TERRESTRIAL BIODIVERSITY IMPACT ASSESSMENT

FOR THE PROPOSED SECOND PHASE OF THE DARLING HOUSING DEVELOPMENT, DARLING, WESTERN CAPE PROVINCE

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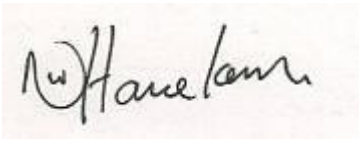
MARCH 2026

DECLARATION OF THE SPECIALIST

Note: Duplicate this section where there is more than one specialist.

I **Nicolaas Willem Hanekom**, as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that:

- In terms of the general requirement to be independent:
    - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
- In terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- I have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any Report, plan or document prepared or to be prepared as part of the application; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations.



Nicolaas Hanekom
Pri.Sci.Nat (Ecology) 004415 **11 March 2026**

Signature of the ~~EAP~~/ Specialist: Date:

Enviro-EAP (Pty) Ltd

Name of company (if applicable):

COMPLIANCE WITH THE DEPARTMENT OF ENVIRONMENTAL AFFAIRS SCREENING TOOL (GOVERNMENT NOTICE NO. 320, GOVERNMENT GAZETTE 43110: 20 MARCH 2020)

Department of Environmental Affairs screening Tool (Government Notice No. 320, GOVERNMENT GAZETTE 43110: 20 MARCH 2020)	**ADDRESSED IN SPECIALIST REPORT**
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A signed statement of independence by the specialist	Page 2 of report
Duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment	Section 1.8
A description of the methodology used to undertake the impact assessment and site inspection, including equipment and modelling used where relevant	Section 1.5
A description of the assumptions made and any uncertainties or gaps in knowledge or data as well as a statement of the timing and intensity of site inspection observations	Section 1.6
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1. INTRODUCTION AND METHODOLOGY

The Department of Environmental Affairs screening report from the national web based environmental screening tool reported a “Very High for Terrestrial Biodiversity” sensitivity. The site sensitivity verification and the specialist assessment does differ from the designation of “very high” terrestrial biodiversity and did not agree with the findings of the national web based environmental screening tool. However, a terrestrial biodiversity impact assessment was conducted. This report presents the findings of the Terrestrial Biodiversity Impact Assessment that was prepared by Nicolaas Hanekom as part of the EIA for the proposed development.

1.1. Background & Competency

Nicolaas Hanekom is a registered Professional Natural Scientist in the ecological science field with the South African Council for Natural Scientific Professions (“SACNASP”), (Ecology field) and a qualified registered Environmental Assessment Practitioner (“EAP”) who holds a Masters Technologiae, Nature Conservation (“Vegetation Ecology and Biodiversity Assessment”) degree from the Cape Peninsula University of Technology (Refer to Appendix A, CV). Nicolaas Hanekom is suitably qualified SACNASP registered specialist.

1.2. Conditions Relating to this Report

The findings, results, observations, conclusions and recommendations given in this report are based on the author’s best scientific and professional knowledge as well as available information and knowledge of the area. Nicolaas Hanekom reserves the right to modify aspects of the report including the recommendations if and when new information may become available from on-going research or further work in this field, pertaining to this assessment.

This report may not be altered or added to without the prior written consent of the author. This restraint also refers to electronic copies of this report which are supplied as sub portion of other reports, including main reports. Similarly, any recommendations, statements, or conclusions drawn from or based on this report must specifically refer to this report. If such comments form part of a main report for this investigation, the report must be included in its entirety as an appendix or separate section to the main report.

1.3. Scope and Objectives

The assessments entailed both a literature review of the region, as well as on site evaluations, during which specific primary data will be collected and evaluated. In addition, the identification of key ecological features will be undertaken allowing for the interpretation of the prevailing habitat form and associated processes.

All data collected in the field and during the literature review will be evaluated and interpreted in order to provide an understanding of the nature of the prevailing environment at a landscape and habitat level. In addition, specific evaluation of data relating to habitat form and structure will be undertaken, aiding in the identification of bio-physical anomalies within the prevailing environment. Such variance may be considered to be indicative of differing habitat forms, which under consideration, may be of higher order ecological value in relation of the prevailing environment.

The protocol[1] provides the criteria for the reporting of requirements for the assessment and reporting of impacts on terrestrial biodiversity for activities requiring environmental authorisation.

General Information

An applicant intending to undertake an activity identified in the Scope of this Protocol, on a site identified as being of "very high sensitivity" for terrestrial biodiversity on the national web based environmental screening tool must submit a Terrestrial Biodiversity Impact Assessment Report. However, where the information gathered from the Initial Site Sensitivity Verification and the specialist assessment differs from the designation of "very high" terrestrial biodiversity sensitivity from the national web based environmental screening tool and it is found to be of a "low" sensitivity, then a terrestrial biodiversity impact assessment is not required. Should this apply, a Terrestrial Biodiversity Compliance Statement is to be provided.

1.4. Methodology Terms of Reference

The assessment must be undertaken by a suitably qualified and SACNASP registered specialist, within the preferred development site and on the preferred development footprint. The description of the preferred site must include the following aspects, as a minimum and must be considered in the baseline description:

- A description of the ecological drivers/processes of the system and how the proposed development will impact these;
- Ecological functioning and ecological processes (e.g. fire, migration, pollination, etc.) that operate within the proposed development site;
- The ecological corridors that the development would impede including migration and movement of flora and fauna;
- The description of any significant landscape features (including rare or important flora/faunal associations, presence of Strategic Water Source Areas (SWSAs) or Freshwater Ecosystem Priority Areas (FEPA) sub-catchments;
- The description of the terrestrial biodiversity and ecosystems on the proposed development site must include:
  - Main vegetation types;
  - Threatened ecosystems, including Listed Ecosystems as well as locally important habitat types identified;
  - Ecological connectivity, habitat fragmentation, ecological processes and fine-scale habitats; and
  - Species, distribution, important habitats (e.g. feeding grounds, nesting sites, etc.) and movement patterns identified.

The assessment must identify any alternative development footprints within the preferred development site which would be of a "low" sensitivity as identified by the national web based environmental screening tool and verified through the Initial Site Sensitivity Verification. The

1 Published in Government Notice No. 648 GOVERNMENT GAZETTE 4542110 MAY 2019.This gazette is also available free online at www.gpwonline.co.za

Terrestrial Biodiversity Impact Assessment must be based on the results of a site inspection undertaken on the preferred development site and must identify:

The assessment report must describe Terrestrial Critical Biodiversity Areas (CBAs), including:

- The reasons why an area has been identified as a CBA;
- An indication of whether or not the development is consistent with maintaining the CBA in a natural or near natural state or in achieving the goal of rehabilitation;
- The impact on species composition and structure of vegetation with an indication of the extent of clearing activities;
- The impact on ecosystem threat status;
- The impact on explicit subtypes in the vegetation;
- The impact on overall species and ecosystem diversity of the site; and
- The impact on populations of species of special concern in the CBA.

The assessment report must describe Terrestrial Ecological Support Areas, including:

- The impact on the ecological processes that operate within or across the site;
- The extent the development will impact on the functionality of the ESA; and
- Loss of ecological connectivity (on site, and in relation to the broader landscape) due to the degradation and severing of ecological corridors or introducing barriers that impede migration and movement of flora and fauna.

The assessment report must describe Protected Areas as defined by the National Environmental Management: Protected Areas Act, 2004 including an opinion on whether the proposed development aligns with the objectives/purpose of the Protected Area and the zoning as per the Protected Area Management Plan.

The assessment report must describe Priority Areas for Protected Area Expansion, including the way in which the development will compromise or contribute to the expansion of the protected area network.

The assessment report must describe Strategic Water Source Areas (SWSA) including:

- The impact(s) on the terrestrial habitat of a Strategic Water Source Area, and
- The impacts of the development on the SWSA water quality and quantity (e.g. describing potential increased runoff leading to increased sediment load in water courses).

The assessment report must describe Freshwater Ecosystem Priority Area (FEPA) sub catchments, including the impacts of the development on habitat condition and/or species in the FEPA sub catchment, including National wetland map 5.
The assessment report must describe Indigenous Forests, including:

- Impact on the ecological integrity of the forest;
- Extent of natural or near natural indigenous forest area lost.

The findings of the Terrestrial Biodiversity Impact Assessment must be written up in a Terrestrial Biodiversity Impact Assessment Report. This report must include as a minimum the following information:

- Contact details and curriculum vitae of the specialist including SACNASP registration number and field of expertise and their curriculum vitae;
- A signed statement of independence by the specialist;

- Duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;
- A description of the methodology used to undertake the impact assessment and site inspection, including equipment and modelling used where relevant;
- A description of the assumptions made and any uncertainties or gaps in knowledge or data as well as a statement of the timing and intensity of site inspection observations;
- Areas not suitable for development, to be avoided during construction and operation (where relevant);
- Additional environmental impacts expected from the proposed development based on those already evident on the site and a discussion on the cumulative impacts;
- Impact management actions and impact management outcomes proposed by the specialist for inclusion in the EMPr;
- A motivation why any alternative development footprints within the preferred development site which would be of a “low” sensitivity as identified by the national web based environmental screening tool were not considered stating reasons why these were not being not considered; and
- A reasoned opinion, based on the findings of the specialist assessment, regarding the acceptability or not of the development and if the development should receive approval or not, and any conditions to which the statement is subjected.

1.5. Approach and Methodology

A literature review and desktop analysis were undertaken prior to the field investigation, utilizing various sources including the South African National Biodiversity Institute (SANBI) data and other relevant sources. Recent and historical aerial imagery of the site was reviewed in order to identify points for investigation during the field survey. Utilising the above information, a field investigation was undertaken whereby:

- Sites of geomorphological or topographic variance were identified and subjected to an evaluation of species present within transects established across the selected site.
- Species were identified and collated.
- Additional random sample points were selected from other sites surrounding the proposed impacted areas for comparative purposes.
- Any additional species of significance, not identified within the sample sites were also noted.

As explained below, the ideal period for the assessment of habitat within this region is between August and end October months. The site survey was conducted on 22 October 2024.

All data was collated and subjected to evaluation using methods in order to:

- Give consideration to the overall structure of habitat within the subject site.
- Identify any habitat anomalies that may be identified in such analysis.
- Allow for the interpretation of such data in order to prioritise and evaluate habitat form and structure within the study area.

1.6. Assumptions and limitations

The presence of fauna must be evaluated based on the literature and available databases but in many cases, these databases are not intended for fine-scale use and the reliability and

adequacy of these data sources relies heavily on the extent to which the area has been sampled in the past. Many areas have not been well sampled with the result that the species lists derived for the area do not always adequately reflect the actual fauna and flora present at the site. This is acknowledged as a limitation of the study, however it is substantially reduced through extracting the species lists for a substantially larger area than the site and through the inclusion of information from previous experience in the wider area. The assessment was undertaken using sampling methods appropriate to the protocols, terms of reference and methodologies described above. The timing of the survey is therefore regarded as optimal in terms of accurately assessing the flora and fauna of the site. The overall condition of the vegetation was determined with a high degree of confidence. An accurate idea of the priority conservation areas, animals and botanical species was gained, due to the use of a combined habitat and species-based approach, and confidence in the accuracy of the findings is high. The overall confidence in the completeness and accuracy of the terrestrial biodiversity findings at this point in time is considered to be good. A follow-up survey is not considered essential for decision-making.

1.7. Source of Information

This assessment was undertaken utilising:

- 1:50 000 topographic mapping sourced from the Surveyor General's office;
- Aerial imagery sourced from Google Earth.
- Aerial imagery sourced from ESRI.
- Vegetation types and their conservation status was extracted from the South African National Vegetation Map (Mucina and Rutherford 2018).
- The IUCN conservation status of the species in the list was also extracted from the database and is based on the Threatened Species Programme, Red List of South African Plants (2011).
- Threatened Ecosystem data was extracted from the National List of Threatened Ecosystems 2022.
- Freshwater and wetland information was extracted from the National Freshwater Ecosystem Priority Areas assessment, NFEPA (Nel et al. 2011) and National Wetlands Map.
- Important catchments and protected areas expansion areas were extracted from the National Protected Areas Expansion Strategy 2008 (NPAES).
- The CapeNature Spatial Biodiversity Plan 2024

In addition, use was made of the following data:

- De Villiers FA & Swart C. 2026. Terrestrial animal compliance statements for the proposed second phase of the Darling housing development, Darling, Western Cape Province. Draft Report. Report no. 2337/1 prepared by Anchor Environmental Consultants (Pty) Ltd for CK Rumboll and Partners (Pty) Ltd. 38 pp.+ Appendices; and
- Steytler N. 2026. Aquatic Biodiversity Compliance Statement. Proposed development of low cost housing opportunities, Remainder of Erf 551, Darling, Swartland Municipality, Western Cape.

1.8. Site Visit

The site survey was conducted on 22 October 2024 which is an optimal time for surveys. The survey was conducted in an ideal period for the assessment of terrestrial biodiversity within this region. The sampling and analysis of the site during this season provides suitable data and results to present an informed decision on the local animal and in terms of plants. During the site visit, the different biodiversity features, habitat, vegetation and landscape units present were identified and recorded in the field. Walk-through-surveys were conducted of representative habitats and areas of interest and all animal and plant species observed were recorded. Searches for listed and protected animal and plant species at the site were conducted and the location of all listed animal and plant species observed was recorded (if present).

Spatial analysis using the Western Cape BSP indicates that the entire proposed development footprint is situated within a Critical Biodiversity Area (CBA 1: Terrestrial), with a CBA 1: Wetland located in close proximity. CBA 1 areas are required to remain in a natural or near-natural state to meet biodiversity conservation targets and maintain ecological processes and landscape connectivity. Although the broader area is classified as a biodiversity priority, the site itself is degraded and strongly influenced by historical and ongoing anthropogenic activities.

The desktop assessment identified numerous animal SCC with potential distributional overlap within the broader area. This includes the two invertebrate SCC identified by the National screening tool. SCC included those associated with wetlands, intact renosterveld, coastal systems, and relatively undisturbed terrestrial habitats. However, habitat requirement analyses indicated that most of these species are unlikely to occur within the study site due to the absence of suitable habitat features, such as permanent waterbodies and intact renosterveld, as well as the relatively high levels of human disturbance. The identification of these species for the area on national databases highlights the regional importance of the ecosystem in supporting them, rather than confirming their presence at site-level.

Swartland Granite Renosterveld was mapped to historically occur on site. This vegetation type vegetation and landscape features consist of moderate foot slopes and undulating plains supporting a mosaic of grasslands/herblands and medium dense, microphyllous shrublands dominated by renosterbos *Dicerothamnus rhinocerotis* (Mucina and Rutherford 2006) of which none was recorded on site. Overall, while the study area occurs within a regionally important and threatened ecosystem and is spatially classified as a CBA, the site itself is ecologically compromised and supports pioneer plants and a depauperate faunal assemblage dominated by generalist and disturbance tolerant species. These findings indicate that the ecological sensitivity of the site is driven primarily by its regional conservation context rather than its current on-site biodiversity value, and this distinction is critical for informing impact significance and the application of appropriate mitigation measures. The plant species recorded during the survey are *Bromus diandrus*, *Lupines luteus* (pasture crop planted by farmers which is an indication of the historical disturbance of the site), *Ehrharta villosa var. maxima*, *Vicia benghalensis, Cynodon dactylon* and *Cotula coronopifolia*. The CBA is contested, in which regard it is noted that in certain cases, very small fragments of CBA are often outliers from the process of developing the BSP and can be considered as errors.

Photograph 1: Ecological condition of the site.

Photograph 2: Ecological condition of the site.

Photograph 3: Ecological condition of the site.

Photograph 4: Ecological condition of the site.

Figure 1: Project Area Of Influence (PAOI) map relevant to Terrestrial Biodiversity as per the environmental screen tool report. Very high sensitivity mapped as a result of mapped CBA and endangered Swartland Granite Renosterveld.

1.9. Sensitivity Mapping and Assessment (Site Ecological Importance)[2]

PAOI IS DEFINED TO THE DEVELOPMENT FOOTPRINT AREA

Where the site-specific assessment produces lower or higher SEI classification than the 'environmental sensitivity' output of the screening tool for that particular site, it is the responsibility of the specialist to provide a clear and defensible justification for the difference. SEI is considered to be a function of the biodiversity importance (BI) of the receptor (e.g. species of conservation concern, the vegetation/fauna community or habitat type present on the site and its resilience to impacts (receptor resilience [RR]) as follows:

$$SEI = BI + RR$$

[2] South African National Biodiversity Institute (SANBI). 2020. *Species Environmental Assessment Guideline. Guidelines for the implementation of the Terrestrial Fauna and Terrestrial Flora Species Protocols for environmental impact assessments in South Africa.* South African National Biodiversity Institute, Pretoria. Version 3.1. 2022.

BI in turn is a function of conservation importance (CI) and the functional integrity (FI) of the receptor as follows:

$$BI = CI + FI$$

Conservation importance (CI) is evaluated in accordance with recognised established internationally acceptable principles and criteria for the determination of biodiversity-related value, including the IUCN Red List of Species, Red List of Ecosystems and Key Biodiversity Areas (KBA; IUCN [2016]).

Conservation importance is defined here as:
"The importance of a site for supporting biodiversity features of conservation concern present, e.g. populations of IUCN threatened and Near Threatened species (CR, EN, VU and NT), Rare species, range-restricted species, globally significant populations of congregatory species, and areas of threatened ecosystem types, through predominantly natural processes.'

These criteria are defined as follows:
IUCN threatened and Near Threatened species (CR, EN, VU and NT) are defined as either the global or national assessments of the risk of extinction as evaluated by a dedicated panel of species specialists according to the criteria of the International Union for The Conservation of Nature (www.iucnredlist.org). Where the global and national assessments differ for the same taxon, the national evaluation of status should be used in calculating SEI unless the global assessment is both more recent and of a more threatened category. It is important to note that the specialist is required to have a firm understanding of the IUCN Red List Categories and Criteria (IUCN 2012) in order to appropriately apply these for the evaluation of SEI. This criterion can be assessed using confirmed occurrences of species or the suitability of the habitat to support these species.

Rare species are those included on South Africa's National Red List as Rare or Critically Rare or Extremely Rare. These are highly restricted species that are currently not declining. However, should any development impact on a population of these species they will immediately qualify under one of the IUCN categories of threat.

Range-restricted species – the presence of terrestrial flora, vertebrate and invertebrate fauna with a global population extent of occurrence (EOO) of 10 000 km^2 or less.

Globally significant populations of congregatory species – a roughly estimated proportion (%) of the global population of a fauna species that congregate for breeding/ feeding/hibernation/other reasons.

Significant areas of threatened vegetation types – this is a function of both the area (size) being considered in relation to the total extent of that vegetation type (i.e. proportion) and how threatened (CR, EN, VU) the vegetation types are.

Natural processes – natural unmanaged areas with low levels of ecological disturbance have largely intact natural processes such as pollination, seed dispersal and migration, and thus have greater intrinsic conservation importance than those that are modified through ecological disturbance.

While most of the features that will be included in the CI will be provided by the screening tool, it is important to note that CI is evaluated at a much finer spatial scale and based on fieldwork data collection and comprehensive desktop analyses performed by the specialist during the EA process. As a minimum requirement, CI needs to be determined for each identified habitat within the project footprint/PAOI, but best practice recommendation is that it should be determined for all habitats within the entire PAOI.

Fulfilling criteria to evaluate CI do not rely on a single specific threshold for each of the above defining characteristics but can act in combination or in isolation, providing a more robust evaluation of CI as per table below.

Conservation importance	**Fulfilling criteria**
Very high	Confirmed or highly likely occurrence of CR, EN, VU or Extremely Rare or Critically Rare species that have a global EOO of < 10 km^2. Any area of natural habitat of a CR ecosystem type or large area (> 0.1% of the total ecosystem type extent) of natural habitat of EN ecosystem type. Globally significant populations of congregatory species (> 10% of global population).
High	Confirmed or highly likely occurrence of CR, EN, VU species that have a global EOO of > 10 km^2. IUCN threatened species (CR, EN, VU) must be listed under any criterion other than A, if listed as threatened only under Criterion A, include if there are less than 10 locations or < 10 000 mature individuals remaining. Small area (> 0.01% but < 0.1% of the total ecosystem type extent) of natural habitat of EN ecosystem type or large area (> 0.1%) of natural habitat of VU ecosystem type. Presence of Rare species. Globally significant populations of congregatory species (> 1% but < 10% of global population).
Medium	Confirmed or highly likely occurrence of populations of NT species, threatened species (CR, EN, VU) listed under Criterion A only and which have more than 10 locations or more than 10 000 mature individuals. Any area of natural habitat of threatened ecosystem type with status of VU. Presence of range-restricted species. > 50% of receptor contains natural habitat with potential to support SCC.
Low	No confirmed or highly likely populations of SCC. No confirmed or highly likely populations of range-restricted species. < 50% of receptor contains natural habitat with limited potential to support SCC.
Very low	No confirmed and highly unlikely populations of SCC. No confirmed and highly unlikely populations of range-restricted species.

	No natural habitat remaining.

Furthermore, while CI is most likely to be assessed based on data collected during the fieldwork survey, it can also be an assessment of the suitability of the receptor to support populations conforming to the fulfilling criteria. As can be seen from the worked example below, each of these evaluations of the fulfilling criteria demand necessary justification.

Functional integrity (FI) of the receptor (e.g. the vegetation/fauna community or habitat type) is defined here as the receptors' current ability to maintain the structure and functions that define it, compared to its known or predicted state under ideal conditions. Simply stated, FI is:
'A measure of the ecological condition of the impact receptor as determined by its remaining intact and functional area, its connectivity to other natural areas and the degree of current persistent ecological impacts.'

These criteria can be defined as:

- Connectivity to other natural areas – connectivity, which can also be measured conversely as the degree of habitat fragmentation, refers to how connected habitat patches are to each other, which has a significant influence on numerous ecological process, such as migration and dispersal opportunities of biota and therefore genetic exchange between populations. Connectivity to other similar habitats becomes more important as the remaining intact and functional area of a habitat decreases, mainly because population sizes decrease and are therefore at greater risk from ecological perturbations and inbreeding effects. The degree of connectivity between habitat patches varies greatly with the dispersal ability of the taxon or taxon group (e.g. fossorial reptiles) in question.

- Degree of current persistent negative ecological impacts – persistent negative impacts such as uncontrolled spread of alien and invasive flora effectively decreases both the remaining intact area and ecosystem functioning of a particular habitat.

- Remaining intact and functional area – the proportion of the receptor that supports natural habitat with intact ecological processes – small areas are less likely to withstand ecological degradation compared to large areas, and the latter are therefore better able to maintain structure and function allowing for intact ecological processes.

$$SEI = BI + RR$$

BI in turn is a function of conservation importance (CI) and the functional integrity (FI) of the receptor as follows:

PAOI AND DEVELOPMENT SITE

CI = **very low**. Reason be that no natural habitat remaining.
FI= **very low**. Reason be that no natural habitat remaining.

$$BI = CI + FI$$

Therefore, using table below, the BI was assessed to be **very low** (CI **very low** = and FI = **very low**)

Recalling that biodiversity importance (BI) is a function of conservation importance (CI) and the functional integrity (FI) of a receptor, BI can be derived from a simple matrix of CI and FI as per table below.

Biodiversity importance		Conservation importance				
		Very high	High	Medium	Low	Very low
Functional integrity	Very high	Very high	Very high	High	Medium	Low
	High	Very high	High	Medium	Medium	Low
	Medium	High	Medium	Medium	Low	Very low
	Low	Medium	Medium	Low	Low	Very low
	Very low	Medium	Low	Very low	Very low	Very low

Receptor resilience (RR) is defined here as:
'The intrinsic capacity of the receptor to resist major damage from disturbance and/or to recover to its original state with limited or no human intervention.'

The fulfilling criteria to evaluate RR are based on the estimated recovery time required to restore an appreciable portion of functionality to the receptor (refer to table below) and will require justification by the specialist. The specialist needs to bear in mind that resilience will often be linked to a particular disturbance or impact, or even time of year, and needs to be described in relation to these factors. Receptor resilience needs to be evaluated by the specialist and justification for each evaluation must be provided in the report.

Resilience	**Fulfilling criteria**
Very high	Habitat that can recover rapidly (~ less than 5 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a very high likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a very high likelihood of returning to a site once the disturbance or impact has been removed.
High	Habitat that can recover relatively quickly (~ 5–10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a high likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a high likelihood of returning to a site once the disturbance or impact has been removed.

Medium	Will recover slowly (~ more than 10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a moderate likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a moderate likelihood of returning to a site once the disturbance or impact has been removed.
Low	Habitat that is unlikely to be able to recover fully after a relatively long period: > 15 years required to restore ~ less than 50% of the original species composition and functionality of the receptor functionality, or species that have a low likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a low likelihood of returning to a site once the disturbance or impact has been removed.
Very low	Habitat that is unable to recover from major impacts, or species that are unlikely to remain at a site even when a disturbance or impact is occurring, or species that are unlikely to return to a site once the disturbance or impact has been removed.

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The RR = **very high.** Reason be that the transformed areas are ecosystems which are present as a result of high levels of historical disturbance and are therefore both highly resilient ecosystems.

Finally, after the successful evaluation of both BI and RR as described above, it is possible to evaluate SEI from the final matrix below.

SEI should be described in the above manner for each impact receptor within the PAOI and clearly mapped in relation to the proposed development activities and infrastructure. Interpretation of SEI in the context of the proposed development activities as per table below must be provided by the specialist. It is very important to note that SEI is specific to the proposed development activities and cannot be meaningfully compared between different proposed projects with different associated activities on the same spatial location. However, SEI for the same proposed development with multiple alternative layouts and/or locations may be compared within the same study.

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SEI **(very low)** = BI (**very low)** + RR (**very high**)

Site ecological importance		Biodiversity importance				
		Very high	High	Medium	Low	Very low
Receptor resilience	Very low	Very high	Very high	High	Medium	Low
	Low	Very high	Very high	High	Medium	Very low
	Medium	Very high	High	Medium	Low	Very low
	High	High	Medium	Low	Very low	Very low
	Very high	Medium	Low	Very low	Very low	Very low

Guidelines for interpreting SEI in the context of the proposed development activities.

Site ecological importance	Interpretation in relation to proposed development activities
Very high	Avoidance mitigation – no destructive development activities should be considered. Offset mitigation not acceptable/not possible (i.e. last remaining populations of species, last remaining good condition patches of ecosystems/ unique species assemblages). Destructive impacts for species/ecosystems where persistence target remains.
High	Avoidance mitigation wherever possible. Minimisation mitigation – changes to project infrastructure design to limit the amount of habitat impacted; limited development activities of low impact acceptable. Offset mitigation may be required for high impact activities.
Medium	Minimisation and restoration mitigation – development activities of medium impact acceptable followed by appropriate restoration activities.
Low	Minimisation and restoration mitigation – development activities of medium to high impact acceptable followed by appropriate restoration activities.
Very low	Minimisation mitigation – development activities of medium to high impact acceptable and restoration activities may not be required.

The development will have a **very low** SEI on the PAOI.

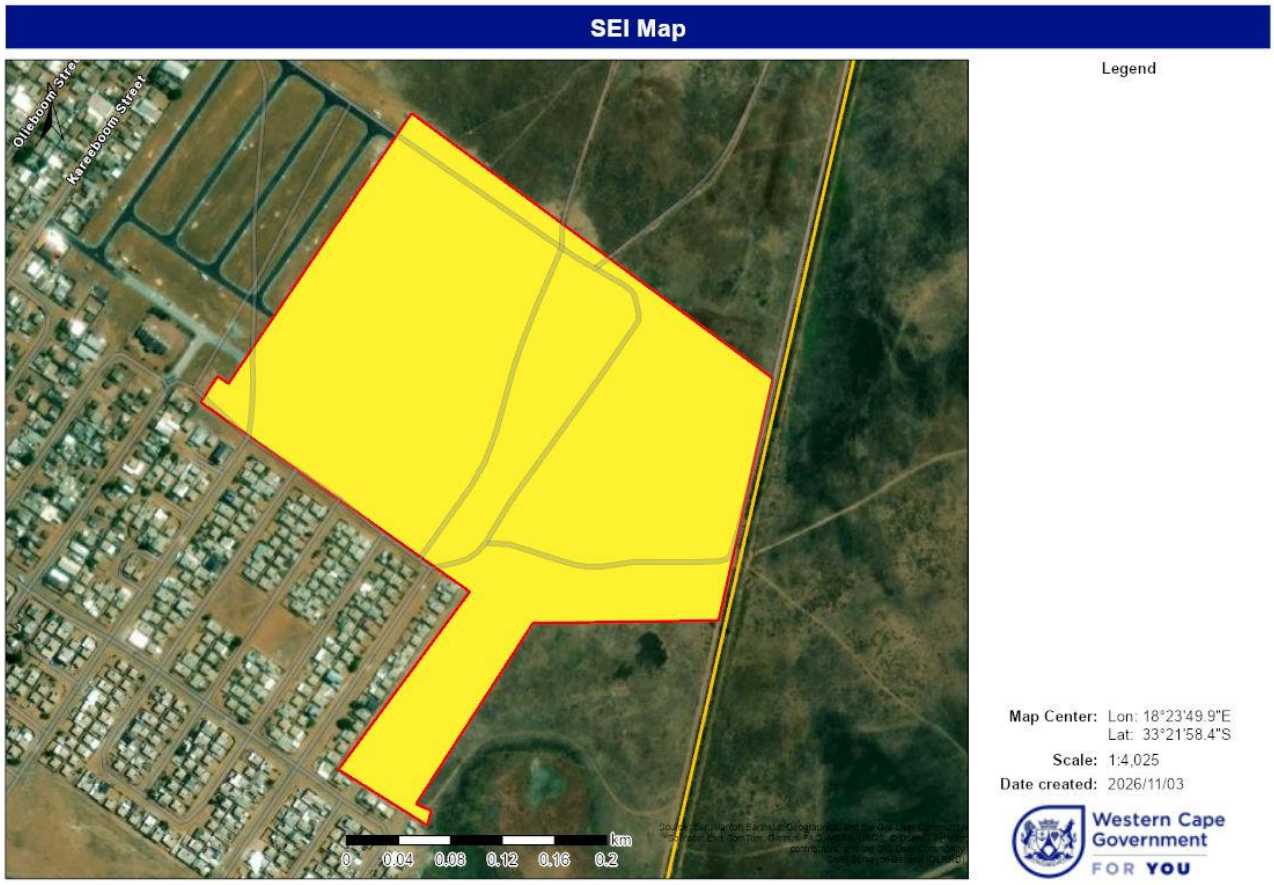

Figure 2: Site Sensitivity Map. Yellow – very low sensitivity.

2. APPLICABLE LEGISLATION AND PERMIT REQUIREMENTS

The proposed development within the study site is considered to elicit a requirement for possible compliance with the following legislation applicable to this assessment.

- The National Environmental Management: Biodiversity Act (Act 10 of 2004)
- The National Water Act (Act 36 of 1998)
- The National Forest Act (Act 84 of 1998)
- Invasive species are controlled by the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) - Alien and Invasive Species (AIS) Regulations which became law on 1 October 2014

The potential applicability of the abovementioned acts to the subject site is provided below:

The National Environmental Management: Biodiversity Act (Act 10 of 2004)
This Act serves to control the disturbance and land utilisation within certain habitats, as well as the planting and control of certain exotic species. The proposed development, taking place in the identified environment, may not necessitate any particular application for a change in land use from an aquatic and terrestrial biodiversity and ecological perspective. However, the effective disturbance and removal of species identified above, as well as possible other species (i.e. Threatened or Protected Species (TOPS) species), will require specific permission from the applicable authorities. In addition, the planting and management of exotic plant species on site, if and where required, will be governed by the Alien and Invasive

Species (AIS) regulations, which were gazetted in 2014. These regulations compel landowners to manage exotic weeds on land under their jurisdiction and control. The act is not applicable to this site.

The National Water Act (Act 36 of 1998)
The National Water Act controls activities in and around water resources, as well as the general management of water resources, including abstraction of groundwater and disposal of water. Authorisation for activities impacting on the land other than the current landuse, up to 500 m from a defined (water source) wetland system and 100m from a defined water sources (river) and in this instance it is within 500m of wetland and therefore will require an application for a Water Use Licence from the Department of Water and Sanitation.

The National Forest Act (Act 84 of 1998)
The National Forest Act (Act 84 of 1998) governs the removal, disturbance, cutting or damage and destruction of identified "protected trees". No listed species were encountered or recorded on site and an application for the "clearing of a *natural forest*", as defined within the Act, will not be required on the site in question.

Invasive species are controlled by the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) - Alien and Invasive Species (AIS) Regulations which became law on 1 October 2014.
This Act is not applicable to the project as no such plants arise within or adjacent to the project area. Notably most listed alien invasive species are propagated and driven by the disturbance of land during and following construction.

As the recommended sites are not within a protected area, the various regulations within the NEM Protected Areas Act are not applicable to this site. It is also noted that the site does not fall within any expansion area in terms of a conservation strategy for the Western Cape.

3. DESCRIPTION OF PROJECT ASPECTS RELEVANT TO TERRESTRIAL BIODIVERSITY FEATURES

Darling Housing phase 2 on Remainder of Erf 551 will consists of the following:
- 290 Residential Zone 2 erven (Single);
- 72 Residential Zone 2 erven (Walk-up);
- 25 Residential Zone 1 erven (GAP);
- 1 Community Zone 1 (crèche) erf;
- 1 Community Zone 2 (church) erf;
- 1 Community Zone 1 (School) erf;
- 2 Open Space Zone 1 erven;
- 2 Authority Zone erf;
- Transport Zone 2 erf.

The proposed housing development will have a Total Development Footprint of approximately 12.1905ha.

4. DESCRIPTION OF THE AFFECTED ENVIRONMENT.

4.1. Locality

On a Regional level, Darling is located in the western part of the Swartland Local Municipal district. On a local level, the proposed developable area is located in the north-eastern part of Darling, east of the R307 that stretches through town. The portion of land is accessible from the following Streets:

- Gousblom street;
- Dahlia street;
- Malva Avenue;
- Angelier Avenue;
- Sonneblom Avenue;
- Cimbidium street; and
- 3 other streets which provides access from Phase 1.

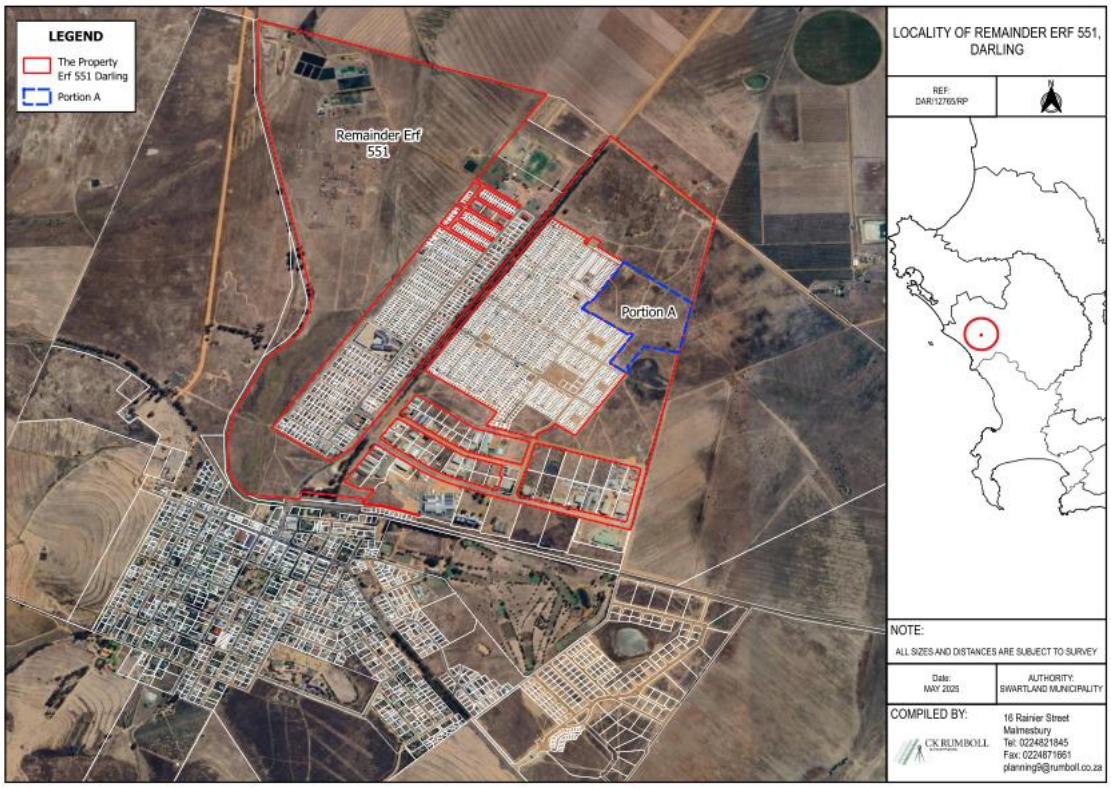

Figure 3: Locality Map

4.2. Topography

The site is located on a flat plain area.

4.3. Geology and Soils

Soil Erodibility
Erodibility: High
Erodibility Factor: 0.66
Land Types

Land Type: Ca32
Description: Undifferentiated
Class: PLINTHIC CATENA: UPLAND DUPLEX AND/OR MARGALITIC SOILS COMMON
Area (Ha): 17112.323
Soil Clay & Depth
Symbol: CA
Class: Soils with a strong texture contrast
Description: Soils with a marked clay accumulation, strongly structured and a non-reddish colour. In addition one or more of vertic, melanic and plinthic soils may be present
Depth: >= 450 mm and < 750 mm
Clay: < 15%
Broad Soils Classification (ENPAT)
Soil Type: Plinthic catena: undifferentiated, upland duplex and/or margalitic soils common
Geology: Mainly surficial cover formed in situ on Malmesbury rocks as well as granite and deposits of the weathering products of granite of the Darling Pluton, Cape Granite Suite.
Soil Types
Symbol: CA
Class: Soils with a strong texture contrast
Description: Soils with a marked clay accumulation, strongly structured and a non-reddish colour. In addition one or more of vertic, melanic and plinthic soils may be present
Depth: >= 450 mm and < 750 mm
Clay: < 15%
Source: CapeFarmMapper dated 11 March 2026

4.4. Description of The Ecological Drivers/Processes, Functioning, Ecological Corridors that the Development Would Impede Including Migration and Movement of Flora and Fauna, and Description of any Significant Landscape Features

Conservation value and sensitivity (terms which are often used interchangeably in ecological assessments) of habitats are a product of species diversity, plant community composition, rarity of habitat, degree of habitat degradation, rarity of species, ecological viability and connectivity, vulnerability to impacts, and reversibility of threats (which in this case generally refers to the rehabilitation potential of the habitat; high sensitivity habitats having low rehabilitation potential). According to *The Vegetation Map of South African, Lesotho and Swaziland* (VEGMAP), (Rebelo *et al*. 2006 in Mucina & Rutherford, 2006; SANBI, 2018) the vegetation of study area is Swartland Granite Renosterveld, with an endangered ecosystem status.

The Western Cape BSP identifies priority terrestrial areas essential for biodiversity conservation, encompassing diverse ecosystems, species, and ecological processes. It also includes aquatic features such as rivers. It classifies areas into several categories, including Critical Biodiversity Areas (CBAs), Ecological Support Areas (ESAs), Protected Areas (PAs) and Other Natural Areas (ONAs). These are all important for maintaining representative ecosystems, species persistence, ecological functioning, and landscape connectivity (Pool-Stanvliet et al. 2017). These classifications are spatially represented in CBA maps, which guide planning and decision-making to support sustainable development. While municipalities may adapt the naming conventions of these categories in local spatial plans, they must retain alignment with the BSPs underlying principles and national policy

frameworks. For this assessment, spatial data layers from the 2024 Western Cape BSP (CapeNature 2024) were incorporated to evaluate the ecological sensitivity of the site.

Swartland Granite Renosterveld was mapped to historically occur on site. This vegetation type Vegetation and Landscape Features consist of moderate foot slopes and undulating plains supporting a mosaic of grasslands/herblands and medium dense, microphyllous shrublands dominated by renosterbos *Dicerothamnus rhinocerotis* (Mucina and Rutherford 2006) of which none was recorded on site. Overall, while the study area occurs within a regionally important and threatened ecosystem and is spatially classified as a CBA, the site itself is ecologically compromised and supports pioneer plants and a depauperate faunal assemblage dominated by generalist and disturbance tolerant species. These findings indicate that the ecological sensitivity of the site is driven primarily by its regional conservation context rather than its current on-site biodiversity value, and this distinction is critical for informing impact significance and the application of appropriate mitigation measures. The plant species recorded during the survey are *Bromus diandrus*, *Lupines luteus* (pasture crop planted by farmers which is an indication of the historical disturbance of the site), *Ehrharta villosa var. maxima*, *Vicia benghalensis, Cynodon dactylon* and *Cotula coronopifolia*. The CBA is contested, in which regard it is noted that in certain cases, very small fragments of CBA are often outliers from the process of developing the BSP and can be considered as errors.

Figure 4: Biodiversity Map

The information gathered from the site survey does differs from the Environmental Screen report. The development of the site as per the proposed Site Development Plan would have a **low negative** impact.

4.5. Description of the Terrestrial Biodiversity and Ecosystems

4.5.1. Main Vegetation Types

The National Vegetation Map of South Africa (2018) identifies the natural vegetation occurring within the area as Swartland Granite Renosterveld with an endangered ecosystem status. The proposed development will transform the area but will not lead in the change in ecosystem status of the vegetation type.

4.5.2. Threatened Ecosystems, Including Listed Ecosystems

The vegetation type is classified as an endangered ecosystem status. Swartland Granite Renosterveld was mapped to historically occur on site. This vegetation type Vegetation and Landscape Features consist of moderate foot slopes and undulating plains supporting a mosaic of grasslands/herblands and medium dense, microphyllous shrublands dominated by renosterbos *Dicerothamnus rhinocerotis* (Mucina and Rutherford 2006) of which none was recorded on site. The proposed development will not lead in the change in ecosystem status of the vegetation type.

4.5.3. Ecological Connectivity, Habitat Fragmentation, Ecological Processes and Fine-Scale Habitats

The development area, although mapped as CBA is not ecologically connected as a result of the surrounding residential and agricultural development. The proposed clearing and impact on the vegetation on site will not lead to the loss of ecological connectivity.

4.5.4. Species, Distribution, Important Habitats

Refer to animal impact assessment and plant species compliance statement for more detail.

4.6. Terrestrial Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs)

The Western Cape BSP identifies priority terrestrial areas essential for biodiversity conservation, encompassing diverse ecosystems, species, and ecological processes. It also includes aquatic features such as rivers. It classifies areas into several categories, including Critical Biodiversity Areas (CBAs), Ecological Support Areas (ESAs), Protected Areas (PAs) and Other Natural Areas (ONAs). These are all important for maintaining representative ecosystems, species persistence, ecological functioning, and landscape connectivity (Pool-Stanvliet et al. 2017). These classifications are spatially represented in CBA maps, which guide planning and decision-making to support sustainable development. While municipalities may adapt the naming conventions of these categories in local spatial plans, they must retain alignment with the BSPs underlying principles and national policy frameworks. For this assessment, spatial data layers from the 2024 Western Cape BSP (CapeNature 2024) were incorporated to evaluate the ecological sensitivity of the site.

Swartland Granite Renosterveld was mapped to historically occur on site. This vegetation type Vegetation and Landscape Features consist of moderate foot slopes and undulating plains supporting a mosaic of grasslands/herblands and medium dense, microphyllous shrublands dominated by renosterbos *Dicerothamnus rhinocerotis* (Mucina and Rutherford

2006) of which none was recorded on site. Overall, while the study area occurs within a regionally important and threatened ecosystem and is spatially classified as a CBA, the site itself is ecologically compromised and supports pioneer plants and a depauperate faunal assemblage dominated by generalist and disturbance tolerant species. These findings indicate that the ecological sensitivity of the site is driven primarily by its regional conservation context rather than its current on-site biodiversity value, and this distinction is critical for informing impact significance and the application of appropriate mitigation measures. The plant species recorded during the survey are *Bromus diandrus*, *Lupines luteus* (pasture crop planted by farmers which is an indication of the historical disturbance of the site), *Ehrharta villosa var. maxima*, *Vicia benghalensis, Cynodon dactylon* and *Cotula coronopifolia*. The CBA is contested, in which regard it is noted that in certain cases, very small fragments of CBA are often outliers from the process of developing the BSP and can be considered as errors.

4.7. Protected Areas and Priority Areas for Protected Area Expansion

No protected area or priority areas for protected area expansion are inside the study area.

4.8. Strategic Water Source Areas (SWSA)

None mapped for the area.

4.9. Freshwater Ecosystem Priority Area (FEPA) and Freshwater Ecological features

No NFEPA mapped for the development area. A depression wetland was mapped approximately 15m east of the southern portion of the proposed site.

4.10. Indigenous Forests

No indigenous forests are inside or close to the study area.

5. SITE SENSITIVITY ASSESSMENT

The ecological sensitivity for the impacted area is assessed to be low.

The proposed development as proposed can be done.

6. IMPACT ASSESSMENT

6.1. Assessment & Significance Criteria

The assessment criteria used in the assessment are drawn from the protocol for the specialist assessment and minimum report content requirements for environmental impacts (published in Government Notice **no. 320 in** Government Gazette **43110** 20 March 2020) were used.

6.2. Assessment of Potential Impacts

The impacts identified are assessed below, before and after mitigation as well as during construction.

The impact assessment which follows is based on the site sensitivity and any deviations from the site sensitivity map as provided may invalidate the results of the assessment.

6.3. Risk Assessment Criteria

Step 1: Determine the **PROBABILITY** of the impact by calculating the average between the Frequency of the Aspect, the Availability of a pathway to the receptor and the availability of the receptor (thus: Sum of the three column scores below ÷ 3)

Frequency of Aspect / Unwanted Event	Score	Availability of pathway from the source to the receptor	Score	Availability of receptor	Score
Never known to have happened, but may happen	1	A pathway to allow for the impact to occur is never available	1	The receptor is never available	1
Known to happen in industry	2	A pathway to allow for the impact to occur is almost never available	2	The receptor is almost never available	2
< once a year	3	A pathway to allow for the impact to occur is sometimes available	3	The receptor is sometimes available	3
Once per year to up to once per month	4	A pathway to allow for the impact to occur is almost always available	4	The receptor is almost always available	4
Once a month - Continuous	5	A pathway to allow for the impact to occur is always available	5	The receptor is always available	5

Step 2: Determine the **MAGNITUDE** of the impact by calculating the average of the factors below (thus: Sum of all six column ratings below ÷ 6)

Source								Receptor			
Duration of impact	**Score**	**Extent**	**Score**	**Volume / Quantity / Intensity**	**Score**	**Toxicity / Destruction Effect**	**Score**	**Reversibility**	**Score**	**Sensitivity of environmental component**	**Score**
Lasting days to a month	1	Effect limited to the site. (metres);	1	Very small quantities / volumes / intensity (e.g. < 50L or < 1Ha)	1	Nontoxic (e.g. water) / Very low potential to create damage or destruction to the environment	1	Bio-physical and/or social functions and/or processes will remain unaltered.	1	Current environmental component(s) are largely disturbed from the natural state. Receptor of low significance / sensitivity	1
Lasting 1 month to 1 year	2	Effect limited to the activity and its immediate surroundings. (tens of metres)	2	Small quantities / volumes / intensity (e.g. 50L to 210L or 1Ha to 5Ha)	2	Slightly toxic / Harmful (e.g. diluted brine) / Low potential to create damage or destruction to the environment	2	Bio-physical and/or social functions and/or processes might be negligibly altered or enhanced / Still reversible	2	Current environmental component(s) are moderately disturbed from the natural state. No environmentally sensitive components.	2
Lasting 1 – 5 years	3	Impacts on extended area beyond site boundary (hundreds of metres)	3	Moderate quantities / volumes / intensity (e.g. > 210 L < 5000L or 5 – 8Ha)	3	Moderately toxic (e.g. slimes) Potential to create damage or destruction to the environment	3	Bio-physical and/or social functions and/or processes might be notably altered or enhanced / Partially reversible	3	Current environmental component(s) are a mix of disturbed and undisturbed areas. Area with some environmental sensitivity (scarce / valuable environment etc.).	3
Lasting 5 years to Life of Organisation	4	Impact on local scale / adjacent sites (km's)	4	Very large quantities / volumes / intensity (e.g. 5000 L – 10 000L or 8Ha– 12Ha)	4	Toxic (e.g. diesel & Sodium Hydroxide)	4	Bio-physical and/or social functions and/or processes might be considerably altered or enhanced / potentially irreversible	4	Current environmental component(s) are in a natural state. Environmentally sensitive environment / receptor (endangered species / habitats etc.).	4

Source								Receptor			
Duration of impact	**Score**	**Extent**	**Score**	**Volume / Quantity / Intensity**	**Score**	**Toxicity / Destruction Effect**	**Score**	**Reversibility**	**Score**	**Sensitivity of environmental component**	**Score**
Beyond life of Organization / Permanent impacts	5	Extends widely (nationally or globally)	5	Very large quantities / volumes / intensity (e.g. > 10 000 L or > 12Ha)	5	Highly toxic (e.g. arsenic or TCE)	5	Bio-physical and/or social functions and/or processes might be severely/substantially altered or enhanced / Irreversible	5	Current environmental component(s) are in a pristine natural state. Highly Sensitive area (endangered species, wetlands, protected habitats etc.)	5

Step 3: Determine the **SEVERITY** of the impact by plotting the averages that were obtained above for Probability and Magnitude in the table below.

ENVIRONMENTAL IMPACT RATING / PRIORITY					
	MAGNITUDE				
PROBABILITY	**1 Minor**	**2 Low**	**3 Medium**	**4 High**	**5 Major**
5 Almost Certain	Low	Medium	High	High	High
4 Likely	Low	Medium	High	High	High
3 Possible	Low	Medium	Medium	High	High
2 Unlikely	Low	Low	Medium	Medium	High
1 Rare	Low	Low	Low	Medium	Medium

TERRESTRIAL BIODIVERSITY IMPACTS

Development Construction	**TERRESTRIAL BIODIVERSITY IMPACTS**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**Terrestrial Biodiversity Impacts**
Nature of impact:	**Discussion:** The vegetation type is classified as endangered. The terrestrial CBA on site was incorrected mapped as the site is transformed and does not represent Swartland Granite Renosterveld vegetation types and structures. No protected area or priority areas for protected area expansion are inside the study area. No indigenous forests are inside or close to the study area.
Extent and duration of impact:	**Extent 1 (footprint) & Duration 1**
Magnitude:	**2**
Consequence of impact or risk:	**Loss or impacts on indigenous vegetation**
Probability of occurrence:	**Low**
Degree to which the impact may cause irreplaceable loss of resources:	**2 (PR)**
Degree to which the impact can be reversed:	**PR**
Indirect impacts:	**Disturbance to surface area can result in impacts on indigenous vegetation**
Cumulative impact prior to mitigation:	**Habitat fragmentation, loss of ecological connectivity and erosion**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**1 (CM)**
Proposed mitigation:	• **Demarcate no-go areas before any land clearing occurs under the supervision of an ECO. Demarcation must be clearly visible and effective and no-go area must remain demarcated throughout construction phase. The no-go area is the wetland area mapped.** • **Site clearance along the border of the no-go areas must be done under the supervision of an ECO.**
Residual impacts:	**It is not anticipated that the impact will be high if the mitigation measures are adhered to.**

Cumulative impact post mitigation:	**It is not anticipated that the impact will be high if the mitigation measures are adhered to.**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low**
OPERATIONAL PHASE	
Potential impact and risk:	**Impact on terrestrial biodiversity**
Nature of impact:	**None. Area will be developed**
Extent and duration of impact:	**None. Area will be developed**
Magnitude:	**None. Area will be developed**
Consequence of impact or risk:	**None. Area will be developed**
Probability of occurrence:	**None. Area will be developed**
Degree to which the impact may cause irreplaceable loss of resources:	**None. Area will be developed**
Degree to which the impact can be reversed:	**None. Area will be developed**
Indirect impacts:	**None. Area will be developed**
Cumulative impact prior to mitigation:	**None. Area will be developed**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**None. Area will be developed**
Degree to which the impact can be avoided:	**None. Area will be developed**
Degree to which the impact can be managed:	**None. Area will be developed**
Degree to which the impact can be mitigated:	**None. Area will be developed**
Proposed mitigation:	**None. Area will be developed**
Residual impacts:	**None. Area will be developed**
Cumulative impact post mitigation:	**None. Area will be developed**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**None. Area will be developed**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**Impact on indigenous vegetation**
Nature of impact:	**Similar to that in the development phase.**

Cumulative Impacts

Cumulative impacts arise from the combined presence of several similar developments within

an area which affect terrestrial biodiversity. There are other developments that also represents a source of disturbance and habitat loss, which when combined with the proposed development would result in some cumulative impact. However, when taken in context of the broader landscape, the cumulative impacts are not likely to be highly significant given the terrestrial biodiversity, animal and plant species known to occur in the broader area.

7. CONCLUSION AND RECOMMENDATIONS

The sampling and analysis of the site, provides suitable data and results to present an informed decision on the local ecology and terrestrial biodiversity features. The lists of species for the site are based on those observed at the site as well as those likely to occur in the area based on their distribution and habitat preferences. This represents a sufficiently conservative and cautious approach. During the site visits, the different biodiversity features, habitat, vegetation and landscape units present were identified and recorded in the field. Walk-through-surveys were conducted of representative habitats and areas of interest and species observed were recorded. Searches for listed species of conservation concern at the site were conducted, but none were observed which required the recording of their location.

Overall, while the study area occurs within a regionally important and threatened ecosystem and is spatially classified as a CBA, the site itself is ecologically compromised and supports pioneer plants and a depauperate faunal assemblage dominated by generalist and disturbance tolerant species. These findings indicate that the ecological sensitivity of the site is driven primarily by its regional conservation context rather than its current on-site biodiversity value, and this distinction is critical for informing impact significance and the application of appropriate mitigation measures.

No additional survey or further assessment is in the authors view recommended.

The proposed area as per the Site Development Plan will have relatively little terrestrial biodiversity and ecological impact on sensitivity areas and the surrounding terrestrial biodiversity features provided that the development stays within the Site Development Plan area and appropriate mitigation measures included in the impact table above are included in the EMPr and adhered to.

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APPENDIX A
SPECIALIST CV

CURRICULUM VITAE – NICOLAAS WILLEM HANEKOM

Profession: Environmental Scientist and Environmental Assessment Practitioner
Date of Birth: 01/02/1967

BIOGRAPHICAL SKETCH

Nicolaas Hanekom is a qualified Environmental Assessment Practitioner (”EAP”) who holds a Masters Technologiae, Nature Conservation (“Vegetation Ecology and Biodiversity Assessment”) degree from the Cape Peninsula University of Technology. Nicolaas is certified in terms of section 20(3)(a) of the Natural Scientific Professions Act, 2003 (Act 27 of 2003), as a Professional Natural Scientist Ecological Science (Pri.Sci.Nat); Aquatic Science & Conservation Science (Cand.Sci.Nat), Registration Number: 004415. He further qualified in Environmental Management Systems ISO 14001:2004, at the Centre for Environmental Management, North-West University, as well as Environmental Management Systems ISO 14001:2004 Audit: Internal Auditors Course to ISO 19011:2003 level, from the Centre for Environmental Management, North-West University qualifying him to execute audits to ISO/SANS environmental compliance and EMS standards.

He has also completed the suite of Greener Governance courses with certificates in;

- An Overview of Environmental Management at the Local Government Level, Centre for Environmental Management, North-West University;
- Greener Governance for Local Authorities, Centre for Environmental Management, North-West University;
- Tools for Integrated Environmental Management and Governance, Centre for Environmental Management, North-West University.

He further attended and obtained a certificate on Integrated Protected Area Planning at the Centre for Environmental Development, University of Kwa Zulu Natal and a certificate in Project Management (Theory and Practical), through CS Holdings. Nicolaas has lectured in two subjects at the Cape Peninsula University of Technology. He has 26 years of environmental planning

experience, working for Free State and Western Cape departments of environmental affairs, where he reviewed and commented on development (EIA) applications, in the West Coast Region.

He has, as practising EAP been responsible for many environmental impact assessments and EIA applications, waste license and atmospheric emission license applications.

He has also been involved in the implementation of several environmental management systems. He has engaged successfully with various clients as set out below.

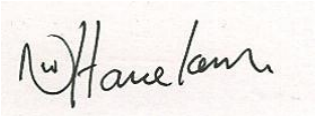
Areas of specialisation:	• Ecosystem (terrestrial and aquatic) monitoring and assessments • Design of monitoring programmes for ecosystems (terrestrial and aquatic) • Environmental Impact Assessments • River classification and environmental water requirements • Wetlands Delineation • River and Wetlands management • Water Use Authorization Applications • Water quality management • River Health Assessments
Countries of Work Experience:	South Africa (Northern Cape, Western Cape, Free State, Mpumalanga, Gauteng)
Employment Record	• Student at Bontebok National Park (1992) • Assistant Reserve Manager at Gariep Dam Nature Reserve, Free State (1993 - 1998) • Reserve Manager, Conservation Services Manager for Western Cape Nature Conservation Board (1998 - 2006) • External Lecturer at Cape Peninsula University of Technology (2003 - 2005) • Director: Environmental Management at Cape Lowlands Environmental Services (2006 – 2010) • Director, Environmental Management and lead Environmental Impact Assessment Practitioner at Eco Impact (Pty) Ltd (2010 – to August 2019) • Director, Environmental Management and lead Environmental Impact Assessment Practitioner at Enviro-EAP (Pty) Ltd (September 2019 – to date)
Professional membership, accreditations and courses	• South African Council for Natural Scientists Professions Pri.Sci.Nat (Ecological Science) • Riparian vegetation identification and health assessment. Internal Western Cape Nature Conservation short course presented by Dr C Boucher (Stellenbosch University) in 2000. • SASS5 Aquatic Biomonitoring Training Course. 2 to 5 September 2013. Ground Truth Water and Environmental

	Engineering consultancy in partnership with the Department of Water Affairs. • Workshop on "Section 21(c) and (i) Water Use Training: Understanding Watercourses and Managing Impacts to their Characteristics". 10 May 2017. Presented by Dr Wietsche Roets of the Department of Water and Sanitation (Sub-Directorate: Instream Water Use).
Summary of experience	1992: South African National Parks. Student at Bontebok National Park with management and monitoring actions related to the Breede River. 1993 -1998: Free State Nature Conservation. Ecological management and monitoring actions related to the Gariep Dam, Orange and Caledon Rivers. 1998 -2006: CapeNature. Ecological management and monitoring actions related to the Berg River Estuary, Verlorenvlei, Lamberts bay's Jackalsvlei, Wadrift Soutpanne, Oliphant's River mouth, Rocherpan Nature Reserve, etc. Review and assessment of EIA applications, inclusive of Freshwater ecology. Did some site visits with Department of Water Affairs and Forestry (Hester Lyons) to confirm the presence of aquatic ecological features during EIA water use registration applications. 2006 to date: Cape Lowland Environmental Services, Eco Impact Legal Consultant and Enviro-EAP. Ecological (Freshwater and aquatic) Specialist input, assessment, monitoring and reports.
Publications and assessment reports	Just to name a few. Was involved in many Ecological Assessments, monitoring and inputs in EIA applications. • Elandskloof Farm 475 Citrusdal Biodiversity Baseline Survey. August 2010. This Biodiversity Assessment Covering Terrestrial and Aquatic Aspects to Inform Decisions Regarding The Proposed Elandskloof Weir Flood Damage Project On Farm 475, In The Citrusdal Area. • Cape Solar Energy Electricity Generation Facility. Farm 187/3 & 187/13 Kenhardt. Biodiversity And Ecological Baseline Survey. January 2011. (Included Terrestrial and aquatic ecological assessments and water use authorization applications) • Prieska Photvoltaic Power Generation Project. Prieska Commonage Northern Cape. Biodiversity And Ecological Baseline Survey. July 2011. (Included Terrestrial and aquatic ecological assessments and water use authorization applications) • Witteklip Erf 123 Extension, Vredenburg. Biodiversity Baseline Survey. Updated - October 2012 (Included Terrestrial and aquatic ecological assessments and water use authorization applications) • Baseline Biodiversity Survey And Wetland Delineation for ECCA Holdings: Cape Bentonite Mine on Erf 1412 Near Heidelberg.

	Prepared for: Shangoni Management Services Pry (Ltd). October 2014. • Freshwater Impact Assessment Laingsburg Flood Damage Repairs & Storm Water Infrastructure. 18 February 2016. • Ecological Assessment for Swartland Municipality - Upgrades To Voortrekker/Bokomo Road And Voortrekker/Rozenburg Road Intersections and Upgrade to the Diep River Bridge, Malmesbury on A Portion Of Erf 327, Malmesbury (Road) Erf 1530, Diep River Bridge Crossing, and Erf 1528, Property South of Diep River where Road Widening and Turning Circle Will Be Constructed. March 2016. (Freshwater Ecology Inputs and Water Use Registration) • Freshwater Impact Assessment. McGregor Bridge, Robertson Bridge and Willem Nels River Maintenance Management Plan. 24 June 2016. (Freshwater Ecology assessment and input as well as Water Use Registration) • Water Use Authorization Application Risk Matrix. Orange Grove Trust Vegetation Clearing and Agricultural Development on Portion 4 of Farm Glen Heatlie No 316, Worcester. 12 June 2017. (Freshwater ecological inputs in EIA process and Water Use Registration). • Water Use Authorization Application Risk Matrix Prepared For: Witzenberg Municipality Sand Mine Farm 1 Prince Alfred Hamlet. 28 March 2017. (Freshwater ecological inputs in EIA process and Water Use Registration). • Proposed Hartmanshoop Agri Vegetation Clearing Project and Irrigation on Erf 686, Laingsburg. 12 August 2017. (Freshwater ecological inputs in Water Use Registration). • County Fair: Hocraft Abattoir And Rendering Facility Waste Water Treatment Works “CF Hocraft WWTW” Mosselbank River Second Quarter 2018 Biomonitoring Report. June 2018. (Done quarterly biomonitoring for the last three years).

CERTIFICATION

I, the undersigned, certify that to the best of my knowledge and belief, these data correctly describe my qualifications, my experience, and me.



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