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Agricultural Compliance Statement for the Proposed Northam Solar 10 MW PV Facility

Submitted by TerraAfrica Consult cc

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1. Introduction

Terra-Africa Consult cc was appointed by Savannah Environmental (Pty) Ltd (Savannah) to conduct the Agricultural Compliance Assessment for the proposed Northam Solar Photovoltaic (PV) Facility (from here onwards also referred to as the project). The project applicant is Northam Platinum Limited Ltd and the proposed development will be located within the company's Zondereinde Mine Area. An area of 20ha, located directly west of the Mine's smelter area, has been identified for the proposed solar PV project.

The proposed project area is located approximately 35km south of the town of Thabazimbi and 18 km northwest of the town of Northam, between the R510 in the west and the R511 in the east (see Figure **1**). The project site falls within the jurisdiction of the Thabazimbi Local Municipality, which forms part of the Waterberg District and is located on Portion 2 of the Farm Zondereinde 384.

2. Project description

The Northam PV development is located within a 30km radius of two solar developments with an approved Environmental Authorisation. The Solar PV facility will have a contracted capacity of 10MW and use tracking PV technology to harness the solar resource on the project site. Infrastructure associated with the solar PV facility will include the following:

- Solar PV array, comprising PV modules and mounting structures;
- Inverters and transformers;
- Cabling between the project components;
- On-site facility substation to facilitate the connection between the solar PV facility and the mine electrical distribution system as needed;
- Combined gatehouse, site offices and storage facility;
- A 33kV over-head power line for the distribution of the generated power which will be connected to the existing substation at the Zondereinde Metallurgical Complex;
- Temporary laydown areas; and
- Access paved road, internal roads and fencing around the development area.

The purpose of the proposed project is to generate electricity for exclusive use by the Zondereinde Mine, following which any excess power produced will be distributed to the national grid, if applicable. The construction of the PV facility aims to reduce the Zondereinde Mine's dependency on direct supply from the Eskom's national grid for operation activities, while simultaneously decreasing the mine's carbon footprint.

In order to evacuate the generated power to the Zondereinde Mine, a grid connection needs to be established. An overhead power line will be established to connect the on-site substation on the Northam solar PV facility site to the existing substation at the Zondereinde Metallurgical Complex. The overhead power line will run for 500m from the PV site to the side of the Eskom

yard and will be at a minimum height of 5.5m. The power line is designed to have a capacity of 33kV, but will be operated at 6.6kV.

3. Details of the specialist

The report is prepared by Mariné Pienaar of TerraAfrica Consult CC. Mariné is a scientist registered with the South African Council for Natural Scientific Professions (SACNASP) and is specialised in the fields of Agricultural Science and Soil Science. Her SACNASP Registration Number is 400274/10 (see Appendix 2). Mariné holds a BSc. degree in Agricultural Science (with specialisation in Plant Production) from the University of Pretoria and a MSc. Degree in Environmental Science from the University of the Witwatersrand.

The full details and contact details of the specialist is attached as Appendix 1 – Specialist Declaration of Independence.

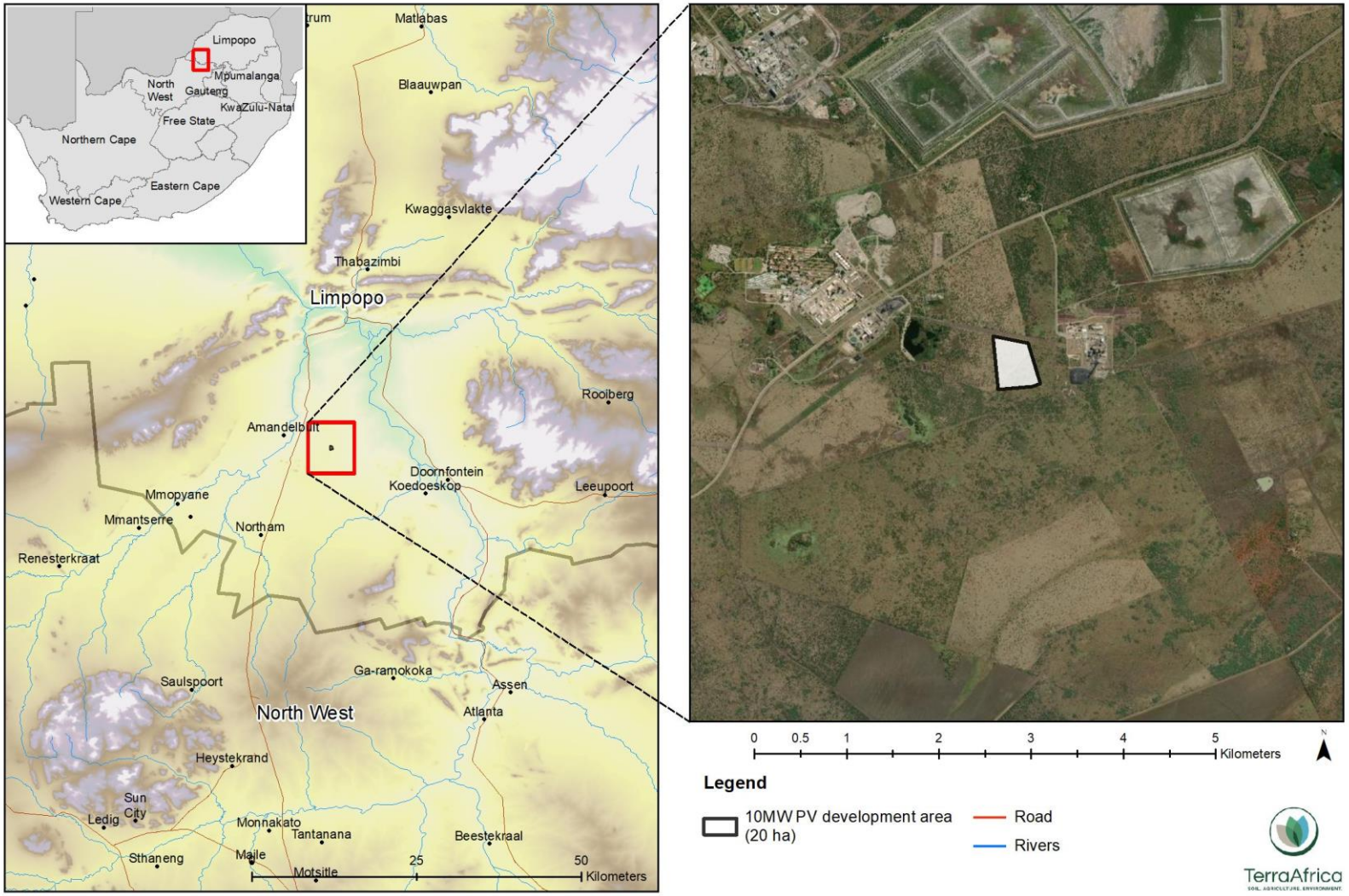

Figure 1: Locality of the proposed Northam Solar PV development area

4. Purpose and objectives of the compliance statement

The purpose of the Agricultural Compliance Statement, is to ensure that the sensitivity of the site from the perspective of agricultural production to the proposed development, is sufficiently considered. To meet this objective, site sensitivity verification must be conducted, of which the results must meet the following objectives:

- It must confirm or dispute the current land use and the environmental sensitivity as was indicated by the National Environmental Screening Tool. **Please refer to Section 9.3 for confirmation of the screening tool report.**
- It must contain proof in the form of photographs of the current land use and environmental sensitivity pertaining to the study field. **Please refer to Chapter 9 for detail and proof of current land use.**
- All data and conclusions are submitted together with the Environmental Impact Assessment Report (prepared in accordance with the NEMA regulations) for the proposed project. **This report will be submitted as part of the Environmental Assessment being conducted for environmental authorisation by Savannah.**

According to GNR 320, the agricultural compliance statement that is submitted must meet the following requirements, it must:

- be applicable to the preferred site and the proposed development footprint;
- confirm that the site is of “low” or “medium” sensitivity for agriculture; and
- indicate whether or not the proposed development will have an unacceptable impact on the agricultural production capability of the site.

The following checklist is supplied as per the requirements of GNR 320, detailing where in the report the various requirements have been addressed:

Table 1 GNR 320 requirements of an Agricultural Compliance Statement (Low to Medium Sensitivity)

Requirement	Report reference
3.1. The compliance statement must be prepared by a soil scientist or agricultural specialist registered with the SACNASP.	Page 4 & Appendix 2
3.2. The compliance statement must: 3.2.1. be applicable to the preferred site and proposed development footprint;	Section 10
3.2.2. confirm that the site is of "low" or "medium" sensitivity for agriculture; and	Section 10.5
3.2.3. indicate whether or not the proposed development will have an unacceptable impact on the agricultural production capability of the site.	Section 10.4 and Section 13
3.3. The compliance statement must contain, as a minimum, the following information: 3.3.1. contact details and relevant experience as well as the SACNASP registration number of the soil scientist or agricultural specialist preparing the assessment including a curriculum vitae;	Page 4, Appendices 1, 2 and 3

3.3.2. a signed statement of independence;	Appendix 1
3.3.3. a map showing the proposed development footprint (including supporting infrastructure) with a 50m buffered development envelope, overlaid on the agricultural sensitivity map generated by the screening tool;	Figure 2
3.3.4. confirmation from the specialist that all reasonable measures have been taken through micro- siting to avoid or minimise fragmentation and disturbance of agricultural activities;	Section 13
3.3.5. a substantiated statement from the soil scientist or agricultural specialist on the acceptability, or not, of the proposed development and a recommendation on the approval, or not, of the proposed development;	Section 13
3.3.6. any conditions to which the statement is subjected;	Section 13
3.3.7. in the case of a linear activity, confirmation from the agricultural specialist or soil scientist, that in their opinion, based on the mitigation and remedial measures proposed, the land can be returned to the current state within two years of completion of the construction phase;	Not applicable
3.3.8. where required, proposed impact management outcomes or any monitoring requirements for inclusion in the EMPr; and	Section 12
3.3.9. a description of the assumptions made as well as any uncertainties or gaps in knowledge or data.	Section 9
3.4. A signed copy of the compliance statement must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.	Submitted as part of final report

5. Terms of Reference

In addition to the requirements stipulated in GNR 320, the following Terms of Reference, as stipulated by Savannah, apply to the Agricultural Compliance Statement:

- to ensure a thorough assessment, that includes both the desktop assessment of databases and aerial photography; a description of the on-site verification of the agricultural potential of the area; and the soil forms present in the development area;
- identify and assess potential impacts on both agricultural potential and soil resulting from the proposed project;
- identify and describe potential cumulative soil, agricultural potential and land capability impacts resulting from the proposed project in relation to proposed and existing developments in the surrounding area; and
- recommend mitigation, management and monitoring measures, to minimise impacts and/or optimise benefits associated with the proposed project.

6. Legislative framework of the assessment

The report follows the protocols as stipulated for agricultural assessment in Government Notice 320 of 2020 (GNR 320). This Notice provides the procedures and minimum criteria for reporting in terms of Sections 24(5)(a) and (h) and 44 of the National Environmental Management Act (No. 107 of 1998) (NEMA). It replaces the previous requirements of Appendix 6 of the Environmental Impact Assessment Regulations of NEMA.

In addition to the specific requirements of GN320 for this study, the following South African legislation is also considered applicable to the interpretation of the data and conclusions made with regards to environmental sensitivity and the conservation of soil resources of the project area:

- the Conservation of Agricultural Resources Act (No 43 of 1983) (CARA) states that the degradation of the agricultural potential of soil is illegal. CARA requires the protection of land against soil erosion and the prevention of water logging and salinisation of soils by means of suitable soil conservation works to be constructed and maintained. The utilisation of marshes, water sponges and watercourses are also addressed; and
- the National Water Act (No 36 of 1998) (NWA) deals with the protection of water resources (i.e. wetlands and rivers). Hydric soils with wetland land capability are not part of the proposed development area and the NWA is therefore not applicable.

7. Agricultural Sensitivity

The combined Agricultural Sensitivity of the proposed project area was determined by using the National Environmental Screening Tool (www.screening.environment.gov.za). The screening report was generated by Savannah on 28 June 2021. The requirements of GNR 320 stipulate that a 50m buffered development envelope must be assessed with the screening tool. The map depicted in Figure **2** shows the agricultural sensitivity of both the 20ha area; and a buffered area of at least 300m around the proposed development area. The results provided by the screening tool indicate that the entire project area and the surrounding area consist of land with Medium agricultural sensitivity (refer to Figure **2**).

In alignment with the CARA, the Department of Agriculture, Land Reform and Rural Development (DALRRD) developed spatial data that depict High Potential Agricultural Areas (HPAAs) of the different provinces of South Africa (DALRRD, 2021). According to the DALRRD, these areas can be defined as: *"large, relative homogeneous portions of high value agricultural land that has the potential to sustainably, in the long-term, contribute significantly to the production of food.*"

The data layer of the HPAA's of Limpopo Province shows that the proposed project area falls outside of any HPAA (refer to Figure **3**). It is located slightly north of the Northam HPAA and west of the Crocodile River HPAA.

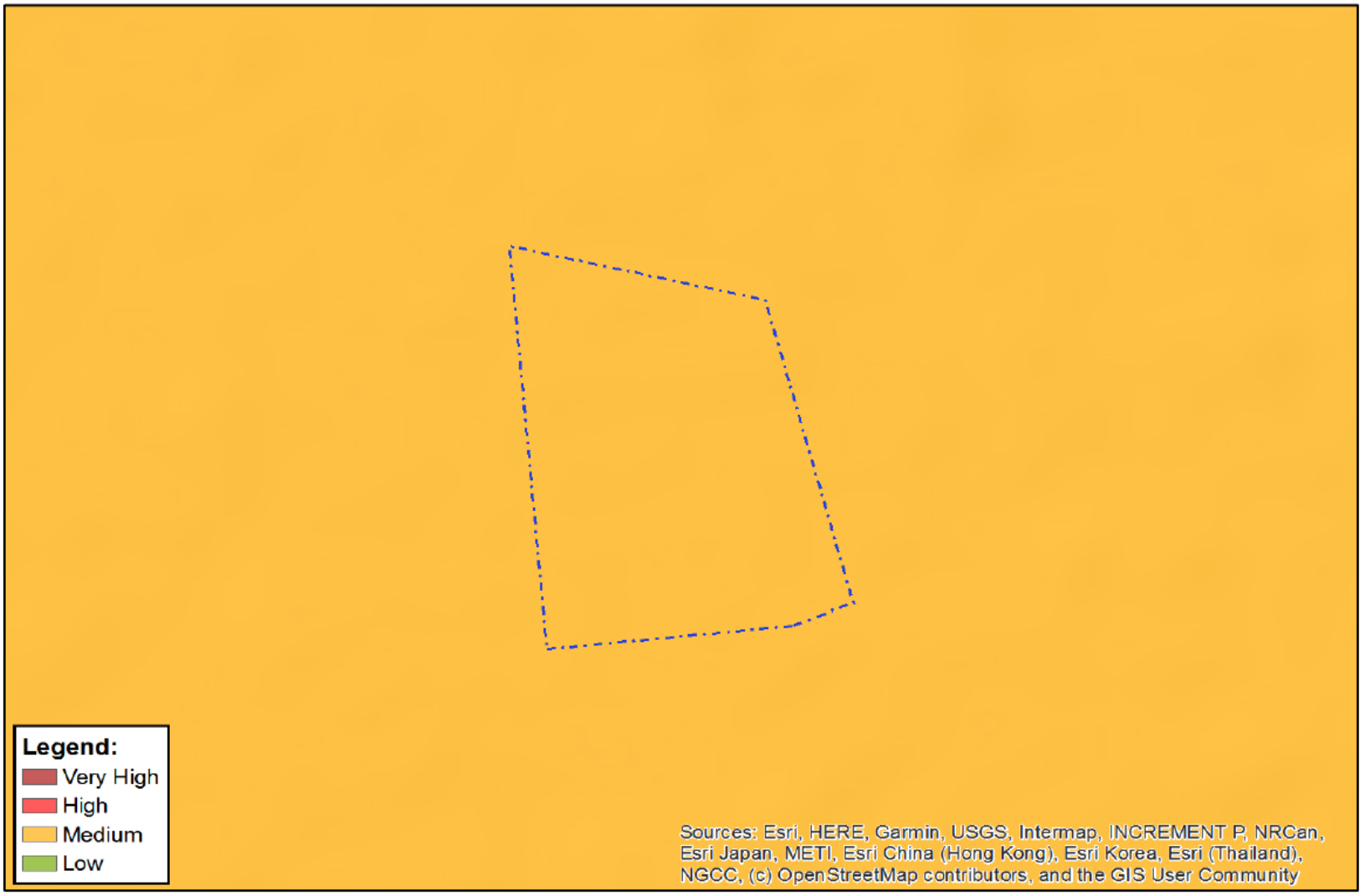

Figure 2 Agricultural Combined Sensitivity of the Northam Solar PV facility development area (generated by Savannah Environmental, 2021)

Figure 3 Presence of High Potential Agricultural Areas around the Northam solar PV facility development area (DALRRD, 2021)

8. Methodology

The different steps that were followed to gather the information used for the compilation of this report is outlined below. The methodology is in alignment with the requirements of GNR 320.

8.1 Assessment of available data

The most recent aerial photography of the area available from Google Earth was obtained. The satellite imagery was used to analyse the terrain of the proposed project area and the surrounding area. The analysis considered the slope, typical terrain units and landscape features, such as existing roads, farm infrastructure and areas where land degradation may be present.

Further to this, the proposed project area was superimposed on four different raster data sets obtained from the National DALRRD. These are:

- land type data for the project assessment zone was obtained from the Institute for Soil Climate and Water of the Agricultural Research Council (ARC) (Land Type Survey Staff, 1972 – 2006). It is presented at a scale of 1:250 000 and entails the division of land into land types, typical terrain cross sections for the land type and the presentation of dominant soil types for each of the identified terrain units;
- the Refined Land Capability Evaluation Raster Data for South Africa, developed using a spatial evaluation modelling approach (DALRRD, 2016);
- the long-term grazing capacity for South Africa 2018 that presents the long-term grazing capacity of an area, with the understanding that the veld is in a relatively good condition (DALRRD, 2018); and
- the Limpopo Field Crop Boundaries show crop production areas may be present within the project area. The field crop boundaries include rainfed annual crops, non-pivot and pivot irrigated annual crops, horticulture, viticulture, old fields, small holdings and subsistence farming (DALRRD, 2019).

8.2 Site assessment

The study area was visited on 28 June 2021 for the site survey. A hand-held bucket soil auger was used to classify thirteen soil profiles to the depth of 1.5m or refusal The positions of the survey points are illustrated in **Figure 4**. The soil forms of the study area were classified following the Soil Classification: A Natural and Anthropogenic System for South Africa (Soil Classification Working Group, 2018). A 10% hydrochloric acid solution was used to determine whether any calcareous soils were present.

The soil classification data was then used to classify the land capability of the project area. The same fifteen land capability classes, as outlined by DALRRD's new system (DALRRD, 2016) was used to allocate land capability classes to the soil forms delineated. Other observations included the: agricultural activities in the area; quality of the natural vegetation; and presence of existing farming infrastructure (if any) that may be affected by the proposed project.

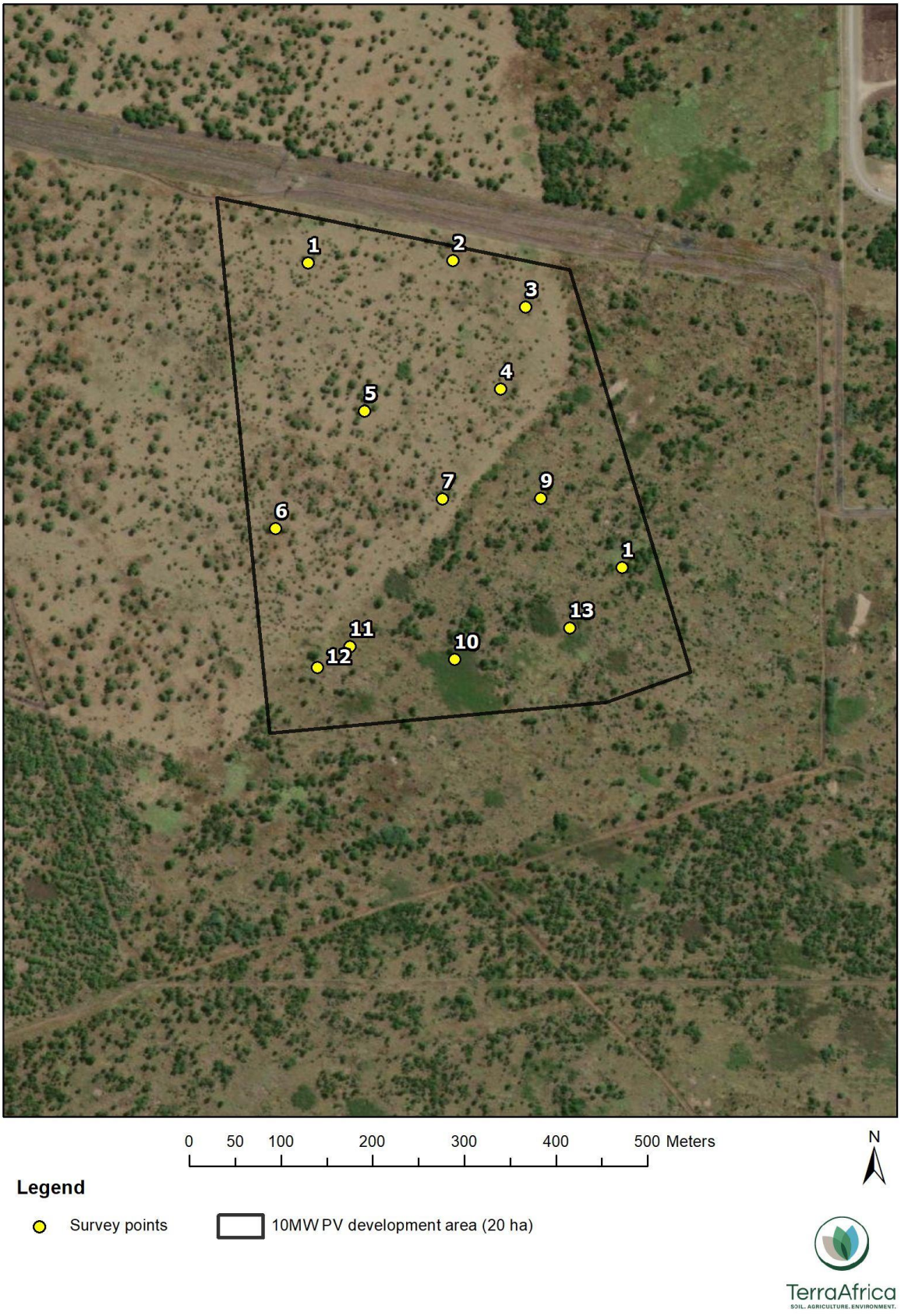

Figure 4 Locality of on-site soil classification and observation points within the development area

8.3 Impact assessment methodology

Following the methodology prescribed by Savannah, the direct, indirect and cumulative impacts associated with the project have been assessed in terms of the following criteria:

- the **nature**, including 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 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); and 10 is very high and results in complete destruction of patterns and permanent cessation of processes;
- the **probability** *of occurrence*, describing the likelihood of the impact actually occurring. Probability will be estimated on a scale of 1–5, where 1 is very improbable (probably will not happen), 2 is improbable (some possibility, but low likelihood), 3 is probable (distinct possibility), 4 is highly probable (most likely) and 5 is definite (impact will occur regardless of any prevention measures);
- the **significance**, determined through a synthesis of the characteristics described above and can be assessed as low, medium or high;
- the **status**, 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; and
- 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); and
- 60 points: High (i.e. where the impact must have an influence on the decision process to develop in the area).

9. Study gaps, limitations and assumptions

All assumptions made with the interpretation of the baseline results and anticipated impacts, are listed below:

- it is assumed that the development footprint will be within the project area of 20ha that was assessed in this report;
- it is assumed that the project area will be fenced off and excluded as land available for any future farming activities;
- another assumption is that the project area is currently not part of a larger farming unit and removal of this land from livestock production will not result in stopping all farming activities in the area; and
- it is further assumed that the activities for the construction and operation of the infrastructure are limited to that typical for the construction and operation of a solar PV facility, inclusive of the infrastructure listed in Section 2.

The following limitations is part of the assessment:

- the anticipation and rating of impacts are based on the report author's knowledge and experience on the nature of construction and operation of grid infrastructure. Therefore, it is done as accurately as possible but must not be considered as absolute measures.

No other information gaps, limitations and assumptions have been identified.

10. Baseline description

10.1 Land type classification

The proposed project area falls within Land Type Ea70 (Figure 5). The immediate area around the project area also consists of this land type, with Land Type Fb147 approximately 5km south-west of the area and Land Type Ae64 around 5km south-east of it. Land Type Ea70 consists mostly of vertic soils of varying depth. According to the Land Type Data Sheet (attached as Appendix 4), the vertic soils range in depth between 0.5m and 1.2m (or deeper). Valley bottoms (Terrain unit 5) include soil of the Rensburg form, where the vertic horizon is underlain by gley. The terrain is mostly flat (with slope between 0 and 2%) and only the mid-slopes (Terrain unit 3) may have steeper slope that ranges between 2 and 25%. Other soil forms that may be present in this land type area include that of the Shortlands, Hutton, Glenrosa,Mayo, Milkwood and Bonheim forms.

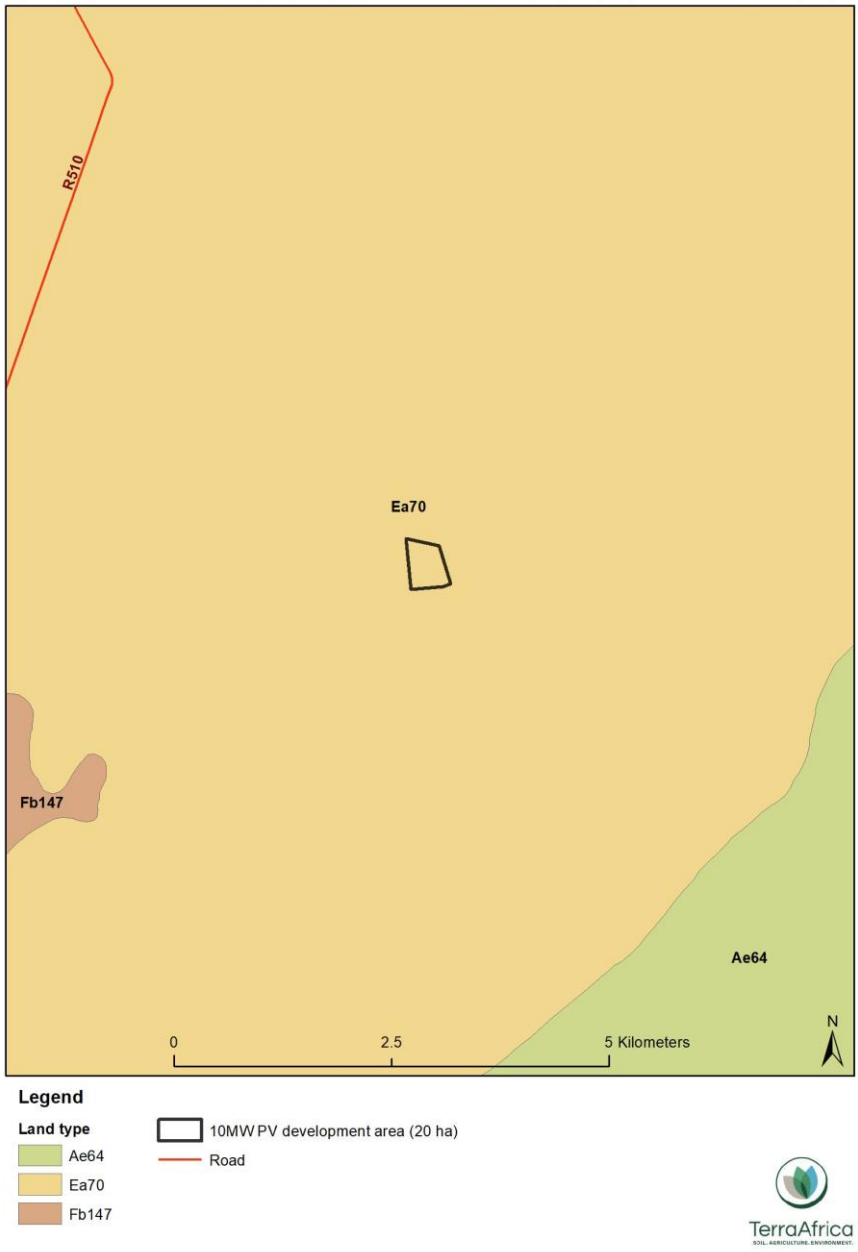

Figure 5 Land type classification of the Northam solar PV facility and surrounding area

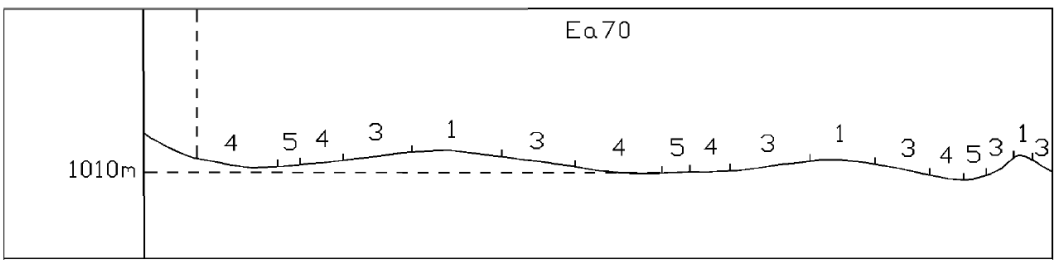

Figure 6 Terrain form sketch of Land Type Ea70 (source: Land Type data sheet, Appendix 4)

10.2 Soil properties

The soil survey found that the entire project area consists of two soil forms, both with vertic topsoil. The positions of the soil forms are depicted in Figure 7.

Figure 7 Soil classification map of the Northam solar 10MW PV development area

The site can be divided into two main parts, depending on the thickness of the vertic horizon. The northern and western parts of the site have vertic soil of 1.5m deep or deeper and can be classified as the Mkuze soil form (11ha of the development area). The southern and eastern parts have rock and fractured rock that limit the effective depth of the profiles at soil depths between 0.7 and 1.5m. This area is classified as the Rustenburg soil form (8.7ha of the development area).

The vertic topsoil consists of dark-coloured and strongly structured soil with visible cracks on the surface, especially where vegetation is sparse. The vertic soil has by definition smectitic clay content of 30% or more throughout the horizon (Soil Classification Working Group, 2018). The self-mulching properties of exposed solid clods into finer fragments and the slickensides that are typical of vertical soils are shown in Figure 8. Five small areas of visible rock outcrops (covering a total area of 0.3ha) are scattered within the area of the Rustenburg soils.

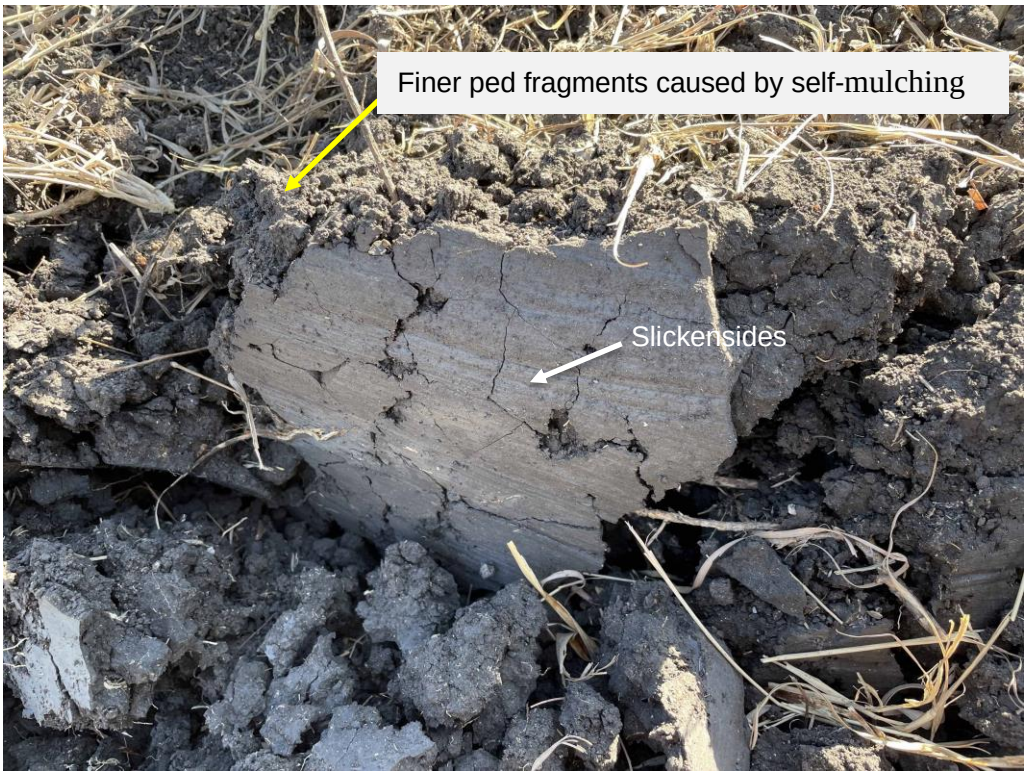

Figure 8 Vertic topsoil of the project area and the typical properties of these soils

Figure 9 Rock outcrops visible on the surface between the Rustenburg soils

10.3 Land capability

The proposed project area consists of two different land capability classes according to the land capability data (DALRRD, 2016). The largest part of the area consists of land with Moderate (Class 08) land capability, while the south-western and south-eastern corners have slightly lower land capability (Class 07 or Low-Moderate). The surrounding land consists of the same two land capability classes. The position of the different land capability classes in the landscape are depicted in
Figure 10.

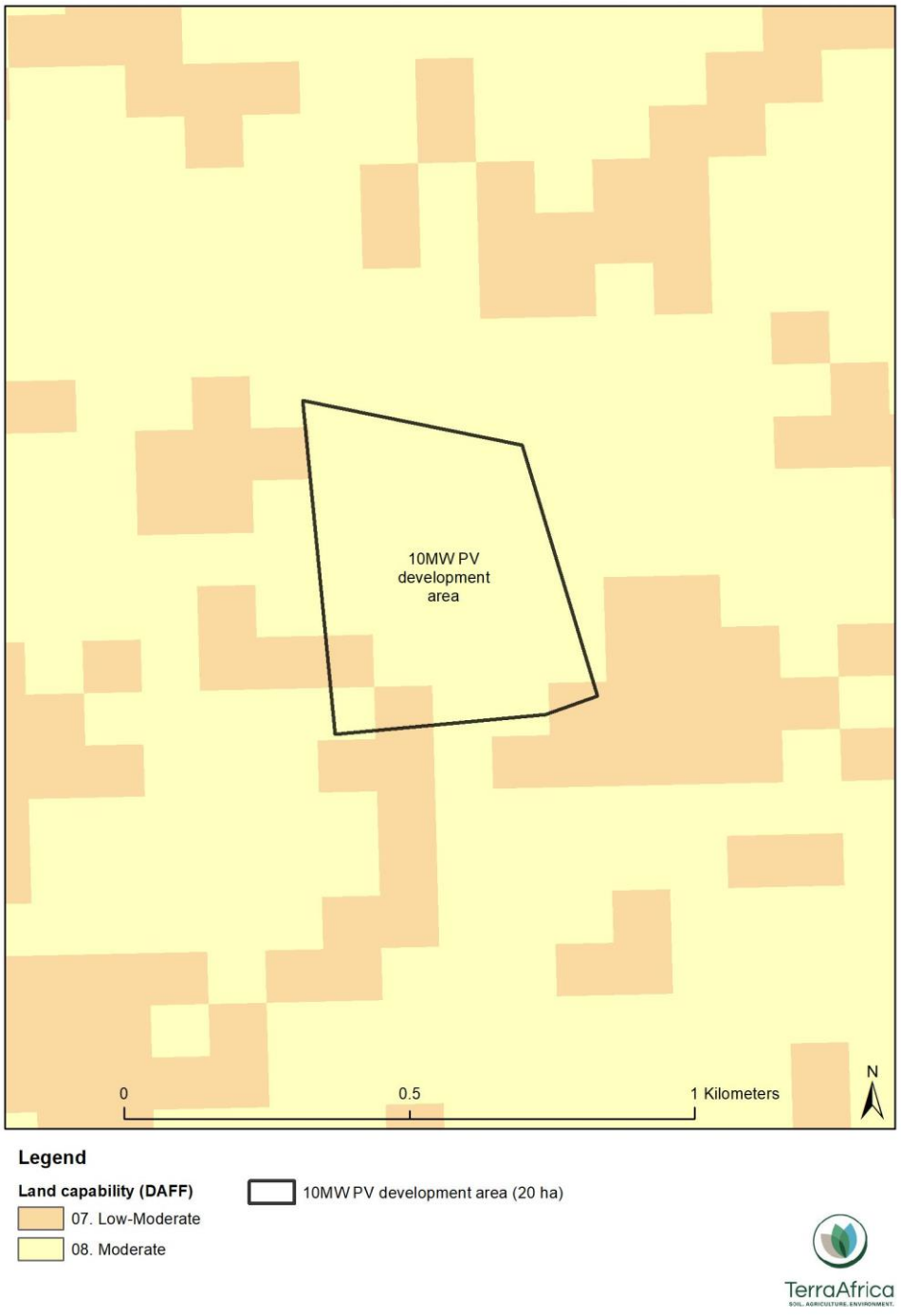

Figure 10 Land capability classification of the Northam solar PV facility development area (data source: DALRRD, 2016)

Following the site assessment and interpretation of the soil classification data, the area can be classified into three land capability classes (see Figure 11). The areas where rock outcrops are visible on the surface is classified as Very low (Class 02) land capability. The area where the deeper Mkuze profiles are present is classified as Moderate land capability (Class 08) and the shallower profiles of the Rustenburg soils, as Low-Moderate (Class 07). Although the area with Moderate land capability has suitability for rainfed crop production, it was never previously used for the production of grain crops or pasture.

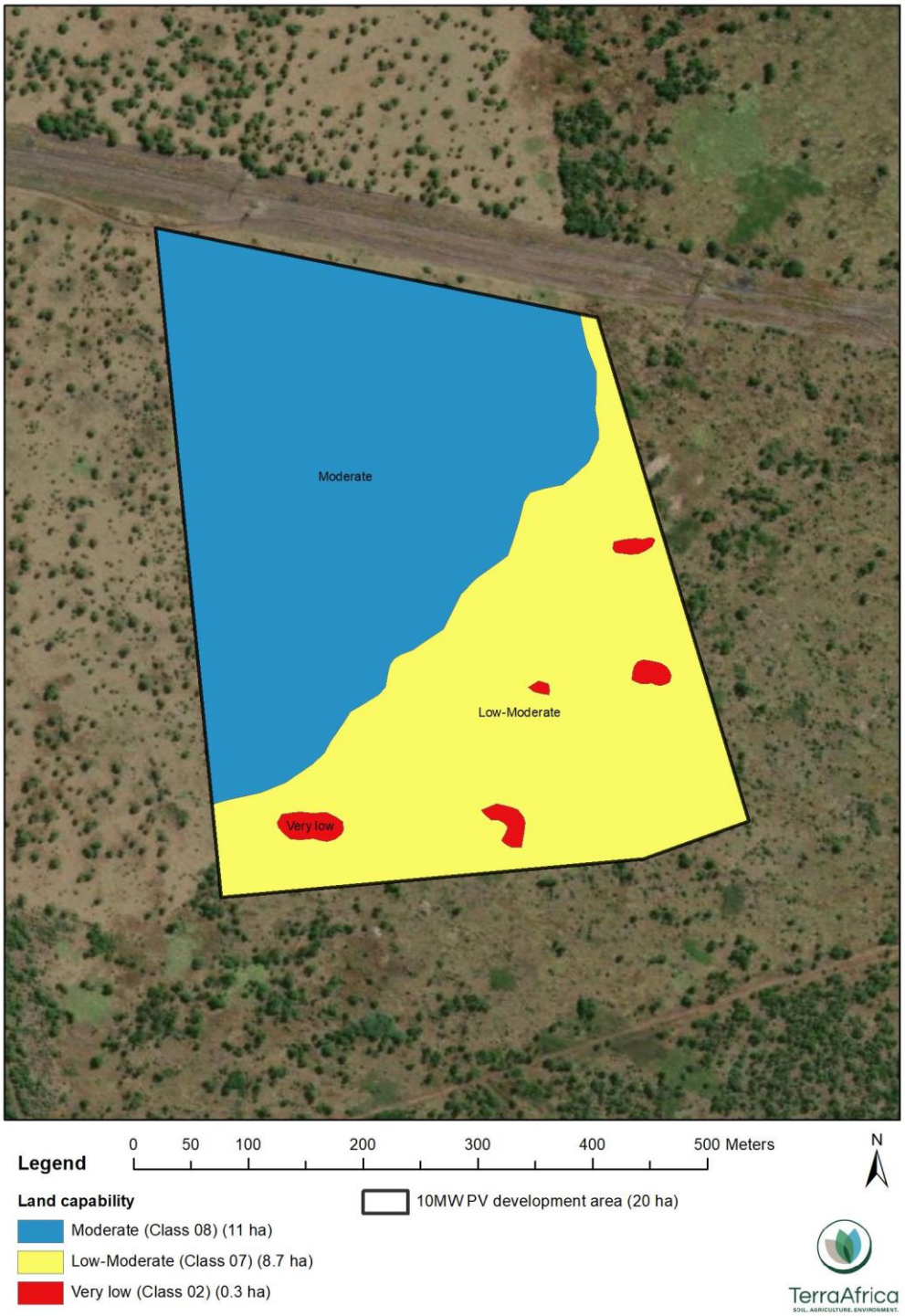

Figure 11 Land capability classification following the soil classification survey

10.4 Agricultural production

The proposed project area consists of natural veld that is not used for any livestock farming. No livestock farming infrastructure, such as cattle handling facilities, farm dams or water troughs, were observed during the site visit. The vegetation of the project area didn't show any evidence of recent grazing and neither were game farming activities observed. The vegetation consists of a mixture of grass species and higher shrubs and trees, including *Vachelia* species.

Figure 12 Photographic example of vegetation within the study area

Following the metadata layer obtained from DALRRD, the long-term grazing capacity of the entire project area is 7 ha/LSU (see Figure 13). The ideal grazing capacity is an indication of the long-term production potential of the vegetation layer growing in an area. More specifically, it relates to its ability to maintain an animal with an average weight of 450 kg (defined as 1 Large Stock Unit (LSU)), with an average feed intake of 10 kg dry mass per day over the period of approximately a year. This definition includes the condition that this feed consumption should also prevent the degradation of the soil and the vegetation. The grazing capacity is therefore expressed in a number of hectares per LSU (ha/LSU) (South Africa, 2018).

Using the long-term grazing capacity, the project area has enough forage available to feed between 2 and 3 head of cattle. Since the area is not currently used for livestock farming, it is also not considered part of a larger farming unit that will be affected by the project.

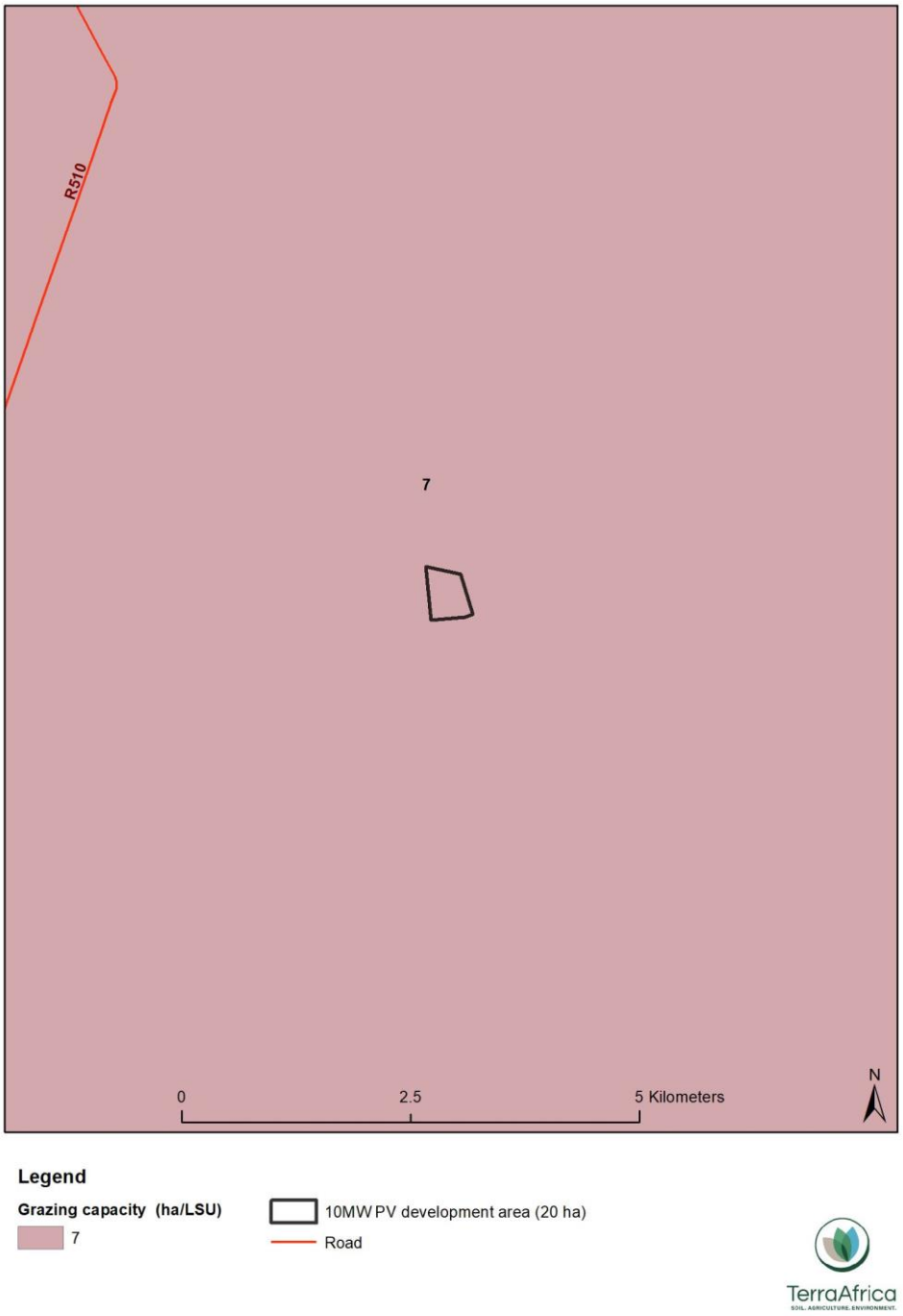

Figure 13 Grazing capacity of the proposed Northam solar PV facility development area (data source: DALRRD, 2018)

There is no crop production – irrigated or rainfed - within the project area or on land directly surrounding this area. No irrigation infrastructure was observed within the project area and soil and terrain conditions indicate that the area has not recently been used for crop production. The lack of crop production within the project area and the land directly surrounding it was confirmed by the field crop boundary data layer of the Limpopo Province (DALRRD, 2019) (see Figure 14). This data shows that rainfed annual crops or planted pasture are produced in fields to the east and the west of the project area, between 2.5 and 3.0km away.

Figure 14 Location of field crop boundaries around the proposed Northam solar PV development area (data source: DALRRD, 2019)

10.5 Sensitivity analysis

Following the consideration of all the desktop and gathered baseline data above, the report agrees largely with the results of the Environmental Screening Tool. The soil forms present within the project area are a mixture of vertic profiles, with high clay content and shrink-swell properties and the south-eastern part of it is limited in depth by fractured and solid rock. The area with shallower profiles and rock outcrops is considered to have **Low Agricultural Sensitivity**, as it would have posed some limitations to arable crop production. The remaining area **is considered to have Medium Agricultural Sensitivity**. No irrigation infrastructure,

such as centre pivots or drip irrigation, are present within the project area and irrigated agricultural is currently not practiced in the area. There is also no evidence of recent crop production or livestock farming in project area.

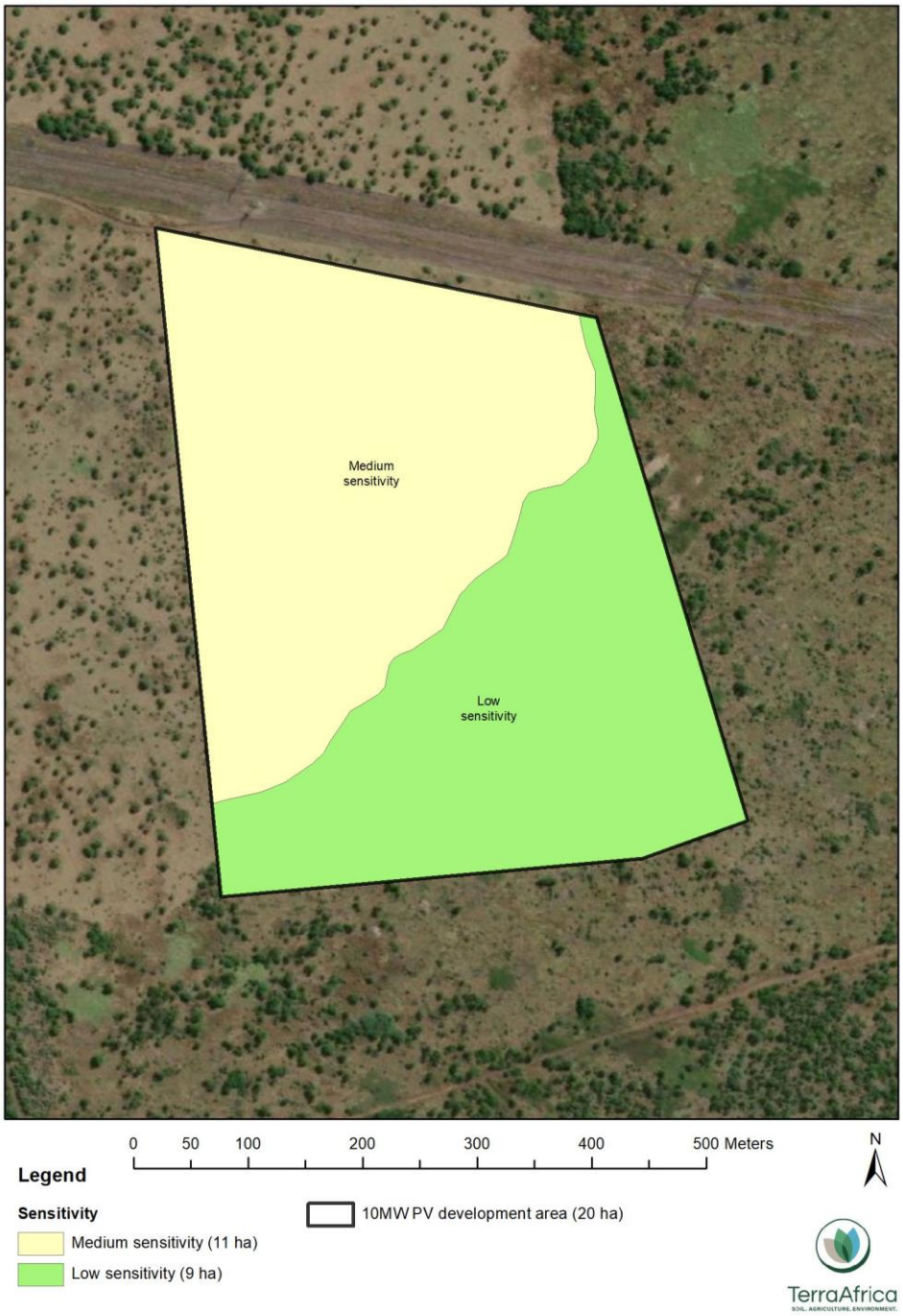

Figure 15 Agricultural sensitivity rating of the proposed Northam solar PV facility development area

Soil in the project area will have Low to Medium sensitivity, depending on the successful implementation of mitigation measures to prevent soil erosion, compaction and pollution. The significance of the impacts and mitigation measures proposed are discussed in Section 11.

11. Impact assessment

11.1 Impact significance rating

The most significant impacts of the proposed project on soil and agricultural productivity will occur during the construction phase when the vegetation is removed and the soil surface is prepared for the delivery of materials and erection of the infrastructure. During the operational phase, the risk remains that soil will be polluted by the waste generated or in the case of a spill incident. During the decommissioning phase, soil will be prone to erosion when the infrastructure is removed from the soil surface.

Below follows the rating of the significance of each of the impacts for each of the project phases.

11.1.1 Construction phase

Impact: Soil erosion

Nature: All areas where vegetation is removed from the soil surface in preparation for the infrastructure construction will result in exposed soil surfaces that will be prone to erosion. Both wind and water erosion are a risk, as the area falls within a region that experiences thunderstorms in the summer months and sometimes strong winds during the dry winter months, especially August and September.

	Without mitigation	**With mitigation**
Extent	Local (1)	Local (1)
Duration	Medium-term (3)	Medium-term (3)
Magnitude	Moderate (6)	Low (4)
Probability	Probable (3)	Improbable (2)
Significance	**Medium (30)**	**Low (16)**
Status (positive or negative)	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of resources?	Yes	No
Can impacts be mitigated?	Yes	N/A

Mitigation:

- Land clearance must only be undertaken immediately prior to construction activities and only within the development footprint;
- Unnecessary land clearance must be avoided;
- Level any remaining soil removed from excavation pits (where the PV modules will be mounted) that remained on the surface, instead of allowing small stockpiles of soil to remain on the surface;
- Where possible, conduct the construction activities outside of the rainy season; and
- Stormwater channels must be designed to minimise soil erosion risk resulting from surface water runoff.

Residual Impacts:

The residual impact from the construction and operation of the project on the susceptibility to erosion is considered low.

Cumulative Impacts:

Any additional infrastructure development in support of the project will result in additional areas exposed to soil erosion through wind and water movement.

Impact: Soil compaction

Nature: The clearing and levelling of land for construction of the infrastructure will result in soil compaction. In the area where the access roads and substation will be constructed, topsoil will be removed, and the remaining soil material will be deliberately compacted to ensure a stable surface prior to construction.		
	Without mitigation	**With mitigation**
Extent	Local (1)	Local (1)
Duration	Medium-term (3)	Medium-term (3)
Magnitude	Moderate (6)	Low (4)
Probability	Probable (3)	Improbable (2)
Significance	**Medium (30)**	**Low (16)**
Status (positive or negative)	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of resources?	Yes	No
Can impacts be mitigated?	Yes	N/A
Mitigation: • Vehicles and equipment must travel within demarcated areas and not outside of the construction footprint; • Unnecessary land clearance must be avoided; • Materials must be off-loaded and stored in designated laydown areas; • Where possible, conduct the construction activities outside of the rainy season; and • Vehicles and equipment must park in designated parking areas.		
Residual Impacts: The residual impact from the construction and operation of the project on soil compaction is considered low.		
Cumulative Impacts: Any additional infrastructure development in support of the project, will result in additional areas exposed to soil compaction.		

Impact: Soil pollution

During the construction phase, construction workers will access the land for the preparation of the terrain and the construction of the thermal plant and access road. Potential spills and leaks from construction vehicles and equipment and waste generation on site can result in soil pollution.

Nature: The following construction activities can result in the chemical pollution of the soil: 1. Petroleum hydrocarbon (present in oil and diesel) spills by machinery and vehicles during earthworks and the removal of vegetation as part of site preparation; 2. Spills from vehicles transporting workers, equipment, and construction material to and from the construction site; 3. The accidental spills from temporary chemical toilets used by construction workers; 4. The generation of domestic waste by construction workers; 5. Spills from fuel storage tanks during construction; 6. Pollution from concrete mixing; 7. Pollution from road-building materials; and 8. Any construction material remaining within the construction area once construction is completed.		
	Without mitigation	**With mitigation**
Extent	Local (1)	Local (1)
Duration	Short-term (2)	Short-term (2)
Magnitude	Moderate (6)	Low (4)
Probability	Low (4)	Improbable (2)
Significance	**Medium (36)**	**Low (14)**
Status (positive or negative)	Negative	Negative

Reversibility	Low	Low
Irreplaceable loss of resources?	Yes	No
Can impacts be mitigated?	Yes	N/A

Mitigation:

- Maintenance must be undertaken regularly on all vehicles and construction/maintenance machinery to prevent hydrocarbon spills;
- Any waste generated during construction must be stored into designated containers and removed from the site by the construction teams;
- Any left-over construction materials must be removed from site;
- The construction site must be monitored by the Environmental Control Officer (ECO) to detect any early signs of fuel and oil spills and waste dumping;
- Ensure battery transport and installation by accredited staff / contractors; and
- Compile (and adhere to) a procedure for the safe handling of battery cells during transport and installation.

Residual Impacts:

The residual impact from the construction and operation of the proposed project will be low to negligible.

Cumulative Impacts:

Any additional infrastructure that will be constructed to strengthen and support the operation of the Northam solar PV facility and waste not removed to designated waste sites will increase the cumulative impacts associated with soil pollution in the area.

11.1.2 Operational phase

Impact: Soil erosion

During the operational phase, staff and maintenance personnel will access the project area daily. The following impacts on soil are expected for this phase:

Nature: The areas where vegetation was cleared will remain at risk of soil erosion, especially during a rainfall event when runoff from the cleared surfaces will increase the risk of soil erosion in the areas directly surrounding the project area.

	Without mitigation	**With mitigation**
Extent	Local (1)	Local (1)
Duration	Medium-term (3)	Medium-term (3)
Magnitude	Moderate (6)	Low (4)
Probability	Probable (3)	Improbable (2)
Significance	**Medium (30)**	**Low (16)**
Status (positive or negative)	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of resources?	Yes	No
Can impacts be mitigated?	Yes	N/A

Mitigation:

- The area around the project, including the internal access roads, must regularly be monitored to detect early signs of soil erosion on-set; and
- If soil erosion is detected, the area must be stabilised using geo-textiles and facilitated re-vegetation.

Residual Impacts:

The residual impact from the operation of the project on the susceptibility to erosion is considered low.

Cumulative Impacts:

Any additional infrastructure that will be constructed to strengthen and support the operation of the project will result in additional areas exposed to soil erosion through wind and water movement.

Impact: Soil pollution

Nature: During the operational phase, potential spills and leaks from maintenance vehicles and equipment and waste generation on site can result in soil pollution. Also, any spillages around the workshop area or damaged infrastructure, such as inverters and transformers, can be a source of soil pollution.		
	Without mitigation	**With mitigation**
Extent	Local (1)	Local (1)
Duration	Short-term (2)	Short-term (2)
Magnitude	Moderate (6)	Low (4)
Probability	Low (4)	Improbable (2)
Significance	**Medium (36)**	**Low (14)**
Status (positive or negative)	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of resources?	Yes	No
Can impacts be mitigated?	Yes	N/A
Mitigation: • Maintenance must be undertaken regularly on all vehicles and maintenance machinery to prevent hydrocarbon spills; • No domestic and other waste must be left at the site and must be transported with the maintenance vehicles to an authorised waste dumping area; and • Regularly monitor areas alongside the roads, parking area and workshop for any signs of oil, grease and fuel spillage or the presence of waste.		
Residual Impacts: The residual impact from the operation of the proposed project will be low to negligible.		
Cumulative Impacts: The operation of any additional infrastructure to strengthen and support the operation of the Northam solar PV facility and waste not removed to designated waste sites will increase the cumulative impacts associated with soil pollution in the area.		

11.1.3 Decommissioning phase

The decommissioning phase will have the same impacts as the construction phase i.e. soil erosion, soil compaction and soil pollution. It is anticipated that the risk of soil erosion will especially remain until the vegetation growth has re-established in the area where the project infrastructure was decommissioned.

11.2 Impact significance rating

"Cumulative Impact", in relation to an activity, means the past, current and reasonably foreseeable future impact of an activity, considered together with the impact of activities associated with that activity that in itself may not be significant, but may become significant when added to existing and reasonably foreseeable impacts eventuating from similar or diverse activities[1].

The role of the cumulative assessment is to test if such impacts are relevant to the proposed project in the proposed location (i.e. whether the addition of the proposed project in the area

[1] Unless otherwise stated, all definitions are from the EIA Regulations 2014 (GNR 326).

will increase the impact). This section should address whether the construction of the proposed project will result in:

- unacceptable risk;
- unacceptable loss;
- complete or whole-scale changes to the environment or sense of place; and
- unacceptable increase in impact.

The proposed project will be located within a 30km radius of two solar developments that already have granted Environmental Authorisation. The cumulative impacts of the proposed project in addition to the authorised solar developments are rated and discussed below.

Table 2 Assessment of cumulative impact of areas susceptible to soil erosion

Nature: Increase in areas susceptible to soil erosion		
	Overall impact of the proposed project considered in isolation	**Cumulative impact of the project and other projects in the area**
Extent	Local (1)	Regional (2)
Duration	Medium-term (3)	Medium-term (3)
Magnitude	Moderate (6)	Moderate (6)
Probability	Probable (3)	Probable (3)
Significance	**Medium (30)**	**Medium (33)**
Status (positive/negative)	Negative	Negative
Reversibility	Low	Low
Loss of resources?	Yes	Yes
Can impacts be mitigated?	Yes	No
Confidence in findings: High.		
Mitigation: Each of the projects should adhere to the highest standards for soil erosion prevention and management, as defined in Sections 11.1.1 and 11.1.2. above.		

Table 3 Assessment of cumulative impact of areas susceptible to soil compaction

Nature: Increase in areas susceptible to soil erosion		
	Overall impact of the proposed project considered in isolation	**Cumulative impact of the project and other projects in the area**
Extent	Local (1)	Regional (2)
Duration	Medium-term (3)	Medium-term (3)
Magnitude	Low (4)	Low (4)
Probability	Improbable (2)	Probable (3)
Significance	**Low (16)**	**Low (27)**
Status (positive/negative)	Negative	Negative
Reversibility	Low	Low
Loss of resources?	No	No
Can impacts be mitigated?	Yes	Yes
Confidence in findings: High.		
Mitigation: Each of the projects should adhere to the highest standards for soil compaction prevention and management, as defined in Sections 11.1.1 and 11.1.2 above.		

Table 4 Assessment of cumulative impact of increased risk of soil pollution

Nature: Increase in areas susceptible to soil pollution		
	Overall impact of the proposed project considered in isolation	**Cumulative impact of the project and other projects in the area**
Extent	Local (1)	Regional (2)
Duration	Short-term (2)	Short-term (2)
Magnitude	Moderate (6)	Moderate (6)
Probability	Probable (3)	Probable (3)
Significance	**Low (27)**	**Medium (30)**
Status (positive/negative)	Negative	Negative
Reversibility	Low	Low
Loss of resources?	Yes	Yes
Can impacts be mitigated?	Yes	No
Confidence in findings: High.		
Mitigation: Each of the projects should adhere to the highest standards for soil pollution prevention and management, as defined in Sections 11.1.1 and 11.1.2. above.		

12. Mitigation and management measures

The objective of the mitigation and management measures presented below is to reduce the risk of soil degradation that will in turn affect the ability of soils within the project site to support the natural vegetation and provide ecosystem services.

Prevention and management of soil erosion:

Project component/s	• Construction of infrastructure • Construction of the access road
Potential Impact	Soil particles can be removed from the area through wind and water erosion
Activity/risk source	The removal of vegetation in areas where infrastructure will be constructed.
Mitigation: Target/Objective	To avoid the onset of soil erosion that can spread into other areas

Mitigation: Action/control	**Responsibility**	**Timeframe**
• Limit vegetation clearance to only the areas where the surface infrastructure will be constructed. • Avoid parking of vehicles and equipment outside of designated parking areas. • Plan vegetation clearance activities for dry seasons (late autumn, winter and early spring). • Design and implement a Stormwater Management System	Environmental Control Officer / SHEQ division	During the entire construction, operational and decommissioning phases

where run-off from surfaced areas is expected. • Re-establish vegetation along the access road to reduce the impact of run-off from the road surface.		

Performance Indicator	No visible signs of soil erosion around the project infrastructure
Monitoring	• Regular inspections around the constructed infrastructure to detect early signs of soil erosion developing. • When signs of erosion are detected the areas must be rehabilitated, using a combination of geo-textiles and re-vegetation to prevent the eroded area(s) from expanding.

Prevention and management of soil pollution:

Project component/s	• Construction of infrastructure • Daily activities and maintenance during the operational phase
Potential Impact	Potential fuel and oil spills from vehicles and waste generation can cause soil pollution.
Activity/risk source	• Petroleum hydrocarbon (present in oil and diesel) spills by machinery and vehicles during earthworks and the removal of vegetation as part of site preparation. • Spills from vehicles transporting workers, equipment, and construction material to and from the construction site. • The accidental spills from temporary chemical toilets used by construction workers. • The generation of domestic waste by construction workers. • Spills from fuel storage tanks during construction. • Pollution from concrete mixing. • Pollution from road-building materials. • Any construction material remaining within the construction area once construction is completed. • Containment breaches related to the battery units and any inadvertent chemical exposure therefrom.
Mitigation: Target/Objective	To avoid soil pollution that can harm the surrounding environment and human health.

Mitigation: Action/control	Responsibility	Timeframe
• Maintenance must be undertaken regularly on all vehicles and construction/maintenance machinery to prevent hydrocarbon spills. • Any waste generated during construction must be stored in designated containers and removed from the site by the construction teams. • Any left-over construction materials must be removed from site.	Environmental Control Officer / SHEQ division	During the entire construction, operational and decommissioning phases

• Ensure battery transport and installation by accredited staff / contractors. • Compile (and adhere to) a procedure for the safe handling of battery cells during transport and installation.		

Performance Indicator	• No visible signs of waste and spills within the project site. • No accumulation of contaminants in the soils of the project site.
Monitoring	• Regular inspections of vehicles and equipment that enter the project site. • Analysis of soil samples around high-risk areas to determine whether soil contaminants are present. • In the case that soil pollution is detected, immediate remediation must be done.

13. Acceptability statement

Following the data analysis and impact assessment above, the proposed Northam solar PV facility is considered an acceptable development within the area of the project assessment zone that was assessed for the purpose of compiling the Agricultural Compliance Report.

The soil forms present within the development area consist of vertic profiles with high clay content and shrink-swell properties with a few rock outcrops visible on the surface in the south-eastern part. There is no livestock or game farming practiced on the land or evidence of recent rainfed crop production. No irrigation infrastructure, such as centre pivots or drip irrigation, are present within the project area and irrigated agriculture is currently not practiced in the area.

The land capability of the site is mainly Moderate (Class 08) for the deep Mkuze soils and Low-Moderate (Class 07) for the shallower Rustenburg soils. The rock outcrops have Very low (Class 02) land capability. The grazing capacity (according to DALRRD, 2018), is 7ha/LSU, indicating that the proposed project area of 20ha has forage to feed between 2 and 3 head of cattle. The project area is not part of a larger farming unit, with either livestock and/or crop production, and will therefore not affect the viability of an established farming operation.

It is anticipated that the construction and operation of the Northam solar PV facility will have impacts that range from medium to low. Through the consistent implementation of the recommendation mitigation measures, most of impacts can all be reduced to low.

Considering that the project infrastructure components will be placed close to each other and existing mining infrastructure, such as the smelter, I confirm that all reasonable measures have been taken to avoid or minimize fragmentation and disturbance of agricultural activities, provided that the mitigation measures provided in this report are implemented.

It is my professional opinion that this application be considered favourably, permitting that the mitigation measures are followed to prevent soil erosion and soil pollution and to minimise impacts on the veld quality of the farm portions that will be affected. The project infrastructure should also remain within the proposed project area that will be fenced off.

14. Reference list

Crop Estimates Consortium, 2019. *Field crop boundary data layer (LP province)*, 2019. Pretoria. Department of Agriculture, Land Reform and Rural Development.

Department of Agriculture, Land Reform and Rural Development, 2021. *High potential agricultural areas 2021 – Spatial data layer*, *Limpopo Province*, 2021. Pretoria.

Department of Agriculture, Land Reform and Rural Development, 2018. *Long-term grazing capacity for South Africa*: Data layer. Government Gazette Vol. 638, No. 41870. 31 August 2018. Regulation 10 of the Conservation of Agricultural Resources Act (CARA): Act 43 of 1983. Pretoria. Government Printing Works.

Department of Agriculture, Land Reform and Rural Development, 2016. *National land capability evaluation raster data: Land capability data layer*, 2016. Pretoria.

Land Type Survey Staff, 1972 – 2006. *Land Types of South Africa data set*. ARC – Institute for Soil, Climate and Water. Pretoria.

Lanz, J., 2 September 2019. *Agricultural Impact Assessment for Development of Electrical Grid Infrastructure near Sutherland in the Northern and Western Cape Provinces*. Attached as Appendix D.6 to the Final Basic Report submitted by the CSIR, December 2019.

The Soil Classification Working Group, 2018. *Soil Classification – Taxonomic System for South Africa.* Dept. of Agric., Pretoria.

APPENDIX 1 – DECLARATION OF INDEPENDENCE AND SPECIALIST DETAILS

1. SPECIALIST INFORMATION

Specialist Company Name:	TerraAfrica Consult			
B-BBEE	Contribution level (indicate 1 to 8 or non-compliant)	4	Percentage Procurement recognition	100%
Specialist name:	Mariné Pienaar			
Specialist Qualifications:	BSc(Agric) Plant Production (UP) ; MSc Environmental Science (Wits)			
Professional affiliation/registration:	SACNASP Registration No: 400274/10 ; Soil Science Society of South Africa			
Physical address:	Farm Strydpoort, Ottosdal, 2610			
Postal address:	P.O. Box 433, Ottosdal			
Postal code:	2610	Cell:	082 828 3587	
Telephone:	082 828 3587	Fax:	N/A	
E-mail:	mpienaar@terraafrica.co.za			

2. DECLARATION BY THE SPECIALIST

I, Mariné Pienaar, declare that –

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

Signature of the Specialist

TERRAAFRICA CONSULT CC

Name of Company:

2021-07-02

Date

Details of Specialist, Declaration and Undertaking Under Oath

Page 2 of 3

APPENDIX 2 - CURRICULUM VITAE OF SPECIALIST

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mpienaar@terraafrica.co.za

linkedin.com/in/marinepienaar

Wolmaransstad,
South Africa

EXPERTISE

Soil Quality Assessment

Soil Policy and Guidelines

Agricultural Agro-Ecosystem Assessment

Sustainable Agriculture

Data Consolidation

Land Use Planning

Soil Pollution

Hydropedology

EDUCATION

MASTER'S DEGREE
Environmental Science
University of Witwatersrand
2010 – 2018

BACHELOR'S DEGREE
Agricultural Science
University of Pretoria
2001 – 2004

PROFESSIONAL PROFILE

I contribute specialist knowledge on agriculture and soil management to ensure long-term sustainability of projects in Africa. For the past thirteen years, it has been my calling and I have consulted on more than 200 projects. My clients include environmental and engineering companies, mining houses, and project developers. I enjoy the multi-disciplinary nature of the projects that I work on and I am fascinated by the evolving nature of my field of practice. The next section provide examples of the range of projects completed. A comprehensive project list is available on request.

PROJECT EXPERIENCE

Global Assessment on Soil Pollution

Food and Agricultural Organisation (FAO) of the United Nations (UN)

Author of the regional assessment of Soil in Sub-Saharan Africa. The report is due for release in February 2021. The different sections included:

- Analysis of soil and soil-related policies and guidelines for each of the 48 regional countries
- Description of the major sources of soil pollution in the region
- The extent of soil pollution in the region and as well as the nature and extent of soil monitoring
- Case study discussions of the impacts of soil pollution on human and environmental health in the region
- Recommendations and guidelines for policy development and capacitation to address soil pollution in Sub-Saharan Africa

Data Consolidation and Amendment

Range of projects: Mining Projects, Renewal Energy

These projects included developments where previous agricultural and soil studies are available that are not aligned with the current legal and international best practice requirements such as the IFC Principles. Other projects are expansion projects or changes in the project infrastructure layout. Tasks on such projects include the incorporation of all relevant data, site verification, updated baseline reporting and alignment of management and monitoring measures.

Project examples:

- Northam Platinum's Booysendal Mine, South Africa
- Musonoi Mine, Kolwezi District, Democratic Republic of Congo
- Polihali Reservoir and Associated Infrastructure, Lesotho
- Kaiha 2 Hydropower Project, Liberia
- Aquarius Platinum's Kroondal and Marikana Mines

PROFESSIONAL MEMBERSHIP

South African Council for Natural Scientific Professions (SACNASP)

Soil Science Society of South Africa (SSSSA)

Soil Science Society of America (SSSA)

Network for Industrially Contaminated Land in Africa (NICOLA)

LANGUAGES

English (Fluent)

Afrikaans (Native)

French (Basic)

PRESENTATIONS

There is spinach in my fish pond
TEDx Talk
Available on YouTube

♦

Soil and the Extractive Industries
Session organiser and presenter
Global Soil Week, Berlin (2015)

♦

How to dismantle an atomic bomb
Conference presentation (2014)
Environmental Law Association (SA)

PROJECT EXPERIENCE (Continued)

Agricultural Agro-Ecosystem Assessments

Range of projects: Renewable Energy, Industrial and Residential Developments, Mining, Linear Developments (railways and power lines)

The assessments were conducted as part of the Environmental and Social Impact Assessment processes. The assessment process includes the assessment of soil physical and chemical properties as well as other natural resources that contributes to the land capability of the area.

Project examples:

- Mocuba Solar PV Development, Mozambique
- Italthai Railway between Tete and Quelimane, Mozambique
- Lichtenburg PV Solar Developments, South Africa
- Manica Gold Mine Project, Mozambique
- Khunab Solar PV Developments near Upington, South Africa
- Bomi Hills and Mano River Mines, Liberia
- King City near Sekondi-Takoradi and Appolonia City near Accra, Ghana
- Limpopo-Lipadi Game Reserve, Botswana
- Namoya Gold Mine, Democratic Republic of Congo

Sustainable Agriculture

Range of projects: Policy Development for Financial Institutions, Mine Closure Planning, Agricultural Project and Business Development Planning

Each of the projects completed had a unique scope of works and the methodology was designed to answer the questions. While global indicators of sustainable agriculture are considered, the unique challenges to viable food production in Africa, especially climate change and a lack of infrastructure, in these analyses.

Project examples:

- Measurement of sustainability of agricultural practices of South African farmers – survey design and pilot testing for the LandBank of South Africa
- Analysis of the viability of avocado and mango large-scale farming developments in Angola for McKinsey & Company
- Closure options analysis for the Tshipi Borwa Mine to increase agricultural productivity in the area, consultation to SLR Consulting
- Analysis of risks and opportunities for farm feeds and supplement suppliers of the Southern African livestock and dairy farming industries
- Sustainable agricultural options development for mine closure planning of the Camutue Diamond Mine, Angola

PROFESSIONAL DEVELOPMENT

Contaminated Land Management 101Training Network for Industrially Contaminated Land in Africa
2020

Intensive Agriculture in Arid & Semi-Arid Environments
CINADCO/MASHAV R&D Course, Israel
2015

World Soils and their Assessment Course
ISRIC – World Soil Information Centre, Netherlands
2015

Wetland Rehabilitation Course
University of Pretoria
2010

Course in Advanced Modelling of Water Flow and Solute Transport in the Vadose Zone with Hydrus
University of Kwazulu-Natal
2010

Environmental Law for Environmental Managers
North-West University Centre for Environmental Management
2009

PROJECT EXPERIENCE (Continued)

Soil Quality Assessments

Range of projects: Rehabilitated Land Audits, Mine Closure Applications, Mineral and Ore Processing Facilities, Human Resettlement Plans

The soil quality assessments included physical and chemical analysis of soil quality parameters to determine the success of land rehabilitation towards productive landscapes. The assessments are also used to understand the suitability for areas for Human Resettlement Plans

Project examples:

- Closure Planning for Yoctolux Colliery
- Soil and vegetation monitoring at Kingston Vale Waste Facility
- Exxaro Belfast Resettlement Action Plan Soil Assessment
- Soil Quality Monitoring of Wastewater Irrigated Areas around Matimba Power Station
- Keaton Vanggatfontein Colliery Bi-Annual Soil Quality Monitoring

REFERENCES

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APPENDIX 3 – PROOF OF SACNASP REGISTRATION OF SPECIALIST

SACNASP
South African Council for Natural Scientific Professions

herewith certifies that

Mariné Pienaar

Registration Number: 400274/10

is a registered scientist

in terms of section 20(3) of the Natural Scientific Professions Act, 2003
(Act 27 of 2003)
in the following fields(s) of practice (Schedule 1 of the Act)

Soil Science (Professional Natural Scientist)
Agricultural Science (Professional Natural Scientist)

Effective **20 October 2010** Expires **31 March 2022**

Chairperson

Chief Executive Officer

To verify this certificate scan this code

APPENDIX 4 – LAND TYPE DATA SHEET OF LAND TYPE Ea70

LAND TYPE / *LANDTIPE* : **Ea70**

CLIMATE ZONE / *KLIMAATSONE* : 581S

Area / *Oppervlakte* : 83338 ha

Estimated area unavailable for agriculture

Beraamde oppervlakte onbeskikbaar vir landbou : 600 ha

Occurrence (maps) and areas / *Voorkoms (kaarte) en oppervlakte :*

2426 Thabazimbi (65828 ha) 2526 Rustenburg (17510 ha)

Inventory by / *Inventaris deur :*

R W Bruce

Modal Profiles / *Modale profiele :*

P1406 P1902

348 10792

Terrain unit / *Terreineenheid*	1	3	4	5
% of land type / *% van landtipe*	20	40	31	9
Area / *Oppervlakte (ha)*	16668	33335	25835	7500
Slope / *Helling (%)*	0 - 2	2 - 25	0 - 2	0 - 2
Slope length / *Hellingslengte (m)*	50 - 700	100 - 1000	500 - 2000	50 - 200
Slope shape / *Hellingsvorm*	Y	Z-X	Z-X	X-Z
MB0, MB1 (ha)	12501	29335	25835	7500
MB2 - MB4 (ha)	4167	4000	0	0

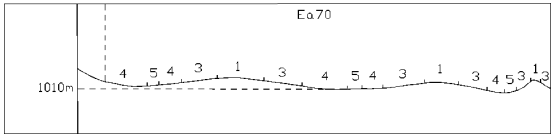
Soil series or land classes / ***Grondseries of landklasse***	**Depth** / ***Diepte*** (mm)	**MB**	1 ha	1 %	3 ha	3 %	4 ha	4 %	5 ha	5 %	**Total** / ***Totaal*** ha	**Total** / ***Totaal*** %	**Clay content %** / ***Klei-inhoud %*** A	E	B21	Hor	**Texture** / ***Tekstuur*** Class / *Klas*	***Diepte-beperkende materiaal*** **Depth limiting material**
Rock / Rots		4	2167	13	2000	6					4167	5.0						
Arcadia Ar40	500-1200+	0	10001	60	24668	74	19635	76	2475	33	56778	68.1	40-60			A	Cl	so
Glendale Sd21, Shortlands Sd22	600-1200+	0	1167	7	3000	9	1550	6			5717	6.9	30-40		35-60	B	fi/coSaCl-Cl	so
Shorrocks Hu36, Makatini Hu37, Marikana Hu38	600-1200+	0	1333	8	1667	5	1292	5			4292	5.2	25-45		30-60	B	fi/coSaCl-Cl	so
Lindley Va41, Nyoka Sw41	250-300	0					2842	11	375	5	3217	3.9	20-30		35-55	B	fi/coSaCl-Cl	B2
Rensburg Rg20	700-1000	0							2550	34	2550	3.1	40-60			A	Cl	G
Mispah Ms10, Klipfontein Ms11, Trevanian Gs17, Williamson Gs16, Robmore Gs18	100-300	3	1167	7	1333	4					2500	3.0	15-20			A	fi/coSaLm	R,hp,so
Jozini Oa36, Dundee Du10	900-1200+	0							1650	22	1650	2.0	15-35		15-35	B	fi/coSaClLm	R,so,gc
Tshipise My20, Pafuri My21, Graythorne Mw21	250-400	3	833	5	667	2					1500	1.8	30-40			A	SaClLm-SaCl	so,R
Rasheni Bo21, Stanger Bo11, Glengazi Bo31	600-1000	0					517	2	450	6	967	1.2	35-45		40-55	A	fi/coSaCl	gc

For an explanation of this table consult LAND TYPE INVENTORY (table of contents)

Ter verduideliking van hierdie tabel kyk LANDTIPE - INVENTARIS (inhoudsopgawe)

Terrain type / *Terreintipe :* A2

Terrain form sketch / *Terreinvormskets*



Geology: Predominantly norite and pyroxenite of the Bushveld Complex; red syenite of the Pilanesberg Complex in places.

Geologie: Hoofsaaklik noriet en pirokseniet van die Kompleks Bosveld; rooi sieniet van die Kompleks Pilanesberg op plekke.