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SITE SENSITIVITY VERIFICATION AND AGRICULTURAL COMPLIANCE STATEMENT FOR THE GRID CONNECTION OF THE SOUTRIVIER SOUTH WIND ENERGY FACILITY NEAR VICTORIA WEST IN THE NORTHERN CAPE PROVINCE

Report by Johann Lanz

19 January 2023

Table of Contents

Executive Summary	1
1 Introduction	2
2 Project description	3
3 Terms of reference	3
4 Methodology of study	4
5 Assumptions, uncertainties or gaps in knowledge or data	5
6 Applicable legislation and permit requirements	5
7 Site sensitivity verification	6
8 Baseline description of the agro-ecosystem	8
9 Assessment of agricultural impact	8
9.1 Impact identification and assessment	8
9.2 Cumulative impact	8
9.3 Comparative assessment of alternatives	9
9.4 Impacts of the no-go alternative	9
9.5 Micro-siting to minimize fragmentation and disturbance of agricultural activities.	9
9.6 Confirmation of linear activity impact1	0
10 Environmental Management Programme Inputs	0
11 Conclusions	0
12 References	0
Appendix 1: Specialist Curriculum Vitae	2
Appendix 2: Details of the specialist, declaration of interest and undertaking under oath 1	3
Appendix 3: SACNASP Registration Certificate1	5

EXECUTIVE SUMMARY

The conclusion of this assessment is that the proposed development will have insignificant agricultural impact and will therefore be acceptable in terms of its impact on the agricultural production capability of the site. This is because all agricultural activities that are viable in this environment, can continue completely unhindered underneath the power line and there will therefore be no loss of agricultural production potential underneath it.

The only potential source of impact from the power line is minimal disturbance to the land (erosion and topsoil loss) during construction (and decommissioning). This impact can be completely mitigated with standard, generic mitigation measures that are included in the EMPr.

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

1 INTRODUCTION

Environmental authorisation is being sought for the grid connection of the Soutrivier South Wind Energy Facility (WEF) near Victoria West in the Northern Cape 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 an Agricultural Compliance Statement.

Johann Lanz was appointed as an independent agricultural specialist to conduct the agricultural assessment. The objective and focus of an agricultural assessment is to assess whether or not the proposed development will have an acceptable agricultural impact and, based on this, to make a recommendation on whether or not it should be approved.



Figure 1. Locality map of the corridor of the proposed development (blue outline), west of the town of Victoria West.

The purpose of the agricultural component in the environmental assessment process is to preserve the agricultural production potential, particularly of scarce arable land, by ensuring that development does not exclude existing or potential agricultural production from such land or impact it to the extent that its future production potential is reduced. However, this project poses negligible threat to agricultural production potential.

2 PROJECT DESCRIPTION

This assessment covers only the up to 132 kV overhead power line of approximately 0.3 kilometers in length.

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 gazetted on 20 March 2020 in GN 320 (in terms of Sections 24(5)(A) and (H) and 44 of NEMA, 1998).

The level of agricultural assessment required, in terms of the protocol, for an overhead power line, which is linear infrastructure, is an Agricultural Compliance Statement.

The terms of reference for an Agricultural Compliance Statement, as stipulated in the 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 & 2);
 - 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 11).
- 3. The Agricultural Compliance Statement must contain, as a minimum, the following information:
 - 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 Department of Forestry, Fisheries and the Environment (DFFE) 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 9.5);
- 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 11);
- 6. any conditions to which this statement is subjected (Section 11);
- 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 9.6);
- 8. where required, proposed impact management outcomes or any monitoring requirements for inclusion in the EMPr (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

As per the protocol requirement, the assessment was based on a desktop analysis of existing soil and agricultural potential data for the site. A site investigation was unnecessary for this assessment, including for the site sensitivity verification. This is because the limiting factor for land capability is climate and all other agricultural potential parameters become irrelevant under the dominant limitation of aridity. There is therefore nothing additional, which could influence the level of agricultural impact, that a site inspection could possibly reveal that cannot be revealed through an analysis of the existing climate data supplemented by current and historical satellite imagery to determine on-site and surrounding land use, plus existing land type data.

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 (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.
- 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.
- Grazing capacity data was sourced from the 2018 DAFF 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.

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

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:

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

If one or both of these 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.

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 the construction of a renewable energy facility and its associated 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

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.;
- 2. contains a motivation and evidence (e.g. photographs) of either the verified or different use of the land and environmental sensitivity.

Agricultural sensitivity is a direct function of the capability of the land for agricultural production. All arable land that can support viable crop production, is classified as high (or very high) sensitivity. This is because there is a scarcity of arable production land in South Africa and its conservation for agricultural use is therefore a priority. Land which cannot support viable crop production is much less of a priority to conserve for agricultural use, and is rated as medium or low agricultural sensitivity.

However, the verification of agricultural sensitivity of the power line route has very little relevance to this assessment. It is important to recognise that the agricultural sensitivity of land, in terms of a particular development, is not only a function of the screening tool sensitivity, which equates to agricultural potential, but is also a function of the severity of the impact which that development poses to agriculture. This is not recognised in the screening tool classification of sensitivity and is therefore a limitation to that sensitivity. This is relevant for transmission lines, because their agricultural impact is usually negligible (see impact assessment section), regardless of the agricultural sensitivity of the land which they traverse. Therefore, in the context of overhead power lines, almost no land can be considered to have high agricultural sensitivity.

The screening tool classifies agricultural sensitivity according to only two independent criteria – the land capability rating and whether the land is used for cropland or not. All cropland is classified as at least high sensitivity, based on the logic that if it is under crop production, it is indeed suitable for it, irrespective of its land capability rating.

The screening tool sensitivity categories in terms of land capability are based upon the Department of Agriculture's updated and refined, country-wide land capability mapping, released in 2016. The data is generated by GIS modelling. Land capability is defined as the combination of soil, climate and terrain suitability factors for supporting rain fed agricultural production. It is an indication of what level and type of agricultural production can sustainably be achieved on any land, based on its soil, climate and terrain. The higher land capability values (≥8 to 15) are likely to be suitable as arable land for crop production, while lower values are only likely to be suitable as

non-arable grazing land.

A map of the proposed corridor, overlaid on the screening tool sensitivity, is given in Figure 2, but as noted above, the screening tool sensitivity of the power line corridor is largely irrelevant to agricultural impact.

The low to medium agricultural sensitivity of the site, as identified by the screening tool, is confirmed by this assessment. The motivation for confirming the sensitivity is predominantly that the climate data (low rainfall of approximately 210 mm per annum and high evaporation of approximately 1,395 mm per annum) (Schulze, 2009) proves the area to be arid, and therefore of limited land capability. Moisture availability is totally insufficient for crop production without irrigation. In addition, the land type data shows the dominant soils to be shallow soils on underlying rock. A low to medium agricultural sensitivity is entirely appropriate for this land, which is totally unsuitable for crop production.

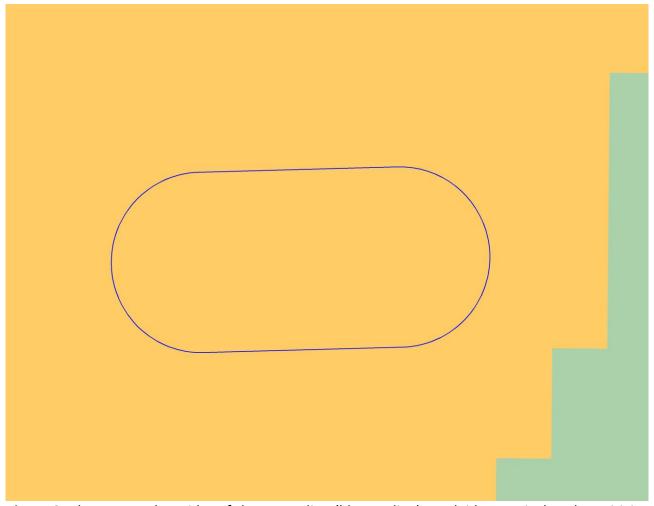


Figure 2. The proposed corridor of the power line (blue outline) overlaid on agricultural sensitivity, as given by the screening tool (green = low; yellow = medium; red = high; dark red = very high).

8 BASELINE DESCRIPTION OF THE AGRO-ECOSYSTEM

The arid climate (low rainfall of approximately 210 mm per annum and high evaporation of approximately 1,395 mm per annum) (Schulze, 2009) is the limiting factor for land capability, regardless of the soil capability and terrain. Moisture availability is very limiting to any kind of agricultural production, including grazing. Because climate is the limiting factor that controls production potential, it is the only aspect of the agro-ecosystem description that is required for assessing the agricultural impact of this development. All other agricultural potential parameters become irrelevant under the dominant limitation of aridity.

9 ASSESSMENT OF AGRICULTURAL IMPACT

9.1 Impact identification and assessment

An agricultural impact is a temporary or permanent change to the future production potential of land. The significance of the agricultural impact is directly proportional to the extent of the change in production potential. If a development will not change the future production potential of the land, then there is no agricultural impact.

The proposed overhead power line has negligible agricultural impact, regardless of their route and design and the agricultural potential of the land it traverses. All agricultural activities can continue completely unhindered underneath the power line. This is because its direct, permanent, physical footprint that has any potential to interfere with agriculture (pylon bases and servitude track, where it is needed), is insignificantly small. There will therefore be no reduction in future agricultural production potential underneath the power line. The only potential source of impact is minimal disturbance to the land (erosion and topsoil loss) during construction (and decommissioning). This impact can be completely mitigated with standard, generic mitigation measures that are included in the EMPr. Therefore the agricultural impact of the proposed development is assessed as being of very low significance.

9.2 Cumulative impact

The potential cumulative agricultural impact of importance is a regional loss of future agricultural production potential. The defining question for assessing the cumulative agricultural impact is this:

What level of 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?

Because this grid connection itself leads to insignificant loss of production potential, its cumulative impact must also logically be insignificant. It therefore does not make sense to conduct a more formal assessment of the development's cumulative impacts as per DFFE requirements for cumulative impacts. Many times more electricity grid infrastructure than currently exists, or is currently proposed, can be accommodated before acceptable levels of change in terms of loss of production potential are exceeded. In reality the landscape in this environment could be covered with power lines and agricultural production potential would not be affected.

Due to the considerations discussed above, the cumulative impact of loss of future agricultural production potential can confidently be assessed as being of very low significance and therefore not having an unacceptable negative impact on the area. In terms of cumulative impact, the proposed development is therefore acceptable and it is recommended that it be approved.

9.3 Comparative assessment of alternatives

Because of the insignificant agricultural impact of the power line, there can be no material difference between the agricultural impacts of any route alternatives (within the corridor). All have insignificant agricultural impact and are assessed as acceptable.

9.4 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. There is no agricultural impact of the no-go option. Therefore, the extent to which the development (insignificant impact) and the no-go alternative will impact agricultural production are more or less equal, which results in there being, from an agricultural impact perspective only, no preferred alternative between the development and the no-go. 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 because the associated renewable energy facilities cannot operate without the power line.

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

The agricultural 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 lack of suitability for crop production of the site, mean that the exact positions of all infrastructure will not make any material difference to agricultural impacts.

9.6 Confirmation of linear activity impact

The 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. It is hereby confirmed that the land under the overhead power lines 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 life time of the development.

10 ENVIRONMENTAL MANAGEMENT PROGRAMME INPUTS

There are no additional mitigation measures required, over and above what has already been included in the Generic Environmental Management Programmes (EMPr's) For The Development And Expansion For Overhead Electricity Transmission And Distribution Infrastructure as per Government Notice 435, which was published in Government Gazette 42323 on 22 March 2019.

11 CONCLUSIONS

The conclusion of this assessment is that the proposed development will have insignificant agricultural impact and will therefore be acceptable in terms of its impact on the agricultural production capability of the site. This is because all agricultural activities that are viable in this environment, can continue completely unhindered underneath the power line and there will therefore be no loss of agricultural production potential underneath it.

The only potential source of impact from the power line is minimal disturbance to the land (erosion and topsoil loss) during construction (and decommissioning). This impact can be completely mitigated with standard, generic mitigation measures that are included in the EMPr.

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

12 REFERENCES

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.

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

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.



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

THE GRID CONNECTION OF THE SOUTRIVIER SOUTH WIND ENERGY FACILITY NEAR VICTORIA WEST 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	Percent Procure recogni	ment	100%		
Specialist name:	Johann Lanz						
Specialist Qualifications:	M.Sc. (Environmental Geochemistry)						
Professional	Registered Professional Natural Scientist (Pr.Sci.Nat.) Reg. no. 400268/12						
affiliation/registration:	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	77 - 168	Cell:	082 927 9018			
Telephone:	082 927 9018		Fax:	Who still u	ses a fax? I don't		
E-mail:	johann@johannlanz.co.za	a					

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 Signature of the specialist compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report Johann Lanz Soil Scientist (sole proprietor) relevant to this application, including knowledge of Name of Company the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other Date 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 Signature of the Commissioner of Oaths 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:

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.

SUID-AFRIKAANSE POLISIEDIENS STATION WYNBERG 13 JAN 2023

STATION WYNBERG SOUTH AFRICAN POLICE SERVICE



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 2023



Chairperson

Chief Executive Officer

