

**Johann Lanz**

Soil Scientist (Pr.Sci.Nat.)

Reg. no. 400268/12

Cell: 082 927 9018

e-mail: johann@johannlanz.co.za

1A Wolfe Street

Wynberg

7800

Cape Town

South Africa

---

**AGRICULTURAL COMPLIANCE STATEMENT  
FOR A PROPOSED PV SOLAR PLANT AND BATTERY ENERGY STORAGE SYSTEM (BESS)  
ON REMAINDER OF ERF 2018,  
RIVERSDALE, WESTERN CAPE**

**Report by  
Johann Lanz**

**5 February 2024**

## Table of Contents

Executive summary .....	1
1 Introduction.....	3
2 Project description .....	4
4 Methodology of study .....	5
5 Assumptions, uncertainties or gaps in knowledge or data .....	6
6 Applicable legislation and permit requirements .....	6
7 Site sensitivity verification.....	7
8 Baseline description of the agro-ecosystem .....	9
8.1 Assessment of the agricultural production potential .....	11
9 Assessment of the agricultural impact.....	14
9.1 Impact identification and assessment.....	14
9.2 Cumulative impact assessment.....	15
9.3 Assessment of alternatives .....	16
10 Mitigation .....	16
10.1 Mitigation measures.....	16
11 Additional aspects required in an agricultural assessment.....	17
11.1 Micro-siting.....	17
11.2 Confirmation of linear activity.....	17
12 Conclusion: Agricultural Compliance Statement.....	17
13 References .....	19
Appendix 1: Specialist Curriculum Vitae.....	20
Appendix 2: Specialist declaration form August 2023 .....	21
Appendix 3: SACNASP Registration Certificate .....	24
Appendix 4: Projects included in cumulative impact assessment.....	25
APPENDIX 5: Soil data .....	26

## EXECUTIVE SUMMARY

South Africa urgently needs electricity generation, and renewable energy offers good potential for that, but requires land. Agriculturally zoned land will inevitably need to be used for the renewable energy generation that the country requires. However, to ensure food security, energy facilities should be located where they do not exclude viable crop production from land.

The overall conclusion of this assessment is that the proposed development on the preferred site is acceptable because it leads to no loss of potential cropland and minimal loss of future agricultural production potential.

The preferred site is classified as medium agricultural sensitivity by the screening tool. This has been confirmed by this assessment, because of the agricultural production potential and current agricultural land use.

The cropping potential of the preferred site is limited by soil constraints. The dominant constraint is rockiness, limited soil depth and consequent low water holding capacity. Because of this, the site is not viable for rainfed crop production.

An agricultural impact is a change to the future agricultural production potential of land. In this case, the preferred development footprint is considered to be below the threshold for needing to be conserved as agricultural production land because it is not viable for cropping. The use of this land for non-agricultural purposes will cause minimal loss of agricultural production potential in terms of national food security.

Due to the fact that the development on the preferred site will not occupy scarce, viable cropland, the overall negative agricultural impact of the development (loss of future agricultural production potential) is assessed here as being of low significance and as acceptable.

All the site alternatives, other than the preferred site, will lead to a loss of viable cropland and will therefore have an unacceptable agricultural impact. The preferred site is the preferred and only acceptable site from an agricultural impact point of view.

The development's acceptability is further substantiated by the following points:

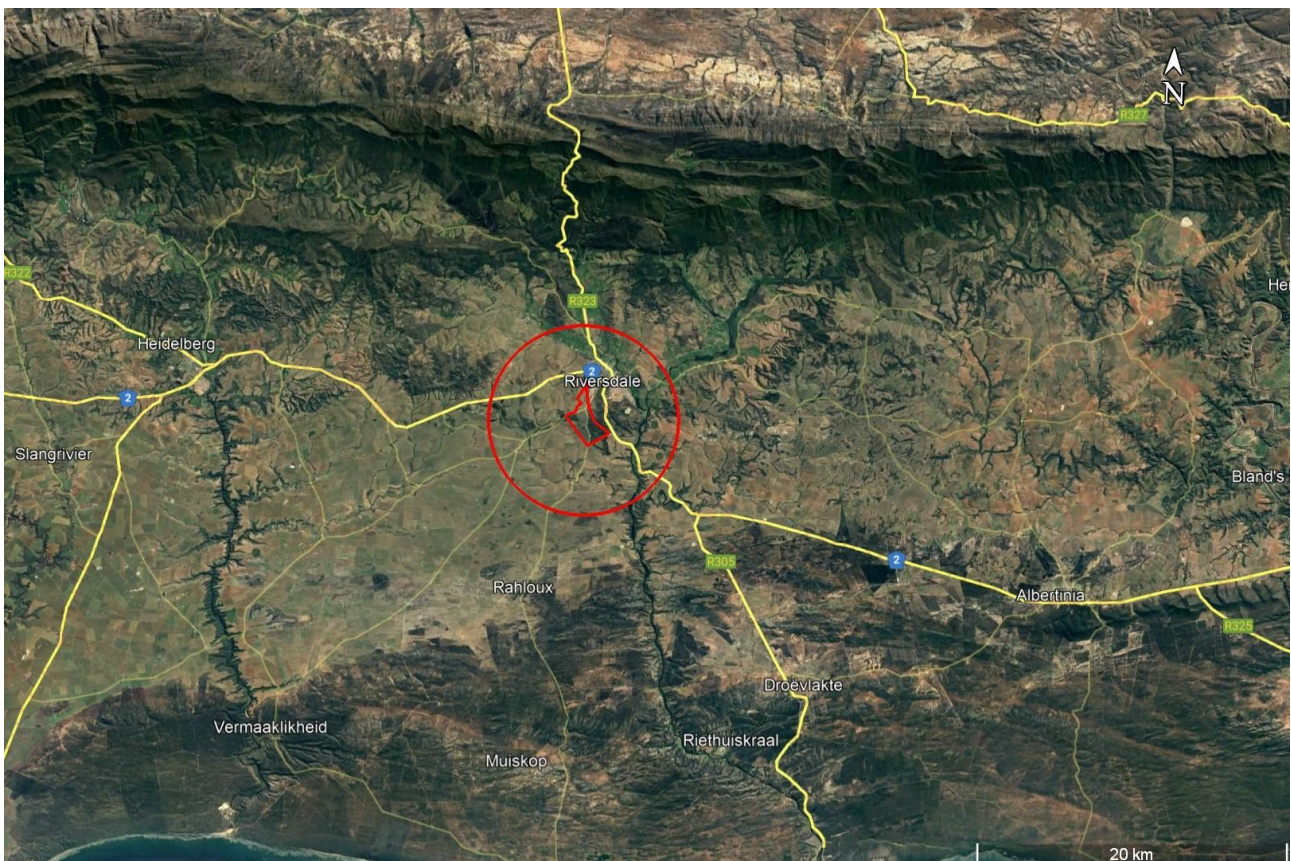
- The proposed development will contribute to the country's urgent need for energy generation, particularly renewable energy that has much lower environmental and agricultural impact than existing, coal powered energy generation.
- All renewable energy development in South Africa decreases the need for coal power and

thereby contributes to reducing the large agricultural impact that open cast coal mining has on highly productive agricultural land throughout the coal mining areas of the country. Furthermore, a reduction in coal power saves national water resources and therefore potentially makes more water available for irrigated agriculture.

From an agricultural impact point of view, it is recommended that the proposed development on the preferred site be approved.

## 1 INTRODUCTION

Environmental and change of land use authorisation is being sought for a proposed PV solar plant and battery energy storage system (BESS) on remainder of Erf 2018, Riversdale, Western Cape (see location in Figure 1). In terms of the National Environmental Management Act (Act No 107 of 1998 - NEMA), an application for environmental authorisation requires an agricultural assessment. In this case, based on the verified medium agricultural sensitivity of the preferred site (see Section 7), the level of agricultural assessment required by the agricultural protocol is an Agricultural Compliance Statement.



**Figure 1.** Locality map of the development south of the town of Riversdale.

The purpose of an agricultural assessment is to answer the question:

Will the proposed development cause a significant reduction in agricultural production potential, and most importantly, will it result in a loss of arable land?

Section 9 of this report unpacks this question, particularly with respect to what constitutes a significant reduction. To answer the above question, it is necessary to determine the existing agricultural production potential of the land that will be impacted, and specifically whether it is viable arable land or not. This is done in Section 8 of this report. Section 8, 9, and the conclusion of

this report directly address the above question and therefore contain the essence of the agricultural impact assessment.

As is shown in Section 9, this assessed development will not result in any loss of viable, arable land and therefore poses minimal threat to agricultural production potential.

## 2 PROJECT DESCRIPTION

The proposed facility will consist of the standard infrastructure of a PV energy facility including PV arrays; inverters; cabling; battery energy storage system (BESS); auxiliary buildings; access and internal roads; on-site substation; 132kV grid connection; temporary construction laydown areas; and perimeter fencing. The facility will have a total generating capacity of up to **XX** MW.

The exact nature and layout of the different infrastructure within the boundary fence of a solar energy facility has absolutely no bearing on the significance of agricultural impacts. It is therefore not necessary to detail this design and layout of the facility any further in this assessment. All that is of relevance is simply the total footprint of the facility that excludes agricultural land use or impacts agricultural land, referred to as the agricultural footprint. This is the area within the facility fence. Whether that footprint comprises, for example, a solar array, a road, or a BESS is irrelevant to agricultural impact. The total agricultural footprint of the facility, as shown in Figures 2 and 3, is 19 hectares.

## 3 TERMS OF REFERENCE

The terms of reference for this study are to fulfill the requirements of the *Protocol for the specialist assessment and minimum report content requirements of environmental impacts on agricultural resources*, gazetted on 20 March 2020 in GN 320 (in terms of Sections 24(5)(A) and (H) and 44 of NEMA, 1998).

The terms of reference for an Agricultural Compliance Statement, as stipulated in the agricultural protocol, are listed below, and the section number of this report which fulfils each stipulation is given after it in brackets.

1. The Agricultural Compliance Statement must be prepared by a soil scientist or agricultural specialist registered with the South African Council for Natural Scientific Professions (SACNASP) (**Appendix 3**).
2. The compliance statement must:
  1. be applicable to the preferred site and proposed development footprint (**Figures 2 and 3**);

2. confirm that the site is of “low” or “medium” sensitivity for agriculture (**Section 7**); and
3. indicate whether or not the proposed development will have an unacceptable impact on the agricultural production capability of the site (**Section 12**).
3. The Agricultural Compliance Statement must contain, as a minimum, the following information:
  1. details and relevant experience as well as the SACNASP registration number of the soil scientist or agricultural specialist preparing the statement including a curriculum vitae (**Appendix 1**);
  2. a signed statement of independence by the specialist (**Appendix 2**);
  3. 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**);
  4. 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 11.1**);
  5. 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 12**);
  6. any conditions to which this statement is subjected (**Section 12**);
  7. 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 (**Section 11.2**);
  8. where required, proposed impact management outcomes or any monitoring requirements for inclusion in the EMP (**Section 10**); and
  9. a description of the assumptions made and any uncertainties or gaps in knowledge or data (**Section 5**).

#### **4 METHODOLOGY OF STUDY**

The assessment was based on an on-site investigation of the soils and agricultural conditions and was also informed by existing climate, soil and agricultural potential data for the site (see references). The aim of the on-site assessment was to:

1. ground-truth cropland status and consequent agricultural sensitivity;
2. assess the soil potential;
3. gain an understanding of overall agricultural production potential across the site.

The site investigation was conducted on 26 January 2024. Soils were assessed based on the investigation of existing soil exposures in combination with indications of the surface conditions and

topography, and strategically positioned auger samples where necessary. Soils were classified according to the South African soil classification system (Soil Classification Working Group, 1991).

An assessment of soils 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 level of agricultural assessment is considered entirely adequate for an understanding of on-site agricultural production potential for the purposes of this assessment.

## **5 ASSUMPTIONS, UNCERTAINTIES OR GAPS IN KNOWLEDGE OR DATA**

There are no specific assumptions, uncertainties or gaps in knowledge or data that affect the findings of this study.

## **6 APPLICABLE LEGISLATION AND PERMIT REQUIREMENTS**

This section identifies all applicable legislation and permit requirements over and above what is required in terms of NEMA.

The development requires approval from the National Department of Agriculture, Land Reform and Rural Development (DALRRD) because it is on agriculturally zoned land. This approval is separate to the Environmental Authorisation. There are two approvals that apply. The first is a No Objection Letter for the change in land use. This letter is one of the requirements for receiving municipal rezoning. This application requires a motivation backed by good evidence that the development is acceptable in terms of its impact on the agricultural production potential of the development site. This agricultural assessment report will serve that purpose.

The second approval is a consent for long-term lease required in terms of the Subdivision of Agricultural Land Act (Act 70 of 1970) (SALA). SALA approval is not required if the lease is over the entire farm portion. If DALRRD approval for the development has already been obtained in the form of the No Objection letter, then SALA approval is likely to be readily forthcoming. SALA approval can only be applied for once the Municipal Rezoning Certificate and Environmental Authorisation has been obtained.

Rehabilitation after disturbance to agricultural land is managed by the Conservation of Agricultural Resources Act (Act 43 of 1983 - CARA). A consent in terms of CARA is required for the cultivation of virgin land. Cultivation is defined in CARA as “any act by means of which the topsoil is disturbed mechanically”. The purpose of this consent for the cultivation of virgin land is to ensure that only land that is suitable as arable land is cultivated. Therefore, despite the above definition of cultivation, disturbance to the topsoil that results from construction of infrastructure does not constitute cultivation as it is understood in CARA. This has been corroborated by Anneliza Collett (Acting



Scientific Manager: Natural Resources Inventories and Assessments in the Directorate: Land and Soil Management of the Department of Agriculture, Land Reform and Rural Development (DALRRD)). The construction and operation of the facility will therefore not require consent from the Department of Agriculture, Land Reform and Rural Development in terms of this provision of CARA.

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 unless either of the following two conditions apply:

- if the servitude width does not exceed 15 metres; and
- if Eskom is the applicant for the servitude.

If one or both conditions apply, then no agricultural consent is required. The second condition is likely to apply, even if another entity gets Environmental Authorisation for and constructs the power line, but then hands it over to Eskom for its operation. Eskom is currently exempt from agricultural consent for power line servitudes.

## **7 SITE SENSITIVITY VERIFICATION**

A specialist agricultural assessment is required to verify the agricultural sensitivity of the development site as per the sensitivity categories used by the web-based environmental screening tool of the Department of Forestry, Fisheries and the Environment (DFFE). However, such an exercise is of very limited value once the agricultural assessment, which supersedes any screening tool result, has been done. What is of importance to this assessment, rather than the site sensitivity verification, is its assessment of the cropping potential (see Section 8) and its assessment of the impact significance (see Section 9).

The screening tool classifies agricultural sensitivity according to two independent criteria, from two independent data sets, both of which may be indicators of the land's agricultural production potential but are limited in that the first is outdated and the second relies on fairly coarse data. The two criteria are:

1. whether the land is classified as cropland or not on the field crop boundary data set (Crop Estimates Consortium, 2019), and
2. its land capability rating on the land capability data set (DAFF, 2017)

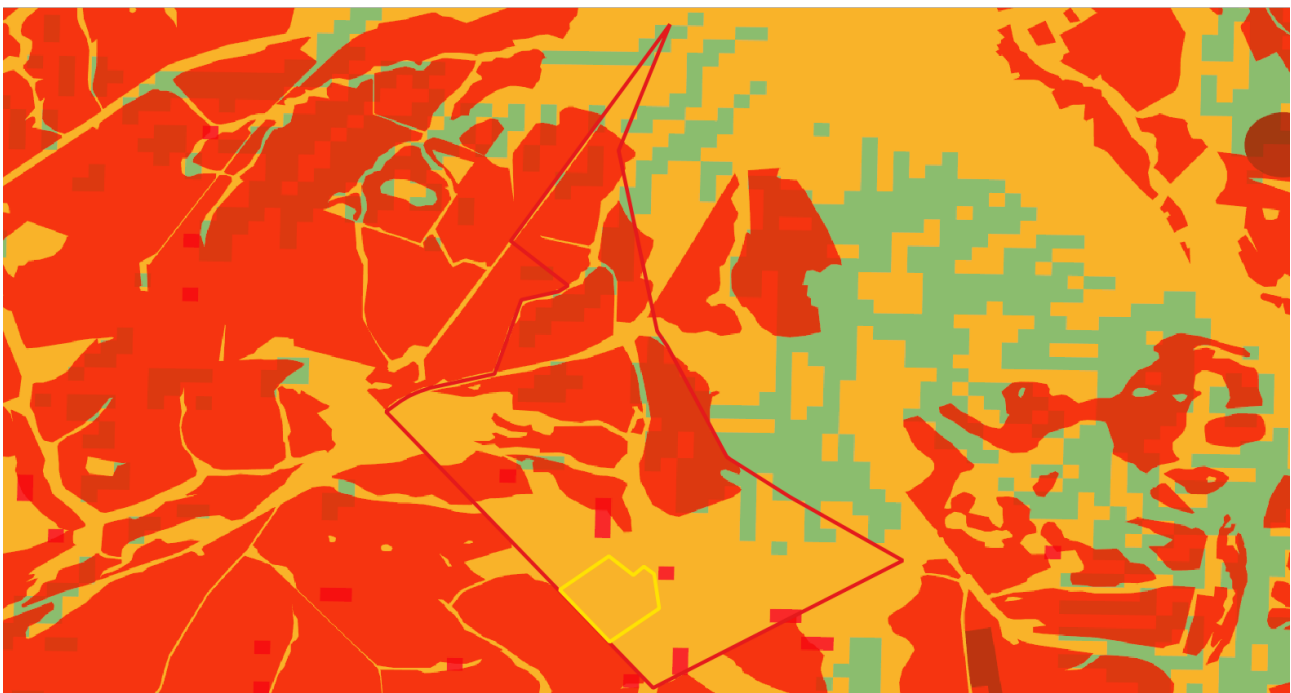
All classified cropland is, by definition, either high or very high sensitivity. Land capability is defined as the combination of soil, climate, and terrain suitability factors for supporting rain-fed agricultural production. It is rated by the Department of Agriculture's updated and refined, country-wide land capability mapping (DAFF, 2017). The higher land capability values ( $\geq 8$  to 15) are likely to indicate

suitability as arable land for crop production, while lower values (<8) are only likely to be suitable as non-arable grazing land. The direct relationship between land capability rating and the screening tool's agricultural sensitivity is shown in Table 1.

**Table 1:** Relationship between land capability and agricultural sensitivity as given by the screening tool.

Land capability value	Agricultural sensitivity
1 - 5	low
6 - 8	medium
9 - 10	high
11 - 15	very high

The agricultural sensitivity of the site, as given by the screening tool, is shown in Figure 2.



**Figure 2.** The preferred development footprint (yellow outline) and property boundary (red outline) overlaid on agricultural sensitivity, as given by the screening tool (green = low; yellow = medium; red = high; dark red = very high). The screening tool's medium sensitivity for the preferred footprint is confirmed by this assessment.

The Screening Tool classifies the preferred footprint as medium agricultural sensitivity. None of it is classified as cropland and the rating of agricultural sensitivity is therefore purely a function of classified land capability as per Table 1 above. The classified land capability of the site ranges from 7 to 8. This assessment verifies that the site is not within crop boundaries. It disputes the classified

land capability of >7, based on an assessment that the site is unsuitable for viable rain-fed crop production, because of a combination of climate and soil constraints (see Section 8). The appropriate land capability of land that is unsuitable for viable rain-fed crop production is  $\leq 7$  because the relationship between land capability and agricultural production potential is such that a land capability of >7 should denote land that is suitable for viable rain-fed crop production. This assessment therefore disputes the high sensitivity rating by the Screening Tool and disputes a land capability of >7. This assessment rates the entire preferred footprint as being of medium agricultural sensitivity with a maximum land capability of 7.

## 8 BASELINE DESCRIPTION OF THE AGRO-ECOSYSTEM

The purpose of this section of an agricultural assessment report is to present the baseline information that controls the agricultural production potential of the site so that an assessment of that potential can be made. Agricultural production potential, and particularly cropping potential is one of three factors that determines the significance of the agricultural impact, together with size of footprint and duration of impact (see Section 9).

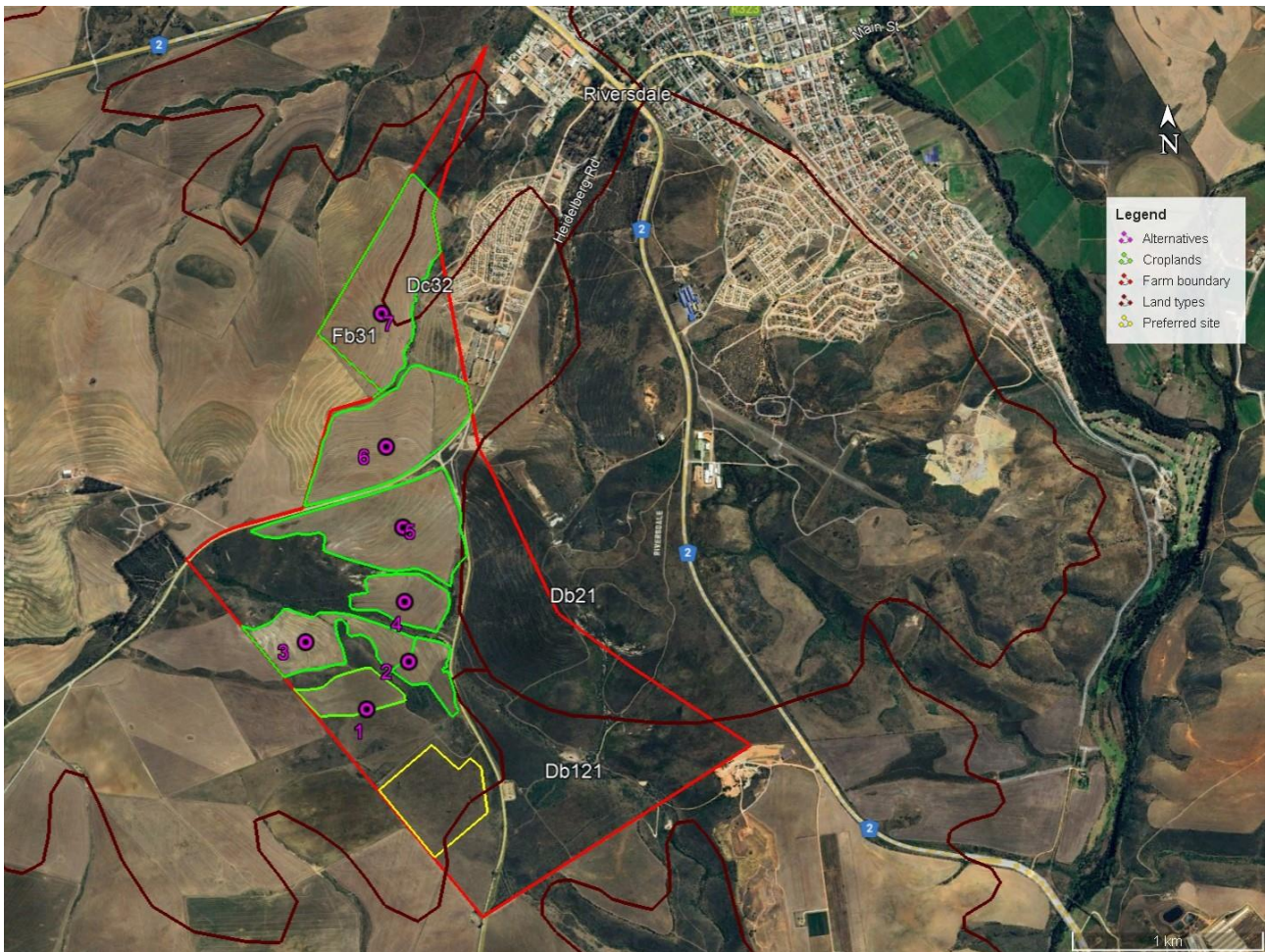
All the important parameters that control the agricultural production potential of the site are given in Table 2. The land type soil data are given in Appendix 5. A satellite image map of the development site is given in Figure 3 and photographs of site conditions are shown in Figures 4 to 7.

The site falls outside an area that is classified as a Protected Agricultural Area. A Protected Agricultural Area is a demarcated area in which the climate, terrain, and soil are generally conducive for agricultural production and which, historically, has made important contributions to the production of the various crops that are grown across South Africa. Within Protected Agricultural Areas, the protection, particularly of arable land, is considered a priority for the protection of food security in South Africa, but the protection of land outside of these areas is generally not considered a food security priority.

**Table 2:** Parameters that control and/or describe the agricultural production potential of the site.

	Parameter	Value
Climate	Köppen-Geiger climate description (Beck <i>et al</i> , 2018)	Arid, steppe, cold
	Mean Annual Rainfall (mm) (Schulze, 2009)	456 to 526
	Reference Crop Evaporation Annual Total (mm) (Schulze, 2009)	1321 to 1365

	Parameter	Value
	Climate capability classification (out of 9) (DAFF, 2017)	5 (moderate) to 6 (moderate-high)
Terrain	Terrain type	Hilly Southern Cape Ruens
	Terrain morphological unit	All
	Slope gradients (%)	0 to 33
	Altitude (m)	160 to 226
	Terrain capability classification (out of 9) (DAFF, 2017)	3 (low) to 7 (high)
Soil	Geology (DAFF, 2002)	Shale of the Bokkeveld Group, partly covered by Tertiary terrace gravel, silcrete, ferricrete and marine clay.
	Land type (DAFF, 2002)	Fb31, Db121
	Description of the soils	Very shallow to shallow, medium textured soils on underlying rock
	Dominant soil forms	Mispah, Glenrosa, Swartland
	Soil capability classification (out of 9) (DAFF, 2017)	3 (low) to 4 (low-moderate)
	Soil limitations	Limited soil depth, high stone content, low water holding capacity
Land use	Agricultural land use in the surrounding area	Cropland and natural grazing
	Agricultural land use on the property	Cropland and natural grazing. Only grazing on the preferred site.
General	Long-term grazing capacity (ha/LSU) (DAFF, 2018)	36
	Land capability classification (out of 15) (DAFF, 2017)	4 (low-very low) to 11 (high)
	Within Protected Agricultural Area (DALRRD, 2020)	No
	Within Renewable Energy Development Zone (REDZ)	No



**Figure 3.** Satellite image map of the development.

### 8.1 Assessment of the agricultural production potential

This assessment of the agricultural production potential of the site is based on an integration of the different parameters in Table 2 above and the on-site soil investigation.

Despite climate and soil constraints, much of the property is of high enough agricultural potential to be suitable for viable, rain-fed field crop production such as occurs in the surrounding area. However, not all the soils across the site are suitable for cropping. The soils (and therefore the land capability) vary in a complex pattern across the landscape, which is not reflected at the scale of the land capability data. Current and historical land use are a reliable indication of soil cropping potential in this . The suitable versus the unsuitable soils have been reliably identified over time through trial and error. In an agricultural environment like the one being assessed, all the suitable soils are generally cropped. Uncropped soils can fairly reliably be considered to have limitations that make them unsuitable for crop production.

The preferred site has not been cropped for many years because of its soil limitations, which are limited soil depth, high stone content, and low water holding capacity. Because of these limitations,



the site is too marginal for rainfed crop production and only suitable as grazing land.



**Figure 4.** Typical conditions on the property showing the croplands. The preferred site is in the background.



**Figure 5.** Typical conditions on the preferred site showing the stoney soils.





**Figure 6.** A typical soil profile from the property showing shallow soils on underlying bedrock, that are nevertheless suitable for cropping.



**Figure 7.** Poorer, shallower soils on the non-cropped areas of the property in proximity to the preferred site.



## 9 ASSESSMENT OF THE AGRICULTURAL IMPACT

### 9.1 Impact identification and assessment

It should be noted that an Agricultural Compliance Statement is not required to formally rate agricultural impacts by way of impact assessment tables.

An agricultural impact is a change to the future agricultural production potential of land. In most developments, including the one being assessed here, this is primarily caused by the exclusion of agriculture from the footprint of the development. Soil erosion and degradation may also contribute to loss of agricultural production potential. The significance of an agricultural impact is a direct function of the following three factors:

1. the size of the footprint of land from which agriculture will be excluded (or the footprint that will have its potential decreased)
2. the baseline production potential (particularly cropping potential) of that land
3. the length of time for which agriculture will be excluded (or for which potential will be decreased).

The most significant loss of agricultural land possible, for any development anywhere in the country, is of high yielding cropland, and the least significant possible, is of low carrying capacity grazing land.

Cropping potential is highlighted in factor 2, above, because the threshold, above which it is a priority to conserve land for agricultural production, is determined by the scarcity of arable crop production land in South Africa (approximately only 13% of the country's surface area) and the relative abundance of the rest of agricultural land across the country that is only good enough to be used for grazing. If land can support viable and sustainable crop production, then it is considered to be above the threshold and is a priority for being conserved as agricultural production land. If land is unable to support viable and sustainable crop production, then it is considered to be below the threshold and of much lower priority for being conserved.

In this case, the preferred development footprint is considered to be below the threshold for needing to be conserved as agricultural production land because of the limitations on its cropping potential, discussed in Section 8. The use of this land for non-agricultural purposes will cause minimal loss of agricultural production potential in terms of national food security.

Due to the fact that the development will not occupy scarce, viable cropland, the overall negative agricultural impact of the development (loss of future agricultural production potential) is assessed here as being of low significance and as acceptable.



## 9.2 Cumulative impact assessment

Specialist assessments for environmental authorisation are required to assess 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 (including by degradation) of future agricultural production potential. The defining question for assessing the cumulative agricultural impact is this:

What loss of future agricultural production potential is acceptable in the area, and will the loss associated with the proposed development, when considered in the context of all past, present or reasonably foreseeable future impacts, cause that level in the area to be exceeded?

Department of Forestry, Fisheries and the Environment (DFFE) 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 the opinion of the author, result in an over-focus on methodological compliance, while missing the more important task of effectively answering the above defining question.

This cumulative impact assessment will determine the quantitative loss of agricultural land if all renewable energy project applications within a 30 km radius become operational. The quantification of the cumulative impact will be done in detail in the EIA phase. This is highly likely to confirm that the cumulative impact of loss of future agricultural production potential is low. The development is highly likely to have an acceptable impact on the agricultural production capability of the area and therefore be recommended for approval from a cumulative agricultural impact point of view.

### **9.3 Assessment of alternatives**

Specialist assessments for environmental authorisation are required to assess the impacts of alternatives, including the no-go alternative. As already noted, the exact nature and layout of the different infrastructure within the boundary fence of a solar energy facility has absolutely no bearing on the significance of agricultural impacts, because agriculture will be completely excluded from within the boundary, regardless of layout. Any alternative layouts within the boundary will have equal agricultural impact and are assessed as equally acceptable.

All technology alternatives, including the choice of Lithium-ion or redox flow for the BESS, will also have no bearing on the significance of agricultural impacts. All will have equal impact and are assessed as equally acceptable.

Site alternatives are shown in Figure 3. All the site alternatives, other than the preferred site, will lead to a loss of viable cropland and will therefore have an unacceptable agricultural impact. The preferred site is the preferred and only acceptable site from an agricultural impact point of view.

The no-go alternative considers impacts that will occur to the agricultural environment in the absence of the proposed development. There are no agricultural impacts of the no-go alternative. Even though the impacted land has insufficient agricultural production potential for cropping, and the impact of the development is low, its negative agricultural impact is marginally more significant than that of the no-go alternative, and so from an agricultural impact perspective, the no-go alternative is the preferred alternative. However, the no-go option would prevent the proposed development from contributing to the environmental, social, and economic benefits associated with the development of renewable energy in South Africa.

## **10 MITIGATION**

### **10.1 Mitigation measures**

The most important and effective mitigation of agricultural impacts for any development is avoidance of viable croplands. This development has already applied this mitigation by locating the facility where it avoids all viable croplands on the property.

Generic mitigation measures that are effective in preventing soil degradation are all inherent in the engineering of such a project and/or are standard, best-practice for construction sites.

1. A system of storm water management, which will prevent erosion on and downstream of the site, will be an inherent part of the engineering design on site.
2. Any excavations done during the construction phase, in areas that will be re-vegetated at the

end of the construction phase, must separate the upper 25 cm of topsoil from the rest of the excavation spoils and store it in a separate stockpile. When the excavation is back-filled, the topsoil must be back-filled last, so that it remains at the surface. Topsoil should only be stripped in areas that are excavated. Across most of the site, including construction lay down areas, it will be much more effective for rehabilitation, to retain the topsoil in place. If levelling requires significant cutting, topsoil should be temporarily stockpiled and then re-spread after cutting, so that there is a covering of topsoil over the entire cut surface. It will be advantageous to have topsoil and vegetation cover below the panels during the operational phase to control dust and erosion.

## **11 ADDITIONAL ASPECTS REQUIRED IN AN AGRICULTURAL ASSESSMENT**

### **11.1 Micro-siting**

The agricultural protocol requires confirmation that all reasonable measures have been taken through micro-siting to minimize fragmentation and disturbance of agricultural activities. The choice of the site has already avoided viable cropland. Further micro-siting will make no material difference to agricultural impacts and disturbance.

### **11.2 Confirmation of linear activity**

The agricultural protocol requires confirmation, in the case of a linear activity, that the land can be returned to the current state within two years of completion of the construction phase. The power line is the only linear component of the project. It is hereby confirmed that the land under the overhead power line, where it is outside of the facility fence, can be returned to the current state of agricultural production potential within two years of construction, with the obvious disclaimer that the pylons will continue to be present for the duration of the operational lifetime of the power line.

## **12 CONCLUSION: AGRICULTURAL COMPLIANCE STATEMENT**

The overall conclusion of this assessment is that the proposed development on the preferred site is acceptable because it leads to no loss of potential cropland and minimal loss of future agricultural production potential.

The preferred site is classified as medium agricultural sensitivity by the screening tool. This has been confirmed by this assessment, because of the agricultural production potential and current agricultural land use.

The cropping potential of the preferred site is limited by soil constraints. The dominant constraint is rockiness, limited soil depth and consequent low water holding capacity. Because of this, the site is

not viable for rainfed crop production.

An agricultural impact is a change to the future agricultural production potential of land. In this case, the preferred development footprint is considered to be below the threshold for needing to be conserved as agricultural production land because it is not viable for cropping. The use of this land for non-agricultural purposes will cause minimal loss of agricultural production potential in terms of national food security.

Due to the fact that the development on the preferred site will not occupy scarce, viable cropland, the overall negative agricultural impact of the development (loss of future agricultural production potential) is assessed here as being of low significance and as acceptable.

All the site alternatives, other than the preferred site, will lead to a loss of viable cropland and will therefore have an unacceptable agricultural impact. The preferred site is the preferred and only acceptable site from an agricultural impact point of view.

The development's acceptability is further substantiated by the following points:

- The proposed development will contribute to the country's urgent need for energy generation, particularly renewable energy that has much lower environmental and agricultural impact than existing, coal powered energy generation.
- All renewable energy development in South Africa decreases the need for coal power and thereby contributes to reducing the large agricultural impact that open cast coal mining has on highly productive agricultural land throughout the coal mining areas of the country. Furthermore, a reduction in coal power saves national water resources and therefore potentially makes more water available for irrigated agriculture.

From an agricultural impact point of view, it is recommended that the proposed development on the preferred site be approved. The conclusion of this assessment on the acceptability of the proposed development and the recommendation for its approval is not subject to any conditions.

### 13 REFERENCES

Beck, H.E., N.E. Zimmermann, T.R. McVicar, N. Vergopolan, A. Berg, E.F. Wood. 2018. Present and future Köppen-Geiger climate classification maps at 1-km resolution, Nature Scientific Data. Available at: <https://gis.elsenburg.com/apps/cfm/>.

Crop Estimates Consortium, 2019. *Field Crop Boundary data layer, 2019*. Pretoria. Department of Agriculture, Forestry and Fisheries.

Department of Agriculture Forestry and Fisheries (DAFF). 2018. Long-term grazing capacity map for South Africa developed in line with the provisions of Regulation 10 of the Conservation of Agricultural Resources Act, Act no 43 of 1983 (CARA), available on Cape Farm Mapper. Available at: <https://gis.elsenburg.com/apps/cfm/>

Department of Agriculture, Forestry and Fisheries (DAFF). 2017. National land capability evaluation raster data layer, 2017. Pretoria.

Department of Agriculture, Forestry and Fisheries (DAFF). 2002. National land type inventories data set. Pretoria.

Department of Agriculture, Land Reform and Rural Development (DALRRD). 2020. Protected agricultural areas – Spatial data layer. 2020. Pretoria.

DEA. 2015. Strategic Environmental Assessment for wind and solar photovoltaic development in South Africa. CSIR Report Number CSIR: CSIR/CAS/EMS/ER/2015/001/B. Stellenbosch.

Schulze, R.E. 2009. South African Atlas of Agrohydrology and Climatology, available on Cape Farm Mapper. Available at: <https://gis.elsenburg.com/apps/cfm/>

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

## APPENDIX 1: SPECIALIST 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**

Within the past 5 years of running my soil and agricultural consulting business, I have completed more than 170 agricultural assessments (EIAs, SEAs, EMPRs) in all 9 provinces for renewable energy, mining, electrical grid infrastructure, urban, and agricultural developments. I was the appointed agricultural specialist for the nation-wide SEAs for wind and solar PV developments, electrical grid infrastructure, and gas pipelines. My regular clients include: Zutari; CSIR; SiVEST; SLR; WSP; Arcus; SRK; Environamics; Royal Haskoning DHV; ABO; Enertrag; WKN-Windcurrent; JG Afrika; 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*.



## forestry, fisheries & the environment

Department:  
Forestry, Fisheries and the Environment  
**REPUBLIC OF SOUTH AFRICA**

Private Bag X447, Pretoria, 0001, Environment House, 473 Steve Biko Road, Pretoria, 0002 Tel: +27 12 399 9000, Fax: +27 86 625 1042

### APPENDIX 2: SPECIALIST DECLARATION FORM AUGUST 2023

Specialist Declaration form for assessments undertaken for 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)

#### REPORT TITLE

A PROPOSED PV SOLAR PLANT AND BATTERY ENERGY STORAGE SYSTEM (BESS) ON REMAINDER OF ERF 2018, RIVERSDALE

#### Kindly note the following:

- This form must always be used for assessment that are in support of 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 August 2023. 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.dffe.gov.za/documents/forms>.
- An electronic copy of the signed declaration form must be appended to all Draft and Final Reports submitted to the department for consideration.
- The specialist must be aware of and comply with '*the Procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the act, when applying for environmental authorisation - GN 320/2020*', where applicable.

#### 1. SPECIALIST INFORMATION

Title of Specialist Assessment	Agricultural Assessment
Specialist Company Name	Not applicable – sole proprietor
Specialist Name	Johann Lanz
Specialist Identity Number	6607045174089
Specialist Qualifications:	M.Sc. (Environmental Geochemistry)
Professional affiliation/registration:	Registered Professional Natural Scientist (Pr.Sci.Nat.) Reg. no. 400268/12 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
Telephone	Not applicable
Cell phone	+27 82 927 9018
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 am aware of the procedures and requirements for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the National Environmental Management Act (NEMA), 1998, as amended, when applying for environmental authorisation which were promulgated in Government Notice No. 320 of 20 March 2020 (i.e. “the Protocols”) and in Government Notice No. 1150 of 30 October 2020.
- 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 NEMA Act.



---

Signature of the Specialist

Johann Lanz – Soil Scientist (sole proprietor)

---

Name of Company:

8 January 2024

---

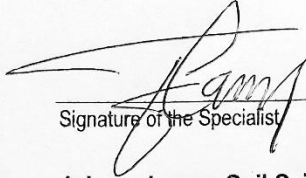
Date



SPECIALIST DECLARATION FORM – AUGUST 2023

3. UNDERTAKING UNDER OATH/ AFFIRMATION

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

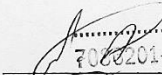


Signature of the Specialist

**Johann Lanz – Soil Scientist – sole proprietor**

Name of Company

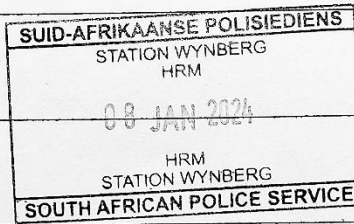
Date 08/01/2024

 SERGEANT  
7080201-0 SA CAKUMA

Signature of the Commissioner of Oaths

Date 2024/01/08

Date





**herewith certifies that**

**Johan Lanz**

Registration Number: 400268/12

**is a registered scientist**

in terms of section 20(3) of the Natural Scientific Professions Act, 2003  
(Act 27 of 2003)

in the following field(s) of practice (Schedule 1 of the Act)

Soil Science (Professional Natural Scientist)

Effective **15 August 2012**

Expires **31 March 2024**



Chairperson

Chief Executive Officer



#### APPENDIX 4: PROJECTS INCLUDED IN CUMULATIVE IMPACT ASSESSMENT

**Table 3:** Table of all projects that were included in the cumulative impact assessment.

DFFE Reference	Project name	Technology	Capacity (MW)
<b>Total solar</b>			
<b>Total wind</b>			
<b>Total</b>			

**Note:** The quantification of cumulative impacts, including the completion of this table, will be done in detail in the EIA phase.

## APPENDIX 5: SOIL DATA

**Table 4:** Land type soil data

Land type	Soil series (forms)	Depth (mm)	Clay % A horizon	Clay % B horizon	Depth limiting layer	% of land type
Fb31	Ms	100 - 200	6 - 15		R	39.6
Fb31	Gs	200 - 350	6 - 20	20 - 35	so,R	27.8
Fb31	Sw	300 - 450	20 - 35	35 - 55	vp	12.3
Fb31	Sw	400 - 600	25 - 40	40 > 55	vr	11.2
Fb31	Sd	400 - 600	35 - 45	35 - 55	R,ca	4.3
Fb31	Oa Du	> 1100	20 - 35	35 - 55	sa	1.8
Fb31	Ss	250 - 300	6 - 15	> 40	pr	1.1
Fb31	T					1.0
Fb31	P					0.9
Db121	Sw	200 - 450	12 - 20	35 - 55	vr,R	29.4
Db121	Gs	200 - 450	6 - 15	10 - 20	so,R	18.0
Db121	Sw	200 - 450	12 - 20	35 - 55	vp	17.4
Db121	Ms	100 - 200	6 - 10		R	12.3
Db121	Va	200 - 450	12 - 20	35 - 55	vp	9.0
Db121	Hu	300 - 500	15 - 25	15 - 35	R	5.7
Db121	Oa	> 1200	12 - 20	15 - 35		3.2
Db121	Ms	100 - 200	3 - 7		hp	3.0
Db121	Ms	100 - 200	6 - 10		ka	1.2
Db121	Du	> 1200	6 - 15			0.8