Agricultural Compliance Statement

Establishment of a 3.5-Megawatt Solar Photo Voltaic (PV) facility on Erf 77, Greenbushes, within the Nelson Mandela Bay Municipality, Eastern Cape

Prepared for:

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Date submitted: 5 December 2022

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Table of Contents

1. Declaration of independence

I, Roy de Kock as duly authorized representative of BlueLeaf Environmental (Pty) Ltd, hereby confirm my independence (as well as that of BlueLeaf) as a specialist and declare that neither I nor BlueLeaf have any interest, be it business, financial, personal or other, in any proposed activity, application or appeal in respect of which Habitat Link was appointed as environmental assessment practitioner in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), other than fair remuneration for worked performed, specifically in connection with the Environmental Impact Assessment for the proposed establishment of a 3.5 Megawatt Photo Voltaic (PV) facility on Erf 77 in Greenbushes, Eastern Cape. I further declare that I am confident in the results of the studies undertaken and conclusions drawn because of it – as is described in this report.

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Full Name: Roy de Kock

Title / Position: Agricultural specialist
Qualification(s): BSc (Hons) Geology; MSc Botany; Candidate PhD Botany
Experience (years/ months): 16 years
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2. Expertise of specialist

Roy has over 16 years' experience in environmental consulting and specialist services in the Eastern Cape. Various projects throughout South Africa as well as Africa at larges has also been undertaken. Projects include baseline studies, impact assessments and compliance auditing for various large-scale projects including numerous wind farms, roads (National and Provincial), and infrastructure development projects. Roy has also conducted numerous specialist studies including but not limited to Ecological and Botanical assessments, Biodiversity studies, Plant and Animal Search and Rescue, Fauna and Flora permits, Aquatic Assessments, Agricultural and Soil Assessments and Environmental and Venomous animals training workshops.

Roy holds a BSc Honours in Geology and an MSc in Botany from the Nelson Mandela University in Port Elizabeth. He is currently busy with his PhD (Doctorate degree) in Botany and Soil Science. He has over 16 years' experience in the environmental consulting focussing on Ecological and Agricultural Assessments, Geological and Geotechnical analysis, Environmental Management Plans, mining applications and various environmental impact studies.

Roy has been conducting Agricultural and Agri-Ecosystem Assessments since 2011. Projects include:

- Enviroworks Rietspruit Mining Development, Mpumalanga
- Habitat Colchester Bank Stabilization, Eastern Cape
- Habitat Link Kwagga Citrus Development, Patensie, Eastern Cape
- Habitat Paradise Beach Housing Development, Eastern Cape
- Terreco Sanqu Water Supply Lines, Eastern Cape
- Algoa CME Southwell mining, Port Alfred, Eastern Cape
- Enviroworks Groenrug S24G Development, Grabouw, Western Cape
- Habitat Vlakteplaas Development, Jeffreys Bay, Eastern Cape

Roy is a registered as a professional natural scientist (*Pr.Sci.Nat.)* with SACNASP (Registration nr: 400216/16).

This study complies with the requirements as listed in the Gazetted protocols for impacts on agricultural resources (GN. R 320 of 2020) and minimum report content requirements.

3. Introduction

BlueLeaf Environmental (Pty) Ltd has been appointed by Habitat Link Consulting to provide agricultural input into their proposed environmental assessment for a proposed new 3.5 MW Solar PV plant within the 2.2 hectare (ha) of Erf 77 in Greenbushes, Gqeberha (Port Elizabeth) in the Eastern Cape province. The proposed development will include the installation of several solar panels to be connected to the municipal electricity grid to supply renewable (solar) energy. Erf 77 is situated approximately 15 km west of Port Elizabeth city center, within the Nelson Mandela Bay Municipality (Figure 3.1).

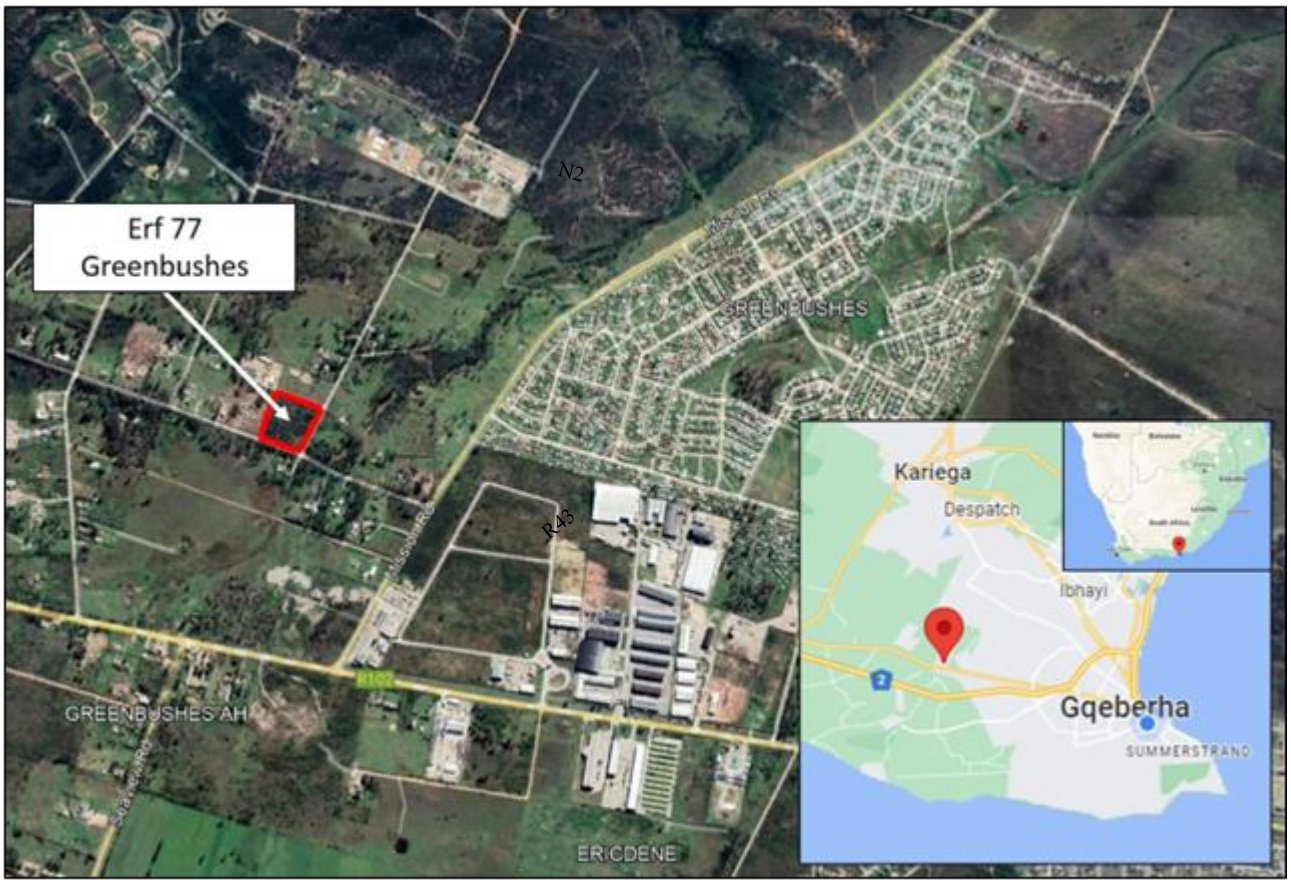


Figure 3.1: Locality Map of the proposed solar PV development on Erf 77, Greenbushes, within the Nelson Mandela Bay Municipality, Eastern Cape

3.1 Methodology

This report has been drafted in accordance with the Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in Terms of Sections 24(5)(a) and (h) and 44 of NEMA (G.NR. 1150 of 2020) – Protocol for the specialist assessment and minimum report content requirements for environmental impacts on agricultural resources.

A site sensitivity verification was conducted (see Chapter 5 of this report) to confirm/dispute the current use of the land and agricultural sensitivity as identified by the DFFE Screening Tool. Motivation, with photographic evidence, was provided as part of the site sensitivity verification.

Current literature that was used to describe the site includes:

- SANBI National Vegetation Map (updated 2018).
- Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983; CARA)
- ISRIC Soil and Terrain (SOTER) database (https://www.isric.org/explore/soter)
- A System for Soil and Land Capability Classification for Agriculture in South Africa (Scotney et al; 1987).
- Soil Classification Working Group, (2018), Soil Classification: A Natural and Anthropogenic System for South Africa, ARC-Institute for Soil, Climate and Water, Pretoria.
- DFFE Screening Report.

3.2 Screening Report

The National Web based Environmental Screening Tool is a geographically based web-enabled application which allows a proponent intending to apply for environmental authorization in terms of the Environmental Impact Assessment (EIA) Regulations 2014, as amended to screen their proposed site for any environmental sensitivity.

The Screening Tool also provides site specific EIA process and review information, for example, the Screening Tool may identify if an industrial development zone, minimum information requirement, Environmental Management Framework or bio-regional plan applies to a specific area. Some of these documents can then be accessed through the Screening Tool via links, for consideration during screening.

Further to this, the Screening Tool identifies related exclusions and/ or specific requirements including specialist studies applicable to the proposed site and/or development, based on the national sector classification and the environmental sensitivity of the site.

Finally, the Screening Tool allows for the generating of a Screening Report referred to in Regulation 16(1)(v) of the Environmental Impact Assessment Regulations 2014, as amended whereby a Screening Report is required to accompany any application for Environmental Authorization and as such the tool has been developed in a manner that is user friendly and no specific software or specialized GIS skills are required to operate this system.

The DFFE screening report has listed the Agricultural theme for the study area as **high sensitive** based on the following features:

- The site is a small holding
- Low-moderate to moderate-high land capability (between 06 and 10)

Figure 3.2: Agricultural theme sensitivity of the site and surrounding areas (Screening Report)

Below is a desktop and site assessment to confirm/dispute the agricultural theme sensitivity classification.

4. Project description

The proposed facility will consist of approximately 4 000 solar panels that will feed renewable energy to the existing municipal electrical connection via a new municipal substation (Figure 4.1). The development will also consist of several out-buildings including ablution facilities, security control, storeroom, transformer/switch gear room and electrical metering room. Stormwater from the site will be diverted to a proposed pond in the south-east corner. Access to the site will be obtained off Pennelsdrift Road on the south-west corner and a new internal access road will be established along the boundary of the property. Several parking spaces will be allocated near the buildings (Figure 4.1 and Figure 4.2).

The proposed solar energy generation facility will initially produce 2.3 MW of green power (and later be upgraded to 3.5 MW), which can then be distributed to businesses in the area. This green power will allow these businesses to meet their sustainable mandates and assist with the exponential costs of electricity. This facility will also help to alleviate electrical consumption, improving grid stability and reducing load shedding.

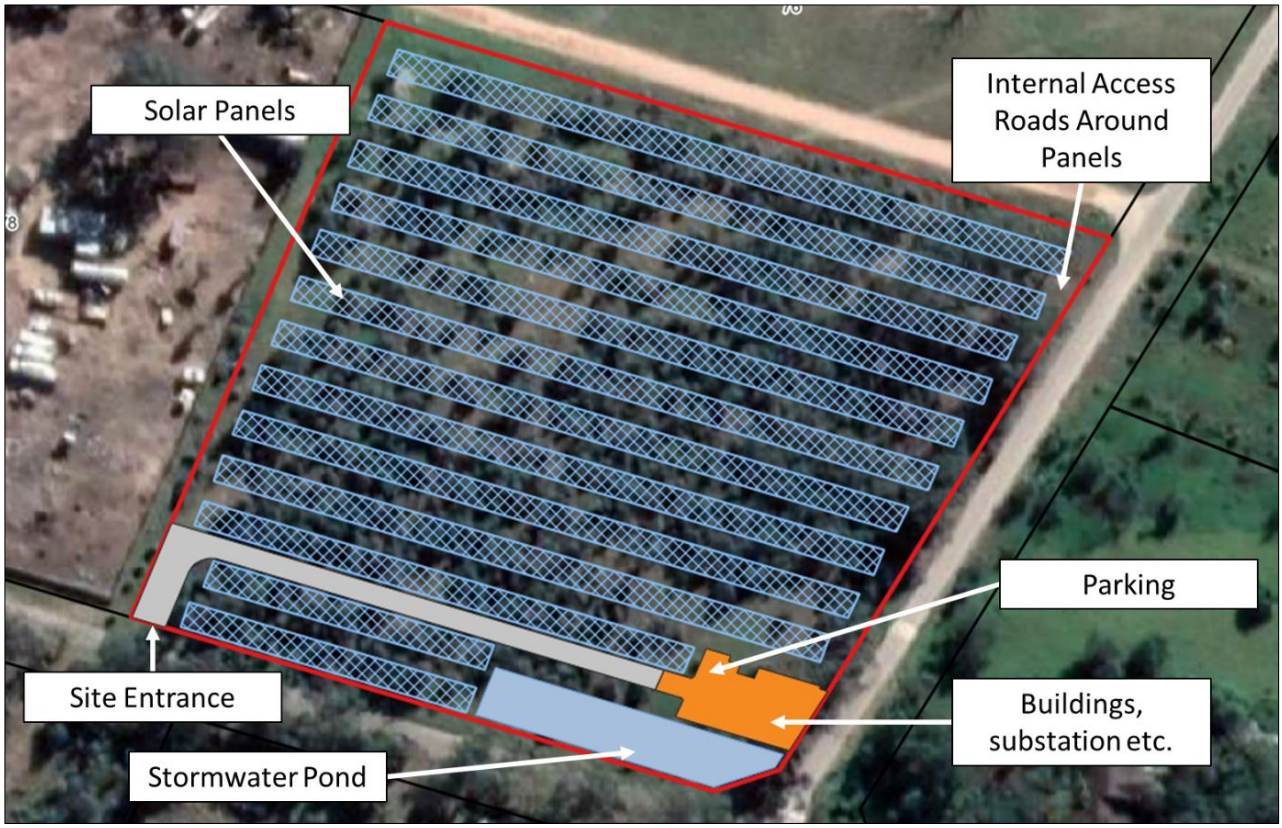


Figure 4.1: Site layout of the proposed solar PV development on Erf 77, Greenbushes, within the Nelson Mandela Bay Municipality, Eastern Cape.

Each row of solar panels will be fitted with two 80 kilowatt (kW) inverters, which will be connected, via cabling, to the on-site mini-substation/transformer via the electrical metering room. The mini-substation will be connected to the nearest municipal supply by either tapping into an existing 11 kilovolt (kV) or 22 kV cables by means of a Ring Main Unit, or by connecting to the nearest substation by means of an additional switch. If required, permissions for connecting to existing infrastructure

via the municipal road will need to be obtained from the NMBM as well as from the adjacent landowner. For future upgrades to the 3.5 MW capacity, it is possible (although unlikely) that 33 kV underground cabling will be required for the development. The cable upgrades will occur within the footprint of any existing cabling and will not exceed 2 km in length.

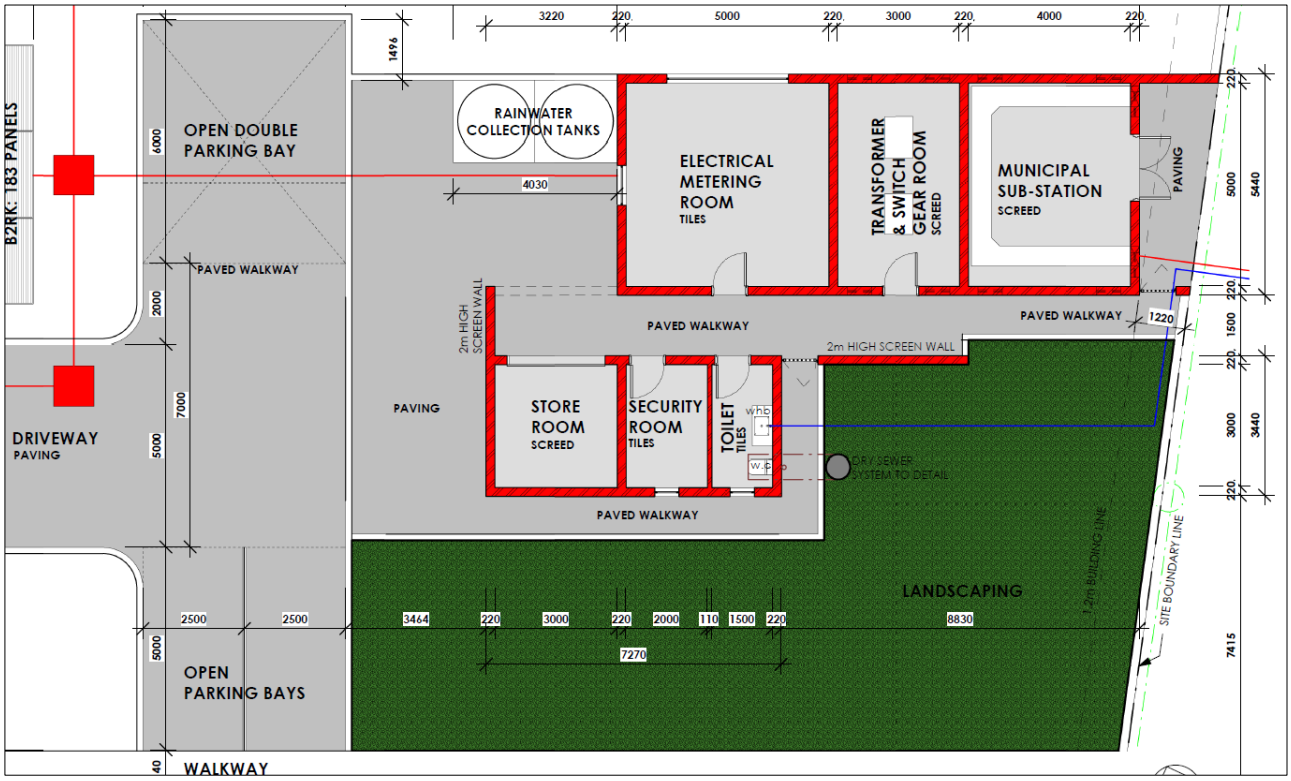


Figure 4.2: Detailed layout of the proposed building and substation.

While most of the property will consist of solar panels, the southern portion of the site has been earmarked for the development of the abovementioned associated infrastructure which include ablution facilities, security control room, storeroom, municipal sub-station, transformer/switch gear room and electrical metering room and parking. There is also proposed to be a 700 m^2 stormwater retention pond in the south-east corner of the site. It is proposed that the entire site will be fenced-off with mesh fencing, fitted with electrified fencing, to ensure security of the site. Further security measures will include full CCTV cameras fitted around the property boundary and at strategic points within the property. Remote off-site security monitoring will be carried out from a central control room.

4.1 Water supply

Limited water will be required during the construction phase. This water will be used primarily for the suppression of dust following the clearance of vegetation. During the operational phase, a small amount of water will be required for the cleaning of solar panels up to three (3) times per year. The panels will primarily be cleaned using waterless microfibre cleaning devices. In some instances, water will be combined with this method to remove stubborn dirt and dust on the panels. The site only requires a standard municipal residential water connection. An existing municipal connection is located opposite the site (adjacent to the southern boundary of Pennelsdrift Road. A small

(approximately 25 mm diameter) High Density Polyethylene (HDPE) pipeline will be connected and extended to the site.

4.2 Energy Sources

Fuel will be required for the bulldozer and excavator during the construction period. Since this is a renewable energy development, the only energy requirements would be those of 'start-up' during the operational phase. The facilities will be connected to the existing municipal electricity supply for start-up after which the site will operate off the proposed solar-generated power supply.

4.3 Solid waste, Wastewater and Sewage

Solid waste derived from the construction phase of the proposed development will include minor discarded construction material, general domestic waste, existing waste located on the site and cleared vegetation (predominantly eucalyptus trees). This spoil waste will be reused, wherever possible (e.g., as fill material, depending on the quality). Any vegetation waste will be chipped and mulched and re-used on site wherever possible. All additional waste will be removed and disposed of in the correct manner at a licensed landfill site. During the construction phase, liquid effluent will be handled via the implementation of portable/temporary toilets for construction staff. The facilities will be serviced by an external service provider (e.g., Sanitech) to remove the waste to a sewage treatment facility. Should any soil become contaminated by an effluent or hydrocarbon spill, this will be separated as hazardous waste and removed to an adequate disposal facility. Construction phase activities may also generate hazardous waste such as empty chemical containers, oil rags and possible cement bags. These will be disposed by the Contractor at the nearest permitted landfill site.

During the operational phase, most of the waste derived from the development will be in the form of general domestic waste, derived from the operators and security staff present at the site. This waste will be disposed of via the municipal collection services on a weekly or biweekly basis and/or by an appointed recycling and/or waste removal company. The operational phase of the proposed development will generate effluent comprised of limited wash water and sewage. The applicant has confirmed that only a limited amount of water is required for the washing of solar panels and that no cleaning chemicals would be required. Effluent from the other facilities (e.g., ablution block) will be managed with a dry toilet solution that will be emptied on a regular basis by an appointed contractor. A typical example of such a dry toilet solution would be the ECOSAN waterless toilet system.

4.4 Stormwater Infrastructure

The management of stormwater during the construction phase may require the implementation of water diversion berms prior to the commencement of the site establishment. The diversion berms will be designed in such a way as to ensure that the proposed development site is properly protected from excess stormwater flow, while also ensuring that the surrounding land, specifically the nearby drainage areas, can handle the additional (diverted) water. During the operational phase, stormwater from the entire property will be diverted to the proposed stormwater retention pond. The retention pond, which will be approximately 1 m in depth (with its highest point located at current ground level), has been designed to accommodate a 1:100-year flood event to avoid excess

stormwater runoff from leaving the site. A new stormwater pipeline (approximately 300 m in length) will be implemented below-ground, extending from the retention pond to an outlet within the servitude of the Pennelsdrift Road reserve (Figure 4.3). The outlet from the pipeline, which will be located outside the floodplain of the nearby drainage line, will consist of a headwall and reno mattress with a total footprint of approximately 8 m^3.

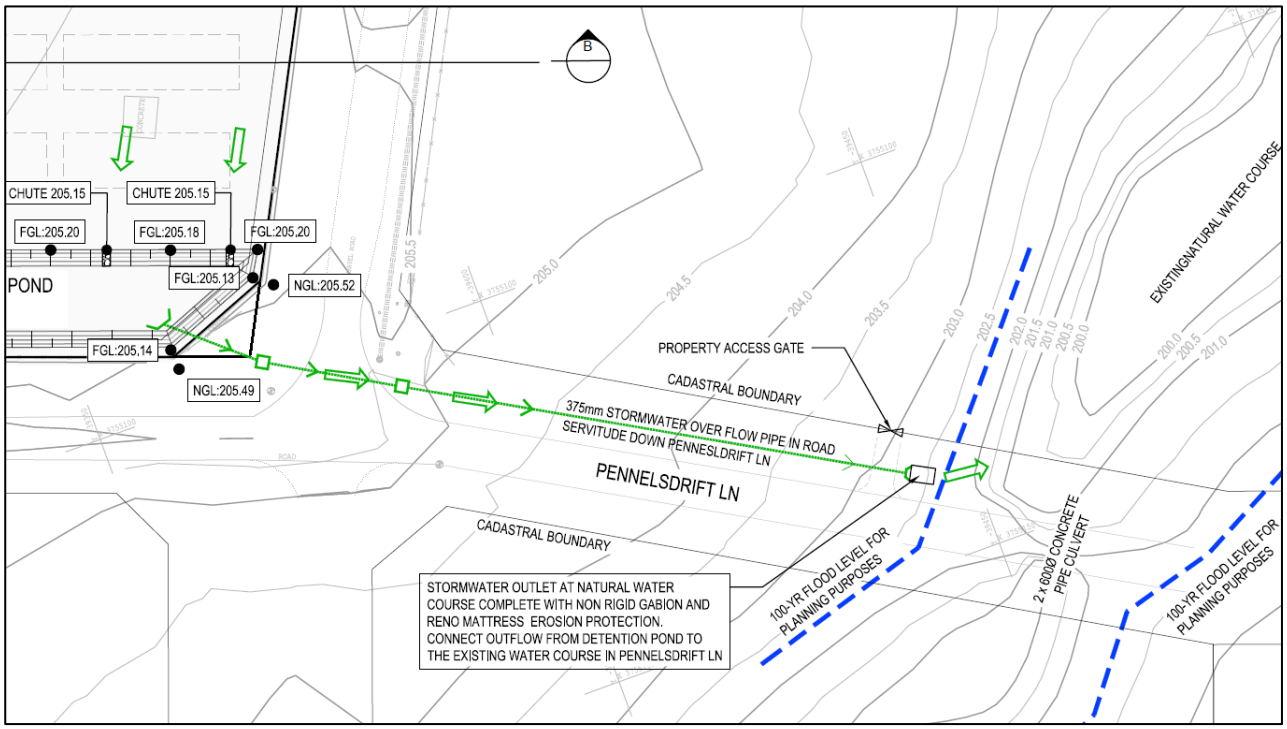


Figure 4.3: Stormwater management plan showing the proposed stormwater pipe extending from the site along the road reserve to the proposed stormwater outset with reno mattress erosion protection.

4.5 Current Land-use

The site currently consists of vacant land with vegetation cover in the form of alien black wattle and eucalyptus (Gum) trees (Figure 4.2).

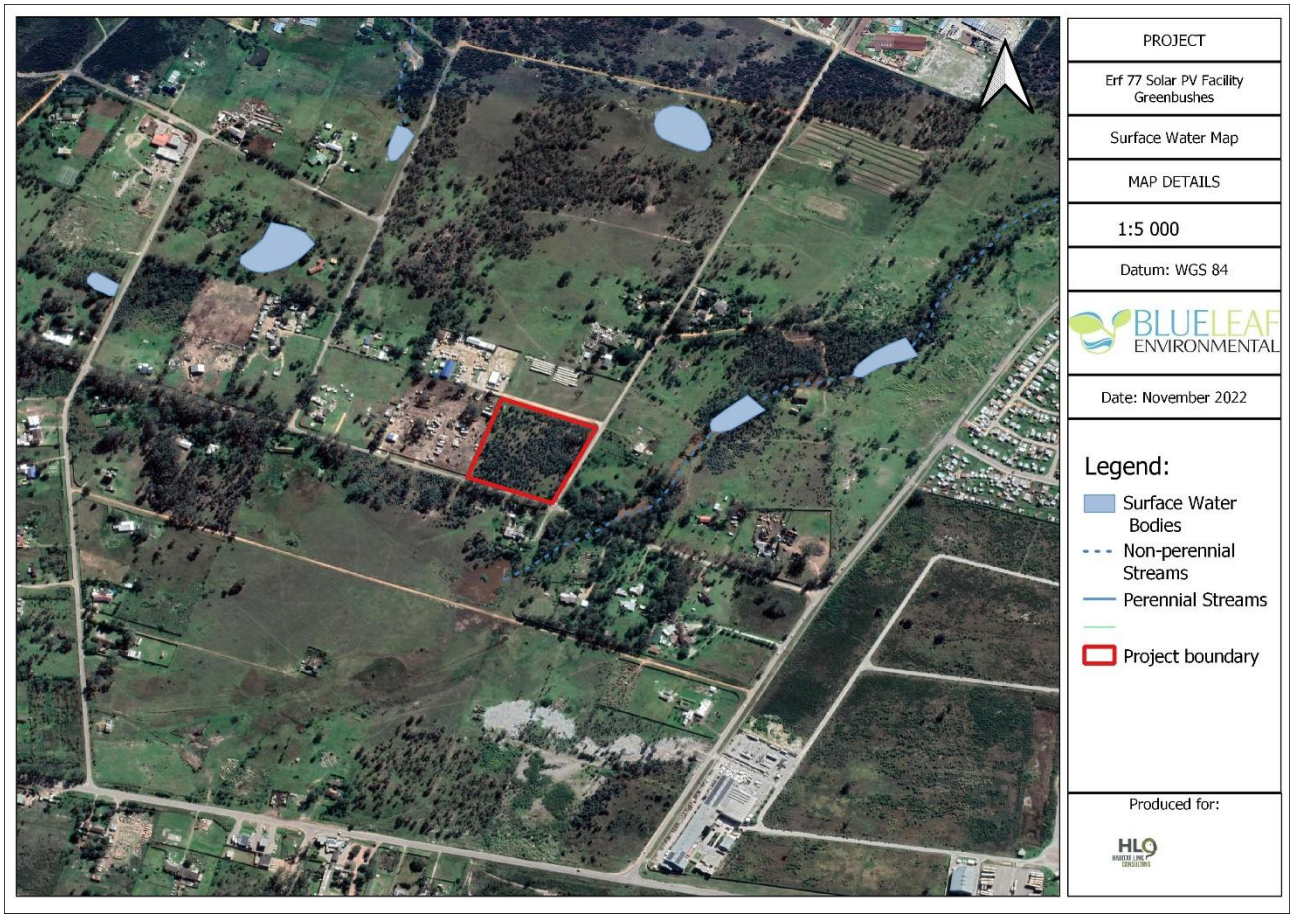


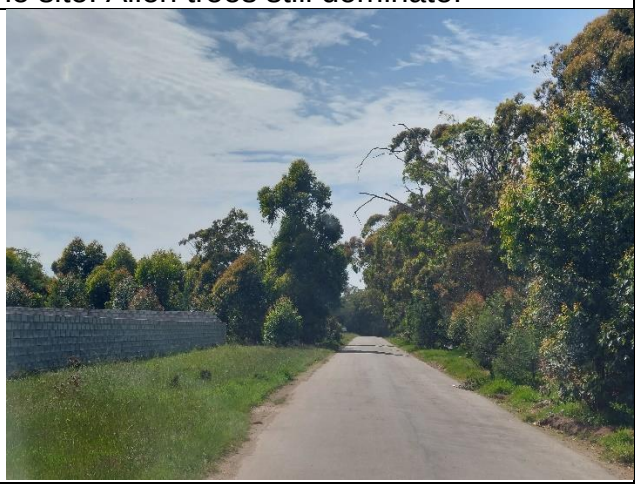
Figure 4.2: Aerial image of the study site and surrounding areas

Below is a photo sequence of the study site environment:

Site along the northern boundary. Alien vegetation dominates:	
	


Southern boundary: Aliens still dominate but site is slightly more open:


A scrapyard forms the western boundary of the site. Alien trees still dominate:

5. Desktop analysis

This section was completed prior to the site visit and consists of a desktop analysis of the site based on available literature, plans and legislation.

5.1 Vegetation

According to the Mucina and Rutherford national vegetation classification (SANBI, 2018), the pre-transformation vegetation type in the study is classified as Algoa Sandstone Fynbos. This vegetation unit, a form of Algoa Grassy Fynbos, is listed as **Critically endangered**. Although the dominant vegetation type is Algoa Sandstone Fynbos, a large amount of alien invasives can also be observed on site such as Gum Trees (*Eucalyptus*) and Wattle. The species observed indicated that complete transformation had taken place. According to the NMBM BP 2014, the dominant vegetation type is Rowallan Park Grassy Fynbos.

5.2 Topography

The landscape of the site area is considered flat and situated 200 m above sea level.

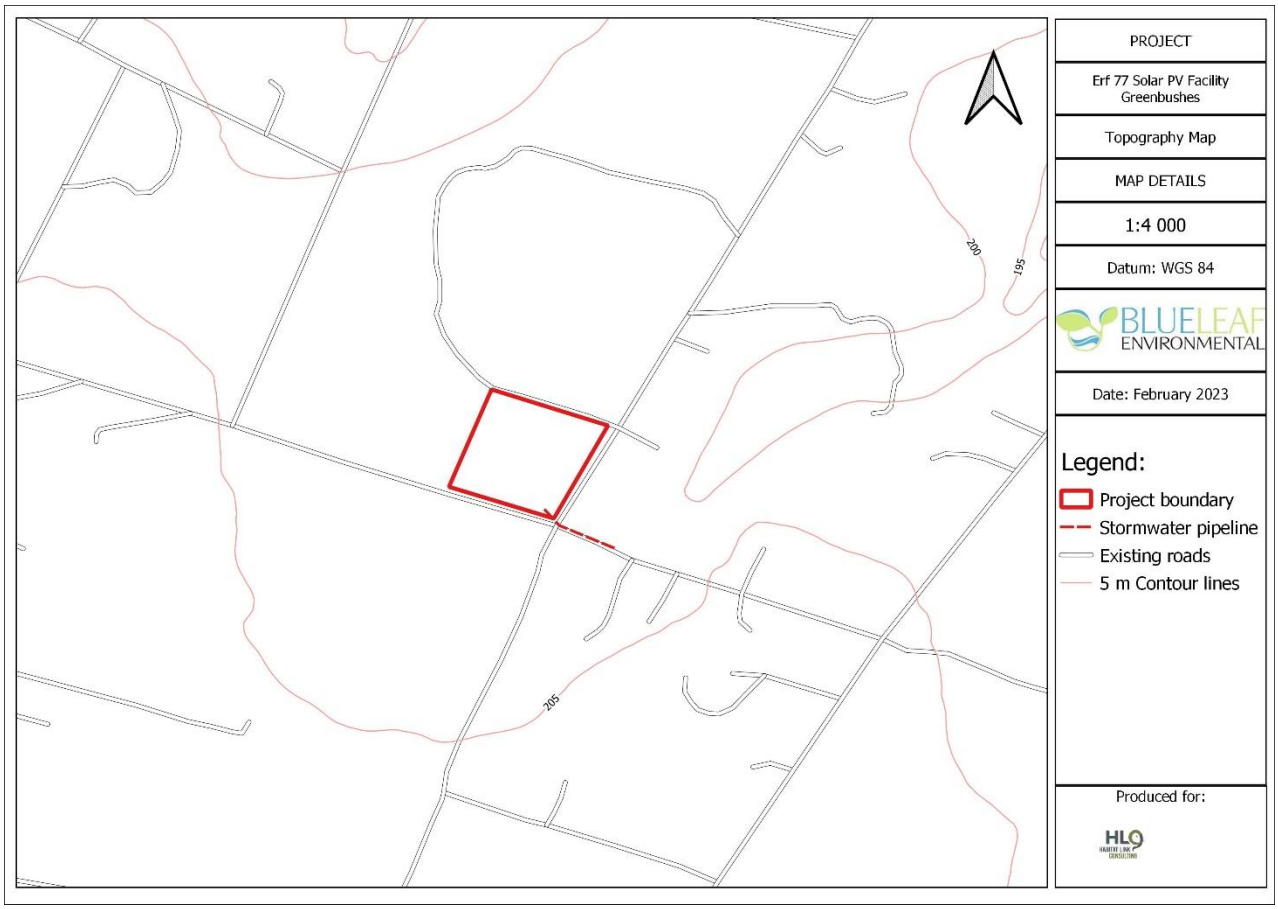


Figure 5.1: Topography of the study site and surrounding areas

5.3 Geology

Rocks within the proposed development site comprises of quartz arenites (sandstones) and minor shales and conglomerates of the Pakhuis Formation of rocks which forms the main unit of the Table Mountain Group (Cape Supergroup). Rocks can be up to 2700 m thick in places.

5.4 Soils

Soils within the proposed development site are categorized as acidic lithosol soils derived from Ordovician sandstones of the Table Mountain Group (Cape Supergroup).

5.5 Surface water

The south-eastern corner of the property is located within 77 m of an unnamed ephemeral tributary and the entire property is located within 500 m of various wetlands, as defined by the National Freshwater Ecosystem Priority Areas (NFEPA, 2011) (Figure 5.2).

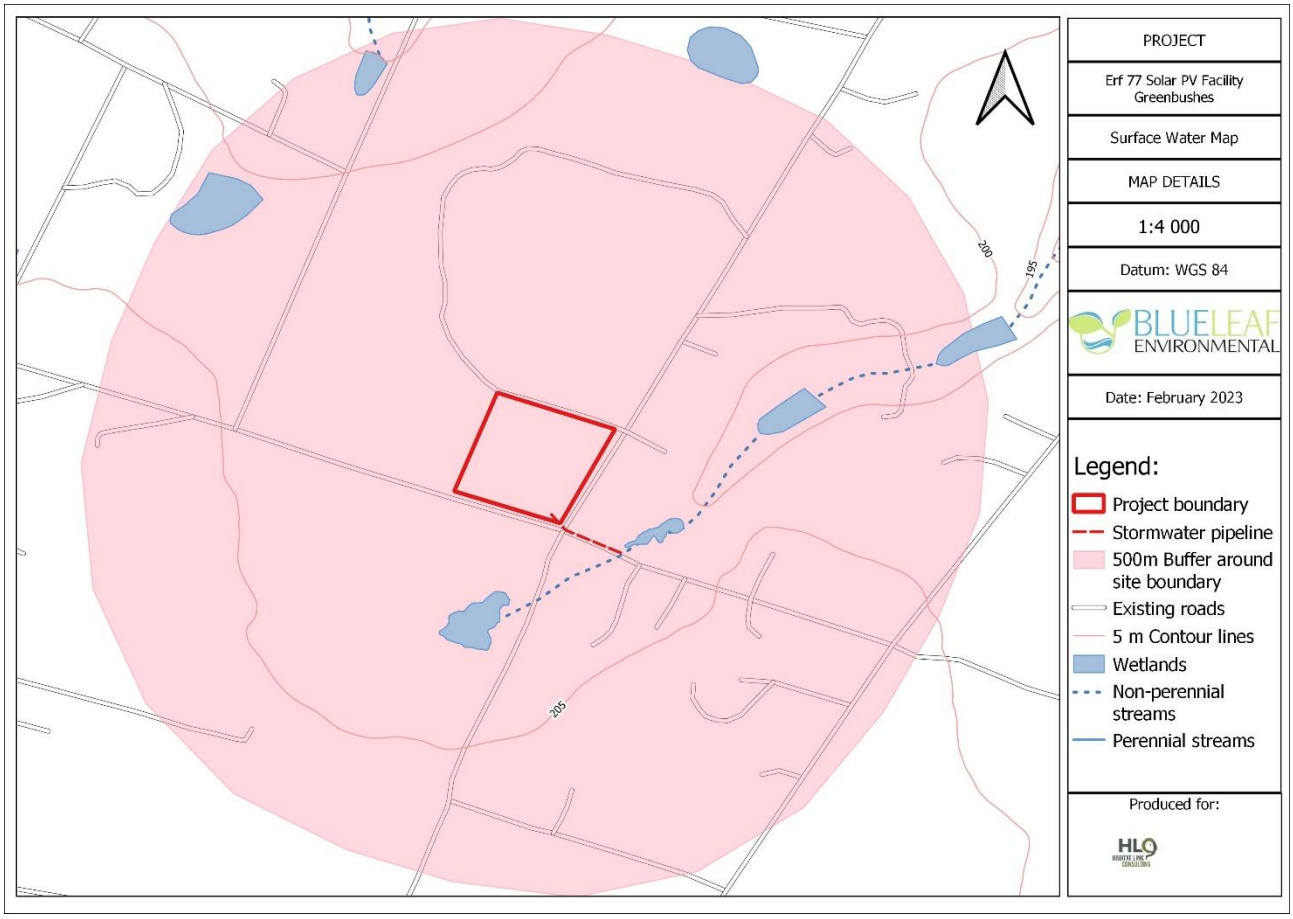


Figure 5.2: Surface water within the study site and surrounding areas

5.6 Land cover

Land cover is a term used for both the dominant cover of the land as well as the main use of the land (land use). Erf 77 forms part of a cluster of smallholdings used for informal and small-scale farming (mostly grazing). Today, few of these smallholdings function as agricultural land and is either

lying dormant with an infestation of alien vegetation trees creating dense woodlots or has been transformed into urban plots, or are used as commercial businesses. Two of the immediate adjacent erfs are used as a motor vehicle scrapyard (to the west) and as a construction plant hire (to the north). All the smallholdings are surrounded by various pockets of urban development.

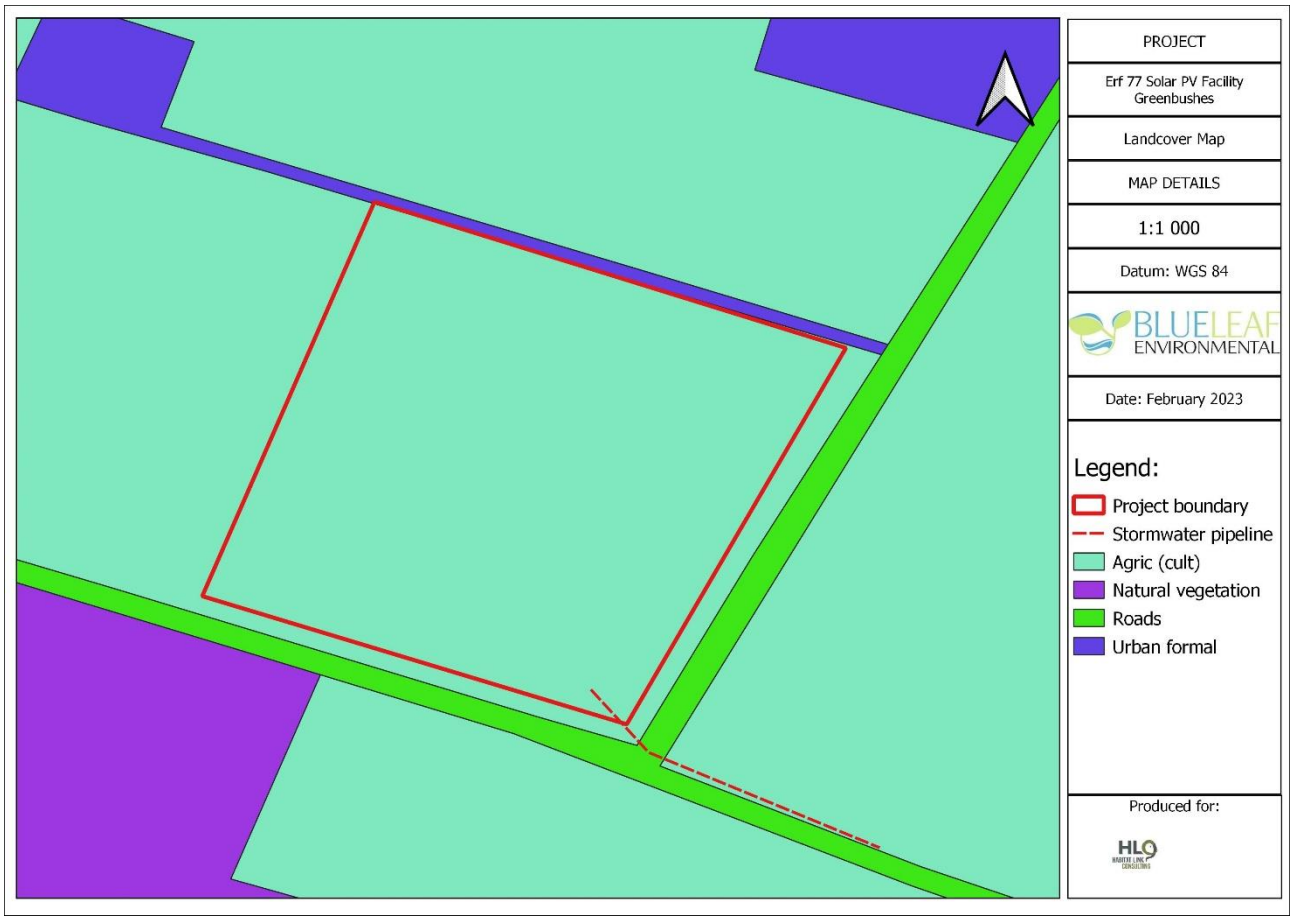


Figure 5.3: Land cover within the study site and surrounding areas

5.7 Land capability

The 2016 Land Capability (DAFF; 2016) represents the distribution of the land capability evaluation values in the country, used as one of the input data layers to determine and demarcate all high value agricultural land for ensuring that these areas, pending availability, are preserved for continued agricultural production, thereby ensuring long-term national food security.

Land capability is defined as the most intensive long-term use of land for purposes of rainfed farming determined by the interaction of climate, soil and terrain.

The Land capability evaluation 2016 data layer is a refined and updated spatial modelled data layer depicting the land capability evaluation values for the country. The main contributing factors towards land capability in a “natural or unimproved“ rainfed (dryland) scenario, were the soil, climate and terrain capabilities with a weighted reference of:

Soil capability = 30%; Climate capability = (40%) and Terrain capability = (30%).

Based on this, land capability for the entire site (and surrounding areas) is classified as 08 (moderate).

5.8 Agriculture

Grazing and stock farming is not generally practised in the region. Grazing capacity is considered as 8 ha/LSA (hectare per large stock unit). Informal grazing occurs on site and in some of the surrounding areas. No crop farming (either dryland or irrigation) occurs nearby.

6. Site sensitivity verification

A site visit was conducted on the 3rd of November 2022, and the entire site as shown in Figure 4.1 was assessed. The following was found:

- The entire site is considered as transformed. No natural vegetation occurs as the site is dominated by alien tree woodlots with secondary grasses in the open areas. No extent remains of the original fynbos vegetation type.
- Soils are of low to moderate agricultural value.
- Soils onsite are unaltered with no traces of erosion observed. Soil profile is intact.
- There is no available surface water on site, but 6 wetlands have been identified within 500 m from the site while an ephemeral drainage system is located 77 m away from the boundary of the erf. Groundwater quality is unknown.
- No formal grazing occurs on site and grazing capacity was calculated in 2022 as 8 ha/LSA.
- No crop farming or irrigation occur on site or has occurred historically.
- No agricultural infrastructure occurs on site.
- The erf is surrounded by land used for non-agricultural purposes, mainly small-scale businesses and urban development.

Based on the above, it is the opinion of the specialist that the land contained within the proposed study site is **considered as moderate sensitivity for the agricultural theme** and NOT high, as indicated in the DFFE Screening Report. A full Agricultural Assessment is therefore NOT required. The proposed Solar Photo Voltaic (PV) development may therefore proceed, provided the following mitigations are included into the EMPr:

- A Stormwater Management Plan (SWMP) must be developed and implemented for all phases of development.
- An ECO must monitor the site for erosion during construction.
- An Alien Vegetation Management Plan (AVMP) must be developed and implemented for all phases of development. The number of alien vegetation on site must be reduced and the developer must ensure that alien vegetation does not spread to surrounding land.
- Avoid any risk of veldfires on site. No fires will be allowed on site.

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