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**SITE SENSITIVITY VERIFICATION  
AND  
AGRICULTURAL COMPLIANCE STATEMENT  
FOR  
THE PROPOSED DANA BAY EMERGENCY ACCESS ROAD  
NEAR MOSSEL BAY**

**Report by  
Johann Lanz**

**25 April 2022**

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## 1 INTRODUCTION

Environmental authorisation is being sought for the proposed Dana Bay emergency access road near Mossel Bay. The locality map is given 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 sensitivity of the site, the level of agricultural assessment required is 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 unacceptable agricultural impact, and based on this, to make a recommendation on whether or not it should be approved.



**Figure 1.** Locality map showing the proposed road north-west of Dana Bay. Farm portion boundary is in red and proposed road is in blue.

The purpose of including an agricultural component in Environmental Authorisation is to ensure that South Africa balances the need for development against the need to ensure the conservation of the natural agricultural resources, including land, required for agricultural production and national food security. The aim of the agricultural protocol of NEMA is primarily to preserve the agricultural production potential of scarce arable land by ensuring that development does not

exclude agricultural production from such land or impact it to the extent that the crop production potential is reduced.



**Figure 2.** Satellite image map showing the detail of the development site.

## 2 PROJECT DESCRIPTION

The project involves the construction of a new road of 1.4 km long in a road reserve of 20 metres wide and a footprint on agricultural land of 3.43 hectares.

## 3 TERMS OF REFERENCE

The terms of reference for this study is to be a specialist report that fulfills 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.

The verified agricultural site sensitivity of the site is less than high. The level of agricultural assessment required in terms of the protocol for sites verified as less than high sensitivity is an Agricultural Compliance Statement. The terms of reference for such an assessment, 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. The protocol also requires that a Site Sensitivity Verification be done.

1. The assessment must be undertaken by a soil scientist or agricultural specialist registered with the South African Council for Natural Scientific Professions (SACNASP) **(Appendix 1)**.
2. The compliance statement must:
  1. be applicable to the preferred site and proposed development footprint;
  2. confirm that the site is of “low” or “medium” sensitivity for agriculture **(Section 6)**; and
  3. indicate whether or not the proposed development will have an unacceptable impact on the agricultural production capability of the site **(Section 8 & 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 3)**;
  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 10)**;
  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 8 & 10)**;
  6. any conditions to which this statement is subjected **(Section 10)**;
  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 **(not relevant)**;
  8. where required, proposed impact management outcomes or any monitoring requirements for inclusion in the EMPr **(Section 9)**; 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. 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 assumptions, uncertainties or gaps in knowledge or data that affect the findings of this assessment.

#### 6 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, as used in the national web-based environmental screening tool, is a direct function of the capability of the land for agricultural production. The general assessment of agricultural sensitivity that is employed in the national web-based environmental screening tool,

identifies all arable land that can support viable crop production, 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.

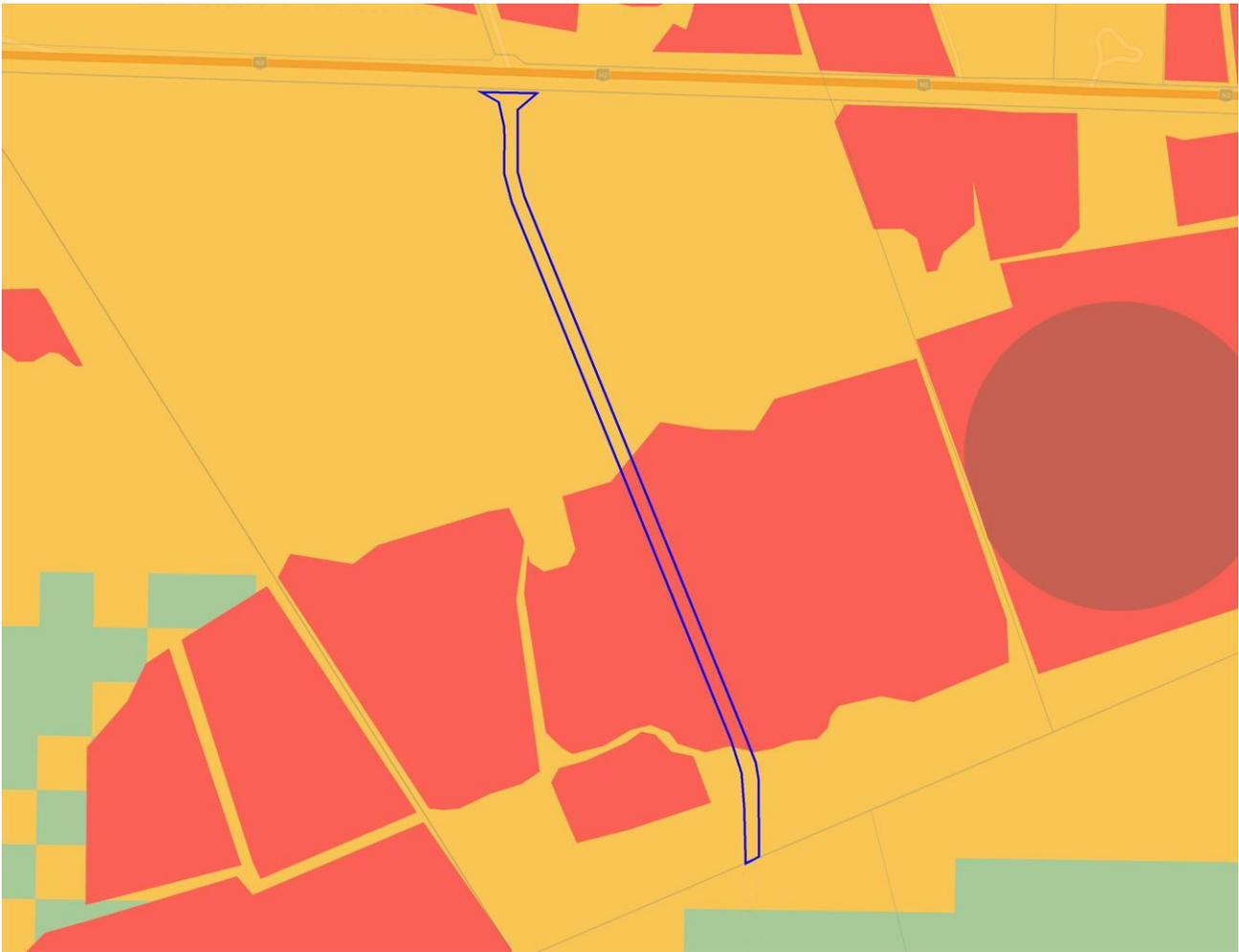
The screening tool classifies agricultural sensitivity according to only two independent criteria – the land capability rating and whether the land is used for cropland or not. All cropland is classified as at least high sensitivity, based on the logic that if it is under crop production, it is indeed 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. The higher land capability values ( $\geq 8$  to 15) are likely to be suitable as cropland, while lower values are only likely to be suitable as non-arable grazing land.

A map of the proposed road overlaid on the screening tool sensitivity is given in Figure 3. The land capability of the site on the screening tool is predominantly 6 and 7, but varies from 6 to 8. The small scale differences in the modelled land capability across the project area are not very accurate or significant at this scale and are more a function of how the data is generated by modelling, than actual meaningful differences in agricultural potential on the ground. Values of 6 to 8 translate to a medium agricultural sensitivity.

The high sensitivity across the southern part of the site is because that land is classified as cropland on the data set used by the screening tool. However, this data set is not up to date and not always accurate. All the land impacted by the proposed road is used, not as cropland, but as dryland pasture. The land type data shows that the area is dominated by shallow, sandy, duplex soils that are at best very marginal for viable crop production. These lands should therefore not be classified as cropland or allocated high sensitivity because of it. The high agricultural sensitivity attributed to part of the site by the screening tool is therefore disputed by this assessment.

This site sensitivity verification verifies the entire site as being of less than high agricultural sensitivity with a maximum land capability value of 7. The land capability value is in keeping with the soil limitations that make the site too marginal for crop production. The required level of agricultural assessment is therefore confirmed as an Agricultural Compliance Statement.



**Figure 3.** The proposed road overlaid on agricultural sensitivity, as given by the screening tool (green = low; yellow = medium; red = high; dark red = very high).

## 7 BASELINE DESCRIPTION OF THE AGRO-ECOSYSTEM

A photograph of site conditions is given in Figure 4. All the land impacted by the proposed road is used as dryland pasture and grazing. Soils across the site are shallow, sandy, duplex soils that are too marginal for viable crop production. Long term natural grazing capacity of the site is low at 40 hectares per large stock unit.

## 8 IDENTIFICATION AND ASSESSMENT OF IMPACTS ON AGRICULTURE

The purpose of the agricultural component in Environmental Authorisation is to ensure that South Africa balances the need for development against the need to ensure the conservation of the natural agricultural resources, including land, required for agricultural production and national food security.



**Figure 4.** View across the agricultural land that the proposed road will cross.

An agricultural impact is a temporary or permanent change to the future production potential of land. Whether a development should receive agricultural approval or not should be evaluated by asking the question: Does the extent of the loss of future agricultural production potential that will result from this development, justify non approval of the development on agricultural land?

In this case, the extent of the loss of future production potential is low as a result of both of the factors that determine it. Firstly, the amount of land that will be lost is small in extent (3.4 hectares).

Secondly, the production potential of the excluded land is below the national threshold for needing to be conserved as agricultural production land. The excluded land is of limited land capability, which is insufficient for crop production. There is not a scarcity of such agricultural land in South Africa and its conservation as agricultural production land is therefore not a priority.

An Agricultural Compliance Statement is not required to formally rate agricultural impacts. It is only required to indicate whether or not the proposed development will have an unacceptable impact on the agricultural production capability of the site. It must provide a substantiated statement on the acceptability, or not, of the proposed development and a recommendation on the approval, or not of the proposed development.

Nevertheless, the agricultural impacts of this proposed development are assessed here as being of low significance.

The conclusion of this assessment is that the proposed development will have a low and therefore acceptable impact on the future agricultural production potential of the site. This is substantiated by the facts that the loss of land is small in extent and is of limited land capability and not suitable for crop production, but only for grazing. From an agricultural impact point of view, it is recommended that the development be approved.

## **9 ENVIRONMENTAL MANAGEMENT PROGRAMME INPUTS**

There are no Environmental Management Programme inputs required for the protection of agricultural potential on the site. The standard storm water management for road engineering will suffice.

## **10 CONCLUSIONS**

The high agricultural sensitivity attributed to the site by the screening tool is disputed by this assessment because the soils are not utilised or suitable for crop production and should not therefore be rated as high agricultural sensitivity. Soils across the site are shallow, sandy, duplex soils that are too marginal for viable crop production. All the land impacted by the proposed road is used, not as cropland, but as dryland pasture and grazing. This site sensitivity verification verifies the entire site as being of less than high agricultural sensitivity.

The agricultural impact of the proposed development will be the exclusion of agricultural production (grazing) from the 3.4 hectare development footprint of the road. This impact is considered to be of low significance because:

- the loss of agricultural land is very small in extent (3.4 hectares).
- the proposed road will occupy land that is of limited land capability and is not suitable for crop production, but only for grazing.

The conclusion of this assessment is that the proposed development will have a low and therefore acceptable impact on the future agricultural production potential of the site. This is substantiated by the facts that the loss of land is small in extent and is of limited land capability and not suitable for crop production, but only for grazing. From an agricultural impact point of view, it is recommended that the development be approved.

The protocol requirement of confirmation that all reasonable measures have been taken through micro-siting to avoid or minimise fragmentation and disturbance of agricultural activities, is not relevant in this case.

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

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

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

Department of Agriculture, Forestry and Fisheries, 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**

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

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

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

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

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

Completed a contract to advise soil rehabilitation and re-vegetation of mined areas.

#### Publications

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

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

## APPENDIX 2: DECLARATION OF THE SPECIALIST

**Note:** Duplicate this section where there is more than one specialist.

I, **Johann Lanz**, as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that I:

- in terms of the general requirement to be independent:
  - other than fair remuneration for work performed/to be performed in terms of this application, have no business, financial, personal or other interest in the activity or application and that there are no circumstances that may compromise my objectivity; or
  - am not independent, but another specialist that meets the general requirements set out in Regulation 13 have been appointed to review my work (Note: a declaration by the review specialist must be submitted);
- in terms of the remainder of the general requirements for a specialist, am fully aware of and meet all of the requirements and that failure to comply with any the requirements may result in disqualification;
- have disclosed/will disclose, to the applicant, the Department and interested and affected parties, all material information that have or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared or to be prepared as part of the application; and
- am aware that a false declaration is an offence in terms of regulation 48 of the 2014 NEMA EIA Regulations.

Signature of the specialist:

A handwritten signature in black ink, appearing to read 'Johann Lanz', written over a light grey grid background.

Date: **25 April 2022**

Name of company: **Johann Lanz – soil scientist (sole proprietor)**