

# MALMESBURY SOLAR PHOTOVOLTAIC PLANT, ERF 327, MALMESBURY, WESTERN CAPE



**AMENDED**

## SITE SENSITIVITY VERIFICATION (SSV) REPORT

**September 2024**

# **SITE SENSITIVITY VERIFICATION (SSV) REPORT: THE PROPOSED SOLAR PV DEVELOPMENT, PORTION OF ERF 327, MALMESBURY, WESTERN CAPE**

## **1. INTRODUCTION**

The Swartland Municipality has proposed that a solar photovoltaic (PV) facility including associated infrastructure be developed on Portion of Erf 327, Malmesbury.

The proposed development will have a total generating capacity of 19.8MW, and will cover an area of approximately 63ha.

This Site Sensitivity Verification Report (SSVR) was undertaken in terms of the Norm for the Exclusion of the Development and Expansion of Solar Photovoltaic Facilities in Areas of Low or Medium Sensitivity (referred to as “the Solar Exclusion Norms” hereafter) as per Government Notice No. 4558 (published in Government Gazette No. 50388 on 27 March 2024).

The Solar Exclusion Norms provide the rules under which activities for the development and expansion of solar photovoltaic facilities, identified in terms of section 24(2)(a) and (b) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and contained in the Environmental Impact Assessment Regulations Listing Notice 1,2 or 3 of 2014, as well as any listed or specified activities associated with and integral to the realisation of such facility, are excluded from the requirement to obtain an environmental authorisation prior to commencement, while meeting the objectives of the Act.

## **2. METHODOLOGY**

The Site Sensitivity Verification Report (SSVR) was compiled based on desktop studies including the SANBI BGIS Biodiversity Spatial Plan, vegetation maps (Vegetation map of SA (Mucina & Rutherford, 2006, as updated in the 2012 beta version and 2018 Final), National Freshwater Ecosystem Protected Areas (NFEPA) maps, land-use map, Google Earth imagery, historical imagery, CapeFarmMapper), specialist inputs, in combination with a site visit (conducted on 04 October 2023) to investigate, identify, and evaluate potential impacts, associated with the proposed development, on the receiving environment (namely the proposed site for development). The SSVR was compiled by the Environmental Assessment Practitioner (EAP) (Mr Clinton Geysler – EAPASA Registration: 2021/3287).

## **3. AIM OF THE SITE SENSITIVITY REPORT**

The aim of the SSVR is to;

- Verify land use and theme sensitivities as identified by the DFFE Screening Tool (Appendix 4);
- Confirm or dispute, through specialist assessments, the sensitivities of the environmental themes; and
- Where such environmental theme is disputed, provide a motivation to substantiate such a change of environmental sensitivity.

The following environmental themes will be assessed as required by the Solar Exclusion Norms:

- Plant Species
- Animal Species
- Terrestrial Biodiversity
- Aquatic Biodiversity
- Agriculture.

The following environmental themes also identified in the DFEE Screening Tool will be verified:

- Avian
- Civil Aviation
- Defence
- Landscape
- RFI

#### **4. PROJECT DESCRIPTION**

It is proposed that a solar photovoltaic (PV) facility including associated infrastructure be developed on Portion of Erf 327, Malmesbury.

The proposed site is located just outside of Malmesbury, approximately 1km east of the town centre. The site located on the south-eastern side of the R45, and is accessed from Smuts Street along a gravel road.

Site co-ordinates (estimated central point): 33° 28' 01.40" S, 18° 45' 07.70" E.

The proposed development will have a total generating capacity of 19.8MW, and will cover an area of approximately 63ha. The solar panel array will cover an area of approximately 60ha, and the development will include a laydown area (2 000m<sup>2</sup>) and maintenance offices (1800m<sup>2</sup>). An area of approximately 130ha is available for the placement of the facility which has been assessed.

The PV facility will connect to three existing sub-stations in and around Malmesbury via a 11kV underground cable. The total cable length is approximately 4.4km. The cable routes will mostly follow and be laid within existing roads/ road servitudes. Where the cable crosses the Diep River, it will be via overhead cables within existing cable route servitudes.

The facility will comprise Solar PV generation, lithium battery storage and electrical reticulation equipment on approximately 63ha. The modules will be mounted on a table array anchored to the ground utilising rammed or planted steel support posts. A concrete foot piece secured to a steel pen driven into the ground will be used where ramming does not prove feasible. The maximum height of the solar array tables in operation would be approximately 5m and would allow sufficient ground clearance for the free flow of surface water underneath the panels.

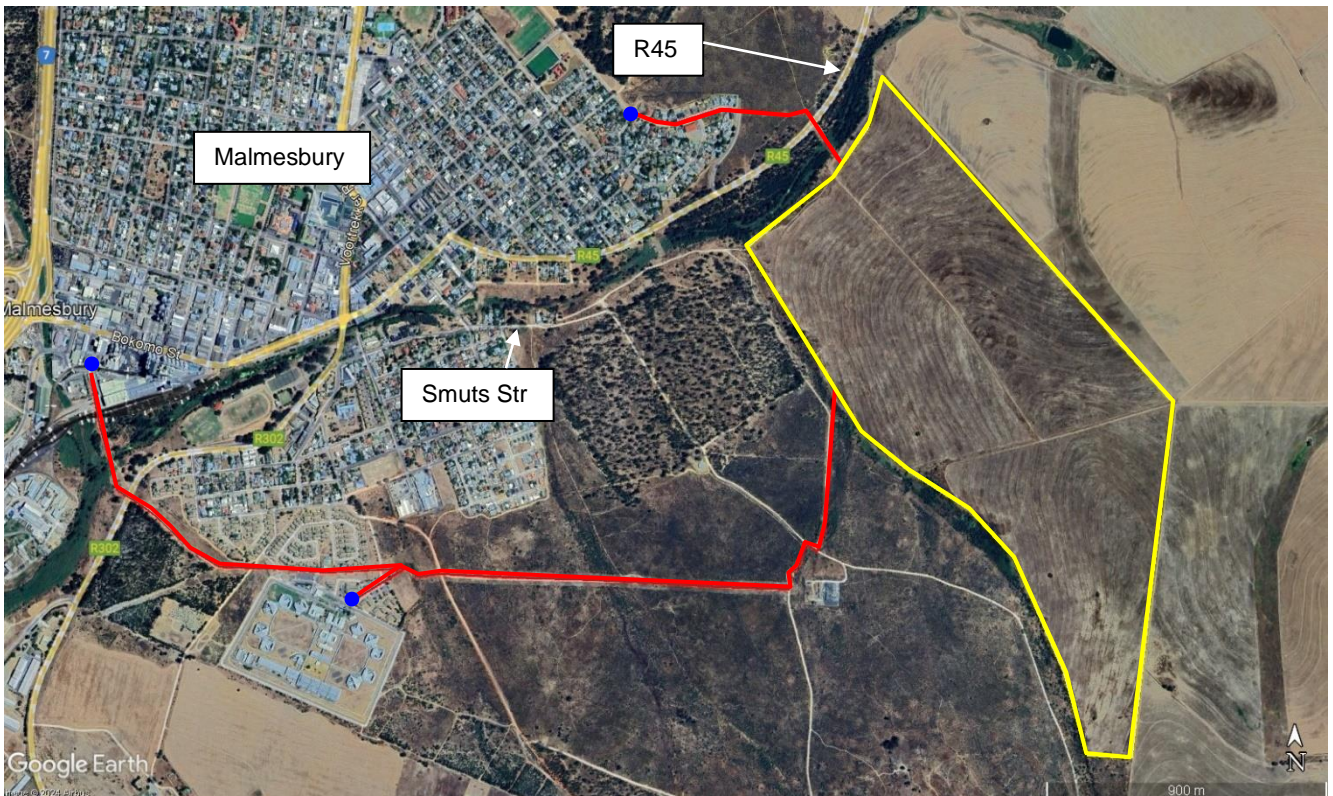
The facility and associated infrastructure will be accessed via existing access road. A 5m management track will surround each block of photovoltaic arrays. These single-track management roads will be used as access roads to service and maintain structures and to serve as fire breaks. On full commissioning of the facility, any access points to the site which are not required during operational phase will be closed.

The proposed PV Plant of approximately 60ha (solar panels) will generate a projected power peak (electricity) of approximately 19.8 MWp. Solar PV technology is a method of generating electrical power by converting solar radiation using semiconductors through a process known as the photovoltaic effect. It is not the heat required from the sun but the amount of irradiation available that allows for electrical energy to be generated. PV Panel technology has the following components which consist of:

- PV Cell: A basic PV device, which generates electricity when exposed to solar radiation. All PV cells produce Direct Current (DC) electricity;
- PV Module or Panel: The smallest complete assembly of interconnected PV cells. The modules are typically mounted in a lightweight
- PV Array: A group of PV panels connected together is termed as PV Array. An interconnected system of PV modules that function as a single electricity producing unit. The proposed PV panels are approximately

2.3m in height and 1.3m in width later confirmed). These panels will be installed on single axis tracking mounting structures.

Mounting Structure: The single axis tracking mounting structure is approx. 4.5 m in height. Total height is approximately 5m depending on the specific ground clearance allowed below the structure and make and model of the PV array secured steel posts, planted in the ground, providing structural support for the PV array. Each PV Array table is approximately 12m in length and 4.5m series to make a Solar Array tab typically varies from 260-360m. The rows are then arranged in a matrix throughout the Solar field with all energy generated being consolidated at the electrical reticulation points.



**Figure 1:** Google Earth image showing the locality of the proposed solar PV site area (~130ha)(yellow polygon) and the power cable routes (red lines) to the existing sub-stations (blue dots).

## 5. NEED AND DESIRABILITY

Swartland Municipality Spatial Development Framework (2023)

The following are extracts from the Swartland SDF: “The availability of bulk infrastructure and services contribute to the economy and future development in Swartland settlements.” “Green/renewable projects for Swartland are provided for in Malmesbury and Darling”. The proposal will contribute to providing bulk electricity to Swartland Municipality, which can be utilised for either future development or can be fed back into the Eskom grid. The proposal will either way contribute to the relief of the energy crisis in South Africa.

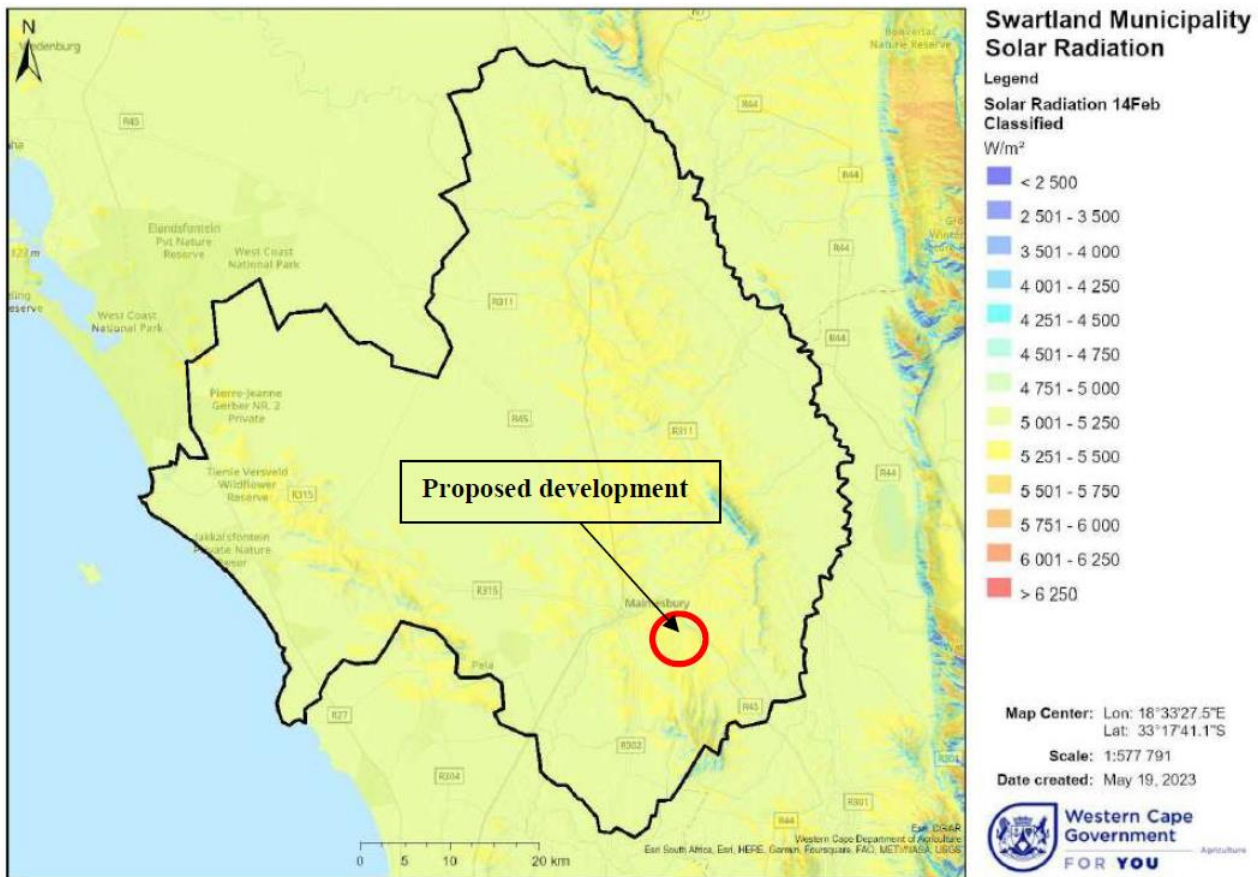
The SDF also emphasizes the need to address vulnerabilities in the local economy, particularly in sectors such as the fishing industry, agriculture, and tourism. This can be achieved through the following measures:

- Diversify of activities,
- Strengthen municipal and communal disaster risk management and preparedness.
- Find and support alternative resources for energy and adopt renewable energy technology.

## SITE SENSITIVITY VERIFICATION REPORT – MALMESBURY SOLAR PV

The proposal therefore complies with addressing these vulnerabilities in the local economy by proposing an additional renewable energy facility.

The proposed development is located within a high irradiation zone (See Figure 2). The proposal to operate a solar facility in this location is therefore highly favourable.



**Figure 2:** Extract from Swartland radiation zones

Alternative Solar Energy Facilities (extracts from the Swartland SDF)

- Change:
  - Provide for solar facilities to cater for future urban expansion. Generate alternative energy;
  - Plan for future urban expansion. Generate alternative energy.
  - Provide for expansion of transmission infrastructure.
  - Generate and use of alternative/renewable energy as per energy zones identified. Including
  - generation and use on small & large farms.
  - Ensure maintenance of adequate electricity reticulation.
  
- Develop:
  - Develop and encourage the use of alternative/renewable energy resources in the identified zones: Zone A, medium to high wind speeds, ideal for wind turbines. Zone B, high windspeed zone and C, northern section, high irradiation zone: photovoltaic plants photovoltaic plants;

While the Swartland SDF has identified specific zones for promoting renewable energy, it's important to note that these zones are not restricted exclusively to a particular type of renewable structure.

**SITE SENSITIVITY VERIFICATION REPORT – MALMESBURY SOLAR PV**

From Figure 2 it becomes evident that the town of Malmesbury is situated within the radiation zone, making it an ideal candidate for the development of a solar energy facility. The proposal aligns seamlessly with the Swartland SDF guidelines and recommendations for future development in the region.

While the concept of need and desirability relates to the *type* of development being proposed, essentially, the concept of need and desirability can be explained in terms of the general meaning of its two components in which *need* refers to *time* and *desirability* to *place* – i.e. is this the right time and is it the right place for locating the type of land-use/activity being proposed? Need and desirability can be equated to *wise use of land* – i.e. the question of what is the most sustainable use of land.

#### - NEED

The current energy crisis in South Africa, emphasized the important role that renewable energy can play to generate electricity. The release of solar energy into developments will reduce the pressure of non-renewable resources.

The proposed solar photovoltaic facility will not only be in the interest of Swartland Municipality's local economy but also in the national interest as it contributes to the goals of the White Paper on Renewable Energy. Renewable energy provides an environmentally friendly alternative to energy generation and can contribute to the restriction of pollution and global warming. The application can be seen positively in the light of the following:

- The facility will increase electricity capacity to contribute to the alleviation of SA's energy crisis;
- The facility will meet the demand for diversified energy sources;
- Ensure the future of sustainable energy use;
- Provide local employment opportunities;
- Reduce CO2 emissions and the nation's carbon footprint;
- The proposed development is supported by the Swartland Spatial Development Framework (SDF) that guides sustainable future development;
- The proposed development supports spatial sustainability in terms of LUPA and SPLUMA;
- The proposed development is supported by the Swartland Local Economic Development (LED);
- The proposed development is supported by the Western Cape Provincial Spatial Development Framework (WCPSDF) that guides sustainable future development in the Western Cape area.;
- The proposed development is supported by the Swartland Integrated Development Plan (IDP);
- The proposed development is supported by the national Development Plan 2030 (NDP)
- The development will not adversely affect the character of the area, due to its scale.

#### - DESIRABILITY

The site is ideally located on municipal property, that is underutilised, with little to no environmental constraints.

There are also no restrictions on-site or in the title deed that would prohibit the development of the solar facility on the property.

The topography is also ideal, as the property is generally flat, with a north-facing gradient. It is also in relatively close proximity to existing municipal sub-stations and existing powerlines. It is therefore ideally located.

## 6. SITE DESCRIPTION

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## SITE SENSITIVITY VERIFICATION REPORT – MALMESBURY SOLAR PV

According to the 2020, DEA Land Cover (9-class) map of South Africa (Figure 3), the solar PV area is considered cultivated land used for the cultivation of commercial annual crops on drylands. This was confirmed by the site visit. It also confirmed that the site does not support any remaining natural veld of any significance.

The cable routes crosses “shrubland” consisting of natural vegetation, crosses the Diep River and another unnamed ephemeral stream and also partially located within the urban area of Malmesbury. The cable routing is along existing roads.

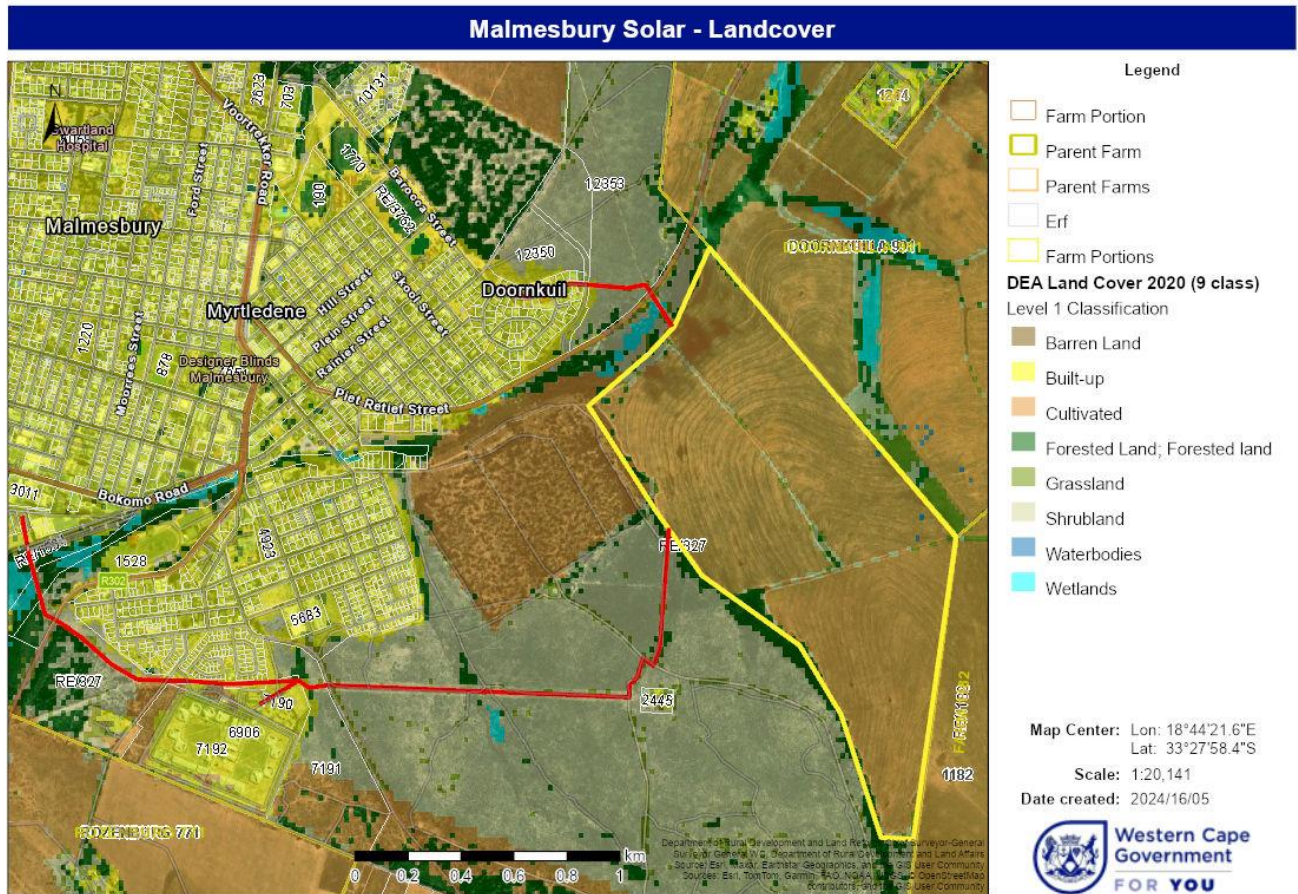


Figure 3: Landcover Map

6.1 Vegetation (Plant Species and Terrestrial Biodiversity):

In accordance with the 2018 Vegetation map of South Africa, Lesotho and Swaziland (Mucina & Rutherford, 2006), the proposed footprint(s) would historically have been covered in one broad vegetation type, namely **Swartland Granite Renosterveld**, a vegetation type classified as “Endangered” in terms of the NEM: BA “revised national list of ecosystems that are threatened and in need of protection” (GN 2747, November 2022) (see Figure 4 below).

According to the Biodiversity Assessment (Appendix 3A), the site verification confirmed that the study area had been transformed as a result of long-term cultivation. No remaining natural veld of any significance remains anywhere within the study area. The whole site still shows signs of recent cultivation together and is covered with crop remains or weedy species (including patches of the indigenous weed, *Galenia africana* (often a disturbance

indicator species). The only plant species of any significance within the study area were 3 mature wild olive trees (*Olea europaea*) (see Figure 5 below).

The status of the vegetation within the study area is considered transformed (old agricultural land). On the edges of the study area, and scattered throughout the site, a number of hardy pioneer shrubs species were occasionally observed. The only plant species of any significance within the study area were 3 mature wild olive trees (*Olea europaea*). Renosterveld is unlikely to restore itself (for many generations, if ever), even with active rehabilitation. Rehabilitation would only be possible if the study area is actively replanted and re-seeded with indigenous vegetation from surrounding intact veld and then protected as a conservation area. In this case, rehabilitation and conservation of the site is not considered a viable option as there would be many other areas in better condition more worthy of conservation efforts.

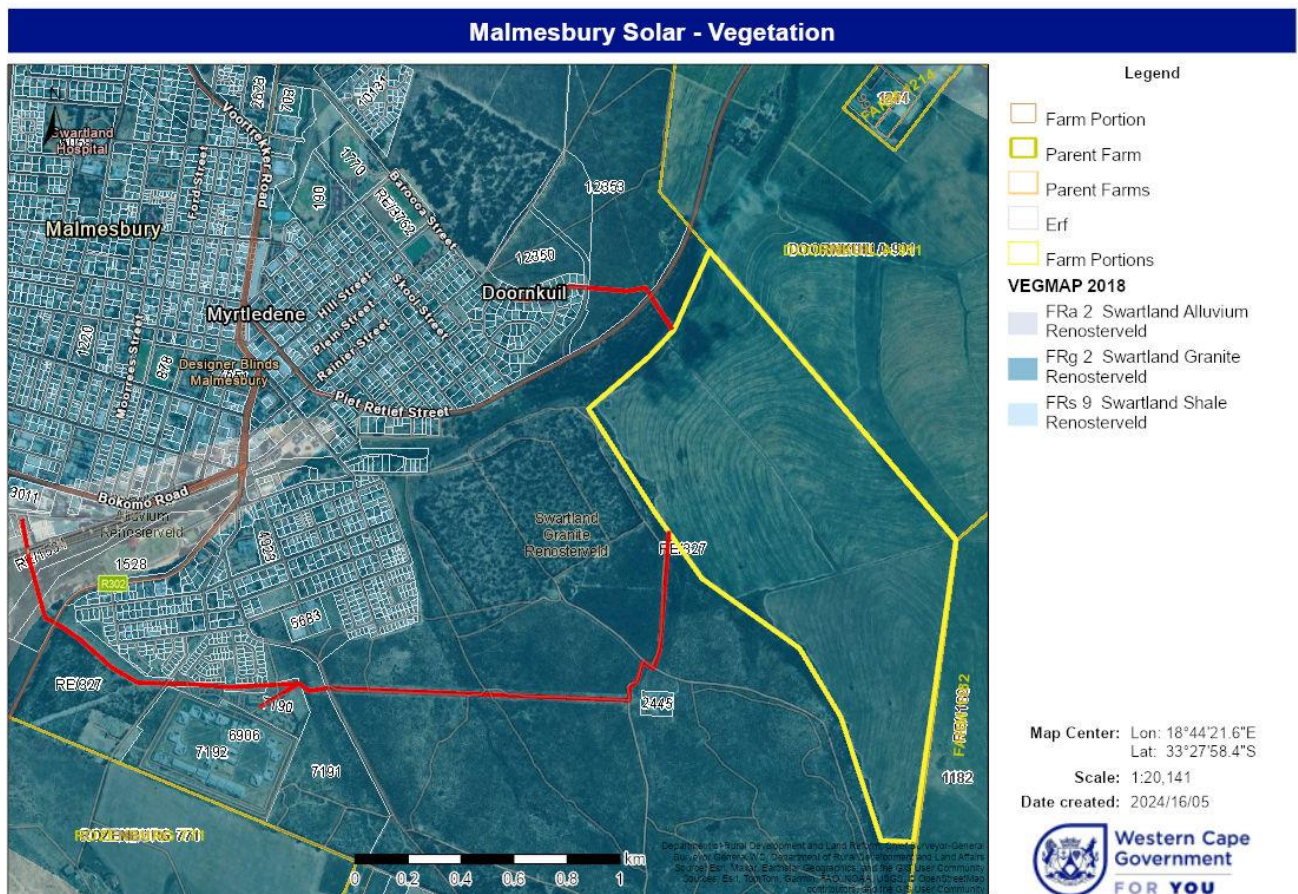


Figure 4: Vegetation Map

However, the connecting powerlines might impact on two watercourses and its associated CBA's and ESA's (see Figure 6). It might also affect CBA's associated with the Klipkoppie Municipal Nature Reserve. At the river the powerlines will be overhead, and within the Nature Reserves the powerlines will be placed underground next to existing roads (which will result in a temporary short to medium term impact).

According to the Biodiversity Assessment (Appendix 3A), the NEMA EIA screening tool report for this project, the relative plant species sensitivity is considered of “**High Sensitivity**”, because the study area might touch or overlap sensitive areas. The original vegetation type is classified as endangered and specifically because of the potential that quite an extensive number of sensitive plants might occur in this area (or is known to have a distribution within the broader area or this vegetation type).

- No red-data or any protected plant species were observed within the proposed footprint

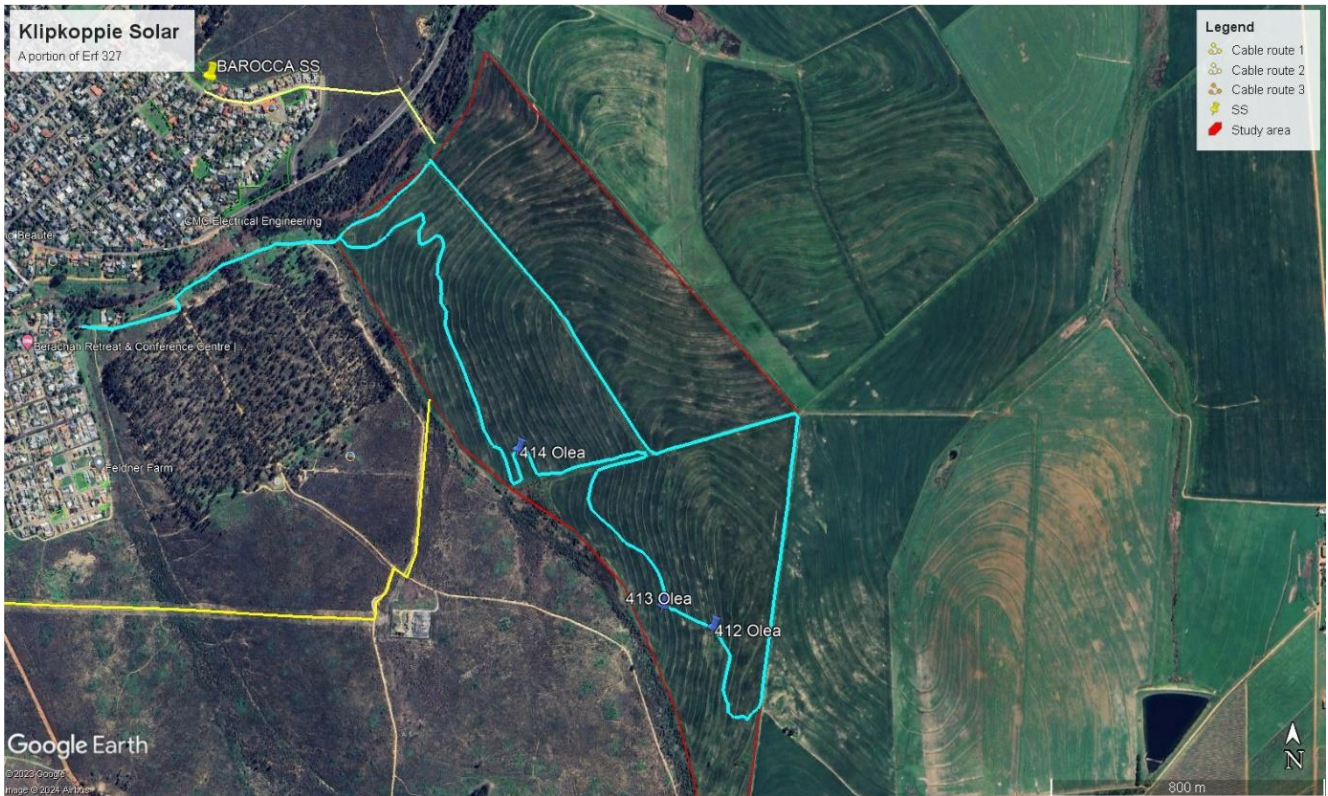
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## EnviroAfrica

- The study area had been under cultivation (dry-land commercial annual crops) over a long period of time and the veld transformed. Only a few hardy or indigenous pioneer species managed to survive the continual impact of agriculture and altered fire regimes. None of the species listed in the screening report were observed.

Because of the degraded state of the study area, it is considered unlikely that the proposed solar facility will result in any significant impact on the plant species sensitivity theme. As a result, the Plant Species theme for this study area is should be rated as **Low Sensitive**.



**Figure 5:** Google overview, showing the location of the *Olea* trees.

According to the Biodiversity Assessment (Appendix 3A), the NEMA EIA Sensitivity scan for the site the Terrestrial Biodiversity Theme Sensitivity is considered **VERY HIGH** because of the potential impact on ecological support areas (ESA's), critical biodiversity areas (CBA's), endangered Swartland Granite Renosterveld vegetation type and sensitive fauna and flora species.

According, to the overall terrestrial impact assessment the main impacts associated with the proposed development will be:

- The potential impact on the two watercourses and the potential impact on the CBA associated with the Klipkoppie Municipal NR;
- A potential low impact on bird species (specifically the Secretary bird).

The Terrestrial Biodiversity Evaluation for this study, gives the potential accumulative impact is considered to a **Medium/Low negative**, which can be reduced to very low with mitigation.

As a result, the Terrestrial Biodiversity Theme Sensitivity for the proposed project is considered **Low Sensitivity**.

## SITE SENSITIVITY VERIFICATION REPORT – MALMESBURY SOLAR PV

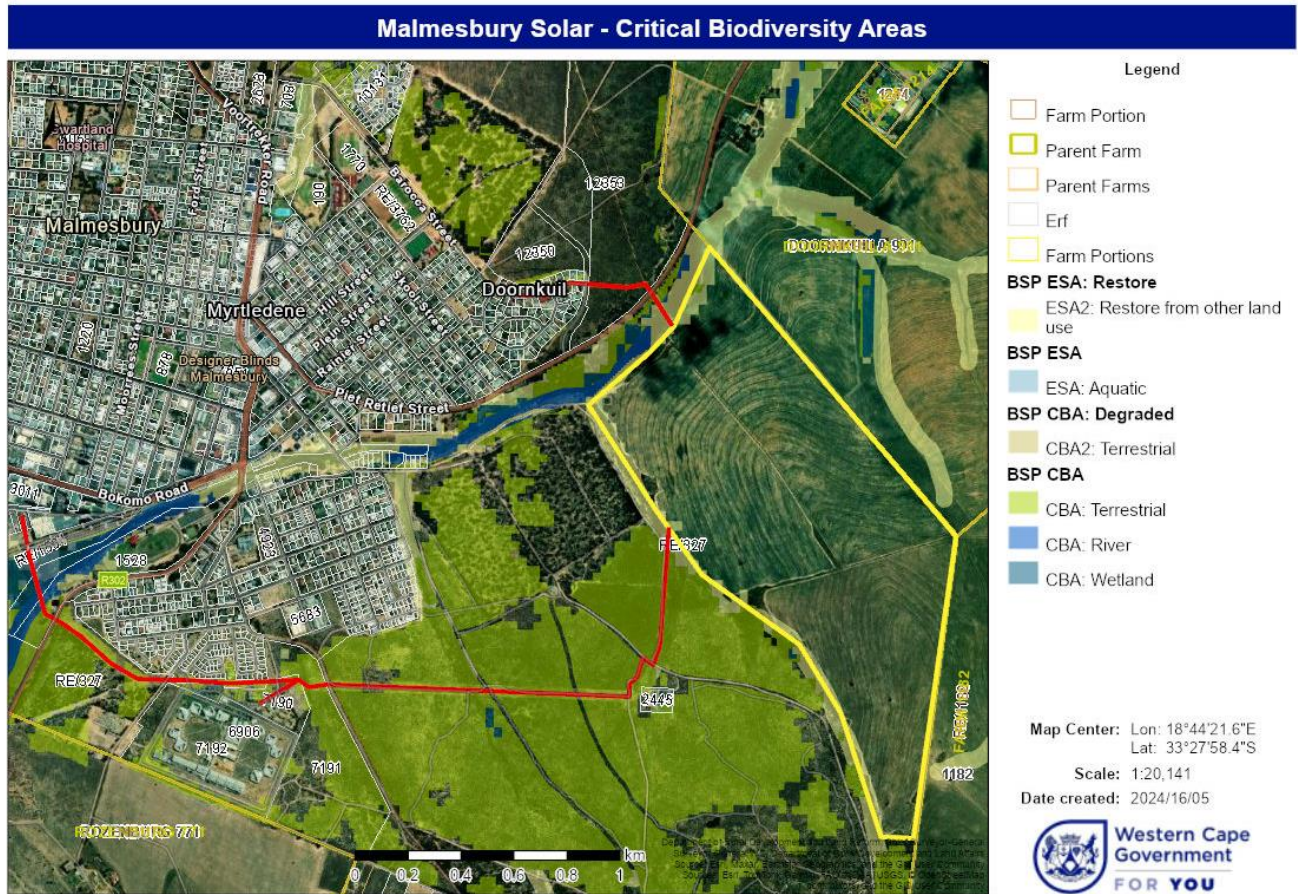


Figure 6: Critical Biodiversity Areas Map

### 6.2 Animal Species

According to the Biodiversity Assessment (Appendix 3A), historically several large and small mammals would have been expected to occur within the Fynbos / Renosterveld vegetation of the Swartland area (although not in large numbers). Fynbos does not support a high number of birds, but all six bird species endemics to the south-west Cape are fynbos species. On the other hand, Fynbos supports large numbers of butterfly species, many of which, are now at risk, especially the myrmecophilous (ant associated) butterflies from the family Lycaenidae, because of ongoing disturbances to their preferred habitat (often small areas). Although fynbos is not particularly rich in reptiles and amphibians, many of the species living there are both endemic and threatened. The very rare geometric tortoise is found in only a few surviving fynbos areas and is regarded as the world's second rarest tortoise. The Cape has more than half of South Africa's frog species. Furthermore, of the 62 different frogs occurring here, 29 are endemic being found nowhere else on earth.

According to the **NEMA EIA Sensitivity** scan for the site the Animal Species Theme Sensitivity is **High Sensitive** because of the potential presence of the species listed in Table 8 of the Biodiversity Assessment (Appendix 3A). Unfortunately, because of the long history of agriculture and the transformed nature of the veld (and other reasons listed in Table 8) it is considered highly unlikely that the proposed development will result in any significant additional impact on any of these species.

The two animal species listed as High are avifauna species: Black Harrier and Secretary Bird.

- **Black Harrier** *Circus maurus*

The Black harrier is an endangered bird and one of southern Africa's rarest endemic raptors (Birdlife International, 2023).

According to the Biodiversity Assessment (Appendix 3A), it favours Renosterveld, short Fynbos and Karoo habitat, where it breeds in shallow nests on the ground. These birds are mostly associated with larger, well-connected, and more pristine patches of veld and is often considered an indicator of well-preserved natural veld (Curtis-Scott *et. al.*, 2020).

The proposed project will impact on transformed veld (transformed) with almost no natural vegetation left. The disturbed veld and the proximity to constant anthropogenic activities will not be favored as nesting sites as it will not provide protection and camouflage for its young.

The black harrier might hunt over this area (although even this is unlikely, since most of the area is characterized by intensive cultivation), but it is unlikely to roost or breed in this area. As a result, it is considered highly unlikely that the proposed development will result in any significant additional impact on the breeding or feeding patterns of these birds.

With regards to the project the sensitivity rating is considered **low sensitive**.

- **Secretary Bird** *Sagittarius serpentarius*

According to the Biodiversity Assessment (Appendix 3A), the secretary bird is considered **vulnerable** because of population size reduction of greater than 30% over the past 10 years. The cause for this reduction is not fully understood and may not be reversible (Retief, 2015). This species is widespread throughout sub-Saharan Africa (Ferguson-Lees & Christie, 2001), except the extreme deserts of the Namib coast and the forested region around the equator in western Africa. Secretary birds are not migratory but are highly mobile. Young birds in particular can undertake extensive and often rapid movements, primarily in arid areas (Boshoff & Allan, 1997; Herholdt & Anderson 2006). Habitat loss, driven by agriculture and urban development, is the primary threat to this species. Excessive burning and overgrazing of grasslands for livestock may reduce carrying capacity and availability of prey species (Parker 1994). Secretary birds suffer mortalities through collisions with powerlines (Hartley 1991) and there is a risk in South Africa that wind farms might have a negative impact on this species.

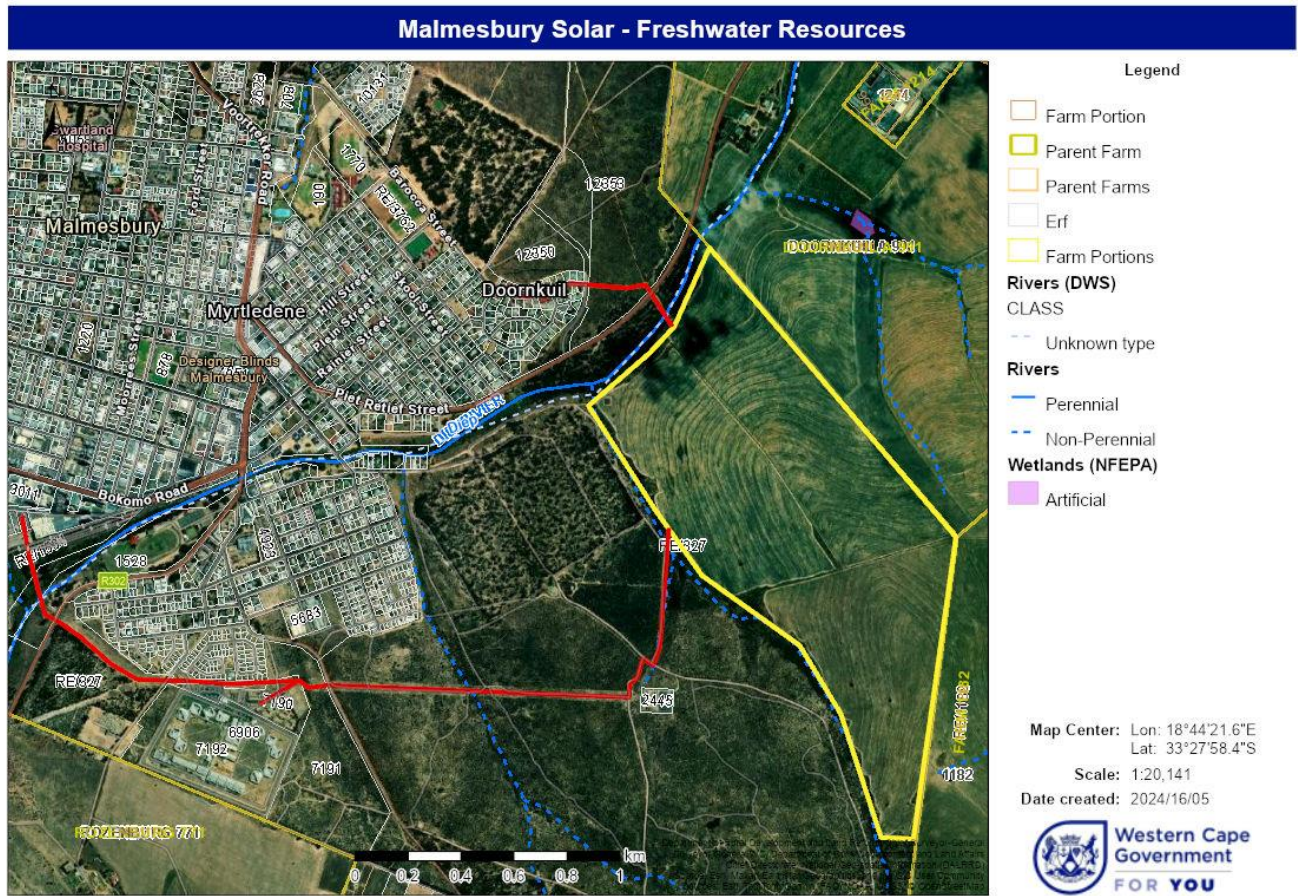
These birds hunt exclusively on the ground, either alone or in pairs and prefers open savannahs or grasslands and are common near agricultural areas. It is not unlikely that the Secretary bird may hunt over the study area (and surroundings) and the development may result in a small impact on its hunting area but is unlikely to impact on roosting or nesting areas. However, most of the surrounding landscape to the south is still remaining agricultural land (the impact will thus be low).

With regards to this project the sensitivity rating is considered **Low Sensitive**.

As a result, the animal species theme sensitivity for this project is considered to be **Low Sensitive**.

### 6.3 Freshwater

The NFEPA overlays only identified the Diep River to the north and west of the site, as well as a ephemeral tributary to the Diep River on the western boundary of the solar PV facility. Another ephemeral tributary to the west of the nature reserve will also be crossed by the powerlines (see Figure 8 above).



**Figure 7:** NFEPA and DWS Freshwater Map

According to the Freshwater Assessment (Appendix 3B), the site was manicured into a workable wheatfield with the typical contours common in the region to direct stormwater during winter rains and to combat erosion. These contours are clearly visible on the Google Earth image.

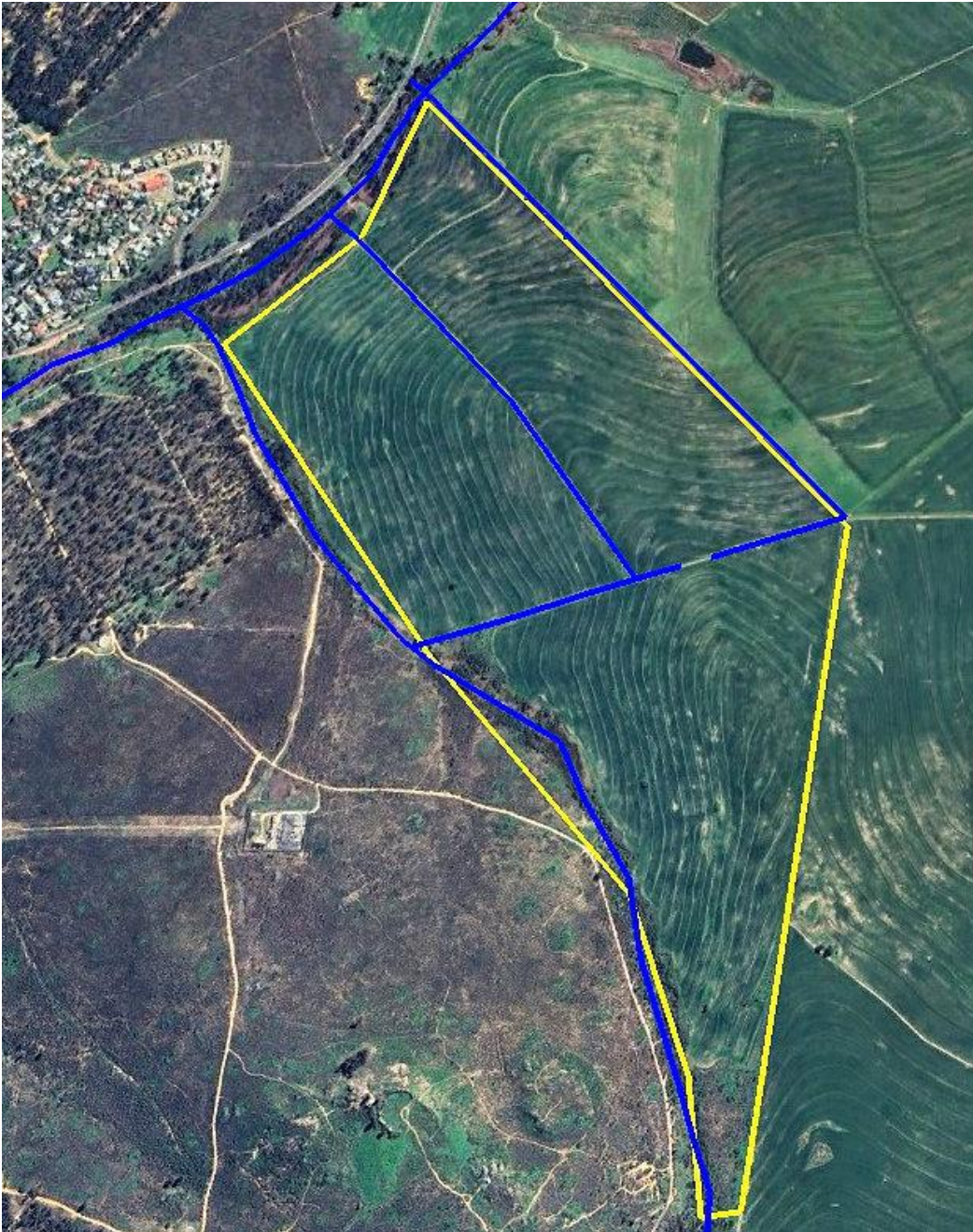
The site is demarcated in the north by the Diep River. The river here is entirely overgrown by a mature stand of blue gum trees, with little if any room for other vegetation in the riparian zone. Across the river are Malmesbury’s streets and dwellings. The river is flanked by a dirt road. There are small-scale sand winning operations along the northern bank of the river.

The drainage line that forms the eastern boundary of the site is overgrown with exotic vegetation such as Port Jackson willow and blue gum trees. This is a dominant feature of the landscape up the hill.

The straight drainage channel down the middle of the wheatfield is clearly visible on Figure 7. Drainage channels transverse the site as well along the eastern boundary.

Across the drainage line on the western boundary is a eucalypt plantation. This is a prominent feature driving into Malmesbury from the east along the trunk road.

## SITE SENSITIVITY VERIFICATION REPORT – MALMESBURY SOLAR PV



**Figure 8:** Freshwater resources identified in the Freshwater Assessment

Both the Diep River and the drainage line adjacent to the proposed site are heavily impacted, with a significant loss of ecosystem functioning. The drainage line is clogged with Port Jackson willow and in places with blue gum trees. Some short reaches are still fairly intact, but most of the drainage line is entirely altered.

The Diep River is listed as a CBA. It seems as if the drainage line along the site is not listed.

The aquatic biodiversity theme is listed as Very High, probably because of the Diep River's status as a CBA. The river is highly impacted and degraded. The significance of the proposed impact combined with the conservation value of the river is low. Therefore, the Very High sensitivity is disputed, as is provided for in the screening tool procedures. At the site of the proposed development, the aquatic sensitivity can only be listed as **Low**.

**SITE SENSITIVITY VERIFICATION REPORT – MALMESBURY SOLAR PV**

#### 6.4 Agriculture

According to the Agricultural Assessment (Appendix 3C), the climate and terrain are suitable for small grain crops, as grown in the surrounding area but the cropping potential of the site is limited by soil constraints. The constraints are low water and nutrient holding capacity of the bleached, sandy upper soil horizons, limited soil depth in places, and limited drainage. Because of these constraints, the site is marginal for viable rainfed small grain cropping.

Although viable rain-fed cropping may have been done on the site in the past, the marginal potential makes it high risk economically. It should be noted that cropping potential changes with a changing agricultural economy over time. Poorer lands that may have been cropped with economic viability in the past, are abandoned as cropland because they become too marginal for viable crop production in a more challenging agricultural economy, with increased input costs.

An agricultural impact is a change to the future agricultural production potential of land. In most developments, including the one being assessed here, this is primarily caused by the exclusion of agriculture from the footprint of the development. Soil erosion and degradation may also contribute to loss of agricultural production potential. The significance of an agricultural impact is a direct function of the following three factors:

1. the size of the footprint of land from which agriculture will be excluded (or the footprint that will have its potential decreased)
2. the baseline production potential (particularly cropping potential) of that land
3. the length of time for which agriculture will be excluded (or for which potential will be decreased).

The most significant loss of agricultural land possible, for any development anywhere in the country, is of high yielding cropland, and the least significant possible, is of low carrying capacity grazing land.

Cropping potential is highlighted in factor 2, above, because the threshold, above which it is a priority to conserve land for agricultural production, is determined by the scarcity of arable crop production land in South Africa (approximately only 13% of the country's surface area) and the relative abundance of the rest of agricultural land across the country that is only good enough to be used for grazing. If land can support viable and sustainable crop production, then it is considered to be above the threshold and is a priority for being conserved as agricultural production land. If land is unable to support viable and sustainable crop production, then it is considered to be below the threshold and of much lower priority for being conserved.

In this case, the site is considered to be below the threshold for needing to be conserved as agricultural production land because of the limitations that make it marginal for cropping, discussed in Section 8. The use of this land for non-agricultural purposes will cause minimal loss of agricultural production potential in terms of national food security. As a result, the overall negative agricultural impact of the development (loss of future agricultural production potential) is assessed here as being of low significance.

The agricultural protocol requires the expected change in productivity and employment figures. The land is municipally owned and was previously rented to a farmer but has not been rented or used for agricultural production for several years. Therefore, no change in productivity or employment is expected as a result of the proposed development.

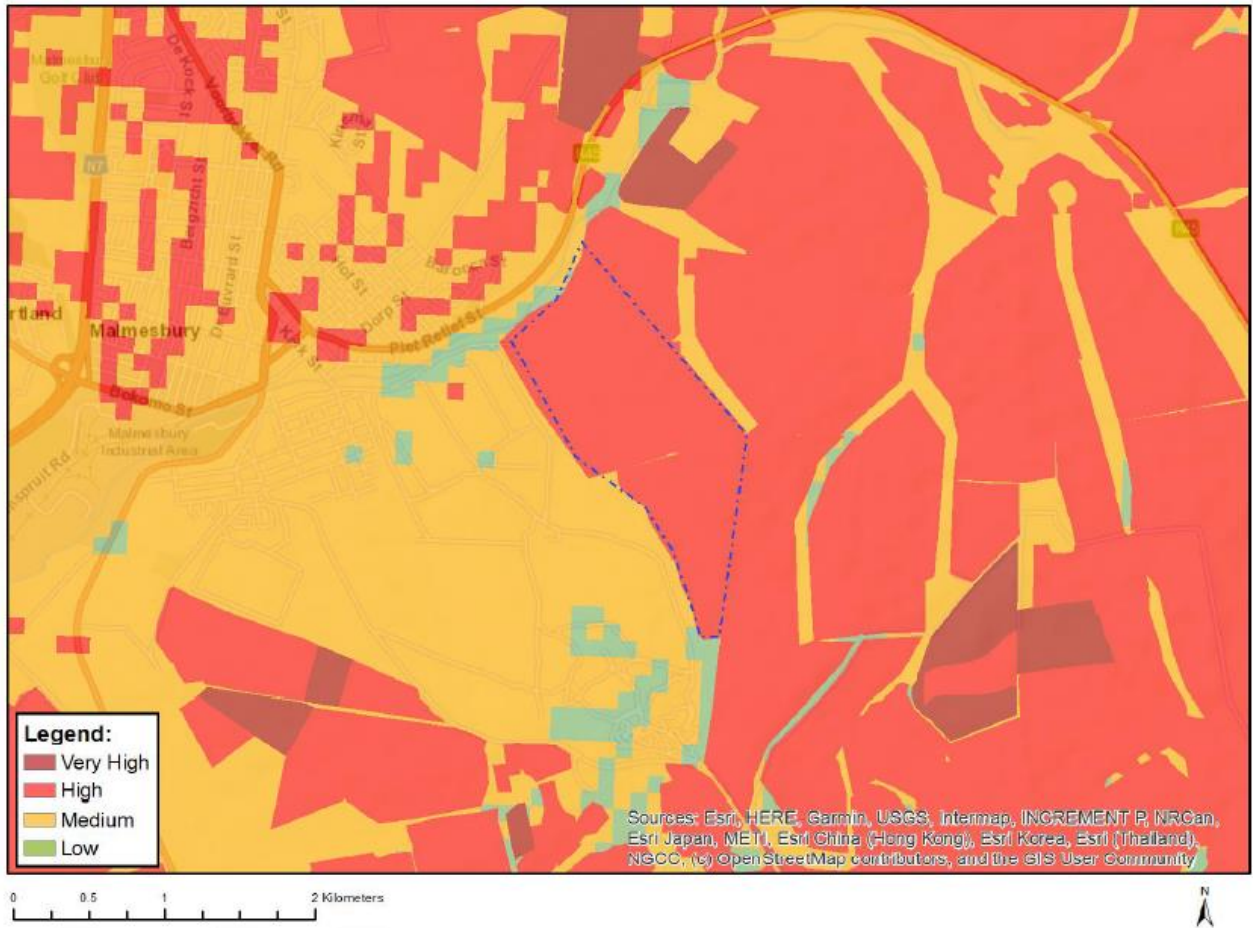
The screening tool classifies agricultural sensitivity according to two independent criteria, from two independent data sets, both of which may be indicators of the land's agricultural production potential but are limited in that the first is outdated and the second relies on fairly course data. The two criteria are:

1. whether the land is classified as cropland or not on the field crop boundary data set (Crop Estimates Consortium, 2019), and
2. its land capability rating on the land capability data set (DAFF, 2017)

### **SITE SENSITIVITY VERIFICATION REPORT – MALMESBURY SOLAR PV**

All classified cropland is, by definition, either high or very high sensitivity. Land capability is defined as the combination of soil, climate, and terrain suitability factors for supporting rain-fed agricultural production. It is rated by the Department of Agriculture's updated and refined, country-wide land capability mapping (DAFF, 2017). The higher land capability values ( $\geq 8$  to 15) are likely to indicate suitability as arable land for crop production, while lower values ( $< 8$ ) are only likely to be suitable as non-arable grazing land.

The agricultural sensitivity of the site, as given by the screening tool, is shown in Figure 7.



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

**Figure 9.** The assessed overlaid on agricultural sensitivity, as given by the screening tool (green = low; yellow = medium; red = high; dark red = very high). The screening tool's high sensitivity is disputed by this assessment, which rates the entire assessed area as being of medium agricultural sensitivity.

This verification of sensitivity addresses both components that determine it, namely cropping status and land capability. The screening tool classifies the assessed area as ranging from low to high agricultural sensitivity. The high sensitivity classification is due to most of the land being classified as cropland and some (only 2 pixels) being classified with a land capability of 9. However, the data set used by the screening tool to classify cropland is outdated. All land across the footprint is no longer used as cropland. This land should not, therefore, still be classified as cropland and allocated high sensitivity because of it. This assessment therefore disputes the high sensitivity rating by the screening tool that is based on cropping status.

**SITE SENSITIVITY VERIFICATION REPORT – MALMESBURY SOLAR PV**

The classified land capability of the site ranges from 4 to 9. This assessment disputes a classified land capability of >7, based on an assessment that the site is marginal for viable rain-fed crop production, predominantly because of soil limitations. These limitations make the land undeserving of a land capability of >7.

In conclusion, this assessment disputes the high sensitivity classification of the assessed area by the screening tool and rates the entire assessed area as being of **medium agricultural sensitivity** with a maximum land capability of 7 because of its assessed agricultural production potential and current agricultural land use.

### 6.5 Heritage

A Heritage Notice of Intent to Develop was submitted to Heritage Western Cape. Final comment was received (dated 10 October 2023). The Final comment states:

*“You are hereby notified that, since there is no reason to believe that the proposed solar facility on the remainder of farm 327, off the R45 Road, Malmesbury, will impact on heritage resources. No further action under Section 38 of the National Heritage Resources Act (Act 25 of 1999) is required.”*

### 6.6 Visual (Landscape)

According to the DFFE Screening Tool Report, the Landscape theme is rated as Very High (see figure 10) as parts of the site are within 250m of a watercourse, is on a High Ridge and on slopes exceeding 1:4. The majority of the site falls within the Medium range. Although not a requirement of the Solar Exclusion Norms, a Visual Impact Assessment was conducted on the site.

According to the Visual Impact Assessment (Appendix 3D), However, despite the initial classifications, the site verification visit suggests a reduction in the overall sensitivity rating for the proposed Klipkoppie project site. This reduction is motivated by several factors:

- Visual Absorption Capacity (VAC): The site's VAC, which refers to its ability to visually absorb changes without significant alteration to its visual character, is considered moderate. This is due to the site's topography and the existing development and degradation in the surrounding area. The presence of peri-urban settlements, housing structures and linear infrastructure, across the R45 combined with the, and agricultural developments introduce a degree of visual intrusion into the landscape. Although the majority of the area is largely rural, some anthropocentric developments are present. Therefore, the addition of the proposed structures would not represent a significant alteration to the existing visual character of the area.
- Lack of unique visual resources: The site does not contain any unique or irreplaceable visual resources that would be adversely affected by the proposed development. The main anticipated impact relates to the visual intrusion on receptors in the surrounding area, which can be mitigated throughout the life cycle of the development.
- Scenic value and vegetation: The area proposed for development does not have high scenic value, and there are limited tourism or recreational facilities in close proximity. In areas where the site has remained largely natural, the vegetation consists mainly of short grasslands with scattered trees, which can contribute to the visual screening of the facility.
- Considering the site's VAC, lack of unique visual resources, and the presence of existing man-made elements, a rating of Moderate was assigned to the site based on the site visit findings. This rating suggests that a visual impact assessment is recommended to ensure that the proposed development is appropriately managed to minimize visual impacts.

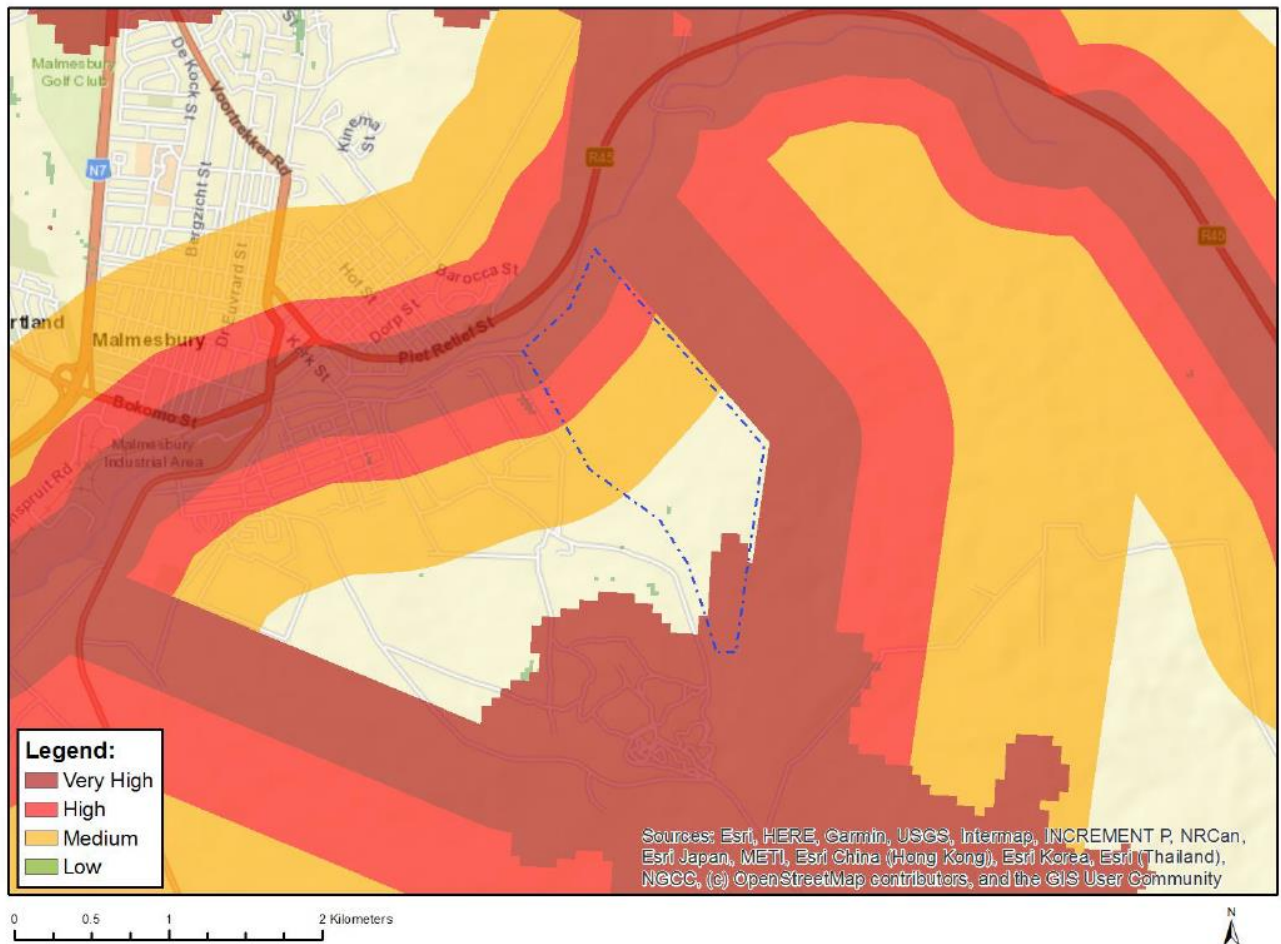
The site visit conducted for the Klipkoppie Solar PV facility project revealed a rural landscape that was noticeably impacted by anthropocentric activities. Prominent features such as high and medium voltage overhead lines, the



Malmesbury Substation indicate industrial influence. Therefore, the comparison between the DFFE Screening Tool's rating and the site visit's findings suggests that the landscape sensitivity is not **Very High** and should be adjusted to **High**, additionally the visual impact of the proposed solar installations could potentially be mitigated by the existing land uses and features.

The overall impact of the development is **Medium (Negative)** with the appropriate mitigation measures.

### MAP OF RELATIVE LANDSCAPE (SOLAR) THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

**Sensitivity Features:**

Sensitivity	Feature(s)
High	Within 500 m of a river
Low	Slope less than 1:10
Medium	Within 1000 m of a wetland
Very High	Mountain tops and high ridges
Very High	Slope more than 1:4
Very High	Within 250 m of a river

Figure 10. Visual (Landscape) theme as per the DFFE Screening Tool Report.

## 7. PHOTOGRAPHS



**Figure 1.** Site overview photographs taken from the north-western corner, looking east to south-east. The unnamed non-perennial stream can be seen in the foreground, and is located just outside the development footprint.



**Figure 2.** Site overview photographs showing the existing condition of the site. Taken from the northern part of the site, showing the existing powerlines that run through the site, looking north to east. The proposed powerlines will be located within the powerline servitude.

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**Figure 3.** Site overview photographs taken from the centre of the northern section of the site, looking south-east to south-west over the site. The existing powerlines can be seen.



**Figure 4.** Site overview photographs taken from the centre of the site, looking west, north and to the east over the site.

Photographs taken on 04 October 2023.

## SITE SENSITIVITY VERIFICATION REPORT – MALMESBURY SOLAR PV

**Table 1.** Summary of themes and associated sensitivity as per the DFFE Screening Tool (Appendix 4) and verified by specialists as required by the Solar Exclusion Norms.

Theme	DFFE Sensitivity	Agree / Disagree	Specialist Verified Sensitivity	Motivation
Agriculture Theme	High Sensitivity	Disagree	Medium Sensitivity	According to the Agricultural Assessment (Appendix 3C), the assessment disputes the high sensitivity classification of the assessed area by the screening tool and rates the entire assessed area as being of <b>medium agricultural sensitivity</b> with a maximum land capability of 7 because of its assessed agricultural production potential and current agricultural land use (please refer to Appendix 3 and Section 5.4 above)
Animal Species Theme	High Sensitivity	Disagree	Low Sensitivity	<p>According to the Biodiversity Assessment (Appendix 3A), the Animal Species Theme Sensitivity is High Sensitive because of the potential presence of the species listed in Table 8 of the Biodiversity Assessment (Appendix 1). The two animal species listed as High are avifauna species: Secretary Bird and Black Harrier.</p> <p>Unfortunately, because of the long history of agriculture and the transformed nature of the veld (and other reasons listed in Table 8) it is considered highly unlikely that the proposed development will result in any significant additional impact on any of these species.</p> <p>As a result, the animal species theme sensitivity for this project is considered to be <b>Low Sensitive</b>.</p> <p>It must also be noted that the Avifauna Theme was listed as Low Sensitivity.</p>
Aquatic Biodiversity Theme	Very High Sensitivity	Disagree	Low Sensitivity	<p>According to the Freshwater Impact Assessment (Appendix 3B), the aquatic biodiversity theme is listed as Very High, probably because of the Diep River's status as a CBA. The river is highly impacted and degraded. The significance of the proposed impact combined with the conservation value of the river is low.</p> <p>Therefore, the Very High sensitivity is disputed, as is provided for in the screening tool procedures. At the site of the proposed development, the aquatic sensitivity can only be listed as <b>Low</b>.</p>

<p>Plant Species Theme</p>	<p>High Sensitivity</p>	<p>Disagree</p>	<p>Low Sensitivity</p>	<p>According to the Biodiversity Assessment (Appendix 3A), because of the degraded state of the study area, it is considered unlikely that the proposed solar facility will result in any significant impact on the plant species sensitivity theme. As a result, the Plant Species theme for this study area is should be rated as <b>Low Sensitive</b>.</p>
<p>Terrestrial Biodiversity Theme</p>	<p>Very High Sensitivity</p>	<p>Disagree</p>	<p>Low Sensitivity</p>	<p>According to the Biodiversity Assessment (Appendix 3A), the NEMA EIA Sensitivity scan for the site the Terrestrial Biodiversity Theme Sensitivity is considered VERY HIGH because of the potential impact on ecological support areas (ESA's), critical biodiversity areas (CBA's), endangered Swartland Granite Renosterveld vegetation type and sensitive fauna &amp; flora species.</p> <p>According, to the overall terrestrial impact assessment the main impacts associated with the proposed development will be:</p> <ul style="list-style-type: none"> <li>• The potential impact on the two watercourses and the potential impact on the CBA associated with the Klipkoppie Municipal NR;</li> <li>• A potential low impact on bird species (specifically the Secretary bird).</li> </ul> <p>The Terrestrial Biodiversity Evaluation for this study, gives the potential accumulative impact is considered to a Medium/Low negative, which can be reduced to very low with mitigation.</p> <p>As a result, the Terrestrial Biodiversity Theme Sensitivity for the proposed project is considered <b>Low Sensitivity</b>.</p>

**Table 2.** Summary of all remaining themes and associated sensitivity as per the DFFE Screening Tool (Appendix 4).

No	Theme	DFFE Sensitivity	Agree / Disagree	Proposed Sensitivity	Motivation
1	Avian Theme	Low Sensitivity	Agree		No Avifauna Impact Assessment will be conducted, but avifauna will be addressed in the Biodiversity Assessment.
2	Civil Aviation Theme	High / Medium Sensitivity	Disagree	Low Sensitivity	The proposed development is for a solar PV solar facility and will thus will not pose any threat to civil aviation within the area. The proposed powerlines will be either be underground, or where they are above-ground, will be along existing powerline routes. These will not be higher than the existing powerlines.
3	Defence Theme	Low Sensitivity	Agree		
4	Landscape (solar) Theme	Very High Sensitivity	Disagree	High Sensitivity	A Visual Impact Assessment (Appendix 3D) was conducted, and found that the overall visual impact after mitigation to be <b>Medium</b> .
5	RFI Theme	Low Sensitivity	Agree		

## 7. CONCLUSION

The site is considered ideal, as the solar PV array area is located within modified land (agricultural land), and the proposed powerlines will be mostly underground cables within existing roads/tracks and within existing servitudes where these cross the Diep River.

Although the DFFE Screening Tool identified most of the site sensitivities as High to Very High, due to the modified nature of the site, these sensitivities were verified to be either Medium or Low by the relevant specialist assessments.

Theme	Specialist Verified Sensitivity
Agriculture Theme	Medium Sensitivity
Animal Species Theme	Low Sensitivity
Aquatic Biodiversity Theme	Low Sensitivity
Plant Species Theme	Low Sensitivity
Terrestrial Biodiversity Theme	Low Sensitivity

The specialist assessments indicate that the proposed development does not pose any significant negative impact to the environment and can be implemented with strict adherence to the recommended mitigation measures.

The mitigation measures as recommended by the specialists must be enforced if the proposed development were to be approved. With the mitigation measures recommended by the specialists and included in the Environmental Management Programme (Appendix 10), the remaining impact is considered acceptable.