THE BASIC ASSESSMENT FOR THE PROPOSED KOMAS WIND ENERGY FACILITY AND ASSOCIATED INFRASTRUCTURE NEAR KLEINSEE IN THE NORTHERN CAPE PROVINCE.

APPENDIX C.7

Agricultural Assessment

DRAFT BASIC ASSESSMENT REPORT

AGRICULTURAL ASSESSMENT

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EXECUTIVE SUMMARY

Genesis ENERTRAG Komas (Pty) Ltd (the applicant) is proposing to develop the Komas Wind Energy Facility (WEF) and associated infrastructure near Kleinsee within the Nama Khoi Local Municipality, in the Northern Cape Province. The proposed WEF is located within the Springbok Renewable Energy Development Zone (REDZ 8) and is therefore subject to a Basic Assessment (BA) instead of a full Environmental Impact Assessment (EIA). The applicant has appointed the Council of Scientific and Industrial Research (CSIR) to undertake the required BA process to apply for Environmental Authorisation (EA) for the proposed project. The CSIR in turn has appointed Johann Lanz, an independent Soil Science specialist, to undertake an assessment of potential impacts on the agricultural potential of the site in accordance with the requirements of the Agricultural Protocol for Onshore Wind Energy Generation Facilities where the Electricity Output is 20 MW or more (GG 43110 / GNR 320, 20 March 2020). Based on this Protocol and its requirements, an Agricultural Compliance Statement (including a Site Sensitivity Verification) was undertaken as the site was assessed to be of low agricultural sensitivity.

The key findings of this study are:

- Soils of these land type are predominantly deep to moderately deep, very sandy soils on underlying hardpan carbonate and sometimes clay.
- The major limitations to agriculture are the severely limited climatic moisture availability and the sandy soils with low water holding capacity.
- As a result of these limitations, **the agricultural use of the study area is limited to low intensity grazing only.**
- The project site is classified with a predominant **land capability evaluation value of 5 (low)**, although it varies from 4 to 6 across the site (Land Capability Classification for South Africa, 2017).
- The significance of all potential agricultural impacts associated with the development of the proposed Komas WEF is rated as low because the proposed site is on land of extremely limited agricultural potential and the footprint of disturbance of the wind farm is limited to a very small proportion of the surface area.
- There are no agriculturally sensitive areas on the site and no parts of the site need to be avoided by the development of the proposed Komas WEF and associated infrastructure.
- Three potential negative impacts of the proposed development on agricultural resources and productivity were identified as:
    - Loss of agricultural land use;
    - Soil degradation; and
    - Cumulative, regional loss of agricultural land use.
- One potential positive impact of the development on agricultural resources and productivity was identified as:
    - Increased financial security for farming operations from land rental to energy facility.
- All potential impacts (positive and negative) associated with the proposed development were assessed as having **low or very low significance after mitigation.**
- The overall significance of the potential impact on agricultural resources for the construction, operation and decommissioning phases is assessed **as low to very low** (with mitigation actions applied effectively).
- The outcome of the site sensitivity verification and assessment therefore confirm the current use of the land as Agriculture and environmental sensitivity **as low** as identified by the National Web-Based Environmental Screening Tool. Therefore, a Compliance Statement was

undertaken in accordance with the requirements of the Agricultural Protocol for Onshore Wind and/or Solar PV Energy Generation Facilities where the Electricity Output is 20 MW or more (GG 43110 / GNR 320, 20 March 2020).

- Recommended mitigation measures include implementation of an effective system of storm water run-off control; the maintenance of vegetation cover to mitigate erosion; and topsoil stripping, stockpiling and re-spreading to mitigate loss of topsoil on disturbed areas.
- Because of the agricultural uniformity and low potential, there is no material difference between the agricultural impact of the Battery Energy Storage System (BESS) and Substation (SS) site Option 1 or Option 2 alternatives, and therefore both these alternatives are considered acceptable.
- The conclusion of this assessment is that the proposed development of the Komas WEF and associated infrastructure **will not have an unacceptable negative impact on the agricultural production capability of the site**. This is substantiated by the facts that the amount of agricultural land loss is within the allowable development limits, and that the proposed development poses a low risk in terms of causing soil degradation.
- **The proposed development is therefore acceptable and it is recommended that from an agricultural impact point of view, it can be approved.**

1 INTRODUCTION

This report presents the Site Sensitivity Verification and the Agricultural Compliance Statement undertaken by Johann Lanz (an independent consultant), for the proposed construction, operation and decommissioning of the Komas Wind Energy Facility (WEF) and associated infrastructure, near Komaggas, in the Northern Cape Province (see Figure 1). Johann Lanz was appointed by the Council of Scientific and Industrial Research (CSIR) to undertake an Agricultural Specialist Study as part of the Basic Assessment (BA) Process to apply for Environmental Authorisation (EA) on behalf of the applicant, Genesis ENERTRAG Komas (Pty) Ltd.

1.1 Scope and objectives

The overall objectives of the study are to identify and assess all 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 potential impacts.

Figure 1: Location of the proposed Komas WEF, west of the town of Komaggas, showing the project area in red.

1.2 Details of Specialist

This specialist assessment has been undertaken by Johann Lanz, and independent agricultural specialist. Johann Lanz is registered with the South African Council for Natural and Scientific Professions (SACNASP), with Registration Number 400268/12 in the field of Soil Science. A Curriculum Vitae is included in Appendix A of this specialist assessment.

In addition, a signed specialist statement of independence is included in Appendix B of this specialist assessment.

1.3 Terms of Reference

The terms of reference for this study is to fulfill the requirements of the gazetted Protocol for the Specialist Assessment and Minimum Report Content Requirements of Environmental Impacts on Agricultural Resources by Onshore Wind and/or Solar PV Energy Generation Facilities where the Electricity Output is 20 MW or more (Government Gazette 43110 / Government Notice Regulation 320, 20 March 2020). This Protocol replaces the requirements of Appendix 6 of the Environmental Impact Assessment Regulations, as amended, (EIA Regulations), promulgated under sections 24(5) and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998).

The proposed site is identified by the National Web-Based Environmental Screening Tool as being of **low and medium sensitivity** for agricultural resources. The Protocol therefore requires that an Agricultural Compliance Statement be undertaken as the level of assessment. The Protocol also requires that prior to commencing with a specialist assessment, the current use of the land and the potential environmental sensitivity of the site under consideration, as identified by the National Web-Based Environmental Screening Tool must be confirmed by undertaking an Initial Site Sensitivity Verification. The Site Sensitivity Verification will confirm or dispute the findings of the National Web-Based Environmental Screening Tool.

The Protocol states that an Agricultural Compliance Statement must be prepared by a soil scientist/agricultural specialist registered with the South African Council for Natural Scientific Professions (SACNASP).

The Compliance Statement must:
(The section of this report that fulfils each requirement is given in brackets after it)

1) be applicable to the preferred site and proposed development footprint;
2) confirm that the site is of “low” or “medium” sensitivity for agriculture (Section 4.7.1); and
3) indicate whether or not the proposed development will have an unacceptable impact on the agricultural production capability of the site (Section 11).

The Agricultural Compliance Statement must contain, as a minimum, the following information:

- contact details and relevant experience as well as the SACNASP registration number of the soil scientist or agricultural specialist preparing the statement including a curriculum vita **(Appendix 1)**;
- a signed statement of independence **(Appendix 2)**;
- a map showing the proposed development footprint (including supporting infrastructure) with a 50 m buffered development envelope, overlaid on the agricultural sensitivity map generated by the screening tool **(Figure 2)**;
- calculations of the physical development footprint area for each land parcel as well as the total physical development footprint area of the proposed development including supporting infrastructure **(Section 6.6)**;

- confirmation that the development footprint is in line with the allowable development limits (Section 6.6) (It must be noted that supporting infrastructure for the WEF has been considered in this statement, except for the proposed 132 kV power line and associated electrical infrastructure which is the subject of a separate BA Process);
- confirmation from the specialist that all reasonable measures have been taken through micro-siting to avoid or minimize fragmentation and disturbance of agricultural activities **(Section 6.7)**;
- a substantiated statement from the soil scientist or agricultural specialist on the acceptability, or not, of the proposed development and a recommendation on the approval, or not of the proposed development **(Section 11)**;
- any conditions to which this statement is subjected **(Section 11.1)**;
- in the case of a linear activity, confirmation from the agricultural specialist or soil scientist, that in their opinion, based on the mitigation and remedial measures proposed, the land can be returned to the current state within two years of completion of the construction phase **(not applicable**);
- where required, proposed impact management outcomes or any monitoring requirements for inclusion in the EMPr **(Section 9)**;
- a description of the assumptions made and any uncertainties or gaps in knowledge or data **(Section 2.2**); and
- The signed Agricultural Compliance Statement must be appended to the Basic Assessment Report **(i.e. this report is included as an appendix to the BA Report)**.

2 APPROACH AND METHODOLOGY

The site sensitivity verification that was undertaken by the specialist **confirms the land use as Agriculture and the low agricultural sensitivity of the site** as identified by the National Web-Based Environmental Screening Tool. The site sensitivity verification and assessment were informed by a desktop analysis of existing soil and agricultural potential data for the site (see sources of information in the following section). The site sensitivity verification was also confirmed by a site visit that was undertaken by the Environmental Assessment Practitioner (EAP) on 29 September 2020. The site visit that was undertaken by the EAP and desktop analysis are considered entirely adequate for a thorough assessment of all the potential agricultural impacts associated with the proposed development of the Komas WEF and associated infrastructure.

The potential impacts identified in this Compliance statement were assessed based on the criteria and methodology provided by the CSIR as outlined in Section D of the BA Report. This was informed and confirmed by the specialist's knowledge and experience of the field conditions of the environment in which the proposed development is located, and of the impact of disturbances on that agricultural environment.

2.1 Sources of information

The following sources of information were used:

- Soil data was sourced from the land type data set, of the Department of Agriculture, Forestry and Fisheries. This data set originates from the land type survey that was conducted from the 1970's until 2002. It is the most reliable and comprehensive national database of soil information in South Africa and although the data was collected some time ago, it is still entirely relevant as the soil characteristics included in the land type data do not change within time scales of hundreds of years.

- Land capability data was sourced from the 2017 National land capability evaluation raster data layer produced by the Department of Agriculture, Forestry and Fisheries, Pretoria.
- Agricultural sensitivity was sourced from the National Web-Based Environmental Screening Tool.
- Rainfall and temperature data were sourced from The World Bank Climate Change Knowledge Portal.
- Grazing capacity data was sourced from the 2018 Department of Agriculture, Forestry and Fisheries long-term grazing capacity map for South Africa, available on Cape Farm Mapper.
- Satellite imagery of the site and surrounds was sourced from Google Earth.
- Knowledge of the area was also supplemented by the author's extensive experience of soil rehabilitation and re-vegetation work in the surrounding mining areas (Lanz, 1997).

2.2 Assumptions and Limitations

The following assumptions are applicable to this Compliance Statement:

- It is assumed 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.
- Cumulative impacts were assessed by adding potential impacts from this proposed development to existing and proposed developments with similar impacts in a 50 km radius. The existing and proposed renewable energy developments that were taken into consideration for cumulative impacts are shown in Figure 6.

The following limitation was identified:

- 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.

3 DESCRIPTION OF PROJECT ASPECTS RELEVANT TO AGRICULTURAL IMPACTS

For agricultural impacts, the exact nature of the different infrastructure developed within the project footprint area within the facility has very little bearing on the significance rating of potential impacts. What is of most relevance is simply the occupation of the land, and whether it is being occupied by a turbine foundation, a hardstand, a building or a Substation makes no difference. What is of most relevance therefore is simply the total footprint of the proposed facility.

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

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

The proposed Komas WEF will have a maximum generation capacity of up to 300 MW, and will comprise the following infrastructure:

- Up to 50 wind turbine generators with a hub height of up to 200 m and a rotor diameter of up to 200 m.

- Hard stand areas of approximately 1500 m^2 per turbine.
- A Lithium-ion Battery Energy Storage System (BESS) comprising of several utility scale battery modules within shipping containers or an applicable housing structure on a concrete foundation.
- Internal roads with a width of up to 10 m, providing access to each turbine, the BESS, on-site substation (SS) and laydown area. The roads will accommodate cable trenches and stormwater channels (as required) and will include turning circle/bypass areas of up to 20m at some sections during the construction phase. Existing roads will be upgraded wherever possible, although new roads will be constructed where necessary
- A temporary construction laydown/staging area together occupying a site of approximately 4.5 hectares (ha) which will also accommodate the operation and maintenance (O&M) buildings.
- Medium voltage (33 kV) cabling connecting the turbines will be laid underground.
- A 33/132kV on-site SS to feed electricity generated by the proposed Komas WEF into the national grid.

The BESS and 33/132kV on-site SS will be located within a 4ha battery and SS complex to allow for micro-siting of the BESS components and to accommodate internal roads (as required), a temporary construction laydown area and a firebreak around the BESS footprint. Two BESS and on-site SS complex site alternatives have been identified for assessment as part of the BA process, i.e. Option 1 and Option 2 (Figure 2).

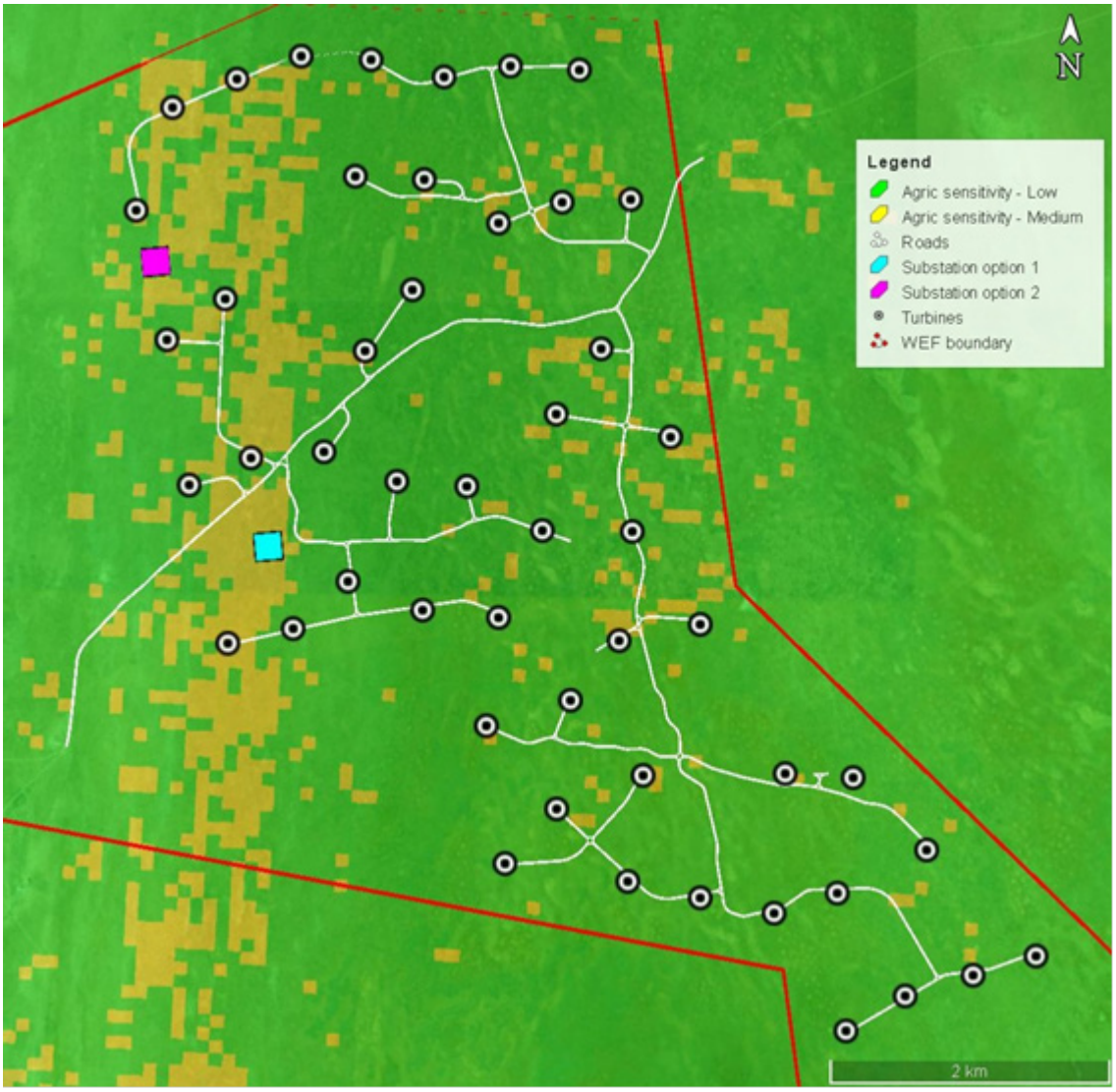

Figure 2: The proposed layout of the proposed Komas WEF overlaid on agricultural sensitivity. Please note the indicated SS site alternatives (Option 1 and Option 2) will also house the BESS and are referred to as the BESS and SS Complex site alternatives (Option 1 and Option 2)

4 BASELINE ASSESSMENT OF THE SOILS AND AGRICULTURAL CAPABILITY

4.1 Climate and water availability

The site has an extremely low average rainfall of 96 mm per annum (The World Bank Climate Change Knowledge Portal, 2016). The average monthly rainfall distribution is shown in Figure 3. The low rainfall is a very significant agricultural constraint that seriously limits the level of agricultural production (including grazing) which is possible. There are no dams across the project area.

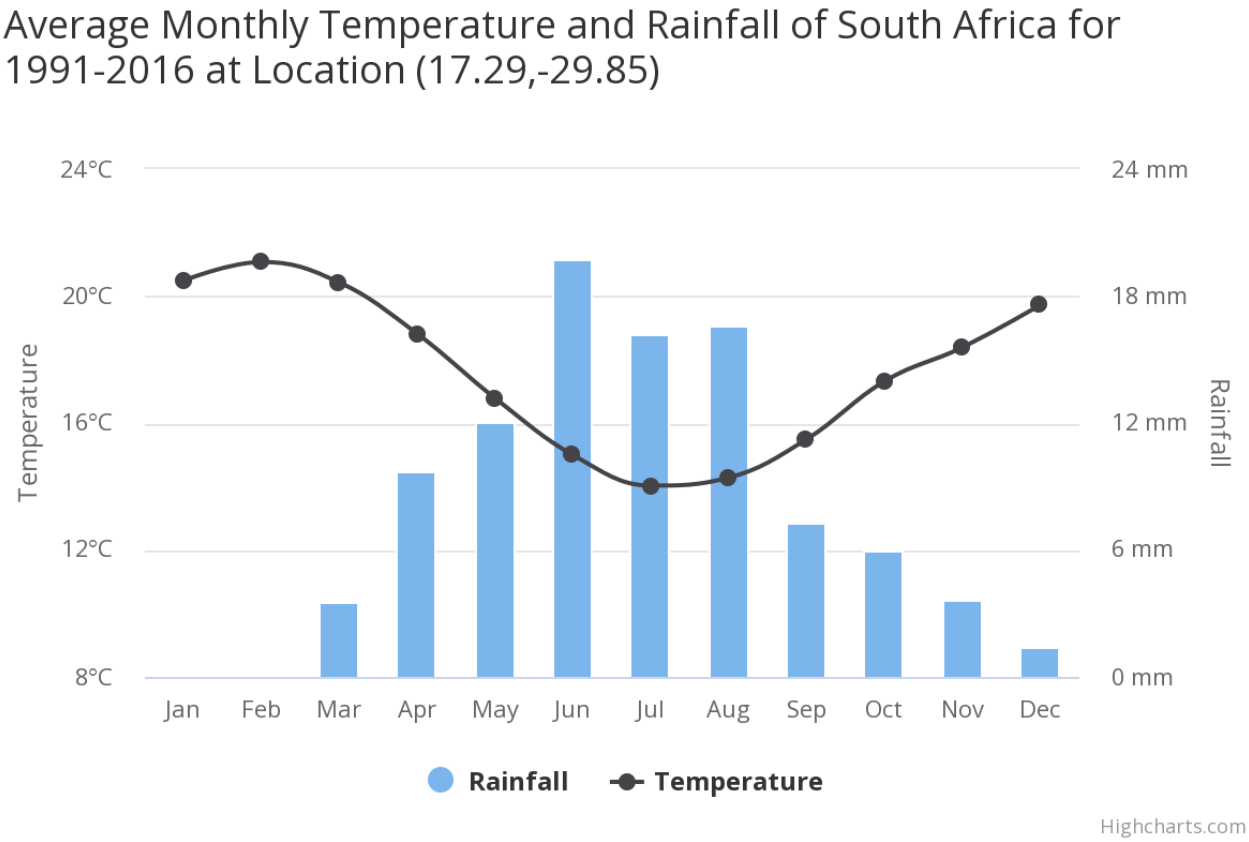

Figure 3: Historical climate data from the site (The World Bank Climate Change Knowledge Portal, 2016).

4.2 Terrain, topography and drainage

The proposed development is located on fairly level coastal plains at an approximate altitude between 170 and 240 metres. It includes the slopes up one ridge to an altitude of 340 metres. Slopes across the site are almost entirely less than 2%, with some steeper slopes on the side of the ridge. The geology of the coastal plains is aeolian material overlying Tertiary and Quaternary marine sediments.

The Aquatic Biodiversity Specialist on the project team identified nineteen ephemeral drainage lines within the south eastern portion of the study area. However, according to the layout plan provided, none of the proposed infrastructure will be located within 500 m of the drainage lines and these features will therefore not be impacted upon as a result of the project.

4.3 Soils

The land type classification is a nationwide survey that groups areas of similar soil, terrain and climatic conditions into different land types. Two land types, Ai13 and Ah38 cover most of the site. Soils of these land type are predominantly deep to moderately deep, very sandy soils on underlying hardpan carbonate and sometimes clay. Predominant soil forms are Hutton, Clovelly, Vilafontes and Pinedene. These soils would fall into the Oxidic and Calcic (underlying hardpan carbonate) soil groups according to the classification of Fey (2010).

Another land type, Hb80, comprises mostly deep sands. The higher lying ridges comprise a further land type, Ib123, that is dominated by rock outcrop and shallow, sandy soils on underlying rock of the Hutton and Mispah soil forms. These soils would fall into the Oxidic and Lithic soil groups according to

the classification of Fey (2010). A summary detailing soil data for the land types is provided in Table 9 in Appendix 3.

The sandy soils are susceptible to wind erosion. Although the soils are not classified as highly susceptible to water erosion, the aridity of the environment, with consequent low plant cover, means that erosion risk is nevertheless high.

4.4 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 of below 8 are generally not suitable for production of cultivated crops. Details of this land capability scale are shown in Table 1.

The proposed project area is classified with a predominant land capability evaluation value of 5, although it varies from 4 to 6 across the site. Agricultural limitations that result in the low land capability classification are predominantly due to the very limited climatic moisture availability, with sandy soils as an additional factor. These factors render the site unsuitable for any kind of cultivation and limit it to low density grazing only.

The long-term grazing capacity of the site is low at 45 hectares per large stock unit.

Table 1: 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	

4.5 Land use and development on and surrounding the site

The farm is located within a sheep farming agricultural region and land use for the farm and surrounding area is grazing only. There is no cultivation or any history of cultivation on the farm. Apart from fences, there is no agricultural infrastructure on the site. There are no buildings on the site.

4.6 Possible land use options for the site

Due to the climate limitations, the land is unsuitable for any agricultural purposes other than low intensity grazing.

The site is within one of South Africa's eight proposed REDZs (i.e. REDZ 8: Springbok), and has therefore been identified as one of the most suitable areas in the country for renewable energy development, in terms of a number of environmental, economic and infrastructural factors. These factors include an assessment of the significance of the loss of agricultural land. Renewable energy development is therefore a very suitable land use option for the site.

4.7 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.

The National Web-Based Environmental Screening Tool identifies the majority of the site as **of low agricultural sensitivity**, with only very limited patches of medium sensitivity, and with no higher sensitivity than medium.

Agricultural potential and conditions are very uniform across the site, and the choice of placement of facility infrastructure, including access roads and power lines therefore has negligible influence on the significance of potential agricultural impacts.

No areas of high agricultural sensitivity occur within the investigated site and no parts of it therefore need to be avoided by the development. There are no required buffers.

4.7.1 Site sensitivity verification

In terms of the Gazetted Agricultural Protocol, a site sensitivity verification must be submitted that:

1) confirms or disputes the current use of the land and the environmental sensitivity as identified by the screening tool, such as new developments or infrastructure, the change in vegetation cover or status etc.; and
2) contains a motivation and evidence (e.g. photographs) of either the verified or different use of the land and environmental sensitivity.

The agricultural sensitivity, as identified by the National Web-Based Environmental Screening Tool, which is predominantly low with small patches of medium (see Figure 4), is confirmed by this site sensitivity verification. The motivation for confirming the sensitivity is that the land of the proposed site, without doubt, corresponds to the definitions of the different sensitivity categories in terms of its land capability and cultivation status.

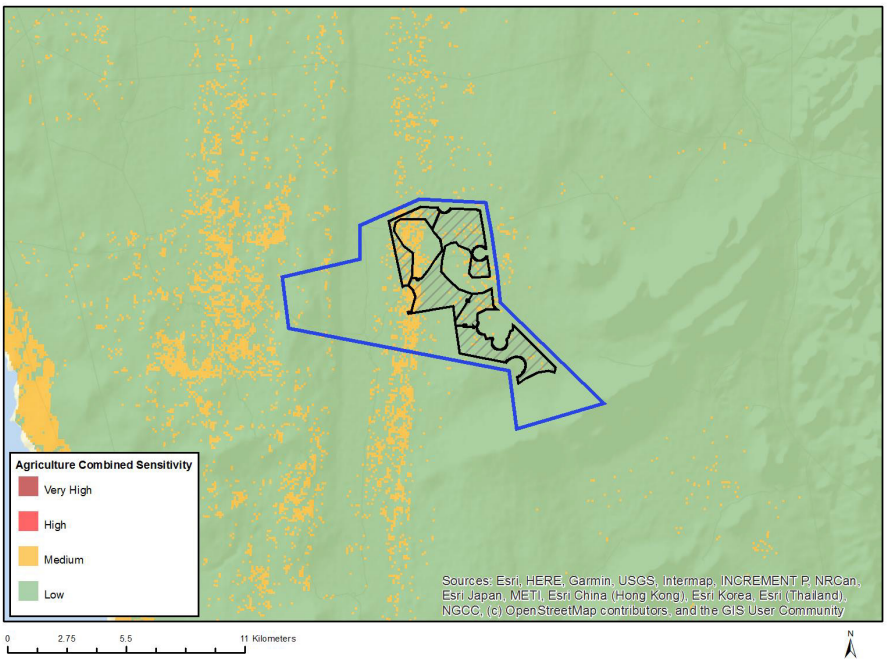

Figure 4: The agricultural sensitivity, as identified by the National Web-Based Environmental Screening Tool, which is predominantly low with small patches of medium

The determination of agricultural sensitivity in the Screening Tool is based on very specific and simple criteria involving only two parameters, land capability and whether the land is cultivated or not. The protocol requirement of doing a site sensitivity verification for agriculture, particularly where climate is the predominant agricultural limitation, is not deemed necessary because there is only one way in which a sensitivity category different from that of the screening tool could possibly be arrived at. The only way in which sensitivity in the field could differ from the Screening Tool, and therefore need verification, is if new cultivated lands had recently been established on the site. In an area where the soils, climate and water availability are known to be completely unsuitable for cultivation, this an impossibility.

However, in order to comply with this requirement, a site visit was conducted by the Environmental Assessment Practitioner (EAP), on 29 September 2020, as permitted in the protocol, in which it was confirmed that there are no new cultivated lands anywhere within the study area. As evidence of this, Figure 5 shows views across the site, showing absolutely no cultivated fields of wheat or maize (or any other agricultural crop).

Please refer to Section 4 above for further motivation and evidence of the verified use of the land and the environmental sensitivity.

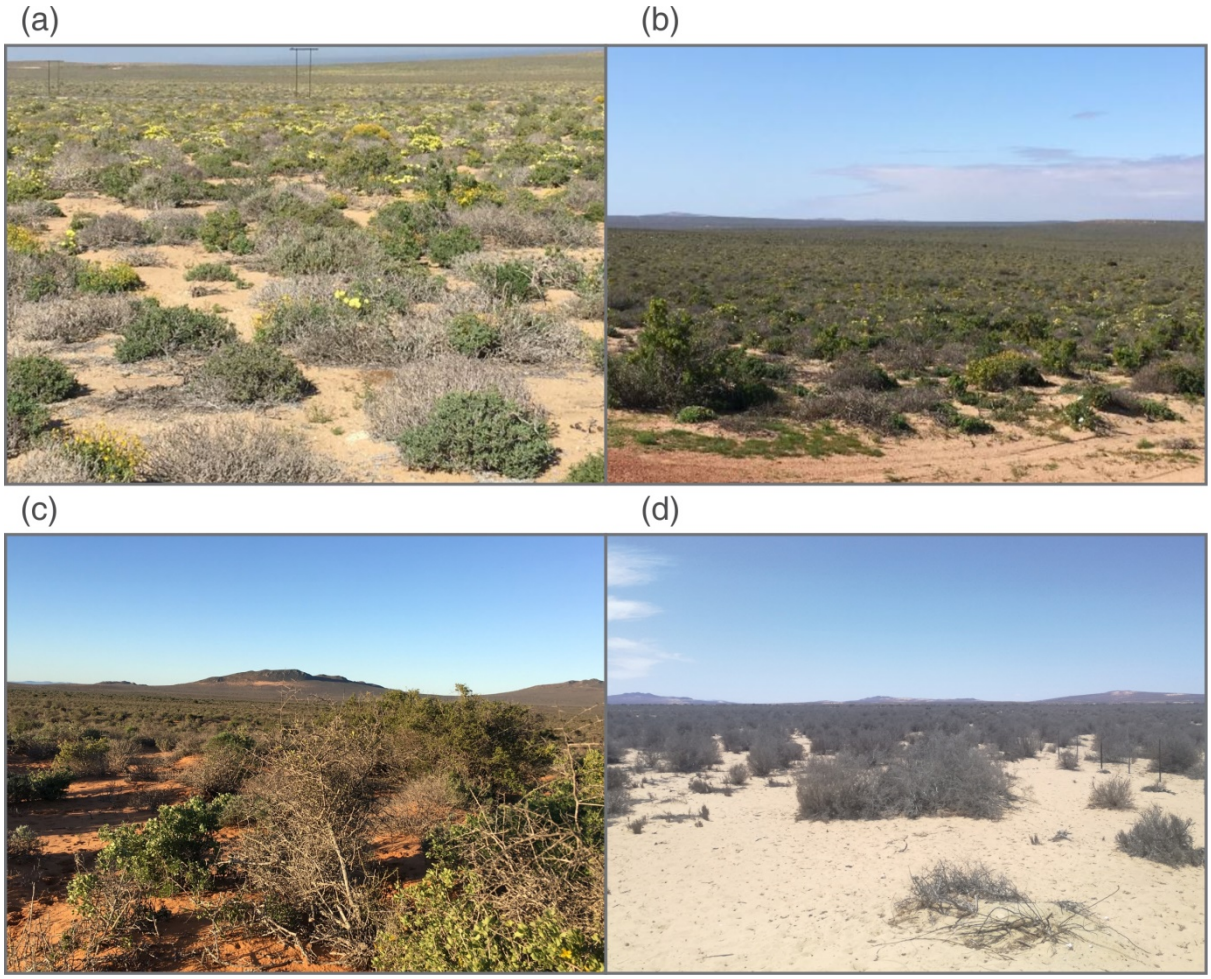

Figure 5 (a-d): Photographs taken across the study area of the proposed Komas Wind Energy Facility, showing that no new cultivated lands had recently been established on the site.

5 ISSUES, RISKS AND IMPACTS

The potential impacts identified during the assessment are:

5.1 Construction phase

- Loss of agricultural land use; and
- Soil degradation.

5.2 Operational phase

- Increased financial security for farming operations.

5.3 Decommissioning phase

- Soil degradation.

5.4 Cumulative impact

- Regional loss of agricultural land.

6 IMPACT ASSESSMENT

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 future 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 BA process, e.g. the Visual Impact Assessment.

For agricultural impacts, the exact nature of the different infrastructure within the proposed project footprint area 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 crane platform, a road, 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 proposed 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 (and decommissioning) activities that may disturb the soil profile and vegetation, for example for levelling, excavations, etc.

The significance of all potential agricultural impacts is rated as low because of three important factors listed below:

- The agricultural footprint of the proposed Komas WEF (including all associated infrastructure and roads), that results in the exclusion of land from potential cultivation or grazing, is very small in relation to the surface area of the affected farms. The proposed infrastructure associated with the proposed Komas WEF will only occupy approximately 2% of the surface area, according to the typical surface area requirements of wind farms in South Africa (DEA, 2015). Therefore, all potential agricultural impacts, including loss of agricultural land use, erosion and soil degradation will not be widespread and can at worse only affect a very limited proportion (2%) of the surface area. All agricultural activities will be able to continue unaffectedly on all parts of the farms other than the small development footprint for the duration of and after the project.
- All agricultural activities will be able to continue unaffectedly on all parts of the farms other than the very small development footprint for the duration of and after the project.
- The proposed Komas WEF site is on land of extremely limited agricultural potential that is only viable for low intensity grazing. Grazing can continue in tandem with the proposed Komas WEF.

The following potential agricultural impacts have been identified. The rating of an impact is based on the extent to which that impact can potentially affect agricultural production, in line with the discussion in paragraph 1 of this section.

6.1 Construction phase

6.1.1 Loss of agricultural land use

Aspect / Activity	**Occupation of the land by the project infrastructure**
Type of impact	Direct
Potential Impact	Agricultural grazing land directly occupied by the development infrastructure, which includes all associated infrastructure, will become unavailable for agricultural use.
Status	Negative
Mitigation Required	None possible
Impact Significance (Pre-mitigation)	Low
Impact Significance (Post-Mitigation)	Not applicable because there is no possible mitigation
I&AP Concern	Any comments or concerns regarding this aspect received from Interested and Affected Parties (I&APs) following the release of the Draft BA Report for comment will be included here.

6.1.2 Soil degradation

Aspect / Activity	**Construction related soil disturbance and changes to the land surface and run-off characteristics.**
Type of impact	Direct
Potential 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.
Status	Negative
Mitigation Required	Soil degradation can be effectively managed through these mitigation measures: • Implement an effective system of storm water run-off control. • Maintain, where possible, all vegetation cover and facilitate re-vegetation of denuded areas throughout the site, to stabilize the soil against erosion. • For below surface disturbances such as excavations, strip, stockpile and re-spread topsoil during rehabilitation.
Impact Significance (Pre-mitigation)	Low
Impact Significance (Post-Mitigation)	Low
I&AP Concern	Any comments or concerns regarding this aspect received from I&APs following the release of the Draft BA Report for comment will be included here.

6.2 Operational phase

6.2.1 Increased financial security for farming operations

Aspect / Activity	**Payment of rental by the energy facility**
Type of impact	Indirect
Potential 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 can improve farming operations.
Status	Positive
Mitigation Required	None
Impact Significance (Pre-mitigation)	Low
Impact Significance (Post-Mitigation)	Not applicable because there is no possible mitigation
I&AP Concern	Any comments or concerns regarding this aspect received from I&APs following the release of the Draft BA Report for comment will be included here.

6.3 Decommissioning phase

6.3.1 Soil degradation

Aspect / Activity	**Decommissioning related soil disturbance.**
Type of impact	Direct
Potential 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 decommissioning related land surface disturbance and vegetation removal. Loss of topsoil can result from poor topsoil management during decommissioning related excavations. Hydrocarbon spillages from decommissioning activities can contaminate soil. Soil degradation will reduce the ability of the soil to support vegetation growth.
Status	Negative
Mitigation Required	Soil degradation can be effectively managed through the following mitigation measures: • Maintain, where possible, all vegetation cover and facilitate re-vegetation of denuded areas throughout the site, to stabilize the soil against erosion. • For below surface disturbances such as excavations, strip, stockpile and re-spread topsoil during rehabilitation.
Impact Significance (Pre-mitigation)	Low
Impact Significance (Post-Mitigation)	Low
I&AP Concern	Any comments or concerns regarding this aspect received from I&APs following the release of the Draft BA Report for comment will be included here.

6.4 Cumulative impacts

The cumulative impact of a development is the impact that development will have when its impact is considered together with 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 and associated loss of agricultural production is acceptable in the area, and will the loss associated with the proposed development, cause that level in the area to be exceeded?

The Department of Environment, Forestry and Fisheries (DEFF) 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.

Because of the low significance of the potential agricultural impact of the proposed Komas WEF development, it is highly unlikely to contribute to a significant cumulative impact. This is particularly so when considered within the context of the following point:

- 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 loss of agricultural land on a site such as the one being assessed, which has marginal cultivation potential, than to lose agricultural land that has a higher potential, and that is much scarcer, to renewable energy development elsewhere in the country.

It is also important to note that the cumulative impact of loss of agricultural land as a result of wind farms is very different to the loss of agricultural land as a result of almost all other developments, for example, urban expansion. This is because wind farms, unlike other developments, can only impact a very limited proportion of the total surface area over which they are located, because of the required spacing between turbines. Therefore, the insignificantly small proportion of land that is impacted in the case of one wind farm remains an insignificantly small proportion of the agricultural land, regardless of how many wind farms are added. The cumulative impact has the same significance as the individual impact because it is in the same proportion as the individual impact.

There are currently a total of 11 proposed renewable energy facilities (including nine WEFs and two solar Photovoltaic (PV) energy project applications) within 50 km of the proposed Komas WEF site which were considered to assess the cumulative impacts of the proposed Komas WEF. These are shown the Table 2 and Figure 6 below.

Table 2: Renewable energy facilities proposed within a 50 km radius of the proposed Komas WEF application site

DEA REFERENCE NUMBER	PROJECT TITLE	APPLICANT	EAP	TECHNOLOGY	MEGAWATT	STATUS
12/12/20/2331/1 12/12/20/2331/1/AM1 12/12/20/2331/2 12/12/20/2331/3	Project Blue Wind Energy Facility Near Kleinsee within the Namakwa Magisterial District, Northern Cape Province. (Phase 1-3)	Diamond Wind (Pty) Ltd	Savannah Environmental Consultants (Pty) Ltd	Wind and Solar PV	150 MW Wind 65 MW Solar PV	Approved
12/12/20/2212	Proposed 300 MW Kleinzee WEF in the Northern Cape Province.	Eskom Holdings SOC Limited	Savannah Environmental Consultants (Pty) Ltd	Wind	300 MW	Approved
14/12/16/3/3/2/1046	The proposed Kap Vley WEF and its associated infrastructure near Kleinzee, Nama Khoi Local Municipality, Northern Cape Province.	Kap Vley Wind Farm (Pty) Ltd	Council for Scientific and Industrial Research	Wind	300 MW	Approved
14/12/16/3/3/1/1971	Proposed Namas Wind Farm near Kleinsee, Namakwaland Magisterial District, Northern Cape.	Genesis Namas Wind (Pty) Ltd	Savannah Environmental Consultants (Pty) Ltd	Wind	140 MW	Approved
14/12/16/3/3/1/1970	Proposed Zonnequa Wind Farm near Kleinsee, Namakwaland Magisterial District, Northern Cape.	Genesis Zonnequa Wind (Pty) Ltd	Savannah Environmental Consultants (Pty) Ltd	Wind	140 MW	Approved
12/12/20/2154	Proposed construction of the 7.2 MW Koingnaas Wind Energy Facility Within The De Beers Mining Area on the Farm Koingnaas 745 near Koingnaas, Northern Cape Province.	Just PalmTree Power Pty Ltd	Savannah Environmental Consultants (Pty) Ltd	Wind	7.2 MW	Approved
12/12/20/1807	Proposed establishment of the Kannikwa Vlakte wind farm.	Kannikwa Vlakte Wind Development Company Pty Ltd	Galago Environmental cc	Wind	120 MW	Approved
12/12/20/1721 12/12/20/1721/AM1 12/12/20/1721/AM2 12/12/20/1721/AM3 12/12/20/1721/AM4	The proposed Springbok Wind Energy facility near Springbok, Northern Cape Province.	Mulilo Springbok Wind Power (Pty) Ltd	Holland & Associates Environmental Consultants	Wind	55.5 MW	Approved

DEA REFERENCE NUMBER	PROJECT TITLE	APPLICANT	EAP	TECHNOLOGY	MEGAWATT	STATUS
12/12/20/1721/AM5						
TBA	The proposed Gromis WEF and associated infrastructure near Kleinsee in the Northern Cape Province.	Genesis ENERTRAG Gromis Wind (Pty) Ltd	Council for Scientific and Industrial Research	Wind	200 MW	In process
14/12/16/3/3/1/416	Nigramoep Solar PV Solar Energy Facility on a site near Nababeep, Northern Cape.	South African Renewable Green Energy (Pty) Ltd	Savannah Environmental Consultants (Pty) Ltd	Solar PV	20 MW	In process

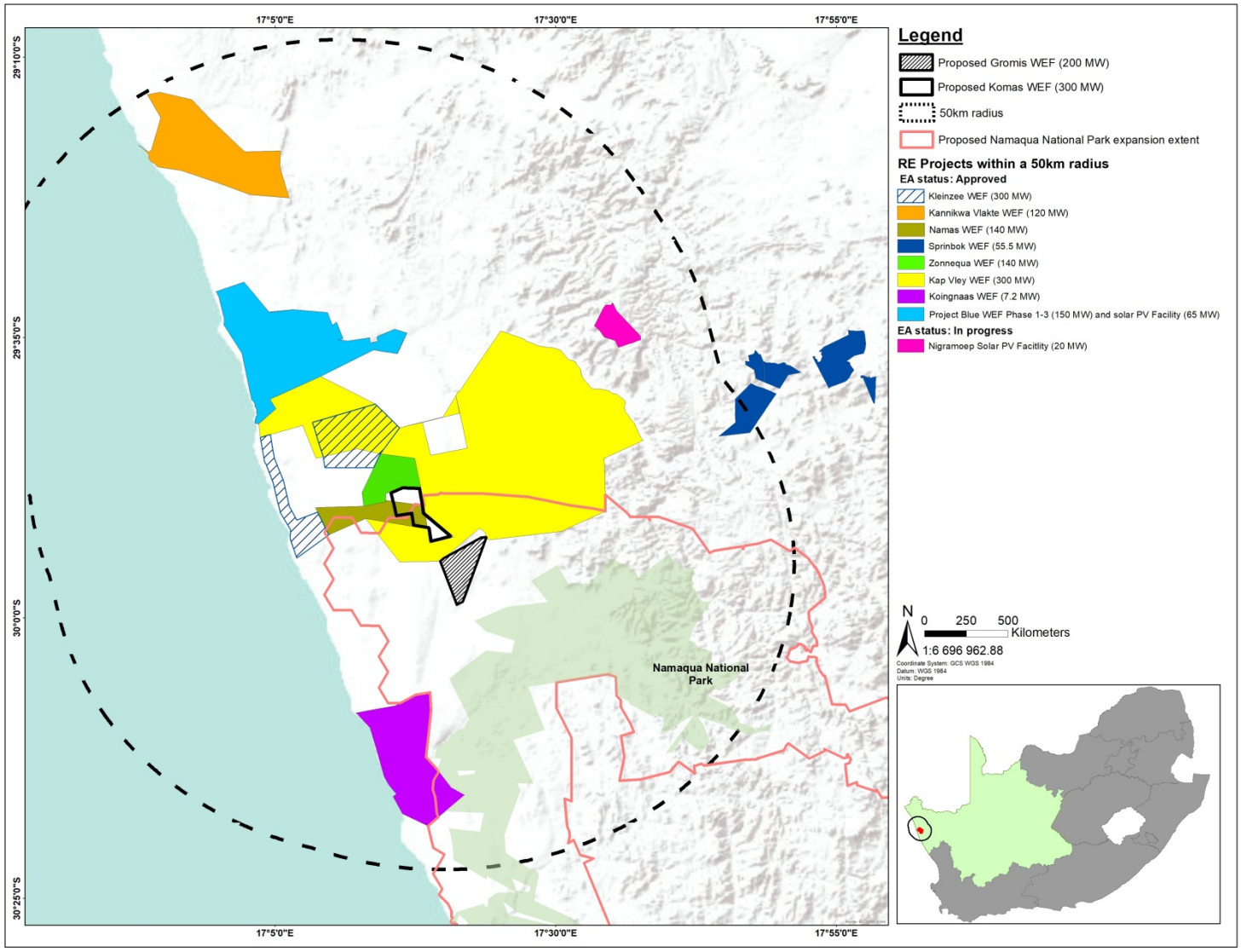

Figure 6: Map of nearby wind and solar PV projects within a radius of 50 km from the proposed Komas WEF taken into account for cumulative impact assessment.

All of these projects have the same agricultural impacts in an almost identical agricultural environment, and therefore the same mitigation measures apply to all. The cumulative impact is affecting an agricultural environment that has been declared a REDZ precisely because it is an environment that can accommodate numerous renewable energy developments without exceeding acceptable levels of agricultural land loss. This is primarily because of the low agricultural capability of land across the Springbok REDZ, and the fact that such land is not a scarce resource in South Africa.

In quantifying the cumulative impact, the area of land taken out of grazing as a result of all eleven developments plus the 300 MW of this development (total generation capacity of 1 797.7 MW) will amount to a total of approximately 726.31 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 the Department of Environmental Affairs (DEA) Phase 1 Wind and Solar Strategic Environmental Assessment (SEA) (2015). As a proportion of the total area within a 50 km radius (approximately 785 000 ha), this amounts to 0.09% 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.

Due to all of the considerations discussed above, the potential cumulative impact of loss of agricultural land use is assessed as having **low significance before and after mitigation. In terms of cumulative impact, therefore, it is recommended that the development be approved.**

The cumulative impact is described in table format below.

Aspect / Activity	**Occupation of and impact to the land by the project infrastructure of multiple developments**
Type of impact	Direct
Potential Impact	Regional loss of agricultural land use
Status	Negative
Mitigation Required	There is no additional mitigation required for cumulative impacts, other than what has already been recommended for the project above.
Impact Significance (Pre-mitigation)	Very low
Impact Significance (Post-Mitigation)	Very low
I&AP Concern	Any comments or concerns regarding this aspect received from I&APs following the release of the Draft BA Report for comment will be included here.

6.5 Assessment of the no-go alternative

The no-go alternative considers impacts that will occur to the agricultural environment in the absence of the proposed development. The one identified potential such impact is that due to continued low rainfall in the area, in addition to other economic and market pressures on farming, the agricultural enterprises will come under increased pressure in terms of economic viability, with resultant potential decrease in productivity.

The proposed development has both positive and negative agricultural impacts.

The balance of positive and negative agricultural impacts associated with both the development and the no-go alternative – that is the extent to which the development and the no-go alternative will impact agricultural production – cannot reliably be determined to be significantly different. Therefore, from an agricultural impact perspective, there is no preferred alternative between the development and the no-go.

The agricultural impact of the proposed development can confidently be assessed as negligible without entering into a more formal assessment.

6.6 Comparative assessment of alternatives

Because of the agricultural uniformity and low potential, there is no material difference between the agricultural impact of the BESS and SS complex site Option 1 or Option 2 alternatives, and therefore both these alternatives are considered acceptable.

6.7 Impact footprint

The DEFF's Protocol for the assessment and reporting of environmental impacts on agricultural resources stipulates allowable footprint limits for renewable energy developments of > 20 MW. The agricultural footprint is defined in the Protocol as the area that is directly occupied by all infrastructures, including roads, hard standing areas, buildings, Substations etc., that are associated with the renewable energy facility during its operational phase, and that result in the exclusion of that land from potential cultivation or grazing. It excludes all areas that were already occupied by roads and other infrastructure prior to the establishment of the energy facility, but includes the surface area required for expanding existing infrastructure (e.g. widening existing roads). It excludes the corridor underneath overhead power lines, but includes the pylon footprints. It therefore represents the total land that is actually excluded from agricultural use as a result of the renewable energy facility.

The allowable development footprint limit on medium and low agricultural sensitivity land (as this entire site is) is 2.5 hectares per megawatt. The dispersed nature of a wind farm footprint ensures that the Komas WEF is well within this allowable footprint limit set by the Protocol.

6.8 Micro-siting to minimize fragmentation and disturbance of agricultural activities

The said Protocol requires confirmation that all reasonable measures have been taken through micro-siting to minimize fragmentation and disturbance of agricultural activities. However, the agricultural uniformity and low agricultural potential of the environment, means that the exact positions of all infrastructure will make no material difference to potential agricultural impacts. It is therefore unnecessary to check siting of infrastructure, and any layout of infrastructure within the assessed area is acceptable in terms of agricultural impact.

7 IMPACT ASSESSMENT TABLES

The assessment of impacts and recommendation of mitigation measures as discussed above are collated in Table 3 below.

Table 3: Impact assessment summary table

Aspect/Impact pathway	Nature of potential impact/risk	Status[1]	Extent[2]	Duration[3]	Consequence	Probability	Reversibility of impact	Irreplaceability of receiving environment/ resource	Significance of impact/risk = consequence x probability (before mitigation)	Potential mitigation measures	Significance of residual risk/ impact (after mitigation)	Ranking of impact/ risk	Confidence level
CONSTRUCTION PHASE													
Occupation of the land by the project infrastructure	Loss of agricultural land use	Negative	Site	Long-term	Moderate	Very Likely	High	Replaceable	Low	None	Low	4	Medium
Construction on related soil and land disturbance	Soil degradation	Negative	Site	Medium-term	Unlikely	Unlikely	High	Replaceable	Low	Storm water run-off control; Maintain vegetation cover; strip, stockpile and re-spread topsoil.	Low	4	Medium
OPERATIONAL PHASE													
Payment of rental by the energy facility	Increased financial security for farming operations	Positive	Local	Long-term	Moderate	Unlikely	High	Replaceable	Low	None	Low	4	Medium

[1] Status: Positive (+); Negative (-)
[2] Site; Local (<10 km); Regional (<100); National; International
[3] Very short-term (instantaneous); Short-term (<1yr); Medium-term (1-10 yrs); Long-term (project duration); Permanent (beyond project decommissioning)

Aspect/Impact pathway	Nature of potential impact/risk	Status[1]	Extent[2]	Duration[3]	Consequence	Probability	Reversibility of impact	Irreplaceability of receiving environment/ resource	Significance of impact/risk = consequence x probability (before mitigation)	Potential mitigation measures	Significance of residual risk/ impact (after mitigation)	Ranking of impact/ risk	Confidence level
DECOMMISIONING PHASE													
Decommissioning related soil and land disturbance	Soil Degradation	Negative	Site	Medium-term	Moderate	Unlikely	High	Replaceable	Low	Maintain vegetation cover; strip, stockpile and re-spread topsoil.	Low	4	Medium
CUMULATIVE IMPACTS													
Occupation of and impact to the land by the project infrastructure of multiple developments	Regional loss of agricultural land use	Negative	Regional	Long-term	Slight	Likely	High	Replaceable	Very low	None	Very low	5	High

7.1 Impact assessment summary

Table 4: Overall Impact Significance before and after mitigation

Phase	Overall Impact Significance
Construction	Low
Operational	Low
Decommissioning	Low
Nature of Impact	**Overall Impact Significance**
Cumulative - Construction	Very low
Cumulative - Operational	Very low
Cumulative - Decommissioning	Very low

8 LEGISLATIVE AND PERMIT REQUIREMENTS

The Subdivision of Agricultural Land Act, 1970 (Act 70 of 1970) (SALA), requires that any long term lease on agriculturally zoned land be approved by the Department of Rural Development and Agriculture. This approval is separate from the EA that will be issued by the DEFF, should the proposed project be approved, and needs to be applied for following the BA process.

Rehabilitation after disturbance to agricultural land is managed by the Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983) (CARA). No application is required in terms of CARA. The BA process and EA being applied for covers the required aspects of this.

9 ENVIRONMENTAL MANAGEMENT PROGRAMME INPUTS

The inputs to be included in the Environmental Management Programme (EMPr) for the protection of soil resources are presented in the tables below for each phase of the development.

Table 5: 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 land 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 any run-off water from all hardened surfaces and it must prevent any potential down slope erosion.	Ensure that the storm water run-off control is included in the engineering design.	Once-off during the design phase.	Holder of the EA

Table 6: Management plan for the construction phase

Impact	Mitigation / management objectives and outcomes	Mitigation / management actions	Monitoring		
			Monitoring Methodology	Frequency	Responsibility
Aspect: Protection of soil resources					
Erosion	That land 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.	Every 2 months	Environmental Control Officer (ECO)
Erosion	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	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 rehabili-tation. 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 (e.g. excavations). Record date of topsoil stripping and replacement. Check that topsoil covers entire disturbed area.	As required, whenever areas are disturbed.	ECO

Table 7: 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.	Annually	Facility Environmental Manager
Erosion	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.	Annually	Facility Environmental Manager

Table 8: 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.	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.	Every 2 months during the decommissioning phase, and then every 6 months after completion of decommissioning, until final sign-off is achieved.	ECO
Erosion	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 4 months during the decommissioning phase, and then every 6 months after completion of decommissioning, until final sign-off is achieved.	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 (e.g. excavations). Record date of topsoil stripping and replacement. Check that topsoil covers entire disturbed area.	As required, whenever areas are disturbed.	ECO

10 CONCLUSIONS

All agricultural impacts of the proposed development are assessed as being of **low or very low significance after mitigation**. This is due to the limited agricultural potential of the proposed development site, which is a function predominantly of the climate limitations. The fact that the footprint of disturbance of the proposed Komas WEF and associated infrastructure is limited to a very small proportion of the surface area also limits the potential agricultural impact. The study area has low agricultural sensitivity because of its low potential and no parts of the site need to be avoided by the proposed development. No buffers are required.

11 FINAL SPECIALIST STATEMENT AND AUTHORISATION RECOMMENDATION

The conclusion of this assessment is that the proposed development will not have an unacceptable negative impact on the agricultural production capability of the site. The proposed development is therefore acceptable. This is substantiated by the following points:

- The amount of agricultural land loss is within the allowable development limits prescribed by the DEFF's Protocol for the assessment and reporting of environmental impacts on agricultural resources. These limits reflect the national need to conserve valuable agricultural land and therefore to steer, particularly renewable energy developments, onto land with low agricultural production potential.
- The proposed development poses a low risk in terms of causing soil degradation, which can be adequately and fairly easily managed by mitigation management actions. In addition, the degradation risk is only to land of low agricultural value, and the significance of the impact is therefore low.
- The outcome of the site sensitivity verification and assessment therefore confirms the current use of the land as **agriculture** and the environmental sensitivity **as low,** as identified by the National Web-Based Screening Tool. Therefore, a Compliance Statement was undertaken in accordance with the requirements of the Agricultural Protocol for Onshore Wind and/or Solar PV Energy Generation Facilities where the Electricity Output is 20 MW or more (GG 43110 / GNR 320, 20 March 2020).
- The overall significance of the potential impact on agricultural resources for the construction, operation and decommissioning phases is assessed **as low to very low** (with mitigation actions applied effectively).

Therefore, from an agricultural impact point of view, it is recommended that the development be approved.

11.1 EA Condition Recommendations

The conclusion of this assessment on the acceptability of the proposed development and the recommendation for its approval is not subject to any conditions, other than the recommended mitigation measures.

12 REFERENCES

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Fey, M. 2010. Soils of South Africa. Cambridge University Press, Cape Town.

Lanz, J. 1997. An evaluation of revegetation at Namaqualand Mines with an emphasis on soil conditions. Unpublished Report produced for De Beers Consolidated Mines - Namaqualand Mines.

Soil Classification Working Group. 1991. Soil classification: a taxonomic system for South Africa. Soil and Irrigation Research Institute, Department of Agricultural Development, Pretoria.

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

Appendix 1: Curriculum Vitae

Johann Lanz
Curriculum Vitae

Education

M.Sc. (Environmental Geochemistry)	University of Cape Town	1996 - 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 have been registered as a Professional Natural Scientist (Pri.Sci.Nat.) in the field of soil science since 2012 (registration number 400268/12) and am a member of the Soil Science Society of South Africa.

Soil & Agricultural Consulting Self employed 2002 - present

In the past 5 years of running my soil and agricultural consulting business, I have completed more than 120 agricultural assessments (EIAs, SEAs, EMPRs) in all 9 provinces for renewable energy, mining, urban, and agricultural developments. My regular clients include: Aurecon; CSIR; SiVEST; Arcus; SRK; Environamics; Royal Haskoning DHV; Jeffares & Green; JG Afrika; Juwi; Mainstream; Redcap; G7; Mulilo; and Tiptrans. Recent agricultural clients for soil resource evaluations and mapping include Cederberg Wines; Western Cape Department of Agriculture; Vogelfontein Citrus; De Grendel Estate; Zewenwacht Wine Estate; and Goedgedacht Olives.

In 2018 I completed a ground-breaking case study that measured the agricultural impact of existing wind farms in the Eastern Cape.

Soil Science Consultant Agricultural Consultors International (Tinie du Preez) 1998 - 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 advise 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*.

Appendix 2: Specialist declaration

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

BASIC ASSESSMENT FOR THE PROPOSED KOMAS WIND ENERGY FACILITY AND ASSOCIATED INFRASTRUCTURE, NEAR KLEINSEE IN THE NORTHERN CAPE PROVINCE

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
Private Bag X447
Pretoria
0001

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

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

1. SPECIALIST INFORMATION

Specialist Company Name:	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? I don't	
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 (sole proprietor)

Name of Company:

01/07/2020

Date

3. UNDERTAKING UNDER OATH/ AFFIRMATION

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

Signature of the Specialist

Johann Lanz – Soil Scientist (sole proprietor)

Name of Company

01/07/2020

Date

213/643-1

Signature of the Commissioner of Oaths

2020-07-01

Date

SUID-AFRIKAANSE POLISIEDIENS
STATION COMMANDER
WYNBERG KP
01-07-2020
STATION COMMANDER
WYNBERG CP
SOUTH AFRICAN POLICE SERVICE

Details of Specialist, Declaration and Undertaking Under Oath

Page 2 of 2

Appendix 3: Soil data

Land type soil data for the site.

Land type	Soil series (forms)	Depth (mm)	Clay % A horizon	Clay % B horizon	Depth limiting layer	% of land type
Ai13	Clovelley	>1200	2 - 4	3 - 10		38
	Clovelley	600 - 1200	2 - 4	3 - 10	ka,ca	24
	Pinedene	400 - 800	2 - 4	4 - 10	gc	14
	Vilafontes	400 - 800	2 - 4	6 - 15	ne	10
	Mispah	200 - 400	2 - 4		ka	7
	Hutton	600 - 1200	2 - 4	3 - 6	ka,ca	4
	Oakleaf	>1200	2 - 4	2 - 4		2
	Dundee	>1200	1 - 3	2 - 4		1
Ah38	Hutton	400 - 1200	0 - 2	2 - 4	ca,ka,db	47
	Clovelley	> 1200	0 - 2	2 - 4		20
	Vilafontes	600 - 800	1 - 3	4 - 8		19
	Pinedene	700 - 800	1 - 3	3 - 8	gc	10
	Fernwood	> 1200	1 - 2	1 - 2		3
	Dundee	> 1200	1 - 3	1 - 3		1
Hb80	Fernwood	>1200	0 - 3	1 - 4		36
	Pinedene	400 - 800	1 - 3	4 - 10	gc	16
	Mispah	200 - 300	0 - 4		ka	14
	Clovelley	600 > 1200	1 - 4	2 - 6	ka,pr	9
	Pans					8
	Kroonstad	500 - 700	2 - 4	10 - 25	gc	8
	Vilafontes	500 - 800	1 - 7	6 - 10	ne	7
	Mispah	100 - 300	0 - 4		hp	2
Ib123	Rock outcrop	0			R	61
	Hutton	50 - 150	5 - 10	5 - 20	R	14
	Mispah	50 - 100	6 - 20		R	12
	Swartland	100 - 200	10 - 20	35 - 45	so	8
	Glenrosa	50 - 100	6 - 20	15 - 25	R	6
	Valsrivier	300 - 500	15 - 25	35 - 45	vr,vp	0
	Dundee	200 - 600	10 - 20	10 - 25	R	0
	Oakleaf	300 - 500	15 - 25	15 - 35	R	0

Depth limiting layers: R = hard rock; so = partially weathered bedrock; ca = soft carbonate; ka = hardpan carbonate; db = dorbank hardpan; vp = dense, structured clay layer; vr = dense, red, structured clay layer; gc = dense clay horizon that is frequently saturated.