountain Vineyards; Rudera Wines; Flagstone Wines; Solms Delta Wines; Dornier Wines.
- I have conducted several recent research projects focused on conservation farming, soil health and carbon sequestration.
- I have project managed the development of soil nutrition software for Farmsecure Agri Science.

- **Soil Science Consultant Agricultural Consultors International (Tinie du Preez) 1998 - end 2001**

  Responsible for providing all aspects of a soil science technical consulting service directly to clients in the wine, fruit and environmental industries all over South Africa, and in Chile, South America.

- **Contracting Soil Scientist De Beers Namaqualand Mines July 1997 - Jan 1998**

  Completed a contract to make recommendations on soil rehabilitation and re-vegetation of mined areas.

Publications

- Lanz, J. 2012. Soil health: sustaining Stellenbosch's roots. In: M Swilling, B Sebitosi & R Loots (eds). *Sustainable Stellenbosch: opening dialogues*. Stellenbosch: SunMedia.
- Lanz, J. 2010. Soil health indicators: physical and chemical. *South African Fruit Journal*, April / May 2010 issue.
- Lanz, J. 2009. Soil health constraints. *South African Fruit Journal*, August / September 2009 issue.
- Lanz, J. 2009. Soil carbon research. *AgriProbe*, Department of Agriculture.
- Lanz, J. 2005. Special Report: Soils and wine quality. *Wineland Magazine.*

I am a reviewing scientist for the *South African Journal of Plant and Soil*.

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

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

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

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

PROJECT TITLE

VELD PV NORTH SOLAR ENERGY FARM, NAMAKWA DISTRICT NORTHERN CAPE

Kindly note the following:

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

Departmental Details

Postal address:
Department of Environmental Affairs
Attention: Chief Director: Integrated Environmental Authorisations
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Pretoria
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Physical address:Department of Environmental AffairsAttention: Chief Director: Integrated Environmental Authorisations
Attention: Chief Director: Integrated Environmental Authorisations

Environment House
473 Steve Biko Road
Arcadia

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

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

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

1. SPECIALIST INFORMATION

Specialist Company Name:	Johann Lanz – Soil Scientist			
B-BBEE	Contribution level (indicate 1 to 8 or non-compliant)	4	Percentage Procurement recognition	100%
Specialist name:	Johann Lanz			
Specialist Qualifications:	M.Sc. (Environmental Geochemistry)			
Professional affiliation/registration:	Registered Professional Natural Scientist Member of the Soil Science Society of South Africa			
Physical address:	1a Wolfe Street, Wynberg, Cape Town, 7800			
Postal address:	1a Wolfe Street, Wynberg, Cape Town, 7800			
Postal code:	7800	Cell:	082 927 9018	
Telephone:	082 927 9018	Fax:	Who still uses a fax?	
E-mail:	johann@johannlanz.co.za			

2. DECLARATION BY THE SPECIALIST

I, **Johann Lanz**, declare that –

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;

- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

Signature of the Specialist

Johann Lanz – Soil Scientist

Name of Company:

6 August 2019

Date

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EXECUTIVE SUMMARY

Development of the Veld PV North solar energy farm is proposed on Remainder of the Farm Haramoep no 53, approximately 25 kilometres north-west of the town of Aggeneys in the Northern Cape Province.

The proposed development is on land zoned and used for agriculture. South Africa has very limited arable land and it is therefore critical to ensure that development does not lead to an inappropriate loss of land that may be valuable for cultivation. This assessment has found that the proposed site is on land which is entirely unsuitable for cultivation, due predominantly to climate limitations.

The key findings of this study are:

- Soils on the site are very sandy, red soils underlain predominantly by dorbank hardpan as well as carbonate hardpan and rock and are predominantly of the Garies, Knersvlakte and Hutton soil forms.
- The major, very severe limitation to agriculture, is the limited climatic moisture availability.
- As a result, the site is entirely unsuitable for cultivation and agricultural land use is limited to low-intensity grazing.
- The project area is classified with a predominant land capability evaluation value of 4, which is low. The site has an extremely low grazing capacity of 60 hectares per large stock unit.
- No agriculturally sensitive areas occur within the proposed site and no part of it is therefore required to be set aside from the development.
- The low agricultural potential of the site limits the significance of all agricultural impacts.
- Two potential negative impacts of the development on agricultural resources and productivity were identified as:
  - Loss of agricultural land use caused by direct occupation of land by the solar energy farm footprint, assessed as minor.
  - Soil degradation from land disturbance, assessed as negligible.
- One potential positive impact of the development on agricultural resources and productivity was identified as:
  - Increased financial security for farming operations due to the generation of reliable income through the lease of the land to the energy facility, assessed as minor.
- Recommended mitigation measures include implementation of an effective system of storm water run-off control to mitigate erosion, facilitating re-vegetation, as well as topsoil stripping and re-spreading to mitigate loss of topsoil.
- Cumulative impact is also assessed as minor.
- Due to the low agricultural potential of the site, and the consequent low agricultural impact, there are no restrictions relating to agriculture which preclude authorisation of the proposed development and therefore, from an agricultural impact point of view, the development should be authorised.

1 INTRODUCTION

Development of the Veld PV North solar energy facility is proposed on Remainder of the Farm Haramoep no 53, approximately 25 kilometres north-west of the town of Aggeneys in the Northern Cape Province (see Figure 1). The proposed solar farm has a total capacity of 75 MW. It will consist of arrays of photovoltaic panels supported by mounting structures, inverter stations, internal access roads, cabling, buildings for operations, maintenance and control, perimeter fencing, a laydown area during construction, and an on-site substation with an approximately 25 km long 132kV connection to the Eskom grid at the Aggenys substation. The footprint of the development will utilise approximately 300 hectares. The development includes an access road to the solar farm.

The objective of this study is to identify potential impacts of the proposed development on agricultural resources, including soils, and agricultural production potential, and to provide recommended mitigation measures, monitoring requirements, and rehabilitation guidelines for all identified impacts. Johann Lanz was appointed by Aurecon as an independent specialist to conduct this Soils and Agricultural Impact Assessment.

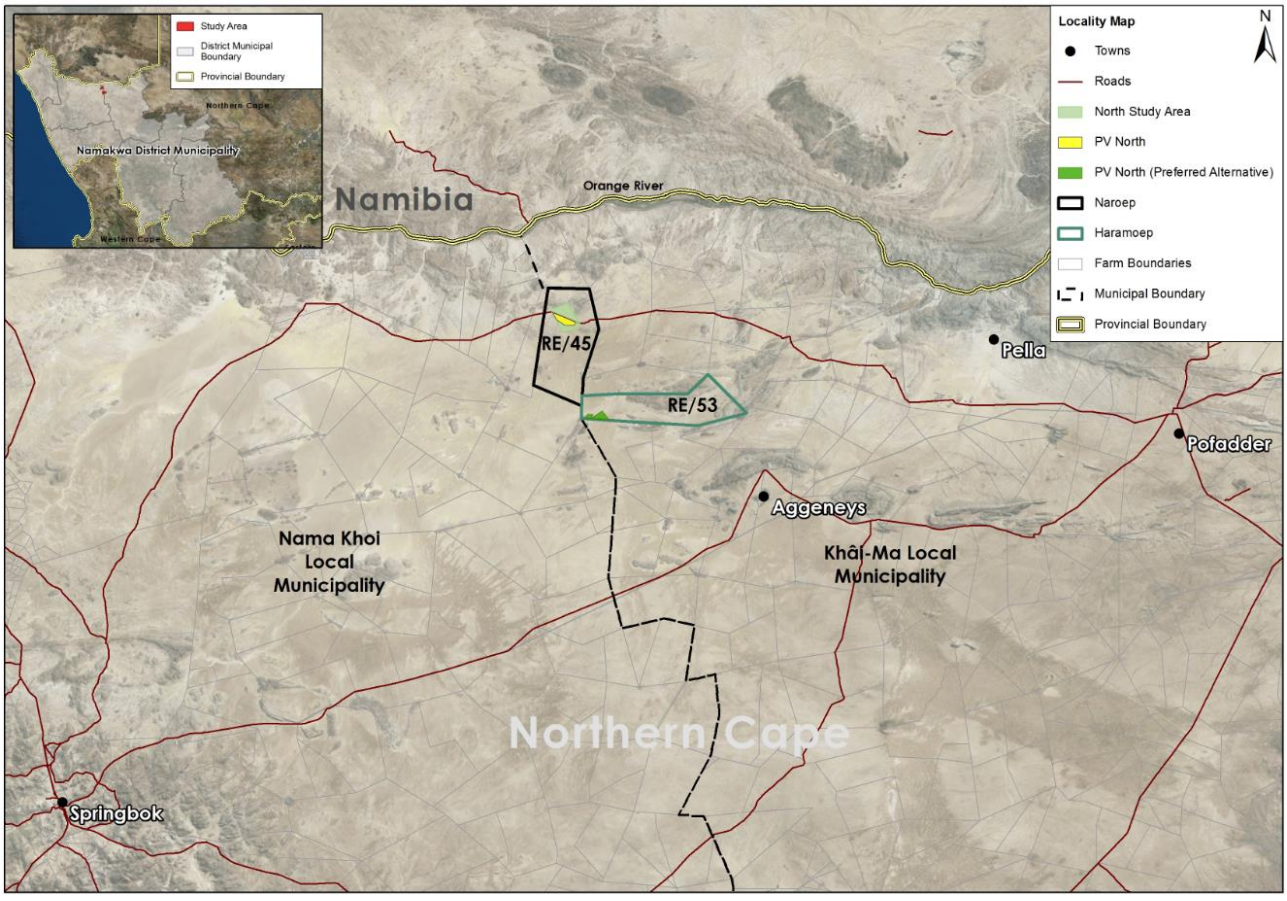

Figure 1. *Location map of the proposed site, north-west of the town of Aggeneys.*

2 TERMS OF REFERENCE

The terms of reference for the study fulfills the requirements for a soils and agricultural study as described in the National Department of Agriculture's document, *Regulations for the evaluation and review of applications pertaining to renewable energy on agricultural land*, dated September 2011. The study applies an appropriate level of detail for the agricultural suitability and soil variation on site, which, because it is justified (see section 3.1), is less than the standardised level of detail stipulated in the above regulations.

The above requirements may be summarised as:

- Identify all potential impacts (direct, indirect and cumulative) of the proposed development on soils and agricultural potential, to be assessed in the impact assessment phase.
- Comparatively assess project alternatives to rank and determine preferred alternatives, which will be subjected to detailed assessment in the following phase.
- Describe and map soil types (soil forms) and characteristics (soil depth, soil colour, limiting factors, and clay content of the top and sub soil layers).
- Describe the topography of the site.
- Describe the climate in terms of agricultural suitability.
- Summarise available water sources for agriculture.
- Describe historical and current land use, agricultural infrastructure, as well as possible alternative land use options.
- Describe the erosion, vegetation and degradation status of the land.
- Determine the agricultural potential across the site.
- Determine the agricultural sensitivity to development across the site.
- Provide recommended mitigation measures, monitoring requirements, and rehabilitation guidelines for all identified impacts.

The report also fulfils the requirements of Appendix 6 of the 2014 EIA Regulations (See Table 1).

Table 1. Compliance with Appendix 6 of the 2014 EIA Regulations

Requirements of Appendix 6 – GN R326 EIA Regulations 7 April 2017	**Addressed in the Specialist Report**
A specialist report prepared in terms of these Regulations must contain- details of-	
the specialist who prepared the report; and	Title page
the expertise of that specialist to compile a specialist report including a curriculum vitae;	Following Title page
a declaration that the specialist is independent in a form as may be specified by the competent authority;	Following CV
an indication of the scope of, and the purpose for which, the report was prepared;	Sections 1 & 2
an indication of the quality and age of base data used for the specialist report;	Section 3.1
a description of existing impacts on the site, cumulative impacts of the	Sections 6.5, 7.3

proposed development and levels of acceptable change;	
the date and season of the site investigation and the relevance of the season to the outcome of the assessment;	Section 3.1
a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used;	Section 3
details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives;	Section 6.8 & Figure 2
an identification of any areas to be avoided, including buffers;	Section 6.8
a map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	Figure 2
a description of any assumptions made and any uncertainties or gaps in knowledge;	Section 4
a description of the findings and potential implications of such findings on the impact of the proposed activity or activities;	Section 7
any mitigation measures for inclusion in the EMPr;	Section 8
any conditions for inclusion in the environmental authorisation;	Section 9
any monitoring requirements for inclusion in the EMPr or environmental authorisation;	Section 8
a reasoned opinion- whether the proposed activity, activities or portions thereof should be authorised; regarding the acceptability of the proposed activity or activities and if the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan;	 Section 9 Section 9 Section 8
a description of any consultation process that was undertaken during the course of preparing the specialist report;	Not applicable

3 METHODOLOGY OF STUDY

3.1 Methodology for assessing soils and agricultural potential

The assessment was based largely on existing soil and agricultural potential data for the site. The source of this data was the online Agricultural Geo-Referenced Information System (AGIS), produced by the Institute of Soil, Climate and Water (Agricultural Research Council, undated). Satellite imagery of the site was also used for evaluation.

The AGIS data was supplemented by a field investigation. This was aimed at ground-proofing the AGIS data and achieving an understanding of specific soil and agricultural conditions, and the variation of these across the site. The field investigation involved a drive and walk over of the site, assessing of surface conditions and existing excavations and burrows. The field assessment was done on 2 November 2016.

Soils were classified according to the South African soil classification system (Soil Classification Working Group, 1991).

It is my opinion that the level of soil mapping detail in the above DAFF requirements is appropriate for arable land only. It is not appropriate for this site. Detailed soil mapping has little relevance to an assessment of agricultural potential in this environment, where cultivation potential is extremely limited, soil conditions are generally poor and the agricultural limitations are overwhelmingly climatic. In such an environment, soils, even if suitable for cultivation may occur, they cannot be cultivated because of the aridity constraints. Conducting a soil assessment at the required level of detail would be unconstructively time-consuming, as it would add almost no value to the assessment. The level of soil assessment that was conducted for this report (reconnaissance ground-proofing of land type data) is considered more than adequate for a thorough assessment of all agricultural impacts.

An assessment of soils (soil mapping) and long-term agricultural potential is in no way affected by the season in which the assessment is made, and therefore the fact that the assessment was done in summer has no bearing on its results.

The field investigation also included a visual assessment of erosion and erosion potential on site, taking into account the proposed development layout.

Telephonic consultation was done with the current farmer of the land, Mr De Waal to get details of farming activities on the site.

3.2 Methodology for assessing impacts and determining impact significance

All potential impacts were assessed in terms of the following criteria (as per the Aurecon standard assessment methodology):

IMPACT ASSESSMENT METHODOLOGY

The assessment of the significance of impacts for a proposed development is by its nature, a matter of judgement. To deal with the uncertainty associated with judgement and ensure repeatable results, Aurecon rates impacts using a standardised and internationally recognised methodology adhering to ISO 14001 and World Bank/IFC requirements.

For each predicted impact, criteria are applied to establish the **significance** of the impact based on likelihood and consequence, both without mitigation being applied and with the most effective mitigation measure(s) in place.

The criteria that contribute to the **consequence** of the impact are **intensity** (at the indicated spatial scale), which also includes the **type** of impact (being either a positive or negative impact); the **duration** (length of time that the impact will continue); and the **extent** (spatial scale) of the impact. The sensitivity of the receiving environment and/or sensitive receptors is incorporated into the consideration of consequence by appropriately adjusting the thresholds or scales of the intensity, duration and extent criteria, based on expert knowledge. For each impact, the specialist applies professional judgement to ascribe a numerical rating for each criterion. The consequence is then established using the formula:

Consequence = type x (intensity + duration + extent).

Depending on the numerical result, the impact's **consequence** would be defined as either extremely, highly, moderately or slightly detrimental; or neutral; or slightly, moderately, highly or extremely beneficial. These categories are provided below.

To determine the significance of an impact, the **probability** (or likelihood) of that impact occurring is also taken into account. In assigning probability, the specialist takes into account the likelihood of occurrence but also takes cognisance of uncertainty and detectability of the impact. The most suitable numerical rating for probability is selected from the table below and applied with the consequence according to the following equation:

Significance = consequence x probability

When assigning **probability** to an impact, it is vitally important to distinguish this from the concepts of **frequency and confidence,** with which it is sometimes confused.

- **Probability** refers to the likelihood that an impact will occur.
- **Frequency** refers to the regularity with which an impact occurs. To illustrate the difference between frequency and probability, it must be considered that something that happens infrequently may still be a certainty (i.e. have a high probability). For instance, Halley's Comet only comes close to the sun every 75 to 76 years (i.e. it has a very low frequency), but it is still a certainty.
- **Confidence** refers to the degree of certainty of a prediction. Confidence may be related to any of the impact assessment criteria (extent, intensity, duration or probability) and is not necessarily only related to probability. Confidence may be influenced by any factors that introduce uncertainty into a prediction.

Depending on the numerical result of this calculation, the impact would fall into a **significance category of very low, low, moderate or high**, and the type would be either positive or

negative. Examples of these categories are provided below.

Once the significance of an impact occurring without mitigation has been established, the specialist must apply his/her professional judgement to assign ratings for the same impact after the proposed mitigation has been implemented.

Lastly, a further point is important when applying these criteria to impacts:

- Specialists need to assess the impact, **not** the source or origin of the impact (i.e. the activity that causes the impact). For instance, although the activity that causes a specific impact may take place over a long period of time, this does not necessarily imply that the impact itself will persist for the same length of time. The assessment must focus on the impact (the change in the environment) rather than on the activity that causes an impact.

The tables on the following pages show the scales used to classify the above variables, and define each of the rating categories.

Table 1: Definition of extent, intensity, duration (Consequence criteria)

Criteria	Category	Description	Rank
Extent or spatial influence of impact	National	Beyond a 20km radius of the site	4
	Regional	Within a 20 km radius of the site	3
	Local	Within a 2 km radius of the centre of the site	2
	Site specific	On site or within the boundaries of the property	1
	None	None	0
Intensity of impact (at the indicated spatial scale) Note: this incorporates whether the type of impact is negative (-1) or positive (+1)	High	Natural and/ or social functions and/ or processes are severely altered	4 or -4
	Medium	Natural and/ or social functions and/ or processes are notably altered	3 or -3
	Low	Natural and/ or social functions and/ or processes are slightly altered	2 or -2
	Very Low	Natural and/ or social functions and/ or processes are negligibly altered	1 or -1
	None	Natural and/ or social functions and/ or processes remain unaltered	0
Duration of impact	Permanent	More than 10 years (after operation)	4
	Long Term	5- 10 years (after operation)	3
	Medium Term	0-5 years (after operation)	2
	Short Term	Up to 18 months	1
	None	Zero time	0

Table 2: Definition of probability criteria

Criteria	Category	Description	Rank
Probability	Definite	Estimated greater than 95 % chance of the impact occurring.	4
	Very likely	Estimated 50 to 95% chance of the impact occurring	3
	Fairly likely	Estimated 5 to 50 % chance of the impact occurring.	2
	Unlikely	Estimated less than 5 % chance of the impact occurring.	1
	None	Definitely no chance of occurrence	0

Table 3: Application of consequence ratings

Range		Consequence Rating
-12	-11	Extremely detrimental
-10	-9	Highly detrimental
-8	-7	Moderately detrimental
-6	-5	Slightly detrimental
-4	4	Negligible
5	6	Slightly beneficial
7	8	Moderately beneficial
9	10	Highly beneficial
11	12	Extremely beneficial

Table 4: Application of significance ratings

Range		Significance Rating
-48	-37	High – negative
-36	-25	Moderate - negative
-24	-13	Low – negative
-12	-3	Very low – negative
-2	2	Neutral
3	12	Very Low - positive
13	24	Low – positive
25	36	Moderate – positive
37	48	High – positive

Despite attempts at ensuring objectivity and impartiality, environmental assessment remains an act of judgement and can never escape the subjectivity inherent in attempting to define significance. The determination of the significance of an impact depends on context (spatial and temporal) and intensity of that impact. Since the rationalisation of context and intensity will ultimately be prejudiced by the observer, there can be no wholly objective measure by which to judge the components of significance, let alone how they are integrated into a single comparable measure.

This notwithstanding, in order to facilitate informed decision-making, environmental assessments must endeavour to come to terms with the significance of the environmental impacts. Recognising this, Aurecon has attempted to address potential subjectivity in the current Basic Assessment process as follows:

Being explicit about the difficulty of being completely objective in the determination of

significance, as outlined above;
Developing an explicit methodology for assigning significance to impacts and outlining this methodology in detail. Having an explicit methodology not only forces the specialist to come to terms with the various facets that contribute to significance (thereby avoiding arbitrary assessment), but also provides the reader with a clear summary of how the specialist derived the significance; and
Utilising a team approach and internal review of the assessment to facilitate a rigorous and defendable system.

Although these measures may not totally eliminate subjectivity, they provide an explicit context within which to review the assessment of impacts.

The specialists appointed to contribute to this impact assessment have empirical knowledge of their respective fields and are thus able to comment on the confidence they have in their findings based on the availability of data and the certainty of their findings (example provided in Table 5).

During the assessments specialists are requested to note the Reversibility of the impacts and Irreplaceability of the resource being assessed (refer to Table 6 and Table 7, respectively).

Table 5: Definition of confidence ratings

Rating	Criteria
Certain	Wealth of information on and sound understanding of the environmental factors potentially influencing the impact.
Sure	Reasonable amount of useful information on and relatively sound understanding of the environmental factors potentially influencing the impact.
Unsure	Limited useful information on and understanding of the environmental factors potentially influencing this impact.

Table 6: Definition of reversibility ratings

Rating	Criteria
Irreversible	The activity will lead to an impact that is permanent.
Reversible	The impact is reversible, within a period of 10 years.

Table 7: Definition of irreplaceability ratings

Rating	Criteria
Low	The resource is not damaged irreparably or is not scarce
Medium	The resource is damaged irreparably but is represented elsewhere
High	The resource is irreparably damaged and is not represented elsewhere

4 ASSUMPTIONS, CONSTRAINTS AND LIMITATIONS OF STUDY

The field investigation for this assessment is considered more than adequate for the purposes of this study (see section 3.1) and is therefore not seen as a limitation. A more detailed soil investigation is not considered likely to add anything significant to the assessment of agricultural soil suitability for the purposes of determining the impact of the solar energy farm on agricultural resources and productivity.

The assessment rating of impacts is not an absolute measure. It is based on the subjective considerations and experience of the specialist, but is done with due regard and as accurately as possible within these constraints.

The study makes the assumption that water for irrigation is not available across the site. This is based on the assumption that a long history of farming experience in an area will result in the exploitation of viable water sources if they exist, and none have been exploited in this area.

There are no other specific constraints, uncertainties and gaps in knowledge for this study.

5 APPLICABLE LEGISLATION AND PERMIT REQUIREMENTS

The Subdivision of Agricultural Land Act (Act 70 of 1970) (SALA), requires that an application for the PV development be approved by the Department of Agriculture, Forestry and Fisheries (DAFF). Despite the name of the Act, it does not apply only to subdivision, and its purpose is to ensure productive use of agriculturally zoned land. Therefore, even if land is not being subdivided or leased, SALA approval is required to develop agriculturally zoned land for non-agricultural purposes.

DAFF reviews and approves this application according to their *Guidelines for the evaluation and review of applications pertaining to renewable energy on agricultural land*, dated September 2011.

Power lines require the registration of a servitude for each farm portion crossed. In terms of the Subdivision of Agricultural Land Act (Act 70 of 1970) (SALA), the registration of a power line servitude requires written consent of the Minister if the following two conditions apply:

1. if the servitude width exceeds 15 metres; and
2. if Eskom is not the applicant for the servitude.

If one or both of these conditions do not apply, then no agricultural consent is required. Eskom is currently exempt from agricultural consent for power line servitudes.

Rehabilitation after disturbance to agricultural land is managed by the Conservation of

Agricultural Resources Act (Act 43 of 1983) (CARA). No application is required in terms of CARA. The EIA process covers the required aspects of this.

6 BASELINE ASSESSMENT OF THE SOILS AND AGRICULTURAL CAPABILITY OF THE AFFECTED ENVIRONMENT

6.1 Climate and water availability

Rainfall for the site is given as a very low 110 mm per annum as an average between 1990 to 2012 (The World Bank Climate Change Knowledge Portal, 1990-2012). The average monthly distribution of rainfall is shown in Figure 2. One of the most important climate parameters for agriculture in a South African context is moisture availability. Moisture availability is an indicative measure of the climatic moisture that is available for plant growth in any environment. It is the ratio of rainfall to evapotranspiration and it directly determines the viability of any rain fed agriculture including grazing. Moisture availability is classified into six categories across the country (see Table 2). The proposed project site falls into the driest 6th category, which is labelled as a very severe limitation to agriculture.

The farm only has limited water available for stock watering. There is no access to water for irrigation.

Table 2. The classification of moisture availability climate classes for summer rainfall areas across South Africa (Agricultural Research Council, Undated)

Climate class	Moisture availability (Rainfall/0.25 PET)	Description of agricultural limitation
C1	>34	None to slight
C2	27-34	Slight
C3	19-26	Moderate
C4	12-18	Moderate to severe
C5	6-12	Severe
C6	<6	Very severe

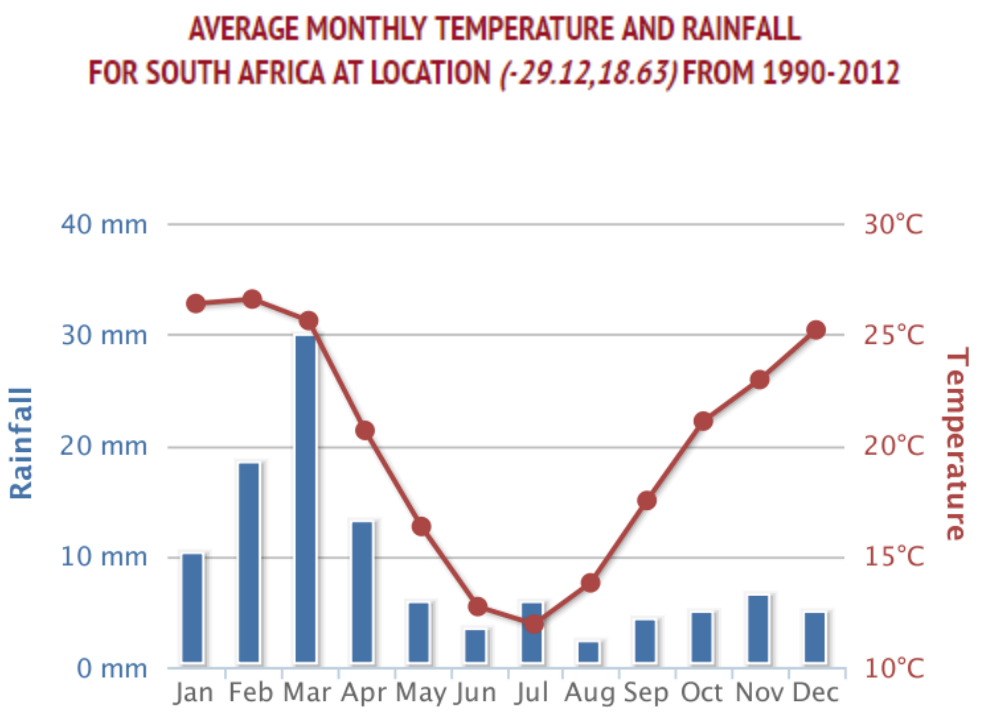

Figure 2. *Average monthly temperature and rainfall for the site (The World Bank Climate Change Knowledge Portal, 1990-2012).*

6.2 Terrain, topography and drainage

The proposed development is located on a terrain unit of level plains at an altitude of between 800 and 850 meters above mean sea level. Slope is approximately 1%. A satellite image map of the site is shown in Figure 3. Photographs of site conditions are shown in Figures 4 to 6.

The geology is sandy pedisediment, with quartz desert pavement in places, overlying gneissic granite of the Namaqualand Metamorphic Complex

The preferred alternative site in the south avoids any drainage courses. Adjacent to the site are small drainage courses typical of very arid environments, which would only flow very temporarily after rainstorm events. In the northern site there is such a drainage course across the middle of the site.

6.3 Soils

The land type classification is a nationwide survey that groups areas of similar soil, terrain and climate conditions into different land types. There are two land types on each of the northern (original) and southern (new) alternative sites. Soils of these land types are predominantly very sandy, red coloured soils on an underlying dorbank or calcrete hardpan or rock. They are of the Garies, Knersvlakte and Hutton soil forms, although in the old classification system, in use when the land types were described, the soils would have been described as Hutton soil

form. The soils fall into the Silicic, Calcic and Oxidic soil groups according to the classification of Fey (2010). A summary detailing soil data for the land types is provided in Appendix 1, Table A1. The field investigation confirmed that the soils on site are very sandy soils of varying depth on an underlying hardbank.

The soils are classified as having low to moderate susceptibility to water erosion (class 5), but because of their sandy texture are classified as highly susceptible (class 1a) to wind erosion.

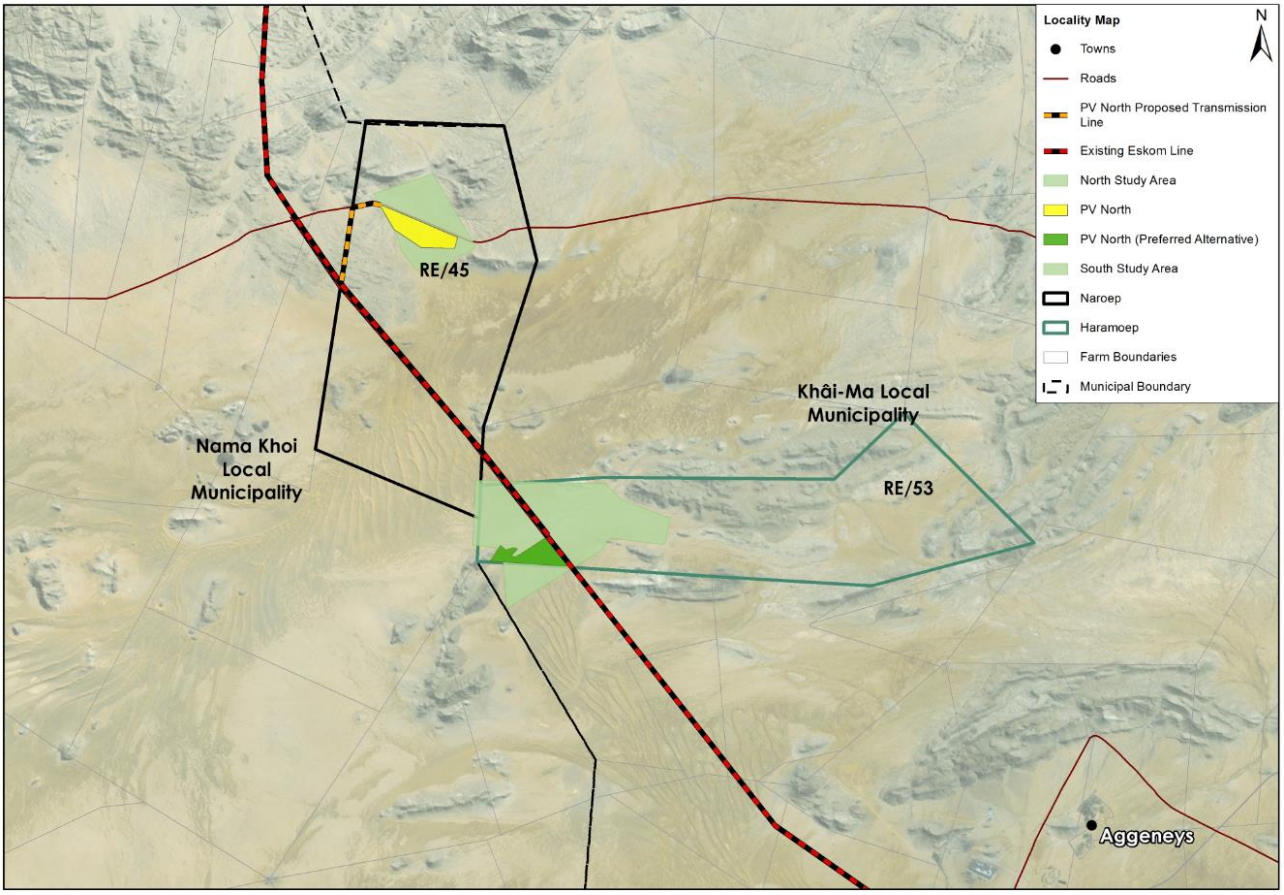

Figure 3. M*ap of the proposed site.*

6.4 Agricultural capability

Land capability is defined as the combination of soil, climate and terrain suitability factors for supporting rainfed agricultural production. It is an indication of what level and type of agricultural production can sustainably be achieved on any land. The higher land capability classes are suitable as arable land for the production of cultivated crops, while the lower suitability classes are only suitable as non-arable grazing land, or at the lowest extreme, not even suitable for grazing. In 2017 DAFF released updated and refined land capability mapping across the whole of South Africa. This has greatly improved the accuracy of the land capability rating for any particular piece of land anywhere in the country. The new land capability mapping divides land capability into 15 different categories with 1 being the lowest and 15 being the highest. Values below 8 are generally not suitable for production of any cultivated crop. Detail of this land capability scale is shown in Table 3.

The project area is classified with a predominant land capability evaluation value of 4, although it varies from 1 to 5 across the site. Agricultural limitations that result in the low land capability classification are predominantly due to the very limited climatic moisture availability. This renders the site unsuitable for any kind of mainstream cultivation and limits it to low density grazing only.

The long-term grazing capacity of the site is very low at 60 hectares per large stock unit, and can thus only sustain low stocking densities.

Table 3. Details of the 2017 Land Capability classification for South Africa.

Land capability evaluation value	Description
1	Very Low
2	
3	Very Low to Low
4	
5	Low
6	Low to Moderate
7	
8	Moderate
9	Moderate to High
10	
11	High
12	High to Very High
13	
14	Very High
15	

6.5 Land use and development on and surrounding the site

The farm is located within a sheep farming agricultural region and currently used only for grazing. There has never been any cultivation on the farm.

There is no agricultural infrastructure on the site, other than fencing around grazing camps and stock watering points. There is a farmstead on another part of the farm, outside the study area.

Road access to the site is by way of gravel farm roads that will require upgrading.

Figure 4. *View of typical conditions across the preferred site.*

Figure 5. *View of typical conditions across the preferred site.*

Figure 6. Example of dorbank hardbank (in foreground) which is common in the subsoil, and which has here been exposed at the surface (adjacent to preferred site).

6.6 Status of the land

The biome classification for the site is Bushmanland Arid Grassland. The vegetation is grazed and very sparse due to low rainfall, but there is no evidence of significant erosion or other land degradation on the site.

6.7 Possible land use options for the site

Because of, predominantly the climate limitations, the site is totally unsuitable for cultivated crops, and viable agricultural land use is limited to low intensity grazing only.

6.8 Agricultural sensitivity

Agricultural sensitivity is a direct function of the capability of the land for agricultural production. This is because a negative impact on land of higher agricultural capability is more detrimental to agriculture than the same impact on land of low agricultural capability. A general assessment of agricultural sensitivity, in terms of loss of agricultural land in South Africa, considers arable land that can support viable production of cultivated crops, to have high sensitivity. This is because there is a scarcity of such land in South Africa, in terms of how much is required for food security. However, there is not a scarcity in the country of land that is only suitable as grazing land and such land is therefore not considered to have high agricultural sensitivity.

In terms of the sensitivity categories used in the REDZ sensitivity analysis, this site was

assessed as low sensitivity (DEA, 2015).

The entire study area has extremely low agricultural potential and therefore very low agricultural sensitivity to development and consequent loss of agricultural land use. Agricultural potential and conditions are also very uniform across the site, and the choice of placement of facility infrastructure, including access roads and transmission lines therefore has negligible influence on the significance of agricultural impacts. From an agricultural point of view, no parts of the site need to be avoided by the proposed development and no buffers are required.

7 IDENTIFICATION AND ASSESSMENT OF IMPACTS ON AGRICULTURE

7.1 Impacts of the PV development

The focus and defining question of an agricultural impact assessment is to determine to what extent a proposed development will compromise (negative impacts) or enhance (positive impacts) current and/or future agricultural production. The significance of an impact is therefore a direct function of the degree to which that impact will affect current or future agricultural production. If there will be no impact on production, then there is no agricultural impact. Impacts that degrade the agricultural resource base pose a threat to production and therefore are within the scope of an agricultural impact assessment. Lifestyle impacts on the resident farming community, for example visual impacts, do not necessarily impact agricultural production and, if they do not, are not relevant to and within the scope of an agricultural impact assessment. Such impacts are better addressed within the impact assessments of other disciplines included in the EIA process.

For agricultural impacts, the exact nature of the different infrastructure within the facility has very little bearing on the significance of impacts. What is of most relevance is simply the occupation of the land, and whether it is being occupied by a solar panel, a building or a substation makes no difference. What is of most relevance therefore is simply the total footprint of the facility.

The components of the project that can impact on soils, agricultural resources and productivity are:

- Occupation of the land by the total, direct, physical footprint of the proposed project including all roads.
- Construction activities that may disturb the soil profile and vegetation, for example for levelling, excavations, etc.

The significance of all potential agricultural impacts is kept low by the fact that the proposed site is on land of extremely limited agricultural potential that is only viable for low intensity grazing.

Three potential agricultural impacts have been identified. Two of these are direct, negative

impacts and apply to all three phases of the development (construction, operational and decommissioning). They are:

- **Loss of agricultural land use (Negative impact)** - Agricultural grazing land directly occupied by all of the development infrastructure will become unavailable for agricultural use.
- **Soil degradation (Negative impact)** - Soil degradation can result from erosion, topsoil loss and contamination. Erosion can occur as a result of the alteration of the land surface run-off characteristics, which can be caused by construction related land surface disturbance, vegetation removal, and the establishment of hard surface areas including roads. Loss of topsoil can result from poor topsoil management during construction related excavations. Hydrocarbon spillages from construction activities can contaminate soil. Soil degradation will reduce the ability of the soil to support vegetation growth.
- **Increased financial security for farming operations (Positive impact) -** Reliable income will be generated by the farming enterprises through the lease of the land to the energy facility. This is likely to increase their cash flow and financial security and thereby improve farming operations. The would be an indirect impact and only applies to the operational phase

7.2 Impacts of the electricity grid infrastructure

Electrical grid infrastructure has negligible agricultural impact in this study area for two reasons:

1. Overhead transmission lines have no agricultural impact because all agricultural activities that are viable in this environment (grazing) can continue completely unhindered underneath transmission lines.
2. The direct, permanent, physical footprint of the electricity grid infrastructure that has any potential to interfere with agriculture is restricted to pylon bases and a small substation footprint and is therefore so small that its impact on loss of agricultural land use in this environment is deemed negligible.

The only possible source of impact is minimal disturbance to the land during construction and decommissioning. This single agricultural impact is therefore a direct, negative impact that applies to two of the phases of the development (construction and decommissioning).

The impact is therefore: Minimal soil and land degradation (erosion and topsoil loss) as a result of land disturbance.

Erosion can occur as a result of the alteration of the land surface run-off characteristics, which can be caused by construction related land surface disturbance, vegetation removal, and the establishment of hard surface areas including roads. Loss of topsoil can result from poor topsoil management during excavations. Soil degradation will reduce the ability of the soil to support vegetation growth.

7.3 Cumulative impacts

The cumulative impact of a development is the impact that development will have when its impact is added to the incremental impacts of other past, present or reasonably foreseeable future activities that will affect the same environment. The most important concept related to a cumulative impact is that of an acceptable level of change to an environment. A cumulative impact only becomes relevant when the impact of the proposed development will lead directly to the sum of impacts of all developments causing an acceptable level of change to be exceeded in the surrounding area. If the impact of the development being assessed does not cause that level to be exceeded, then the cumulative impact associated with that development is not significant.

The potential cumulative agricultural impact of importance is a regional loss or degradation of agricultural land. The defining question for assessing the cumulative agricultural impact is this:

> What level of loss of agricultural land use is acceptable in the area, and will the loss associated with the Namakwa North PV development, cause that level in the area to be exceeded?

DEA requires compliance with a specified methodology for the assessment of cumulative impacts. This is positive in that it ensures engagement with the important issue of cumulative impacts. However, the required compliance has some limitations and can, in my opinion, result in an over-focus on methodological compliance, while missing the more important task of effectively answering the above defining question.

The first limitation with DEA's required methodology is that it restricts the cumulative impacts to similar developments, so in this case to renewable energy developments. In order to accurately answer the defining question above, all developments, regardless of their type and similarity, should be taken into account, because all will contribute to exceeding the acceptable level of change.

The second problem with the requirement, is that it restricts surrounding developments to those within an absolutely defined distance. Again this does not allow for accurately answering the defining question. To achieve this, the distance used for cumulative impact assessment should be discipline dependent. A different distance is likely to apply for agricultural impact than for economic impact or botanical impact. And a different distance should be used in different environments, for example in high potential agricultural environments versus very low potential agricultural environments.

Given the above, this assessment focuses more on effectively addressing the defining question above than getting distracted by methodological compliance for its own sake. It does this by considering cumulative impacts more broadly. This includes considering a wider area,and considering the likelihood of pressure from other types of developments as well.

There are 21 renewable energy project applications, with their associated transmission lines, within 30km of the proposed site (that therefore need to be considered in terms of the DEA requirements). These are listed in Appendix 2.

All of these projects have the same agricultural impacts in an almost identical agricultural environment, and therefore the same mitigation measures apply to all.

In quantifying the cumulative impact, the area of land taken out of agricultural grazing as a result of all of the projects above will amount to a total of approximately 3,742 hectares. This is calculated using the industry standards of 2.5 and 0.3 hectares per megawatt for solar and wind energy generation respectively, as per DEA (2015). The 21 applications listed in Appendix 2 amount to a generation capacity of 1,884 megawatts. As a proportion of the area within a 30km radius (approximately 283,000 ha), this amounts to only 1.3% of the surface area. That is well within an acceptable limit in terms of loss of low potential agricultural land, of which there is no scarcity in the country. This is particularly so when considered within the context of the following two points:

- In order for South Africa to achieve its renewable energy generation goals, agriculturally zoned land will need to be used for renewable energy generation. It is far more preferable to incur a cumulative loss of agricultural land in a region such as the one being assessed, which has no cultivation potential, and low grazing capacity, than to lose agricultural land that has a higher potential, and that is much scarcer, to renewable energy development elsewhere in the country. The limits of acceptable agricultural land loss are therefore far higher in this region than in regions with higher agricultural potential.
- It is also preferable, from an impact point of view as well as from practical considerations, to rather have a concentrated node of renewable energy development within one area, as is the case around this project, than to spread out the same number of developments over a larger area. Therefore, if the cumulative impact is considered only for the node, it leads to a false impression of the magnitude of that impact because of the concentrated development within the node, and the absence of development surrounding it. When averaged over a greater area, the magnitude becomes much less.

It should also be noted that there are few land uses, other than renewable energy, that are competing for agricultural land use in this area. The cumulative impact from developments, other than renewable energy, is therefore low.

Due to all of the considerations discussed above, the cumulative impact of loss of agricultural land use is assessed as having low significance. In terms of cumulative impact, therefore, the development can be authorised.

7.4 Cumulative impacts of the electrical grid connection components

The observations on cumulative impact, presented in Section 7.3, apply for the electrical grid connection components as well. In fact, because of the even lower (negligible) agricultural impacts of power lines compared to solar farms, the agricultural environment can accommodate far more electricity grid infrastructure than currently exists, or is currently proposed, before acceptable levels of change are exceeded. Acceptable levels of change in terms of other types of impact, for example visual impact, would be exceeded long before the levels for agricultural impact became an issue. For the above reasons, the cumulative agricultural impact of the electrical grid connection components can confidently be assessed as negligible and a more formal assessment is irrelevant.

8 ENVIRONMENTAL MANAGEMENT PROGRAMME INPUTS

The environmental management programme inputs for the protection of soil resources are presented in the tables below for each phase of the development.

Table 4: Management plan for the planning and design phase

Impact	**Mitigation / management objectives and outcomes**	**Mitigation / management actions**	**Monitoring**		
			Methodology	**Frequency**	**Responsibility**
Aspect: Protection of soil resources					
Erosion	That disturbance and existence of hard surfaces causes no erosion on or downstream of the site.	Design an effective system of storm water run-off control, where it is required - that is at any points where run-off water might accumulate. The system must effectively collect and safely disseminate	Ensure that the storm water run-off control is included in the engineering design.	Once-off during the design phase.	Holder of the EA

		any run-off water from all hardened surfaces and it must prevent any potential down slope erosion.			

Table 5: Management plan for the construction phase

Impact	**Mitigation / management objectives and outcomes**	**Mitigation / management actions**	**Monitoring**		
			Methodology	**Frequency**	**Responsibility**
Aspect: Protection of soil resources					
Erosion	That disturbance and existence of hard surfaces causes no erosion on or downstream of the site.	Implement an effective system of storm water run-off control, where it is required - that is at any points where run-off water might accumulate. The system must effectively collect and safely disseminate any run-off water from all hardened surfaces and it must prevent any potential down slope erosion.	Undertake a periodic site inspection to verify and inspect the effectiveness and integrity of the storm water run-off control system and to specifically record the occurrence of any erosion on site or downstream. Corrective action must be implemented to the run-off control system in the event of any erosion occurring.	Monthly	Environmental Control Officer (ECO)

	That vegetation clearing does not pose a high erosion risk.	Maintain where possible all vegetation cover and facilitate re-vegetation of denuded areas throughout the site, to stabilize disturbed soil against erosion.	Undertake a periodic site inspection to record the occurrence of and re-vegetation progress of all areas that require re-vegetation.	Every 3 months	Environmental Control Officer (ECO)
Topsoil loss	That no topsoil is lost	If an activity will mechanically disturb the soil below surface in any way, then any available topsoil should first be stripped from the entire surface to be disturbed and stockpiled for re-spreading during rehabilitation. During rehabilitation, the stockpiled topsoil must be evenly spread over the entire disturbed surface.	Record GPS positions of all occurrences of below-surface soil disturbance (eg excavations). Record date of topsoil stripping and replacement. Check that topsoil covers entire disturbed area.	As required, whenever areas are disturbed.	Environmental Control Officer (ECO)

Table 6: Management plan for the operational phase

Impact	Mitigation / management objectives and outcomes	Mitigation / management actions	Monitoring		
			Methodology	**Frequency**	**Responsibility**
Aspect: Protection of soil resources					
Erosion	That existence of hard surfaces causes no erosion on or downstream of the site.	Maintain the storm water run-off control system. Monitor erosion and remedy the storm water control system in the event of any erosion occurring.	Undertake a periodic site inspection to verify and inspect the effectiveness and integrity of the storm water run-off control system and to specifically record the occurrence of any erosion on site or downstream. Corrective action must be implemented to the run-off control system in the event of any erosion occurring.	Bi-annually	Facility Environmental Manager
	That denuded areas are re-vegetated to stabilise soil against erosion	Facilitate re-vegetation of denuded areas throughout the site	Undertake a periodic site inspection to record the progress of all areas that require re-vegetation.	Bi-annually	Facility Environmental Manager

Table 7: Management plan for the decommissioning phase

Impact	Mitigation / management objectives and outcomes	Mitigation / management actions	Monitoring		
			Methodology	**Frequency**	**Responsibility**
Aspect: Protection of soil resources					
Erosion	That disturbance and existence of hard surfaces causes no erosion on or downstream of the site.	Implement an effective system of storm water run-off control, where it is required - that is at any points where run-off water might accumulate. The system must effectively collect and safely disseminate any run-off water from all hardened surfaces and it must prevent any potential down slope erosion.	Undertake a periodic site inspection to verify and inspect the effectiveness and integrity of the storm water run-off control system and to specifically record the occurrence of any erosion on site or downstream. Corrective action must be implemented to the run-off control system in the event of any erosion occurring.	Monthly	Environmental Control Officer (ECO)
	That vegetation clearing does not pose a high erosion risk.	Maintain where possible all vegetation cover and facilitate re-vegetation of denuded areas throughout	Undertake a periodic site inspection to record the occurrence of and re-vegetation progress of all	Every 3 months	Environmental Control Officer (ECO)

		the site, to stabilize disturbed soil against erosion.	areas that require re-vegetation.		
Topsoil loss	That no topsoil is lost	If an activity will mechanically disturb the soil below surface in any way, then any available topsoil should first be stripped from the entire surface to be disturbed and stockpiled for re-spreading during rehabilitation. During rehabilitation, the stockpiled topsoil must be evenly spread over the entire disturbed surface.	Record GPS positions of all occurrences of below-surface soil disturbance (eg excavations). Record date of topsoil stripping and replacement. Check that topsoil covers entire disturbed area.	As required, whenever areas are disturbed.	Environmental Control Officer (ECO)

9 **CONCLUSIONS**

The proposed development is on land zoned and used for agriculture (grazing). South Africa has very limited arable land and it is therefore critical to ensure that development does not lead to an inappropriate loss of land that may be valuable for cultivation. This assessment has found that the investigated site is on land which is of extremely low agricultural potential and is not suitable for cultivation.

No agriculturally sensitive areas occur within the proposed site and no part of it is therefore required to be set aside from the development.

Due to the low agricultural potential of the site, and the consequent low agricultural impact, there are no restrictions relating to agriculture which preclude authorisation of the proposed development and therefore, from an agricultural impact point of view, the development should be authorised.

There are no conditions resulting from this assessment that need to be included in the environmental authorisation.

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The World Bank Climate Change Knowledge Portal available at https://climateknowledgeportal.worldbank.org/country/south-africa/climate-data-historical

APPENDIX 1: SOIL DATA

Table A1. Land type soil data for site.

Land type	Land capability class	Soil series (forms)	Depth (cm)	Clay % A horizon	Clay % B horizon	Depth limiting layer	% of land type
Ae99	7	Hutton	30-50	3-6	6-10	db, ca	48
		Hutton	15-30	1-3	2-4	db, ca	44
		Dundee	60-80	1-3	1-3	ca, R	7
		Rock outcrop	0			R	2
Af20	7	Hutton	>120	1-3	1-3		75
		Hutton	30-70	1-3	2-6	db, ca	14
		Oakleaf	50-80	3-6	6-10	ca, R	5
		Hutton	30-70	3-6	6-10	db	5
		Mispah	10-30	1-4		ca	2
Ag43	7	Hutton	20-35	3-6	3-9	R, db	47
		Hutton	40-60	3-6	3-9	R, db	35
		Hutton	>120	1-4	1-4		11
		Dundee	>120	2-5			4
		Mispah	10-30	3-6		R	3
		Rock outcrop	0			R	1
Ag35	7	Hutton	10-30	3-6	3-6	R, ca, db	43
		Rock outcrop	0			R	33
		Mispah	10-20		3-6	R	13
		Dundee	50-100		2-5	R	10

Land capability classes: 7 = non-arable, low potential grazing land.

Depth limiting layers: R = hard rock; db = dorbank hardpan.

APPENDIX 2: PROJECTS CONSIDERED FOR CUMULATIVE IMPACTS

DEA Ref	Title	MW
14/12/16/3/3/2/872	Construction of the proposed Sol Invictus 3 PV solar facility and its associated infrastructure within the Nama Khoi Local Municipality, South West of Aggeneys, Northern Cape Province	150
12/12/20/2334/6	Proposed Sato Energy Holdings Photovoltaic Project, Khai Ma Local municipality, Northern cape	75
12/12/20/2334/7	Proposed Sato Energy Holdings Photovoltaic Project, Khai Ma Local municipality, Northern cape	75
14/12/16/3/3/2/222	Proposed Boesmanland solar farm portion 6 (A portion of portion 2) Farm 62 Zuurwater, Aggeneys, Northern Cape	75
12/12/20/2151	The Proposed Construction Of A Photovoltaic Power Generation Facility Within The Black Mountain Mining Area Near Aggeneys In The Northern Cape Province	19
14/12/16/3/3/2/550	Proposed wind energy facility and associated infrastructure on Namies wind farm Pty Ltd, near Aggeneys, Northern Cape Province	220
14/12/16/3/3/2/550	Proposed wind energy facility and associated infrastructure on Namies wind farm Pty Ltd, near Aggeneys, Northern Cape Province	220
14/12/16/3/3/2/448/8	Proposed Bloemhoek 75MW Solar Energy Facility near aggeneys	75
14/12/16/3/3/2/448/6	Proposed Bloemhoek 75MW Solar Energy Facility near aggeneys	75
14/12/16/3/3/2/448/4	Proposed Bloemhoek 75MW Solar Energy Facility near aggeneys	75
14/12/16/3/3/2/448/3	Proposed Bloemhoek 75MW Solar Energy Facility near aggeneys	75
14/12/16/3/3/2/448/2	Proposed Bloemhoek 75MW Solar Energy Facility near aggeneys	75
14/12/16/3/3/2/448/16	Proposed Bloemhoek 75MW Solar Energy Facility near aggeneys	75
14/12/16/3/3/2/448/15	Proposed Bloemhoek 75MW Solar Energy Facility near aggeneys	75
14/12/16/3/3/2/448/	Proposed Bloemhoek 75MW Solar Energy Facility near	75

14	aggeneys	
14/12/16/3/3/2/448/13	Proposed Bloemhoek 75MW Solar Energy Facility near aggeneys	75
14/12/16/3/3/2/448/12	Proposed Bloemhoek 75MW Solar Energy Facility near aggeneys	75
14/12/16/3/3/2/448/11	Proposed Bloemhoek 75MW Solar Energy Facility near aggeneys	75
14/12/16/3/3/2/448/10	Proposed Bloemhoek 75MW Solar Energy Facility near aggeneys	75
14/12/16/3/3/2/448/1	Proposed Bloemhoek 75MW Solar Energy Facility near aggeneys	75
14/12/16/3/3/2/448/9	Proposed Bloemhoek 75MW Solar Energy Facility near aggeneys	75