ENVIRONMENTAL IMPACT ASSESSMENT

PROPOSED CONSTRUCTION AND IMPLEMENTATION OF DYASONS KLIP 5 PV DEVELOPMENT, NEAR UPINGTON, NORTHERN CAPE

Applicant: DYASONS KLIP PV 5(Pty) Ltd

BASIC ASSESSMENT REPORT
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1. INTRODUCTION

Dyasons Klip PV 5 (Pty) Ltd is applying for authorisation to construct a 100 Megawatt ac PV facility, to be known as Dyasons Klip 5. A feasibility study on the project site was done in 2014, at that time named Dyasons Klip SEF 2. The site is situated on the remainder of Farm Dyasonsklip 454, in the Northern Cape Province, Kai Garib Local Municipality and ±20 km west of Upington. The total size of the farm is 5725.28 ha and the development is calculated to cover 267 ha of this area.

The objectives of this study were to consider possible temporary and permanent impacts on agricultural production that may result from the proposed construction and operation of the PV Power Plant.

2. APPROACH AND METHODOLOGY

The approach of this study was to compile a natural resource database for the area. This included all necessary information to determine the agricultural potential and risks for farming on this land unit. The proposed development was then considered in terms of possible impacts on agricultural production of the unit and on the surrounding area.

The data used was extracted from the field study of 2014, together with the results of studies conducted on the same property and neighbouring sites, namely Dyasonsklip, McTaggarts Camp and Bloemsmond.

3. ASSUMPTIONS AND UNCERTAINTIES

Regional information was mainly obtained through a desktop study. Information on climatic conditions, land use, land type and terrain is readily available from literature, GIS information and satellite imagery. Recent ecological studies on this site were also examined.

The studies were done in winter.

4. DESCRIPTION OF THE PROPOSED PROJECT

The PV energy facility is to consist of solar photovoltaic (PV) technology, fixed-tilt single-axis tracking- or dual-axis tracking-mounting structures, with a net generating capacity of 100 MWac Associated infrastructure will include:

There are two substation alternatives (Alt 1 and Alt 2), both 100m x 100m:

- Solar photovoltaic (PV) with either of fixed-tilt-, single-axis tracking- or dual-axis tracking-mounting structures.
- PV structures/ modules: up to a maximum of 250ha
- Laydown area: ± 3 - 5ha (The permanent laydown will not exceed 1ha and will be contained within this footprint)
- Internal roads ± 6.5ha

- Auxiliary buildings: ± 1ha
- Facility substation: up to 1ha
- Battery storage area: up to ± 4ha

5. THE POTENTIALLY EFFECTED ENVIRONMENT

This section provides a general description of the immediate environment potentially effected by the construction, operation and closure of the proposed PV power plant.

5.1 Locality

The site is located on the remainder of Farm Dyasonsklip 454, situated in the ZF Mgcawu District of the Northern Cape Province, in the Kai Garib Local Municipality. Access to the site is approximately 20km West of Upington along the N14. The study area is 327 ha, with the development footprint approximately 267 ha. Figure 1 shows the location of the site. Figure 2 provides an image of the proposed layout of the site.

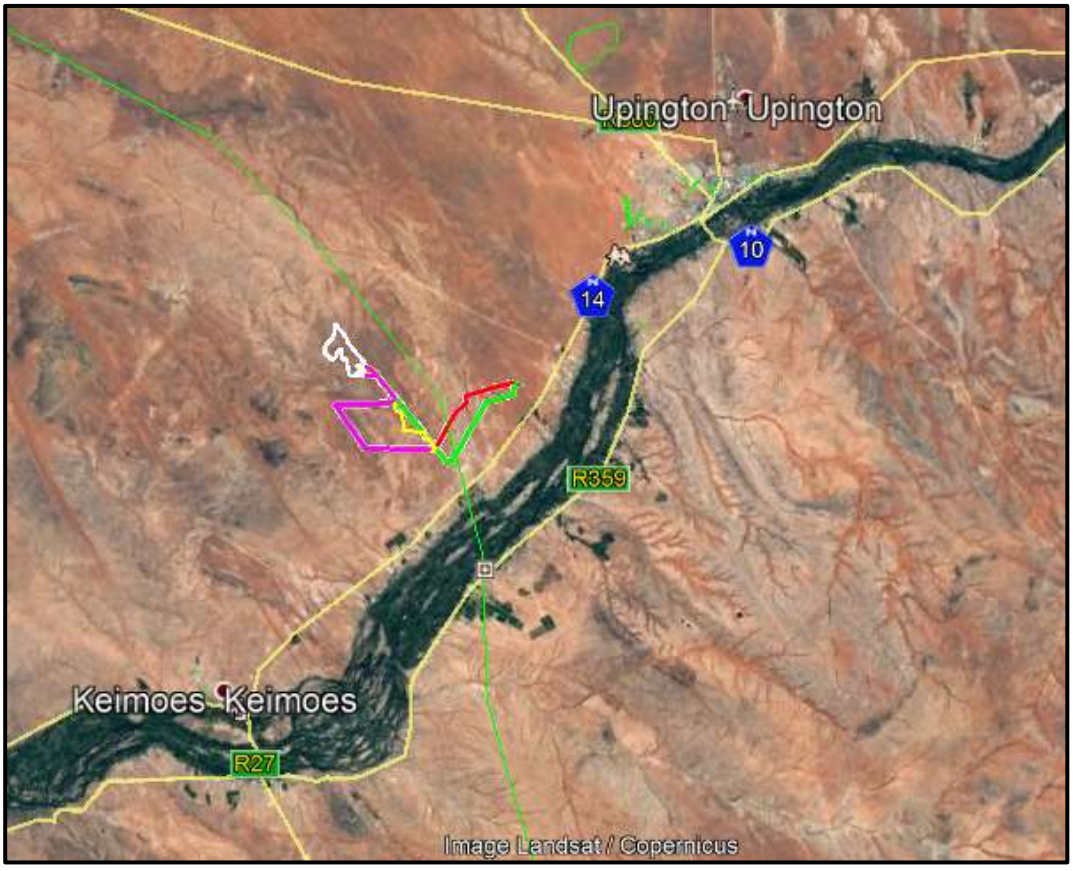
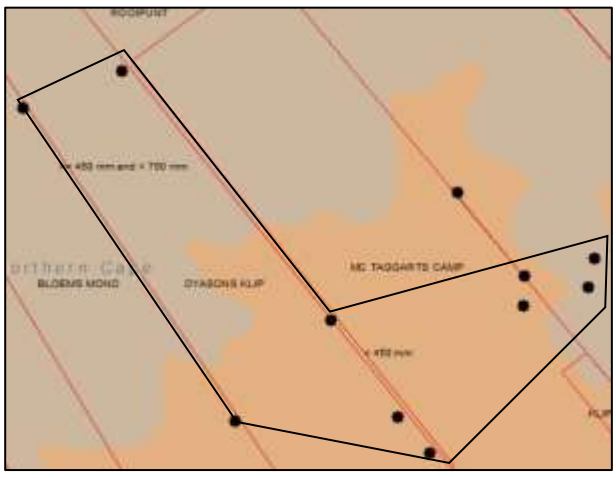


Figure 1: Location of the proposed Dyasons Klip 5 PV power facility

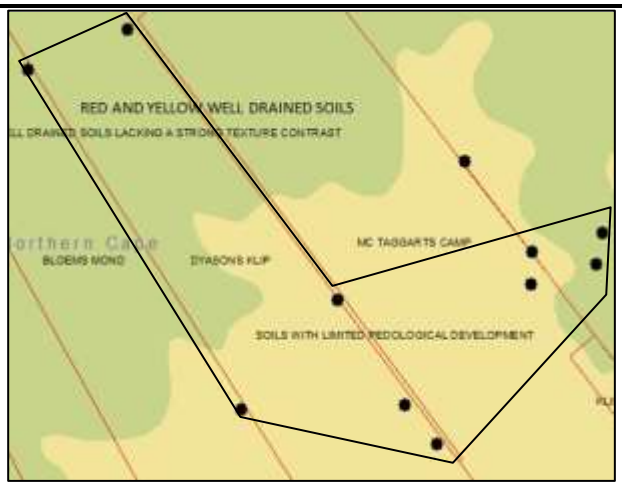
Figure 2: Proposed Layout of Site

5.2 Natural Physical Data

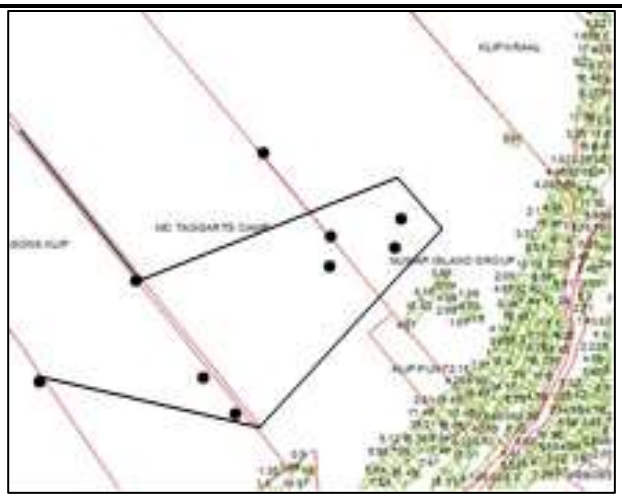
A desktop study was carried out, using thematic maps with a 250 000 scale. The natural physical data thus obtained is set out in Figure 3.



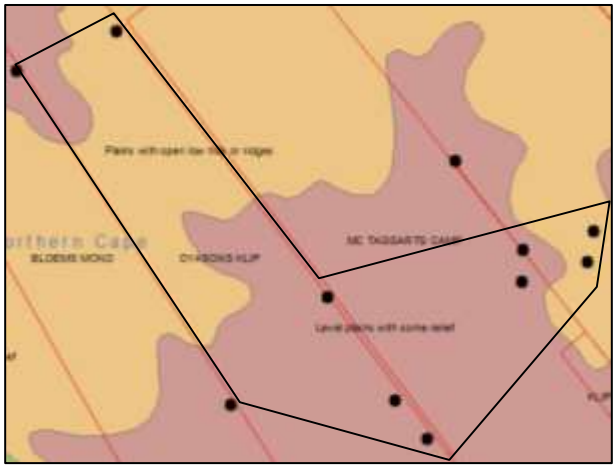
Grey: Soil depth range 450 mm to 750 mm
Strong brown: Soil depth range shallower than 450 mm



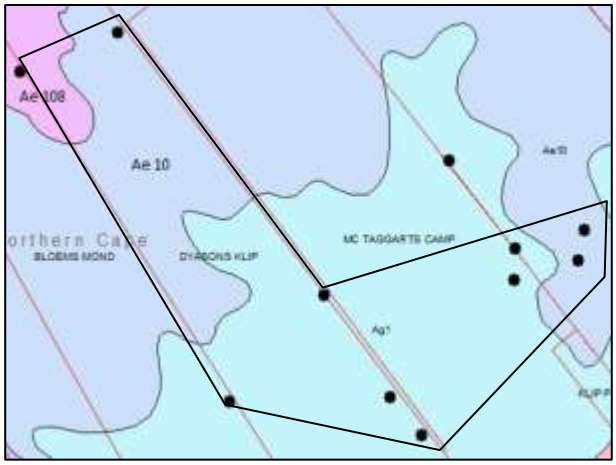
Pale Olive: Red and yellow well drained soils lacking strong textural contrast
Pale Brown: Soils with limited pedological development



Blank: Uncultivated field
Green: Cultivated land



Reddish yellow: Topography Plains with open low hills or ridges.
Purple: Topography level plains with some relief



Light purple: Ae108: red soils with high base status >300 mm deep, no dunes leaching status calcareous
Blue: Ae10: red soils with high base status >300 mm deep, no dunes leaching status Eutrophic
Turquois: Ag1: red soils with high base status <300 mm deep, no dunes

Light green: Slope less than 2%
Green: Slope 3 to 5 %
Blue line: Drainage line

Figure 3: Thematic maps

5.3 Drainage

The site lies in Quarternary catchment D73F of the Gariep River. The effected area is positioned on a lower footslope with level plains. The slope gradient is less than 5% and storm water is diverted with multiple short drainage lines to a well-defined central drainage line or caught in pans. See Figure 4.

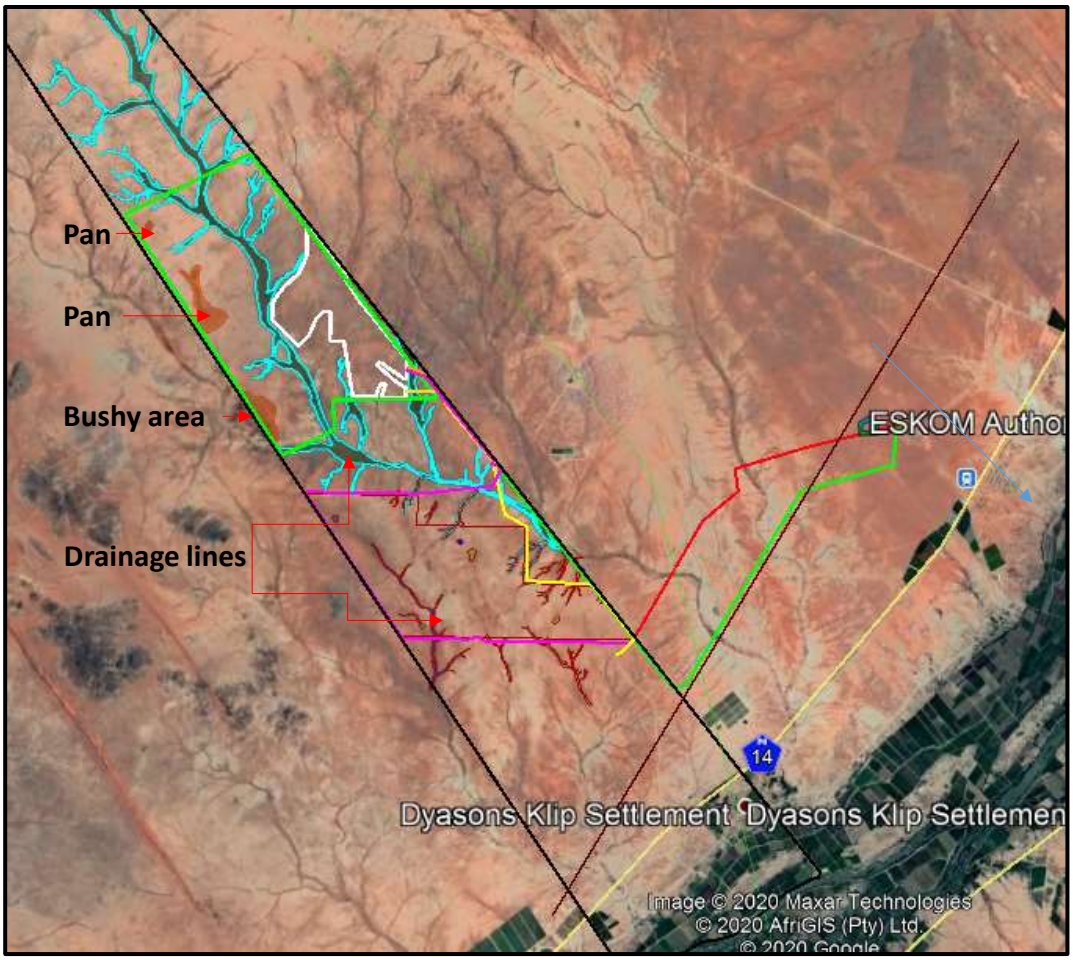


Figure 4: Drainage sensitivity

Prior to the assessment, the focus area was screened for sensitivity by a terrestrial and freshwater ecologist. Sensitive areas mapped during that study are used in this assessment.

The drainage lines, pans and bushy areas were mapped as sensitive to development. These areas should be avoided or mitigated when disturbed.

The DEA screening tool classified the area as positioned in the Energy Development zone with the following ratings:

Low:

- Agricultural Combined Sensitivity,
- Animal Species Sensitivity,
- Aquatic Biodiversity Combined Sensitivity,

Medium:

- Species Combined Sensitivity

Very High:

- Terrestrial Biodiversity Theme Sensitivity

5.4 Topography

The terrain type is labelled as Plains with open low hills or ridges and Level plains with some relief. The average slope is <2% with a few of 2 - 5 %.

5.5 Land cover

Characteristic of the environment is the narrow strip known as the Gariep river valley between the physiographic regions Southern Kalahari and Bushmanland. Intensive cultivation takes place on the alluvial soils in this buffer around the Gariep River. The remaining area is utilized as natural grazing.

5.6 Vegetation

The site is situated in the Nama Karoo Bushmanland region. In general, the vegetation is an open shrub land, dominated by small woody shrubs and white Bushman Grass species (*Stipagrostis)*. Succulents occur in some areas.

Trees and bigger shrubs are mostly confined to rocky areas, but there are some woody plants on the plains, especially where the soils are shallow, along drainage lines or seasonal watercourses. On the flats, the *Rhigozum* species and *Rhus* species tend to be more common.

The grazing capacity is low at 32 hectares per large stock unit (LSU). The Normalised Difference Vegetation Index (NDVI) is low.[1]

The area falls in the transition between Kalahari Karroid Shrubland and Bushmanland Arid Grasslands.

5.7 Climate

The region is classified as an arid zone with desert climate. Specific parameters are shown in Table *1*.

Table 1: Climatic information of the area

Rainfall	
Annual rainfall	0-200mm
Summer rainfall	<62.5mm
Winter rainfall	<62.5mm
Variation in rainfall	40 to 50%
Temperature	
Mean maximum temperature	>35ºC
January Temperature	>27.5ºC
Mean minimum temperature	2-4ºC
July temperature	<7.5ºC
Temperature range	>15ºC
First frost expected	21-31 May

[1] *NDVI refers to a mathematical formula applied to satellite imagery to provide information on plant activity or vigour. It is an indicator of active vegetation cover.*

Last frost expected	01-10 September
Hours of sunshine	>80%
Evaporation	>2400mm
Humidity	<30%

5.8 Geology

The area lies in the Kalahari geological group of the Namaqualand metamorphic complex. This is the youngest of the geological groups formed in the past 65 million years.

The lithology (mineralogical composition and texture of rocks) of this area consists of:

Sand: During a very dry period in Southern Africa some 100 000 years ago sand was transported from the Namib dessert by strong and continuous winds and distributed over the Kalahari.

Limestone: Limestone is a sedimentary rock consisting largely of calcium carbonate, which is usually derived from the shells of minute marine or fresh-water animals. Sand, clay and minerals such as magnesia or iron oxide are also present. Sedimentary and Volcanic rocks (parent material of soils) found in the area include Migmatite, Schist, Gneiss, Kinzigite and granite.

Soil: *The dominant land types are:*

- **Ae 108:** red soils with high base status >300mm deep, no dunes with calcareous leaching status;
- **Ae 10:** red high base status >300 mm deep soils with Eutrophic leaching status; and
- **Ag 1:** red high base status <300 mm deep soils with Eutrophic leaching status.

AGIS indicates the typical profile for soils in this region as follows:

- Soils with minimal development, usually shallow, on hard or weathering rock, with or without intermittent diverse soils;
- Lime generally present in part or most of the landscape;
- Red and yellow well drained sandy soil with high base status;
- Freely drained, structure less soils;
- Favourable physical properties; and
- Soils may have restricted soil depth, excessive drainage, high erodibility and low natural fertility.

6. SOIL

6.1 Soil Profile Description

For the soil profile description, the field study of July 2014 on this site was used. The results of other field studies on the same property and neighbouring areas were incorporated into this report, i.e.: Dyasons Klip in July 2013, McTaggarts in May 2014 and Bloemsmond in May 2019.

A soil augering survey was carried out in 2014, assigning a unique number to each augering point and capturing the physical and morphological information on a coding sheet. The observation points, their coordinates and findings are shown in Figure 5.

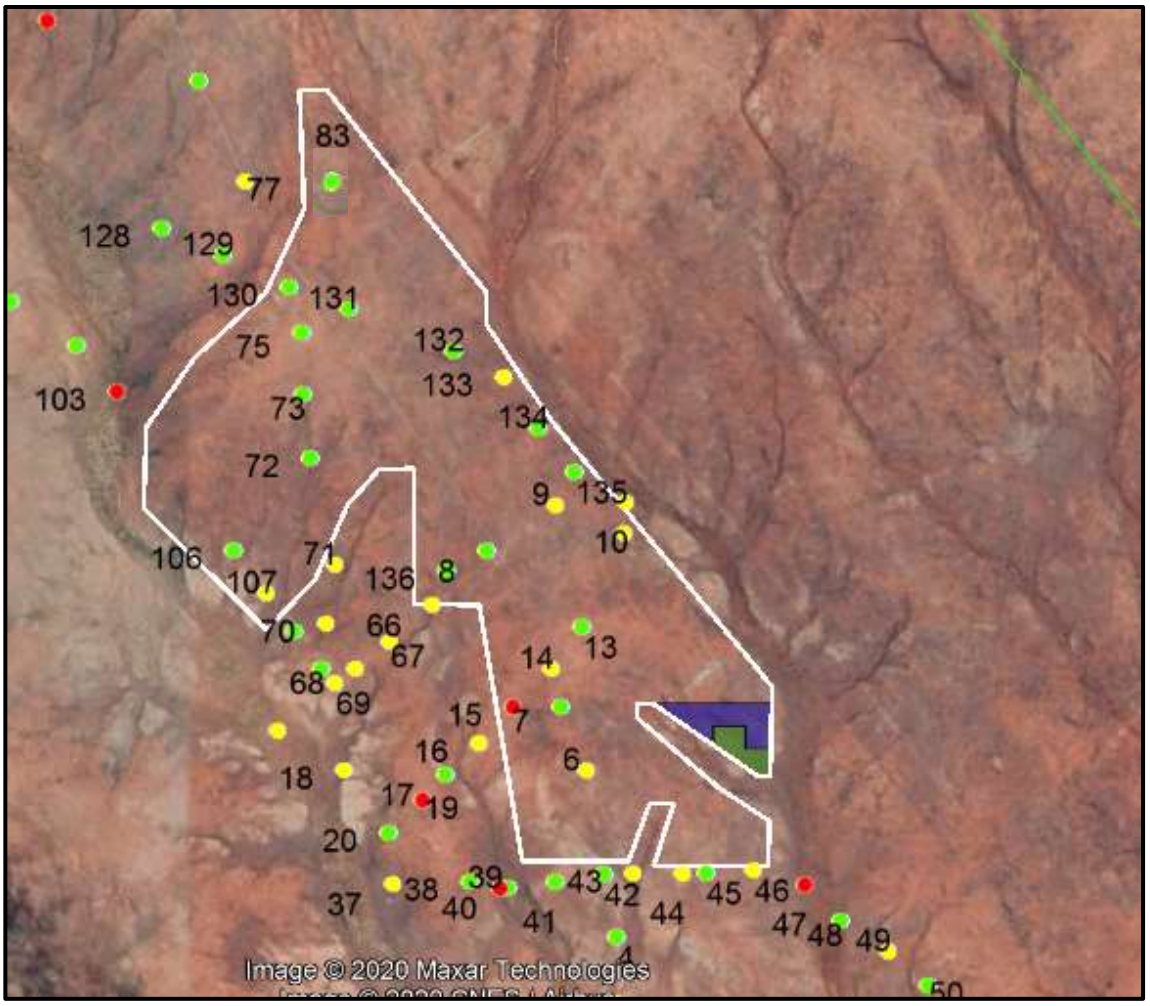


Figure 5: Soil survey.

In Table *2*, four of the observation points, namely 71, 135, 7 and 73 are described in detail. They are representative of all observation points.

Table 2: Soil Observations

OBS	71	COMMENT					MOISTURE								
LAT	S28 31 34.5	SLOPE GRAD		1			MOISTURE								
LONG	E21 00 48.1	SLOPE SHAPE	V				EROSION								
	FORM	Py	TSD	30	WET	1	HOR	TYPE	DEPTH	COL	CLAY	S-GR	CONS	STRUC	STONE
	FAM	1000	ESD	30	C	I	1	A	20	5YR5/6	6	VF	5	sg	0
	ROUGH	1	ASD	30	GEO	G3	2	B	30	5YR5/8	6	VF	5	a	0
	TERR_POS	3	LTN	h	PHOTO	N	3								
	L.COVER/USE:														
	VIS.VELD.COND	A	7	B	7	C	3	D	4	E	2	TOTAL	23		

Soil Properties	**A Horizon Topsoil**	**B Horizon Sub-soil**	**C-Horizon Sub-strata**
Texture	Very Fine sandy	Very Fine sandy	Hardpan Carbonate

Consistency	Loose to very loose	Loose to very loose	
Structure	Single grain	Apedal	
Colour	Yellowish Red	Yellowish Red	
Horizon Depth	200mm	300mm	>300mm
Depth limitation	Hardpan Carbonate		
Effective Depth	300mm		
Terrain position	Lower Mid slope		
Geology	Granitic gneiss		
Slope shape	Concave		
Slope gradient	< 5 %		
Moisture availability	Low		
Erosion potential	Low		
Soil Form	Plooysburg		
Soil Family	Brakkies		
Land cover and use	Medium *Rhigozum* infestation with poor grazing grasses and low Karoo bush cover. Used for grazing. Slight levels topsoil loss.		

OBS	135	COMMENT													
LAT	28.72728	SLOPE GRAD		1			MOISTURE		L						
LONG	21.04108	SLOPE SHAPE	V				EROSION		M						
	FORM	Cg	TSD	20	WET	0	HOR	TYPE	DEPTH	COL	CLAY	S-GR	CONS	STRUC	STONE
	FAM	1000	ESD	20	C	I	1	A	20	2.5YR3/6	6	VF	5	sg	0
	ROUGH	1	ASD	20	GEO	G3	2	B	151						
	TERR_POS	4	LTN	h	PHOTO	Y	3								
	L.COVER/USE:	Bush encroachment,grazing													
	VIS.VELD.COND	A	1	B	1	C	1	D	5	E	1	TOTAL	9		

Soil Properties	**A Horizon Topsoil**	**B Horizon Sub-soil**	**C-Horizon Sub-strata**
Texture	Very Fine sand	Massive	Hardpan Carbonate
Consistency	Loose to very loose	Very solid and hard	
Structure	Single grain	Hard setting horizon	
Colour	Strong brown	Off white	
Horizon Depth	200mm	>300mm	
Depth limitation	Hardpan Carbonate hard setting		
Effective Depth	200mm		
Terrain position	Lower mid slope		
Geology	Granite gneiss		
Slope shape	Concave		
Slope gradient	< 5 %		
Moisture availability	Low		
Erosion potential	Low		
Soil Form	Coega		
Soil Family	Nabies		

Land cover and use	Medium *Rhigozum* infestation with poor grazing grasses and medium Karoo bush cover. Used for grazing. Large exposure of surface. Hard carbonate and rock.

OBS	7	COMMENT													
LAT	S28 32 08.6	SLOPE GRAD		1			MOISTURE		L						
LONG	E21 02 26.08	SLOPE SHAPE	V				EROSION		M						
	FORM	Py	TSD	61	WET	1	HOR	TYPE	DEPTH	COL	CLAY	S-GR	CONS	STRUC	STONE
	FAM	1000	ESD	61	C	I	1	A	20	5YR5/6	6	VF	5	sg	0
	ROUGH	1	ASD	61	GEO	G3	2	B	61	5YR5/8	6	VF	5	a	0
	TERR_POS	3	LTN	h	PHOTO	N	3								
		A	5	B	6	C	3	D	6	E	2	TOTAL	22		

Soil Properties	**A Horizon Topsoil**	**B Horizon Sub-soil**	**C-Horizon Sub-strata**
Texture	Very Fine sand	Very Fine sand	Hardpan Carbonate
Consistency	Loose to very loose	Loose to very loose	
Structure	Single grain	Apedal	
Colour	Yellowish Red	Yellowish Red	
Horizon Depth	200mm	610mm	
Depth limitation	Hardpan Carbonate hard setting		
Effective Depth	610mm		
Terrain position	Lower mid slope		
Geology	Granite gneiss		
Slope shape	Concave		
Slope gradient	< 5 %		
Moisture availability	Low		
Erosion potential	Low		
Soil Form	Plooysburg		
Soil Family	Brakkies		
Land cover and use	Medium *Rhigozum* infestation with poor grazing grasses and low Karoo bush cover. Used for grazing. Slight levels topsoil loss.		

OBS	73	COMMENT													
LAT	S28 31 21.6	SLOPE GRAD		1			MOISTURE		L						
LONG	E21 01 51.1	SLOPE SHAPE	X				EROSION		M						
	FORM	Hu	TSD	10	WET	1	HOR	TYPE	DEPTH	COL	CLAY	S-GR	CONS	STRUC	STONE
	FAM	3100	ESD	10	C	I	1	A	10	5YR5/6	6	VF	5	sg	0
	ROUGH	1	ASD	10	GEO	G3	2								
	TERR_POS	3	LTN	rr	PHOTO	N	3								
	L.COVER/USE:														
	VIS.VELD.COND	A	7	B	7	C	3	D	4	E	2	TOTAL	23		

Soil Properties	**A Horizon Topsoil**	**B Horizon Sub-soil**	**C-Horizon Sub-strata**
Texture	Very fine sand		Hard rock
Consistency	Loose to very loose		
Structure	Single grain		
Colour	Yellowish Red		

Horizon Depth	100mm		>100mm
Depth limitation	Rock		
Effective Depth	100mm		
Terrain position	Lower mid slope		
Geology	Granitic material		
Slope shape	Convex		
Slope gradient	< 5 %		
Moisture availability	Low		
Erosion potential	Low		
Soil Form	Hutton		
Soil Family	Stella		
Land cover and use	Medium *Rhigozum* infestation with poor grazing grasses and medium Karoo bush cover. Used for grazing.		

6.2 Soil potential

The soil is uniform in profile, apparent from the soil properties. Because of the similarities in the soil-limiting layer, the single variable to the soil potential is effective soil depth. Parameters used in the delineation of soil potential, are demonstrated in Figure 6

Depth Range	**Dominant Soil Form**	**Sub-Dominant Soil Form**
0–300 mm Observation points coloured green on map	 Coega Nabies	 Hutton Stella
301–600 mm Observation points coloured yellow on map	 Plooysburg Brakkies	 Hutton Stella

601-900 mm

Observation points coloured red on map

Plooysburg Brakkies

Plooysburg Brakkies

Figure 6: Depth range used as parameter for soil potential

6.3 Effective rooting depth

The area surveyed has a mean effective depth of less than 50 cm. The restriction is rock and hard carbonates sub-surface layers. The top surface is also rough with a high level of surface rock. Cultivation is not possible because of these mechanical restrictions.

The proposed development area is restricted by carbonate hard setting or rock. The stony nature reduces available soil for root development and water retention, and creates a high mechanical risk for agricultural machinery.

6.4 Texture

The clay content of the top horizon is 6% and the sub-horizon is 6-8% with medium sand grade. The texture class is sand.

The sand grade of top soil influences the stability and erodibility potential.

A low clay percentage results in low water holding capacity and low nutrient availability, which leads to low soil fertility.

6.5 Mechanical Restrictions

Cultivation is restricted by the outcrop or of close to surface rock and hard setting layers, which pose risks to farming implements.

6.6 Land cover

The land is covered sparsely and large bare areas occur. Poor grazing grasses, Karoo bush and three-thorn *Rhigozum* bushes represent the basal cover. Moderate to severe levels of erosion and soil loss were noted. Supporting images of the area, marked in accordance with observation point numbers, are shown in Figure 8. The observation points can be identified on the map in Figure 7.

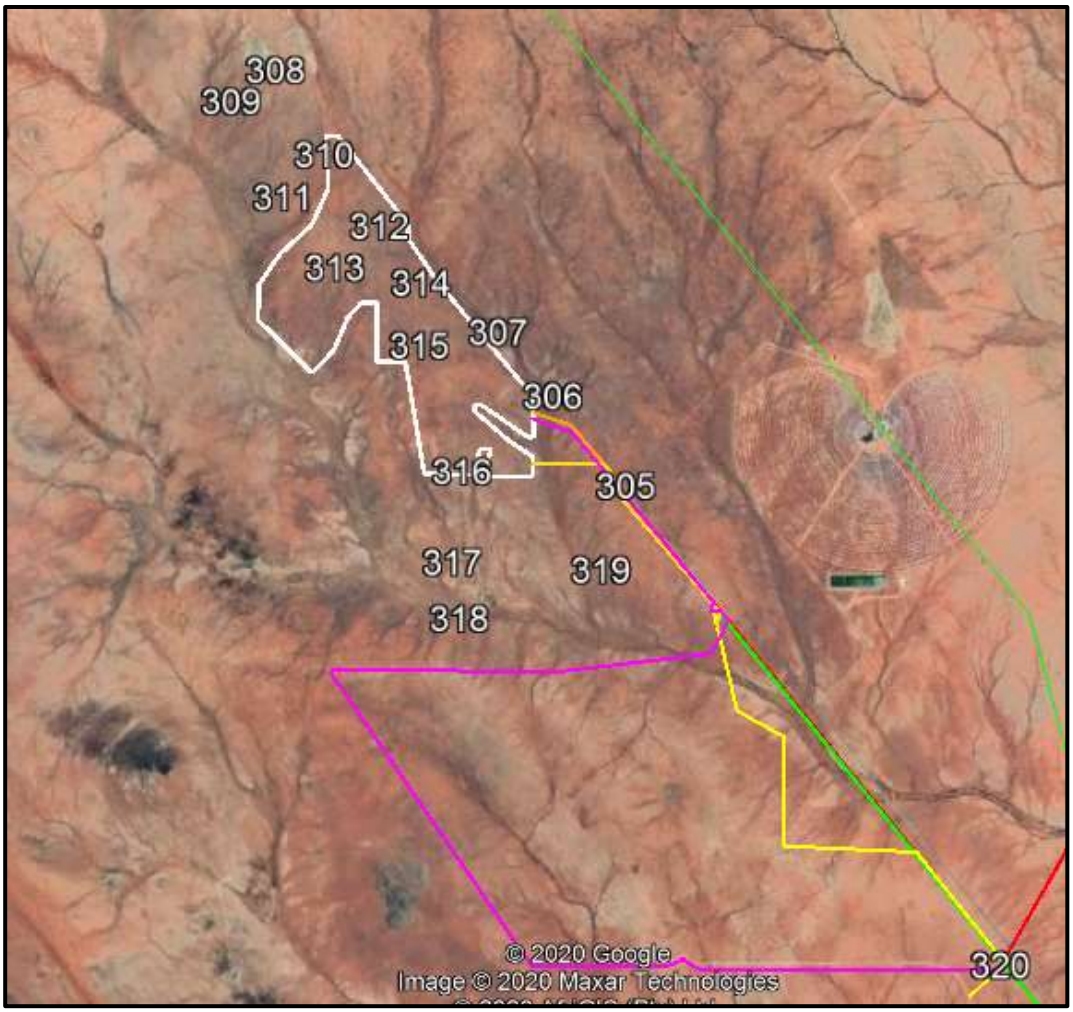


Figure 7: Additional survey done in February 2020

305

306

311

312

315

316

Figure 8: Imagery of the 2020 survey

7. LAND CAPABILITY FOR AGRICULTURE

Land capability involves considering the risk of land damage from erosion and other causes, the difficulties in cultivation because of physical land characteristics and climatic conditions.

The potential agricultural capability of the site is largely unsuitable for cultivation, based on the natural resources present, including the following limiting factors:

- Low annual rainfall, high evaporation and extreme temperatures restrict dry land cultivation;
- The very shallow soil depth with its limited water holding capacity restricts root development;
- The sand grade of top soil influences the stability and increases erodibility potential; and
- Low clay percentage results in low water holding capacity and low nutrient availability, resulting in low soil fertility.

The land is classified as Capability Class VII, which limits its use to pasture, range and woodland. Continuing limitations that cannot be corrected include:

- Severe erosion hazard;
- Stoniness;

- Shallow rooting zone;
- Low water holding capacity; and
- Severe climate.

Erosion Potential

In this arid climate, the erosivity (the potential ability of rain to cause erosion) is low, but the erodibility (vulnerability of the soil to erosion) is high due to the low clay percentage and shallow soil depth. Possible erosion caused by water is low, due to the characteristics of the terrain, i.e.:

- Low annual rainfall
- Regular slope of 2 %
- Length of slope is short
- Small catchment area, because water drain naturally away from the ridge.

The risk of erosion caused by wind is high, due to the low clay percentage of the soil and the fact that the soil is usually dry - therefore prone to blow away. To combat this erosion, vegetation is needed, but the severe climatic conditions prevent possible mechanical conservation measures. However, this erosion risk already exists and the proposed grid connection lines will have a low impact.

8. PAST AND CURRENT ACTIVITIES ON SITE

Agricultural activities comprise of intensive cultivation of grapes (±430 ha) on the alluvial soil on the southern part of the farm, where it can be irrigated from the Gariep River. Four PV facilities (1000 ha) on the same farm are authorised and two of them are under construction. The remaining northern part of the farm is utilized as extensive grazing for game and livestock. Current structures on site include internal game fences and stock watering facilities – see Figure 9

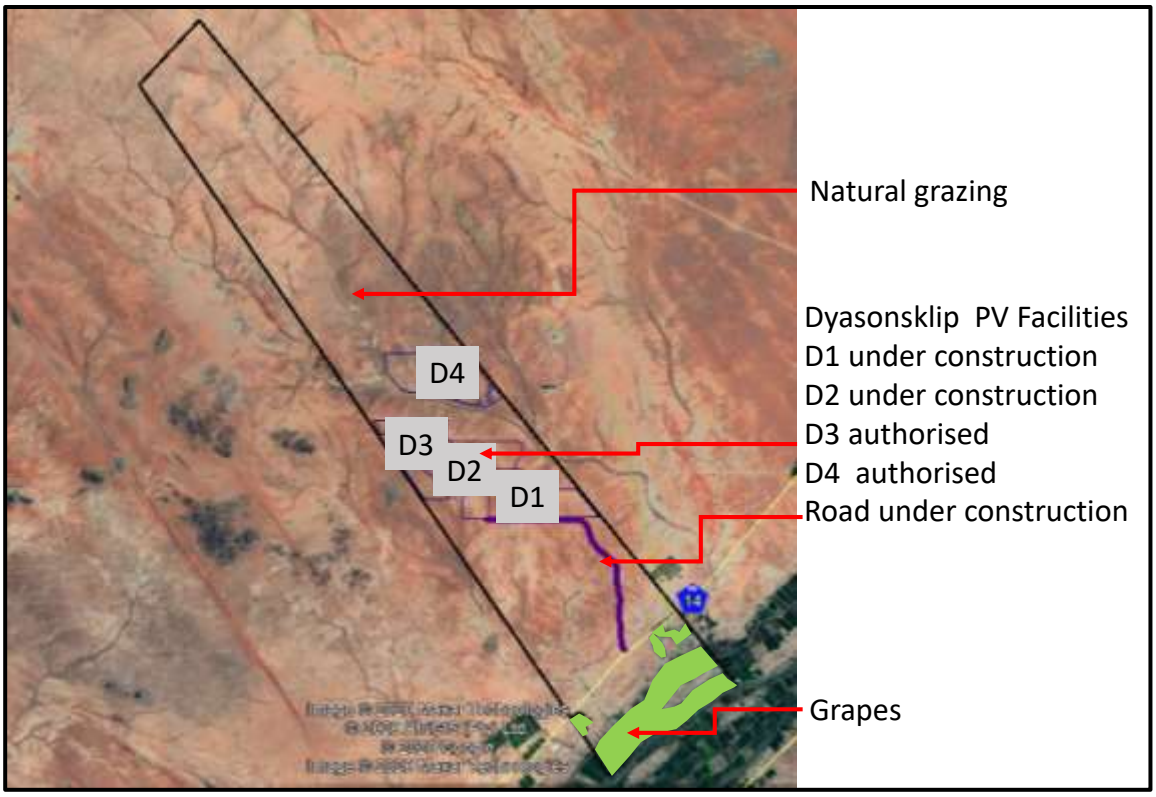


Figure 9: Agricultural activities on the farm

9. ACCESS ROAD AND GRID CONNECTION

The possible impacts the access road and grid connecting line may have on the land unit, were assessed on the following criteria:

- Effecting the sensitive areas;
- Possible loss of high potential soil;
- Effecting agricultural activities.

The proposed access road and grid connecting lines are shown in Figure 10

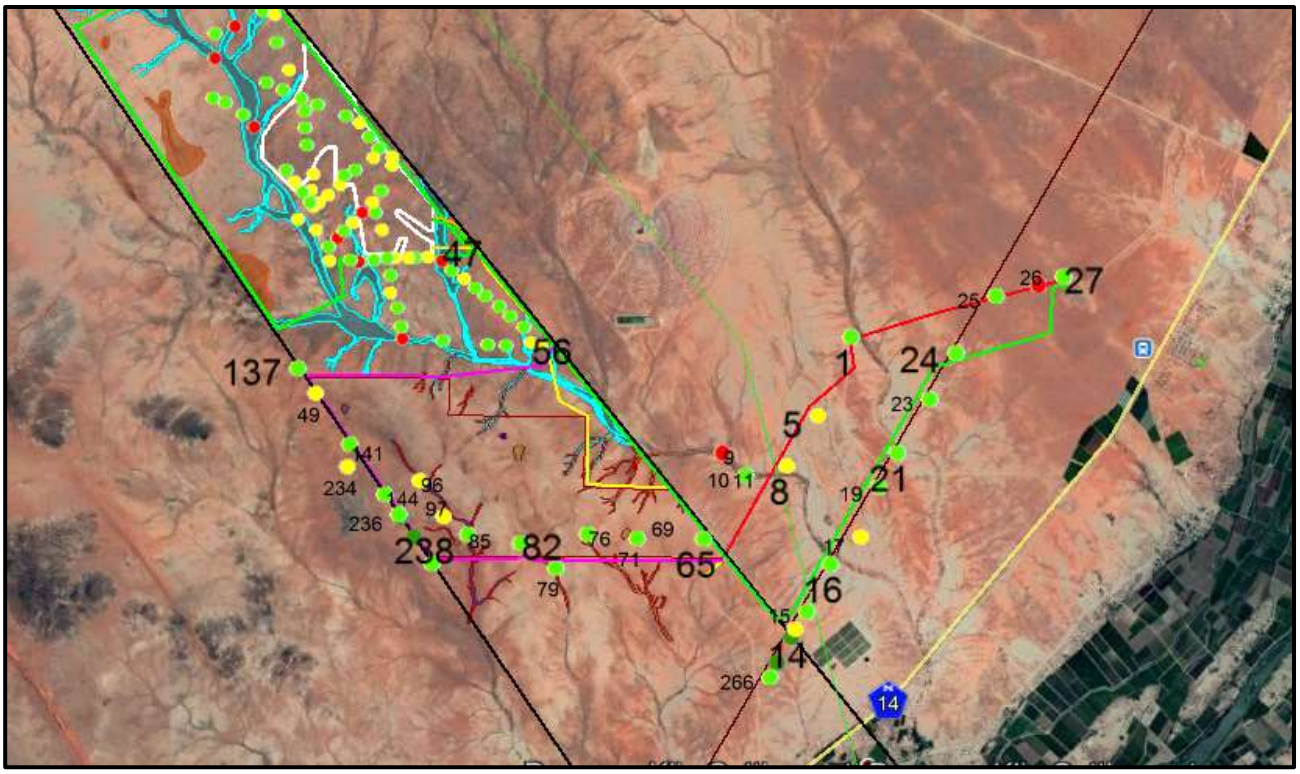


Figure 10: Access road and grid options

8.1 Access road

Access to the site will be gained with an existing access on the N14. This is a newly constructed road for access to the authorised facilities now under construction. The proposed road diverts near point **65** and continues for ± 7.5 km, on the eastern border and perimeter Dyasons Klip 1 to enter the SEF at point **47.**

.The road runs mainly on the crest, causing runoff to drain naturally toward the drainage lines with low accumulation of run-off on the road. The surface of the road is hard and infiltration therefore low, resulting higher runoff from the road. Mitigating measures to control flow speed should be implemented.

Where the road has to cross a drainage lines, mitigating measures to deal with obstructing the natural flow, should be implemented. This is a seasonal streams and construction should be carried out in winter to avoid pollution of fuel and chemicals to be washed downstream.

The access road will be constructed on low potential soil following the existing alignment of the road used by the farmer himself when checking on game and livestock. Jeep tracks along boundary fences give access to movement on the farm ensuring low impact on farming activities during construction. Because no cultivation takes place, low agricultural traffic will be experienced during construction of the proposed SEF.

The main access road will not exceed 8 m in width, which means ±6 ha grazing will be lost, but with no loss of high potential soil and a low impact on sensitive areas will be experienced.

8.2 Grid connection line

The grid connection will be an overhead transmission line of 33kV or 132kV. The height of the power line will not exceed 32 m and the servitude width a maximum of 36 metres.

Other infrastructure along the gridline will include laydown areas for materials and equipment. These areas will not exceed two ha.

Access to the grid connection infrastructure will be possible via existing roads in close vicinity to the infrastructure. These access roads will not exceed 8m in width.

Formal roads will not be constructed underneath the power lines for maintenance purposes. Access for maintenance purposes will be limited to jeep tracks.

There are two substation alternatives (Alt 1 and Alt 2), both 100m x 100m:

- **Alternative 1 (preferred)** is located near the north-eastern corner of the Dysons Klip 5 development footprint;
- **Alternative 2** is located at the south-eastern corner of the development footprint which borders Dyasons Klip Solar Energy Facility 1 (DK SEF 1), or otherwise referred to as Dyasons Klip 4 (DK4).

Three grid line routes are proposed - see Figure 10:

- Alternative 1 runs past (switches into) the Dyasonsklip Solar Energy Facility 1 substation, along the north and then western boundary of DK3 into DK1/2 Switching Station, and then parallel to the existing 132kV line all the way back to Upington MTS.
- Alternative 2 runs past (switches into) the Dyasonsklip Solar Energy Facility 1 substation, runs down the eastern boundary, and then parallel to the existing 132kV line all the way back to the MTS.
- Alternative 3 runs past (switches into) the Dyasonsklip Solar Energy Facility 1 substation, runs down the eastern boundary, and then parallel to the proposed 400kV Aries-Upington line all the way back to the MTS.

Alternatives 2 and 3 will also cross the following properties:

- Remainder of Farm Rooipunt 617,
- Remainder 638 Tungsten Lodge,
- Olyvenhouts Drift Settlement Agricultural Holding Number 1080.

The proposed gridline routes were assessed for impacts on sensitive areas, which was identified and mapped by the ecologist. The sensitivities envisioned were (1) Possible erosion on the drainage line and (2) Possible loss of high potential land.

Assessment of alternatives:

Alternative 1 Starts at the substation and runs south on the eastern boundary up to **56** (point on map in Figure 10**)** where it turns, west on the northern boundary of DK3, up to **137.** From here it follows the western boundary south to **238** where it turns east to **82** into DK1/2 Switching Station, and then parallel to the existing 132kV line all the way back to **27** Upington MTS.

The footprint of the line is predominately aligned on the ridge, diverting two drainage lines, from its starting point up to **238**.

For this stretch of the line, the soil catena indicates that soils with an effective depth of >610 mm are probable only located in the valleys. The soil map also shows a dominant depth of less than 300 mm.

The positioning on the ridge implies very low run-off or interference with the flow direction during construction of the gridline.

The last segment of the line to the substation, near **82,** will be a cross-section of the terrain, meaning on the “steepest slope”. Due to the flat gradient and short length of the slope, the impact on run-off will be low. The soil on this stretch is of low potential.

The alignment follows either the external or the perimeter fence of facilities. From a land use perspective, this is the same as in the camping layout used in managing livestock. Thus, the impact on farming activities will be low.

Alternative 2:

Alternative 2 starts at **82** from where it follow the new 132kV line on the existing 132kV line for DK1 & 2 and Sirius – corridor The line exit the farm at **65** and cross drainage lines at **8** and **1. N**ear **5** it passes the Olyvenhouts Drift Settlement and continue to the Upington MTS at

The soil along this line is of low potential. The crossing of drainage lines will have a low impact if mitigated correctly.

Alternative 3: Starts at the substation and runs south on the eastern boundary to **14** where it turns east, following the proposed 400kV Aries-Upington line. The soil along this stretch is of low potential. Drainage lines may be sensitive between **56** and **65** as well as at **16** and at **21**, but possible disturbance will have a low impact if mitigated correctly.

Photo images at various points on the alternative gridline options are shown in Figure 11.

OBS 1 Coega 200 mm footprint pylon(19/07/2019)

OBS 25 Surface carbonate

OBS 52

OBS 56

OBS 137 Plooysburg 300 mm

OBS 141 Coega 300 mm

OBS 82 Sparse veld Coega 300 mm

OBS 65 Pylon where access road begin (28/02/2020)

OBS 8 Coega 200 mm streamline Alternative 2

OBS 5 Coega 200 mm near settlement

OBS 14 Crossing from Dyasons Klip to Mc Taggarts

OBS 16 Drainage line alternative 3

OBS 21 Drainage line Alternative 3

OBS 27 Upington MTS

Figure 11: Photo images along the alternative grid line options

10. ASSESSMENT OF PROPOSED DEVELOPMENT

The development proposed is to construct a commercial photovoltaic (PV) solar energy facility (SEF) on ± 267 ha agricultural land. The approximate area that each component of the SEF will occupy is summarised in Table 3.

Table 3: Components of the development

SEF Component	**Estimated Area**	**% of Development Area (267ha)**	**% of Farm Area 5725.28 ha**
PV Structures/modules	250 ha	93.63	4.37
Internal roads	6.5ha	2.43	0.1
Auxiliary buildings	1 ha	0.37	0.02
Substation	1	0.37	0.02
Battery storage	4	1.52	0.07
Lay down area	4.5	1.68	0.08
TOTAL	267	100	4.66

From the estimate above, the potential impacts that the facility may have on agricultural development of the farm, are:

9.1 Loss of agricultural land

The total size of the farm is 5725.28 ha**,** with a carrying capacity of 32 ha /LSU, so 179 large stock units are the maximum animals allowed for sustained grazing on the farm.

The proposed PV facility will have a footprint of 267 ha, which means a loss of eight large stock units.

9.2 Erosion and change of drainage patterns

With the construction, the removal of vegetation makes the area vulnerable to wind erosion. Mitigating measures should be put in place to control possible erosion. Change of drainage patterns should be addressed, although the flat slope and high infiltration rate ensure a low risk for it to happen.

9.3 Pollution

During construction of all the components possibe spillages of concrete and fuel may pollute the soil.

11. POTENTIAL IMPACTS ON THE AGRICULTURAL ENVIRONMENT

11.1 Methodology to assess impacts

Potential impacts of the proposed project on agriculture were identified and evaluated. Impacts identified through the study were rated in terms of the following criteria:

- The nature, which shall include a description of what causes the effect, what will be affected and how it will be affected.
- The extent, wherein it will be indicated whether the impact will be local (limited to the immediate area or site of development) or regional, and a value between 1 and 5 will be assigned as appropriate (with 1 being low and 5 being high):
- The duration, wherein it will be indicated whether:
  - the lifetime of the impact will be of a very short duration (0–1 years) –assigned a score of 1;
  - the lifetime of the impact will be of a short duration (2-5 years) -assigned a score of 2;
  - medium-term (5–15 years) – assigned a score of 3;
  - long-term (> 15 years) - assigned a score of 4; or
  - permanent - assigned a score of 5;
- The magnitude, quantified on a scale from 0-10, where a score is assigned:
  - 0 is small and will have no effect on the environment
  - 2 is minor and will not result in an impact on processes
  - 4 is low and will cause a slight impact on processes
  - 6 is moderate and will result in processes continuing but in a modified way
  - 8 is high (processes are altered to the extent that they temporarily cease)
  - 10 is very high and results in complete destruction of patterns and permanent cessation of processes
- The probability of occurrence, which describes the likelihood of the impact actually occurring. Probability is estimated on a scale, and a score assigned:
  - Assigned a score of 1–5, where 1 is very improbable (probably will not happen)
  - Assigned a score of 2 is improbable (some possibility, but low likelihood)
  - Assigned a score of 3 is probable (distinct possibility)
  - Assigned a score of 4 is highly probable (most likely)
  - Assigned a score of 5 is definite (impact will occur regardless of any
  - prevention measures)
- the significance, which shall be determined through a synthesis of the characteristics described above and can be assessed as low, medium or high; and
- the status, which will be described as either positive, negative or neutral,
- the degree to which the impact can be reversed,

- the degree to which the impact may cause irreplaceable loss of resources,
- the degree to which the impact can be mitigated.
- The significance is calculated by combining the criteria in the following formula:

S = (E+D+M)P

S = Significance weighting

E = Extent

D = Duration

M = Magnitude

P = Probability

- The significance weightings for each potential impact are as follows:

  - <30 points: Low (i.e. where this impact would not have a direct influence on the decision to develop in the area),
  - 30-60 points: Medium (i.e. where the impact could influence the decision to develop in the area unless it is effectively mitigated),
  - >60 points: High (i.e. where the impact must have an influence on the decision process to develop in the area).

10.2 Possible impacts during construction

Soil pollution with contaminants during the construction phase may take place, including spillages of hydrocarbon (fuel oil) and cement. This is possible during the construction of all facets of the facility: laydown area, concrete foundations of the auxiliary buildings, inverter stations subterranean cabling, main access and internal service roads.		
	Without mitigation	**With mitigation**
Extent	Local (1)	Local (1)
Duration	Medium Term (2)	Very short (1)
Magnitude	Low (4)	Minor(2)
Probability	Probable (3)	Probable(3)
Significance	**Low (21)**	**Low (12)**
Status (Positive or negative)	Negative	Negative
Reversibility	Partly reversible	Fully reversible
Irreplaceable loss of Resources	Yes	Yes
Can impacts be mitigated?	Yes	Yes
Mitigation: Refuelling normally takes place in the laydown area. Proactive measures must be taken which include constructing of a designated area where refuelling can take place. This area must have an impervious floor with low wall that will keep the spillage inside. This area should be cleaned with absorbent material on a regular basis. The use of cut-off drains must be incorporated to divert upslope clean storm water around the site into a natural drainage system. On the down slope, polluted water must be collected via a cut-off drain into a leachate collection and recovery system. When spillage accidently takes place, it should be removed and replaced with unpolluted soil. The clean soil can be sourced from excavations nearby. The polluted soil must be piled at a temporary		

storage facility with a firm waterproof base and is protected from inflow of storm water. It must have an effective drainage system to a waterproof spillage collection area. Contaminated soil must be disposed of at a hazardous waste storage facility.
Cumulative impacts: No, site-bound
Residual Risks: Yes, it is impossible to clear the affected area completely.

The establishment of the PV Solar facility will be done at the expense of agricultural land. The area to be lost for agricultural development would be 267 ha in size. This includes the area under PV panels, internal service roads and temporary laydown area.

	Without mitigation	**With mitigation**
Extent	Local – Regional (3)	Local (2)
Duration	Long-term (4)	Long-term (4)
Magnitude	Moderate (6)	Low (4)
Probability	Probable (3)	Improbable (2)
Significance	**Medium (39)**	**Low (20)**
Status (Positive or negative)	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of Resources?	No	No
Can impacts be mitigated?	Yes	Yes

Mitigation:
The general objective is to position the PV facilities on the lowest potential soil and not in places that may have impact on agricultural activities, drainage lines and places with a sensitive nature, such as protected tree species. Existing road alignments are followed and roads upgraded for use during the lifespan of the facility. With the appropriate planning, the same lifestyle can be maintained during the existence of the facility.

Cumulative impacts:
Impact is low due to agricultural potential of the locally. With increasingly adding of facilities, the impact will become more of significance if not mitigated. .

Residual Risks:
No, after decommissioning this impact will be reversed when rehabilitation has been completed.

The construction of a PV Solar facility will cause impairment of the land capability with the potential risk of erosion

	Without mitigation	**With mitigation**
Extent	Local (2)	Local (2)
Duration	Short term (2)	Short term (2)
Magnitude	Low (6)	Low (4)
Probability	Probable (3)	Probable (3)
Significance	**Medium(30)**	**Low (24)**
Status (positive or negative)	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of resources?	Yes	Yes

Can impacts be mitigated?	Yes	Yes
Mitigation: Clear trees and bushes selectively, leaving grass un-disturbed. Use mechanised machinery when installing posts to eliminate need for foundations. Construct on alternate strips to combat possible erosion.		
Cumulative impacts: No cumulative impacts are expected to occur, as all impacts will be site bounded.		
Residual Risks: No. Effected areas will be rehabilitated, as the impact will only be applicable during construction phase.		
The establishment of the PV Solar facility may alter drainage patterns with construction and cause erosion		
	Without mitigation	**With mitigation**
Extent	Local (2)	Local (1)
Duration	Long term (2)	Long term (2)
Magnitude	Low (2)	Low (2)
Probability	Probable (2)	Probable (2)
Significance	**Low(12)**	**Low (10)**
Status (positive or negative)	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of resources?	Yes	Yes
Can impacts be mitigated?	Yes	Yes
Mitigation: Establish structures on the contour. Use grass strips to regulate flow speed		
Cumulative impacts: No, all impacts will be site bounded.		
Residual Risks: No. Effected areas will be rehabilitated when operation has ceased.		

10.3 Possible impacts during operational phase

Soil pollution with contaminants during the operational phase may take place, including spillages of hydrocarbon (fuel oil) and cement. This is possible during the maintenance of the facility.		
	Without mitigation	**With mitigation**
Extent	Local (1)	Local (1)
Duration	Long Term (4)	Long Term (4)
Magnitude	Low (2)	Minor(2)
Probability	Probable (2)	Probable(2)
Significance	**Low (14)**	**Low (14)**
Status (Positive or negative)	Negative	Negative
Reversibility	Partly reversible	Fully reversible
Irreplaceable loss of Resources?	Yes	Yes
Can impacts be mitigated?	Yes	Yes
Mitigation: Refuelling normally takes place in the workshop of the control building. A designated area for refuelling must be constructed with an impervious floor and low wall that will keep the spillage inside. Any spillage must be cleaned with absorbent material as soon as possible and disposed into		

clearly marked containers. Where spillage takes place, contaminated soil must be excavated and replaced with unpolluted soil. The contaminated soil should be collected by a licenced landfill contractor.
Cumulative impacts: No, site-bound.
Residual Risks: Yes, It is impossible to clear the affected area completely.

The establishment of the PV Solar facility will be done at the expense of agricultural land. Area to be lost for agricultural development would be 267 ha in size. This includes the area under PV panels, internal service roads and temporary laydown area.		
	Without mitigation	**With mitigation**
Extent	Local – Regional (3)	Local (2)
Duration	Long-term (4)	Long-term (4)
Magnitude	Moderate (6)	Low (4)
Probability	Probable (3)	improbable (2)
Significance	**Medium (39)**	**Low (20)**
Status (Positive or negative)	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of Resources?	No	No
Can impacts be mitigated?	Yes	Yes
Mitigation: The general objective is to position the PV facilities on the lowest potential soil and not in places that may have impact on agricultural activities, drainage lines and places with a sensitive nature. Existing road alignments are followed and roads upgraded for use during the live span of facility. With the appropriate planning, the same live style can be achieved during the lease period of the facility from the land so occupied by the facility.		
Cumulative impacts: Impact is low due to agricultural potential of the locally. With increasingly adding of facilities, the impact will become more of significance if not mitigated. .		
Residual Risks: No, after decommissioning this impact will be reversed when rehabilitation has been completed.		

10.4 Possible impacts during decommissioning phase

All components of the facility should be dissembled and roads demolished. Rehabilitation should focus on:

- Demolish and removal of structures
- Demolish related roads
- Establish cultivation environment
- Stabilisation of erosion
- Reinstall camp fences and stock watering

Soil pollution with contaminants during the decommissioning phase may take place, including spillages of hydrocarbon (fuel oil) and cement. This is possible during the decommissioning of all facets of the facility: laydown area, demolished concrete foundations of the auxiliary buildings, inverter stations subterranean cabling, main access and internal service roads.		
	Without mitigation	**With mitigation**
Extent	Local (1)	Local (1)
Duration	Medium Term (2)	Very short (1)
Magnitude	Low (4)	Minor(2)
Probability	Probable (3)	Probable(3)
Significance	**Low(21)**	**Low (12)**
Status (Positive or negative)	Negative	Negative
Reversibility	Partly reversible	Fully reversible
Irreplaceable loss of Resources?	Yes	Yes
Can impacts be mitigated?	Yes	Yes
Mitigation: Refuelling normally takes place in the workshop of the control building. A designated area for refuelling must be constructed with an impervious floor and low wall that will keep the spillage inside. Any spillage must be cleaned with absorbent material as soon as possible and disposed into clearly marked containers. Where spillage takes place, contaminated soil must be excavated and replaced with unpolluted soil. The contaminated soil should be collected by a licenced landfill contractor.		
Cumulative impacts: No, site-bound.		
Residual Risks: Yes, It is impossible to clear the affected area completely.		

12. CUMULATIVE IMPACT ASSESSMENT

There are various renewable energy projects being built or is applying for authorisation to construct a facility within the 30 km radius of this request, inter alia on the same farm and the two neighbouring farms Bloemsmond and Mc Taggarts.

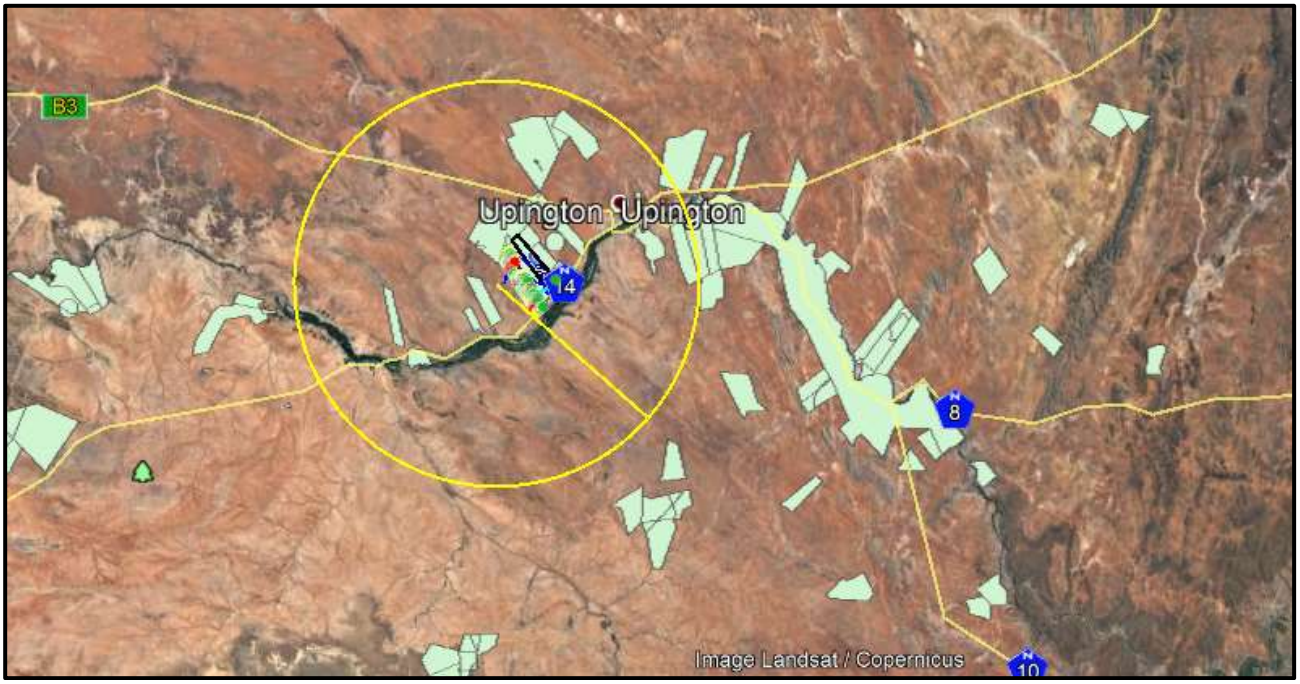


Figure 12: Cumulative overview

When investigating the cumulative impact of similar developments, the most common concerns are

- Loss of agricultural land
- Altering drainage patterns
- Changing agricultural character to industrial

12.1 Loss of agricultural land

Dyasons Klip 5 is positioned in the Energy Development zone with a Low Agricultural Combined Sensitivity. The reason for this can be attributed to its land cover as illustrated in Figure 13.Cultivation only takes place in close vicinity of the river. The vegetation is also an indication of arid climate conditions.

High potential soils are not expected in this region because of the low annual rainfall, high evaporation rate and extreme temperatures. Soils formed under these conditions have little movement of soluble nutrients and insoluble clay particles in the soil profile, restricting the adsorption of nutrients that would be available to plants. The soil is thus low in nutrient availability and has a low response to fertilizer input.

Calcium is another dissolved product of rock that will remain in the soil profile and form a cemented soil when water evaporates in the arid conditions. This soil layer limits water movement, root development and poses a mechanical restriction for cultivation.

No high potential soil is envisaged to be lost for agricultural production if the land use is changed to industrial use.

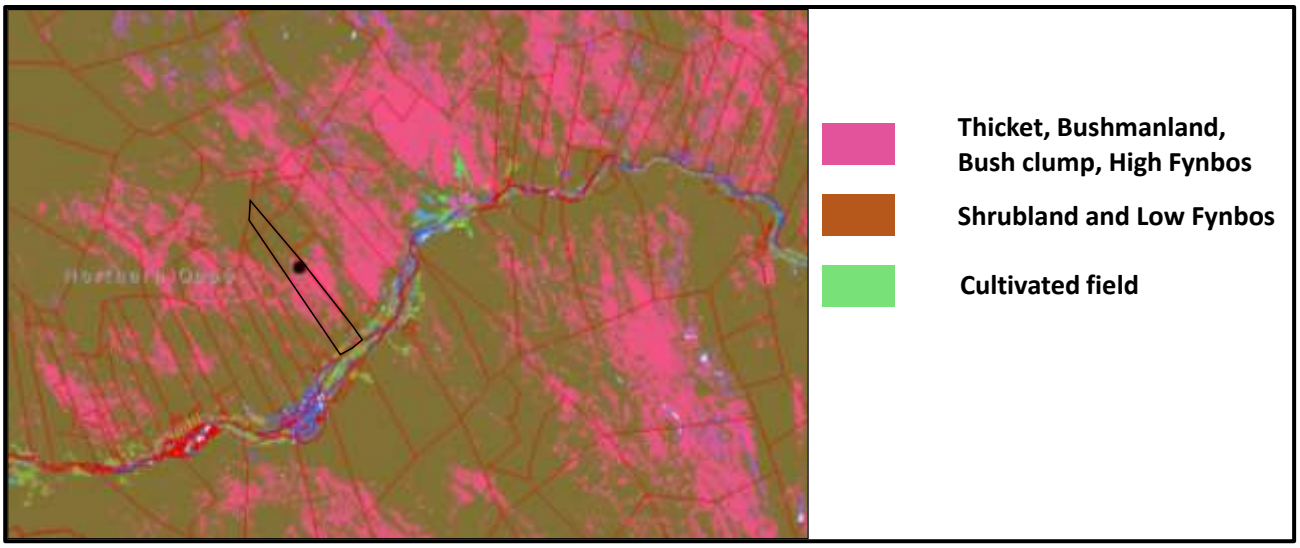


Figure 13: National Land cover

12.2 Altering drainage patterns

The facility will be located in a low rainfall area with level topography and on soil with a very fast infiltration rate, from which a low runoff is expected. Exceptional care is taken in the positioning the structures in relation to the drainage lines without changing the direction of flow.

12.3 Changing agricultural character to industrial

The land cover have changed the last years and from only vineyards south of the N14 new establishments were erected on the northern side, which include vineyards as well as packaging stores and outlets for produce. The agricultural character became more industrial because cultivation is only sustainable with intensive practises, which include structures for climate control. The facility will have low visibility, being established 10 km north of the N14.

12.4 Possible impacts

The quantity of available soil for agricultural production decreases as result of the footprints of these facilities. The quality of soil decreases in the way the construction of these structures alters the workability of the soil. This includes the physical deformation in the soil profile.		
	Overall impact of proposed project considered in isolation	**Cumulative impact of the projects in the area**
Extent	Local – Regional (1)	Regional(2)

Duration	Long Term (4)	Long Term (4)
Magnitude	Low(4)	Moderate (6)
Probability	Probable (3)	Probable (3)
Significance	**Low (27)**	**Medium (36)**
Status (Positive or negative)	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of Resources?	No	No
Can impacts be mitigated?	Yes	Yes
Mitigation: Ensure that most infrastructure features are erected on transformed or non-arable land. Implement stormwater management as an integral part of planning and as a guideline for the positioning of structures. Use existing roads and conservation structures to the maximum in the planning and operation phases. Rehabilitate disturbed areas as soon as possible after construction. .		

Clearing of vegetation increases flow speed and a lower infiltration tempo increases silt transport.		
	Overall impact of proposed project considered in isolation	**Cumulative impact of the projects in the area**
Extent	Local (1)	Regional(2)
Duration	Long Term (4)	Long Term (4)
Magnitude	low (4)	Low (4)
Probability	Improbable (2)	Probable (3)
Significance	**Low (18)**	**Medium (30)**
Status (Positive or negative)	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of Resources?	No	No
Can impacts be mitigated?	Yes	Yes
Mitigation: Erosion and sediment control with proper water run-off control planning.		

Chemicals, hazardous substances and waste used or generated during live span of the facility accumulate and Pollute soil will become contaminated		
	Overall impact of proposed project considered in isolation	**Cumulative impact of the projects in the area**
Extent	Local (1)	Regional(2)
Duration	Long Term (4)	Long Term (4)
Magnitude	low (4)	Low (4)
Probability	Improbable (2)	Probable (3)
Significance	**Low (18)**	**Medium (30)**

Status (Positive or negative)	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of Resources?	No	No
Can impacts be mitigated?	Yes	Yes
Mitigation: Appropriate handling and storage of chemicals and hazardous substances and waste should be done.		

13. ENVIRONMENTAL MANAGEMENT PROGRAMME

The following should be included in the Environmental Management Programme:

Objective: Prevent and clean up soil pollution		
Project components	• PV energy facility • Substation; • Access roads; • Power line; • All other infrastructure (site camp, batching plant etc.).	
Potential impact	Pollution of soil by fuel, cement and other toxic materials	
Activity/risk source	Soil will become contaminated	
Mitigation: Target/Objective	All solid waste must be collected at a central location at each construction site and stored temporary until it can be removed to an appropriate landfill site in the vicinity. The target should be to minimise spillages and soil contamination.	
Mitigation: Action/control	**Responsibility** Construction manager Maintenance team	**Timeframe** Lifespan of facility
Performance Indicator	No spillages	
Monitoring	Regular inspections of terrain and various infrastructure units.	

Objective: Conservation of soil		
Project components	• PV energy facility • Substation; • Access roads; • Power line; • All other infrastructure (site camp, batching plant etc.).	
Potential impact	Erosion of revegetated land	
Activity/risk source	Soil get unusable and unproductive	
Mitigation: Target/Objective	Apply conservation measures.	
Mitigation: Action/control	**Responsibility** Construction Manager Maintenance team Environmental manager	**Timeframe** Lifespan of facility
Performance Indicator	No water run-off problems / erosion	
Monitoring	Regular inspections of terrain	

14. CONCLUSION

With reference to applicable sections of the Regulations for Renewable energy in terms of Act 70 of 1970 and Act 43 of 1983, it can be stated that the proposed site will not suffer major agricultural impacts by the development. The reasons include aspects such as soil potential, geology, climate, loss of cultivating land and stock farming and other possible impacts.

The site does not have high potential soil, mainly because of its geology and climate. The geology shows a layer of red windblown sand to cover rock or surface limestone. Soil properties in such a profile will be very limiting for cultivating crops. The arid climate also has a negative impact on production of crops.

The field study shows that almost 60% of the soil has an effective depth of less than 300 mm and the rest with a depth not exceeding 600 mm.

Due to the limiting conditions, the site is classified as Class VII capability, in terms of which it is unsuited for cultivation and restricts utilisation to grazing, woodland or wildlife.

The same environmental conditions can be applied to the potential of the grazing. The grazing capacity is calculated to be 32 ha per large stock unit (LSU).

The farm is managed in two units: An intensive cultivated unit south of the N14 (±430 ha), while the part north of the N14 is used for livestock farming. The infrastructure required for such practice is still intact. The site is currently utilised as a game camp.

Four energy facilities are already authorised on this farm. Two are under construction. The units are in a cluster enabling economical use of connections to the gridline and with a low impact on movement around the farm.

The alignment of access roads and grid connection lines will have a low impact on the environment if the required mitigation is applied.

The findings of this study indicate that the proposed power facility will have minimal impacts on agriculture, locally and on site, and will have very little influence on the current commercial farming.

Christo Lubbe

C R LUBBE 24 May 2020
AGRICULTURAL SPECIALIST

LIMITATIONS

This Document has been provided subject to the following limitations:

(i) This Document has been prepared for the particular purpose outlined in it. No responsibility is accepted for its use in other contexts or for other purpose.

(ii) CR Lubbe did not perform a complete assessment of all possible conditions or circumstances that may exist at the site referenced in the Document. Conditions may exist which were undetectable at the time of this study. Variations in conditions may occur from time to time.

(iii) Where data supplied by the client or other external sources, including previous site investigation data, have been used, it has been assumed that the information is correct unless otherwise stated. No responsibility is accepted for incomplete or inaccurate data supplied by others.

(iv) This Document is provided for sole use by the client and its professional advisers and is therefore confidential. No responsibility for the contents of this Document will be accepted to any person other than the Client.

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Appendix A

Curriculum Vitae - Christiaan Rudolf Lubbe

KEY QUALIFICATIONS:

- National Higher Diploma in Agriculture (Irrigation), Technikon Pretoria (Now Tshwane University of Technology), 1982.
- Certificate in Stereoscopic Interpretation, Geology and Resource Classification and Utilisation, Department of Agriculture, 1979.
- National Diploma in Agriculture, Technikon Pretoria (Now Tshwane University of Technology), 1976.

OTHER EDUCATION:

- Certificate in Turf Grass Management, Technikon Pretoria, 1987
- Certificate in Landscape Management, Technikon Pretoria, 1988
- Cultivated pastures (Mod 320), University of Pretoria, 1995
- NOSA Health and Safety Certificate, 1996
- FSC Auditors Course (Woodmark, UK) Sappi Ltd, 2003
- Certificate of Competence: Civil Designer - Design Centre and Survey and Design (Knowledge Base, August 2005)

SUMMARY

Work experience of 49 years were progressively gained whilst working as a land use planner (1971-1979 - Extension technician); Lecturer in agricultural engineering and conservation subjects (1980- 1997) and Agricultural Consultant (1998 onwards). Always striving to find the equilibrium in using the natural resources for agricultural production.

CHRONOLOGICAL EMPLOYMENT

Period	1971-1980
Company	Department of Agriculture Transvaal region
Position occupied	Final: Senior Extension Technician
Farm planning, technical support, general agricultural extension.	
• Resource potential analyses, Soil classification, Veld evaluation. • Conservation practices on arable land: Include water runoff planning, surveying and design of conservation works. Demonstration of building and inspection of completed structures. • Conservation practices on non-arable land. Veld classification evaluation and management planning. • Survey and design of stock watering systems. Inspection of completed system. • Participated in the development of target areas which included soil survey and water run off planning • Assistance with experimental conservation and agronomy trials.	

Period	1980-1996
Company	Technicon Pretoria
Position occupied	Lecturer
Lecture subjects required to obtain a National Diploma in Agriculture.	
Subjects lectured Land use planning Soil conservation techniques Agricultural mechanisation Pasture science 1 A Drainage	

Period	January 1997 – May 2004
Company	Self employed
Position occupied	Agricultural Consultant (Land use planner)
Soil and veld survey for land capability classification.	

- Physical audit and stock taking of Irrigation Scheme infrastructure at Loskop Dam, Hartebeespoort Dam, Buffelspoort Dam, Bospoort Dam, Roodekopjes Dam and Vaalkop Dam.
- Potential assessments and land use plans for four new upcoming farmers in the Limpopo Province.
- Undertook reconnaissance soil surveys on various plantations and farms.
- GPS survey and alien identification for mapping of Jukskei and Swartspruit areas, as part of the Working for Water Program.
- Participated in a due diligence audit on various plantations in the Limpopo and Mpumalanga Provinces as part of the preparation for a British company's tender to purchase these plantations.
- Survey to provide a detailed inventory of the forest resources in 17 specified Forest Reserves in Ghana to develop a practical and operationally sound methodology for monitoring the natural forest resources in Ghana, based on satellite imagery for the Ghana Forestry Commission.
- Lectures Basic Farm Planning short courses in Limpopo and Gauteng.

Period	June 2004 – June 2006
Company	Gauteng Department of Agriculture Conservation and Environment
Position occupied	Acting Assistant Director Resource planning and Utilization
Site classification, evaluation, land use planning and farming extension in general.	
• Plan the utilization of agricultural resources in the Province for sustainable agricultural production and economic development • Provide advanced scientific and practical information, advice and training (formal and informal) pertaining to land use planning to stakeholders, in order to maximise their ability to utilise their farm land effectively. • Irrigation design and technical support. • Evaluate Scoping Reports for development and exemption for EIA application. • Capability surveys for Land Reform for Agricultural Development Land • Member of technical working group for the zonation of high potential land in Gauteng	

Period	July 2006 to date
Company	Self employed
Position occupied	Land Use Consultant
Period of employment	14 years
Compile agricultural potential studies	
Land capability classification and evaluation as part of • Environmental Impact Assessments • Motivation report for change in land use • Verification of desktop studies. • Specialised agricultural ventures.	
Agricultural impact studies for Scoping and EIA relating to : • Construction of renewable energy facilities (Various solar as well as wind and hydro electrical) • Rezoning municipal boundary (Witsand) • Construction packaging facility (Augrabies) • Construction desalination plant (Witsand) • Establish new graveyard (Zoar) • Feasibility study feedlot (Sudan) • Mapping potential agricultural land (Kongo) • Verifying desktop studies	

Appendix B

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

	(For official use only)
File Reference Number:	12/12/20/ or 12/9/11/L
NEAS Reference Number:	DEA/EIA
Date Received:	

Application for integrated environmental authorisation and waste management licence in terms of the-

(1) National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2014; and

(2) National Environmental Management Act: Waste Act, 2008 (Act No. 59 of 2008) and Government Notice 921, 2013

PROJECT TITLE

Specialist:	C R Lubbe		
Contact person:	Christo Lubbe		
Postal address:	4 Protea Street, Riversdale		
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Telephone:	--	Fax:	--
E-mail:	macquarrie@vodamail.co.za		
Professional affiliation(s) (if any)	None		

Project Consultant:	Cape Environmental Assessment Practitioners (Pty) Ltd		
Contact person:	Dale Holder		
Postal address:	PO Box 2070, George		
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Telephone:	044 874 0365	Fax:	044 874 0432
E-mail:	dale@cape-eaprac.co.za		

4.2 The specialist appointed in terms of the Regulations_

I, Christiaan Rudolf Lubbe, declare that –

General declaration:

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:

C R Lubbe
Name of company (if applicable):

24 May 2020
Date: