Appendix G.2

AGRICULTURAL COMPLIANCE STATEMENT

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SITE SENSITIVITY VERIFICATION AND AGRICULTURAL COMPLIANCE STATEMENT FOR THE PROPOSED IGOLIDE WIND ENERGY FACILITY NEAR FOCHVILLE, GAUTENG PROVINCE

Report by
Johann Lanz

19 June 2023

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EXECUTIVE SUMMARY

The cropping potential of the site is limited predominantly by shallow, rocky soils that dominate the higher lying land on the ridge line where the turbines are situated. Cropping on the site is no longer economically viable. The marginal agricultural potential of the site limits its agricultural use to grazing only.

The screening tool rating of the agricultural sensitivity of the assessment area is disputed and is verified in this assessment as being of medium agricultural sensitivity.

An agricultural impact is a temporary or permanent change to the future agricultural production potential of land. By far the most important agricultural impact is a loss of agricultural land due to a change in land use. The significance of the agricultural impact is directly proportional to the extent of the change in production potential, which is a function of:

1. the total footprint of land that will be lost
2. the baseline production potential (particularly cropping potential) of the land that will be lost
3. the length of time for which the land will be lost to agriculture

In the case of wind farms, the first factor, amount of land loss, is so small that the total extent of the loss of future agricultural production potential is insignificantly small, regardless of how much production potential the land has. All agricultural activities are able to continue unaffectedly on all parts of the farmland other than the small agricultural footprint and the actual loss of production potential is therefore insignificant.

Furthermore, the production potential of that land is limited to only being suitable as grazing land. The loss of a very small, widely distributed area of grazing land, of which there is no particular scarcity in the country, represents negligible loss of agricultural production potential in terms of national food security and for the affected farm.

Although the development will occupy land that is currently zoned for agriculture, it will lead to minimal loss of both current production and of future agricultural production potential. The agricultural impact of the proposed development is assessed as being of low significance and as acceptable. From an agricultural impact point of view, it is recommended that the proposed development be approved.

1 INTRODUCTION

Environmental and change of land use authorisation is being sought for the proposed Igolide Wind Energy Facility near Fochville, Gauteng Province (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 site (see Section 7), the level of agricultural assessment required is an Agricultural Compliance Statement.

Figure 1. *Locality map of the property (dark blue outline within red circle) on the southern outskirts of the town of Vredenburg.*

The purpose of the agricultural component in the environmental assessment process is to preserve agricultural production potential by ensuring that development does not unnecessarily exclude existing or potential agricultural production from land, or unnecessarily impact agricultural land to the extent that its production potential is reduced. The primary focus is on preservation of the agricultural production potential of scarce, arable land. The most important part of an agricultural impact assessment is therefore assessing how much existing or potential agricultural production land will be lost as a result of the proposed activity and assessing whether that land has economically viable future cropping potential or not (for more detail see Section 9). This project poses negligible threat to agricultural production potential because of the small extent of land loss and the site's lack of crop production potential.

2 PROJECT DESCRIPTION

The proposed facility will consist of the standard infrastructure of a wind energy facility including, up to 12 turbines with foundations; crane pads per turbine; cabling; battery energy storage system; auxiliary buildings; access and internal roads; on-site IPP substation; and temporary construction laydown areas and will have a total generating capacity of up to 100 MW. The grid connection infrastructure is subject to a separate assessment and EA.

What is relevant for agricultural impact in a wind energy facility layout is the extent of the total agricultural footprint – that is the small but widely distributed footprint of land on which agriculture is actually excluded. The largest components of this footprint are the crane pads and the roads. The identification of individual components within this footprint is irrelevant to agricultural impact because all components have the same impact, namely occupation of agricultural land. Therefore, it is simply the location of the total footprint that matters. The agricultural footprint of the facility is shown in Figure 2 and 3.

3 TERMS OF REFERENCE

The terms of reference for this study is to fulfill the requirements of the *Protocol for the specialist assessment and minimum report content requirements of environmental impacts on agricultural resources by onshore wind and/or solar photovoltaic energy generation facilities where the electricity output is 20 megawatts or more*, 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 1 to 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 10)**.
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. 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 9.9)**;
5. confirmation that the development footprint is in line with the allowable development limits contained in Table 1 of the protocol **(Section 9.9)**;
6. confirmation from the specialist that all reasonable measures have been taken through micro-siting to avoid or minimize fragmentation and disturbance of agricultural activities **(not applicable)**;
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 10)**;
8. any conditions to which this statement is subjected **(Section 10)**;
9. 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)**;
10. where required, proposed impact management outcomes or any monitoring requirements for inclusion in the EMPr **(Section 9)**; and
11. 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 soil and agricultural potential data for the site. The aim of the on-site assessment was to:

1. ground-truth cropland status and consequent agricultural sensitivity;
2. ground truth the land type soil data and achieve an understanding of the general range and distribution patterns of different soil conditions across the site;
3. gain an understanding of overall agricultural production potential across the site.

This was achieved by a drive and walk-over investigation across the site. The site investigation was conducted on 14 October 2021. Soils were assessed based on the investigation of existing soil

exposures in combination with indications of the surface conditions and topography. Soils were classified according to the South African soil classification system (Soil Classification Working Group, 1991).

The following sources of existing information were also used to inform the assessment:

- Soil data was sourced from the land type data set, of the Department of Agriculture, Forestry and Fisheries (DAFF). 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 DAFF, Pretoria.
- The spatial demarcation of Protected Agricultural Areas was obtained from the National Department of Agriculture, Land Reform and Rural Development (DALRRD).
- Field crop boundaries were sourced from Crop Estimates Consortium, 2019. Field Crop Boundary data layer, 2019. Pretoria. Department of Agriculture, Forestry and Fisheries.
- Rainfall and evaporation data was sourced from the SA Atlas of Climatology and Agrohydrology (2009, R.E. Schulze) available on Cape Farm Mapper. Note that Cape Farm Mapper includes national coverage of climate, grazing and certain other data.
- Grazing capacity data was sourced from the 2018 DAFF long-term grazing capacity map for South Africa, available on Cape Farm Mapper.
- Current and historical satellite imagery of the site and surrounds was sourced from Google Earth.

This 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

The development requires approval from the National Department of Agriculture, Land Reform and Rural Development (DALRRD) because it is on agriculturally zoned land. 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. It is advisable to apply for this as early in the development process as possible because not receiving this DALRRD approval is a fatal flaw for a project. Note that a positive EA does not assure DALRRD's approval of this.

The second approval is required in terms of the Subdivision of Agricultural Land Act (Act 70 of 1970) (SALA). 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.

7 SITE SENSITIVITY VERIFICATION

Agricultural sensitivity is a direct function of the capability of the land for agricultural production. The agricultural sensitivity of the site, as given by the web-based environmental screening tool, is shown in Figure 2. The screening tool classifies agricultural sensitivity according to only two independent criteria, both of which are indicators of the land's agricultural production potential:

1. whether the land is cropland or not, and
2. what its land capability rating is

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, released in 2016. The higher land capability values (≥8 to 15) are likely to be suitable 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 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

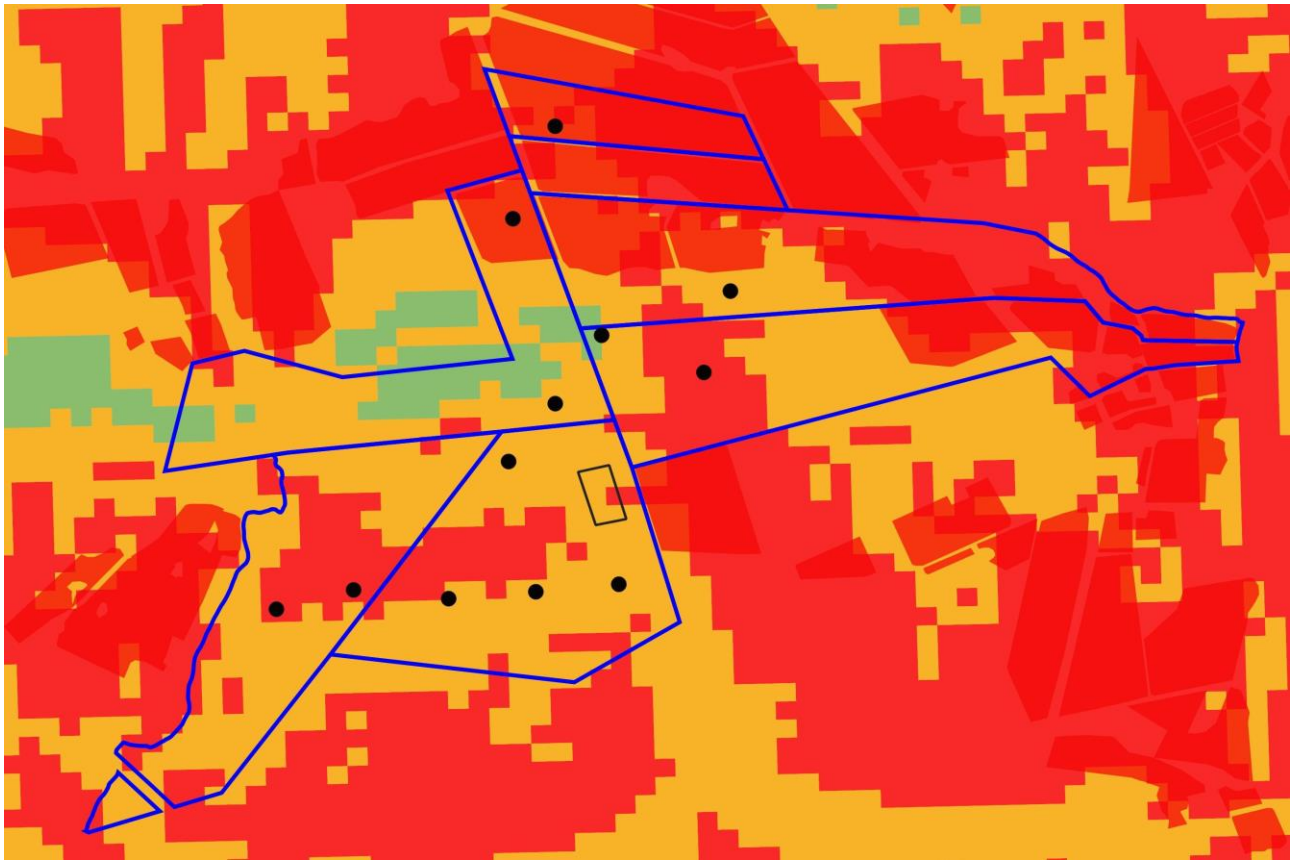

Figure 2. *The proposed development site overlaid on agricultural sensitivity, as given by the screening tool (green = low; yellow = medium; red = high; dark red = very high). This screening tool sensitivity is disputed by this assessment.*

Because the land capability data is generated by GIS modelling and because it is applicable at a fairly small scale (1:50 000 to 1:100 000) it is not necessarily accurate for a specific site and therefore needs verification. Because crop boundaries change over time, they also need verification.

The screening tool rating of the agricultural sensitivity of the assessment area is a minimum of low, an average of medium in the areas occupied by the turbines, and a maximum of high. The screening tool rating is because part of the assessment area is classified as cropland in the data set used by the screening tool. However that data set is outdated. The only croplands occur in the vicinity of the tar road in the eastern part of the farm, which is not where the wind farm is proposed (see Figure 3). All land across the wind farm site is no longer used as cropland and has not been cropped in at least the last twenty years according to the historical imagery available on Google Earth. This land should not, therefore, still be classified as cropland and allocated high sensitivity because of it. This assessment therefore disputes that any of the wind farm site is within crop boundaries. The assessment area has a classified land capability of minimum 4, average 8, and maximum 10. This assessment disputes the classified land capability, based on the assessment of the cropping potential of the site in this report (see Section 8). This assessment therefore disputes the rating of the sensitivity by the screening tool and verifies the assessment area as being of medium agricultural sensitivity.

8 BASELINE DESCRIPTION OF THE AGRO-ECOSYSTEM

The purpose of this section of an agricultural impact 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 is one of the main factors that determines the significance of the agricultural impact.

All important parameters that control the agricultural production potential of the site are given in Table 2. The land type soil data is 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 and 5.

The site falls within 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. Obviously, all land within a Protected Agricultural Area is not necessarily of sufficient agricultural potential to be suitable for crop production, due to site-specific terrain, soil, and other constraints, and is therefore not necessarily worthy of prioritised protection as agricultural production land. The proposed wind farm site is such land that is of insufficient agricultural potential to be suitable for crop production.

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

	Parameter	Value
Climate	Köppen-Geiger climate classification	Cwb
	Köppen-Geiger climate description	Temperate, dry winter, warm summer
	Mean Annual Rainfall (mm)	613
	Reference Crop Evaporation Annual Total (mm)	1354
	Climate capability classification (out of 9)	Between 5 and 6, but predominantly 6 (moderate to high)
Terrain	Terrain type	The site is situated on a low ridge line
	Slope gradients (%)	3
	Altitude (m)	1600
	Terrain capability classification (out of 9)	Between 4 and 7, but predominantly 6 (moderate to high)
Soil	Geology	Timeball Hill and Rooihoogte Formations [Mudrock, quartzite (ferruginous in places), wacke, chert breccia, minor diamictite, conglomerate, shale, magnetic ironstone] and Hekpoort and Boshoek Formations [Tuff, agglomerate]
	Land type	Fb15 and Ba1
	Description of land type soils	Predominantly shallow (with some deep), medium textured, soils on underlying weathered bedrock. Rock outcrops common.
	Dominant soil forms	Hutton, Mispah, Glenrosa
	Soil capability classification (out of 9)	Between 4 and 6, but predominantly 6 (moderate to high)
Land use	Agricultural land use in the surrounding area	Grazing and rain-fed field crops
	Agricultural land use on the site	Grazing of game only
	Land Cover classification on the site	Natural grassland, fallow land
General	Long-term grazing capacity (hectares per Large Stock Unit)	6 (very high)
	Land capability classification (out of 15)	Between 4 and 10, but predominantly 8 (moderate)
	Within Protected Agricultural Area	Yes

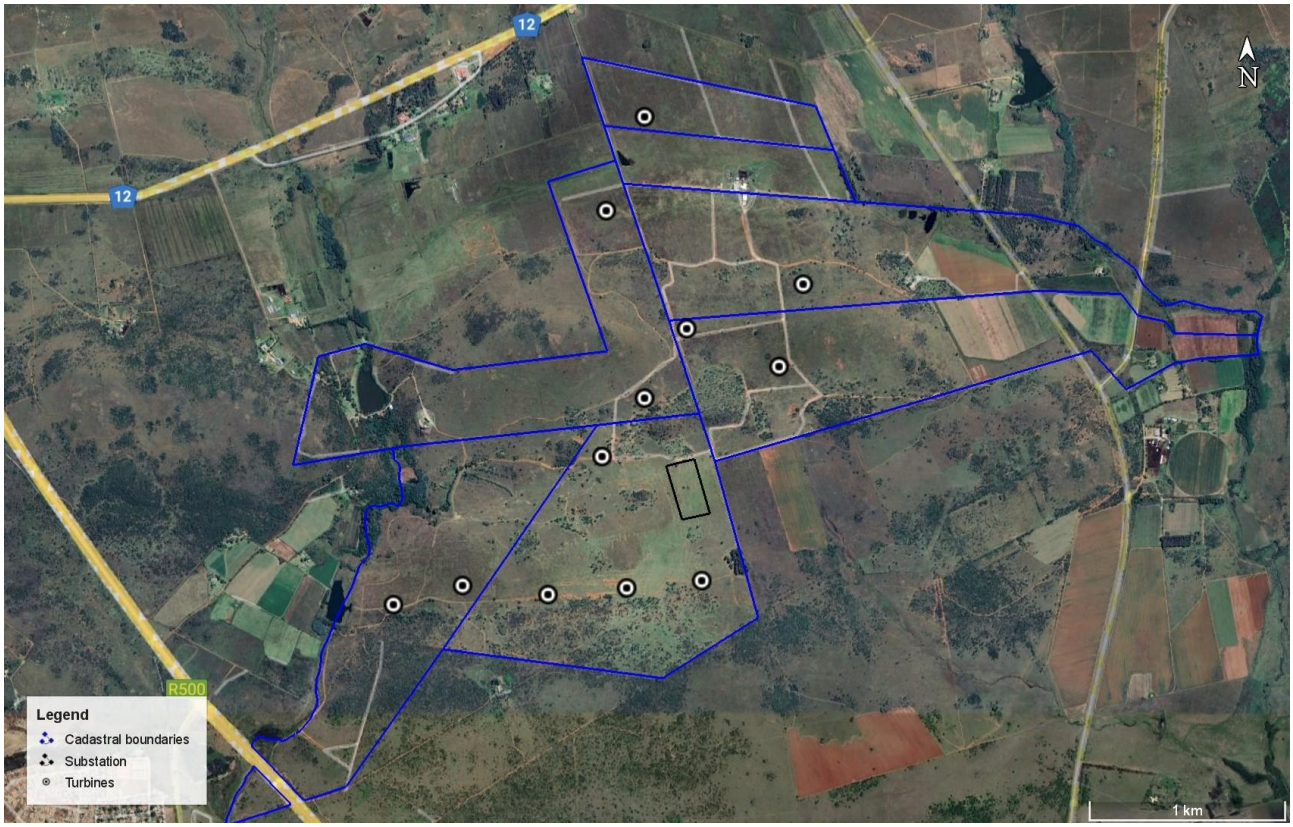

Figure 3. *Satellite image map of the development.*

Figure 4. *Photograph of typical site conditions showing the rockiness of the site.*

Figure 5. *Photograph of typical site conditions showing the rockiness of the site.*

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.

Although cropping occurs in the area (on better soils that are off the ridge line), and occurred on the site many years ago, the cropping potential of the site is limited predominantly by shallow, rocky soils that dominate the higher lying land on the ridge line where the turbines are situated. Cropping on the site is no longer economically viable. The marginal agricultural potential of the site limits its agricultural use to grazing only. It should be noted that cropping potential changes with a changing agricultural economy over time. Poorer soils that may have been cropped with economic viability in the past, are abandoned as cropland because they become too marginal for viable crop production in a more challenging agricultural economy, with increased input costs.

9 ASSESSMENT OF THE AGRICULTURAL IMPACT

9.1 Impact identification and assessment

An agricultural impact is a temporary or permanent change to the future agricultural production potential of land. By far the most important agricultural impact of most developments, including the one being assessed here, is a loss of agricultural land due to a change in land use. The significance of the agricultural impact is directly proportional to the extent of the change in

production potential, which is a function of:

1. the total footprint of land that will be lost
2. the baseline production potential (particularly cropping potential) of the land that will be lost
3. the length of time for which the land will be lost to agriculture

The most significant agricultural impact possible, ignoring the duration component, is therefore a loss of a large area of high yielding cropland and the least significant impact is a loss of a small area of low carrying capacity grazing land.

In the case of wind farms, the first factor, amount of land loss, is so small that the total extent of the loss of future agricultural production potential is insignificantly small, regardless of how much production potential the land has. This is because the required spacing between turbines means that the amount of land actually excluded from agricultural use is extremely small in relation to the surface area over which a wind farm is distributed. Wind farm infrastructure (including all associated infrastructure and roads) typically occupies less than 2% of the surface area, according to the typical surface area requirements of wind farms in South Africa (DEA, 2015). Most wind energy facilities, for which I have recently done assessments, occupy less than 1% of the surface area. All agricultural activities are able to continue unaffectedly on all parts of the farmland other than turbine hardstands, roads, and the substation hub which includes battery energy storage system, buildings, etc. The the actual loss of production potential is therefore insignificant.

Furthermore, the production potential of the land on site is limited to only being suitable as grazing land. The loss of a very small, widely distributed area of grazing land, of which there is no particular scarcity in the country, represents negligible loss of agricultural production potential in terms of national food security and for the affected farm. Due to the limited loss of agricultural production potential, the agricultural impact of the development is assessed here as being of low significance.

9.2 Cumulative impact

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 consider all renewable energy projects within a 30 km radius. 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 Impacts 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 development compliments agriculture by providing an additional income source, without excluding agriculture from the land, or decreasing production. Therefore, the negative agricultural impact of the no-go alternative is more significant than that of the development, and so, from an agricultural impact perspective, the proposed development is the preferred alternative. In addition, 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.

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

This will be assessed in the EIA phase when a detailed road layout is available.

9.5 Confirmation of linear activity impact

Confirmation of the linear activity impact is not applicable in this case.

9.6 The development footprint area

The agricultural protocol stipulates allowable development limits for renewable energy developments of > 20 MW. Allowable development limits refer to the area of a particular agricultural sensitivity category that can be directly impacted (i.e. taken up by the physical footprint) by a renewable energy development. The agricultural footprint is defined in the protocol as the area that is directly occupied by all infrastructure, 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 agricultural footprint).

It is highly likely that the facility will be in line with the allowable development limits contained in the agricultural protocol, but that can only be confirmed once the layout of the facility has been finalised.

9.7 Mitigation measures

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

- A system of storm water management, which will prevent erosion on and downstream of the site, will be an inherent part of the engineering on site. Any occurrences of erosion must be attended to immediately and the integrity of the erosion control system at that point must be amended to prevent further erosion from occurring there.
- 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 30 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 the majority 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.

10 CONCLUSION: AGRICULTURAL COMPLIANCE STATEMENT

The cropping potential of the site is limited predominantly by shallow, rocky soils that dominate the higher lying land on the ridge line where the turbines are situated. Cropping on the site is no longer economically viable. The marginal agricultural potential of the site limits its agricultural use to grazing only.

The screening tool rating of the agricultural sensitivity of the assessment area is disputed and is verified in this assessment as being of medium agricultural sensitivity.

An agricultural impact is a temporary or permanent change to the future agricultural production potential of land. By far the most important agricultural impact is a loss of agricultural land due to a change in land use. The significance of the agricultural impact is directly proportional to the extent of the change in production potential, which is a function of:

1. the total footprint of land that will be lost
2. the baseline production potential (particularly cropping potential) of the land that will be lost
3. the length of time for which the land will be lost to agriculture

In the case of wind farms, the first factor, amount of land loss, is so small that the total extent of the loss of future agricultural production potential is insignificantly small, regardless of how much production potential the land has. All agricultural activities are able to continue unaffectedly on all parts of the farmland other than turbine hardstands, roads, and the substation hub which includes battery energy storage system, buildings, etc. The actual loss of production potential is therefore insignificant.

Furthermore, the production potential of that land is limited to only being suitable as grazing land. The loss of a very small, widely distributed area of grazing land, of which there is no particular scarcity in the country, represents negligible loss of agricultural production potential in terms of national food security and for the affected farm.

Although the development will occupy land that is currently zoned for agriculture, it will lead to minimal loss of both current production and of future agricultural production potential. The agricultural impact of the proposed development is assessed as being of low significance and as

acceptable. From an agricultural impact point of view, it is recommended that the proposed development 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.

11 REFERENCES

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

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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.
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- Lanz, J. 2005. Special Report: Soils and wine quality. *Wineland Magazine.*

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

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

APPENDIX 2: 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

IGOLIDE WIND ENERGY FACILITY NEAR FOCHVILLE, GAUTENG 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 (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			
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:

16/04/2023

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

16/04/2023

Date

Signature of the Commissioner of Oaths

2023-04-16

Date

SUID-AFRIKAANSE POLISIEDIENS
CSM
WYNBERG KP
16 APR 2023
CSM
WYNBERG CP
SOUTH AFRICAN POLICE SERVICE

SACNASP

South African Council for Natural Scientific Professions

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 fields(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

To verify this certificate scan this code

APPENDIX 4: PROJECTS INCLUDED IN CUMULATIVE IMPACT ASSESSMENT

Table 1**:** Table of all projects that were included in the cumulative impact assessment.

DFFE Reference	Project name	Technology	Capacity (MW)
Total solar			
Total wind			
Total			

Note: Quantification of cumulative impacts will be done in detail in the EIA phase.

APPENDIX 5: SOIL DATA

Table of land type soil data

Land type	Soil series (forms)	Depth (mm)	Clay % A horizon	Clay % B horizon	Depth limiting layer	% of land type
Ba1	Hu	600 > 1200	15 - 25	15 - 35	so,lc	29
Ba1	Hu	400 - 600	15 - 25	15 - 35	so,lc	17
Ba1	Ms	200 - 400	12 - 20		R,hp	12
Ba1	Hu	400 - 900	25 - 30	35 - 45	so,lc	10
Ba1	Gc	500 - 750	12 - 20	15 - 25	hp	5
Ba1	Cv	600 - 900	12 - 20	15 - 25	so,lc	5
Ba1	Av	750 - 900	20 - 30	25 - 40	sp	4
Ba1	Gs	200 - 400	15 - 25	20 - 30	so,lc	4
Ba1	Hu	200 - 450	15 - 30	20 - 40	so,lc	3
Ba1	Ms	100 - 400	15 - 25		R	3
Ba1	Oa / Du	0 > 1200	12 - 20	12 - 20		2
Ba1	Rg / Wo	450 - 700	45 - 55		gc	2
Ba1	Va	300 - 400	25 - 30	35 - 45	vp	2
Ba1	R					2
Ba1	Ch	600 > 1200	10 - 20	10 - 20	gc	1
Ba1	Bo	0 > 1200	35 - 45	35 - 45		1
Ba1	Kd	750 - 1000	12 - 20	30 - 40	gc	1
Ba1	We	300 - 500	12 - 25	30 - 50	sp	1
Fb15	Hu	250 > 1200	15 - 25	18 - 32	so,R	28
Fb15	Ms	100 - 200	15 - 25		R	20
Fb15	Gs	100 - 350	15 - 25		so,R	19
Fb15	R					19
Fb15	Oa / Du	600 > 1200	18 - 35	20 - 40	R,so	4
Fb15	Ar / Rg	600 - 800	45 - 60		so,R	3
Fb15	Cv	400 - 800	15 - 25	18 - 35	so,R	3
Fb15	Cv	400 - 800	5 - 10	6 - 15	so,R	2

Land type	Soil series (forms)	Depth (mm)	Clay % A horizon	Clay % B horizon	Depth limiting layer	% of land type
Fb15	Hu / Sd	250 > 1200	30 - 45	35 - 55	so,R	2
Fb15	S					1
Fb15	Av	600 - 800	15 - 25	18 - 35	B2gc	1