

**Agricultural specialist input for a
Part 1 Environmental Authorisation amendment
to extend the validity of the Environmental Authorisation
for the
proposed 75MW Mierdam Photovoltaic (PV) Solar Energy Facility (SEF)
located near Prieska in the Northern Cape**

1 Project description

South Africa Mainstream Renewable Power Mierdam (Pty) Ltd (hereafter referred to as "Mainstream") was issued with an Environmental Authorisation (EA) for the proposed 75MW Mierdam Photovoltaic (PV) Solar Energy Facility (SEF), located near Prieska in the Siyathemba Local Municipality, Pixley ka Seme District Municipality in the Northern Cape Province of South Africa on September 2012 (DFFE Reference No.: 12/12/20/2320/2/1).

Subsequent to the issuing of the original EA in September 2012, the following amendments have been undertaken and granted for the authorised SEF:

- The EA was amended on 19 June 2015 to extend the validity of the EA as well as to amend the contact details of the holder of the EA (DFFE Reference No.: 12/12/20/2320/2/AM1).
- The EA was amended on 22 September 2017 to extend the validity period of the EA (DFFE Reference No.: 12/12/20/2320/2/AM2).
- The EA was amended on 26 of August 2020 to extend the validity period of the EA (DFFE Reference No.: 12/12/20/2320/2/AM3).
- The EA was amended on 21 May 2021 to split the EA into two portions, the IPP portion (DFFE Reference No.: 12/12/20/2320/2/1).
- The EA was amended on 21 May 2021 to split the EA into two portions, the Eskom portion (DFFE Reference No.: 12/12/20/2320/2/2).

The Mierdam Photovoltaic (PV) Solar Energy Facility is to be constructed within the project site which comprises the following farm portion:

- Portion 1 of Kaffirs Kolk No. 118

The following infrastructure have been authorised by the DFFE:

- A solar PV facility with a capacity to generate 75MW
- The panel arrays of approximately 15m x 4m in the area
- Office and maintenance buildings
- Internal access roads
- Cables/strings to connect PV arrays to DC to AC inverters
- On site substation (IPP Portion of the shared on-site substation)

2 Proposed amendment

The developer is now making a Part 1 amendment application to extend the validity of the Environmental Authorisation for three years.

3 Terms of reference

The terms of reference for this specialist input are to provide:

- A detailed motivation as to why the Department should extend the commencement period of the authorised development, including the advantages and disadvantages associated with the approval or refusal to the request for extension.
- The status (baseline) of the environment (social and biophysical) that was assessed during the initial assessment (by the relative specialist, if applicable);
- The current status of the assessed environment (social and biophysical) (by the relative specialist, if applicable).
- A review of all specialist studies undertaken, and a detailed assessment, including a site verification report providing an indication of the status of the receiving environment (by the relative specialist, if applicable);
- The terms of reference for the specialist reports and declaration of interest of each specialist must be provided.
- The report mentioned above, must indicate if the impact rating as provided in the initial assessment remains valid; if the mitigation measures provided in the initial assessment are still applicable; or if there are any new mitigation measures which need to be included into the EA, should the request to extend the commencement period be granted by the Department.
- An indication if there are any new assessments/guidelines which are now relevant to the authorised development which were not undertaken as part of the initial assessment, must be taken into consideration and addressed in the report.
- A description and an assessment of any changes to the environment (social and biophysical) that has occurred since the initial EA was issued;

- A description and an assessment of the surrounding environment, in relation to new developments or changes in land use which might impact on the authorised project, the assessment must consider the following:
 - similar developments within a 30km radius.
 - Identified cumulative impacts must be clearly defined, and where possible the size of the identified impact must be quantified and indicated, i.e., hectares of cumulatively transformed land.
 - Detailed process flow and proof must be provided, to indicate how the specialist's recommendations, mitigation measures and conclusions from the various similar developments in the area were taken into consideration in the assessment of cumulative impacts and when the conclusion and mitigation measures were drafted for this project.
 - The cumulative impacts significance rating must also inform the need and desirability of the proposed development.
 - A cumulative impact environmental statement on whether the proposed development must proceed.

The rest of this letter provides the above information under separate headings.

4 Motivation

A motivation as to why the Department should extend the commencement period of the authorised development has nothing to do with agricultural impact and is therefore not addressed by this specialist, but addressed elsewhere in the application.

5 Agricultural baseline status as originally assessed

The study area was found to be of very limited land capability, predominantly due to aridity constraints but also due to soil constraints. The land capability is totally insufficient for crop production and agricultural land use is therefore limited to low density grazing. There is not a scarcity of such agricultural land in South Africa and its conservation for agricultural production is not therefore a priority.

6 Current agricultural baseline status

There has been no significant change to the baseline agricultural environment since the original assessment. The agricultural potential of the study area is still totally limited by climate and soil constraints.

7 Review and verification

The conclusions about the agricultural potential of the study area in the original assessment are completely valid and are verified in this assessment as still being true. The impact rating as provided in the initial assessment remains valid. The mitigation measures provided in the initial assessment are still applicable. There are no new mitigation measures which need to be included into the EA.

8 new assessments/guidelines

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* has come into effect since the original assessment was done. However, the conclusions about the agricultural potential of the study area in the original assessment remain completely valid and no additional information in terms of the protocol is required in order to arrive at the same conclusion.

9 Cumulative impact

All renewable energy developments within 30 km of the development being assessed are taken into account in order to assess the cumulative impact. These are listed in Table 1 below.

All of these projects have the same agricultural impacts in an almost identical agricultural environment, and therefore the same mitigation measures apply to all.

In quantifying the cumulative impact, the area of land taken out of grazing as a result of all the identified developments (total generation capacity of 2,906 MW) will amount to a total of approximately 6,359 hectares. This is calculated using the industry standards of 2.5 and 0.3 hectares per megawatt for solar and wind energy generation respectively, as per the Department of Environmental Affairs (DEA) Phase 1 Wind and Solar Strategic Environmental Assessment (SEA) (2015). As a proportion of the total area within a 30km radius (approximately 282,700 ha), this amounts to 2.25% of the surface area. That is within an acceptable limit in terms of loss of low potential agricultural land which is only suitable for grazing, and of which there is no scarcity in the country.

Table 1. Projects taken into account for cumulative impact.

Name	DFFE registration	Status		Capacity (MW)
Proposed construction of a photovoltaic power generation facility, Prieska, Northern Cape Province	12/12/20/1722	Approved	Solar	20
8 Infinite energy (PTY) LTR 140mw wind energy facility near Copperton, Northern Cape Province	12/12/20/2099	Approved	Wind	140
Construction of a Solar Photovoltaic Facility near Prieska, within the Siyathemba Local Municipality in the Northern Cape Province	12/12/20/2320/1	Approved	Solar	40
Construction of a 40MW Solar Photovoltaic Facility on Mierdam Farm near Prieska, within the Siyathemba Local Municipality in the Northern Cape Province	12/12/20/2320/2	Approved	Solar	40
Proposed establishment of a PV Solar facility (Plamtsjambok) in Prieska, Siyathemba Local Municipality, Northern Cape Province	12/12/20/2320/3	In process	Solar	100
Construction of a 75MW Solar Photovoltaic Facility on the western portion of the Platsjambok Farm (Platsjambok West) near Prieska, within the Siyathemba Local Municipality in the Northern Cape Province	12/12/20/2320/5	Approved	Solar	75
100MW Photovoltaic (PV) Facility on portion 4 of the farm No 117, farm Klipgats Pan, Copperton, Northern Cape Province	12/12/20/2501	Approved	Solar	75
Proposed PV energy plant on farm Struisbult near Copperton, Northern Cape Province	12/12/20/2502	Approved	Solar	100
Mulilo Sonnedix Prieska PV	12/12/20/2503	Approved	Solar	75
The proposed Mulilo photovoltaic solar energy plant Copperton Mine in the Northern Cape Province	14/12/16/3/3/1/45 4	Approved	Solar	20

Name	DFFE registration	Status		Capacity (MW)
The Proposed Garob Wind Farm To Kronos Substation, 132kv Power Line, Near Copperton, Within The Siyathemba Local Municipality, Of The Pixley Ka Seme District Municipality In The Northern Cape Province	14/12/16/3/3/1/76 9	Approved	Wind	132
Proposed Garob Wind Energy fascility project near Copperton in the Northern Cape Province	14/12/16/3/3/2/27 9	Approved	Wind	140
Proposed PV2 energy plants o Farm Klipgats Pan near Copperton, Northern Cape Province	14/12/16/3/3/2/48 6	In process	Solar	75
Proposed PV3 energy plants o Farm Klipgats Pan near Copperton, Northern Cape Province	14/12/16/3/3/2/48 7	In process	Solar	75
Proposed PV4 energy plants o Farm Klipgats Pan near Copperton, Northern Cape Province	14/12/16/3/3/2/48 8	In process	Solar	75
Proposed PV5 energy plants o Farm Klipgats Pan near Copperton, Northern Cape Province	14/12/16/3/3/2/48 9	In process	Solar	75
Proposed PV6 energy plants o Farm Klipgats Pan near Copperton, Northern Cape Province	14/12/16/3/3/2/49 0	In process	Solar	75
Proposed PV2 Photovoltaic (Solar) energy facility on farm Klipgats Pan near Cooperton, Northern Cape Province	14/12/16/3/3/2/49 1	Approved	Solar	75
Proposed PV2 energy plants on farm Hoekplaas near Copperton, Northern Cape Province	14/12/16/3/3/2/49 3	In process	Solar	75
Proposed PV3 energy plants o Farm Hoekplaas near Copperton, Northern Cape Province	14/12/16/3/3/2/49 4	In process	Solar	75
Proposed PV4 energy plants o Farm Hoekplaas near Copperton, Northern Cape Province	14/12/16/3/3/2/49 5	In process	Solar	75
Proposed PV5 energy plants o Farm Hoekplaas near Copperton, Northern Cape Province	14/12/16/3/3/2/49 6	In process	Solar	75

Name	DFFE registration	Status		Capacity (MW)
Proposed PV6 energy plants o Farm Hoekplaas near Copperton, Northern Cape Province	14/12/16/3/3/2/49 7	In process	Solar	75
Proposed PV7 energy plants o Farm Hoekplaas near Copperton, Northern Cape Province	14/12/16/3/3/2/49 8	In process	Solar	75
Proposed PV8 energy plants on Farm Hoekplaas near Copperton, Northern Cape Province	14/12/16/3/3/2/49 9	In process	Solar	75
Proposed PV9 energy plants o Farm Hoekplaas near Copperton, Northern Cape Province	14/12/16/3/3/2/50 0	In process	Solar	75
Proposed PV10 energy plants o Farm Hoekplaas near Copperton, Northern Cape Province	14/12/16/3/3/2/50 1	In process	Solar	75
Proposed PV11 PV solar energy plant on farm Hoekplaas, near Copperton, Northern Cape Province	14/12/16/3/3/2/50 2	In process	Solar	75
Proposed Badudex solar project withing Pixley Ka Seme District municipality, Northern Cape Province	14/12/16/3/3/2/54 6	In process	Solar	74
Proposed Moiblox soar project within Pixley Ka Seme District Municipality, Northern Cape Province	14/12/16/3/3/2/54 7	In process	Solar	75
Proposed Bosjesmansberg solar energy facility site near Copperton, Siyathemba Local Municipality, Northern Cape Province	14/12/16/3/3/2/57 9/3	Approved	Solar	75
Proposed renewable energy farm on portion 5 of farm Doonies Pan No. 106, Prieska within Siyathemba Local Municipality, Northern Cape Province	14/12/16/3/3/2/60 9	In process	Solar	?
Humansrus Solar PV Energy Facility (Pty) Ltd	14/12/16/3/3/2/70 7	In process	Solar	75
Proposed RE Capital 14 (Pty) Ltd development within! Kai Garib LM	14/12/16/3/3/2/70 8	In process	Solar	75
Proposed Helena Solar 3: 75mW Solar pV Energy Facility near Copperton within Siyathemba Local Municipality in Northern Cape Province	14/12/16/3/3/2/76 5	Approved	Solar	75

Name	DFFE registration	Status		Capacity (MW)
Proposed Helena Solar 2: 75 mW Solar pV Energy Facility near Copperton, Northern Cape Province	14/12/16/3/3/2/76 6	Approved	Solar	75
Proposed Helena Solar 3: 75mW Solar pV Energy Facility near Copperton within Siyathemba Local Municipality in Northern Cape Province	14/12/16/3/3/2/76 7	Approved	Solar	75
75MW Hermanus PV4 solar energy facility and its associated infrastructure on the farm Hermansrus No 147 in the Northern Cape Province	14/12/16/3/3/2/88 7	In process	Solar	75
75MW Hermanus PV3 solar energy facility and its associated infrastructure on the farm Hermansrus No 147 in the Northern Cape Province	14/12/16/3/3/2/88 8	In process	Solar	75
Total			Wind	412
Total			Solar PV	2494
Grand Total				2906

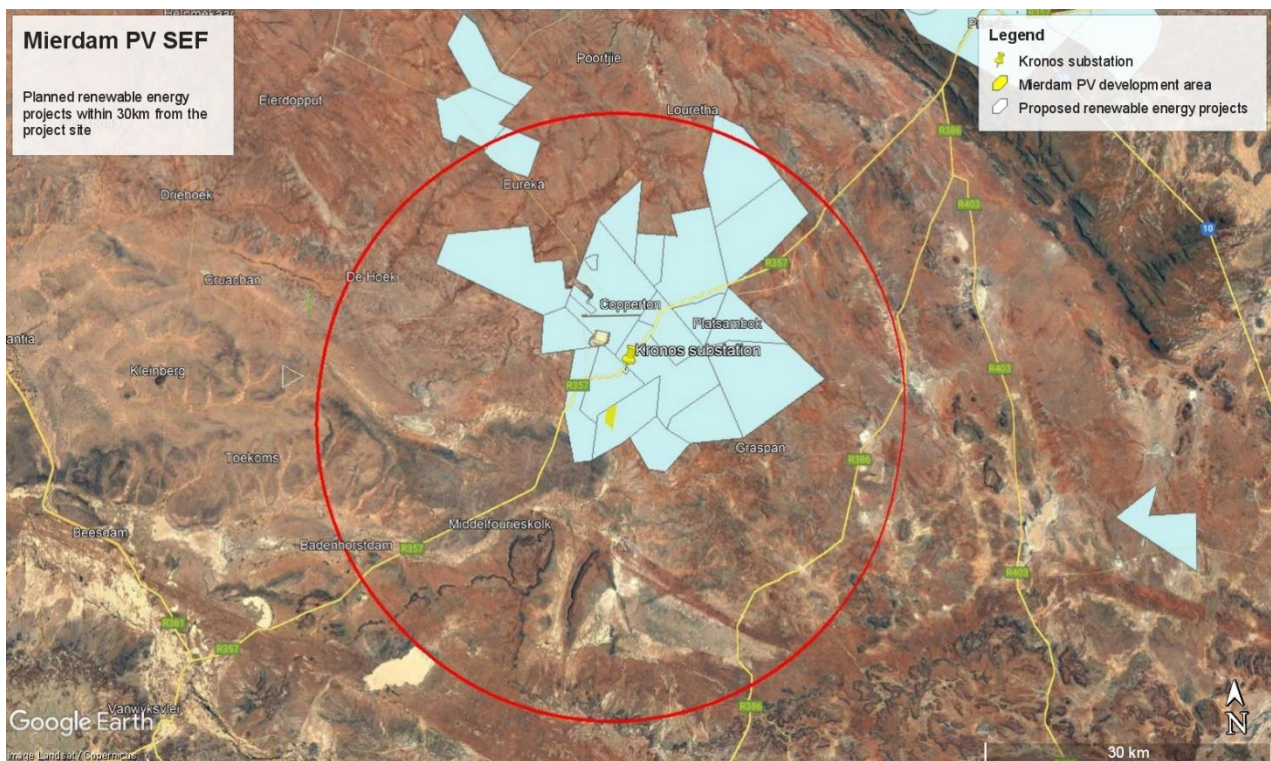


Figure 1. Map showing all renewable energy applications taken into account for cumulative impact.

Due to all of the considerations discussed above, the cumulative impact of loss of future agricultural production potential will not have an unacceptable negative impact on the agricultural production capability of the area. The proposed development is therefore acceptable in terms of cumulative impact, and it is therefore recommended that it be approved.

A handwritten signature in black ink, appearing to read 'J. Lanz', with a long horizontal stroke extending to the left.

Johann Lanz (Pr. Sci. Nat.)

17 October 2022

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*.



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

Appendix 2: Details of the specialist, declaration of interest and undertaking under oath

File Reference Number:
NEAS Reference Number:
Date Received:

(For official use only)

DEA/EIA/

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

Proposed 75MW Mierdam Photovoltaic (PV) Solar Energy Facility (SEF) located near Prieska in the Northern Cape

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

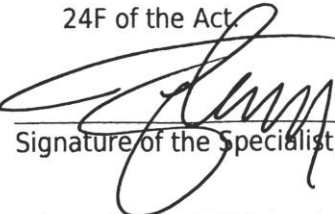
SPECIALIST INFORMATION

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

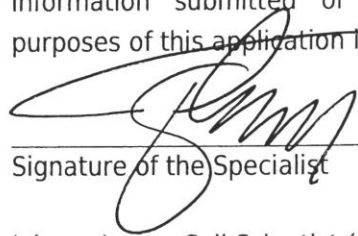
Johann Lanz - Soil Scientist (sole proprietor)

Name of Company:

5 September 2022
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

5 September 2022
Date


Signature of the Commissioner of Oaths

Signature of the Commissioner of Oaths

2022-09-05
Date

