

# VIRGO SOLAR POWER PLANT



**SITE ASSESSMENT FOR THE DEVELOPMENT OF VIRGO SOLAR POWER PLANT ON PORTION 2 OF THE FARM BISHOPS WOOD NO. 476, REGISTRATION DIVISION KURUMAN, NORTHERN PROVINCE**

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## **1. Executive Summary**

Portion 2 of the Farm Bishops Wood No.476 is located approximately 14km West of the town Kathu and is owned by Dawid Hermanus Fourie & Hester Magrieta Fourie, and the farm is approximately 600 hectares (ha) within the Northern Cape Province, Registration Division Kuruman, South Africa (Figure 1). The study area falls within the Gamagara Local Municipality.

The site will be accessed through the N14 (South of the farm) and R380 (North of the farm). For connection to the grid there is one option. This option is that the facility will tie in with the existing Emil 132kV Substation.

The site has low agricultural potential as well as low to moderate potential grazing capacity, however, there is a perennial river east of the site as well as mining activity nearby.

## 2. Portion 2 of the farm Bishops Wood No:476

Portion 2 of the farm Bishops Wood No:476 is located within the Northern Cape Province, Registration Division Kuruman, South Africa and falls within the Gamagara Local Municipality.

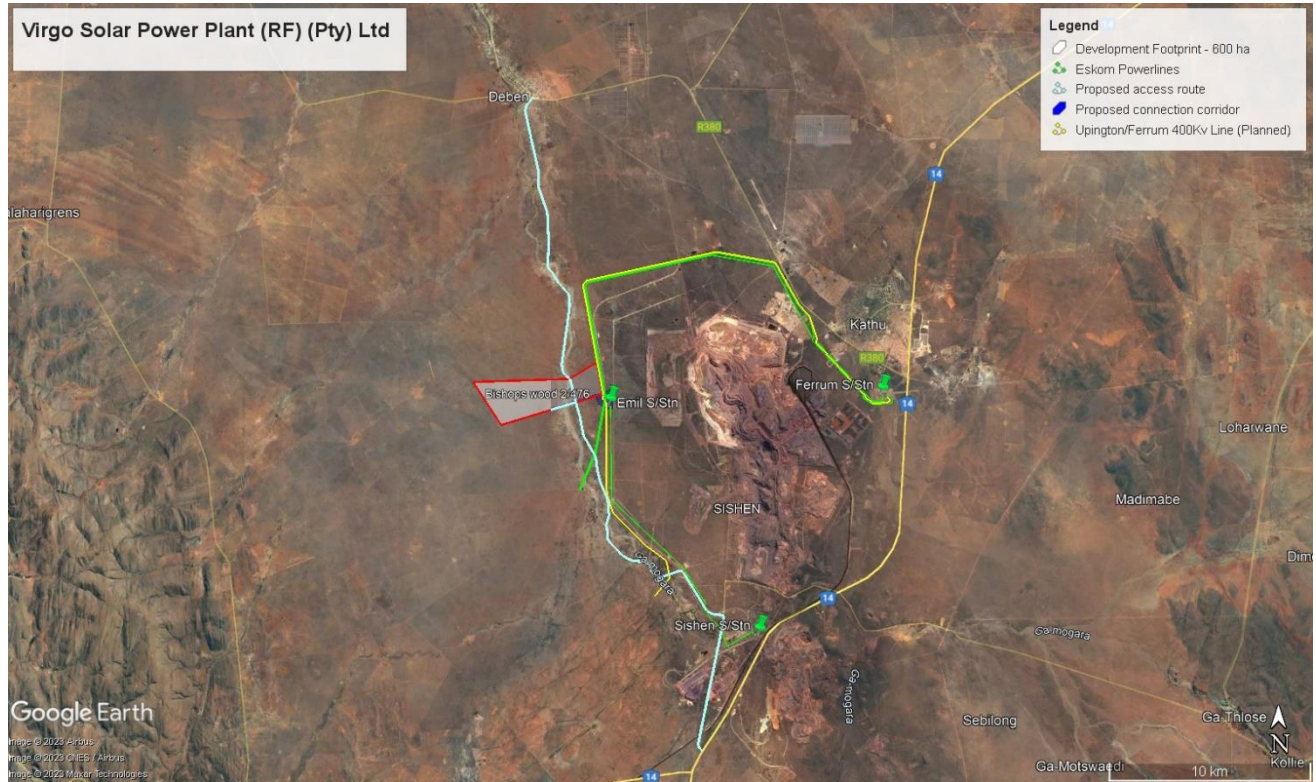


Figure 1: Land portion of farm (Google Earth)

### 3. Power lines and substations: EMIL/132KV SUBSTATION

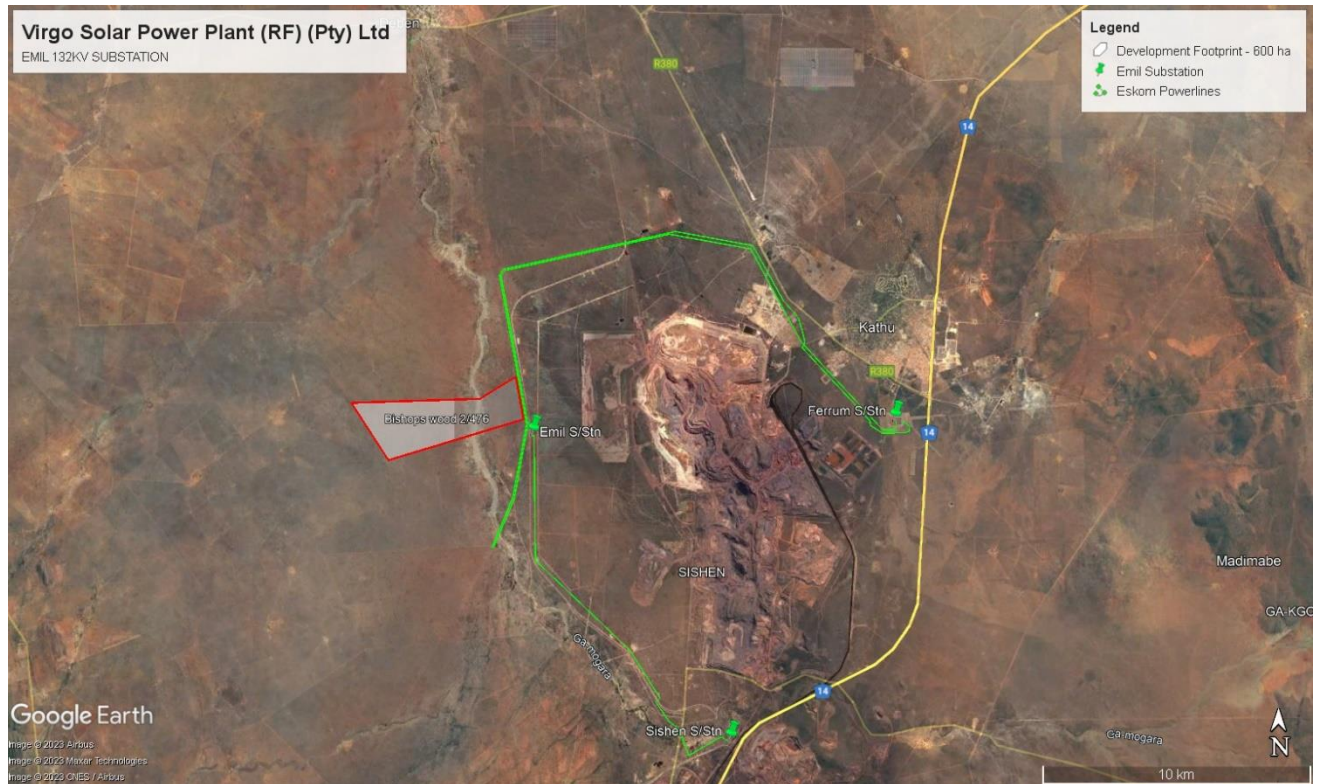


Figure 2: Virgo Solar Power Plant\_ Powerlines and substations (Google Earth)

#### 3.1. Substations near site

DESCRIPTION: EMIL SUBSTATION 132KV

#### 3.2. Power Lines near site

DESCRIPTION: FERRUM/NIUWEHOOP 1 400KV OVERHEAD LINE AND FERRUM/LEWENSAAR 1 275KV OVERHEAD LINE

### 4. Farm portions



Figure 3: Virgo Solar Power Plant\_ Farm portions (Google Earth)

## 5. Environmental impact assessments done in the area

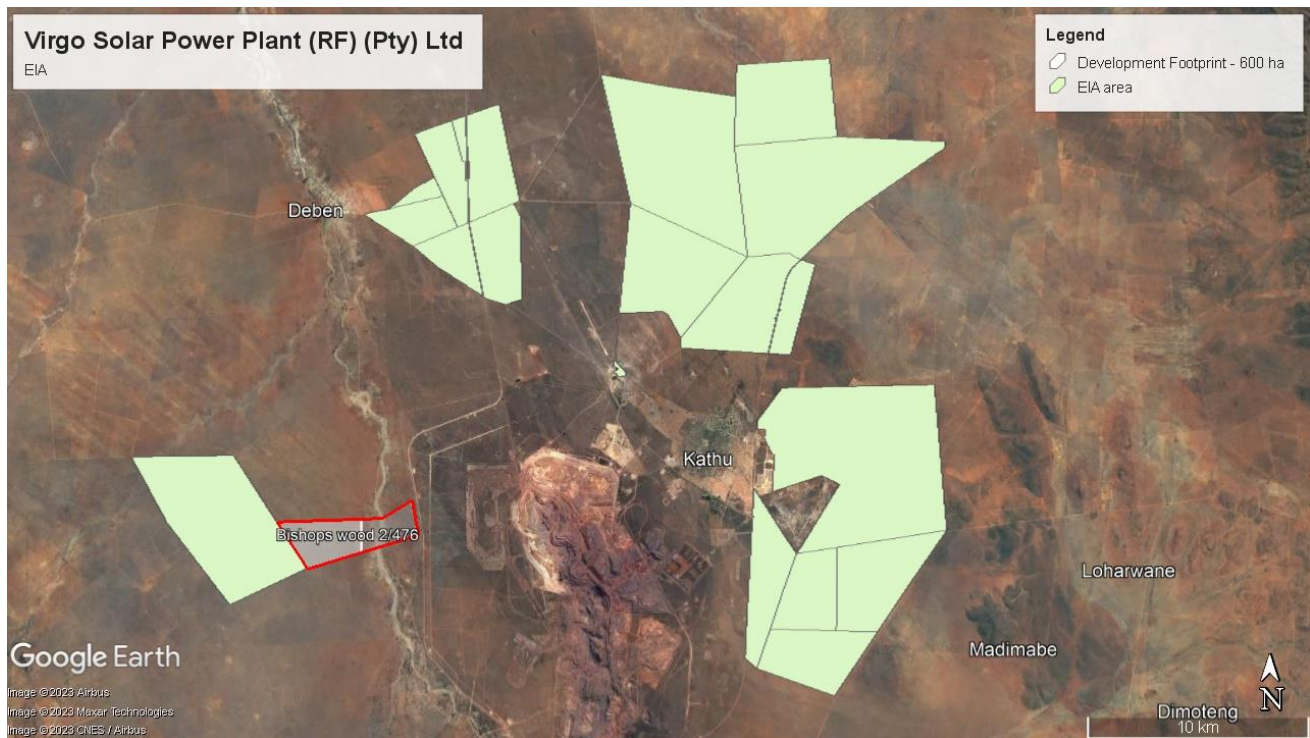


Figure 4: Virgo Solar Power Plant\_ EIA's conducted in the area (Google Earth)

A few EIA's have been conducted in this area.

**14/12/16/3/3/2/274**

14/12/16/3/3/2/274	
FID	1120
DEA_REF	14/12/16/3/3/2/274
NEAS_REF	DEA/EIA/0000989/2012
REGULATION	2010
EIA_PROCES	Scoping and EIA
PROJ_TITLE	Proposed establishment of the solar energy facility 1 on a site near Kathu in the Northern Cape
APP_RECEIV	2012/02/13
APPLICANT	To review
EAP	Savannah Environmental Consultants (Pty) Ltd
LOCAL_MUNI	Gamagara Local Municipality
DISTRICT_M	John Taolo Gaetsewe District Municipality
PROVINCE	Northern Cape
TECHNOLOGY	Solar PV
MEGAWATT	0
PRJ_STATUS	Withdrawn/Lapsed

**14/12/16/3/3/2/935/AM3**

14/12/16/3/3/2/935/AM3	
FID	1879
DEA_REF	14/12/16/3/3/2/935/AM3
NEAS_REF	To Review
REGULATION	2014
EIA_PROCES	Amendment
PROJ_TITLE	Proposed up to 105 Megawatt (MW) Boitshoko Solar Power Plant on the Remaining Extent of Portion 1 of The Farm Lime Bank no. 471 Near Kathu in the Gamagara Local Municipality
APP_RECEIV	2020/09/17
APPLICANT	Boitshoko Solar Power Plant (RF) (Pty) Ltd
EAP	Environamics CC
LOCAL_MUNI	Gamagara Local Municipality
DISTRICT_M	John Taolo Gaetsewe District Municipality
PROVINCE	Northern Cape
TECHNOLOGY	No Technology
MEGAWATT	0
PRJ_STATUS	Approved

**12/12/20/1858/2/AM2**

12/12/20/1858/2/AM2	
FID	1519
DEA_REF	12/12/20/1858/2/AM2
NEAS_REF	DEA/EIA/012338/2011
REGULATION	2014
EIA_PROCES	Amendment
PROJ_TITLE	Proposed 25MW Kathu2 Solar Energy Facility, Northern Cape Province
APP_RECEIV	2016/11/10
APPLICANT	Lokian Trading and Investments (Pty) Ltd
EAP	To review
LOCAL_MUNI	Gamagara Local Municipality
DISTRICT_M	John Taolo Gaetsewe District Municipality
PROVINCE	Northern Cape
TECHNOLOGY	No Technology
MEGAWATT	0
PRJ_STATUS	Approved

**14/12/16/3/3/2/273**

14/12/16/3/3/2/273	
FID	1118
DEA_REF	14/12/16/3/3/2/273
NEAS_REF	DEA/EIA/0000987/2012
REGULATION	2010
EIA_PROCES	Scoping and EIA
PROJ_TITLE	The Proposed San Solar Energy Facility And Associated Infrastructure On A Site Near Kathu, Gamagara Local Municipality, Northern Cape Province
APP_RECEIV	2012/02/01
APPLICANT	To review
EAP	Savannah Environmental Consultants (Pty) Ltd
LOCAL_MUNI	Gamagara Local Municipality
DISTRICT_M	John Taolo Gaetsewe District Municipality
PROVINCE	Northern Cape
TECHNOLOGY	Solar PV
MEGAWATT	75
PRJ_STATUS	Approved



**12/12/20/1977**

12/12/20/1977		14/12/16/3/3/2/273/AM1	
FID	464	FID	1119
DEA_REF	12/12/20/1977	DEA_REF	14/12/16/3/3/2/273/AM1
NEAS_REF	DEAT/EIA/12236/2011	NEAS_REF	DEA/EIA/AMEND/0000455/2016
REGULATION	2010	REGULATION	2014
EIA_PROCES	Scoping and EIA	EIA_PROCES	Amendment
PROJ_TITLE	Proposed establishment of the Sishen Solar Farm and associated infrastructure on site near Sishen	PROJ_TITLE	The Proposed San Solar Energy Facility And Associated Infrastructure On A Site Near Kathu, Gamagara Local Municipality, Northern Cape Province
APP_RECEIV	To review	APP_RECEIV	2016/04/11
APPLICANT	VentuSA Energy Pty Ltd	APPLICANT	San Solar Energy Facility (Pty) Ltd
EAP	Savannah Environmental Consultants (Pty) Ltd	EAP	Savannah Environmental Consultants (Pty) Ltd
LOCAL_MUNI	Gamagara Local Municipality	LOCAL_MUNI	Gamagara Local Municipality
DISTRICT_M	John Taolo Gaetsewe District Municipality	DISTRICT_M	John Taolo Gaetsewe District Municipality
PROVINCE	Northern Cape	PROVINCE	Northern Cape
TECHNOLOGY	Solar PV	TECHNOLOGY	No Technology
MEGAWATT	0	MEGAWATT	0
PRJ_STATUS	Withdrawn/Lapsed	PRJ_STATUS	Approved

**12/12/20/1994/AM4**

12/12/20/1994/AM4		14/12/16/3/3/2/1111	
FID	482	FID	1803
DEA_REF	12/12/20/1994/AM4	DEA_REF	14/12/16/3/3/2/1111
NEAS_REF	To Review	NEAS_REF	DEA/EIA/0001009/2018
REGULATION	2014	REGULATION	2014
EIA_PROCES	Amendment	EIA_PROCES	Scoping and EIA
PROJ_TITLE	The Proposed Construction Of Kalahari Solar Power Project On The Farm Kathu 465, Northern Cape Province	PROJ_TITLE	Proposed development of the PV Hyperion solar development 3 near Kathu, Northern Cape Province
APP_RECEIV	2015/11/20	APP_RECEIV	2018/10/26
APPLICANT	Kathu Solar Power Park (Pty) Ltd	APPLICANT	Nomispark (Pty) Ltd
EAP	WSP Environmental (Pty) Ltd	EAP	Savannah Environmental (Pty) Ltd
LOCAL_MUNI	Gamagara Local Municipality	LOCAL_MUNI	Gamagara Local Municipality
DISTRICT_M	John Taolo Gaetsewe District Municipality	DISTRICT_M	John Taolo Gaetsewe District Municipality
PROVINCE	Northern Cape	PROVINCE	Northern Cape
TECHNOLOGY	No Technology	TECHNOLOGY	Solar PV
MEGAWATT	0	MEGAWATT	75
PRJ_STATUS	Approved	PRJ_STATUS	Approved

**14/12/16/3/3/2/1112**

14/12/16/3/3/2/1112	
FID	1804
DEA_REF	14/12/16/3/3/2/1112
NEAS_REF	DEA/EIA/0001006/2018
REGULATION	2014
EIA_PROCES	Scoping and EIA
PROJ_TITLE	Proposed development of the PV Hyperion solar development 4 near Kathu, Northern Cape Province
APP_RECEIV	2018/10/26
APPLICANT	Nomispan (Pty) Ltd
EAP	Savannah Environmental (Pty) Ltd
LOCAL_MUNI	Gamagara Local Municipality
DISTRICT_M	John Taolo Gaetsewe District Municipality
PROVINCE	Northern Cape
TECHNOLOGY	Solar PV
MEGAWATT	75
PRJ_STATUS	Approved

**14/12/16/3/3/2/1109**

14/12/16/3/3/2/1109	
FID	1801
DEA_REF	14/12/16/3/3/2/1109
NEAS_REF	DEA/EIA/0001008/2018
REGULATION	2014
EIA_PROCES	Scoping and EIA
PROJ_TITLE	Proposed development of the PV Hyperion solar development 1 near Kathu, Northern Cape Province
APP_RECEIV	2018/10/26
APPLICANT	Cyraguard (Pty) Ltd
EAP	Savannah Environmental (Pty) Ltd
LOCAL_MUNI	Gamagara Local Municipality
DISTRICT_M	John Taolo Gaetsewe District Municipality
PROVINCE	Northern Cape
TECHNOLOGY	Solar PV
MEGAWATT	75
PRJ_STATUS	Approved

**12/12/20/1906**

12/12/20/1906	
FID	438
DEA_REF	12/12/20/1906
NEAS_REF	DEA/EIA/12306/2011
REGULATION	2010
EIA_PROCES	Scoping and EIA
PROJ_TITLE	Proposed construction of solar farm for Bestwood, Kgalagadi District Municipality, NC
APP_RECEIV	To review
APPLICANT	Katu Property Developers Pty Ltd
EAP	Rock Environmental Consulting (Pty) Ltd
LOCAL_MUNI	Gamagara Local Municipality
DISTRICT_M	John Taolo Gaetsewe District Municipality
PROVINCE	Northern Cape
TECHNOLOGY	Solar PV
MEGAWATT	0
PRJ_STATUS	Approved

**14/12/16/3/3/2/911**

14/12/16/3/3/2/911	
FID	1626
DEA_REF	14/12/16/3/3/2/911
NEAS_REF	DEA/EIA/000282/2016
REGULATION	2014
EIA_PROCES	Scoping and EIA
PROJ_TITLE	Proposed 75MW AEP Kathu Solar PV Energy Facility on the Remainder of the Farm 460 Legoko near Kathu within the Gamagara local Municipality in the Northern Cape Province
APP_RECEIV	2016/02/24
APPLICANT	AEP Kathu Solar (Pty) Ltd
EAP	Cape Eprac
LOCAL_MUNI	Gamagara Local Municipality
DISTRICT_M	John Taolo Gaetsewe District Municipality
PROVINCE	Northern Cape
TECHNOLOGY	Solar PV
MEGAWATT	75
PRJ_STATUS	Approved

**14/12/16/3/3/2/819/AM1**

14/12/16/3/3/2/819/AM1	
FID	1878
DEA_REF	14/12/16/3/3/2/819/AM1
NEAS_REF	To Review
REGULATION	2014
EIA_PROCES	Amendment
PROJ_TITLE	The up to 138 MW AEP Legoko Photovoltaic Solar Facility on Portion 2 of the Farm Legoko 460, Kuruman Rd within the Gamagara Local Municipality in the Northern Cape Province
APP_RECEIV	2021/01/22
APPLICANT	AEP Lekogo Solar (Pty) Ltd
EAP	To review
LOCAL_MUNI	Gamagara Local Municipality
DISTRICT_M	John Taolo Gaetsewe District Municipality
PROVINCE	Northern Cape
TECHNOLOGY	No Technology
MEGAWATT	0
PRJ_STATUS	Approved

**14/12/16/3/3/2/820/AM1**

14/12/16/3/3/2/820/AM1	
FID	1870
DEA_REF	14/12/16/3/3/2/820/AM1
NEAS_REF	To Review
REGULATION	2014
EIA_PROCES	Amendment
PROJ_TITLE	The up to 138MW AEP Mogobe Photovoltaic Solar Facility on portion 1 of the farm Legoko 460 and farm Sekgame 461, Kuruman Rd within the Gamagara Local Municipality in the Northern Cape Province
APP_RECEIV	2021/01/22
APPLICANT	AEP Mogobe Solar (Pty) Ltd
EAP	To review
LOCAL_MUNI	Gamagara Local Municipality
DISTRICT_M	John Taolo Gaetsewe District Municipality
PROVINCE	Northern Cape
TECHNOLOGY	No Technology
MEGAWATT	0
PRJ_STATUS	Approved

## 6. Natural resources

### 6.1 Geology

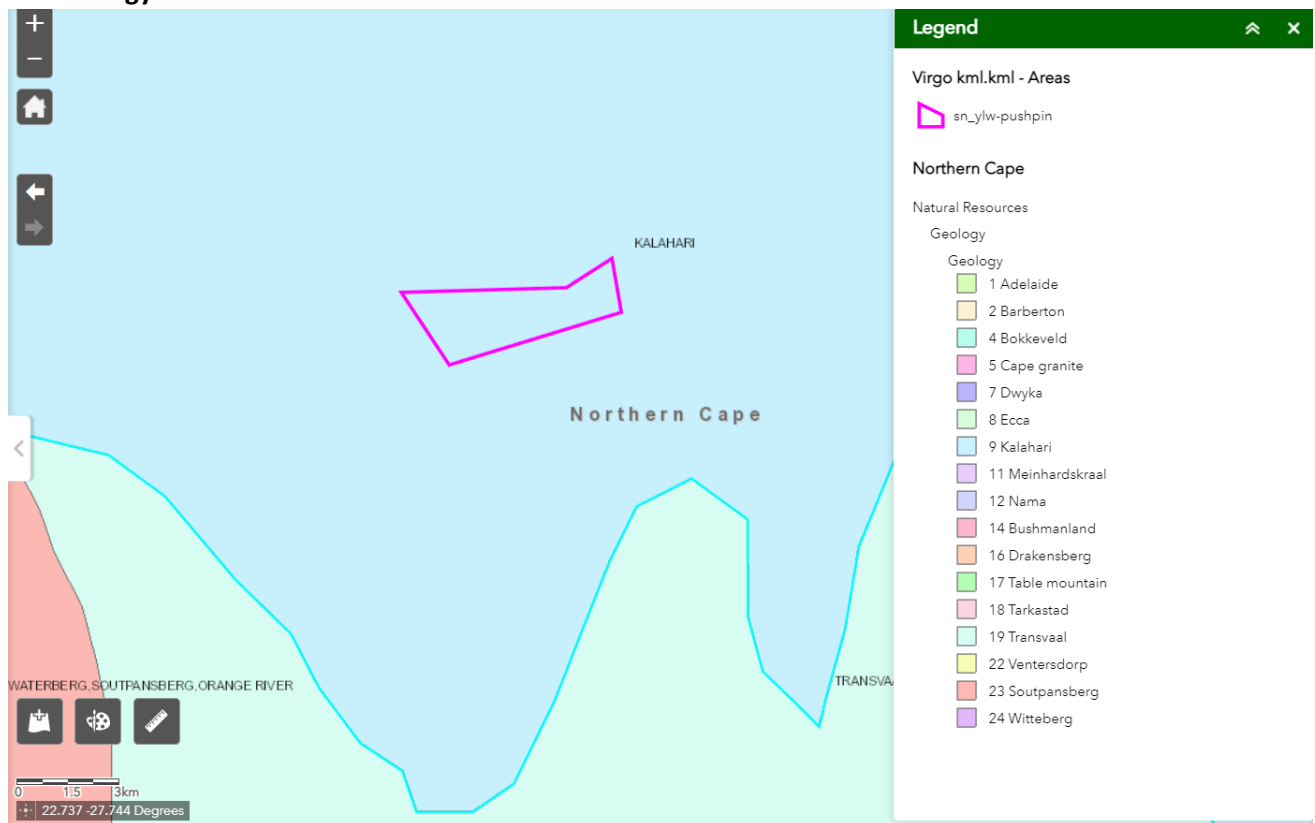


Figure 5: Virgo Solar Power Plant\_ Simplified Geology map

Source: [Natural Agricultural Resources Atlas of South Africa \(nda.agric.za\)](http://nda.agric.za)

6.2. Terrain

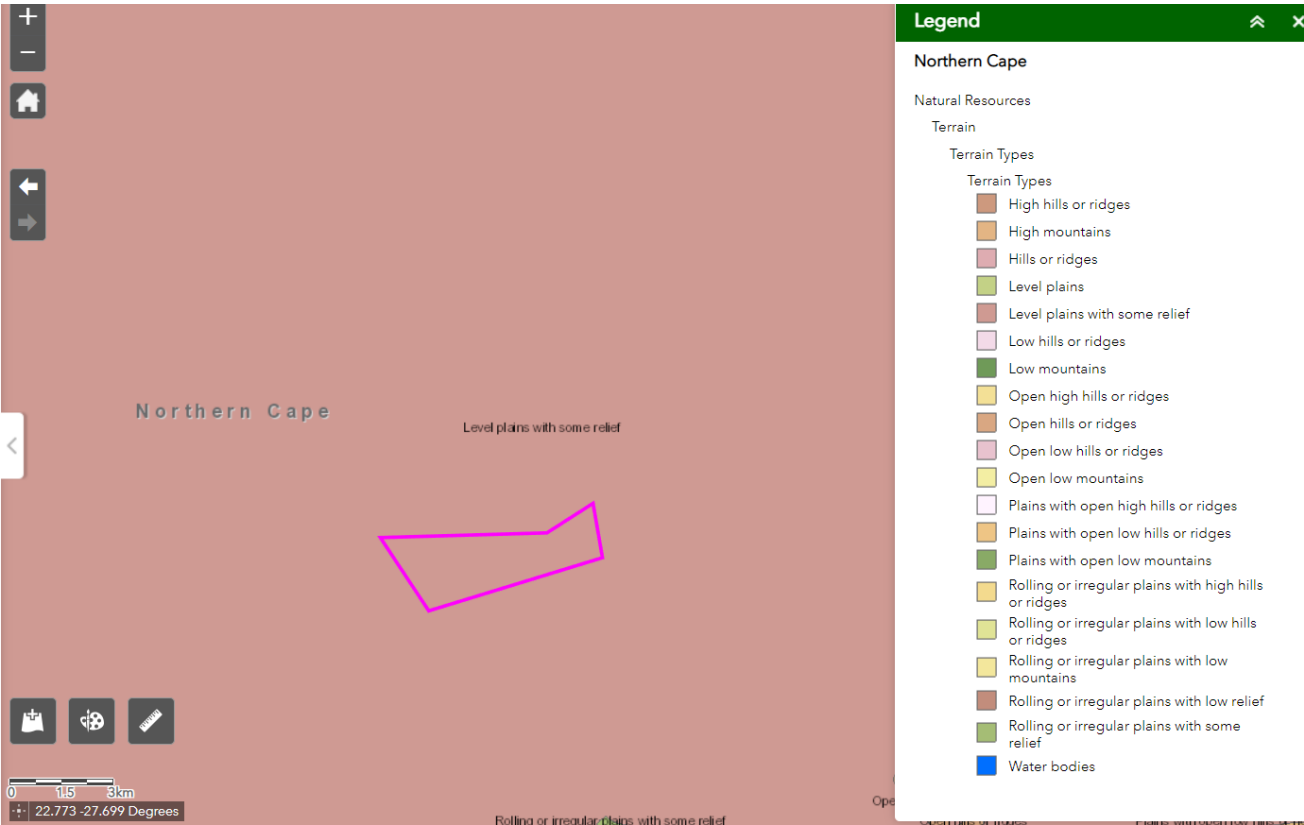


Figure 6: Virgo Solar Power Plant\_ Terrain Type  
 Source: [Natural Agricultural Resources Atlas of South Africa \(nda.agric.za\)](http://nda.agric.za)

### 6.3 Vegetation



Figure 7: Virgo Solar Power Plant\_ Vegetation Biome map  
Source: [Natural Agricultural Resources Atlas of South Africa \(nda.agric.za\)](http://nda.agric.za)

6.4 Water

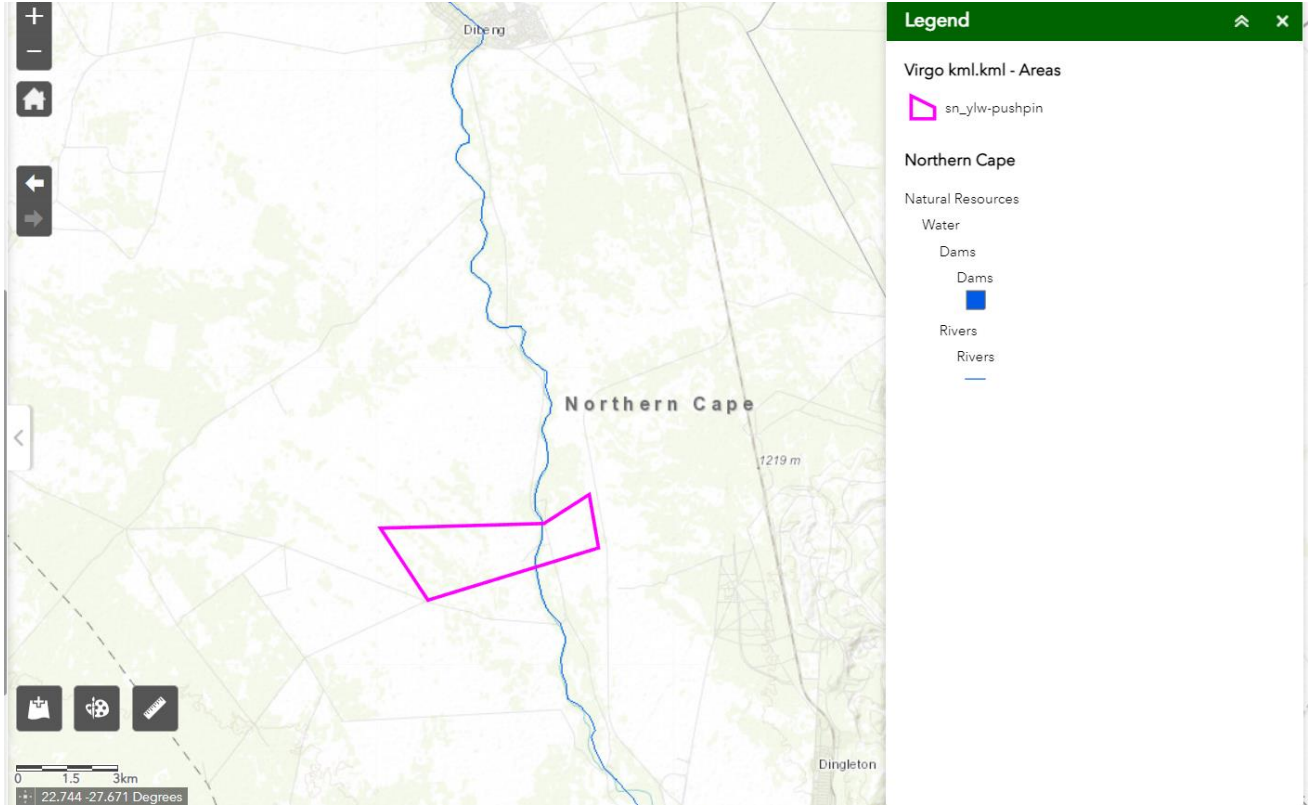


Figure 8: Virgo Solar Power Plant\_ Dams and rivers  
Source: [Natural Agricultural Resources Atlas of South Africa \(nda.agric.za\)](http://nda.agric.za)

## 7. Possible areas for development

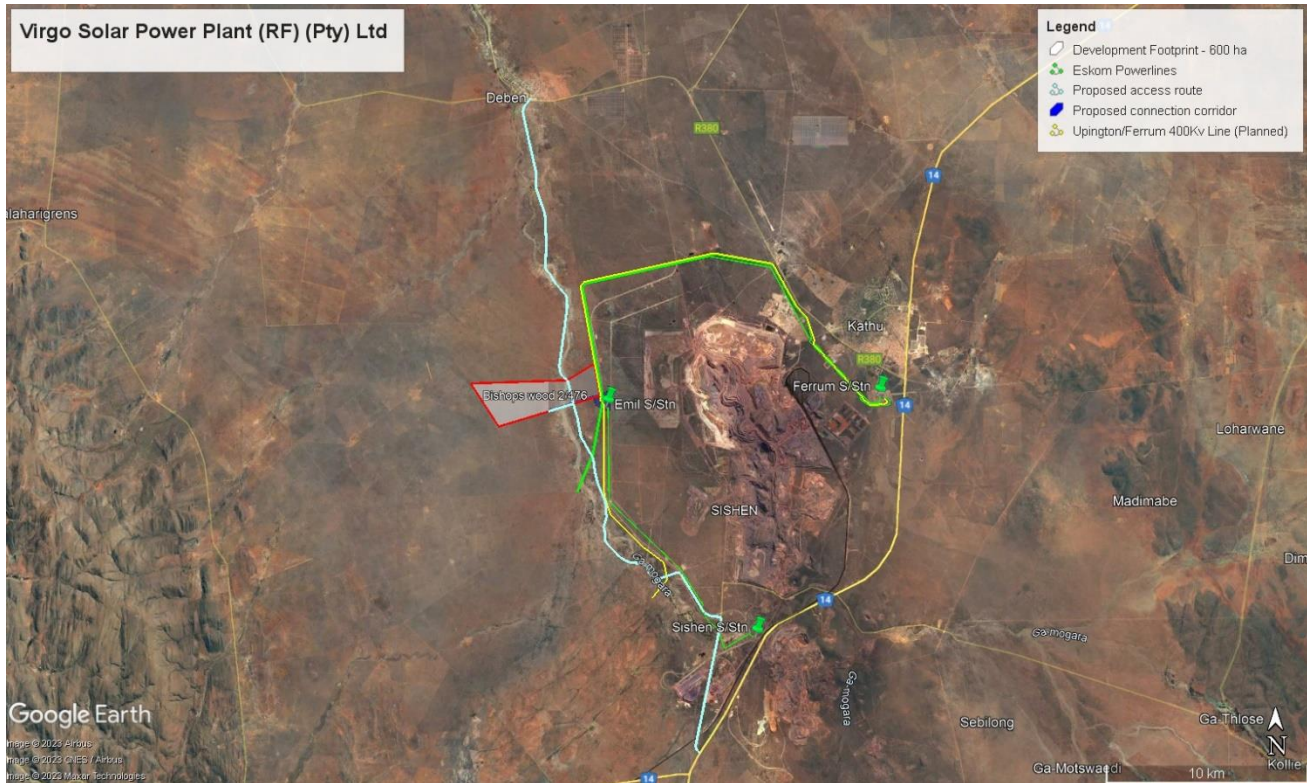


Figure 9: Proposed development area for a solar power plant (Google Earth)

One possible area was identified for a proposed solar plant. This footprint is 589ha in extent:

**Preferred development site (white portion):** This is the preferred option since there are no major issues to be avoided near the site and the terrain is flat. This area also has the shortest power line and access route options.

Keeping all the above information into consideration, the white portion would be the preferred option for the development of a solar plant. This area was identified due to the low impact on the environment and infrastructure of the land portion.



**Reference:**

[Natural Agricultural Resources Atlas of South Africa \(nda.agric.za\)](http://nda.agric.za)