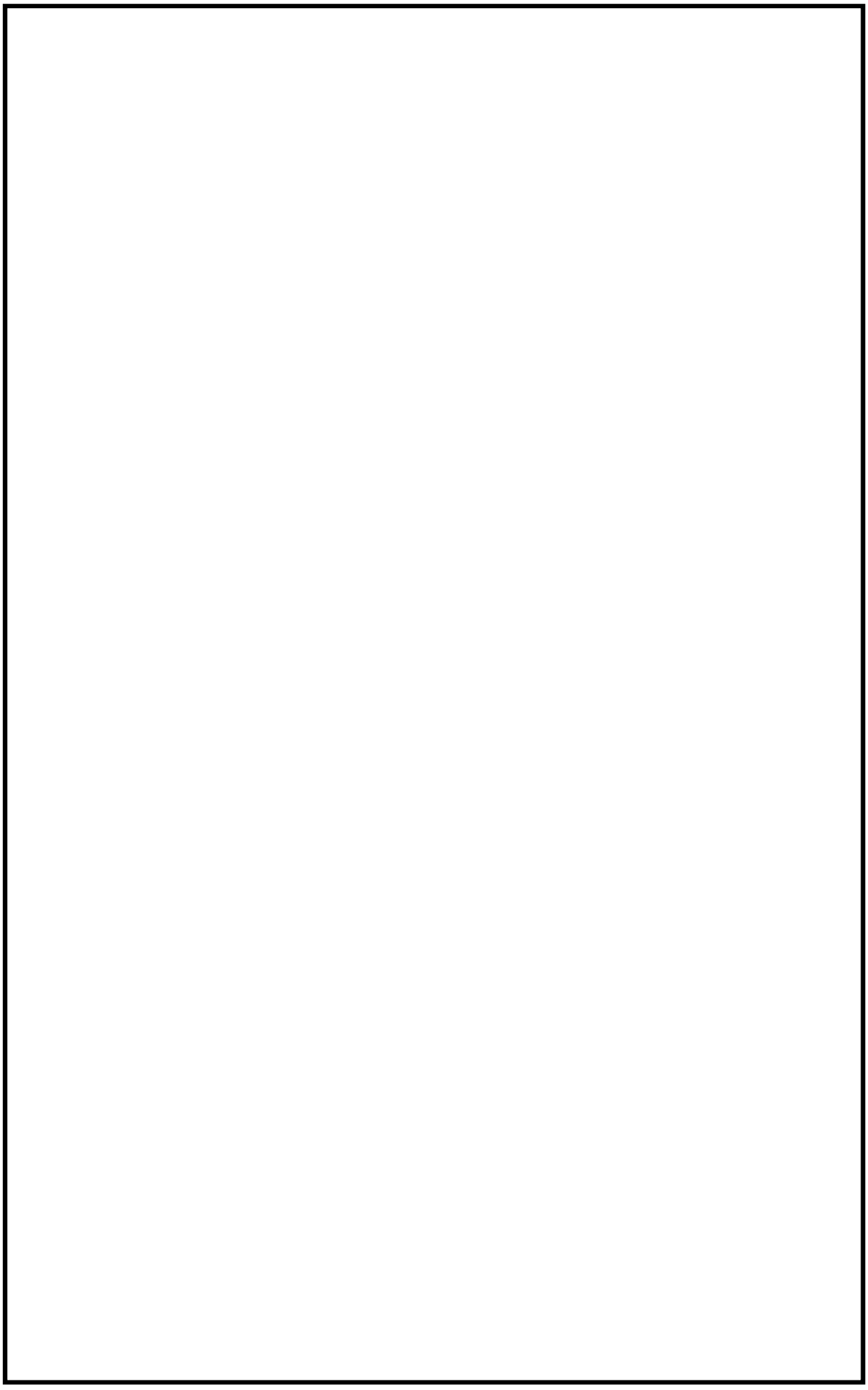

I, Louis George du Pisani, hereby confirm my independence as specialist and declare that I have no interest, be it business, financial, personal or other, in any proposed activity, application or appeal in respect of which I was appointed other than fair remuneration for work performed on this project.

_____ 6 August 2012

L G du Pisani **Date**

Dr L G du Pisani (B.Sc. Agric., Hons. B.Sc. Agric., M.Sc. Agric., Ph.D. Agric.)
Pr. Sci. Nat. 400178/2012

Summary of Expertise

>>More than 20 years experience in pasture and natural resource management in the Karoo

>>Author or co-author of 20 publications in international and national journals and papers

>>Presented 5 papers at International Conferences, as well as 2 at Regional and 10 at National Conferences

>>Was a member of 13 National Committees of the Department of Agriculture

>>Completed several agricultural potential studies in South Africa, Namibia and Argentina

>>Registered as professional member of The South African Council for Natural Scientific Professions (SACNASP) (Agricultural Science), with registration number 400178/2012

the full fee for the work as agreed, shall be entitled to use them for its own benefit and for the specified project only.

EXECUTIVE SUMMARY

Site name and location: Prieska PV Solar Energy Facility: A proposed site occurs on Portion 3 of the Farm Holsloot No. 47 (3164ha), situated in the Siyathemba Local Municipality (Northern Cape Province), located approximately 30km north-east of the town of Prieska (on the R357 to Douglas) where a commercial photovoltaic solar energy facility of 70 MW is to be constructed.

Purpose of the study: To carry out a scoping study of the soil and agricultural resources of the site where the establishment of a 70MW solar energy facility is planned and provide a professional opinion on (i) whether the proposed site is of such high agricultural potential that the proposed development would lead to a significant loss of agricultural potential in the area and the property is situated upon, (ii) whether the site is situated within agricultural sensitive areas and (iii) to provide a list of possible environmental impacts on the soil and agricultural potential.

The facility would include the following infrastructure:

i An array of photovoltaic (PV) panels
ii A new on-site substation to evacuate the power from the facility into the Eskom grid
iii Mounting structure to be either rammed steel piles or piles with pre-manufactured concrete footings to support the PV panels.
iv Cabling between the project components, to be lain underground where practical.
v Internal access roads and fencing.
vi Workshop area for maintenance, storage, and offices.

Specialist: **Dr L G du Pisani** (B.Sc. Agric., Hons B.Sc. Agric., M.Sc. Agric., Ph.D. Agric.)
Pr. Sci. Nat. 400178/2012

Date of Report: 6 August 2012

CONCLUSIONS OF THE SCOPING PHASE STUDY:

1 The size of the site is relatively insignificant when compared to the area of the Relative Homogeneous Farming Area it represents, as well as the total carrying capacity. The potential loss of agricultural potential is therefore regarded as negligible.

2 The site is relatively poor in terms of agricultural potential and is primarily suitable for extensive grazing purposes with sheep and goats.

3 It does not appear that the site consists of unique agricultural land.

4 There is no evidence that any part of the site is currently under cultivation or has been cultivated over the last ten years. This fact must be verified during the EIA process.

5 There is no evidence that the site has agricultural infrastructure (i.e. silos, irrigation lines, pivot points, channels, feeding structures, grazing camps, animal housing, farm roads, etc.) or any conservation works (i.e. contour banks, waterways, etc.) that will be interfered with.

There are watercourses visible on the topographic maps and Google Earth Image of the site. The extent and sensitivity of these watercourses should be verified during the full EIA process to ensure that no development takes place within or near any of them.

6 The site is flat to gently sloping, with 70% of the slopes less than 2% and 30% between 3% and 5%. There are no slopes in access of 20% on the site, a fact that should be verified during the EIA process.

7 The site has a low to moderate wind erosion hazard.

The water erosion hazard of a site depends on the slope of the land and the erodibility of the specific soils present. The flat to gently sloping nature of the site predicts a low to moderate water erosion hazard, but there is a possible that soils with a high erodibility may occur on the site. It is expected that the predicted soil loss from the site will be low, but this should be verified during the EIA process.

8 The identified potential impacts are the following (with the potential significance in brackets):

>> Soil degradation due to contamination by diesel, oil, petrol and other contaminants used during the construction phase by vehicles and equipment (Low to High, depending on the magnitude and nature of a spillage of contaminants)

>> Soil erosion due to increased and concentrated storm water run-off (High, if not properly managed)

>> Soil erosion due to trampling by vehicles and equipment, as well as construction activities (High)

>> Siltation of watercourses and other natural resources downstream as a result of improper storm water management and soil erosion due to increased and concentrated water run-off (High)

>> Degradation of watercourses (High)

>> Dust production (High)

>> Loss of lands (Low)

>> Interference with agricultural important infrastructure (Low)

9 The following assessments should be verified during the EIA phase:

>>Land capability, current land-use and degradation status of the agricultural resources (i.e. soil and vegetation)

>>Geology and soils, with special reference to sensitivity to erosion and factors contributing to erosion (i.e. slopes, etc.)

>>Climate

>>Agriculturally sensitive areas or areas with high agricultural value (i.e. lands, wetlands and watercourses)

>>Agricultural infrastructure (i.e. silos, irrigation lines, pivot points, channels, feeding structures, etc.) that will be impacted upon

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LIST OF APPENDICES

1. INTRODUCTION

The consultant had the following brief:

1.1 To conduct an agricultural potential assessment of the Prieska PV Solar Energy Facility, a proposed site is located on Portion 3 of the Farm Holsloot No. 47 (3164ha), situated in the Siyathemba Local Municipality (Northern Cape Province), located approximately 30km north-east of the town of Prieska (on the R357 to Douglas) where a commercial photovoltaic solar energy facility of 70 MW is to be constructed (see Appendix 1 & 2).

1.2 To compile a report and provide a professional opinion on (i) whether the proposed site is of such high agricultural potential that the proposed development would lead to a significant loss of agricultural potential in the area, (ii) whether the site is situated within agricultural sensitive areas and (iii) to identify the potential direct, indirect and cumulative impacts of the proposed development on the soil and agricultural potential.

2. BACKGROUND INFORMATION

The Department of Agriculture, Forestry and Fisheries (DAFF) (2010) published ''Regulations for the evaluation and review of applications pertaining to wind farming on agricultural land''. It is assumed that the same regulations apply for ''solar farming''. This report states that *''it is important to conduct land use in a way that it optimally adheres to the potential of the land. Consequently, it is imperative that all available land with the potential for producing sustained high crop yields, thus land with a high agricultural production potential, as well as land with a potential carrying capacity for livestock, be effectively utilized and protected for agricultural use. Agricultural production or the use of land for any other purpose should nevertheless not be conducted in a way that it could result in the degradation or loss of the available natural resources. This especially has reference in ensuring that high potential and unique agricultural land is preserved for current and future production thereby ensuring sustainable utilization of the country's natural resource base and adhering to food security*.''

This report by DAFF (November 2010) provides a draft list of guidelines that must be taken into account and be adhered to before permission will be granted for the establishment of Wind Farms on agricultural land. They are:

2.1 No development will be allowed on high potential or unique agricultural land.

2.2 No development will be allowed on areas currently being cultivated (cultivated fields/ production areas) or on fields that have been cultivated in the last ten years. This is relevant to cultivated land utilized for dry land production as well as land under any form of irrigation.

2.3 No development will be allowed should it intervene with or impact negatively on existing or planned production areas (including grazing land) as well as agricultural infrastructure (silos, irrigation lines, pivot points, channels, feeding structures, dip tanks, grazing camps, animal housing, farm roads etc).

2.4 No development will be allowed should it result in the degradation of the natural resource base of the farm or surrounding areas. These include, but are not limited to, soil degradation or soil loss through erosion or any manner of soil degradation, the degradation of water resources (both quality and quantity) and the degradation of vegetation (composition and condition of both natural or established vegetation). It also includes establishment on or impacting on:

2.4.1 Wetlands (*land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil*). No development is allowed on a wetland, vlei, pan or any other water body unless otherwise approved by DAFF.

2.4.2 Flow pattern of run-off water and shall not in any manner divert any run-off water from a water course to any other watercourse or obstruct the natural flow pattern of run-off water.

2.4.3 Utilization and protection of vegetation. Every care should be taken to protect the vegetation and veld condition against deterioration and destruction.

2.5 No development will be allowed should it result in a degradation of existing soil conservation work. This includes but are not limited to:

2.5.1 Contour banks.

2.5.2 Waterways/Watercourses

2.6 No development will be allowed on slopes (*the vertical difference in height between the highest and the lowest points of that portion of land, expressed as a percentage of the horizontal distance between those two points*) of more than 20%.

3. *MODUS OPERANDI* FOLLOWED WITH THE SCOPING

The consultant collected all the available published data concerning the soil and agricultural potential of the site. Data sources included publications, maps and satellite images. The data collected was collated to prepare a professional opinion.

4. SITE INFORMATION

The site is located on Portion 3 of the Farm Holsloot No. 47 (3164ha), situated in the Siyathemba Local Municipality (Northern Cape Province), located approximately 30km north-east of the town of Prieska (on the R357 to Douglas). The position of the site is indicated in the maps depicted in Appendix 1 & 2.

5. SPECIALIST

Dr L G du Pisani (B.Sc. Agric., Hons B.Sc. Agric., M.Sc. Agric., Ph.D. Agric.)
Pr. Sci. Nat. 400178/2012

6. DESCRIPTION OF THE AFFECTED ENVIRONMENT - AGRICULTURAL RESOURCES

Appendix 3 provides a compendium of the agricultural characteristics of the site.

6.1 Land capability and land-use

The site falls within Veld Type 32 (Orange River Broken – Acocks, 1988) and Biome NKu3 (Northern Upper Karoo – Mucina & Rutherford, 2006). The veld type is described as shrubland, dominated by Karoo shrubs, grasses and some low trees and shrubs (Mucina & Rutherford, 2006). The most dominant plant species prevalent are *Rhigozum trichotomum, Acacia mellifera subsp. detinens, Prosopis spp., Pentzia spinescens, Stipagrostis obtusa* and *Stipagrostis ciliata* (Dept. Agric. Dev., 1991). Owing to its proximity to the permanent water of the Orange River, this veld type is, as a rule, badly tramped out (Acocks, 1988).

The site falls within a land capability class of NON-ARABLE WITH LOW POTENTIAL GRAZING LAND (see Appendix 4). The ''best use'' for the area is for grazing with sheep and goats (Vorster, 1985) (see Appendix 3).

The grazing capacity of the region varies between 26 ha/LSU and 40 ha/LSU (Vorster, 1985; Botha, 1998; Department of Agricultural Development, 1991) (see Appendix 5). The calculated carrying capacity of the site is at best 122 LSU's.

The site is representative of a relative homogeneous area of 284 100ha in the Prieska district (see Appendix 3) of which the site (3164ha) represents 1.1%. Taking in account this figure and the relatively low grazing capacity of the site (see pervious paragraph), the proposed development on this site can be regarded as negligible in terms of loss of food production and food security.

The conservation status of biome NKu3 is regarded as ''LEAST THREATENED'' (Mucina & Rutherford, 2006).

6.2 Land types, geology and soils

The site is situated within 3 land types, i.e. Ag, Ae and Fc (Appendix 6), with 70% of the site located in the Ag136 land type, 20% in the Ae301 land type, 5% in the Fc567 land type and 5% in the Fc568 land type (Land Type Survey Staff, 1987).

The geology of the different land types as described as follows (Land Type Survey Staff, 1987):

i Land Type Ag136 (70% of the site area) - Deposits of alluvium and calcrete, often covered with thin aeolian sand, underlain by tillite and mudstone of the Dwyka Formation; sporadic occurrence of andesite (Allanridge Formation).

ii Land Type Ae301 (20% of the site area) - Deposits of aeolian sand, alluvium and calcrete underlain by tillite and mudstone (Dwyka Formation) and andesite (Allanridge Formation). Outcrops of tillite and andesite occur in places.

iii Land Type Fc567 (5% of the site area) - Tillite and mudstone of the Dwyka Formation (Karoo Sequence), often covered by thin deposits of alluvium, sand and calcrete; sporadic Karoo dolerite in the north.

iv Land Type Fc568 (5% of the site area) - Tillite, mudstone, shale and sandstone of the Dwyka Formation (Karoo Sequence), mostly covered by thin deposits of alluvium, sand and calcrete.

The Ag group of land types has red-yellow apedal soils, freely drained, red, with a high base status and with an effective depth of less than 300mm deep on average (Department of Agricultural Development, 1991). The Ae group of land types has red-yellow apedal soils, freely drained, red, with a high base status and with an effective depth of more than 300mm deep on average (Department of Agricultural Development, 1991). The Fc group of land types has Glenrosa and/or Mispah soil forms (other soils may occur), with an effective depth of less than 300mm deep on average (Department of Agricultural Development, 1991).

According to the classification of the AGIS Website of the Department of Agriculture, Fisheries & Forestry – www.agis.agric.za - and Department of Agricultural Development (1991) the site falls within an area with (i) soils with minimum development, usually shallow, on hard or weathering rock, with or without intermittent diverse soils, and where lime is generally present in the landscape and (ii) red soils with a high base status (see Appendix 7).

The following soil forms are to be expected to be present on the site, i.e. Hutton, Oakleaf, Mispah, Glenrosa, Clovelly, Valsrivier and Swartland (Land Type Survey Staff, 1987).

Taking into account all aspects of the soil-conditions on the site, it is expected to be generally ''not suited'' for cultivation.

The land has a low to moderate susceptibility to water and wind erosion (Vorster, 1985; AGIS Website of the Department of Agriculture, Fisheries & Forestry – www.agis.agric.za) (Appendix 8 & 9). There may occur soils on the site with a high erodibility, but in general the predicted soil loss of the site is categorised as low (AGIS Website of the Department of Agriculture, Fisheries & Forestry – www.agis.agric.za) (Appendix 10). It is therefore expected that the site will generally be low to moderately susceptible to erosion, a fact which will need to be studied and confirmed during the EIA phase.

The slope of the land is flat to gently sloping (Appendix 11), with approximately 70% of the area having slopes of less than 2%, and 30% or the land with slopes between 3% and 5%.

6.3 Climate

The climate of the area is typical of the desert (Schulze, 1980) and is categorized as arid. The site falls within an area with a mean annual rainfall of between 200mand 400mm (AGIS Website of the Department of Agriculture, Fisheries & Forestry – www.agis.agric.za). (Appendix 12). According to Vorster (1975) the annual rainfall of the site is approximately 250mm. The rainfall is unreliable and the precipitation is mainly due to convectional showers in summer and autumn (Schulze, 1980), with the height of the rainfall season occurring between the months of February and April (Vorster, 1985). Single, very rare, heavy showers can account

for as much as the normal annual precipitation (Schulze, 1980). The low and erratic rainfall does not allow for dryland cropping, with livestock farming the most important agricultural enterprise.

6.4 Agricultural sensitive areas or areas of high agricultural value (i.e. lands, wetlands and watercourses)

There are no wetlands or lands visible on either the 1:50,000 topographic maps or Google Earth Images.

There are watercourses visible on the topographic maps and Google Earth Image of the site (see Appendix 13). The extent and sensitivity of these watercourses should be verified during the full EIA process to ensure that no development takes place within or near any of them.

6.5 Cultivated fields

There are no cultivated lands visible on the Google Earth Image of the site, a fact that will have to be verified during the EIA process.

6.6 Agricultural infrastructure

There are no agricultural important infrastructure (i.e. silos, irrigation lines, pivot points, channels and feeding structures, etc.) or any conservation works (i.e. contour banks, waterways, etc.), that will be interfered with, visible on the 1:50,000 topographical maps or Google Earth Images of the site.

7. POSSIBLE IMPACTS

7.1 Activities that may have an impact

The following activities may have an impact on the soil and agricultural potential and resources of the site:

- >> Construction and positioning of the concrete foundations of the solar arrays
- >> Positioning and construction of underground cabling between the solar arrays
- >> Construction and positioning of the on-site substation
- >> Construction and positioning of overhead power lines

>> Construction and positioning of internal access roads
>> Construction and positioning of a workshop, office, maintenance and storage area
>> Contamination of the soil and other resources by oil, petrol, diesel and other contaminants by the vehicles and equipment on the site

7.2 Soil and Agricultural Potential and Resources that may be impacted upon

7.2.1 Soil degradation due to contamination

>>Nature of the impact: Spillages of oil, diesel, petrol or other contaminants by the vehicles and equipment, may lead to soil degradation due to contamination. Contamination of the soil may also take place in proposed maintenance and storage sites.

>>Extent of the impact: Local

>>Potential significance: This could vary, depending on the magnitude of a spillage of contaminants.

>>Potentially significant impacts to be assessed during the EIA phase: The mitigation of the impact must be addressed during the EIA phase.

7.2.2 Soil erosion due to increased and concentrated storm water run-off

>>Nature of the impact: Heavy rainstorms do occur in the area. Depending on the placement of the solar arrays and other infrastructure, as well as the erodibility of the soils and the slopes on the site, run-off of storm water may be increased and concentrated, with both direct and secondary effects on the soil, vegetation and other resources downstream.

>>Extent of the impact: Local

>>Potential significance: High, if not properly managed and contained.

>>Potentially significant impacts to be assessed during the EIA phase: Due diligence should be observed in terms of the proper placement of solar panels and other infrastructure, as well as the slopes and erodibility of the soils present on the site.

7.2.3 Soil erosion due to trampling by vehicles and equipment, as well as construction activities

>>Nature of the impact: Improper placement, construction, maintenance and use of access roads and construction sites by vehicles and equipment, may lead to the degradation of the soil surface and result in soil erosion (both wind and water erosion).

>>Extent of the impact: Local

>>Potential significance: High

>>Potentially significant impacts to be assessed during the EIA phase: Consideration should be given to the proper placement of roads and other infrastructure, taking into account the sensitivity of the soils to wind and water erosion and the slopes present on the site. Consideration should also be given to storm water management next to roads and construction sites, as this may cause secondary effects, i.e. soil erosion.

7.2.4 Siltation of watercourses and other natural resources downstream as a result of improper storm water management and soil erosion due to increased and concentrated water run-off

>>Nature of the impact: Improper placement and maintenance of infrastructure, as well as poor storm water management, may lead to water erosion and siltation of water courses downstream.

>>Extent of the impact: Regional

>>Potential significance: High

>>Potentially significant impacts to be assessed during the EIA phase: Consideration should be given to the proper placement of roads and other

infrastructure, taking into account the sensitivity of the soils to water erosion and the slopes prevalent on the site. Consideration should also be given to storm water management next to roads and construction sites.

7.2.5 Degradation of watercourses

>>Nature of the impact: Improper placement and maintenance of infrastructure, as well as poor storm water management, may lead to water erosion and siltation of water courses downstream.

>>Extent of the impact: Regional

>>Potential significance: High

>>Potentially significant impacts to be assessed during the EIA phase: Consideration should be given to the proper placement of roads and other infrastructure, taking into account the sensitivity of the soils to water erosion and the slopes prevalent on the site. Consideration should also be given to storm water management next to roads and construction sites.

7.2.6 Dust production

>>Nature of the impact: Improper construction, maintenance and use of access roads and construction sites by vehicles and equipment, may lead to dust production.

>>Extent of the impact: Local

>>Potential significance: High

>>Potentially significant impacts to be assessed during the EIA phase: Consideration should be given to the proper construction of roads and management of other construction and storage/maintenance sites.

7.2.7 Loss of lands

>>Nature of the impact: Improper placement of the wind turbines or other infrastructure within the existing lands.

>>Extent of the impact: Local

>>Potential significance: Low

>>Potentially significant impacts to be assessed during the EIA phase: Consideration should be given to the proper placement of the solar arrays and other infrastructure.

7.2.8 Interference with agricultural important infrastructure, i.e. (i.e. silos, irrigation lines, pivot points, channels and feeding structures, etc.) or any conservation works (i.e. contour banks, waterways, etc.)

>>Nature of the impact: Improper placement of the wind turbines or other infrastructure within existing infrastructure or conservation works.

>>Extent of the impact: Local

>>Potential significance: Low

>>Potentially significant impacts to be assessed during the EIA phase: Consideration should be given to the proper placement of the solar arrays and other infrastructure.

8 DISCUSSION AND CONCLUSIONS

8.1 The size of the site is relatively insignificant when compared to the area of the Relative Homogeneous Farming Area it represents, as well as the total carrying capacity. The potential loss of agricultural potential is therefore regarded as negligible.

8.2 The site is relatively poor in terms of agricultural potential and is primarily suitable for extensive grazing purposes.

8.3 It does not appear that the site consists of unique agricultural land.

8.4 There is no evidence that any part of the site is currently under cultivation or has been cultivated over the last ten years. This fact must be verified during the EIA process.

8.5 There is no evidence that the site has agricultural infrastructure (i.e. silos, irrigation lines, pivot points, channels, feeding structures, grazing camps, animal housing, farm roads, etc.) or any conservation works (i.e. contour banks, waterways, etc.) that will be interfered with.

There are watercourses visible on the topographic maps and Google Earth Image of the site. The extent and sensitivity of these watercourses should be verified during the full EIA process to ensure that no development takes place within or near any of them.

8.6 The site is flat to gently sloping, with 70% of the slopes less than 2% and 30% between 3% and 5%. There are no slopes in access of 20% on the site, a fact that should be verified during the EIA process.

8.7 The site has a low to moderate wind erosion hazard.

The water erosion hazard of a site depends on the slope of the land and the erodibility of the specific soils present. The flat to gently sloping nature of the site predicts a low to moderate water erosion hazard, but there is a possibility that soils with high water erodibilities may occur on the site. It is expected that the predicted soil loss from the site will be low, but this should be verified during the EIA process.

8.8 The identified potential impacts are the following (with the potential significance in brackets):

>> Soil degradation due to contamination by diesel, oil, petrol and other contaminants used during the construction phase by vehicles and equipment (Low to High, depending on the magnitude and nature of a spillage of contaminants)

>> Soil erosion due to increased and concentrated storm water run-off (High, if not properly managed)

>> Soil erosion due to trampling by vehicles and equipment, as well as construction activities (High)

>> Siltation of watercourses and other natural resources downstream as a result of improper storm water management and soil erosion due to increased and concentrated water run-off (High)

>> Degradation of watercourses (High)

>> Dust production (High)

>> Loss of lands (Low)

>> Interference with agricultural important infrastructure (Low)

9 SUMMARY OF PROPOSED EIA METHODOLOGY

The following on-site assessments should be done during the EIA phase to verify the agricultural assessments done during this scoping phase:

>>Land capability, current land-use and degradation status of the agricultural resources (i.e. soil and vegetation)

>>Geology and soils, with special reference to sensitivity to erosion and factors contributing to erosion (i.e. slopes, etc.)

>>Climate

>>Agriculturally sensitive areas or areas with high agricultural value (i.e. lands, wetlands and watercourses)

>>Agricultural infrastructure (i.e. silos, irrigation lines, pivot points, channels, feeding structures, etc.) that will be impacted upon

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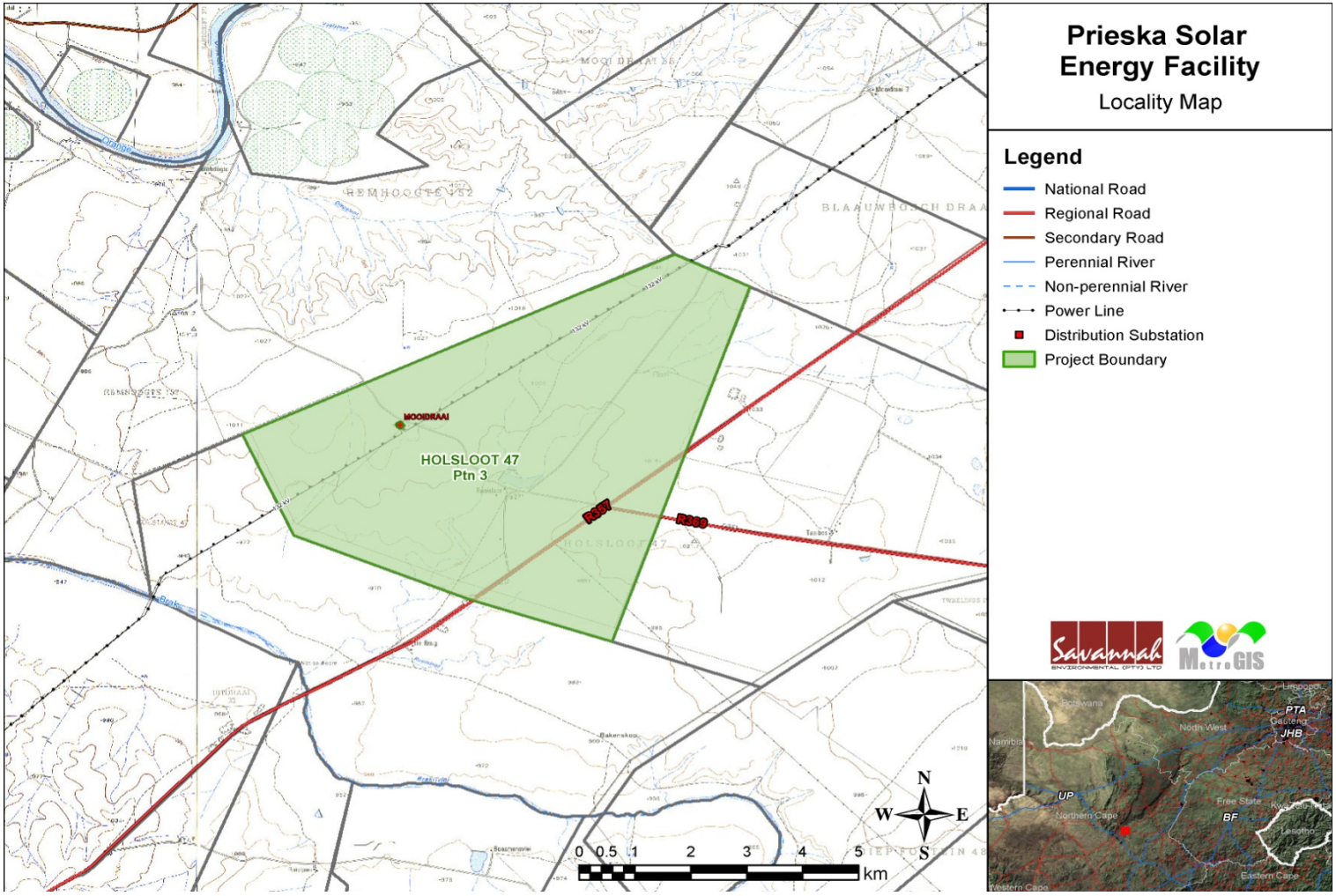
Appendix 1 Locality map of the proposed Prieska Solar Energy Facility (70MW)



Appendix 2 Google Earth Image of the proposed Prieska Solar Energy Site

Proposed Prieska Solar Energy Site

FARM PORTIONS

EDUPLAN
MULTIDISSIPLINÊRE PRAKTYK / MULTI DISCIPLINARY PRACTICE
"Ons kliente is ons advertensie" • "We sell by word of mouth"

P O Box 48
MIDDELBURG (EC)
5900
049-802 7300

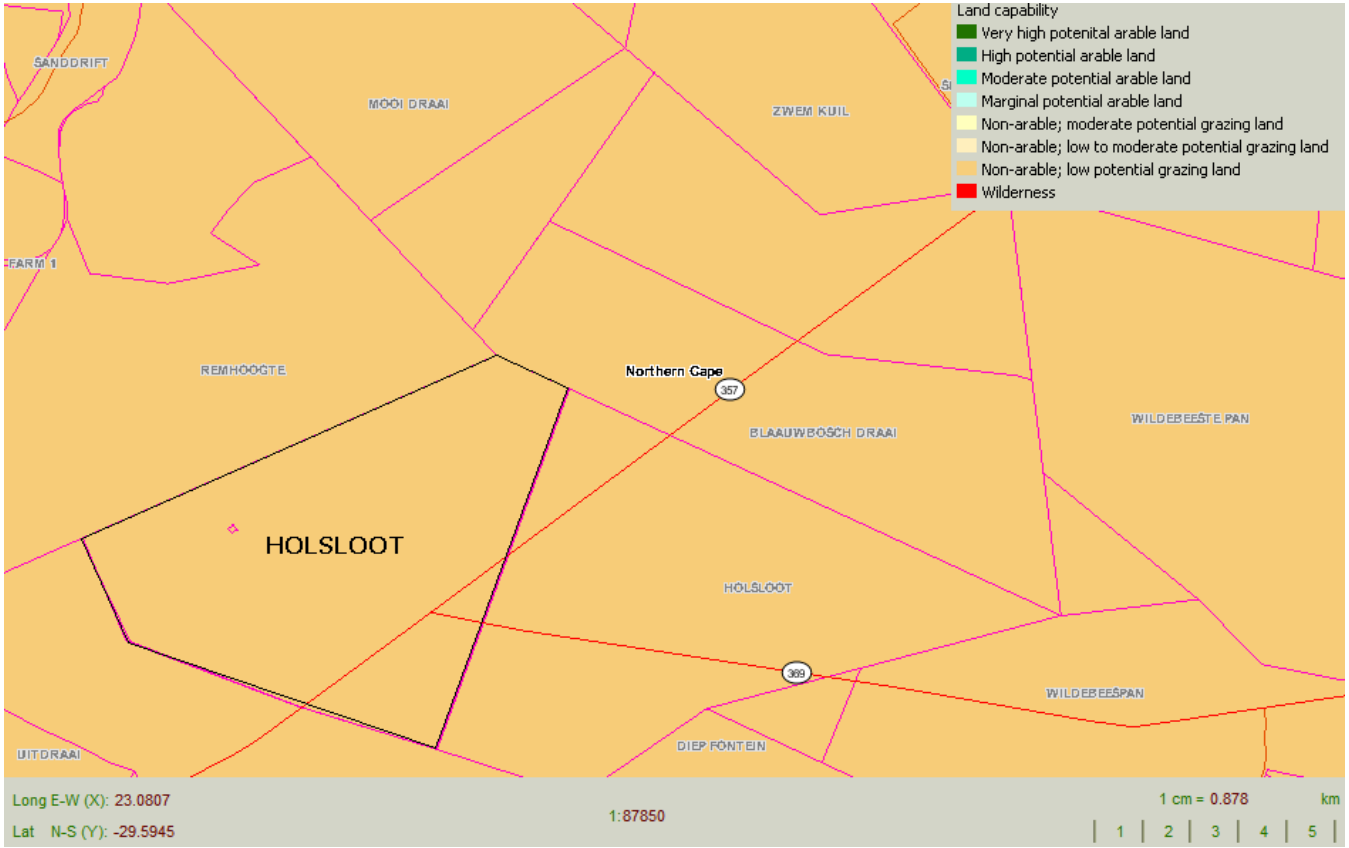
APPENDIX 3 Compendium of the agricultural characteristics of the Prieska Solar Energy Facility (75MW)

Magisterial Districts	Prieska
Area (ha)	284 100ha
Land Types Prevalent (Land Type Staff, 1987)	Ag136 (70% of the site area) Ae301 (20% of the site area) Fc567 (5% of the site area) Fc568 (5% of the site area)
Floristic Climatic Region Most prominent plant species expected on the site (Dept. Agric., 1991; Vorster, 1985)	FCR 24 *Rhigozum trichotomum, Pentzia spinescens, Stipagrostis obtusa, Stipagrostis ciliata, Acacia mellifera, Prosopis spp.*
Climatic Region (Schulze, 1980)	W (Desert)
Average Rainfall (mm per annum) (Schulze, 1980)	250mm
Main Rainfall Season (Schulze, 1980)	February to April
Average Annual Temperature (°C) (Schulze, 1980)	17.5 – 20
Prevalence of Snowfalls (Schulze, 1980)	Very rare
Geology (Land Type Staff, 1987)	**Ag136** - Deposits of alluvium and calcrete, often covered with thin aeolian sand, underlain by tillite and mudstone of the Dwyka Formation; sporadic occurrence of andesite (Allanridge Formation). **Ae301** - Deposits of aeolian sand, alluvium and calcrete underlain by tillite and mudstone (Dwyka Formation)and andesite (Allanridge Formation). Outcrops of tillite and andesite occur in places. **Fc567** - Tillite and mudstone of the Dwyka Formation (Karoo Sequence), often covered by thin deposits of alluvium, sand and calcrete; sporadic Karoo dolerite in the north. **Fc568** - Tillite, mudstone, shale and sandstone of the Dwyka Formation (Karoo Sequence), mostly covered by thin deposits of alluvium, sand and calcrete.
General Soil Patterns (Dept. Agric., 1991, Agis Website, Dept. Agric., Forestry & Fisheries - www.agis.agric.za)	**LP2** (70% of the site) - Soils with minimal development, usually shallow, on hard or weathering rock, with or without intermittent diverse soils, and where lime is generally present in part of the landscape **CM** (30% of the site) – Red soils with high base status **Ag136** - Red-yellow apedal soils, freely drained, a high base status and with an effective depth of less than 300mm deep on average **Ae301** - Red-yellow apedal soils, freely drained, a high base status and with an effective depth of more than 300mm deep on average, dunes absent) **Fc567&568** – Glenrosa and/or Mispah forms (other soils may occur), with lime generally present in the entire landscape
Soil Forms (Vorster, 1985; Land Type Staff, 1987) to be expected	Hutton, Mispah, Glenrosa, Oakleaf, Clovelly, Valsrivier, Swartland, Killarney
Soil Series (Land Type Staff, 1987) to be expected	Mangano, Maitengwe, Kalkbank, Vaalbank, Mispah, Muden, Shorrocks, Shigalo, Malakata, Letaba, Dudfield, Killarney, Lindley, Nyoka, Loskop, Craven, Broekspruit, Limpopo, Annandale, Valsrivier, Lekfontein
Erodibility of Soils (Vorster, 1985 Agis Website, Dept. Agric., Forestry & Fisheries - www.agis.agric.za)	Low to High Water Erosion Hazard Low to Moderate Wind Erosion Hazard
Veld Type (Acocks, 1988) Biome (Mucina & Rutherford, 2006)	Veld Type 32 (Orange River Broken Veld) Biome NKu3 (Northern Upper Karoo)

Grazing Capacity (ha/LSU) (Botha, 1998, Vorster 1985, Dept. Agric. Dev., 1991, Agis Website, Dept. Agric., Forestry & Fisheries - www.agis.agric.za)	26 – 40
Best Agricultural Use (Vorster, 1985)	Grazing for sheep & goats

Appendix 4 Land capability

Source: Department of Agriculture, Fisheries & Forestry – www.agis.agric.za



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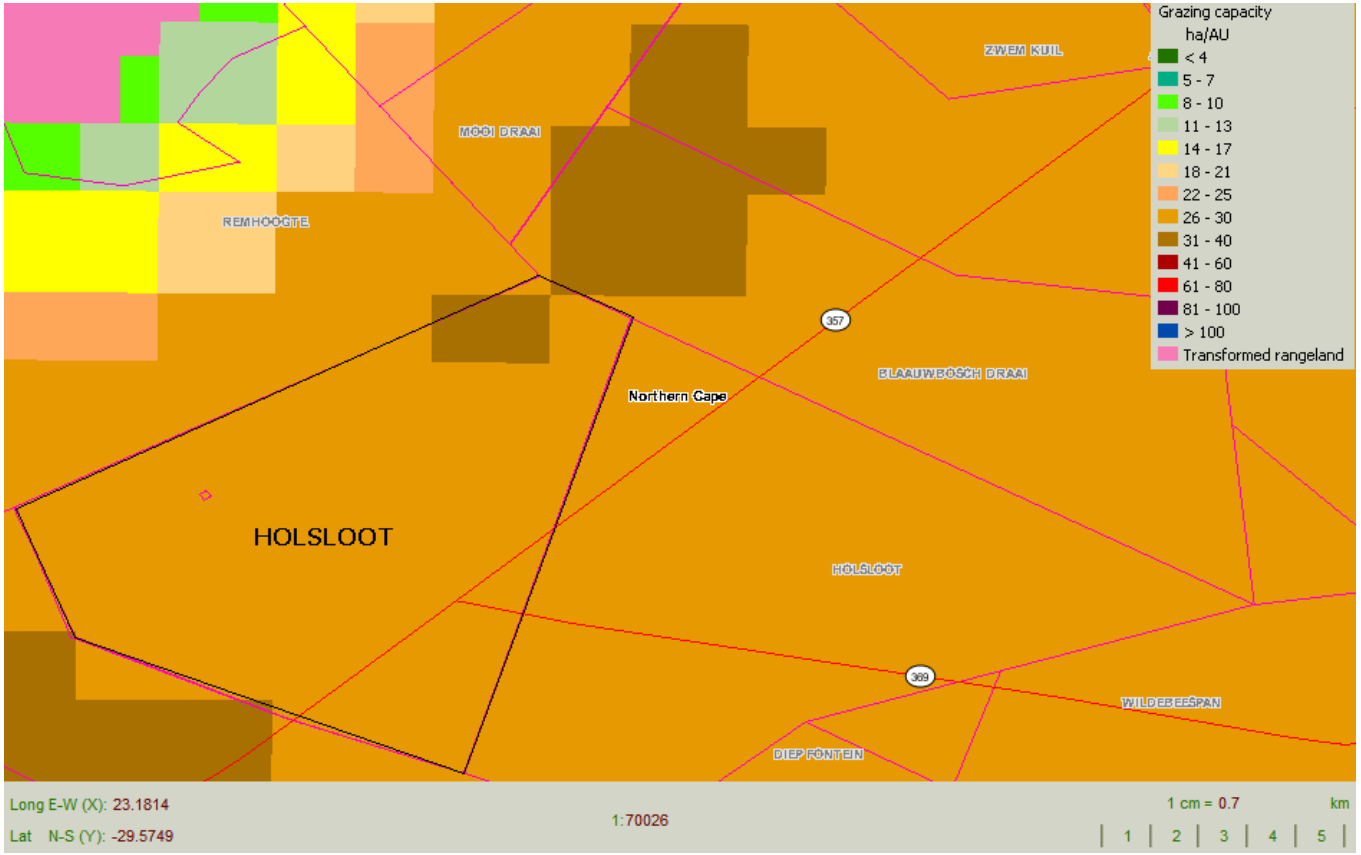
Appendix 5 Grazing capacity

Source: Department of Agriculture, Fisheries & Forestry – www.agis.agric.za



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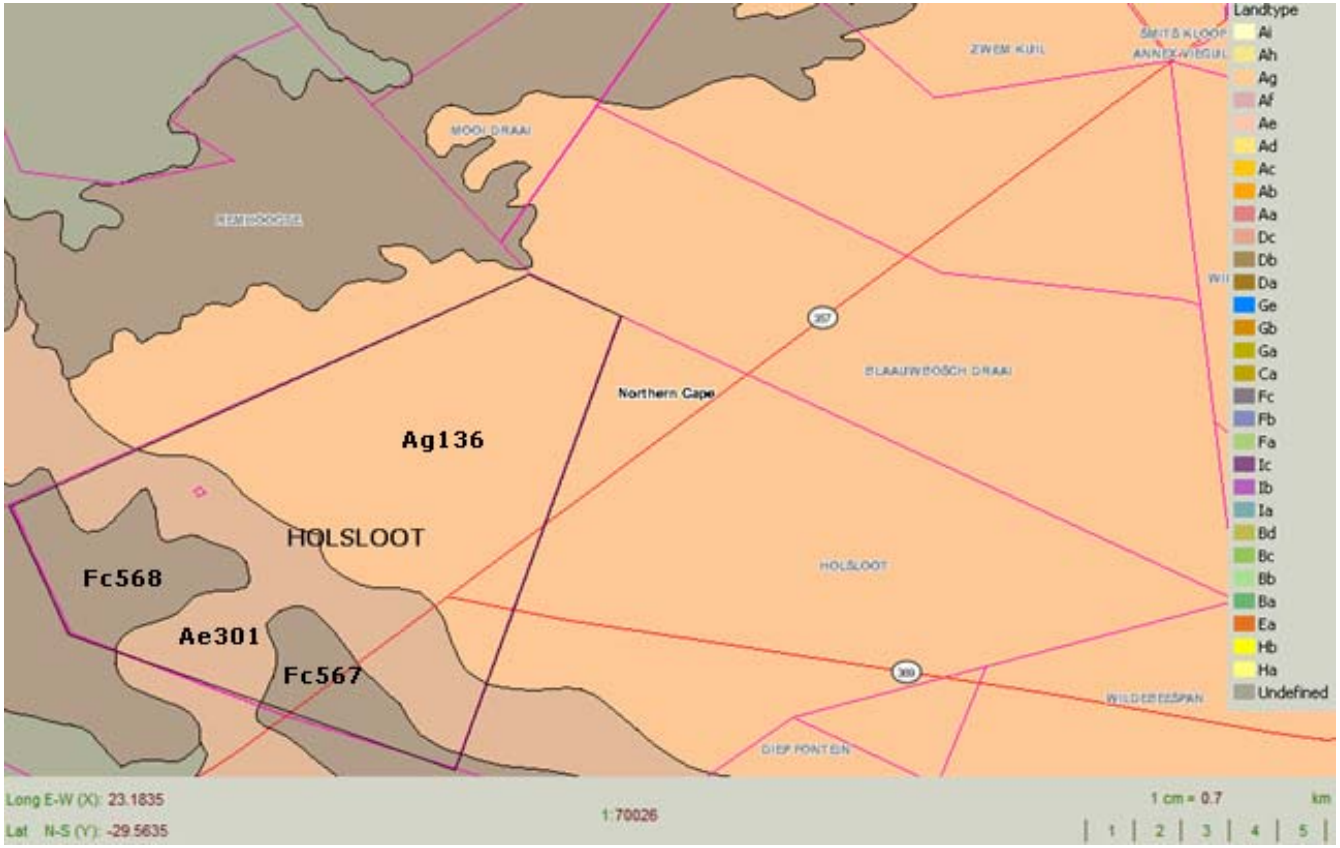
Appendix 6 Land types

Source: Department of Agriculture, Fisheries & Forestry – www.agis.agric.za



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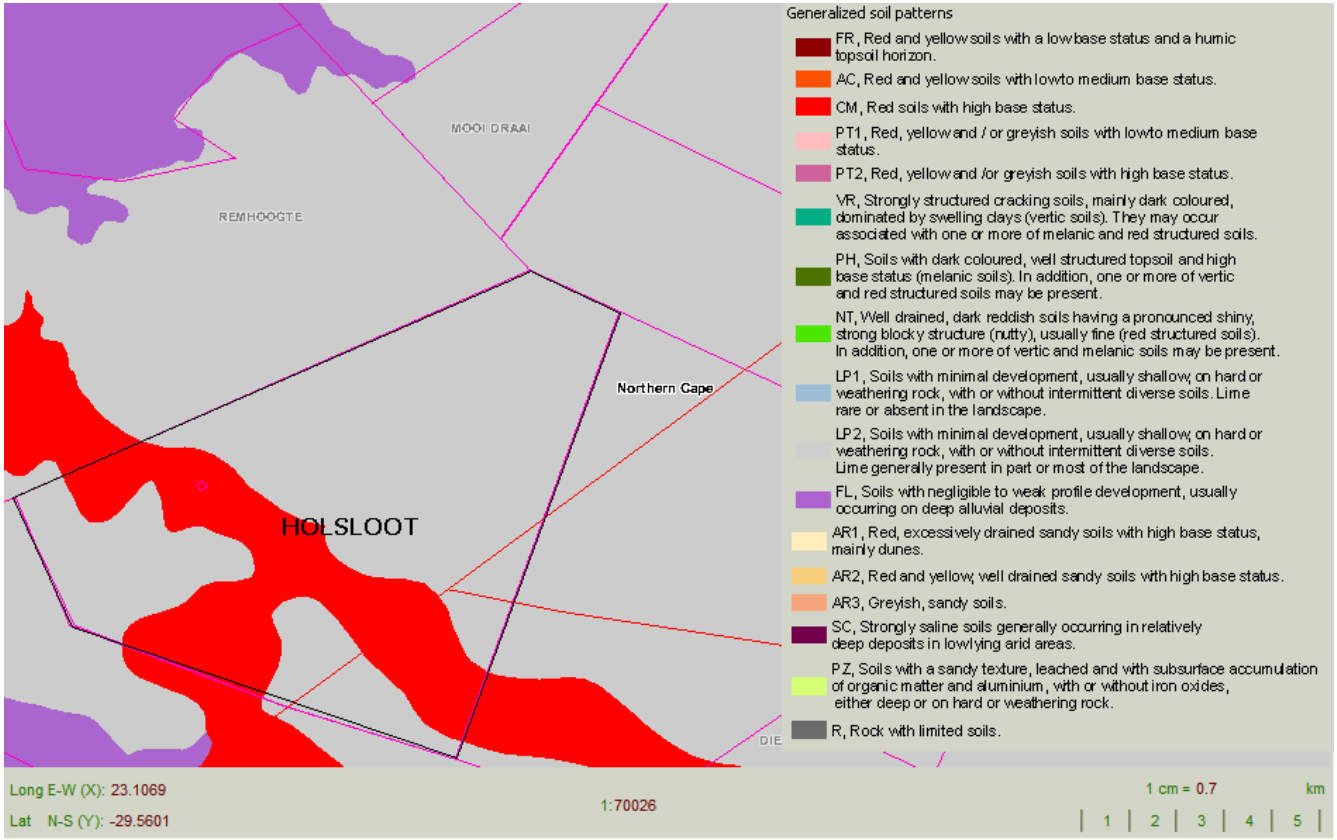
Appendix 7 Generalised soil patterns

Source: Department of Agriculture, Fisheries & Forestry – www.agis.agric.za



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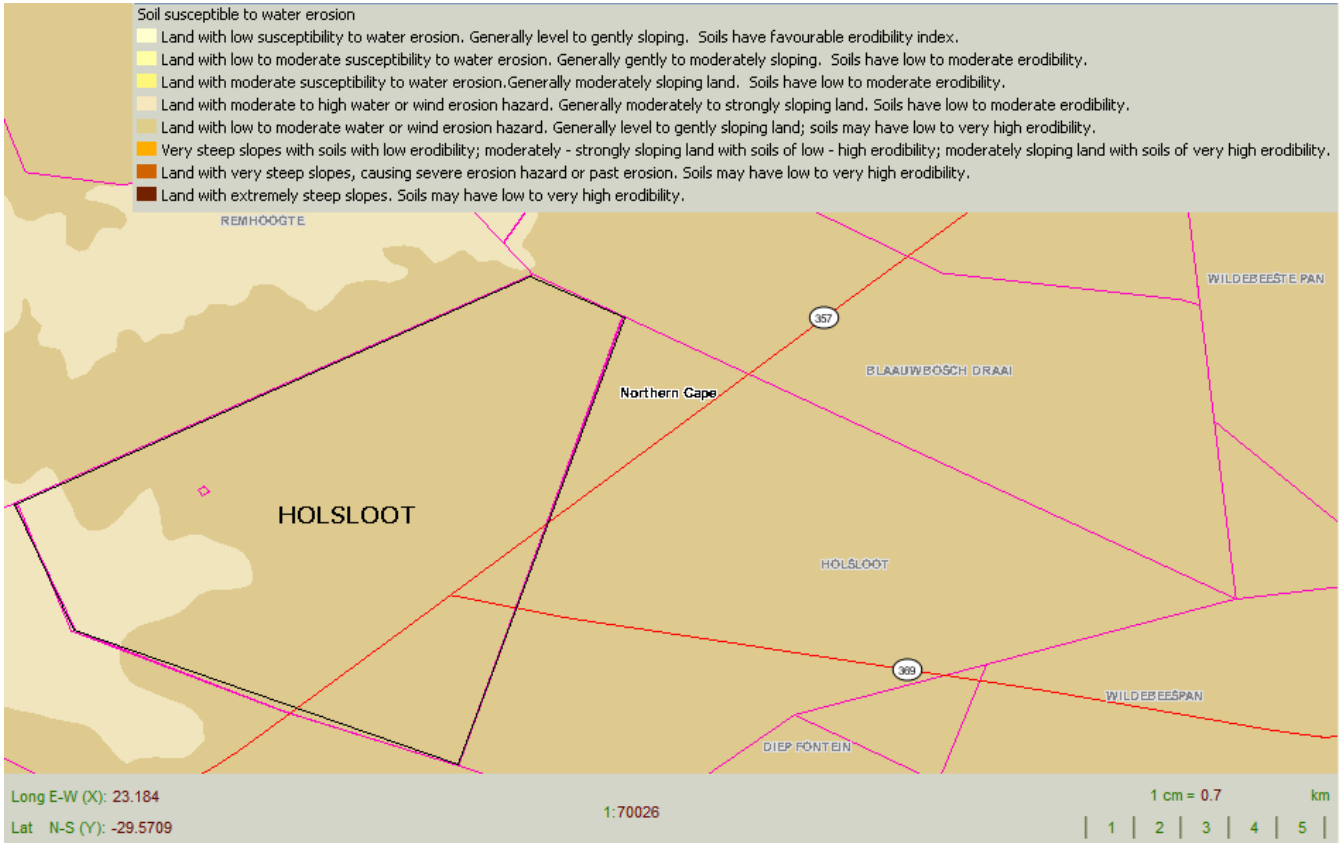
Appendix 8 Soil susceptibility to water erosion

Source: Department of Agriculture, Fisheries & Forestry – www.agis.agric.za



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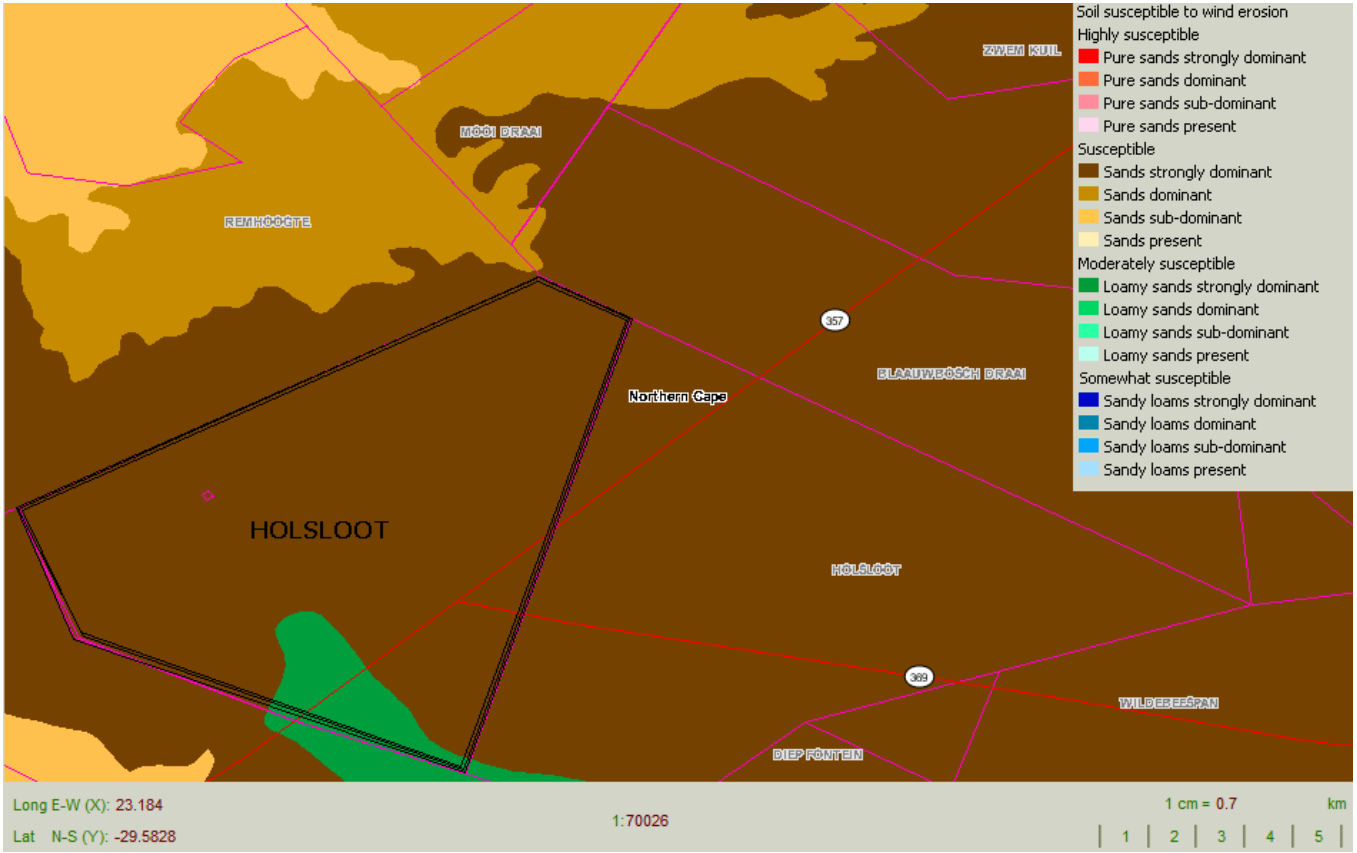
Appendix 9 Soil susceptibility to wind erosion

Source: Department of Agriculture, Fisheries & Forestry – www.agis.agric.za



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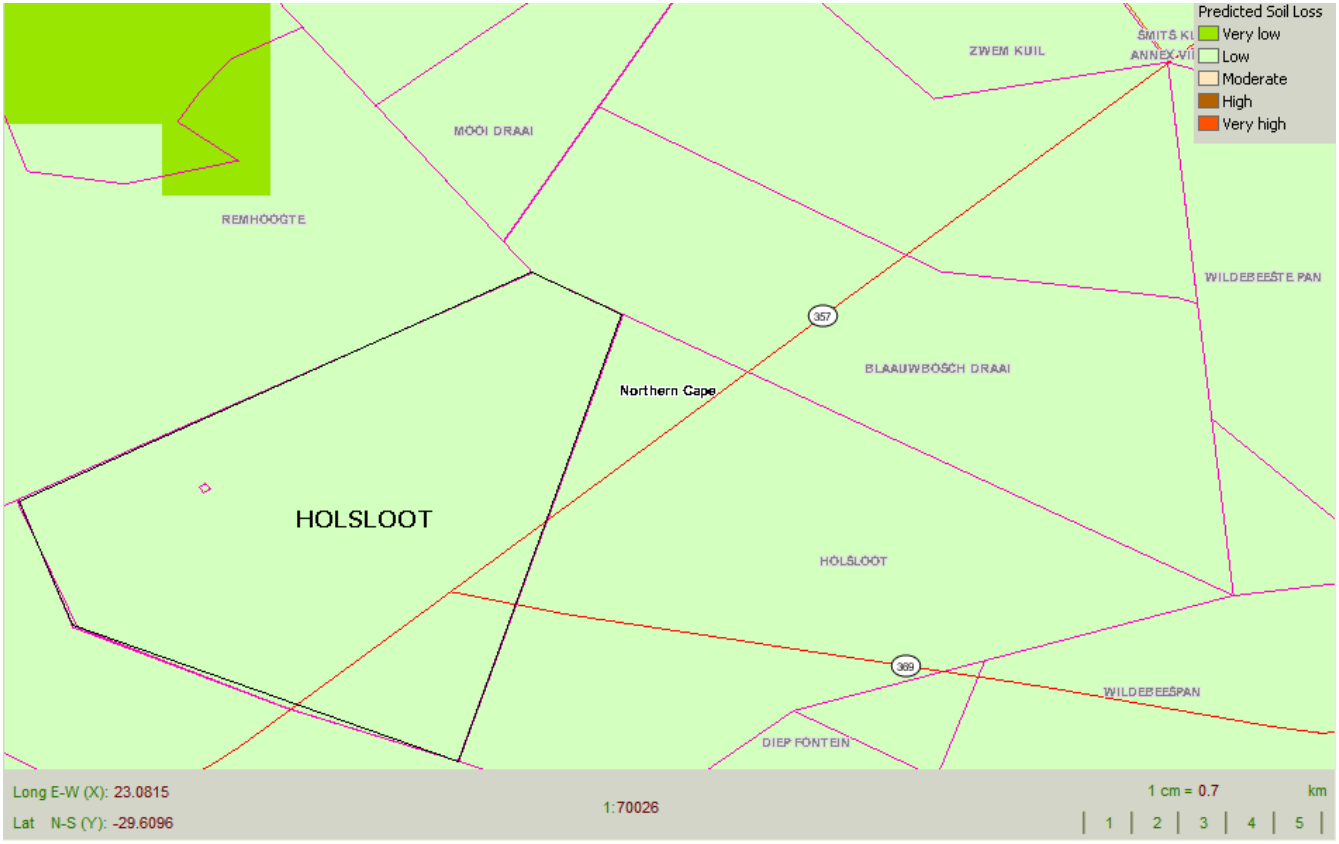
Appendix 10 Predicted soil loss

Source: Department of Agriculture, Fisheries & Forestry – www.agis.agric.za



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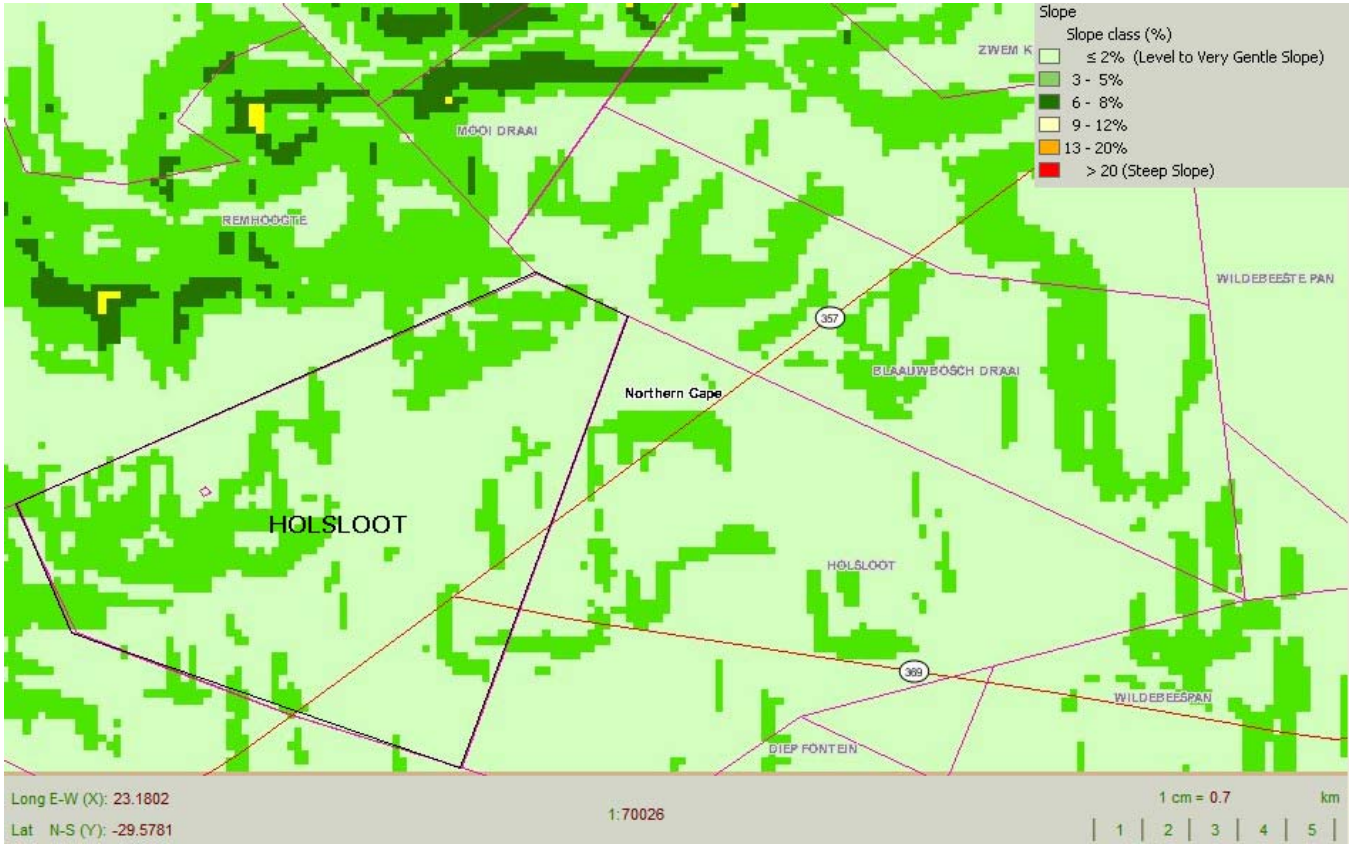
Appendix 11 Slope

Source: Department of Agriculture, Fisheries & Forestry – www.agis.agric.za



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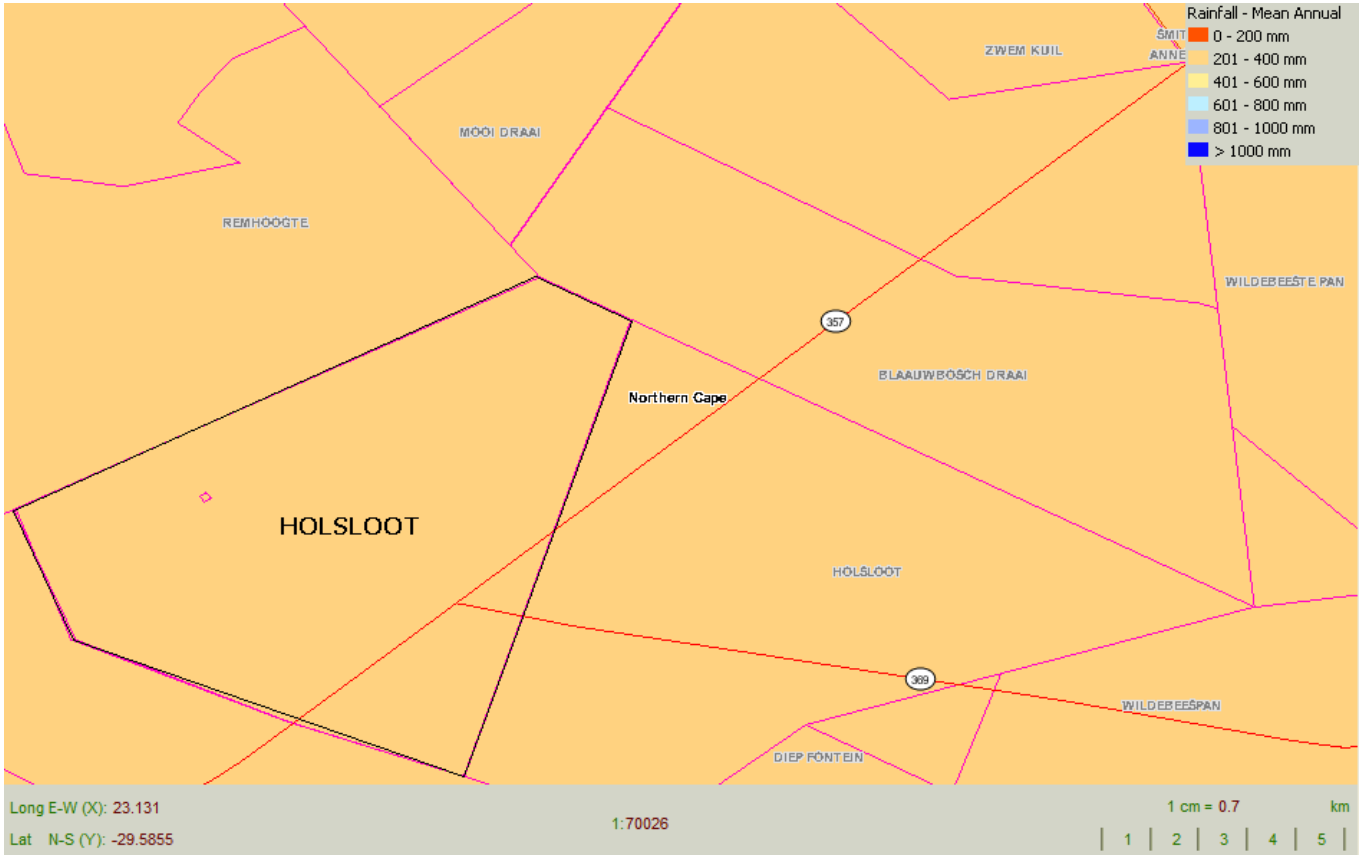
Appendix 12 Mean annual rainfall

Source: Department of Agriculture, Fisheries & Forestry – www.agis.agric.za



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Appendix 13 Google Earth Image depicting areas with possible water-courses on the proposed Prieska Solar Energy Site

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WATERCOURSES & LANDS

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