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SOIL SUITABILITY ASSESSMENT
AND
AGRICULTURAL COMPLIANCE STATEMENT
FOR THE ESTABLISHMENT OF NEW ORCHARDS AND A DAM
ON FARM NUMBER 91
NEAR RIVERSDALE, WESTERN CAPE

Report by
Johann Lanz

5 June 2025

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EXECUTIVE SUMMARY

The overall conclusion of this assessment is that the establishment of new orchards and a small dam enhances future agricultural production potential and therefore has a positive agricultural impact. The soils across the site are suitably similar for orchard establishment to the other established orchards on the farm. They are predominantly reasonably drained residual soils of the Glenrosa and Swartland soil forms with approximately 15% clay in the root zone. Depth to the underlying saprolite (weathered shale) varies from 400 mm to 1000 mm. Sufficient rooting depth has been established through effective soil preparation. The soils are suitable for irrigated crop production. Although the steep slopes make the land susceptible to erosion, it will be completely controlled through standard farming practices that are used on the adjacent, established orchards. This assessment confirms that the site is suitable and viable for irrigated orchards, and that the soil resources on the site will not be damaged by this activity.

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

1 INTRODUCTION

Vegetation clearing and cropland establishment requires environmental authorisation in terms of the National Environmental Management Act (Act No 107 of 1998 - NEMA). It also requires agricultural approval in terms of 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. This assessment is for the establishment of new orchards and a small dam on Farm number 91, near Riversdale (see location in Figure 1).

An application for environmental authorisation requires an agricultural assessment. The purpose of an agricultural assessment is to answer the question:

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

In this case, the development will enhance agricultural production potential and therefore has a positive agricultural impact. A normal assessment of the impact is not important in such a case. What is required instead is to confirm whether the site is viable or not for cropland, and that the soil resources on the site will not be damaged by the proposed activity. The appropriate level of agricultural assessment in such a case is an Agricultural Compliance Statement.

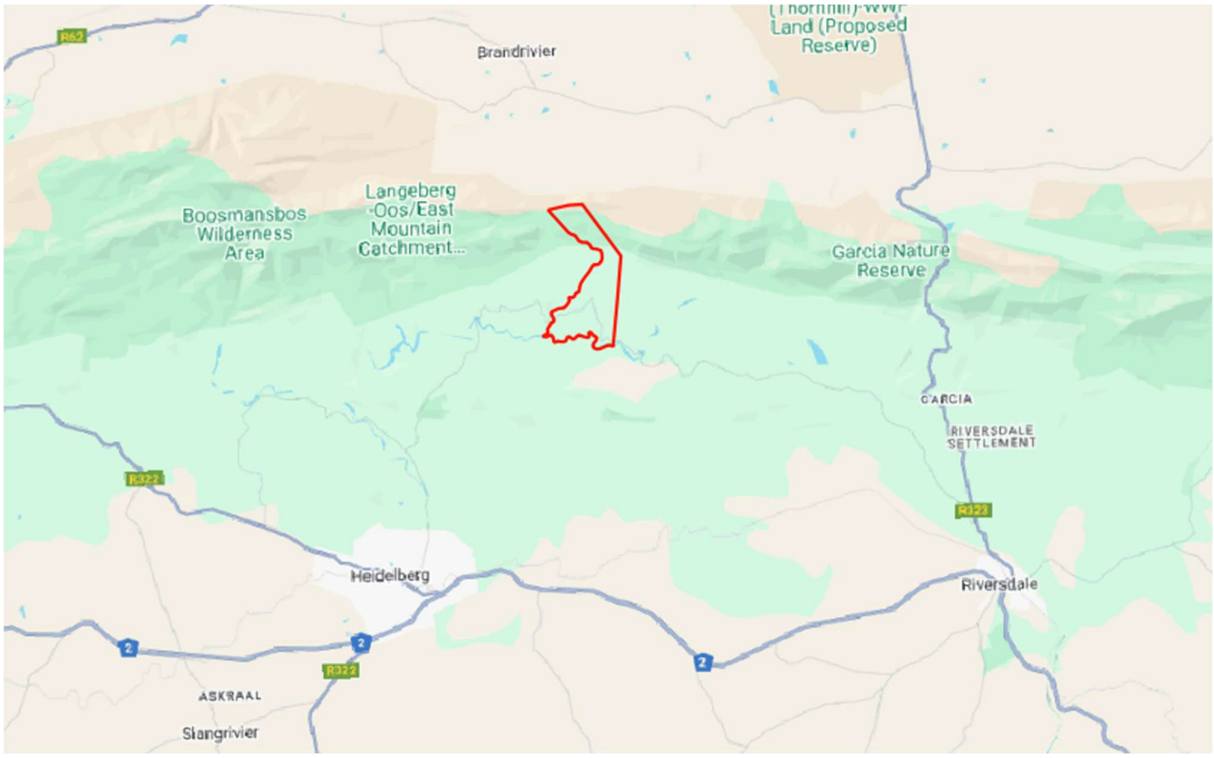

Figure 1. *Locality map of Farm number 91, northwest of Riversdale.*

2 PROJECT DESCRIPTION

The activity that has triggered the S24G process is for vegetation clearing and subsequent orchard establishment to expand the existing avocado orchards on the farm in two areas, a northern one of approximately 2.8 hectares, and a southern one of approximately 4.6 hectares. This assessment also includes the establishment of a small dam of approximately 570 m^2.

3 TERMS OF REFERENCE

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

The terms of reference for an Agricultural Compliance Statement, as copied exactly from the protocol, are listed in the table below, and included, is the place in this report where each is addressed.

Number	Requirement	Where it is addressed
3.	Agricultural Compliance Statement	
3.1.	The compliance statement must be prepared by a soil scientist or agricultural specialist registered with the SACNASP.	Appendix 3
3.2.	The compliance statement must:	
3.2.1.	be applicable to the preferred site and proposed development footprint;	Figure 2
3.2.2.	confirm that the site is of "low" or "medium" sensitivity for agriculture; and	The site is verified very high but the impact is positive, so this is not applicable
3.2.3.	indicate whether or not the proposed development will have an unacceptable impact on the agricultural production capability of the site.	Section 9
3.3.	The compliance statement must contain, as a minimum, the following information:	
3.3.1.	contact details and relevant experience as well as the SACNASP registration number of the soil scientist or agricultural specialist preparing the assessment including a curriculum vitae;	Appendix 1
3.3.2.	a signed statement of independence;	Appendix 2
3.3.3.	a map showing the proposed development footprint (including	Figure 7

	supporting infrastructure) with a 50m buffered development envelope, overlaid on the agricultural sensitivity map generated by the screening tool;	
3.3.4.	confirmation from the specialist that all reasonable measures have been taken through micro-siting to avoid or minimise fragmentation and disturbance of agricultural activities;	Not applicable
3.3.5.	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 9
3.3.6.	any conditions to which the statement is subjected;	Section 9
3.3.7.	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 applicable
3.3.8.	where required, proposed impact management outcomes or any monitoring requirements for inclusion in the EMPr; and	None required
3.3.9.	a description of the assumptions made as well as any uncertainties or gaps in knowledge or data.	Section 5
3.4.	A signed copy of the compliance statement must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.	

4 METHODOLOGY OF STUDY

The assessment was based on an on-site investigation of the soils and agricultural conditions conducted on 27 February 2025. It was also informed by existing climate, soil, and agricultural potential data for the site (see references). The aim of the on-site assessment was to assess and determine the cropping potential across the site. Soils were assessed by an investigation of existing soil exposures, indications of the surface conditions, and topography. Soils were classified according to the South African soil classification system (Soil Classification Working Group, 2018).

An assessment of soils and long-term agricultural potential is in no way affected by the season in which the assessment is made, and therefore the date on which this assessment was done has no bearing on its results. The level of agricultural assessment is considered entirely adequate for an understanding of on-site agricultural production potential for the purposes of this assessment.

5 ASSUMPTIONS, UNCERTAINTIES OR GAPS IN KNOWLEDGE OR DATA

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

6 APPLICABLE LEGISLATION AND PERMIT REQUIREMENTS

This section identifies all applicable agricultural legislation and permit requirements over and above what is required in terms of NEMA. A consent in terms of the Conservation of Agricultural Resources Act (Act 43 of 1983 - CARA) is required for the cultivation of virgin land.

7 BASELINE DESCRIPTION OF THE AGRO-ECOSYSTEM

The purpose of this section is firstly to present the baseline information that controls the agricultural suitability of the site and then, most importantly, to assess that suitability. All the important parameters that control the agricultural production potential of the site are provided in **Table 1**. A map of the development site is given in **Figure 2** and photographs of site conditions are shown in **Figure 3** to **Figure 6**. It is not necessary to consider climate in an assessment of the cropping potential of the site because its suitability for crop production is indisputable given that the area has been and is currently used extensively for successful crop production. This section therefore focuses on the on-site soil suitability.

Table 1: *Parameters that control and/or describe the agricultural production potential of the site.*

	Parameter	Value
Climate	Köppen-Geiger climate description (Beck *et al*, 2018)	Arid, steppe, cold
	Mean Annual Rainfall (mm) (Schulze, 2009)	466
	Reference Crop Evaporation Annual Total (mm) (Schulze, 2009)	1429
	Climate capability classification (out of 9) (DAFF, 2017)	5 (moderate) to 6 (moderate-high)
Terrain	Terrain type	Hilly terrain
	Terrain morphological unit	Varied
	Slope gradients (%)	30
	Altitude (m)	372
	Terrain capability classification (out of 9) (DAFF, 2017)	3 (low) to 5 (moderate)
Soil	Geology (DAFF, 2002)	Shale of the Bokkeveld Group.
	Land type (DAFF, 2002)	Db123

	Parameter	Value
	Description of the soils	Soils on the site are predominantly reasonably drained residual soils of the Glenrosa and Swartland soil forms with approximately 15% clay in the root zone. Depth to the underlying saprolite (weathered shale) varies from 400 mm to 1000 mm. Sufficient rooting depth has been established through effective soil preparation.
	Soil suitability on 10-point Western Cape rating system	6.0
	Soil suitability	Soils are suitable for orchards, with the appropriate soil preparation, as has already been done.
Land use	Agricultural land use in the surrounding area	Orchards, pastures and small grains.
	Agricultural land use on the site	Newly established orchards.
General	Long-term grazing capacity (ha/LSU) (DAFF, 2018)	50
	Land capability classification (out of 15) (DAFF, 2017)	2 (very low) to 7 (low-moderate)
	Within Protected Agricultural Area (DALRRD, 2020)	Yes. Heidelberg-Slangrivier PAA, category B, RF

The site is of high enough agricultural potential and suitable for orchard establishment. Slopes are steep in places but similar to other established orchards. Soils are also similar to the other established orchards. Irrigation water is available for all the new orchard establishment on the farm.

The dam has been established at the bottom of the slope in a position where natural drainage is limited and water will accumulate.

Figure 2. *Satellite image map of proposed development.*

Figure 3. *Typical site conditions showing the prepared, shale derived soils.*

Figure 4. *Typical site conditions showing the prepared, shale derived soils.*

Figure 5. *Typical site conditions during soil preparation.*

Figure 6. *The small dam that forms part of this assessment.*

8 SITE SENSITIVITY VERIFICATION

It should be noted that the screening tool agricultural sensitivity of the site, which focuses on the value of agricultural land with respect to its potential loss, and the associated site sensitivity verification, is not relevant in the case of agricultural establishment where there is a gain in agricultural land rather than a loss thereof. The site sensitivity verification is nevertheless included here for completeness.

The agricultural sensitivity of the site, as classified by the screening tool, is shown in **Figure 7**. The screening tool classifies the assessed site as being entirely very high agricultural sensitivity because of its PAA status. As has been shown in Section 7, the site is suitable and utilised for irrigated crop production and is therefore verified as very high sensitivity.

Figure 7. *The three assessed areas overlaid on agricultural sensitivity, as classified by the screening tool (green = low; yellow = medium; red = high; dark red = very high).*

9 CONCLUSIONS

The overall conclusion of this assessment is that the establishment of new orchards and a small dam enhances future agricultural production potential and therefore has a positive agricultural impact. The soils across the site are suitably similar for orchard establishment to the other established orchards on the farm. They are predominantly reasonably drained residual soils of the Glenrosa and Swartland soil forms with approximately 15% clay in the root zone. Depth to the underlying saprolite (weathered shale) varies from 400 mm to 1000 mm. Sufficient rooting depth has been established through effective soil preparation. The soils are suitable for irrigated crop production. Although the steep slopes make the land susceptible to erosion, it will be completely controlled through standard farming practices that are used on the adjacent, established orchards. This assessment confirms that the site is suitable and viable for irrigated orchards, and that the soil resources on the site will not be damaged by this activity.

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 development and the recommendation for its approval is not subject to any conditions.

10 REFERENCES

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

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

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

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

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

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

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

Soil Classification Working Group. 2018. Soil Classification: A Natural and Anthropogenic System for South Africa. ARC-Institute for Soil, Climate and Water, 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 23 years of running my soil and agricultural consulting business, I have completed more than 1000 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; SRK; Environamics; Royal Haskoning DHV; ABO; Enertrag; WKN-Windcurrent; JG Afrika; Mainstream; Redcap; G7; Mulilo; and Tiptrans. Agricultural clients for soil resource evaluations and mapping include Cederberg Wines; Western Cape Department of Agriculture; Vogelfontein Citrus; De Grendel Estate; Zewenwacht Wine Estate; and Goedgedacht Olives.In 2018 I completed a ground-breaking case study that measured the agricultural impact of existing wind farms in the Eastern Cape.

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

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

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

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

Publications

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

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

forestry, fisheries
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Department:
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REPUBLIC OF SOUTH AFRICA

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APPENDIX 2: SPECIALIST DECLARATION FORM AUGUST 2023

Specialist Declaration form for assessments undertaken for application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended (the Regulations)

REPORT TITLE: SOIL SOIL SUITABILITY ASSESSMENT AND AGRICULTURAL COMPLIANCE STATEMENT FOR THE ESTABLSIHMENT OF NEW ORCHARDS AND A DAM ON FARM NUMBER 91 NEAR RIVERSDALE

Kindly note the following:

1. This form must always be used for assessment that are in support of applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting, where this Department is the Competent Authority.
2. This form is current as of August 2023. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at https://www.dffe.gov.za/documents/forms.
3. An electronic copy of the signed declaration form must be appended to all Draft and Final Reports submitted to the department for consideration.
4. The specialist must be aware of and comply with '*the Procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the act, when applying for environmental authorisation - GN 320/2020)'*, where applicable.

1. SPECIALIST INFORMATION

Title of Specialist Assessment	Agricultural Assessment
Specialist Company Name	SoilZA – sole proprietor
Specialist Name	Johann Lanz
Specialist Identity Number	6607045174089
Specialist Qualifications:	M.Sc. (Environmental Geochemistry)
Professional affiliation/registration:	Registered Professional Natural Scientist (Pr.Sci.Nat.) Reg. no. 400268/12 Member of the Soil Science Society of South Africa
Physical address:	1a Wolfe Street, Wynberg, Cape Town, 7800
Postal address:	1a Wolfe Street, Wynberg, Cape Town, 7800
Telephone	Not applicable
Cell phone	+27 82 927 9018
E-mail	johann@soilza.co.za

2. DECLARATION BY THE SPECIALIST

I, **Johann Lanz** declare that –

- I act as the independent specialist in this application;
- I am aware of the procedures and requirements for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the National Environmental Management Act (NEMA), 1998, as amended, when applying for environmental authorisation which were promulgated in Government Notice No. 320 of 20 March 2020 (i.e. “the Protocols”) and in Government Notice No. 1150 of 30 October 2020.
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing –
  - any decision to be taken with respect to the application by the competent authority; and;
  - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 48 and is punishable in terms of section 24F of the NEMA Act.

Signature of the Specialist

SoilZA (sole proprietor)

Name of Company:

22 May 2025

Date

3. UNDERTAKING UNDER OATH/ AFFIRMATION

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

Signature of the Specialist

SoilZA – sole proprietor

Name of Company

22 May 2025

Date

7175165-3

O CAROLUS

Signature of the Commissioner of Oaths

2025. 05. 22

Date

SUID-AFRIKAANSE POLISIEDIENS
GEMEENSKAPSDIENSSENTRUM
22 MAY 2025
COMMUNITY SERVICE CENTRE
MELKBOSSTRAND
SOUTH AFRICAN POLICE SERVICE

APPENDIX 3: SACNASP REGISTRATION CERTIFICATE

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,
(Act 27 of 2003)
in the following field(s) of practice (Schedule 1 of the Act)

Soil Science (Professional Natural Scientist)

Effective **15 August 2012** Expires **31 March**