# TERRESTRIAL BIODIVERSITY, PLANT AND ANIMAL SPECIES IMPACT ASSESSMENT REPORT

## PROPOSED RESIDENTIAL DEVELOPMENT NEAR VAN DYKS BAY, WESTERN CAPE PROVINCE

Prepared for:

LORNAY
ENVIRONMENTAL CONSULTING

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**March 2025**

## Details of Company

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| **Biodiversity Africa** | Biodiversity Africa's head office is situated in Cape Town and specialises in terrestrial botanical and faunal impact assessments across Africa. |
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## Authors

**Nicole Dealtry (née Wienand) (Botanical Specialist and Lead Author) (*Pri. Sci. Nat*. 130289)**
Nicole is a Senior Botanical Specialist with over 6 years' experience. She obtained her BSc Honours in Botany (Environmental Management) from Nelson Mandela University (NMU) in December 2018 and holds a BSc Degree in Environmental Management (Cum Laude) from NMU. Nicole is a professional member of the South African Council for Natural Scientific Professionals (SACNASP) (Pri. Sci. Nat. Botany Reg No. 130289), the International Association for Impact Assessment (IAIAsa) (Membership No. 6176), and the South African Association of Botanists.

During her first four years of working, Nicole gained experience as an Ecological Specialist and an Environmental Assessment Practitioner (EAP) undertaking Basic Assessments and assisting with the general Environmental Impact Assessment (EIA) process, including compiling Scoping and Environmental Impact Assessment Reports, Environmental Management Programmes, and managing the Public Participation Process. Nicole went on to specialise in the field of ecology, ensuring compliance with the Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity (GN R. 320 of 2020), Plant and Animal Species (GN R. 1150 of 2020), as well as the Species Environmental Assessment Guidelines (SANBI, 2020).

Nicole has undertaken numerous Ecological Impact Assessments for a range of developments, including Wind Energy Facilities (WEFs), Solar Energy Facilities (SEFs), mines, powerlines, housing developments, and roads and has worked in South Africa, Mozambique and Sierra Leone, working closely with developers and Environmental Assessment Practitioners to ensure these developments are environmentally sustainable, as well as financially and technically feasible. Additionally, she has experience in compiling Alien Invasive Species Management Plans, Ecosystem Services Assessments, Rehabilitation and Restoration Plans, Plant Search and Rescue Plans, performing ecological walk-through assessments, and obtaining permits for plant removal and translocation. Some of these assessments have been conducted in accordance with the IFC's Performance Standards.

**Tarryn Martin (Botanical Specialist & Report Review) (*Pri. Sci. Nat.* 008745)**
Tarryn is director of Biodiversity Africa, a company that offers biodiversity related services throughout Africa. She has over thirteen years of experience working as a botanist, twelve of which are in the environmental sector and has worked as a botanical specialist and project manager on projects within South Africa, Mozambique, Lesotho, Zambia, Tanzania, Cameroon and Malawi.

She has extensive experience writing botanical impact assessments, critical habitat assessments, biodiversity management plans, biodiversity monitoring plans and rehabilitation and restoration plans to South African and International Standards such as those of the International Finance Corporation (IFC). Her experience includes working on large renewable energy projects in South Africa as well as

large mining projects in Mozambique, including multiple graphite mines and a heavy mineral mine, all of which were to international lenders standards.

Tarryn holds a BSc (Botany and Zoology), a BSc (Hons) in African Vertebrate Biodiversity and an MSc with distinction in Botany from Rhodes University. Tarryn's Master's thesis examined the impact of fire on the recovery of $C_3$ and $C_4$ Panicoid and non-Panicoid grasses within the context of climate change for which she won the Junior Captain Scott-Medal (Plant Science) for producing the top MSc of 2010 from the South African Academy of Science and Art as well as an Award for Outstanding Academic Achievement in Range and Forage Science from the Grassland Society of Southern Africa. Tarryn is a professional member of the South African Council for Natural Scientific Professionals (since 2014).

**Amber Jackson (Faunal Specialist & Report Author) (*Cand. Nat. Sci. 100125/12)***
Amber is director of Biodiversity Africa, a company that offers biodiversity related services throughout Africa. She has over ten years' experience in environmental consulting and has managed projects across various sectors including mining, agriculture, forestry, renewable energy, housing, coastal and wetland recreational infrastructure. Most of these projects required lender finance and therefore met both in-country, lender and sector specific requirements.
Amber completed the IFC lead and Swiss funded programme in Environmental and Social Risk Management course in 2018. The purpose of the course was to upskill Sub-Saharan African environmental consultants to increase the uptake of E&S standards by Financial Institutions.

Amber specialises in terrestrial vertebrate faunal assessments. She has conducted large scale faunal impact assessments that are to international lender's standards in Mozambique, Tanzania, Lesotho and Malawi. In South Africa her faunal impact assessments comply with the protocols for the specialist assessment and minimum report content requirements for environmental impacts on terrestrial biodiversity and follows the SANBI Species Environmental Assessment Guideline. Her specialist input goes beyond impact assessments and includes faunal opportunities and constraints assessments, Critical Habitat Assessments, Biodiversity related Management Plans and Biodiversity Monitoring Programmes.

Amber holds a BSc (Zoology and Ecology, Environment & Conservation) and BSc (Hons) in Ecology, Environment & Conservation from WITS University and an MPhil in Environmental Management from University of Cape Town. She was awarded the Denzil and Dorethy Carr Prize for her plant collection in 2006. Amber's honours focused on the landscape effects on Herpetofauna in Kruger National Park and her Master's thesis focused on the management of social and natural aspects of environmental systems with a dissertation in food security that investigated the complex food system of informal and formal distribution markets.

# Declaration of Independence

**Nicole Dealtry (Botanical Specialist)**

- I, Nicole Dealtry, declare that, in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Amended Environmental Impact Assessment Regulations, 2017;
- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this report are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

**Tarryn Martin (Botanical Specialist & Report Review)**

- I, Tarryn Martin, declare that, in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Amended Environmental Impact Assessment Regulations, 2017;
- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
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- All the particulars furnished by me in this report are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

**Amber Jackson (Faunal Specialist)**

- I, Amber Jackson, declare that, in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Amended Environmental Impact Assessment Regulations, 2017;
- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
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- All the particulars furnished by me in this report are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

# Executive Summary

**Introduction**

Biodiversity Africa has been appointed to conduct a Terrestrial Biodiversity, Plant and Animal Species Specialist Assessment of Erf 1469, 1470, 1471, 1479, and 1473 located near Van Dyks Bay, within the Western Cape Province. These erven have been earmarked for a proposed residential development.

The total project area assessed for the proposed development is approximately 11.4 ha. Three (3) alternative layouts have been assessed:

- **Option A** has a total development footprint of ±9.6 ha with 152 properties.
- **Option B** has a total development footprint of ±10.2 ha with 151 properties.
- **Option C**, the **preferred Alternative**, has a total development footprint of ±8.4 ha with 128 properties and a designated open space area of approximately 2.65 ha. The open space area was designed to include the originally declared Critical Biodiversity Area (CBA) identified by the former Western Cape Biodiversity Spatial Plan (WCBSP, 2017).

The purpose of this report is to confirm the vegetation types, faunal habitats, and Species of Conservation Concern (SCC) present within the project area, assess the Site Ecological Importance (SEI), and the impacts associated with the proposed development and, where feasible, provide mitigation measures to reduce the significance of the identified impacts including identifying no-go areas.

**Methodology**

A desktop assessment of the site was undertaken prior to the field survey. The aim of the desktop assessment was to determine any sensitive features within the landscape as well as any Species of Conservation Concern (SCC) that could occur within the project area. This was followed by a field survey to verify and refine the findings of the desktop assessment.

The field survey was undertaken on the 11$^{th}$ of October 2024, towards the end of the flowering season. The purpose of the survey was to confirm the current land use present, the vegetation types and faunal habitat present as well as record animal and plant species present with an emphasis on determining whether Species of Conservation Concern (SCC) occurred within the project area. The information gathered from the site visit was sufficient to determine the sensitivity of the site.

For the botanical assessment, the project area was driven and walked, and sample plots were analysed by determining the dominant species in each plot, as well as any alien invasive species and potential plant SCC occurring within the plots. Each sample plot was sampled until no new species were recorded. Vegetation communities were then described according to the dominant species recorded from each type, and these were mapped and assigned a sensitivity score.

For the faunal assessment, faunal habitat within the project area were recorded and mapped by the faunal specialist and active searches for SCC undertaken. The information gathered provided sufficient information to draw conclusions on the likelihood of occurrence of SCC within the project area.

**Findings:**

**Terrestrial Biodiversity**

The Department of Forestry, Fisheries and the Environment (DFFE) Screening Tool Report classified the overall Terrestrial Biodiversity Theme Sensitivity of the project area as VERY HIGH due to the project area occurring within an Endangered (EN) Ecosystem (Overberg Dune Strandveld), a Critical Biodiversity Area (CBA) 1: Terrestrial, and an Ecological Support Area (ESA) 2: Restore from other land uses.

The desktop and field survey confirmed that most of the project area occurs within Overberg Dune Strandveld. This vegetation type is listed as EN due to its narrow distribution and evidence of ongoing biotic disruption from invasive alien plant species (DFFE, 2022). Despite being listed as EN, 93% (323.2 $km^2$) currently remains intact. The Site Ecological Importance (SEI) of the Overberg Dune Strandveld was determined to be HIGH based on the assumption that less than 10 ha would be impacted by development.

The Overberg Dune Strandveld of the Project Area has been fragmented by the creation of firebreaks and the northwestern corner of the project area is characterised by a dense stand of *Acacia* Woodland.

Consultation of the WCBSP (2023) confirmed that the entire project area falls within a CBA: Terrestrial. The classification of this area as a CBA is due to the presence of Overberg Dune Strandveld. Development within the project area will result in the loss of a portion of this CBA, potentially impacting national conservation targets.

It is important to note that Option C (the preferred layout) was designed before the adoption of the 2023 WCBSP on December 13, 2024. Option C incorporates the CBA 1 delineated by the WCBSP 2017, designating it as an open space area.

In addition to the above, the project area occurs within the Walker Bay Key Biodiversity Area (KBA). According to the World Database of KBAs, this site qualifies as a Key Biodiversity Area of international significance that meets the thresholds for 4 criteria described in the Global Standard for the Identification of KBAs.

The Walker Bay KBA is 322 $km^2$ in extent. The proposed residential development occurs within a small portion (0.11 $km^2$ = 0.03%), and on the edge, of the Walker Bay KBA adjacent to existing residential development. Implications on biodiversity may include the loss of some habitats that support sensitive species, may result in the loss of individual SCC and could increase habitat fragmentation. The significance of these impacts will need to be assessed and confirmed in the Impact Assessment Report.

Based on the above, the specialist **disagrees** with the VERY HIGH sensitivity rating of the Overberg Dune Strandveld and suggests the following:

- The portion Overberg Dune Strandveld is reclassified as HIGH rather than VERY HIGH but, as mentioned above, this is based on the assumption that less than 10 ha will be developed.
- The *Acacia* Woodland is reclassified as VERY LOW rather than VERY HIGH.
- The Degraded Overberg Dune Strandveld (firebreaks) is reclassified as MEDIUM rather than VERY HIGH.

**Plant Species**

The DFFE Screening Tool Report classified the plant species theme of the project area as MEDIUM due to the possible occurrence of forty-eight (48) sensitive plant species. Of these 48 species, four (4) sensitive plant species were confirmed to occur within the project area including three (3) VU species (*Lampranthus fergusoniae*, *Cynanchum zeyheri*, and *Athanasia quinquedentata* subsp. *rigens*), and one (1) NT species (*Asparagus lignosus*). Furthermore, three (3) SCC have a VERY HIGH likelihood of occurrence and three (3) have a HIGH likelihood of occurrence within the project area as they have been recorded on adjacent properties. As such, the specialist **disagrees** with the MEDIUM sensitivity rating of the Plant Species Theme as per the DFFE Screening Tool Report and suggests that the plant species theme sensitivity of the Overberg Dune Strandveld and Degraded Areas is reclassified as HIGH due to the confirmed occurrence of SCC, but that the Plant Species Theme Sensitivity of the *Acacia* Woodland should remain medium.

**Animal Species**

The DFFE Screening Tool Report identified the project area as having a HIGH sensitivity for two (2) bird SCC and MEDIUM sensitivity for two (2) bird SCC and one (1) reptile SCC. Of these species, only the Southern Adder (VU) and Cape Dwarf Chameleon (NT) have a high likelihood of occurrence in the project area. The SEI of the Overberg Dune Strandveld for the Southern Adder and Cape Dwarf Chameleon is MEDIUM. Based on the above, the specialist suggests that the near intact Overberg Dune Strandveld habitat, degraded areas are reclassified as MEDIUM for the Southern Adder (VU) and Cape Dwarf Chameleon (NT).

**Site Ecological Importance**

Three (3) habitat types were identified in this report including:

- Near-intact Overberg Dune Strandveld;
- Degraded Overberg Dune Strandveld which include the firebreaks
- *Acacia* Woodland dominated by dense stands of the alien invasive plant species *Acacia* cyclops.

The highest overall SEI rating was applied to each habitat type identified. According to the assessment of SEI, the SEI of the near-intact Overberg Dune Strandveld was determined to be HIGH whilst the SEI of the Degraded Overberg Dune Strandveld and *Acacia* Woodland was determined to be MEDIUM.

In terms of the Species Environmental Assessment Guideline (SANBI, 2020), minimisation and avoidance mitigation should apply to areas of HIGH SEI, including changes to the design and layout of project infrastructure to limit the amount of habitat impacted. Limited development activities of low impact are acceptable and offset mitigation may be required for high impact activities. For areas of MEDIUM SEI, development activities of medium impact are acceptable followed by appropriate restoration activities.

**Impact Assessment**

Twelve (12) impacts were identified for the proposed project. For **Option A and B**, of the twelve impacts identified, three (3) are of high significance and nine (9) are of medium significance prior to

mitigation, the significance of six (6) of these impacts can be reduced to medium and six (6) can be reduced to low, if the mitigation measures identified are implemented and adhered to.
For **Option C** (the preferred alternative), of the twelve impacts identified, three (3) impacts are classified as HIGH, four (4) impacts are classified as MEDIUM, and five (5) impacts are classified as LOW. If the mitigation measures identified in this report are implemented and adhered to, the significance of these impacts can be reduced resulting in one (1) residual impact of MEDIUM significance and eleven (11) residual impacts of LOW significance.

The cumulative impacts are considered low to medium post mitigation.

**Table 1: Summary of project impacts**

| Alternative | Option A | | Option B | | Option C | |
|---|---|---|---|---|---|---|
| | Pre-mitigation | Post mitigation | Pre-mitigation | Post mitigation | Pre-mitigation | Post mitigation |
| **Construction phase impacts** | | | | | | |
| Impact 1: Loss of Overberg Dune Strandveld (EN) | Medium | Medium | Medium | Medium | Low | Low |
| Impact 2: Loss of plant SCC | High | Medium | High | Medium | High | Medium |
| Impact 3: Fragmentation of vegetation and disruption of ecosystem processes | Medium | Medium | Medium | Medium | Low | Low |
| Impact 4: Introduction and spread of weeds and alien plant species. | Medium | Low | Medium | Low | Medium | Low |
| Impact 5: Loss of a portion of the Walker Bay Key Biodiversity Area | Medium | Medium | Medium | Medium | Low | Low |
| Impact 6: Loss of a portion of CBA: terrestrial | Medium | Medium | Medium | Medium | Low | Low |
| Impact 7: Loss of faunal habitat | Medium | Medium | Medium | Medium | Low | Low |
| Impact 8: Loss of faunal SCC | High | Low | High | Low | High | Low |
| Impact 9: Disturbance to faunal species and their livelihood due to project related activities. | Medium | Low | Medium | Low | Medium | Low |
| Impact 10: Mortality of faunal species due to earthworks, roadkill and persecution | High | Low | High | Low | High | Low |
| **Operational phase impacts** | | | | | | |
| Impact 11: Spread of weeds and alien plant species. | Medium | Low | Medium | Low | Medium | Low |
| Impact 12: Disturbance to faunal species and their livelihood due to project related activities. | Medium | Low | Medium | Low | Medium | Low |

**Conclusions and Recommendations**

**Option A** will result in the loss of approximately 7.13 ha (0.0713 km²) of Overberg Dune Strandveld, representing a loss of 0.02% of the total remaining extent of this vegetation type, **Option B** will result in the loss of 10.6 ha (0.106 km²) of Overberg Dune Strandveld, representing a loss of 0.03% of the total remaining extent of this vegetation type, and **Option C** will result in the loss of 6.12 ha (0.0612

$km^2$) of Overberg Dune Strandveld, representing a loss of 0.02% of the total remaining extent of this vegetation type.

While this vegetation is classified as an Endangered Ecosystem, it is important to note that the project area is located within the urban edge, has already been impacted by habitat fragmentation, alien invasive species, and is surrounded by a network of roads with existing development situated to the east, west and south of the project area. These existing disturbances have reduced the overall ecological sensitivity of the area, potentially lowering the significance of the impact relative to more pristine or less disturbed habitats. In addition, 93% of this vegetation type currently remains and the conservation target for this vegetation type is 36%. Still, given the Endangered status of this vegetation type, any loss remains a concern, and mitigation measures have been identified to minimize any adverse effects (refer to Chapter 8).

Of the three alternatives, Option C will result in the lowest overall loss of Overberg Dune Strandveld; and includes the designation of a portion of the project area (2.65 ha) in the north as Open Space which would maintain ecological connectivity with the portion of near-intact Overberg Dune Stranveld just north of the boundary of the project area. Considering the significance of the residual impacts associated with Option C which are classified as LOW in comparison to Option A and B, it is the opinion of the specialist that Option C is the preferred development alternative and that a biodiversity offset is not required, provided the Open Space Area is considered a no-go area for development and maintained in its current near-natural state.

**Option A and B** would result in six (6) residual impacts of MEDIUM significance. In terms of the National Biodiversity Offset Guideline (2023), where residual negative biodiversity impacts are evaluated to be of medium or high significance, a biodiversity offset would be required. The Starting Offset Ratio for Overberg Dune Strandveld is 10:1 in terms of Annexure A of the Biodiversity Offset Guideline (2023). Furthermore, a higher ratio of 30:1 is applied to all CBA sites. Considering the site is located within a CBA 1, the higher or the two ratios would apply as the starting ratio. However, the Biodiversity Offset Guideline (2023) also states that other factors may justify smaller ratios, such as when the impact occurs in an urban setting where there are severe spatial constraints. Option A and B would therefore require a biodiversity offset.

As for the way forward, it is recommended that the Competent Authority (CA) be consulted regarding the proposed development and the requirement for an offset confirmed.

# Table of Contents

## List of Tables



## List of Figures

# Glossary of Terms

| | |
|---|---|
| **Alien Invasive Species** | Refers to an exotic species that can spread rapidly and displace native species causing damage to the environment. |
| **Biodiversity** | The term that is used to describe the variety of life on Earth and is defined as "*the variability among living organisms from all sources including terrestrial, marine and other aquatic ecosystems, and the ecological complexes of which they are part; this includes diversity within species, between species, and of ecosystems*" (Secretariat of the Convention on Biological Diversity, 2005). |
| **Biome** | Groupings based on dominant forms of plant life and prevailing climatic factors. Biomes have plants and/or animals living together with some degree of permanence, and one can observe large-size patterns in global plant cover. Biomes broadly correspond with climatic regions as moisture and temperature strongly influence plant establishment and survival, although other environmental controls are sometimes important (SANBI, 2020). |
| **Buffer** | A strip of land surrounding a particular feature or area in which activities are controlled or restricted, in order to reduce the impact of adjacent land uses on the wetland or riparian area. |
| **Critical Biodiversity Area (CBA)** | **CBAs** are areas of high biodiversity and ecological value that are required to meet biodiversity targets for species, ecosystems or ecological processes and infrastructure. These include:<br>• All areas required to meet biodiversity pattern (e.g. species, ecosystems) targets;<br>• Critically Endangered (CR) ecosystems (terrestrial, wetland and river types);<br>• All areas required to meet ecological infrastructure targets, which are aimed at ensuring the continued existence and functioning of ecosystems and delivery of essential ecosystem services; and<br>• Critical corridors to maintain landscape connectivity.<br><br>A distinction is made between **CBA 1** (areas that are likely to be in a natural condition) and **CBA 2** (areas that are potentially degraded or represent secondary vegetation). The management objectives for CBAs are to maintain these areas as natural or near-natural state, with no further loss of habitat or species. Degraded areas should be rehabilitated to natural or near-natural condition. Only low-impact, biodiversity sensitive land uses are appropriate. |
| **Ecological Support Area (ESA)** | **ESAs** are areas that are not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of PAs or CBAs. Often these areas play a vital role for delivering ecosystem services. They support landscape connectivity, encompass the ecological infrastructure from which ecosystem goods and services flow, and strengthen resilience to climate change. They include features such as regional climate adaptation corridors, water source and recharge areas, riparian habitat surrounding |

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| | rivers or wetlands, and Endangered vegetation.<br><br>A distinction is made between **ESA 1** (areas that are in a natural, near-natural or moderately degraded condition and are still likely to be functional) and **ESA 2** (areas that are severely degraded or have no natural cover remaining and therefore require restoration). The management objectives for ESAs are to maintain these areas in a functional/natural state so that they continue to function as intended. Some limited habitat loss may be acceptable subject to the applicable authorisation process. |
| **Ecosystem** | A dynamic complex of animal, plant and micro-organism communities and their non-living environment interacting as a functional unit (SANBI, 2020). |
| **Habitat Fragmentation** | Ocurs when large expanses of habitat are transformed into smaller patches of discontinuous habitat units isolated from each other by transformed habitats such as farmland. |
| **Natural Habitat** | Habitats composed of viable assemblages of plant and/or animal species of largely native origin and/or where human activity has not essentially modified an area's primary ecological function and species composition (ECBCP, 2019). |
| **Other Natural Area (ONA)** | **ONAs** have not been identified as priority areas (CBA/ESA) and are not prioritised for meeting biodiversity processes but they retain most of their natural character to perform a range of biodiversity and ecological infrastructure functions. The management objectives for these areas is to minimise habitat and species loss and ensure ecosystem functionality through strategic landscape planning. Although land uses are permissible in these areas, these require the appropriate authorisations. |
| **Project Area** | The erf or farm portion on which the development is proposed and that will be directly impacted by project infrastructure such as the roads, houses, etc. |
| **Project Area of Influence (PAOI)** | The broader area around the project area that may be indirectly impacted by project activities. |
| **Protected Area** | A clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values (IUCN Definition 2008). |
| **Sensitive Species** | Species that are sensitive to illegal harvesting. As such, their names are obscured and listed as "Sensitive species #". As per the best practice guideline that accompanies the protocol and screening tool, the name of the sensitive species may not appear in any BAR or EIA report, nor any specialist reports released into the public domain. |
| **Species of Conservation Concern** | All species that are assessed according to the IUCN Red List Criteria as Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Data Deficient (DD) or Near Threatened (NT), as well as range-restricted species which are not declining and are nationally listed as Rare or Extremely Rare [also referred to in some Red Lists as Critically Rare] (SANBI, 2020). |

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| **Study Area** | Refers to the extent of analysis that extends beyond the project area and includes the broader surrounding area which may not necessarily be impacted by project activities e.g the Quarter Degree Square in which the project area occurs. |
| **Vegetation type** | Defined in terms of dominant, common as well as rare species, as well as association with landscape features such as soil or geology, topography and climate (SANBI). |

# Abbreviations

| | |
|---|---|
| **AOO** | Area of Occurrence |
| **°C** | Degrees Celsius. |
| **CA** | Conservation Area |
| **CBA** | Critical Biodiversity Area |
| **CR** | Critically Endangered |
| **CI** | Conservation Importance |
| **DFFE** | Department of Forestry, Fisheries, and the Environment |
| **EA** | Environmental Authorisation |
| **EN** | Endangered |
| **EIA** | Environmental Impact Assessment |
| **EOO** | Extent of Occurrence |
| **ESA** | Ecological Support Area |
| **FEPA** | Freshwater Ecosystem Priority Area |
| **FI** | Functional Integrity |
| **IUCN** | International Union for Conservation of Nature |
| **km** | Kilometre |
| **LC** | Least Concern |
| **MAP** | Mean Annual Precipitation |
| **m** | Meter |
| **NPAES** | National Protected Areas Expansion Strategy |
| **NT** | Near Threatened |
| **ONA** | Other Natural Areas |
| **PA** | Protected Area |
| **PAOI** | Project Area of Influence |
| **PNCO** | Provincial Nature Conservation Ordinance |
| **POSA** | Plants of Southern Africa (database) |
| **QDS** | Quarter Degree Square |
| **RR** | Receptor Resilience |
| **SACNASP** | South African Council for Natural Scientific Professions |
| **SACAD** | South African Conservation Areas Database |
| **SANBI** | South African National Biodiversity Institute |
| **SANLC** | South African National Land Cover |
| **SAPAD** | South African Protected Areas Database |
| **SCC** | Species of Conservation Concern |
| **SEI** | Site Ecological Importance |
| **SSV** | Site Sensitivity Verification |
| **TOPS** | Threatened or Protected Species |
| **VU** | Vulnerable |
| **WCBSP** | Western Cape Biodiversity Spatial Plan |

# Specialist Check Lists

The contents of this specialist report complies with the legislated requirements as described in the Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity (GN R. 320 of 2020), Plant and Animal Species (GN R. 1150 of 2020).

| TERRESTRIAL BIODIVERSITY SPECIALIST ASSESSMENT REPORT REQUIREMENTS ACCORDING TO GN R. 320 | | | SECTION OF REPORT |
|---|---|---|---|
| 3.1 | The **Terrestrial Biodiversity Specialist Assessment** Report must contain, as a minimum, the following information: | | |
| | 3.1.1 | Contact details of the specialist, their SACNASP registration number, their field of expertise and a curriculum vitae; | Page 2-3; Appendix 2 & 3 |
| | 3.1.2 | A signed statement of independence by the specialist; | Page 4-5 |
| | 3.1.3 | A statement of the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment; | Section 1.3 & 2.2 |
| | 3.1.4 | A description of the methodology used to undertake the site verification and impact assessment and site inspection, including equipment and modelling used, where relevant; | Chapter 2 |
| | 3.1.5 | 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 1.3 |
| | 3.1.6 | A location of the areas not suitable for development, which are to be avoided during construction and operation (where relevant); | Chapter 8 & Chapter 9 |
| | 3.1.7 | Additional environmental impacts expected from the proposed development; | Chapter 8 |
| | 3.1.8 | Any direct, indirect and cumulative impacts of the proposed development; | |
| | 3.1.9 | The degree to which the impacts and risks can be mitigated; | |
| | 3.1.10 | The degree to which the impacts and risks can be reversed; | |
| | 3.1.11 | The degree to which the impacts and risks can cause loss of irreplaceable resources; | |
| | 3.1.12 | Proposed impact management actions and impact management outcomes proposed by the specialist for inclusion in the Environmental Management Programme (EMPr); | |
| | 3.1.13 | A motivation must be provided if there were development footprints identified as per paragraph 2.3.6 above that were identified as having a “low” terrestrial biodiversity sensitivity and that were not considered appropriate; | N/A |
| | 3.1.14 | A substantiated statement, based on the findings of the specialist assessment, regarding the acceptability, or not, of the proposed development, if it should receive approval or not; and | Chapter 9.2 |
| | 3.1.15 | Any conditions to which this statement is subjected. | Chapter 8 and Section 9.2 |

| TERRESTRIAL PLANT SPECIES SPECIALIST ASSESSMENT REPORT REQUIREMENTS ACCORDING TO GN R. 1150 | | | SECTION OF REPORT |
|---|---|---|---|
| 3.1 | A Terrestrial **Plant Species** Specialist Assessment Report must contain, as a minimum, the following information: | | |
| | 3.1.1 | Contact details and relevant experience as well as the SACNASP registration number of the specialist preparing the assessment including a curriculum vitae; | Page 2-3; Appendix 2 & 3 |
| | 3.1.2 | A signed statement of independence by the specialist; | Page 4-5 |
| | 3.1.3 | A statement of the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment; | Section 1.3 & 2.2 |
| | 3.1.4 | A description of the methodology used to undertake the site verification and impact assessment and site inspection, including equipment and modelling used, where relevant; | Chapter 2 |
| | 3.1.5 | A description of the assumptions made and any uncertainties or gaps in knowledge or data; | Section 1.3 |
| | 3.1.6 | A description of the mean density of observations/number of samples sites per unit area13 of site inspection observations; | Section 2.2 |
| | 3.1.7 | Details of all SCC found or suspected to occur on site, ensuring sensitive species are appropriately reported; | Chapter 6 |
| | 3.1.8 | The online database name, hyperlink and record accession numbers for disseminated evidence of SCC found within the study area. | Section 5.2 |
| | 3.1.9 | The location of areas not suitable for development and to be avoided during construction where relevant | Chapter 8 & Chapter 9 |
| | 3.1.10 | A discussion on the cumulative impacts; | Chapter 8 |
| | 3.1.11 | Impact management actions and impact management outcomes proposed by the specialist for inclusion in the Environmental Management Programme (EMPr) | Chapter 8 & Section 9.2 |
| | 3.1.12 | A reasoned opinion, based on the findings of the specialist assessment, regarding the acceptability or not, of the development related to the specific theme considered, and if the development should receive approval or not, related to the specific theme being considered, and any conditions to which the opinion is subjected if relevant; and | Section 9.2 |
| | 3.1.13 | A motivation must be provided if there were any development footprints identified as per paragraph 2.3.12 above that were identified as having “low” or “medium” terrestrial plant species sensitivity and were not considered appropriate; | N/A |

| TERRESTRIAL ANIMAL SPECIES SPECIALIST ASSESSMENT REPORT REQUIREMENTS ACCORDING TO GN R. 1150 | | | SECTION OF REPORT |
|---|---|---|---|
| 3.1 | A Terrestrial **Animal Species** Specialist Assessment Report must contain, as a minimum, the following information: | | |
| | 3.1.1 | Contact details and relevant experience as well as the SACNASP registration number of the specialist preparing the assessment including a curriculum vitae; | Page 2-3; Appendix 2 & 3 |
| | 3.1.2 | A signed statement of independence by the specialist; | Page 4-5 |
| | 3.1.3 | A statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment; | Section 1.3 & 2.2 |
| | 3.1.4 | A description of the methodology used to undertake the site sensitivity verification, impact assessment and site inspection, including equipment and modelling used where relevant | Chapter 2 |
| | 3.1.5 | A description of the mean density of observations/number of sample sites per unit area and the site inspection observations; | Section 2.2 |
| | 3.1.6 | A description of the assumptions made and any uncertainties or gaps in knowledge or data; | Section 1.3 |
| | 3.1.7 | Details of all SCC found or suspected to occur on site, ensuring sensitive species are appropriately reported; | Chapter 5 |
| | 3.1.8 | The online database name, hyperlink and record accession numbers for disseminated evidence of SCC found within the study area; | N/A |
| | 3.1.9 | The location of areas not suitable for development and to be avoided during construction where relevant; | Chapter 8 & Chapter 9 |
| | 3.1.10 | A discussion on the cumulative impacts; | Chapter 8 |
| | 3.1.11 | Impact management actions and impact management outcomes proposed by the specialist for inclusion in the Environmental Management Programme (EMPr); | Chapter 8 & Section 9.2 |
| | 3.1.12 | 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, related to the specific theme being considered, and any conditions to which the opinion is subjected if relevant; and | Section 9.2 |
| | 3.1.13 | A motivation must be provided if there were any development footprints identified as per paragraph 2.2.12 above that were identified as having “low” or “medium” terrestrial animal species sensitivity and were not considered appropriate. | N/A |

# 1. INTRODUCTION

## 1.1. Introduction

Biodiversity Africa was appointed to conduct a Terrestrial Biodiversity, Plant and Animal Species Specialist Assessment of Erf 1469, 1470, 1471, 1479, and 1473 located near Van Dyks Bay, within the Western Cape Province. These erven have been earmarked for a proposed residential development (Figure 1.1 and 1.2).

The total project area assessed for the proposed development was approximately 11.4 ha. Three (3) alternative layouts have been assessed:

- **Option A** (Figure 1.3) has a total development footprint of ±9.6 ha with 152 properties.
- **Option B** (Figure 1.4) has a total development footprint of ±10.2 ha with 151 properties.
- **Option C** (Figure 1.5), the **preferred Alternative**, has a total development footprint of ±8.4 ha with 128 properties and a designated open space area of approximately 2.65 ha. The open space area was designed to include the originally declared Critical Biodiversity Area (CBA) identified by the former Western Cape Biodiversity Spatial Plan (WCBSP, 2017) (refer to Section 4.2).


**Figure 1.1: Locality map of the project area (indicated in red).**

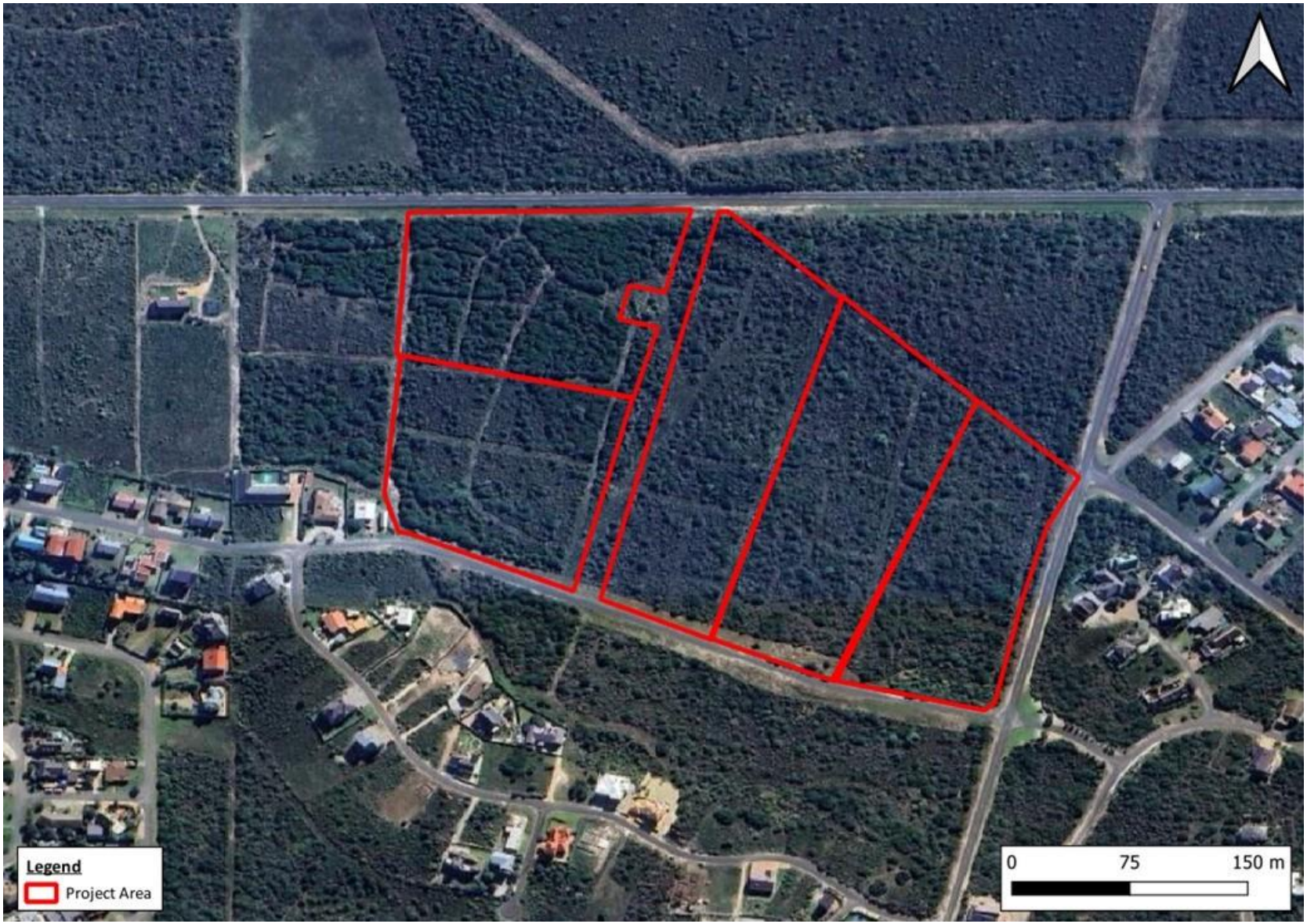



**Figure 1.2: Google Earth Satellite Image of the project area (note existing roads/fire breaks).**

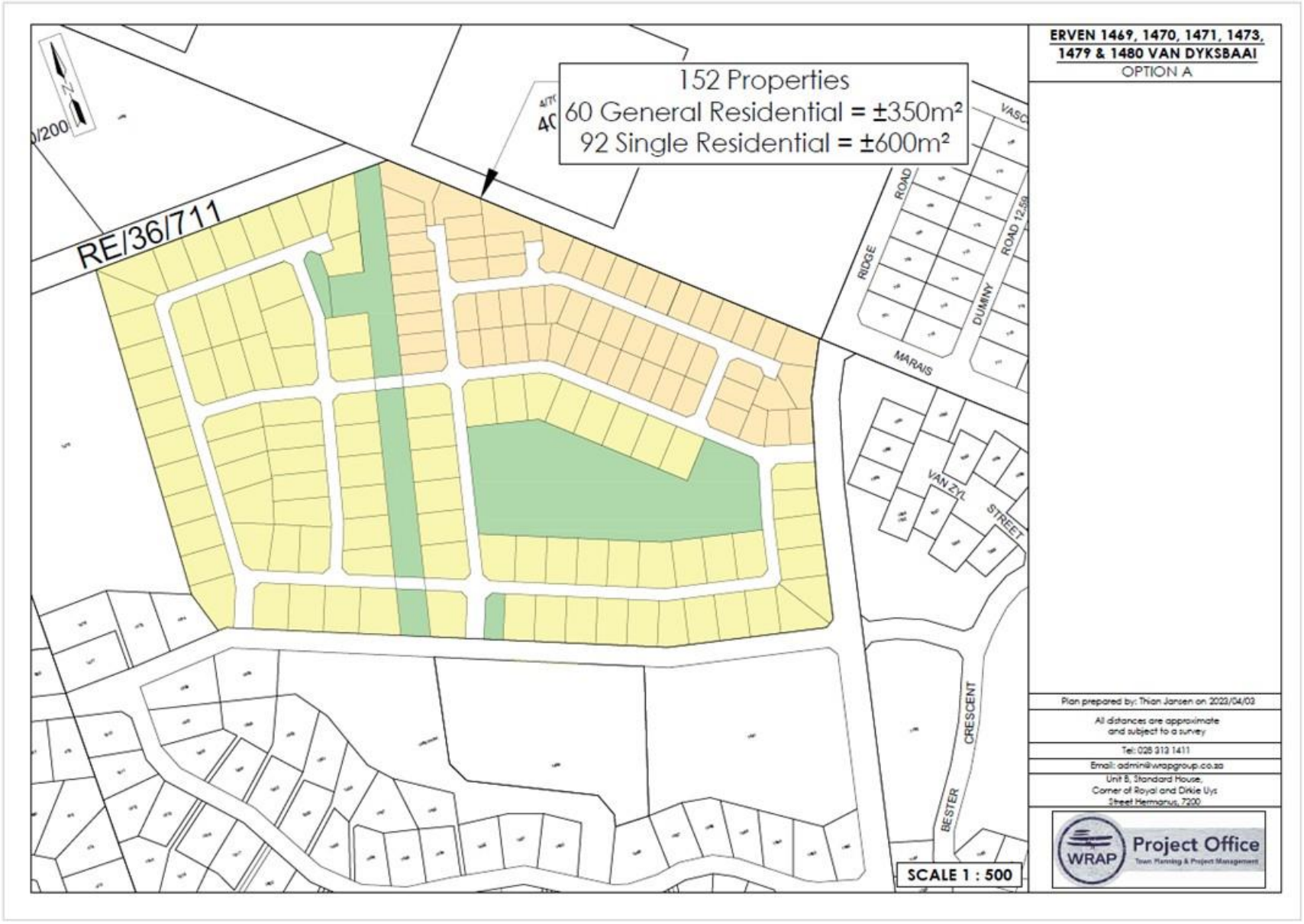



**Figure 1.3: Option A – Layout of the proposed residential development.**

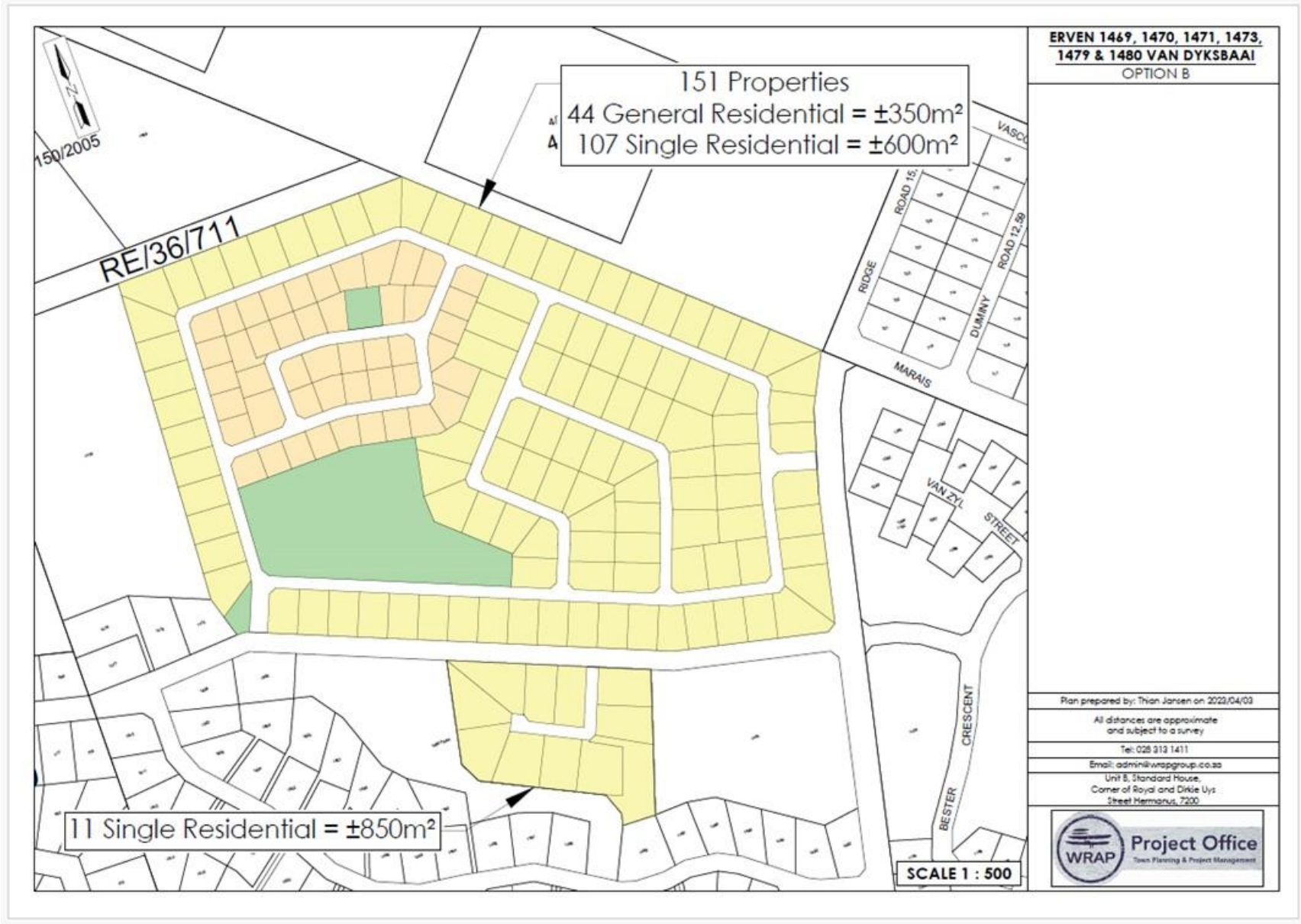



**Figure 1.4: Option B – Layout of the proposed residential development.**

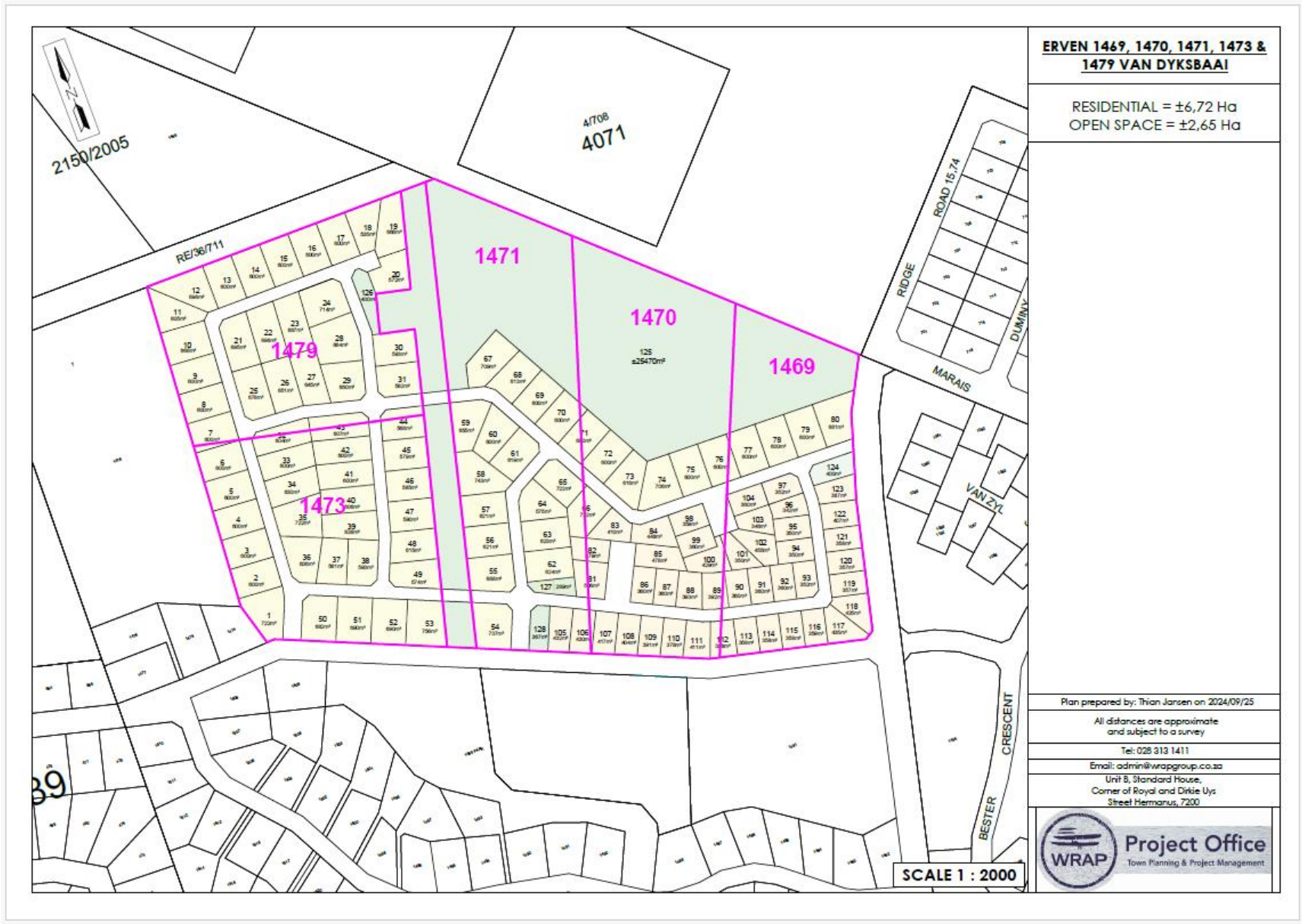



**Figure 1.5: Option C – Preferred Layout of the proposed residential development.**

## 1.2. Objectives of the Assessment

The purpose of this report is to confirm the vegetation types, faunal habitats, and Species of Conservation Concern (SCC) present within the project area, assess the Site Ecological Importance (SEI) and the impacts associated with the proposed development and, where feasible, provide mitigation measures to reduce the significance of the identified impacts including identifying no-go areas.

Based on the above, the objectives and Terms of Reference (ToR) for each component of this specialist assessment are as follows:

***Animal Specialist Assessment***

- Identify threatened animal SCC, including those listed as Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT) and Data Deficient (DD), that could occur in the project area and indicate their likelihood of occurrence based on the availability of suitable habitat recorded within the project area. This list will include results from a desktop assessment, the DFFE Screening Tool Report, and the field survey.
- Provide a list of animal species recorded in the project area during the field survey. This will include their red list status.
- When SCC are recorded, provide photographic evidence, where feasible, by uploading these to iNaturalist and including a hyperlink in the report.
- Where feasible, identify the distribution, location and viability of the population, including a description of the population size.
- Provide a review of available literature on the population size and conservation of each SCC confirmed to occur within the project area or which has a high likelihood of occurrence. The review must include:
    - Information on its red list status from the IUCN Red List of Threatened Species, South African Red List of Species and/or other relevant databases.
    - Details of any national or provincial management plans for the SCC and comment on whether the development is compliant with the applicable species management plan and if not, a motivation for deviation must be presented.
- Identify the nature and extent of the impact of the proposed development on the habitat of SCC located in the project area and, where feasible, provide mitigation measures.
- Identify any potential impacts on ecological connectivity in relation to the broader landscape that would impact on the long term viability of populations of SCC. Where feasible, provide mitigation measures.
- Identify and discuss the cumulative impacts on SCC that have a high likelihood of occurrence or which were confirmed to occur within the project area.
- Identify ecological drivers in the broader landscape that may be disrupted by the development and describe how this will affect populations of SCC that have a high likelihood of occurrence or were confirmed to occur in the project area.
- Determine buffer distances for populations of SCC.
- Provide a map of areas that need to be avoided and areas where development is feasible.
- Provide a reasoned opinion on whether the development can proceed. If development is acceptable, describe the conditions this is subjected to, if relevant.

***Plant Species Assessment***

- Identify plant SCC (including CR, EN, VU, NT and DD) that could occur in the project area and indicate their likelihood of occurrence based on the availability of suitable habitat recorded within the project area during the field survey. This list will include results from a desktop assessment, the DFFE Screening Tool Report, and the field survey.
- Provide a list of plant species recorded in the project area during the field survey. This list will include the threat status of each species as well as the relevant legislation under which the species are protected.
- When SCC are recorded, provide photographic evidence by uploading these to iNaturalist and including a hyperlink in the report.
- Where feasible, identify the distribution, location and viability of the population, including a description of the population size.
- Provide a review of available literature on the population size and conservation interventions for each SCC confirmed to occur within the project area or which has a high likelihood of occurrence. The review must include details of any national or provincial management plans for the SCC and provide comment on whether the development is compliant with the applicable species management plan and if not, a motivation for deviation must be presented.
- Identify the nature and extent of the impact of the proposed development on the habitat of SCC located in the project area and, where feasible, provide mitigation measures.
- Identify any potential impacts on ecological connectivity in relation to the broader landscape that would impact on the long term viability of populations of SCC. Where feasible, provide mitigation measures.
- Identify and discuss the cumulative impacts on SCC that have a high likelihood of occurrence or which were confirmed to occur within the project area.
- Identify ecological drivers in the broader landscape that may be disrupted by the development and describe how this will affect populations of SCC that have a high likelihood of occurrence or were confirmed to occur in the project area (e.g. disruption of fires in fire driven ecosystems).
- Determine buffer distances for populations of SCC.
- Provide a map of areas that need to be avoided and areas where development is feasible.
- Provide a reasoned opinion on whether the development can proceed. If development is acceptable, describe the conditions this is subjected to, if relevant.

***Terrestrial Biodiversity Assessment***

Provide a baseline description of the project area that includes the following:

- Description of the ecological drivers and processes present in the project area (e.g. fire, migration, pollination etc) and how the proposed development will impact this, if at all.
- Identification and description of ecological corridors that the proposed development will impede, including the migration of fauna and flora.
- Description of significant terrestrial features (e.g. rare or important fauna-flora interactions, presence of strategic water source areas (SWSA) or freshwater ecosystem priority area (FEPA) sub catchments).
- Description of terrestrial biodiversity and ecosystems present in the project area including:
    - Main vegetation types present and dominant species that characterise each vegetation type.
    - Threatened ecosystems present, including listed ecosystems and locally important habitat types.

    - Description of ecological connectivity, habitat fragmentation, ecological processes and fine-scale habitats
    - Identification of important habitats present that support SCC.
- For Critical Biodiversity Area **(CBA) and Ecological Support Areas (ESA),** the field survey and terrestrial biodiversity assessment must identify:
    - Why an area has been identified as a CBA and whether these features that are being protected, are present.
    - If present, it must indicate whether the proposed development will impact on the management objectives of the CBA and the features being protected (e.g. threatened ecosystems and populations of SCC) by the CBA.
    - Whether the development will impact on ecological processes within or across the project area.
    - Whether the development will result in the loss of ecological connectivity due to degradation and/or severing of ecological corridors such as barriers that will impede migration and movement of animals and plants.
- If the project area occurs in a Key Biodiversity Area (KBA), provide an opinion on how the project will impact on the on the KBA as well as the features (including species and habitats) driving the classification of the KBA.
- The assessment must identify areas of high, medium and low sensitivity and guide development away from sensitive areas.

## 1.3. Reporting Requirements

In terms of the Protocol for the Specialist Assessment and Minimum Reporting Content Requirements for Environmental Impacts on Terrestrial Biodiversity (GN R. 320 of 2020) and Terrestrial Animal and Plant Species (GN R. 1150), prior to the commencement of a specialist assessment, the current use of the land and the potential environmental sensitivity of the site under consideration as identified by the Department of Forestry, Fisheries and the Environment (DFFE) screening tool, must be confirmed by undertaking a site sensitivity verification (SSV). The results of the screening tool, together with the SSV, ultimately determines the minimum report content requirements. Where the information gathered from the SSV differs from the screening tool designation of 'very high' or 'high' and is found to be of a 'low' sensitivity, then a Compliance Statement must be submitted. However, if the SSV confirms the findings of the Screening Report generated for this site, then a full Terrestrial Biodiversity Impact Assessment must be submitted as part of the Application for Environmental Authorisation (EA).

The DFFE Screening Report classified the Terrestrial Biodiversity Theme Sensitivity of the project area as VERY HIGH, the Plant Species Theme as MEDIUM, and the Animal Species Theme as HIGH and MEDIUM. A Site Sensitivity Verification Report (SSVR), which identified sensitivities and constraints relating to these themes of the project area, was compiled in December 2024. Three (3) separate habitat units were mapped, and the overall SEI of the project area was determined to be HIGH and MEDIUM.

In terms of the Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity (GN R. 320 of 2020), Plant and Animal Species (GN R. 1150 of 2020), an applicant intending to undertake an activity on a site identified by the screening tool as being of "HIGH sensitivity" for terrestrial biodiversity, plant and animal species must submit a Specialist Assessment Report rather than a Compliance Statement. Due to the HIGH and MEDIUM SEI of the project area and the confirmed occurrence of four (4) plant Species of Conservation Concern

(SCC), the specialist has prepared and submitted a full Specialist Assessment Report rather than a compliance statement.

## 1.4. Limitations and Assumptions

This report is based on current available information and, as a result, the following limitations and assumptions are implicit:

- This report is based on the three (3) alternative layouts (Option A, B and C) received from the client on the 3rd of February and the 13th of March 2025. Any changes to the layout may affect the findings and results of the study.
- This report is based on a combination of desktop level information currently available on public sources. It is assumed that this information is up to date and accurate. The findings of the desktop assessment have been verified by undertaking a field survey. Although earlier versions of spatial data are available, only the most up-to-date spatial data has been consulted for the preparation of this report.
- The findings of this report are only applicable to the project area illustrated in Figure 1.2 above.
- The field survey was undertaken over the course of one (1) day, on the 11th of October 2024. The timing of the field survey falls within the optimum survey period of the fynbos biome within which the project area occurs according to the Species Environmental Assessment Guideline (SANBI, 2020). However, early and/or late flowering species may have gone undetected. To account for this, the data gathered during the field survey has been supplemented by undertaking a desktop assessment of available resources. Comment has been provided on the likelihood of occurrence of SCC based on the availability of suitable habitat within the project area. Where there is uncertainty, the precautionary principal has been applied and it is assumed that these species are present. The timing of the field survey is therefore not considered a limitation of this study.
- Although every effort was made to identify every plant species observed, the aim of the botanical survey was not to record every plant species present within the project area but rather to determine the likelihood of occurrence of SCC and to determine whether the dominant species present are representative of the vegetation type(s) expected to occur on site in terms of the SA VEGMAP (2024).
- This report covers the Terrestrial Biodiversity, Plant and Animal Species Themes outlined in the DFFE Screening Tool Report. The animal species covered in this assessment includes mammals, reptiles, amphibians, and birds. It does not include the assessment of invertebrates.

It is with a high level of confidence that the specialist can state that the duration of time spent in the field, and the data collected from both the field survey and desktop assessment, were adequate to ascertain the ecological status and sensitivity of the project area and provide comment on the findings of the DFFE Screening Tool Report.

# 2. METHODOLOGY

## 2.1. Desktop Assessment and Site Sensitivity Verification

The DFFE Screening report identifies environmental sensitivities for the project area. This is based on available desktop data and requires that a suitably qualified specialist verify the findings. Of relevance to this report is the terrestrial biodiversity, plant, and animal species themes (refer to Table 2.1 below). A desktop assessment of available spatial data and literature resources was undertaken to verify the sensitivity features contributing to the sensitivity rating for each of the themes and this was supplemented with data gathered during the field survey. The key resources that were consulted for each theme are summarised **in Section 2.2.1 to 2.2.3** below.

**Table 2.1: DFFE Screening Report theme sensitivities and features for the proposed project area.**

| Theme | Sensitivity | Sensitivity Features | Relevant Section of the Report |
|---|---|---|---|
| **Terrestrial Biodiversity** (Figure 2.1) | **VERY HIGH** | • CBA 1: Terrestrial<br>• ESA 2: Restore from other land use<br>• Endangered (EN) ecosystem: Overberg Dune Strandveld | Chapter 4 |
| **Plant Species** (Figure 2.2) | **MEDIUM**[1] | • Forty-eight (48) Sensitive Plant Species | Chapter 5 |
| **Animal Species** (Figure 2.3) | **HIGH** [2] | • Two (2) Sensitive Bird Species | Chapter 6 |
| | **MEDIUM** | • Two (2) Sensitive Bird Species<br>• One (1) Sensitive Reptile Species<br>• Two (2) Sensitive invertebrate species | |

As mentioned in Section 1.3 above, a Site Sensitivity Verification Report (SSVR), which identified sensitivities and constraints relating to these themes of the project area, was compiled in December 2024. Three (3) separate habitat units were mapped, and the overall SEI of the project area determined based on the findings of the field survey and desktop assessment (Table 2.2). A summary of the changes to the sensitivity of the themes is provided below:

**Terrestrial Biodiversity**

The specialist **disagreed** with the VERY HIGH sensitivity rating of the Overberg Dune Strandveld and suggested the following:

- The portion Overberg Dune Strandveld is reclassified as HIGH rather than VERY HIGH but this is based on the assumption that less than 10 ha will be developed.
- The *Acacia* Woodland is reclassified as VERY LOW rather than VERY HIGH.
- The Degraded Overberg Dune Strandveld (firebreaks) is reclassified as MEDIUM rather than VERY HIGH.

[1] 'Medium' sensitivity does not indicate the known presence of a threatened plant within the proposed development footprint/PAOI, but could indicate moderate likelihood of occurrence based on species distribution modelling, which relies on data such as habitat preferences and proximity to known locations of specific species (SANBI, 2020).

[2] 'Very high' and 'high' sensitivities defined by the screening tool indicates known presence of SCC (SANBI, 2020).

**Plant Species Theme**

The specialist disagreed with the MEDIUM sensitivity rating of the Plant Species Theme as per the DFFE Screening Tool Report and suggested the following:

- The Overberg Dune Strandveld and Degraded Areas is reclassified as HIGH due to the confirmed occurrence of SCC.
- The *Acacia* Woodland should remain medium.

**Animal Species Theme**

The specialist suggested that the sensitivity of the near intact Overberg Dune Strandveld, degraded habitat and *Acacia* Woodland be reclassified as MEDIUM.

**Table 2.2: Sensitivity ratings for the Terrestrial Biodiversity, Plant and Animal Species Themes based on the findings of the SSVR (Biodiversity Africa, December 2024).**

| Theme | Sensitivity | | |
|---|---|---|---|
| | Overberg Dune Strandveld | Degraded habitat | Acacia Woodland |
| **Terrestrial Biodiversity** (Figure 2.1) | **HIGH** | **MEDIUM** | **VERY LOW** |
| **Plant Species** (Figure 2.2) | **HIGH** | **HIGH** | **LOW** |
| **Animal Species** (Figure 2.3) | **HIGH** | **MEDIUM** | **MEDIUM** |

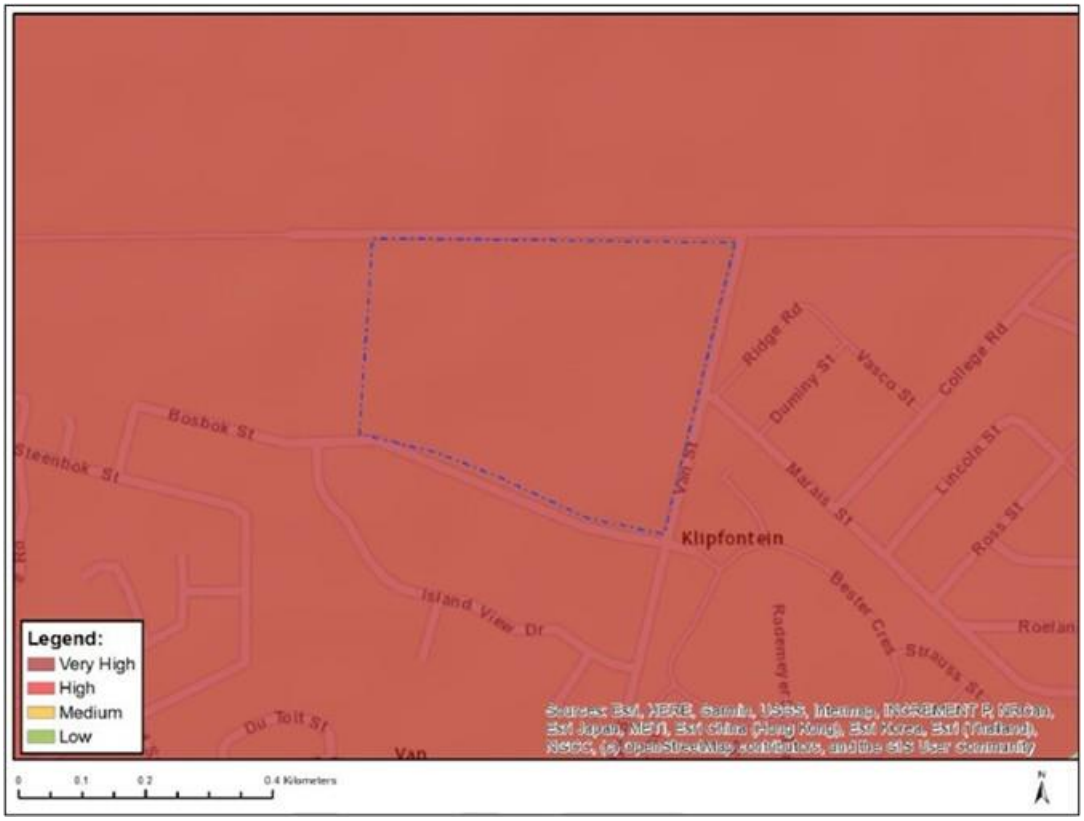



**Figure 2.1: Map of the relative Terrestrial Biodiversity Theme Sensitivity of the project area as per the DFFE Screening Tool Report.**


**Figure 2.2: Map of the relative Plant Species Theme Sensitivity of the project area as per the DFFE Screening Tool Report.**

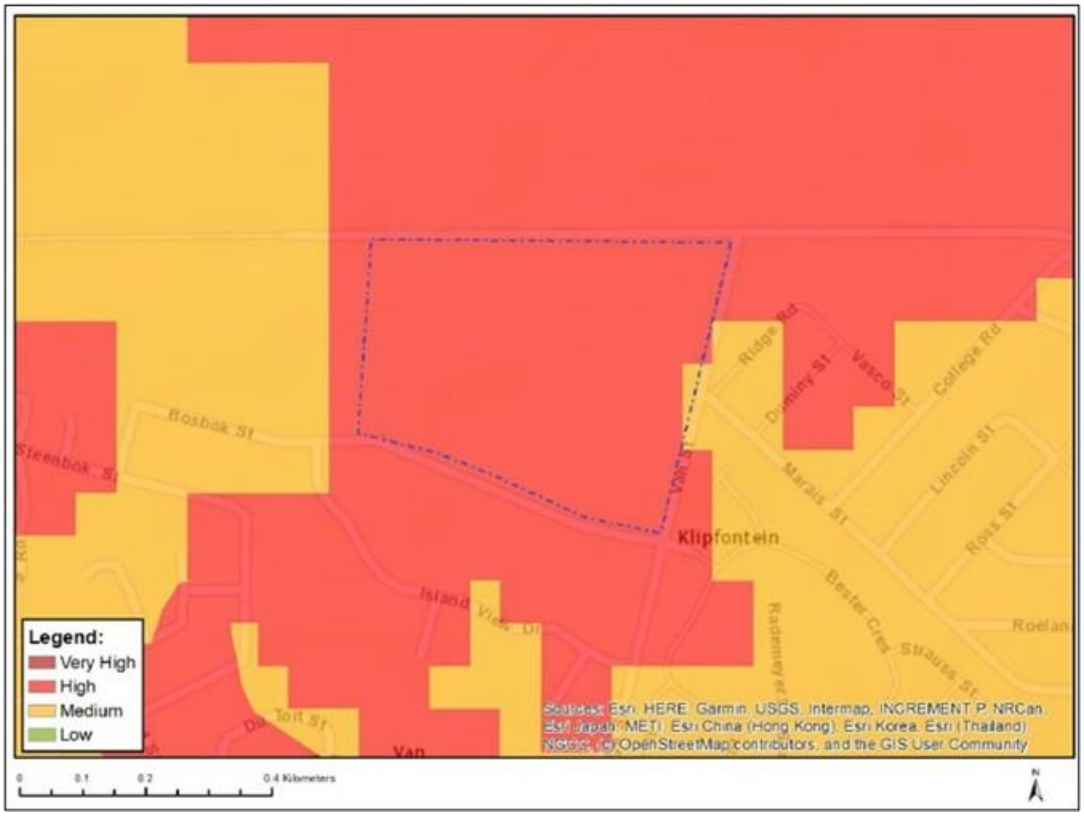



**Figure 2.3: Map of the relative Animal Species Theme Sensitivity of the project area as per the DFFE Screening Tool Report.**

### 2.1.1. Terrestrial Biodiversity Theme

The biodiversity features, including vegetation types, present within the project were identified at desktop level. Key resources consulted include:

- The DFFE Screening Tool Report for the project area (October 2024).
- The South African Vegetation Map (SANBI, 2018/2024).
- The 2017 and 2023 Western Cape Biodiversity Spatial Plan (WCBSP).
- The Red List of Ecosystems for South Africa: Remnants Spatial Dataset (SANBI, 2021).
- The Revised National List of Ecosystems that are Threatened and in need of Protection (DFFE, 2022).
- National Protected Area Expansion Strategy (NPAES) (2010 & 2018).
- The South African Protected Areas Database (SAPAD, Q23 2024) and the South African Conservation Areas Database (SACAD, Q3, 2024).
- South African Key Biodiversity Areas (2024).

### 2.1.2. Plant Species Theme

A species list was compiled for the project area and the likelihood of occurrence assessed for species listed as CR, EN, VU and Near Threatened (NT). Key resources consulted include:

- The DFFE Screening Tool Report for the project area (October 2024).
- iNaturalist.
- The Red List of South African Plants (2024).

### 2.1.3. Animal Species Theme

The known diversity of the vertebrate fauna in the project area was determined by a literature review. Species known from the region, or from adjacent regions, whose preferred habitat(s) were known to occur within the study area, were also included. Literature sources included:

- The DFFE Screening Tool Report (October 2024).
- Amphibians –Du Preez & Carruthers (2017), FrogMap (FitzPatrick, 2024).
- Reptiles – Branch (1998), ReptileMap (FitzPatrick, 2024).
- Mammals – Stuart & Stuart (2014), MammalMap (FitzPatrick, 2024).
- IUCN, 2024.
- SABAP 2 (*http://sabap2.adu.org.za*),
- Coordinated Waterbird Counts (CWAC, *http://cwac.adu.org.za*, Taylor *et al.* 1999),
- Coordinated Avifaunal Roadcounts (CAR, *http://car.adu.org.za*, Young *et al.* 2003),
- Birds in Reserves Project (BIRP, *http://birp.adu.org.za*),
- Important Bird and Biodiversity Areas initiative (Barnes 1998, *www.birdlife.org.za/conservation/important-bird-areas/iba-directory*),
- Provincial conservation plans and provincial species databases (where available),
- Data from the Endangered Wildlife Trust's programmes (*www.ewt.org.za*) and associated specialist research studies, and
- Data from impact assessments and monitoring at nearby sites.
- iNaturalist, 2024.

To establish which of those species identified in the literature review are SCC, the following sources were consulted:

- Conservation status of the reptiles of South Africa, Eswatini and Lesotho (Tolley *et al*., 2023);
- Ensuring a future for South Africa's frogs: a strategy for conservation research (Measey 2011);
- Red List of Mammals of South Africa, Swaziland and Lesotho (Child, *et al.,* 2016);
- Red Data book of Birds of South Africa, Lesotho and Swaziland (Taylor et al., 2015);
- IUCN (2024); and
- NEM:BA (10 OF 2004) and TOPS.

## 2.2. Field Survey

### 2.2.1. Plant Species and Terrestrial Biodiversity

The field survey was undertaken over the course of one (1) day, on the 11th of October 2024. The timing of the field survey falls within the optimum survey period of the fynbos biome within which the project area occurs according to the Species Environmental Assessment Guideline (SANBI, 2020). However, early and/or late flowering species may have gone undetected. To account for this, the data gathered during the field survey has been supplemented by undertaking a desktop assessment of available resources (refer to Chapter 5).

The purpose of the botanical survey was to assess the site-specific botanical state of the project area of Influence (PAOI) by recording the species present (both indigenous and alien invasive species), identifying sensitive plant communities such as vegetation associated with rocky outcrops, riparian areas, or areas with Species of Conservation Concern (SCC), and identifying the current land use.

At each sample point, plots were analysed by recording the dominant species, as well as any alien invasive species and potential SCC (or suitable habitat for SCC) (Figure 2.1). Each plot was sampled until no new species were recorded. Vegetation communities were then described according to the dominant species recorded from each type and these were mapped and assigned a sensitivity score. The project area was also driven to obtain an understanding of the distribution of vegetation types and the biophysical characteristics of the site.

A total of eleven (11) sample points were surveyed within the ~11 ha project area (Figure 2.1). However, it should be noted that sampling was not only restricted to these sample points. Transects were also walked and any new species observed were recorded.

All species recorded on site (including SCC) were uploaded onto iNaturalist: https://www.inaturalist.org/observations?nelat=-34.60501326839809&nelng=19.367948667460567&subview=table&swlat=-34.61137117365552&swlng=19.35812105363&user_id=nicole_wienand

### 2.2.2. Animal Species

The project area was walked, and the presence of faunal habitats recorded. Active searching was then conducted in various habitats present within the project area and included direct and indirect observations. All faunal species encountered were recorded to gather a general species list for the project area.

Direct observations were made by walking through the project area and recording species observed. Indirect observation were made by searching for evidence of faunal presence and includes spoor, skat, roadkill, skulls, quills, dens, burrows, hairs, scrapings, and diggings.

Figure 2.1 below maps the specialists survey tracks and sample sites.

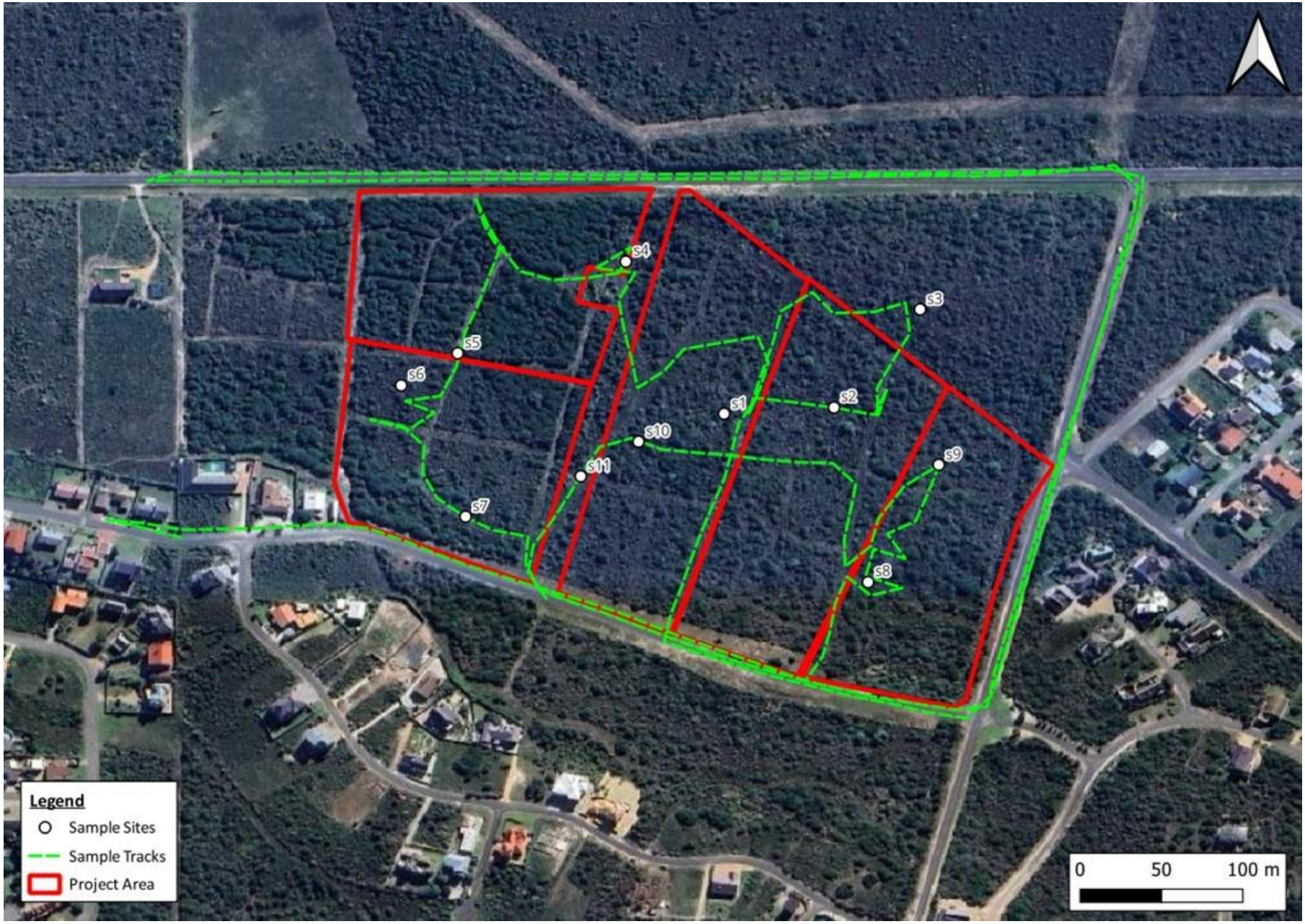



**Figure 2.1: Map showing sample sites (white dots) and tracks (green dashed line) within the project area indicated in red.**

## 2.3. Site Sensitivity Assessment

The Species Environmental Assessment Guideline (SANBI, 2020) was applied to assess the Site Ecological Importance (SEI) of the project area. The habitats and the SCC in the PAOI were assessed based on their conservation importance, functional integrity, and receptor resilience (Table 2.2). The combination of these resulted in a rating of SEI and interpretation of mitigation requirements based on the ratings.

The sensitivity map was developed using available spatial planning tools as well as by applying the SEI sensitivity based on the field survey.

**Table 2.2: Criteria for establishing Site Ecological Importance and description of criteria.**

| Criteria | Description |
|---|---|
| Conservation Importance (CI) | *The importance of a site for supporting biodiversity features of conservation concern present e.g. populations of Threatened and Near-Threatened species (CR, EN, VU & NT), Rare, range-restricted species, globally significant populations of congregatory species, and areas of threatened ecosystem types, through predominantly natural processes.* |
| Functional Integrity (FI) | *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.* |
| Biodiversity Importance (BI) is a function of Conservation Importance (CI) and the Functional Integrity (FI) of a receptor. | |
| Receptor Resilience (RR) | *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.* |
| Site Ecological Importance (SEI) is a function of Biodiversity Importance (BI) and Receptor Resilience (RR) | |

## 2.4. Impact Assessment Methodology

An impact is any change to a resource or receptor brought about by a project component or through the execution of a project related activity. The evaluation of baseline data provides information for the process of evaluating and describing how the project could affect the biophysical and socio-economic environment.

Impacts are described according to their nature or type, as follows:

**Nature / type of impact**

| Nature / Type of impact | Definition |
|---|---|
| Positive | An impact that is considered to represent an improvement on the baseline or introduces a positive change |
| Negative | An impact that is considered to represent an adverse change from the baseline, or introduces a new undesirable factor |
| Direct | Impacts that result from a direct interaction between a planned project activity and the receiving environment/receptors (e.g. between occupation of a site and the pre-existing habitats or between an effluent discharge and receiving water quality). |
| Indirect | Impacts that result from other activities that are encouraged to happen as a consequence of the Project (e.g. in-migration for employment placing a demand on resources). |

| | |
|---|---|
| Cumulative | Impacts that act together with other impacts (including those from concurrent or planned future third-party activities) to affect the same resources and/or receptors as the Project. |

**Significance**

Impacts are described in terms of 'significance'. Significance is a function of the magnitude of the impact and the likelihood of the impact occurring:

| Impact Magnitude | |
|---|---|
| **Extent** | **On site** – impacts that are limited to the boundaries of the development site. |
| | **Local** – impacts that affect an area in a radius of 20 km around the Development site. |
| | **Regional** – impacts that affect regionally important environmental resources or are experienced at a regional scale as determined by administrative boundaries, habitat type/ecosystem. |
| | **National** – impacts that affect nationally important environmental resources or affect an area that is nationally important/ or have macro-economic consequences |
| **Duration** | **Temporary** – impacts are predicted to be of short duration and intermittent/occasional. |
| | **Short-term** – impacts that are predicted to last only for the duration of the construction period. |
| | **Long-term** – impacts that will continue for the life of the Project but ceases when the project stops operating. |
| | **Permanent** – impacts that cause a permanent change in the affected receptor or resource (e.g. removal or destruction of ecological habitat) that endures substantially beyond the project lifetime. |
| **Intensity** | **BIOPHYSICAL ENVIRONMENT** |
| | **Negligible** – the impact on the environment is not detectable. |
| | **Low** – the impact affects the environment in such a way that natural functions and processes are not affected |
| | **Medium** – where the affected environment is altered but natural functions and processes continue, albeit in a modified way. |
| | **High** – where natural functions or processes are altered to the extent that they will temporarily or permanently cease. |
| | **SOCIO-ECONOMIC** |
| | **Negligible** – there is no perceptible change to people's livelihood. |
| | **Low** - people/communities are able to adapt with relative ease and maintain pre-impact livelihoods. |
| | **Medium** – people/communities are able to adapt with some difficulty and maintain pre-impact livelihoods but only with a degree of support. |
| | **High** - affected people/communities will not be able to adapt to changes or continue to maintain pre-impact livelihoods. |

Likelihood – the likelihood that an impact will occur

| Likelihood | |
|---|---|
| **Unlikely** | The impact is unlikely to occur. |
| **Likely** | The impact is likely to occur under most conditions. |
| **Definite** | The impact will occur. |

Once an assessment is made of the magnitude and likelihood, the impact significance is rated through a matrix process:

**Significance**

| Magnitude | | Unlikely | Likely | Definite |
|---|---|---|---|---|
| | Negligible | Negligible | Negligible | Minor |
| | Low | Negligible | Minor | Minor |
| | Medium | Minor | Moderate | Moderate |
| | High | Moderate | Major | Major |

Definitions of significance:

| | |
|---|---|
| **Negligible** | An impact of negligible significance (or an insignificant impact) is where a resource or receptor (including people) will not be affected in any way by a particular activity, or the<br>predicted effect is deemed to be 'negligible' |
| **Minor** | An impact of minor significance is one where an effect will be experienced, but the impact magnitude is small (with and without mitigation) and within accepted standards, and/or the receptor is of low sensitivity/value |
| **Moderate** | An impact of moderate significance is one within accepted limits and standards. The emphasis for moderate impacts is on demonstrating that the impact has been reduced to a level that is as low as reasonably practicable. This does not necessarily mean that 'moderate' impacts have to be reduced to 'minor' impacts, but that moderate impacts are managed effectively and efficiently. |
| **Major** | An impact of major significance is one where an accepted limit or standard may be exceeded, or large magnitude impacts occur to highly valued / sensitive resource / receptors. A goal of the EIA process is to get to a position where the Project does not have any major residual impacts. |

Significance of an impact is then qualified through a statement of the degree of ***confidence***. Degree of confidence is expressed as low, medium or high.

# 3. OVERVIEW OF THE FYNBOS BIOME AND BIOPHYSICAL DESCRIPTION OF THE PROJECT AREA

## 3.1. Overview of the Fynbos Biome and its Ecological Drivers

The project area occurs within the Fynbos Biome which occurs along the southern tip of the African continent, stretching from the plateau above Vanrhynsdorp in the northwest to the city of Gqeberha (formerly Port Elizabeth) in the southeast. This distribution largely conforms to the sandstone and quartzite formations of the Cape Fold Belt. However, outliers and smaller patches of Fynbos also occur beyond the defined boundaries of the biome (Manning, 2007).

The Fynbos biome is defined on the basis of climate, corresponding life-form patterns, and major natural disturbance (Mucina *et al*., 2006). Due to the large extent and the topographical diversity, the climatic conditions and Mean Annual Precipitation (MAP) varies from the extreme southwest to the extreme eastern extent of the biome. The West Coast, where the project area occurs, is influenced by the Benguela Current which flows northwards and carries cold water from the Antarctic while the Southern Coast is influenced by the warm Algulhas current which flows down from the equator. The true Mediterranean climate is restricted to the extreme southwest of the Cape Floristic Region (west of Mossel Bay) where rainfall occurs predominantly in the Winter months (Manning, 2007).

The project area occurs along the southwest coast of the Fynbos Biome. This area is characterised by a Mediterranean climate, with cool wet winters and warm dry summers. The average annual temperature is 16.9°C and the average annual rainfall is 609 mm. The warmest month of the year is February with an average temperature of 20.8°C while the coolest month is July with an average temperature of 13.3°C. January receives the lowest rainfall (26 mm) and the great rainfall occurs in Jully with an average of 89 mm (Climate-Data.org).

Mucina *et al* (2011), subdivided the Fynbos biome into three (3) quite different, naturally fragmented vegetation complexes including Fynbos, Renosterveld, and Strandveld. The project area occurs within Strandveld. **Strandveld,** as the name suggests, typically occurs close to the sea but never in areas directly affected by sea spray – these habitats are usually occupied by azonal coastal vegetation such as Cape Seashore Vegetation. Strandveld consists of communities of medium dense to closed shrubland dominated by sclerophyllous, broad-leaved shrubs. In arid areas, the succulent shrubby element is obvious. Shrublands are typically very low, especially close to the seashore, but can grow tall in sheltered sites where it is sometimes replaced by low scrub Milkwood Forest. Structural and floristic difference between strandveld and neighbouring Fynbos are striking. Although restios can be a common element on deep soils, Proteaceae are absent and Ericaceae are extremely rare (Mucina *et al*., 2011).

As opposed to Fynbos which typically occurs on nutrient poor soils, Strandveld occurs on mineral-rich substrates with high calcium concentrations. In the project area, the Strandveld vegetation is underlain by Calcareous aeolianite of the Waenhuiskrans Formation, partially covered by sand and coastal dunes of the Strandveld Formation, Bredasdorp Group.

See Section 3.2 below for more details on the ecological drivers influencing these vegetation complexes.

## 3.2. Ecological Drivers

Ecological drivers are both abiotic and biotic factors that influence the structure, species composition, and the primary productivity of vegetation types. According to Mucina *et al* (2011), there are four complex factors that mainly drive ecology within the Fynbos biome. These factors separate the Fynbos biome from the other biomes found in South Africa and include:

1. Nutrient poor soils which support fynbos arranged in an archipelago within more nutrient-rich soils which support renosterveld/strandveld;
2. Hot dry summers alternating with cool wet winters typical of other Mediterranean-type regions (this is mostly applicable to the western portion of the biome);
3. Intricate and complex animal-plant interactions including grazing, pollination, and dispersal; and
4. Fire.

Soils and climate are discussed in Section 3.1 above and are therefore not repeated here. The importance of animal-plant interactions and fire is discussed below.

**Animal-Plant Interactions**

There are numerous pollination systems present within the Fynbos Biome. Examples of major pollination systems in the fynbos biome, according to Mucina, *et al* (2011), include:

- Fly pollination
- Beetle pollination
- Butterfly pollination
- Moth Pollination
- Bee pollination (the most important pollinators in the fynbos biome)
- Bird Pollination
- Non-flying mammal pollination
- Bird fruit dispersal (mostly in strandveld and renosterveld)

Pollination systems have implications for conservation, because changes in land use that affect pollinator fauna could prevent the pollination and consequently, the persistence of plant species that depend on these interactions.

There is very little research on the role large mammals play as pollinators and dispersers within the Fynbos Biome. However, they are likely to disperse seeds that attach to their fur or through their droppings.

**Fire**

Fire is an important driver in the Fynbos biome. It influences the species composition and community types and maintains ecosystem function by removing the dead and moribund material which allows space for new growth. It prevents the dominance of certain species and the transition from Fynbos to Thicket. Fire is also necessary for the germination of certain fynbos species. Fires usually occurs naturally due to rock falls and lighting strikes towards the end of the dry season (i.e. late summer and early autumn).

Fire dynamics in Fynbos are influenced by several factors including global warming, grazing practices, and fire management (ignition events, size of burns) but their relative importance and interactions are poorly understood. Overgrazing or fires in the wrong season can eliminate species and cause a transition to a different vegetation type (Low and Rebelo, 1996 in SANBI, n.d.). Overgrazing and excessive burning of Fynbos is particularly detrimental as it may cause the conversion of Fynbos to Renosterveld on shales (Mucina *et al*., 2011).

Unlike in Fynbos communities, fire is a less important driver in Strandveld despite the high coverage of shrubs. The high abundance of the succulent component prevents the spread of fire, except under exceptional circumstances. Fire frequency and return intervals in Strandveld are a lot longer and predicted to occur between 50-200 years, in comparison to Fynbos which is around 10-25 years. In Strandveld, the early successional stages following a fire are typically dominated by Restionaceae and Rutaceae with vegetation more akin to that of Fynbos rather than strandveld hence the term “dune fynbos”. It takes dune Fynbos more than 20 years before typical Strandveld elements dominate (Mucina *et al*., 2011) which is important to consider when assessing the Receptor Resilience (RR) and restoration potential for impacted Strandveld.

It is important that these ecological drivers are considered during land use planning and the design and planning of a project as any land-use changes that affects ecological drivers within remaining natural areas will have significant implications for biodiversity and the ecosystems services derived from it. There is a natural tendency to exclude fire in developed areas due to concerns regarding safety and damage to infrastructure. However, considering the relative importance of this ecological driver, developments within the Fynbos biome should incorporate fire resilient designs and materials.

# 4. TERRESTRIAL BIODIVERSITY THEME

The DFFE Screening Report classified the overall Terrestrial Biodiversity Theme Sensitivity of the project area as VERY HIGH due to the following sensitivity features:

- **Ecosystems** (Section 4.1)
    - Endangered (EN) Ecosystems
        - Overberg Dune Strandveld
- **Biodiversity Priority Areas** (Section 4.2)
    - CBA 1: Terrestrial
    - ESA 2: Restore from other land use

Although not identified as sensitivity features within the DFFE Screening Tool Report, data on protected areas, conservation areas, Key Biodiversity Areas and National Protected Area Expansion Strategy (NPAES) Focus areas has also been included in this Chapter to verify the findings of the DFFE Screening Report and to illustrate that these features have been considered in the preparation of this Impact Assessment Report.

## 4.1. Expected Ecosystems

The South African Vegetation Map (SA VEGMAP) of 2024 is an important resource for biodiversity monitoring and conservation management in South Africa. Under the custodianship of the South African National Biodiversity Institute (SANBI), the SA VEGMAP was updated to 'provide floristically based vegetation units of South Africa, Lesotho and Swaziland at a greater level of detail than had been available before'. The map provides a detailed description of each of South Africa's unique vegetation types along with a comprehensive list of the important species associated with each, including endemic and biologically important species.

According to the former SA VEGMAP (2018), the project area occurs within one (1) vegetation type namely Overberg Dune Strandveld. Overberg Dune Strandveld is endemic to the Western Cape Province where it occurs in scattered patches on flat to slightly undulating dune fields from Rooiels in the Cape Hangklip area to Cape Infanta at the mouth of the Breede River. The largest area surrounds the Agulhas Peninsula, typically adjacent to coastal limestone formations. Altitude ranges from 0 to 100 m, sometimes reaching up to 160 m. The geology and soils typically underlying this vegetation type consists of deep, recently formed marine-derived calcareous sands that form coastal dunes, to shelly, shallow marine sandstones and limestones of the Bredasdorp Group Deposits on underlying Table Mountain Group Sandstone.

This vegetation type is characterised by approximately 4-meter-tall, dense evergreen, hard-leaved shrubland in moist dune slacks and wind-protected valleys. In more exposed coastal areas, it can transition to coastal thicket that reaches up to 1 meter in height, often shaped by wind exposure (Mucina *et al*., 2011).

Overberg Dune Strandveld is classified as **Endangered** (EN B1(iii)) due to its narrow distribution and evidence of ongoing biotic disruption from invasive alien plant species (DFFE, 2022). Its historical extent was 347.53 km$^2$, of which 93% (323.2 km$^2$) currently remains. The conservation target for this vegetation type is 36% (125 km$^2$).

The overall loss of vegetation associated with each of the development alternatives is outlined below.

- **Option A** will result in the loss of approximately 7.13 ha (0.0713 km²) of Overberg Dune Strandveld, representing a loss of 0.02% of the total remaining extent of this vegetation type.

- **Option B** will result in the loss of 10.6 ha (0.106 km²) of Overberg Dune Strandveld, representing a loss of 0.03% of the total remaining extent of this vegetation type.

- **Option C** will result in the loss of 6.12 ha (0.0612 $km^2$) of Overberg Dune Strandveld, representing a loss of 0.02% of the total remaining extent of this vegetation type.

It is important to note that the project area is located within the urban edge, has already been impacted by fragmentation, alien invasive species, and is surrounded by a network of roads with existing development situated to the east, west and south of the project area. These existing disturbances have reduced the overall ecological sensitivity of the area, potentially lowering the significance of the impact relative to more pristine or less disturbed habitats. Still, given the Endangered status of this vegetation type, any loss remains a concern, and mitigation measures have been identified to minimize any adverse effects (refer to Chapter 8).

It should be noted that according to the latest update of the National Vegetation Map (2024), Overberg Dune Strandveld has been reclassified and proposed to be included in Southwestern Strandveld. Southwestern Strandveld is a new vegetation type which has been described by Cowling *et al* (2023). It occurs from Mossel Bay to Cape Hangklip, spanning an area of 322 $km^2$, but excludes the stretch of calcareous sand northeast of Die Kelders that supports Grootbos Strandveld. This vegetation type is characterised by coastal Xeric Dune Thicket and shows strong floristic links to Grootbos Strandveld and Southeastern Strandveld. *Sideroxylon inerme* dominates in patches. The conservation target for this vegetation type is 36%. The conservation status of this newly described vegetation type is not provided. Considering the extent of Southwestern Strandveld (322 $km^2$) is smaller than Overberg Dune Strandveld (347.53 $km^2$), the threat status for Overberg Dune Strandveld (EN) has been utilised in this report.

However, based on the findings of the field survey it is the opinion of the specialist that the species composition of the vegetation within the project area is more akin to that described by Mucina *et al* (2011) for **Overberg Dune Strandveld** than that described by Cowling *et al* (2023) for Southwestern Strandveld.

### *4.1.1. Current and Historical Land Uses*

To understand historical pressures on the natural vegetation present within the proposed project area, an analysis of historical satellite imagery was undertaken to determine whether any portions of the property have previously been disturbed/transformed (Figure 4.3 & Figure 4.4). The analysis suggests that the vegetation within the project area has been left relatively intact except for the minor clearance for the establishment of a dwelling prior to 2007 (Figure 4.3 & 4.5). In 2014, a series of fire breaks were established, fragmenting the vegetation into several distinct sections across the site. Additional firebreaks were created in 2021 (Figure 4.3 & 4.4). These fire breaks remain visible and have influenced the current vegetation structure, creating linear clearings that reduce the connectivity of natural habitats within the project area (Figure 4.6). Despite these alterations, much of the surrounding vegetation appears to be in a relatively undisturbed state except for some areas where wood harvesting was observed (Figure 4.7). Scattered alien invasive species, particularly *Acacia*

*cyclops*, were noted within the project area, with a significant infestation observed in the northwestern corner (Figure 4.8).

Consultation of the Red List of Ecosystems (RLE): Remnants Spatial Dataset (SANBI, 2021) (Figure 4.9) and the South African National Land Cover (SA NLC, 2020) (Figure 4.10) confirms the above findings, suggesting the vegetation within the project area is relatively intact with no historical loss of vegetation. No further substantial clearing or development has been detected in the subsequent years, indicating a low level of recent disturbance at the site.

Based on the above, the following vegetation communities have been delineated within the project area (Figure 4.12):

- Near-intact Overberg Dune Strandveld
- Degraded Overberg Dune Strandveld (fire breaks)
- *Acacia* Woodland

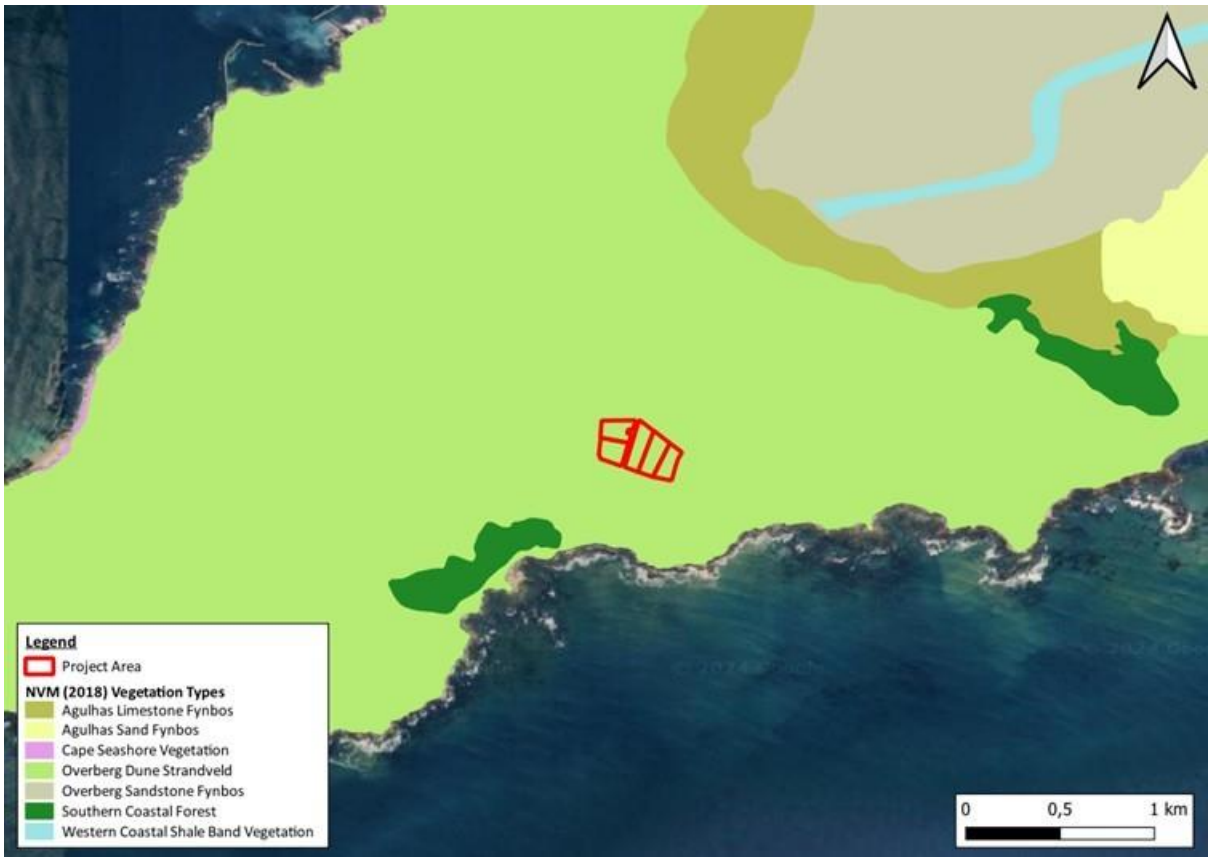



**Figure 4.1: SA VEGMAP (2018) of the project area (note: Overberg Dune Strandveld vegetation of the project area).**

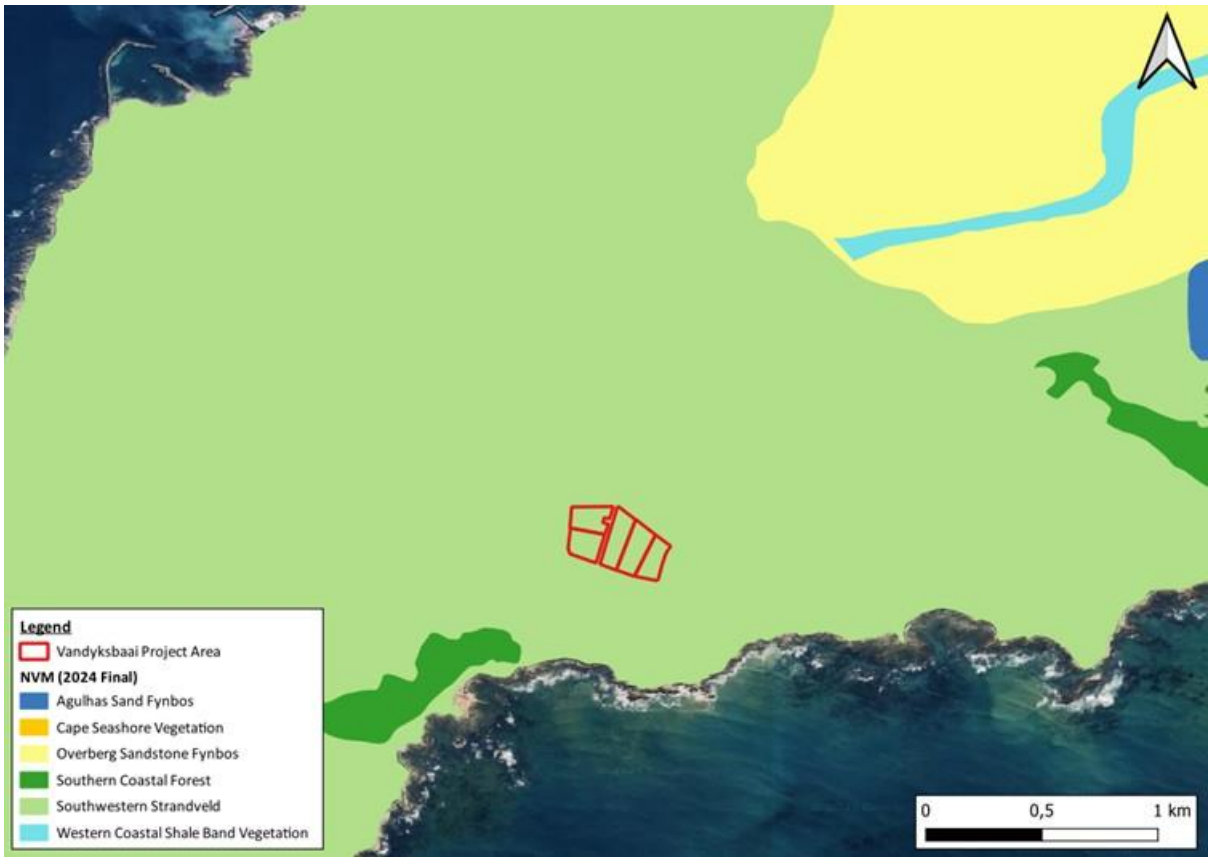



**Figure 4.2: SA VEGMAP (2024) of the project area (note: Southwestern Strandveld vegetation of the project area).**

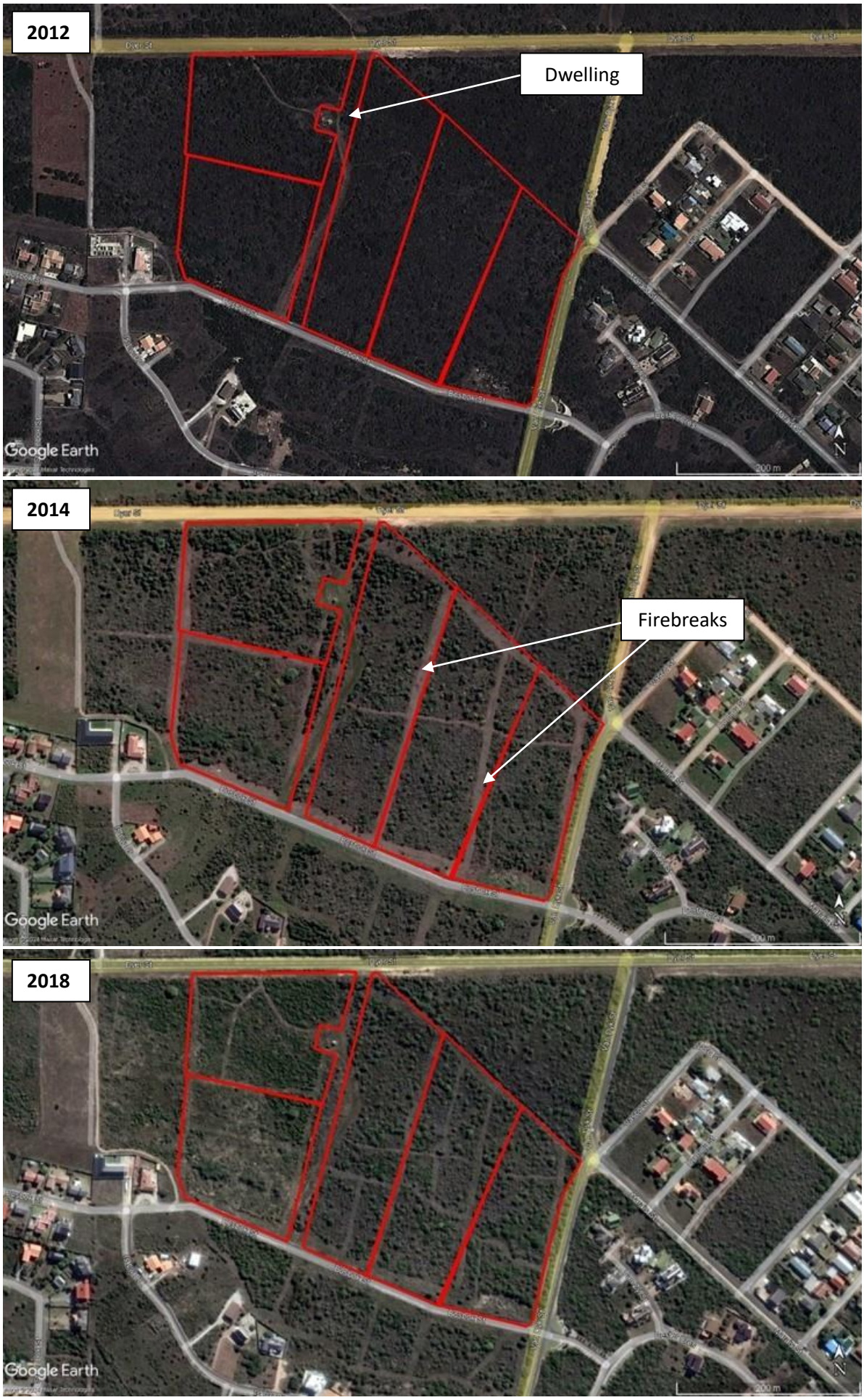



**Figure 4.3: Historical Google Earth Satellite Imagery of the project area in 2012 (top), 2014 (middle) and 2018 (bottom).**

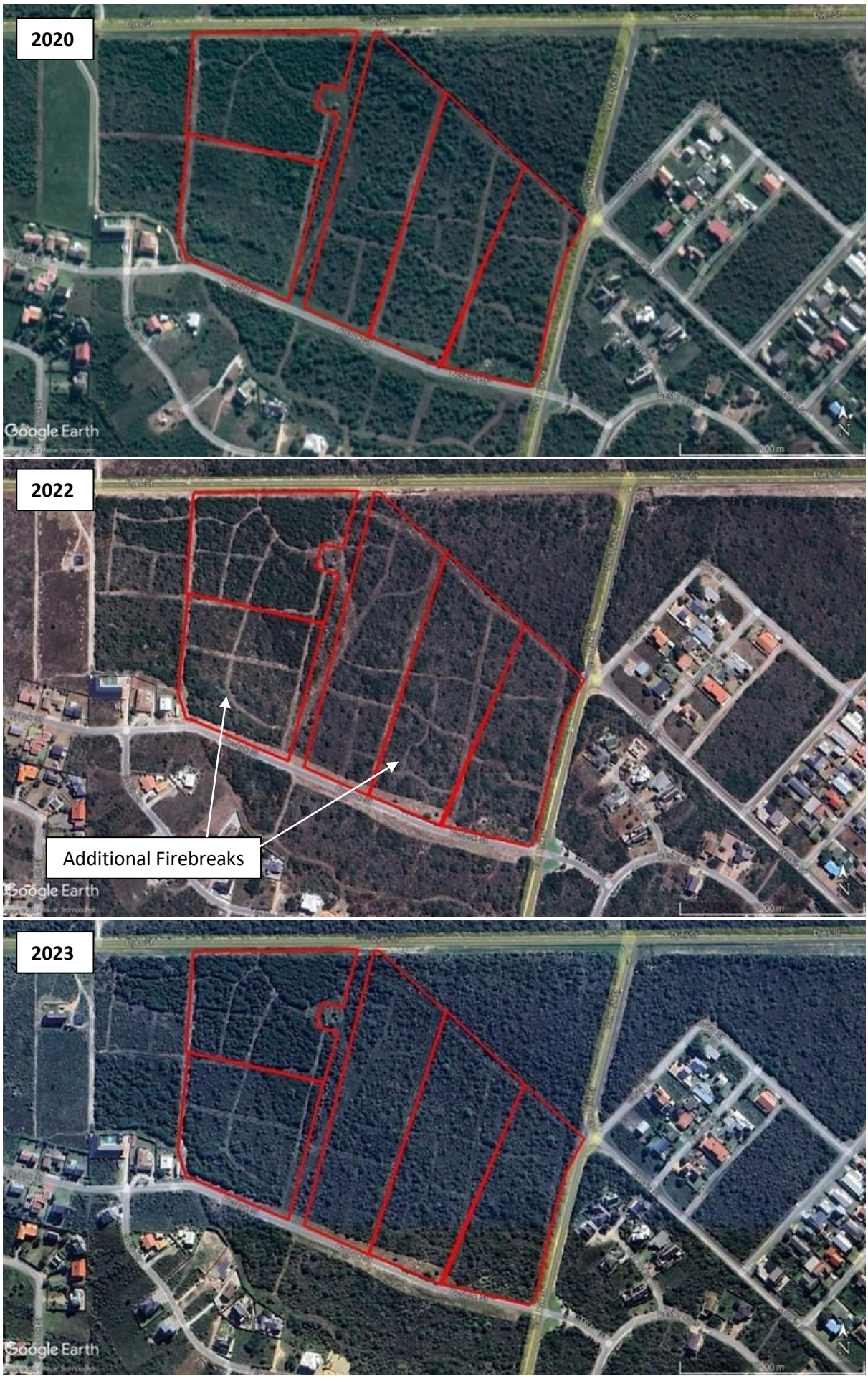
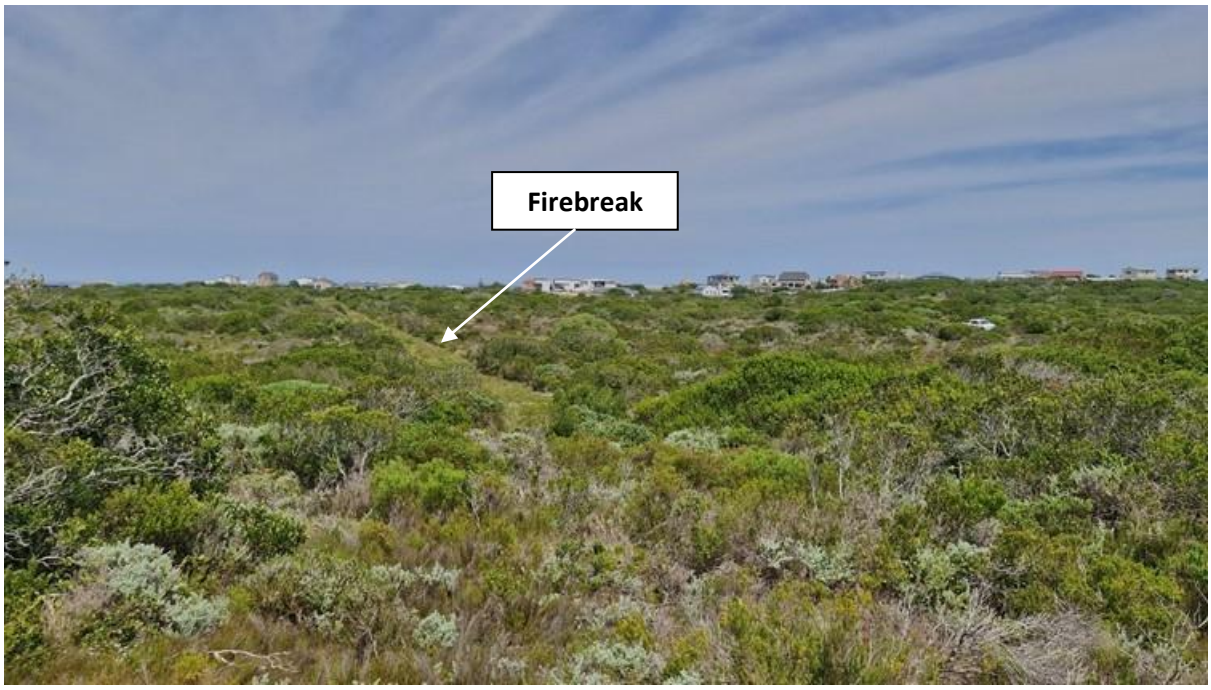



**Figure 4.4: Historical Google Earth Satellite Imagery of the project area in 2020 (top), 2022 (middle) and 2023 (bottom).**

**Figure 4.5: Dilapidated dwelling observed within the northwestern portion of the project area.**



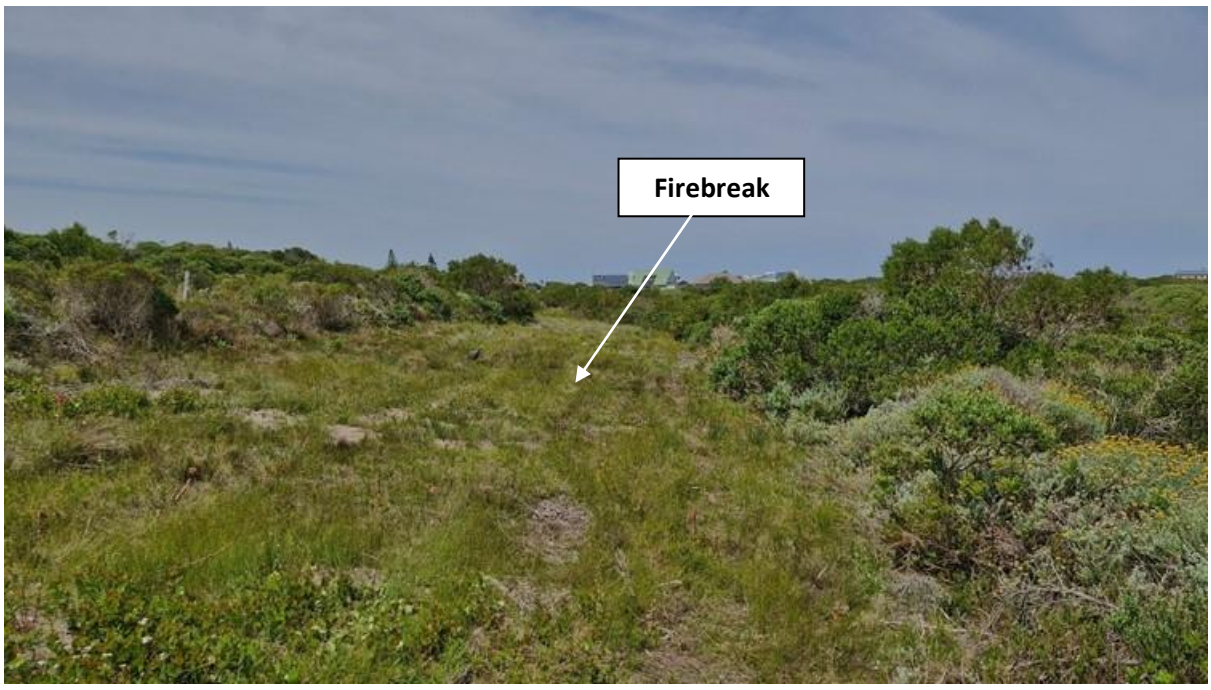




**Figure 4.6: Photographs of the project area illustrating the firebreaks.**

**Figure 4.7: Evidence of wood harvesting observed within the project area (note debris and dead branches).**

**Figure 4.8: Dense stand of *Acacias* observed within the northwestern portion of the project area.**


**Figure 4.9: Remnant Patches of Natural Vegetation (Red List of Ecosystems, 2021) within the project area.**

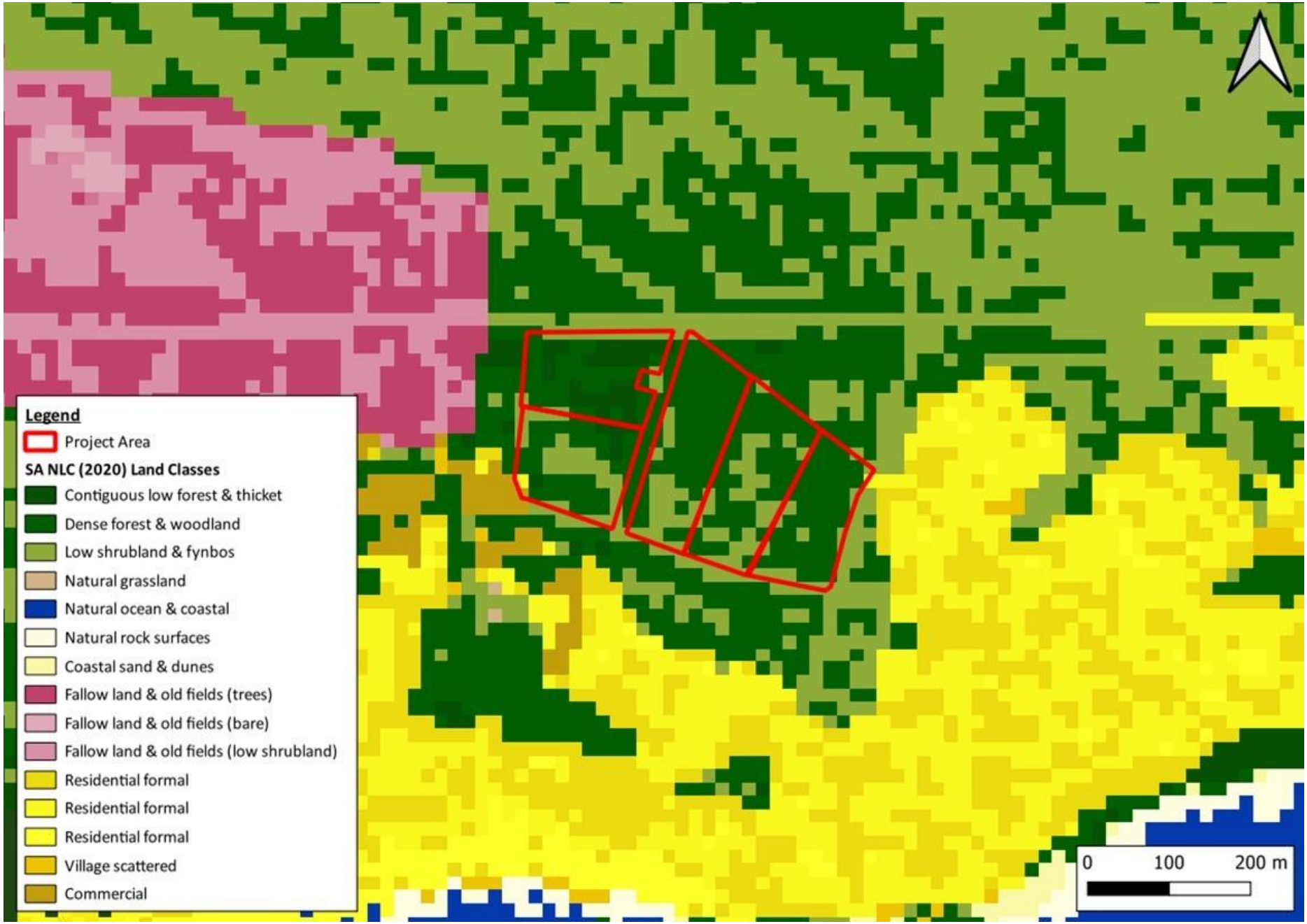



**Figure 4.10: South African National Land Cover (SA NLC, 2020) map of the project area.**

### *4.1.2. Description of Vegetation based on field survey findings*

The field survey confirmed that the vegetation present within the project area is near-intact strandveld. However, the species composition is more akin to that described by Mucina et al (2011) for Overberg Dune Strandveld than that described by Cowling et al (2023) for Southwestern Strandveld. The vegetation characterised by approximately 1.5-2m tall, dense evergreen shrubland (strandveld) (Figure 4.11) dominated by *Maytenus oleoides*, *Passerina rigida, Pterocelastrus tricuspidatus, Metalasia muricata, Helichrysum dasyanthum, Phylica ericoides, Searsia laevigata, Osteospermum moniliferum, Agathosma capensis, Searsia lucida, S. glauca, S. laevigata, Thamnochortus insignis, Phylica ericoides, Olea exasperata, Lauridia tetragona, Myrsine africana, Myoporum montanum, Osteospermum moniliferum, Pterocelastrus tricuspidatus, Maytenus oleoides, Passerina corymbosa* and *P. rigida*. The understorey was dominated by grasses and sedges (including *Thinopyrum distichum, Bromus diandrus, B hordeaceus, Hellmuthia membranacea, Ficinia ramosissima*), restioids (*Restio triticeus, R. eleocharis* herbs and smaller shrubs (*Dischisma ciliatum, Gazania pectinata, Chaenostoma hispidum*, *Chironia baccifera, Pelargonium botulinum, Senecio elegans, Ursinia anthemoides, Helichrysum patulum, Indigofera heterophylla*) geophytes (*Gladiolus cunonius, Haemanthus coccineus, Massonia depressa, Brunsvigia orientalis, Colchicum eucomoides, Albuca cooperi, Satyrium carneum)* and succulents (Ruschia *macowanii, Crassula glomerata, Carpobrotus acinaciformis*). Scattered *Acacia cyclops* were observed throughout the project area.

The previously continuous dense Strandveld has been fragmented by firebreaks (Figure 4.6) which were devoid of larger shrubs and dominated by grasses, herbs and geophytes typical of the dense strandveld.

As mentioned in Section 4.1.1 the vegetation within the northwestern portion of the project area is characterised by a dense stand of *A. cyclops* (Figure 4.8). However, evidence of soil disturbance or past clearance is not apparent. According to the Ecosystem Guidelines for Environmental Assessment in the Western Cape (Fynbos Forum, 2016), if invasive alien species are present, it does not mean that the habitat is of lesser conservation value, as strandveld restores well following clearance of invasive alien species. However, factors such as the extent of disturbance, the size of the habitat remnant and surrounding land use do influence the potential for recovery. Considering the extent and density of infestation of *Acacia cyclops* within this area, this vegetation community has been mapped separately from the surrounding Overberg Dune Strandveld.

Furthermore, since the vegetation around the dwelling remains intact, it serves as a seed bank, allowing seeds to disperse and establish within the impact area. As a result, some shrub re-establishment is evident, with the vegetation now resembling that found within the firebreaks.

**Figure 4.11: Photographs of the vegetation of the project area.**

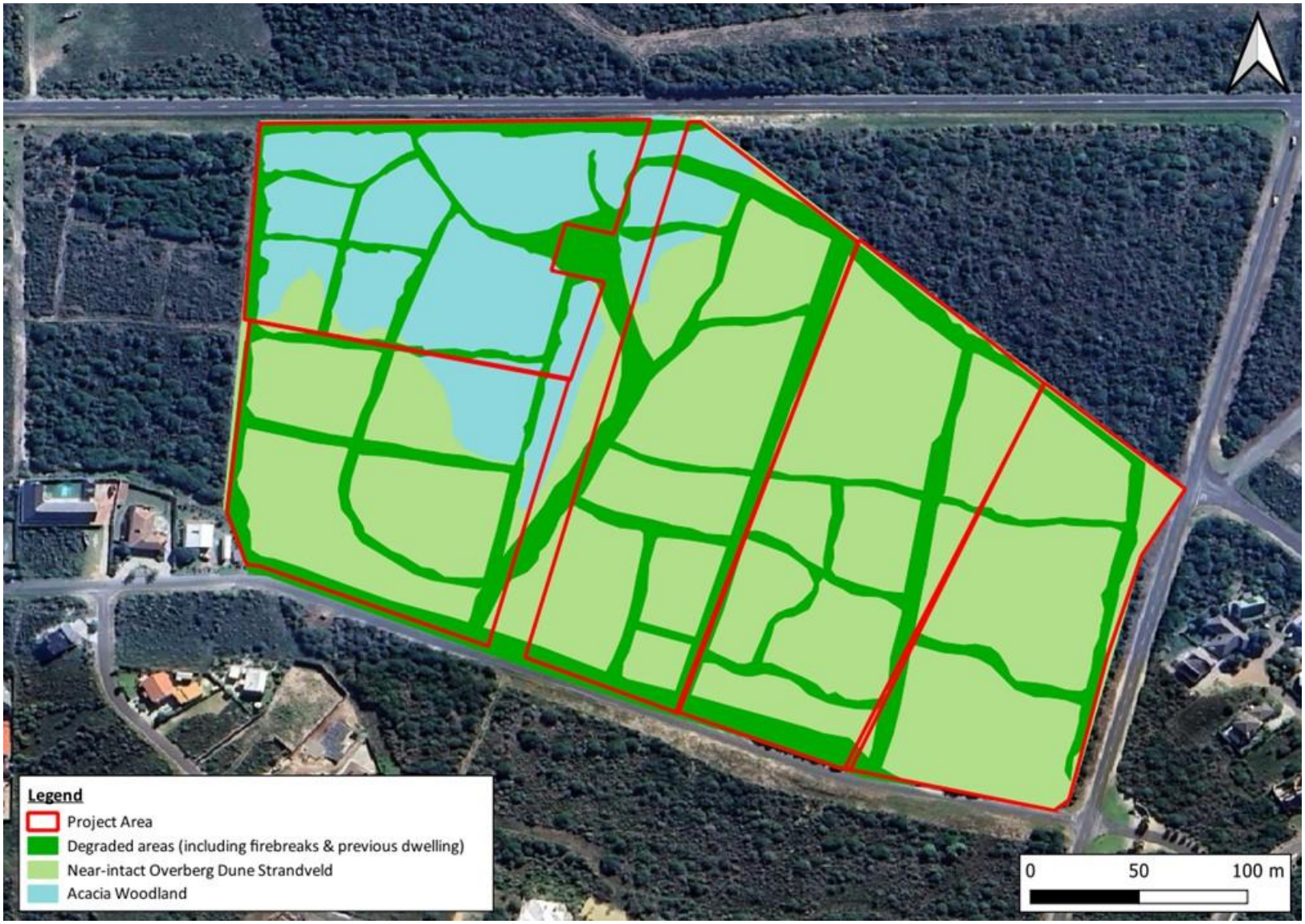



**Figure 4.12: Refined vegetation map of the project area.**

## 4.2. Biodiversity Priority Areas

According to the DFFE Screening Report, the project area occurs within a Critical Biodiversity Area (CBA) 1: Terrestrial and an Ecological Support Area (ESA) 2: Restore from other land use. These biodiversity priority areas contribute to the very high terrestrial biodiversity theme sensitivity of the project area.

The 2023 Western Cape Biodiversity Spatial Plan (WCBSP) was consulted to verify the biodiversity priority areas present within the project area. The Western Cape Biodiversity Spatial Plan (WCBSP) is a spatial planning tool that includes a map of biodiversity importance for the Western Cape Province, covering both the terrestrial and freshwater realms, as well as major coastal and estuarine habitats. The WCBSP map delineates biodiversity priority features which require safeguarding to ensure the continued existence and functioning of species and ecosystems, including the delivery of ecosystem service. The accompanying WCBSP handbook also presents a set of land use guidelines that are required to conserve biodiversity.

The WCBSP maps the following five broad biodiversity priority categories as per SANBIs Technical Guidelines for biodiversity maps (2017), including Protected Areas (PA), Critical Biodiversity Areas (CBAs), Ecological Support Areas (ESAs), and Other Natural Areas (ONAs).

Consultation of the WCBSP (2023) confirmed that the entire project area falls within a CBA: Terrestrial (Threatened Ecosystem: Overberg Dune Strandveld) (Figure 4.13). The classification of this area as a CBA is due to the presence of Overberg Dune Strandveld, which was discussed in Section 4.1 above. Development within the project area will result in the loss of a portion of this CBA, potentially impacting national conservation targets. However, it is important to note that this property is located within the urban edge, with existing development to the east, west, and south of the project area. There is also evidence of edge effects and habitat fragmentation within the project area.

Additionally, the development will lead to the loss of 0.02% (Option A & C) or0.03% (Option B) of this vegetation type, of which 93% remains intact.

It is important to note that Option C (the preferred layout) was designed before the adoption of the 2023 WCBSP on December 13, 2024. Option C incorporates the CBA 1, designating it as an open space area (refer to Figure 4.14).

**Table 4.1: Definitions and management objectives for the biodiversity priority areas present within the project area.**

| Biodiversity Priority Area | Definition | Management Objective/ Comment |
|---|---|---|
| CBA 1: Terrestrial | Areas in a natural condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure. | Maintain in a natural or near-natural state, with no further loss of habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity- sensitive land-uses are appropriate. |


**Figure 4.13: Map of the CBAs within the project area.**

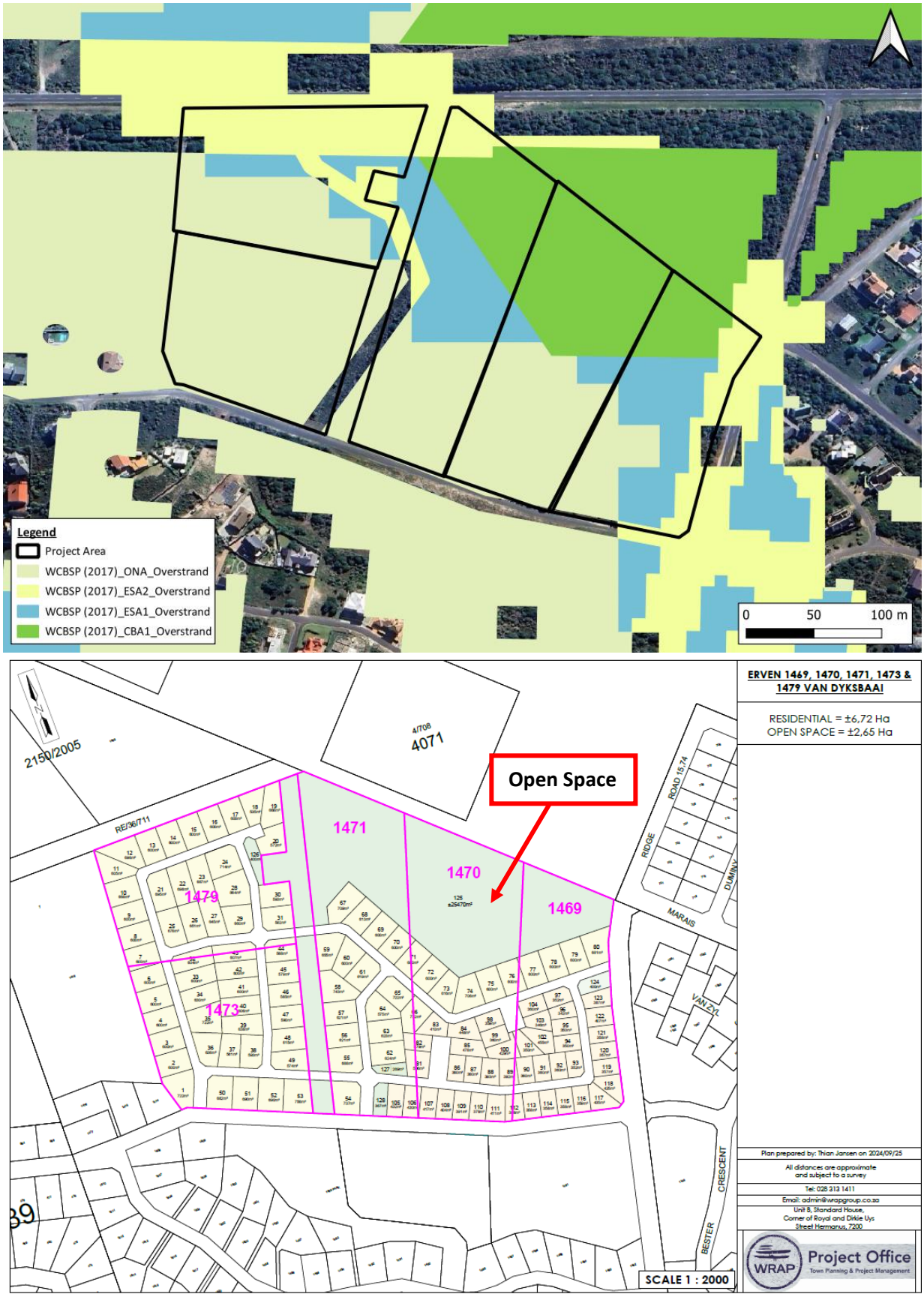



**Figure 4.14: Illustration of how the CBA 1 identified by the WCBSP (2017) (top) has been incorporated into the design of the Preferred Layout - Option C (bottom).**

## 4.3. Protected Areas, Conservation Areas, Key Biodiversity Areas and NPAES Focus Areas

### 4.3.1. Protected Areas & Conservation Areas

The South African Protected Areas Database (SAPAD) and the South African Conservation Areas Database (SACAD) is a spatial dataset that includes all the protected areas (PA) and conservation areas (CA) within South Africa. Data on privately owned PAs are also included in the dataset which is maintained and updated on a quarterly basis. This dataset therefore provides the most up to date information on protected areas and conservation areas in South Africa.

According to SAPAD & SACAD (2024, Q3), the project area does not occur within or near to a protected area or a conservation area (Figure 4.15). The nearest protected area is the Pierre-Jeanne Gerber No. 3 Private Nature Reserve located approximately 3.7 km northeast of the project area, the Walker Bay Whale Sanctuary Marine Protected Areas located 3.7 km north of the project area, and the Langverwacht Private Nature Reserve located 3.7 km southwest of the project area. The nearest conservation area is the Dyer Island Provincial Nature Reserve located 8.7 km from the coast near the project area. The proposed project is unlikely to impact on the management objectives of these protected areas/ conservation areas.

### 4.3.2. Key Biodiversity Areas (KBAs)

According to the South African KBAs (2024) spatial dataset, the project area lies on the edge of the Walker Bay Key Biodiversity Area (KBA) (Figure 4.15). According to the World Database of KBAs, this site qualifies as a Key Biodiversity Area of international significance that meets the thresholds for 4 criteria described in the Global Standard for the Identification of KBAs:

- The area meets criterion A1 due to the presence of significant proportions of the global populations of 9 threatened species that include amphibians, reptiles, fish and plants with the entire global population of one Endangered species occurring in this KBA. Furthermore, the KBA holds significant proportions of the global extent of 3 threatened ecosystems which meet criterion A2.
- The KBA holds 5 individual geographically restricted species, therefore meeting criterion B1. Furthermore, assemblages of co-occurring range-restricted species in the Ericales, Reptilia, and Sapindales taxonomic groups are regularly present within the KBA, and it therefore meets criterion B2.
- The KBA supports a significant proportion of the global population of 1 species as a recruitment source, therefore meeting criterion D3.
- A quantitative analysis of irreplaceability indicates that the area is 100% irreplaceable for the global persistence of 6 species, therefore meeting criterion E.

The Walker Bay KBA is 322 $km^2$ in extent. The proposed residential development occurs within a small portion (0.11 $km^2$ = 0.03%), and on the edge, of the Walker Bay KBA adjacent to existing residential development. Implications on biodiversity may include the loss of some habitats that support sensitive species (refer to Section 5.2 below), may result in the loss of individual Species of Conservation Concern (SCC) and could increase habitat fragmentation. The significance of these impacts have been assessed in Chapter 8.

This KBA is managed primarily by a protected area management authority, with part of the site managed by a regional conservation authority responsible for enforcing statutory regulations on landuse change in CBAs and threatened ecosystems. These management authorities will need be consulted during the EIA process for this project.

### 4.3.3. NPAES Focus Areas

The National Protected Areas Expansion Strategy (NPAES, 2010) was developed to "achieve cost-effective protected area expansion for ecological sustainability and increased resilience to climate change." The NPAES originated as Government recognised the importance of protected areas in maintaining biodiversity and critical ecological processes. The NPAES sets targets for expanding South Africa's protected area network, placing emphasis on those ecosystems that are least protected.

According to the NPAES (2010 & 2018), the project area does not occur within a focus area or a priority area for protected area expansion (Figure 4.16). The nearest NPAES Focus Area is the Agulhas NPAES Focus Area which is located approximately 2.6 km northeast of the project area. The proposed residential development is unlikely to impact any NPAES Focus Areas or priority areas for protected area expansion.


**Figure 4.15: Map illustrating the project area in relation to Protected Areas, Conservation Areas, and Key Biodiversity Areas.**

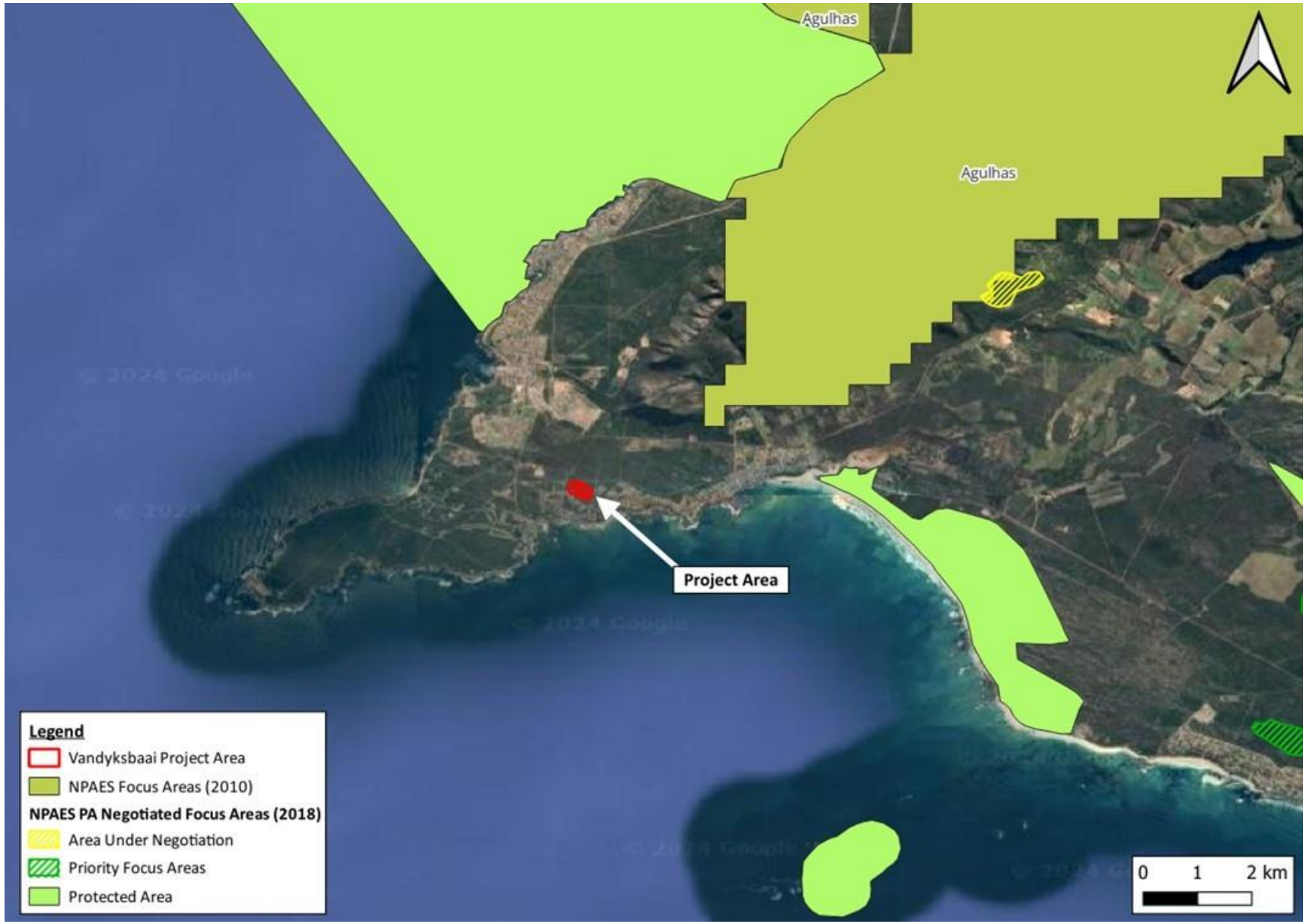



**Figure 4.16: Map illustrating the project area in relation to NPAES Focus Areas and priority areas for protected area expansion.**

# 5. PLANT SPECIES THEME

## 5.1. Floristics

One hundred and thirty (130) plant species from forty-three (43) families have been recorded within the project area. The Asteraceae and Scrophulariaceae families had the highest number of species, with sixteen (16) and twelve (12) species respectively, followed by the Poaceae family with ten (10) species, the Fabaceae family with nine (9) species, the Aizoaceae family with seven (7) species, and the Iridaceae family with six (6) species. The remaining families each had five (5) or less species. A full list of species recorded in the project area has been included in Appendix 1.

**Table 5.1: Number of plant families and species recorded within the project area.**

| Family | No. of Species | Family | No. of Species |
|---|---|---|---|
| Asteraceae | 16 | Orobanchaceae | 2 |
| Scrophulariaceae | 12 | Thymelaeaceae | 2 |
| Poaceae | 10 | Zygophyllaceae | 2 |
| Fabaceae | 9 | Amaranthaceae | 1 |
| Aizoaceae | 7 | Araceae | 1 |
| Iridaceae | 6 | Campanulaceae | 1 |
| Cyperaceae | 5 | Caryophyllaceae | 1 |
| Celastraceae | 4 | Colchicaceae | 1 |
| Geraniaceae | 4 | Crassulaceae | 1 |
| Anacardiaceae | 3 | Ebenaceae | 1 |
| Apiaceae | 3 | Euphorbiaceae | 1 |
| Asphodelaceae | 3 | Fumariaceae | 1 |
| Hyacinthaceae | 3 | Gentianaceae | 1 |
| Polygalaceae | 3 | Lamiaceae | 1 |
| Restionaceae | 3 | Menispermaceae | 1 |
| Santalaceae | 3 | Myrsinaceae | 1 |
| Amaryllidaceae | 2 | Oleaceae | 1 |
| Apocynaceae | 2 | Plantaginaceae | 1 |
| Asparagaceae | 2 | Ranunculaceae | 1 |
| Brassicaceae | 2 | Rhamnaceae | 1 |
| Malvaceae | 2 | Rutaceae | 1 |
| Orchidaceae | 2 | **Total** | **130** |

## 5.2. Plant Species of Conservation Concern (SCC)

The project area falls within the Cape Floristic Region (CFR), a biodiversity hotspot containing over 9,000 species of flowering plants, of which more than 70% are endemic (Manning, 2007; Mucina et al., 2011). This southwest coastal area is particularly renowned for its distinctive flora, including numerous local and regional endemics as well as plant Species of Conservation Concern (SCC).

According to the DFFE Screening Tool Report, the plant species theme in the project area is classified as **MEDIUM**, with forty-eight (48) Sensitive Plant Species potentially present. This classification and

species list were generated using species distribution modelling, which considers habitat preferences and the proximity of known species locations.

To identify SCC within the project area, a list was compiled using the DFFE Screening Report, as well as iNaturalist, POSA, and prior studies of the broader region. Each species' likelihood of occurrence was evaluated based on the availability of suitable habitat observed during the field survey, proximity of previously recorded individuals, and whether the area falls within the species' known range.

During the field survey, four (4) plant SCC were observed including three (3) Vulnerable (VU) species (*Lampranthus fergusoniae*, *Cynanchum zeyheri*, and *Athanasia quinquedentata* subsp. *rigens*), and one Near Threatened (NT) species (*Asparagus lignosus*). Furthermore, three (3) SCC have a VERY HIGH likelihood of occurrence and three (3) have a HIGH likelihood of occurrence within the project area as they have been recorded on adjacent properties. Twelve (12) SCC have a moderate likelihood of occurrence within the project area (Table 5.2). Details of these SCC are provided in Table 5.2 below. SCC with a low likelihood of occurrence have been assessed by the specialist but have not been included in this report.

A full list of plant species recorded during the field survey is included in Appendix 1. Plant SCC recorded within the project area were uploaded on INaturalist:

- https://www.inaturalist.org/observations/249610664
- https://www.inaturalist.org/observations/249624974
- https://www.inaturalist.org/observations/249625380
- https://www.inaturalist.org/observations/249622733

**Table 5.2: Plant SCC identified for the project area.**

| Species | Common Name | Threat Status | Habitat | Likelihood of Occurrence | Recorded within the project area |
|---|---|---|---|---|---|
| *Athanasia quinquedentata rigens* | | VU<br>B1ab(iii,v) | This species is known from less than 10 locations and a maximum range of 1250 km². Its habitat includes coastal lowlands, on alkaline sands and occasionally on acid-alkaline ecotones in Canca Limestone Fynbos and Hartenbos Dune Thicket (Raimondo, 2007). Within the project area, three (3) individuals were recorded. | **CONFIRMED.** | **YES** |
| *Lampranthus fergusoniae* | | VU<br>B1ab(ii,iii,iv,v) | This species is known from five locations, with an EOO of 7700 km². Its habitat includes calcareous soils often associated with limestone dunes in Overberg Dune Strandveld, Agulhas Limestone Fynbos and Hartenbos Dune Thicket (Helme *et al*., 2018). Within the project area, one (1) individual was recorded. | **CONFIRMED.** | **YES** |
| *Cynanchum zeyheri* | Sprawling Buckhorn | VU<br>B2ab(ii,iii,iv,v) | This is a widespread species with an uncertain extent of occurrence (EOO), estimated to be between 12 579 - 21 422 km². It is however very rare, with an area of occupancy (AOO) of only 56 km². Its habitat includes flats and lower slopes in renosterveld, strandveld and limestone fynbos (von Staden, 2018). Within the project area, one (1) individual was recorded. | **CONFIRMED.** | **NO**<br><br>Recorded within the project area by Nick Helme in April 2024. |
| *Asparagus lignosus* | Fire Asparagus | NT<br>A2c | A fairly widespread species that has declined significantly across its range. EOO of 63 262 km². Its habitat includes coastal flats and rocky lower slopes in strandveld, fynbos, Renosterveld and Thicket (Burrows and von Staden, 2018). Within the project area, two (2) individuals were recorded. | **CONFIRMED.** | **YES** |
| *Capnophyllum lutzeyeri* | | VU<br>D2 | This is a rare, localised and easily overlooked species, known from fewer than five locations. Its habitat includes Sandy slopes in Overberg Dune Strandveld. Information on its EOO and AOO is not available. (van Staden, 2012). | **VERY HIGH**<br><br>Recorded 80 m north of the project boundary. | **NO** |

| | | | | | |
|---|---|---|---|---|---|
| *Pterygodium vermiferum* | Worm Bonnet | VU<br>D2 | This is a highly localised species with a small EOO of 12 km². It is currently only known from four locations. Its habitat includes well-drained sandy soil on coastal limestone within Overberg Dune Strandveld and Agulhas Limestone Fynbos (von Staden, 2012). | **VERY HIGH**<br><br>Recorded <100 m north of the project area. | **NO** |
| *Silene burchellii burchellii* | Cape Catchfly | NT<br>B1ab(iii,v) | This species has an EOO of 9200 km². It is known from an estimated 10 to 15 locations. Its habitat includes shale or loamy soils in renosterveld, as well as sandstone and limestone fynbos (von Staden, 2014). | **VERY HIGH**<br><br>Recorded 400 m northeast of the project area. | **NO** |
| *Heliophila linearis reticulata* | Hairy Needle Sunspurge | VU<br>B1ab(ii,iii,v) | This species has an EOO of <3500 km² and is known from eight locations. Its habitat includes coastal sands in Blombos Strandveld, Overberg Dune Strandveld, and Hartenbos Dune Thicket (Helme and Raimondo, 2007). | **HIGH**<br><br>Recorded 465 m southeast of the project area. | **NO** |
| *Roepera fuscata* | Coast Twinleaf | VU<br>B1ab(iii,v) | This is a range restricted species with an EOO of 3805 km². It is known from less than 10 locations. Its habitat includes coastal flats at 0-300 m in Overberg Dune Strandveld (Raimondo *et al*.., 2016). | **HIGH**<br><br>Recorded 260 m southeast of the project area. | **NO** |
| *Ixia micrandra* | Minimal Kalossie | NT<br>B1ab(i,ii,iii,iv,v) | A range-restricted (EOO 4078 km²), but still fairly common species, occurring at between 15 and 20 locations. Its habitat includes lower sandstone slopes in sandstone Fynbos (von Staden, 2014). | **HIGH**<br><br>Recorded 480 m southeast of the project area. | **NO** |
| *Leucospermum pedunculatum* | White-trailing Pincushion | NT<br>B1ab(iii)<br>+2ab(iii) | This species has a limited distribution range, with an Extent of Occurrence (EOO) of 948 km², and an Area of Occupancy (AOO) of 444 km². Although declining, it is still common, occurring at more than 10 locations. Its habitat includes deep sandy soils on lower slopes (0-600 m) in coastal flats in Overberg Dune Fynbos (Rebelo *et al*., 2019). | **MODERATE**<br><br>Only one observation of this species has been recorded within the Vandyksbaai area which is located further | **NO** |

| | | | | | |
|---|---|---|---|---|---|
| | | | | inland from the coast (1.65 km northeast of the project area, iNat). | |
| *Mesembryanthemum vanrensburgii* | Sea Preenfig | NT<br>B1ab(ii,iii,v)<br>+2ab(ii,iii,v) | This species has an extent of occurrence (EOO) of 128 km² and an area of occupancy (AOO) of less than 128 km². Fifteen (15) locations are declining. Its habitat includes coastal sands associated with limestone and sandstone in Fynbos (Raimondo and Turner, 2007). | **MODERATE**<br><br>Most observations of this species have been recorded closer to the coast/shoreline. The nearest observation of this species is <1km south of the project area. | **NO** |
| *Amellus asteroides mollis* | | VU<br>B1ab(ii,iii,iv,v) | This species has an EOO of 1260 km² and is known from seven to 10 locations. Its habitat includes coastal dunes in Overberg Dune Strandveld (Trinder-Smith and Raimondo, 2008). | **MODERATE**<br><br>Most observations of this species have been recorded closer to the coast/shoreline. Nearest observation of this species is along the coast, <500 m from the project area. | **NO** |
| *Psoralea repens* | Creeping Fountainbush | NT<br>B2ab(iii) | This species has a wide distribution range, with an extent of occurrence (EOO) of 92 291 km², and an area of occupancy | **MODERATE** | **NO** |

| | | | | | |
|---|---|---|---|---|---|
| | | | (AOO) of 460 km². It occurs on coastal foredunes in Strandveld, Fynbos and Thicket (Stirton et al., 2021). | Recorded along the coast <500 m from the project area. | |
| *Agathosma geniculata* | | NT<br>B1ab(iii,v)<br>+2ab(iii,v) | This is a range restricted species with an EOO 182 km². It is known from 15-20 locations. Its habitat includes limestone outcrops near the coast in Overberg Dune Strandveld, Canca Limestone Fynbos, Agulhas Limestone Fynbos (Trinder-Smith and von Staden, 2018). | **MODERATE**<br><br>Recorded along the coast <500 m from the project area.<br><br>(depends if there are limestone outcrops on site). | **NO** |
| *Diosma demissa* | Fiverank Bitterbuchu | VU<br>B1ab(i,ii,iii,iv,v)<br>+2ab(i,ii,iii,iv,v) | This species has an EOO of 573 km², between five and nine locations remain in two disjunct areas. Its habitat includes small sandy pockets in Overberg Dune Strandveld/ Cape Flats Dune Strandveld in tertiary limestone which overlies sandstone along coastal cliffs (Raimondo and Zikishe, 2012). | **MODERATE**<br><br>Recorded along the coast <500 m from the project area. | **NO** |
| *Delosperma guthriei* | | EN<br>B1ab(i,ii,iii,iv,v)<br>+2ab(i,ii,iii,iv,v) | This species has an EOO 134 km². It is known from five (5) locations which continue to decline. Its habitat includes coastal Sands along rocky shores in Overberg Dune Strandveld, Overberg Sandstone Fynbos, Hangklip Sand Fynbos (von Staden and Raimondo, 2015). | **MODERATE**<br><br>Recorded along the coast <500 m from the project area. Most observations of this species are recorded nearer to the coastline. | **NO** |

| | | | | | |
|---|---|---|---|---|---|
| *Babiana nana nana* | West Late Bobbejaantjie | EN | This species has an EOO of 5453 km², and an area of occupancy (AOO) of 248 km². Its habitat includes sand plain fynbos and dune strandveld, sandy coastal flats and dunes (von Staden and Patel, 2021). | **MODERATE**<br><br>Recorded along the coast <500 m from the project area. | **NO** |
| *Muraltia pappeana* | | NT<br>B1ab(iii)<br>+2ab(iii) | This species is known from 10-15 locations and an EOO 1100 km², AOO <1100 km². Its habitat includes limestone pavements in low shrubby fynbos (Raimondo, 2007). | **MODERATE**<br><br>Recorded less than 1 km west of the project area. However, no limestone pavements were recorded during the field survey. | **NO** |
| *Aspalathus globulosa* | | EN<br>B1ab(i,ii,iii,iv,v)<br>+2ab(i,ii,iii,iv,v | This species has an EOO ranging from 3140-3459 km², an AOO of 56 km² and the population is severely fragmented. Its habitat includes coastal fynbos on marine sand in Overberg Dune Strandveld (van der Colff, 2016). | **MODERATE**<br><br>Recorded 7.4 km west of the project area. | **NO** |
| *Lebeckia gracilis* | | EN<br>A2bc;<br>B1ab(ii,iii,iv,v) | This species is known from between two and five locations within an EOO of 4000 km². Its habitat includes deep, sandy soils below 300 m in coastal fynbos, renosterveld and strandveld (Raimondo and le Roux, 2020). | **MODERATE**<br><br>This species has been recorded 14 km northeast of the project area. | **NO** |
| *Leucadendron coniferum* | | NT<br>B1b(iii,v)<br>+2b(iii,v) | This is a range restricted species with an EOO of 10 446-10 500 km², and an area of occupancy (AOO) of 892-896 km². It occurs on lowlands in sand fynbos, sometimes bordering strandveld (Rebelo *et al.,* 2020). | **MODERATE**<br><br>Recorded 3 km east of the project area. | **NO** |

## 5.3. Protected Plant Species

Twenty (20) protected plant species were recorded within the project area, all of which are protected in terms of Schedule 4 of the Western Cape Nature Conservation Laws Amendment Act, 2000. Permits for the removal, destruction, or translocation of these protected species, as well as any threatened species, will need to be obtained from Cape Nature. No protected trees were recorded during the field survey and no species recorded within the project area are protected in terms of the National Environmental Management: Biodiversity Act (NEM:BA).

**Table 5.3: List of protected plant species recorded within the project area.**

| Family | Scientific Name | Common Name | Threat Status | WC NCL, 2000 | NEM:BA 2004 | List of Protected Trees (2024) |
|---|---|---|---|---|---|---|
| Aizoaceae | *Jordaaniella dubia* | Strandveld Beachfig | LC | Schedule 4 | - | - |
| Aizoaceae | *Lampranthus bicolor* | Twocolour Brightfig | LC | Schedule 4 | - | - |
| Aizoaceae | *Lampranthus fergusoniae* | Limestone Brightfig | VU | Schedule 4 | - | - |
| Aizoaceae | *Mesembryanthemum canaliculatum* | Beach Dropfig | LC | Schedule 4 | - | - |
| Aizoaceae | *Ruschia macowanii* | Beach Tentfig | LC | Schedule 4 | - | - |
| Aizoaceae | *Tetragonia fruticosa* | Sprawling Seacoral | LC | Schedule 4 | - | - |
| Aizoaceae | *Carpobrotus acinaciformis* | Sally-my-handsome | LC | Schedule 4 | - | - |
| Amaryllidaceae | *Brunsvigia orientalis* | candelabra lily | LC | Schedule 4 | - | - |
| Amaryllidaceae | *Haemanthus coccineus* | Spotted Bloodlily | LC | Schedule 4 | - | - |
| Hyacinthaceae | *Lachenalia variegata* | Spotty Viooltjie | LC | Schedule 4 | - | - |
| Iridaceae | *Chasmanthe aethiopica* | Cobra Lily | LC | Schedule 4 | - | - |
| Iridaceae | *Gladiolus cunonius* | Red Pypie | LC | Schedule 4 | - | - |
| Iridaceae | *Micranthus alopecuroides* | Swordleaf Combflower | LC | Schedule 4 | - | - |
| Iridaceae | *Moraea fugax* | Sweet Tulp | LC | Schedule 4 | - | - |
| Iridaceae | *Romulea sp.* | Froetangs | | Schedule 4 | - | - |
| Iridaceae | *Moraea collina* | Cape Tulip | LC | Schedule 4 | - | - |
| Orchidaceae | *Disperis villosa* | Granny's-bonnet | LC | Schedule 4 | - | - |
| Orchidaceae | *Satyrium carneum* | Pink Satyre | LC | Schedule 4 | - | - |
| Rutaceae | *Agathosma capensis* | Cape Buchu | LC | Schedule 4 | - | - |
| Scrophulariaceae | *Diascia sp.* | Twinspurs | | Schedule 4 | - | - |

## 5.4. Alien Plant Species

Alien Invasive Plant (AIP) species are defined as non-native or exotic plant species that occur outside of their natural geographic range. These species are introduced by humans, either accidentally or intentionally, often establishing and spreading causing damage to ecosystems, natural habitats, and species. It should be noted that not all introduced alien species are invasive and not all invasive species are necessarily alien. The National Environmental Management: Biodiversity Act (NEM:BA) (Act No. 10 of 2004) defines 'Invasive Alien Plant Species' as any species whose establishment and spread outside of its natural distribution range:

(a) Threatens ecosystems, habitats or other species or has a demonstrable potential to threaten ecosystems, habitats, or other species; and

(b) May result in economic or environmental harm or harm to human health.

During the field survey, eleven (11) alien plant species were recorded, of which three (3) are listed in terms of the Conservation of Agricultural Resources Act of 1983 and/or the NEM:BA National List of Invasive Species 2004 and 2020. Under the NEM: BA act, Category 1b species must be eradicated and must be prohibited from spreading further and under CARA, Category 1 and 2 plant species must be removed & destroyed immediately. No trade in these plants is permitted. Permits are required for any activity involving a species listed in terms of Category 3 of the NEM:BA. Further planting, propagation, or trade of Category 3 species is prohibited.

**Table 5.4: List of Alien Plant Species recorded within the project area.**

| Family | Scientific Name | Common Name | CARA | NEM:BA |
|---|---|---|---|---|
| Euphorbiaceae | *Euphorbia terracina* | Carnation Spurge | - | - |
| Fabaceae | *Acacia cyclops* | Western Coastal Wattle | Category 2 | Category 1b |
| Geraniaceae | *Erodium malacoides* | Soft Stork's-Bill | - | - |
| Orobanchaceae | *Orobanche minor* | Common Broomrape | Category 1 | - |
| Poaceae | *Avena barbata* | Slender Wild Oat | - | - |
| Poaceae | *Bromus diandrus* | Great Brome | - | - |
| Poaceae | *Bromus hordeaceus* | Common Soft Brome | - | - |
| Poaceae | *Pentameris pallida* | Pale Fiveawn | - | - |
| Poaceae | *Phalaris aquatica* | Harding Grass | - | - |
| Poaceae | *Thinopyrum distichum* | Sea Wheat | - | - |
| Scrophulariaceae | *Myoporum montanum* | Waterbush | - | Category 3 |

# 6. ANIMAL SPECIES THEME

## 6.1. Fauna species distribution in relation to the project area

All species have a unique geographic range which describes the spatial area where a species is found. This is a species distribution. Some species have a range which covers most of the earth, this is known as a cosmopolitan distribution and others a very limited geographic area known as an endemic distribution. However, just because an area may be within a species distribution the species may no longer inhabit the area or may not inhabit it permanently.

The Western Cape hosts approximately 62 amphibian species, 155 reptile species, 172 mammal species and 608 bird species (Birss, 2017; Shaw & Waller, 2017; Turner & Villiers, 2017).

The project area is within, or partly within, the distribution range of approximately 22 amphibian species, 55 reptile species, 108 mammal species and 312 bird species (IUCN, 2022). Of these, 12 amphibian species, 22 reptile species and 28 mammal species have been recorded within the same quarter degree square[3] (QDS) 3419CD as the site and 199 bird species have been recorded within the same pentad[4] (3435_1920) as the site (Figure 5.1) (FitzPatrick, 2023; iNaturalist 2023).

QDS 3419CD is approximately 57,191ha and Pentad 3435_1920 is approximately 7,124ha. A species may occur in the broader area (QDS/Pentad) where habitat is available, but since its preferred habitat is not present onsite, it is unlikely to occur in the project area. Therefore, the number of species that could occur in the PAOI and in the project area is far fewer than species distributions suggest.

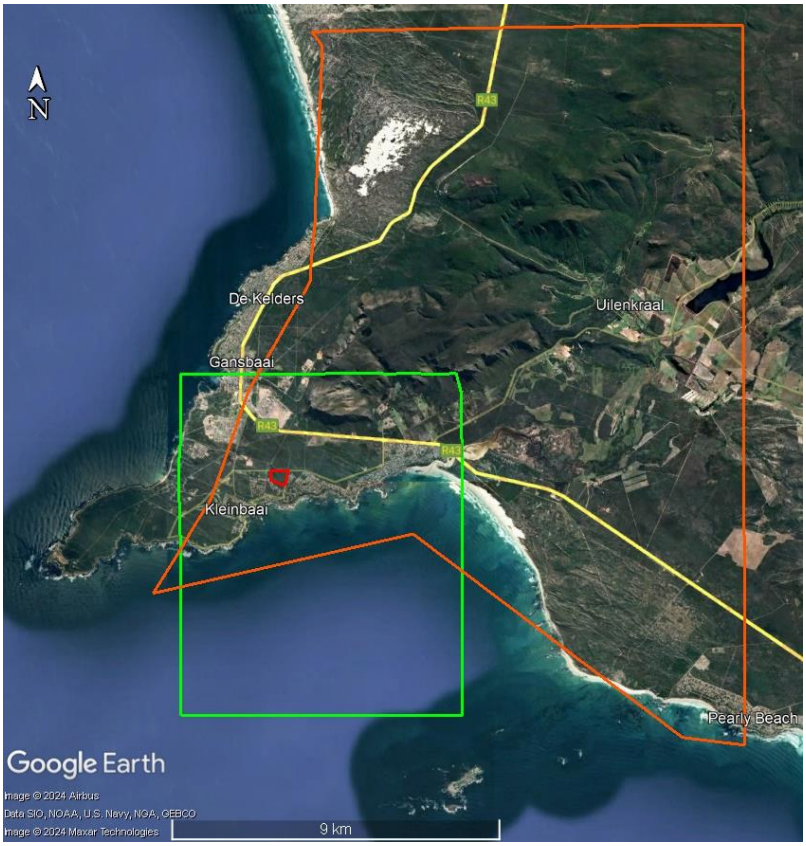



**Figure 6.1: QDS 3419CD (orange) and pentad 3435_1920 (green) in relation to the project area (red).**

3 A spatial reference mapping system that divides longitude latitude square cells into smaller squares (quarters) for ease of locational reference, effectively, forming a system of geocodes.
4 A spatial reference mapping system that creates a coordinate grid of 5-minute x 5-minute.

The project area is considered near-intact Overberg Dune Strandveld fragmented by firebreaks with a portion in the northwest infested with alien invasive trees (*Acacia cyclops)*. The property is bordered by roads on three sides and a house and vacant small holding on the other. The northern boundary, Dyer Street, is a busy road that separates the project area from the natural habitat to the north.

The near-intact habitat likely hosts various lizard, snake and tortoise species, terrestrial amphibians, small antelope and carnivores (Genets, Mongoose, caracal) and various rodents. During the field survey, the following species were either observed or evidence thereof, the Common Duiker (individual and midden), Cape Molerat (mounds and skull), Mongoose (burrows), Cape Porcupine (burrows and foraging sites), Yellow-throated Plated Lizard, Red-sided Skink, Angulate Tortoise (shells) and 20 species of bird.

**Figure 6.2: Faunal species observed during the field survey**

*Top left to bottom right: Cape Mole-rat Mound and Skull, Yellow-throated Plated Lizard, Angulate Tortoise shell and Red-sided Skink.*

## 6.2. Fauna SCC

The DFFE Screening Tool Report identified the project area as having a high sensitivity due to the likely occurrence of four bird SCC and one reptile SCC (Table 6.1). No mammal or amphibian SCC were listed in the report. An additional SCC, the Cape Dwarf Chameleon (*Bradypodion pumilum*) listed as NT, has a distribution which includes the project area.

Based on the findings from the field survey, only the Southern Adder (VU) and Cape Dwarf Chameleon (NT) have a high likelihood of occurrence in the project area (Table 6.2).

**Table 6.1: Animal SCC identified in the DFFE Screening Tool Report.**

| Taxon | Feature(s) | Common Name | Threat Status | DFFE Sensitivity |
|---|---|---|---|---|
| Birds | *Circus ranivorus* | Marsh Harrier | EN | High |
| Birds | *Circus maurus* | Black Harrier | EN | High |
| Birds | *Afrotis afra* | Southern Black Korhaan | VU | Medium |
| Birds | *Neotis denhami* | Denham's Bustard | VU | Medium |
| Reptiles | *Bitis armata* | Southern Adder | VU | Medium |

**Table 6.2: Faunal SCC with a distribution that includes the project area and the likelihood of occurrence within the project area.**

*The Species Environmental Assessment Guideline (SANBI, 2020) specifies the likelihood of occurrence as Low, Moderate and High. For the purpose of this assessment Low=Unlikely to occur, Moderate=Possible occurrence and High = Probable occurrence.

| Species | Threat Status (Child et al., 2016) | Distribution includes or partly includes the project area | Preferred habitat available in project area | Species records SABAP2/ ReptileMAP (FitzPatrick, 2023) | Likelihood of Occurrence* | Justification |
|---|---|---|---|---|---|---|
| BIRDS | | | | | | |
| Black Harrier *Circus maurus* | EN | ✓ | ✓ | ✓ | **Moderate Foraging**<br>**Low Breeding** | The project area falls within the known distribution range of this species and there are records of this species within the broader project area (Pentad 3435_1920). Given the current disturbance level of the site (fire breaks, roads and pedestrians) it is unlikely the Black Harrier uses the project area for breeding. It is possible that the Black Harrier uses the project area for hunting, however, there is ample intact habitat in the surrounding areas for this species to forage in as such, the likelihood of occurrence is Moderate. |
| Denham's Bustard *Neotis denhami* | VU | ✓ | ✓ | X | **Moderate** | Although the project area falls within the known distribution this species and the project area contains its preferred habitat, this species has not been recorded within the broader project area. As such, the likelihood of occurrence is moderate. |
| Southern Black Korhaan *Afrotis afra* | VU | ✓ | ✓ | X | **Moderate** | Although the project area falls within the known distribution range of this species and the project area contains its preferred habitat, there are no records of this species within the broader project area. As such, the likelihood of occurrence is moderate. |
| Marsh Harrier *Circus ranivorus* | EN | ✓ | X | ✓ | **Low** | Although the project area falls within the known distribution range of this species and there are records within the broader project area, the preferred habitat of this species to breed is not present. If present, this species may use the project area, amongst others, for foraging. As such, the likelihood of occurrence is low. |
| REPTILES | | | | | | |
| Southern Adder *Bitis armata* | VU B1ab(I,iii,iv,v) | ✓ | ✓ | X | **High** | The project area falls within the known distribution range of this species and its preferred habitat type is |

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| | | | | | | present. However, this species has not previously been recorded within broader project area. This is likely due to the cryptic nature of this species which makes it difficult to find. The likelihood of occurrence within the project area is considered high. |
| Cape Dwarf Chameleon *Bradypodion pumilum* | NT | ✓ | ✓ | X | **High** | The project area falls within the known distribution range of this species and its preferred habitat type is present. However, this species has not previously been recorded within broader project area. This is likely due to the cryptic nature of this species which makes it difficult to find. The likelihood of occurrence within the project area is considered high. |

# 7. SITE ECOLOGICAL IMPORTANCE

The sensitivity assessment utilised in this report is based on that provided in the Species Environmental Assessment Guideline (SANBI, 2020) (see Section 2.3 above for methodology). The publication of this document provides a standard approach for the assessment of the Site Ecological Importance (SEI) (i.e. sensitivity) of the project area.

## 7.1. Botanical SEI

According to the assessment (Table 7.1), the following SEI was determined for the different vegetation types/land classes recorded in the project area:

- Overberg Dune Strandveld / Southwestern Strandveld (EN) = **HIGH**
- Degraded areas (including firebreaks) = **MEDIUM**
- *Acacia* Woodland = **VERY LOW**

## 7.2. Faunal SEI

According to the SEI assessment, the SEI of the project area habitats for the faunal SCC with a high likelihood of occurrence, is as follows:

- The SEI of the project area Overberg Dune Strandveld to the Southern Adder (VU) was found to be **MEDIUM**.
- The SEI of the project area Overberg Dune Strandveld to the Cape Dwarf Chameleon (NT) was found to be **MEDIUM**.
- The SEI of the Degraded areas to the Cape Dwarf Chameleon (NT) was found to be **MEDIUM**.

**Table 7.1: Assessment of the Botanical SEI.**

| Habitat/ Species | Conservation Importance (CI) | Functional Integrity (FI) | Biodiversity Importance (BI) | Receptor Resilience (RR) | SEI |
|---|---|---|---|---|---|
| Overberg Dune Strandveld = Southwestern Strandveld (EN) | HIGH | MEDIUM | MEDIUM | LOW | **HIGH** |
| | Small area (> 0.01% but < 0.1% of the total ecosystem type extent) of natural habitat of the EN ecosystem type Overberg Dune Strandveld.<br><br>Confirmed or highly likely occurrence of three (3) VU species and one (1) NT species that have a global EOO of > 10 $km^2$. | The project area contains <10 ha of near-intact Overberg Dune Strandveld. The Overberg Dune Strandveld has been fragmented due to the creation of firebreaks and the invasion of *Acacia cyclops*. Furthermore, the project area is surrounded by a busy network of roads and occurs within the urban edge of Van Dyks Baai, where there is already development to the south, east and west. | | 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.<br><br>SCC 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.<br><br>Note: RR is linked to a particular disturbance or impact (SANBI, 2020). In this case, the disturbance entails complete vegetation removal and soil disturbance | |
| Degraded Overberg Dune Strandveld (firebreaks) | HIGH | MEDIUM | MEDIUM | MEDIUM | **MEDIUM** |
| | Confirmed or highly likely occurrence of three (3) VU species and one (1) NT species that have a global EOO of > 10 $km^2$. | Narrow corridors of good habitat connectivity between patches of intact habitat. | | 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 low likelihood of | |

| | | | | | |
|---|---|---|---|---|---|
| | Given that the soil within these areas has not been disturbed and the seed bank is likely intact, the EN Overberg Dune Strandveld (Southwestern Strandveld) could return should disturbance (i.e. mowing/alien plant species) cease. These areas also provide habitat for SCC. | | | 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. | |
| *Acacia* Woodland | MEDIUM | LOW | LOW | HIGH | **VERY LOW** |
| | No confirmed SCC but ~50% of receptor contains natural habitat with potential to support SCC. | Small (> 1 ha but < 5 ha) area.<br>Migrations still possible across some modified or degraded natural habitat. | | Habitat that can recover relatively quickly (~ 5–10 years) to restore > 75% of the original species composition and functionality of the receptor functionality. | |

**Table 7.2: Assessment of the Faunal SEI**

| Habitat / Species | Conservation Importance (CI) | Functional Integrity (FI) | Biodiversity Importance (BI) | Receptor Resilience (RR) | Site Ecological Importance (SEI) |
|---|---|---|---|---|---|
| Overberg Dune Strandveld (EN) | HIGH | MEDIUM | MEDIUM | MEDIUM | **MEDIUM** |
| | High likelihood of occurrence of the Southern Adder (*Bitis armata*) (VU). | The project area contains <10 ha of near-intact Overberg Dune Strandveld. The Overberg Dune Strandveld has been fragmented due to the creation of firebreaks and the invasion of *Acacia cyclops* in the northwestern portion of the project area. Furthermore, the project area is surrounded by a network of roads. | | Medium likelihood of remaining at site when disturbance or impact is occurring and has a Low likelihood of returning to site assuming the housing development clears all of the natural vegetation. | |
| | MEDIUM | | MEDIUM | MEDIUM | **MEDIUM** |
| | High likelihood of occurrence of the Cape Dwarf Chameleon (*Bradypodion pumilum*) (NT). | | | High likelihood of remaining at site when disturbance or impact is occurring and has a Medium likelihood of returning to site assuming the housing development clears all of the natural vegetation. | |
| Degraded & *Acacia* Woodland | MEDIUM | MEDIUM | MEDIUM | MEDIUM | **MEDIUM** |
| | High likelihood of occurrence of the Cape Dwarf Chameleon (*Bradypodion pumilum*) (NT). | Only narrow corridors of good habitat connectivity or larger areas of poor habitat connectivity and a busy used road network between intact habitat patches.<br><br>Mostly minor current negative ecological impacts with some major impacts (e.g. established population of alien and invasive flora) and a few signs of minor past disturbance. Good rehabilitation potential. | | High likelihood of remaining at site when disturbance or impact is occurring and has a Medium likelihood of returning to site assuming the housing development clears all of the natural vegetation. | |

## 7.3. Overall Combined SEI

The highest overall SEI rating was applied to each habitat type. For example, if a particular habitat in terms of flora was evaluated to be of very low SEI but the same habitat in terms of fauna was evaluated to be of medium SEI then the final combined SEI for that particular habitat would be medium. Table 7.3 combines the overall SEI for each habitat type based on the assessment in Table 7.1 and 7.2.

**Table 7.3: Overall combined SEI.**

| Habitat / Species | Botanical SEI | Faunal SEI | Overall combined SEI |
|---|---|---|---|
| Overberg Dune Strandveld (Southwestern Strandveld) | **HIGH** | **MEDIUM** | **HIGH** |
| Degraded | **MEDIUM** | **MEDIUM** | **MEDIUM** |
| *Acacia* Woodland | **VERY LOW** | **MEDIUM** | **MEDIUM** |

In terms of the Species Environmental Assessment Guideline (SANBI, 2020), the following guidelines apply:

- **For areas of HIGH SEI**: 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.

- **For areas of MEDIUM SEI**: Development activities of medium impact acceptable followed by appropriate restoration activities.

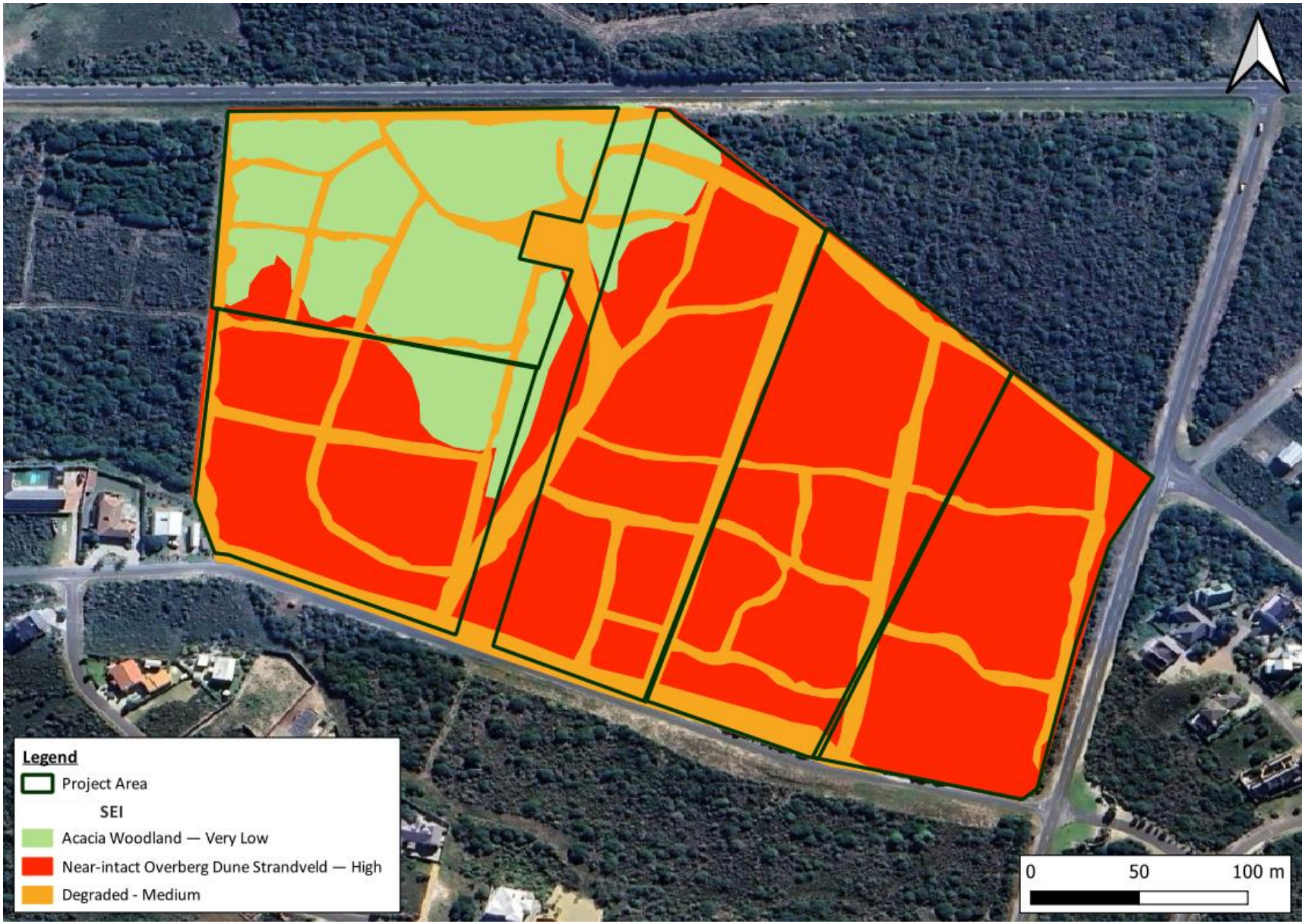


**Figure 7.1: Map of the Combined SEI of the project area.**

# 8. Impact Assessment

The construction of project infrastructure will result in the clearing, and therefore permanent loss of natural vegetation and plant species, including SCC. A list of the anticipated impacts associated with each phase of the development has been outlined below and each impact has been assessed in Tables 8.1 and 8.2.

## 8.1. Construction Phase Impacts

- Loss of Overberg Dune Strandveld (EN)
- Loss of Plant SCC
- Fragmentation of Vegetation and Disruption of Ecosystem Processes
- Introduction and Spread of Weeds and Alien Plant Species
- Loss of a Portion of The Walker Bay Key Biodiversity Area
- Loss of a Portion of CBA: Terrestrial
- Loss of Faunal Habitat
- Loss of Faunal SCC
- Disturbance to Faunal Species and their Livelihood due to Project Related Activities
- Mortality of Faunal Species due to Earthworks, Roadkill and Persecution

## 8.2. Operational Phase Impacts

- Spread of Weeds and Alien Plant Species.
- Disturbance to Faunal Species and their Livelihood due to Project Related Activities

**Table 8.1: Construction Phase Impacts associated with the proposed development.**

| **CONSTRUCTION PHASE** | | | | |
|---|---|---|---|---|
| **Potential impact and risk:** | **IMPACT 1: LOSS OF OVERBERG DUNE STRANDVELD (EN)** | | | |
| **Alternative** | **OPTION A** | **OPTION B** | **Option C** | **NO-GO** |
| | Option A will result in the loss of approximately 7.13 ha (0.0713 km²) of Overberg Dune Strandveld, representing a loss of 0.02% of the total remaining extent of this vegetation type | Option B will result in the loss of 10.6 ha (0.106 km²) of Overberg Dune Strandveld, representing a loss of 0.03% of the total remaining extent of this vegetation type. | Option C will result in the loss of 6.12 ha (0.0612 $km^2$) of Overberg Dune Strandveld, representing a loss of 0.02% of the total remaining extent of this vegetation type. However, this alternative does allow for 2.65 ha of open space which maintains ecological connectivity with the natural, intact Overberg Dune Strandveld to the north. | The Overberg Dune Strandveld of the project area has already been impacted by fragmentation, alien invasive species, and is surrounded by a network of roads. Approximately 2.7 ha of Overberg Dune Strandveld has been modified due to the infestation of alien plant species and a further 2.6 ha has been modified due to the creation of fire breaks. |
| Nature of impact: | Direct Negative | Direct Negative | Direct Negative | Negative |
| Extent and duration of impact: | On site & Permanent | On site & Permanent | On site & Permanent | On site & Long Term |
| Consequence of impact or risk: | Medium | Medium | Low | Low |
| Probability of occurrence: | Definite | Definite | Definite | Definite |
| Degree to which the impact may cause irreplaceable loss of resources: | Marginal Loss | Marginal Loss | Marginal Loss | Marginal Loss |
| Degree to which the impact can be reversed: | Irreversible | Irreversible | Irreversible | Partly Reversible |
| Indirect impacts: | Loss of habitat for plant SCC.<br>Loss of habitat for faunal species. | | | Loss of habitat for plant SCC. |

| | | | | |
|---|---|---|---|---|
| | | | | Loss of habitat for faunal species. |
| Cumulative impact prior to mitigation: | LOW | LOW | LOW | LOW |
| Significance rating of impact prior to mitigation<br>(e.g. Low, Medium, Medium-High, High, or Very-High) | MEDIUM | MEDIUM | Low | LOW |
| Degree to which the impact can be avoided: | Low | Low | Low | N/A |
| Degree to which the impact can be managed: | Low | Low | Low | |
| Degree to which the impact can be mitigated: | Low | Low | Low | |
| Proposed mitigation: | • Construction vehicles and machinery must not encroach into identified 'no-go' areas or areas outside the project footprint.<br>• Topsoil (20 cm, where possible) must be collected and stored in an area of low (preferable) and medium sensitivity and used to rehabilitate impacted areas that are no longer required during the operational phase (e.g. laydown areas).<br>• Only indigenous species must be used for rehabilitation.<br>• Lay down areas must be located within the project footprint and must not encroach into the surrounding vegetation, particularly to the north of the site.<br>• Employees must be prohibited from making open fires during the construction phase to prevent uncontrolled run-away fires.<br>• The site must be checked regularly for the presence of alien invasive species. When alien invasive species are found, immediate action must be taken to remove them.<br>• Employees must be prohibited from collecting plants. It is recommended that spot checks of pockets and bags are done on a regular basis to ensure that no unlawful harvesting of plant species is occurring.<br>• If Option C (preferred Alternative) is approved, the near-intact Overberg Dune Strandveld within the Open Space Area must be maintained and considered a no-go area. Construction activities cannot encroach into this no-go area. | | | |

| | | | | |
|---|---|---|---|---|
| Residual impacts: | MEDIUM | MEDIUM | LOW | |
| Cumulative impact post mitigation: | MEDIUM | MEDIUM | LOW | |
| Significance rating of impact after mitigation<br>(e.g. Low, Medium, Medium-High, High, or Very-High) | **MEDIUM** | **MEDIUM** | **LOW** | |
| **Potential impact and risk:** | **IMPACT 2: LOSS OF PLANT SCC** | | | |
| **Alternative** | **OPTION A** | **OPTION B** | **Option C** | **NO-GO** |
| | During the field survey, four (4) plant SCC were recorded including three (3) Vulnerable (VU) species (*Lampranthus fergusoniae, Cynanchum zeyheri,* and *Athanasia quinquedentata* subsp. *rigens*), and one Near Threatened (NT) species (*Asparagus lignosus*). The clearance of vegetation for the construction of the proposed development will result in the loss of some individuals of these species. | | | Under the no-go alternative, there will be no loss of plant Species of Conservation Concern (SCC), unless the firebreaks are widened. |
| Nature of impact: | Direct Negative | Direct Negative | Direct Negative | N/A |
| Extent and duration of impact: | On site & Permanent | On site & Permanent | On site & Permanent | N/A |
| Consequence of impact or risk: | High | High | High | N/A |
| Probability of occurrence: | Definite | Definite | Definite | N/A |
| Degree to which the impact may cause irreplaceable loss of resources: | Marginal loss | Marginal loss | Marginal loss | N/A |
| Degree to which the impact can be reversed: | Reversible | Reversible | Reversible | N/A |
| Indirect impacts: | Reduction in gene pool. | | | N/A |
| Cumulative impact prior to mitigation: | HIGH | HIGH | HIGH | N/A |
| Significance rating of impact prior to mitigation | HIGH | HIGH | HIGH | N/A |

| | | | | |
|---|---|---|---|---|
| (e.g. Low, Medium, Medium-High, High, or Very-High) | | | | |
| Degree to which the impact can be avoided: | Low | Low | Low | N/A |
| Degree to which the impact can be managed: | Moderate | Moderate | Moderate | |
| Degree to which the impact can be mitigated: | Moderate | Moderate | Moderate | |
| Proposed mitigation: | • Mitigation measures listed under impact 1 above must be implemented.<br>• Where populations of these species can't be avoided, a translocation plan to move these species must be implemented. This plan must identify the number of individuals that will be impacted and identify a suitable receiving environment where they can be moved. Included in this plan, must be a monitoring program to monitor the success of the translocation of these species.<br>• If option C (preferred Alternative) is approved, SCC should be translocated into the designated Open Space Area.<br>• Where translocation of plant species is required, this must be undertaken by a qualified botanist or horticulturalist.<br>• Permits for all protected species must be obtained prior to construction commencing. A Search and Rescue Plan to move protected species must be drafted and implemented.<br>• It is recommended that SCC and protected species that need to be moved are used as far as is feasible to rehabilitate areas impacted on during construction but not required during the operational phase. | | | |
| Residual impacts: | MEDIUM | MEDIUM | MEDIUM | |
| Cumulative impact post mitigation: | MEDIUM | MEDIUM | MEDIUM | |
| Significance rating of impact after mitigation<br>(e.g. Low, Medium, Medium-High, High, or Very-High) | **MEDIUM** | **MEDIUM** | **MEDIUM** | |

| **Potential impact and risk:** | **IMPACT 3: FRAGMENTATION OF VEGETATION AND DISRUPTION OF ECOSYSTEM PROCESSES** | | | |
|---|---|---|---|---|
| **Alternative** | **OPTION A** | **OPTION B** | **Option C** | **NO-GO** |
| | Fragmentation is one of the most important impacts on vegetation as it creates breaks in previously continuous vegetation, causing a reduction in the gene pool and a decrease in species richness and diversity. This impact occurs when more and more areas are cleared, resulting in the isolation of functional ecosystems, which results in reduced biodiversity and reduced movement due to the absence of ecological corridors. Fragmentation can also prevent the continuation of important ecological processes and drivers such as seed dispersal.<br><br>The significance of the disruption of Ecosystem Function and Process as a result of the construction of the proposed residential development is classified as medium significance. | | | The Overberg Dune Strandveld of the project area has already been impacted by fragmentation, alien invasive species, and is surrounded by a network of roads. Approximately 2.7 ha of Overberg Dune Strandveld has been modified due to the infestation of alien plant species and a further 2.6 ha has been modified due to the creation of fire breaks. |
| Nature of impact: | Direct Negative | Direct Negative | Direct Negative | Negative |
| Extent and duration of impact: | On site & Permanent | On site & Permanent | On site & Permanent | On site & Long term |
| Consequence of impact or risk: | Medium | Medium | Low | Low |
| Probability of occurrence: | Definite | Definite | Definite | Definite |
| Degree to which the impact may cause irreplaceable loss of resources: | Marginal loss | Marginal loss | Marginal loss | Marginal Loss |
| Degree to which the impact can be reversed: | Irreversible | Irreversible | Irreversible | Partly Reversible |
| Indirect impacts: | Reduction in gene pool. | | | |
| Cumulative impact prior to mitigation: | Medium | Medium | Low | LOW |
| Significance rating of impact prior to mitigation | MEDIUM | MEDIUM | Low | LOW |

| | | | | |
|---|---|---|---|---|
| (e.g. Low, Medium, Medium-High, High, or Very-High) | | | | |
| Degree to which the impact can be avoided: | Low | Low | Low | N/A |
| Degree to which the impact can be managed: | Low | Low | Low | |
| Degree to which the impact can be mitigated: | Low | Low | Low | |
| Proposed mitigation: | • Mitigation measures listed under impact 1 above must be implemented. | | | |
| Residual impacts: | MEDIUM | MEDIUM | LOW | |
| Cumulative impact post mitigation: | MEDIUM | MEDIUM | LOW | |
| Significance rating of impact after mitigation<br>(e.g. Low, Medium, Medium-High, High, or Very-High) | **MEDIUM** | **MEDIUM** | **LOW** | |
| **Potential impact and risk:** | **IMPACT 4: INTRODUCTION AND SPREAD OF WEEDS AND ALIEN PLANT SPECIES.** | | | |
| **Alternative** | **OPTION A** | **OPTION B** | **OPTION C** | **NO-GO** |
| | There are currently eleven (11) alien plant species within the project area, three (3) of which are listed as invasive. Construction activities, such as ground disturbance and equipment movement, could spread alien invasive species, like *Acacia cyclops*, beyond the project area. If not managed, construction could exacerbate the spread of invasive species, displacing indigenous flora and further degrading local ecosystems. | | | There are currently eleven alien plant species within the project area, three of which are invasive, and approximately 2.7 ha of the 11.4 ha project area is dominated by alien woodland of *Acacia cyclops.* Under the no-go alternative, these invasive species are |

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| | | | | likely to persist and spread, continuing to displace indigenous flora, degrade biodiversity, and disrupt ecosystem processes, further threatening the ecological integrity of the area without management intervention. |
| Nature of impact: | Direct Negative | Direct Negative | Direct Negative | Negative |
| Extent and duration of impact: | Local & Long-term | Local & Long-term | Local & Long-term | Local & Long-term |
| Consequence of impact or risk: | Medium | Medium | Medium | Medium |
| Probability of occurrence: | Probable | Probable | Probable | Probable |
| Degree to which the impact may cause irreplaceable loss of resources: | Marginal loss | Marginal loss | Marginal loss | Marginal Loss |
| Degree to which the impact can be reversed: | Reversible | Reversible | Reversible | Reversible |
| Indirect impacts: | Displacement and loss of indigenous plant species and diversity. | | | |
| Cumulative impact prior to mitigation: | Medium | Medium | Medium | Medium |
| Significance rating of impact prior to mitigation<br>(e.g. Low, Medium, Medium-High, High, or Very-High) | Medium | Medium | Medium | Medium |
| Degree to which the impact can be avoided: | High | High | High | N/A |

| | | | | |
|---|---|---|---|---|
| Degree to which the impact can be managed: | High | High | High | |
| Degree to which the impact can be mitigated: | High | High | High | |
| Proposed mitigation: | • The site must be checked regularly for the presence of alien invasive species and weeds. When alien invasive species are found, immediate action must be taken to remove them.<br>• Alien Invasive Plant Species and Weeds must be disposed on in line with the recommendations outlined in the Working for Water Programme.<br>• Any equipment brought onto site must be clean to ensure no transfer or introduction of seeds.<br>• No exotic species are permitted to be planted on site. Only indigenous plant species can be used for rehabilitation/landscaping.<br>• The ECO must create a list with accompanying photographs of possible alien invasive species that could occur on site prior to construction. This photo guide must be used to determine if any alien invasive species are present.<br>• An alien invasive method statement must be incorporated into the EMPr. | | | |
| Residual impacts: | Low | Low | Low | |
| Cumulative impact post mitigation: | Low | Low | Low | |
| Significance rating of impact after mitigation<br>(e.g. Low, Medium, Medium-High, High, or Very-High) | **LOW** | **LOW** | **LOW** | |
| **Potential impact and risk:** | **IMPACT 5: LOSS OF A PORTION OF THE WALKER BAY KEY BIODIVERSITY AREA** | | | |
| **Alternative** | **OPTION A** | **OPTION B** | **OPTION C** | **NO-GO** |
| | The proposed residential development will impact a small portion (0.11 km² = 0.03%) of the Walker Bay Key Biodiversity Area (KBA), located on its edge and adjacent to existing residential development. While the overall footprint of the development is minimal in relation to the KBA, the project may lead to habitat fragmentation, disturbance to local wildlife, and potential pressure on the surrounding natural areas. | | | The Overberg Dune Strandveld of the project area has already been impacted by fragmentation, alien invasive species, and is surrounded by a network of roads. Approximately 2.7 ha |

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| | | | | of Overberg Dune Strandveld has been modified due to the infestation of alien plant species and a further 2.6 ha has been modified due to the creation of fire breaks. As such, portions of the KBA within the project area have already been modified. |
| Nature of impact: | Direct Negative | Direct Negative | Direct Negative | Negative |
| Extent and duration of impact: | Regional & Permanent | Regional & Permanent | Regional & Permanent | Regional & Long Term |
| Consequence of impact or risk: | Medium | Medium | Low | Low |
| Probability of occurrence: | Definite | Definite | Definite | Definite |
| Degree to which the impact may cause irreplaceable loss of resources: | Definite | Definite | Definite | Definite |
| Degree to which the impact can be reversed: | Irreversible | Irreversible | Irreversible | Partly Reversible |
| Indirect impacts: | Loss of habitat for plant SCC.<br>Loss of habitat for faunal species.<br>Loss of SCC. | | | |
| Cumulative impact prior to mitigation: | LOW | LOW | LOW | LOW |
| Significance rating of impact prior to mitigation<br>(e.g. Low, Medium, Medium-High, High, or Very-High) | MEDIUM | MEDIUM | Low | LOW |
| Degree to which the impact can be avoided: | Low | Low | Low | N/A |

| | | | | |
|---|---|---|---|---|
| Degree to which the impact can be managed: | Low | Low | Low | |
| Degree to which the impact can be mitigated: | Low | Low | Low | |
| Proposed mitigation: | • Refer to mitigation measures listed under impact 1 & 2 above. | | | |
| Residual impacts: | MEDIUM | MEDIUM | LOW | |
| Cumulative impact post mitigation: | MEDIUM | MEDIUM | LOW | |
| Significance rating of impact after mitigation<br>(e.g. Low, Medium, Medium-High, High, or Very-High) | **MEDIUM** | **MEDIUM** | **LOW** | |
| **Potential impact and risk:** | **IMPACT 6: LOSS OF A PORTION OF CBA: TERRESTRIAL** | | | |
| **Alternative** | **OPTION A** | **OPTION B** | **OPTION C** | **NO-GO** |
| | Consultation of the WCBSP (2023) confirmed that the entire project area falls within a CBA: Terrestrial (Threatened Ecosystem: Overberg Dune Strandveld). The classification of this area as a CBA is due to the presence of Overberg Dune Strandveld, which is assessed in impact 1 above. Development within the project area will result in the loss of a portion of this CBA but is unlikely to impact on the overarching management objectives of the CBA given the project area is located on the edge of the CBA and within the urban edge. | | | Parts of the Overberg Dune Strandveld within the project area have already been modified due to the infestation of alien plant species, resulting in the loss of the original Overberg Dune Strandveld ecosystem. Consequently, approximately 2.7 ha of the project area no longer meets the criteria for CBA status. However, the no-go alternative will not result in |
| | Option A will result in the loss of approximately 7.13 ha (0.0713 km²) of a CBA 1. | Option B will result in the loss of 10.6 ha (0.106 km²) of a CBA 1. | Option C will result in the loss of 6.12 ha (0.0612 km²) of a CBA 1. However, this alternative does allow for 2.65 ha of open space which includes a portion of the CBA 1 which maintains ecological connectivity with the | |

| | | | | |
|---|---|---|---|---|
| | | | natural, intact habitat to the north. | the additional loss of an area classified as a CBA. |
| Nature of impact: | Direct Negative | Direct Negative | Direct Negative | Negative |
| Extent and duration of impact: | Regional and Permanent | Regional and Permanent | Regional and Permanent | Regional and Permanent |
| Consequence of impact or risk: | MEDIUM | MEDIUM | LOW | LOW |
| Probability of occurrence: | Definite | Definite | Definite | Definite |
| Degree to which the impact may cause irreplaceable loss of resources: | Definite | Definite | Definite | Definite |
| Degree to which the impact can be reversed: | Irreversible | Irreversible | Irreversible | Partly Reversible |
| Indirect impacts: | See impacts 1-4 above. | | | |
| Cumulative impact prior to mitigation: | MEDIUM | MEDIUM | LOW | LOW |
| Significance rating of impact prior to mitigation<br>(e.g. Low, Medium, Medium-High, High, or Very-High) | MEDIUM | MEDIUM | LOW | LOW |
| Degree to which the impact can be avoided: | Low | Low | Low | |
| Degree to which the impact can be managed: | Low | Low | Low | |
| Degree to which the impact can be mitigated: | Low | Low | Low | |
| Proposed mitigation: | • Refer to mitigation measures listed under Impact 1 and 2 above. | | | |
| Residual impacts: | Medium | Medium | Low | |

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|---|---|---|---|---|
| Cumulative impact post mitigation: | Medium | Medium | Low | |
| Significance rating of impact after mitigation<br>(e.g. Low, Medium, Medium-High, High, or Very-High) | **MEDIUM** | **MEDIUM** | **LOW** | |
| **Potential impact and risk:** | **IMPACT 7: LOSS OF FAUNAL HABITAT** | | | |
| **Alternative** | **OPTION A** | **OPTION B** | **OPTION C** | **NO-GO** |
| | Option A will result in the permanent loss of habitat (7.13 ha of Overberg Dune Strandveld). The vegetation and soil provides habitat to faunal species that depend on it for shelter, breeding and foraging. The significance of this loss will be High to those faunal species. | Option B will result in the permanent loss of habitat (10.6 ha of Overberg Dune Strandveld). The vegetation and soil provides habitat to faunal species that depend on it for shelter, breeding and foraging. The significance of this loss will be High to those faunal species. | Option C will result in the permanent loss of habitat (6.12 ha of Overberg Dune Strandveld). The vegetation and soil provides habitat to faunal species that depend on it for shelter, breeding and foraging. The significance of this loss will be High to those faunal species. However, this alternative does allow for 2.65 ha of open space which maintains ecological connectivity with the natural, intact Overberg Dune Strandveld to the north providing habitat for any displaced faunal species. | Continued habitat degradation, 5.3ha has already been modified due to the infestation of alien plant species and fire breaks. |
| Nature of impact: | Direct Negative | Direct Negative | Direct Negative | Negative |
| Extent and duration of impact: | On site & Permanent | On site & Permanent | On site & Permanent | On site & Long Term |
| Consequence of impact or risk: | Medium | Medium | Medium | Low |

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| Probability of occurrence: | Definite | Definite | Definite | Definite |
| Degree to which the impact may cause irreplaceable loss of resources: | Marginal Loss | Marginal Loss | Marginal Loss | Marginal Loss |
| Degree to which the impact can be reversed: | Irreversible | Irreversible | Irreversible | Partly Reversible |
| Indirect impacts: | Displaced faunal species will move into adjacent habitat potentially causing displacement of faunal species already inhabiting the adjacent area resulting in increased competition for food, resources and breeding mates. | | | Reduction in habitat specific faunal population. |
| Cumulative impact prior to mitigation: | LOW | LOW | LOW | LOW |
| Significance rating of impact prior to mitigation<br>(e.g. Low, Medium, Medium-High, High, or Very-High) | MEDIUM | MEDIUM | Low | LOW |
| Degree to which the impact can be avoided: | Low | Low | Low | N/A |
| Degree to which the impact can be managed: | Low | Low | Low | |
| Degree to which the impact can be mitigated: | Low | Low | Low | |
| Proposed mitigation: | • All construction and construction related activities (including parking of vehicles and machinery) must remain within the approved project footprint and must not encroach into areas outside the project footprint. To facilitate this, the boundaries of the development footprint areas must be clearly demarcated and communicated to all on-site personnel during induction.<br>• Temporary infrastructure (laydown areas, widened roads, etc.) must be rehabilitated and rehabilitation efforts must provide habitat for faunal species. Rocks and logs removed during clearing of the project footprint must be stacked, ideally, in previously disturbed areas or within the temporary footprint to provide shelter E.g. Rock stacks and stumperies but must not disrupt adjacent habitat to create these. | | | |

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| Residual impacts: | MEDIUM | MEDIUM | LOW | |
| Cumulative impact post mitigation: | LOW | LOW | LOW | |
| Significance rating of impact after mitigation<br>(e.g. Low, Medium, Medium-High, High, or Very-High) | **MEDIUM** | **MEDIUM** | **LOW** | |
| **Potential impact and risk:** | **IMPACT 8: LOSS OF FAUNAL SCC** | | | |
| **Alternative** | **OPTION A** | **OPTION B** | **OPTION C** | **NO-GO** |
| | Two SCC have a high likelihood of occurrence in the project area; the Southern Adder (VU) and Cape Dwarf Chameleon (NT). The clearance of vegetation for the construction of the proposed development may result in the loss of some individuals of these species. | | | Under the no-go alternative, there will be no loss of Species of Conservation Concern (SCC), unless there is additional clearing due to fire or if firebreaks are widened. |
| Nature of impact: | Direct Negative | Direct Negative | Direct Negative | N/A |
| Extent and duration of impact: | On site & Permanent | On site & Permanent | On site & Permanent | N/A |
| Consequence of impact or risk: | High | High | High | N/A |
| Probability of occurrence: | Possible | Possible | Possible | N/A |
| Degree to which the impact may cause irreplaceable loss of resources: | Marginal loss | Marginal loss | Marginal loss | N/A |
| Degree to which the impact can be reversed: | Irreversible | Irreversible | Irreversible | N/A |
| Indirect impacts: | Reduction in gene pool. | | | N/A |
| Cumulative impact prior to mitigation: | HIGH | HIGH | HIGH | N/A |

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| Significance rating of impact prior to mitigation<br>(e.g. Low, Medium, Medium-High, High, or Very-High) | HIGH | HIGH | HIGH | N/A |
| Degree to which the impact can be avoided: | High | High | High | N/A |
| Degree to which the impact can be managed: | Moderate | Moderate | Moderate | |
| Degree to which the impact can be mitigated: | Low | Low | Low | |
| Proposed mitigation: | • Draft a translocation SOP for the Southern Adder (VU) and Cape Dwarf Chameleon (NT) and implement immediately prior to construction. A permit from Cape Nature will be required to relocate this species.<br>• A clause must be included in contracts for ALL personnel (i.e. including contractors) working on site stating that: "no wild animals will be hunted, killed, poisoned or captured. No wild animals will be imported into, exported from or transported in or through the province. No wild animals will be sold, bought, donated and no person associated with the development will be in possession of any live wild animal, carcass or anything manufactured from the carcass unless they have been appointed to implement the Carcass Management Plan or Animal Relocation Plan."<br>• In addition, a clause relating to fines, possible dismissal and legal prosecution must be included should any of the above transgressions occur for SCC.<br>• The ECO should appoint a member of staff to walk ahead of construction machinery directly prior to vegetation clearance. Should any faunal species be identified during the walk through, these should be allowed to move out of harm's way prior to vegetation clearance.<br>• The ECO must create a list with accompanying photographs of possible faunal SCC that could occur in the project area prior to construction. This photo guide must be used to determine if faunal SCC are encountered.<br>• Should any fauna SCC be encountered during construction and operation, these must be recorded (i.e. be photographed, GPS co-ordinates taken) and information placed on iNaturalist<br>• In the unlikely event that bird SCC inhabit the site to breed, all site personnel are not to | | | |

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| | disturb them, even approaching nests of SCC is considered harmful to the success of breeding. Should an active breeding nests (eggs, nestlings, fledglings) be discovered in or near construction areas prior to or during the construction phase:<br>○ These must be reported to ECO.<br>○ Where deemed necessary an appropriate buffer should be placed around the nest. If uncertain on the size of such a buffer, the ECO may contact an avifaunal specialist for advice.<br>○ No construction activity should occur within the buffer and the nest must be monitored.<br>• Once birds have finished nesting and the fledglings left the nest construction can recommence within the buffer zone. | | | |
| Residual impacts: | LOW | LOW | LOW | |
| Cumulative impact post mitigation: | LOW | LOW | LOW | |
| Significance rating of impact after mitigation<br>(e.g. Low, Medium, Medium-High, High, or Very-High) | **LOW** | **LOW** | **LOW** | |
| **Potential impact and risk:** | **IMPACT 9: DISTURBANCE TO FAUNAL SPECIES AND THEIR LIVELIHOOD DUE TO PROJECT RELATED ACTIVITIES.** | | | |
| **Alternative** | **OPTION A** | **OPTION B** | **OPTION C** | **NO-GO** |
| | Faunal species may be disturbed during construction due to increased noise levels and vibrations from construction machinery. Night lighting disrupts nocturnal faunal species activities and may attract them to the construction site.<br><br>Faunal Species that vacate the immediate area, may return following completion of construction or new individuals or species may inhabit the area. | | | The project area is within the urban edge with residential development to across the road to the east and south and a busy road to the north. Faunal species that inhabit the project area are likely habituated to some level of disturbance, lighting and noise. |

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| Nature of impact: | Direct Negative | Direct Negative | Direct Negative | Negative |
| Extent and duration of impact: | On site & Short Term | On site & Short Term | On site & Short Term | On site & Long term |
| Consequence of impact or risk: | Medium | Medium | Medium | Low |
| Probability of occurrence: | Probable | Probable | Probable | Definite |
| Degree to which the impact may cause irreplaceable loss of resources: | Marginal loss | Marginal loss | Marginal loss | Marginal Loss |
| Degree to which the impact can be reversed: | Partly Reversible | Partly Reversible | Partly Reversible | Partly Reversible |
| Indirect impacts: | Displaced faunal species will move into adjacent habitat potentially causing a knock-on displacement of faunal species already inhabiting the area and increasing competition for food and mates. | | | |
| Cumulative impact prior to mitigation: | Medium | Medium | Medium | LOW |
| Significance rating of impact prior to mitigation<br>(e.g. Low, Medium, Medium-High, High, or Very-High) | MEDIUM | MEDIUM | MEDIUM | LOW |
| Degree to which the impact can be avoided: | Low | Low | Low | N/A |
| Degree to which the impact can be managed: | Low | Low | Low | |
| Degree to which the impact can be mitigated: | Low | Low | Low | |
| Proposed mitigation: | • It is recommended that vegetation clearance takes place gradually, commencing from eastern side of the project area and methodically advancing towards the western side to encourage the movement of any faunal species to the natural area.<br>• Dust suppression measures must be implemented in the dry and/or windy months.<br>• All machinery, vehicles and earth moving equipment must be maintained and the noise these create must meet industry minimum standards. e.g. the sound generated by a | | | |

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| | machine must be below a certain decibel as prescribed in the relevant noise control regulations.<br>• No construction night lighting must be allowed. If required, minimise lighting in open space areas within development and any external lights must be down lights placed as low as possible and installation of low UV emitting lights.<br>• Steep sided drains, gutters, canals and open pits/trenches must be covered with mesh (5mm x 5mm) or sloped to prevent fauna falling in and getting stuck. No unnecessary structures that would act as pitfall traps for animals must be constructed.<br>• Permeable internal and external fences/walls (after construction is completed) must be implemented to allow for the movement of small faunal species through the development, particularly fencing surrounding the Open Space Area. These must have ground level gaps of 10cm x 10cm at 10m intervals. These gaps must be kept free of obstructions, including plant growth and debris.<br>• No night driving should be permitted, if unavoidable, this must be restricted, and speed limits adhered to. | | | |
| Residual impacts: | LOW | LOW | LOW | |
| Cumulative impact post mitigation: | LOW | LOW | LOW | |
| Significance rating of impact after mitigation<br>(e.g. Low, Medium, Medium-High, High, or Very-High) | **LOW** | **LOW** | **LOW** | |
| **Potential impact and risk:** | **IMPACT 10: Mortality of faunal species due to earthworks, roadkill and persecution** | | | |
| **Alternative** | **OPTION A** | **OPTION B** | **OPTION C** | **NO-GO** |
| | Faunal species and individuals susceptible to mortality during the clearing of vegetation and soil compacting are those that will not move away during the initial disturbance, this includes slow moving species (tortoises), hibernating species (depending on the time of year) and immobile individuals such as juvenile birds and rodents.<br><br>The increase in vehicles entering and exiting the area increases the chance of roadkill, especially at night. | | | The project area is bordered on three side by roads and roadkill is expected to occur and will continue. Depending on the method used to create firebreaks these may inadvertently cause the mortality of faunal species if |

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| | Persecution of faunal species perceived as dangerous are often killed out of fear e.g., snakes. | | | in harms way during clearing/burning. |
| Nature of impact: | Direct Negative | Direct Negative | Direct Negative | Negative |
| Extent and duration of impact: | Local & Permanent | Local & Permanent | Local & Permanent | Local & Permanent |
| Consequence of impact or risk: | High | High | High | Medium |
| Probability of occurrence: | Probable | Probable | Probable | Possible |
| Degree to which the impact may cause irreplaceable loss of resources: | Marginal loss | Marginal loss | Marginal loss | Marginal Loss |
| Degree to which the impact can be reversed: | Irreversible | Irreversible | Irreversible | Reversible |
| Indirect impacts: | Reduction in faunal gene pool. | | | |
| Cumulative impact prior to mitigation: | Medium | Medium | Medium | Medium |
| Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High) | High | High | High | Medium |
| Degree to which the impact can be avoided: | High | High | High | N/A |
| Degree to which the impact can be managed: | High | High | High | |
| Degree to which the impact can be mitigated: | High | High | High | |
| Proposed mitigation: | • Speed restrictions within the development for construction vehicles (40km/h is recommended) should be in place to reduce the incidence of faunal mortality on project roads. | | | |

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| | • A trained snake handler must be on call during construction to remove any snakes within construction areas.<br>• A clause relating to fines, possible dismissal and legal prosecution must be included in all contracts for ALL personnel (i.e. including contractors) working on site should any speeding or persecution of animals occur.<br>• Induction material must iterate safety to fauna and personnel through avoidance of wildlife. For example, snakes tend to only strike if threatened (cornered or attacked).<br>• It is strongly recommended that rodenticides not be used at any the newly established buildings or around auxiliary infrastructure on the project site. While pest control of this nature may be effective, even so-called "environmentally friendly" rodenticides are toxic and pose significant secondary poisoning risk to predatory avifauna, especially owls. | | | |
| Residual impacts: | Low | Low | Low | |
| Cumulative impact post mitigation: | Low | Low | Low | |
| Significance rating of impact after mitigation<br>(e.g. Low, Medium, Medium-High, High, or Very-High) | **LOW** | **LOW** | **LOW** | |

**Table 8.2: Operational Phase Impacts associated with the proposed development.**

| **Potential impact and risk:** | **IMPACT 11: SPREAD OF WEEDS AND ALIEN PLANT SPECIES.** | | | |
|---|---|---|---|---|
| **Alternative** | **OPTION A** | **OPTION B** | **OPTION C** | **NO-GO** |
| | There are currently eleven (11) alien plant species within the project area, three (3) of which are listed as invasive. If impacted areas that do not form part of the development footprint are not rehabilitated, these disturbed areas can become places for alien invasive species to establish. If left unmitigated, these species can spread and establish themselves in intact vegetation in surrounding intact ecosystems, resulting in the displacement of indigenous species and possible local extinctions of SCC. | | | There are currently eleven alien plant species within the project area, three of which are invasive, and approximately 2.7 ha of the 11.4 ha project area is dominated by alien woodland of Acacia cyclops. Under the no-go alternative, these |

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| | | | | invasive species are likely to persist and spread, continuing to displace indigenous flora, degrade biodiversity, and disrupt ecosystem processes, further threatening the ecological integrity of the area without management intervention. |
| Nature of impact: | Direct Negative | Direct Negative | Direct Negative | Negative |
| Extent and duration of impact: | Local & Long-term | Local & Long-term | Local & Long-term | Local & Long-term |
| Consequence of impact or risk: | Medium | Medium | Medium | Medium |
| Probability of occurrence: | Probable | Probable | Probable | Probable |
| Degree to which the impact may cause irreplaceable loss of resources: | Marginal loss | Marginal loss | Marginal loss | Marginal Loss |
| Degree to which the impact can be reversed: | Reversible | Reversible | Reversible | Reversible |
| Indirect impacts: | Displacement and loss of indigenous plant species and diversity. | | | |
| Cumulative impact prior to mitigation: | Medium | Medium | Medium | Medium |
| Significance rating of impact prior to mitigation<br>(e.g. Low, Medium, Medium-High, High, or Very-High) | Medium | Medium | Medium | Medium |
| Degree to which the impact can be avoided: | High | High | High | N/A |

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| Degree to which the impact can be managed: | High | High | High | |
| Degree to which the impact can be mitigated: | High | High | High | |
| Proposed mitigation: | • The site must be checked regularly for the presence of alien invasive species and weeds. When alien invasive species are found, immediate action must be taken to remove them.<br>• Alien Invasive Plant Species and Weeds must be disposed on in line with the recommendations outlined in the Working for Water Programme.<br>• Any equipment brought onto site must be clean to ensure no transfer or introduction of seeds.<br>• No exotic species are permitted to be planted on site. Only indigenous plant species can be used for rehabilitation/landscaping.<br>• An alien invasive method statement must be incorporated into the EMPr to ensure that these species do not spread onto neighbouring properties. | | | |
| Residual impacts: | Low | Low | Low | |
| Cumulative impact post mitigation: | Low | Low | Low | |
| Significance rating of impact after mitigation<br>(e.g. Low, Medium, Medium-High, High, or Very-High) | **LOW** | **LOW** | **LOW** | |

| **Potential impact and risk:** | **IMPACT 12: DISTURBANCE TO FAUNAL SPECIES AND THEIR LIVELIHOOD DUE TO PROJECT RELATED ACTIVITIES.** | | | |
|---|---|---|---|---|
| | **OPTION A** | **OPTION B** | **OPTION C** | **NO-GO** |
| **Alternative** | The operation of the development will result in a level of disturbance to the project area that currently experiences some disturbance. expected disturbance includes:<br>• the increase in the number of people and vehicles accessing the area will likely introduce noise.<br>• the residence could introduce a barrier to faunal movement not previously present. | | | The project area is within the urban edge with residential development to across the road to the east and south and a busy road to the north. Faunal species that inhabit the |

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| | • night lighting could disturb diurnal faunal species and disrupt normal nocturnal faunal species activities. e.g., insects attracted to infrastructure lighting will likely attract small nocturnal predators (e.g., genets, bats, rodents, etc.).<br>• building/s may offer habitat to generalist and invasive species.<br>• domestic pets, especially cats, can be detrimental to wildlife either by catching and killing prey (birds, reptiles, rodents, etc.) or by chasing native fauna and causing stress which may lead to certain fauna not breeding. | | | project area are likely habituated to some level of disturbance, lighting and noise. |
| Nature of impact: | Direct Negative | Direct Negative | Direct Negative | Negative |
| Extent and duration of impact: | On site & Short Term | On site & Short Term | On site & Short Term | On site & Long term |
| Consequence of impact or risk: | Medium | Medium | Medium | Low |
| Probability of occurrence: | Probable | Probable | Probable | Definite |
| Degree to which the impact may cause irreplaceable loss of resources: | Marginal loss | Marginal loss | Marginal loss | Marginal Loss |
| Degree to which the impact can be reversed: | Partly Reversible | Partly Reversible | Partly Reversible | Partly Reversible |
| Indirect impacts: | Displaced faunal species will move into adjacent habitat potentially causing a knock-on displacement of faunal species already inhabiting the area and increasing competition for food and mates. | | | |
| Cumulative impact prior to mitigation: | Medium | Medium | Medium | LOW |
| Significance rating of impact prior to mitigation<br>(e.g. Low, Medium, Medium-High, High, or Very-High) | MEDIUM | MEDIUM | MEDIUM | LOW |
| Degree to which the impact can be avoided: | Low | Low | Low | N/A |
| Degree to which the impact can be managed: | Low | Low | Low | |

| | | | | |
|---|---|---|---|---|
| Degree to which the impact can be mitigated: | Low | Low | Low | |
| Proposed mitigation: | • Speed restrictions within the development for all vehicles (40km/h is recommended) should be implemented to reduce the possibility of collisions and roadkill.<br>• Do not place lighting on the exterior of the boundary wall (i.e. pointing into the Nature Reserve).<br>• Ideally, residents must not have pets that can leave their premises and enter the surrounding natural area. i.e. Domestic cats should not be permitted and if they are, they must wear a bell. Fines should be issued by the Body Corporate if not adhered to.<br>• Restrictions can be placed on noise to minimise impact. Body Corporate to establish a noise policy and associated fines.<br>• External lights that are used in the mixed-use development must be down lights placed as low on the wall as possible and installation of low UV emitting lights, such as most LEDs. Minimise lighting in open space areas within development.<br>• Ensure all vehicles adhere to the relevant noise restrictions.<br>• Create faunal micro habitats within developed area e.g. rocky outcrops, corridors of shrubbery, stumperies.<br>• Body corporate and Estate Agents to ensure potential buyers and residents are aware of the restrictions placed on lighting, noise and pets based on living in an area bordering an ecological corridor.<br>• No feeding of wildlife is permitted, including bird feeders.<br>• No pesticides may be used to control pests, especially rodents, as poisoned rodents are often eaten by predatory birds (e.g., owls) that result in the owl dying. If pesticide is required only 'Eco Rat Rodenticide' may be used.<br>• Occupants of the residential units must be made aware of the current legislation applicable to all fauna in the project area: "no wild animals will be hunted, killed, poisoned, or captured. No wild animals will be imported into, exported from, or transported in or through the province. No wild animals will be sold, bought, donated and no person associated with the development will be in possession of any live wild animal, carcass or anything manufactured from the carcass." | | |
| Residual impacts: | LOW | LOW | LOW | |

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| Cumulative impact post mitigation: | LOW | LOW | LOW | |
| Significance rating of impact after mitigation<br>(e.g. Low, Medium, Medium-High, High, or Very-High) | **LOW** | **LOW** | **LOW** | |

# 9. Key Findings and Recommendations

## 9.1. Summary of Key Findings

### 9.1.1. Terrestrial Biodiversity Theme

The DFFE Screening Report classified the overall Terrestrial Biodiversity Theme Sensitivity of the project area as VERY HIGH due to the project area occurring within an EN Ecosystem (Overberg Dune Strandveld), a CBA 1: Terrestrial, and an ESA 2: Restore from other land uses.

Consultation of the WCBSP (2023) confirmed that the entire project area falls within a CBA 1: Terrestrial (Threatened Ecosystem: Overberg Dune Strandveld) and that the underlying feature contributing to classification of this CBA is the presence of an Endangered (EN) ecosystem, Overberg Dune Strandveld.

The desktop assessment and field survey confirmed that the project area occurs within Overberg Dune Strandveld. This vegetation type is listed as EN due to its narrow distribution and evidence of ongoing biotic disruption from invasive alien plant species (DFFE, 2022). Despite being listed as EN, 93% (323.2 $km^2$) currently remains intact. The SEI of the Overberg Dune Strandveld was determined to be HIGH. However, it should be noted that portions of Overberg Dune Strandveld within the project area have been modified and degraded due to the establishment of alien invasive plant species and the creation of fire breaks which has resulted in the fragmentation of vegetation.

In addition to the above, the project area occurs within the Walker Bay KBA. According to the World Database of KBAs, this site qualifies as a Key Biodiversity Area of international significance that meets the thresholds for 4 criteria described in the Global Standard for the Identification of KBAs.

The Walker Bay KBA is 322 $km^2$ in extent. The proposed residential development occurs within a small portion (0.11 $km^2$ = 0.03%), and on the edge, of the Walker Bay KBA adjacent to existing residential development. Implications on biodiversity may include the loss of some habitats that support sensitive species (refer to Section 5.2 below), may result in the loss of individual SCC and could increase habitat fragmentation.

Based on the above, the specialist **disagrees** with the VERY HIGH sensitivity rating of the Overberg Dune Strandveld and suggests the following:

- The portion of Overberg Dune Strandveld is reclassified as HIGH rather than VERY HIGH.
- The *Acacia* Woodland is reclassified as VERY LOW rather than VERY HIGH.
- The Degraded Overberg Dune Strandveld (firebreaks) is reclassified as MEDIUM rather than VERY HIGH.

### 9.1.2. Plant Species Theme

The DFFE Screening Tool Report classified the plant species theme of the project area as MEDIUM due to the possible occurrence of forty-eight (48) sensitive plant species. Of these 48 species, four (4) sensitive plant species were confirmed to occur within the project area including three (3) VU species (*Lampranthus fergusoniae*, *Cynanchum zeyheri*, and *Athanasia quinquedentata* subsp. *rigens*), and

one (1) NT species (*Asparagus lignosus*). Furthermore, three (3) SCC have a VERY HIGH likelihood of occurrence and three (3) have a HIGH likelihood of occurrence within the project area as they have been recorded on adjacent properties. As such, the specialist **disagrees** with the MEDIUM sensitivity rating of the Plant Species Theme as per the DFFE Screening Tool Report and suggests that the plant species theme sensitivity of the Overberg Dune Strandveld and Degraded Areas is reclassified as HIGH due to the confirmed occurrence of SCC, but that the Plant Species Theme Sensitivity of the *Acacia* Woodland should remain medium.

### 9.1.3. Animal Species Theme

The DFFE Screening Tool Report identified the project area as having a HIGH sensitivity for two (2) bird SCC and MEDIUM sensitivity for two (2) bird SCC and one (1) reptile SCC. Of these species, only the Southern Adder (VU) and Cape Dwarf Chameleon (NT) have a high likelihood of occurrence in the project area. The SEI of the Overberg Dune Strandveld for the Southern Adder and Cape Dwarf Chameleon is MEDIUM. Based on the above, the specialist **disagrees** with the High sensitivity rating of the Black Harrier as this species has a low likelihood of breeding in the near-intact Overberg Dune Strandveld habitat, therefore it is reclassified as MEDIUM. The specialist suggests that degraded areas are also reclassified as MEDIUM for the Cape Dwarf Chameleon rather than HIGH. The specialist agrees with the MEDIUM sensitivity rating of the Southern Adder (VU) in the Overberg Dune Strandveld habitat.

### 9.1.4. Site Ecological Importance

Three (3) habitat types were identified in this report including:

- Near-intact Overberg Dune Strandveld;
- Degraded Overberg Dune Strandveld which include the firebreaks
- *Acacia* Woodland dominated by dense stands of the alien invasive plant species *Acacia* cyclops.

The highest overall SEI rating was applied to each habitat type identified. According to the assessment of SEI, the SEI of the near-intact Overberg Dune Strandveld was determined to be HIGH whilst the SEI of the Degraded Overberg Dune Strandveld and *Acacia* Woodland was determined to be MEDIUM.

In terms of the Species Environmental Assessment Guideline (SANBI, 2020), minimisation and avoidance mitigation should apply to areas of HIGH SEI, including changes to the design and layout of project infrastructure to limit the amount of habitat impacted. Limited development activities of low impact are acceptable and offset mitigation may be required for high impact activities. For areas of MEDIUM SEI, development activities of medium impact are acceptable followed by appropriate restoration activities.

### 9.1.5. Summary of Impacts

Twelve (12) impacts were identified for the proposed project. For **Option A and B**, of the twelve impacts identified, three (3) are of high significance and nine (9) are of medium significance prior to mitigation, the significance of six (6) of these impacts can be reduced to medium and six (6) can be reduced to low, if the mitigation measures identified are implemented and adhered to.

For **Option C** (the preferred alternative), of the twelve impacts identified, three (3) impacts are classified as HIGH, four (4) impacts are classified as MEDIUM, and five (5) impacts are classified as LOW. If the mitigation measures identified in this report are implemented and adhered to, the significance of these impacts can be reduced resulting in one (1) residual impact of MEDIUM significance and eleven (11) residual impacts of LOW significance.

The cumulative impacts are considered low to medium post mitigation.

**Table 9.1: Summary of project impacts**

| Alternative | Option A | | Option B | | Option C | |
|---|---|---|---|---|---|---|
| | Pre-mitigation | Post mitigation | Pre-mitigation | Post mitigation | Pre-mitigation | Post mitigation |
| **Construction phase impacts** | | | | | | |
| Impact 1: Loss of Overberg Dune Strandveld (EN) | Medium | Medium | Medium | Medium | Low | Low |
| Impact 2: Loss of plant SCC | High | Medium | High | Medium | High | Medium |
| Impact 3: Fragmentation of vegetation and disruption of ecosystem processes | Medium | Medium | Medium | Medium | Low | Low |
| Impact 4: Introduction and spread of weeds and alien plant species. | Medium | Low | Medium | Low | Medium | Low |
| Impact 5: Loss of a portion of the Walker Bay Key Biodiversity Area | Medium | Medium | Medium | Medium | Low | Low |
| Impact 6: Loss of a portion of CBA: terrestrial | Medium | Medium | Medium | Medium | Low | Low |
| Impact 7: Loss of faunal habitat | Medium | Medium | Medium | Medium | Low | Low |
| Impact 8: Loss of faunal SCC | High | Low | High | Low | High | Low |
| Impact 9: Disturbance to faunal species and their livelihood due to project related activities. | Medium | Low | Medium | Low | Medium | Low |
| Impact 10: Mortality of faunal species due to earthworks, roadkill and persecution | High | Low | High | Low | High | Low |
| **Operational phase impacts** | | | | | | |
| Impact 11: Spread of weeds and alien plant species. | Medium | Low | Medium | Low | Medium | Low |
| Impact 12: Disturbance to faunal species and their livelihood due to project related activities. | Medium | Low | Medium | Low | Medium | Low |

## 9.2. Conclusions and Recommendations

**Option A** will result in the loss of approximately 7.13 ha (0.0713 km²) of Overberg Dune Strandveld, representing a loss of 0.02% of the total remaining extent of this vegetation type, **Option B** will result in the loss of 10.6 ha (0.106 km²) of Overberg Dune Strandveld, representing a loss of 0.03% of the total remaining extent of this vegetation type, and **Option C** will result in the loss of 6.12 ha (0.0612

km$^2$) of Overberg Dune Strandveld, representing a loss of 0.02% of the total remaining extent of this vegetation type.

While this vegetation is classified as an Endangered Ecosystem, it is important to note that the project area is located within the urban edge, has already been impacted by habitat fragmentation, alien invasive species, and is surrounded by a network of roads with existing development situated to the east, west and south of the project area. These existing disturbances have reduced the overall ecological sensitivity of the area, potentially lowering the significance of the impact relative to more pristine or less disturbed habitats. In addition, 93% of this vegetation type currently remains and the conservation target for this vegetation type is 36%. Still, given the Endangered status of this vegetation type, any loss remains a concern, and mitigation measures have been identified to minimize any adverse effects (refer to Chapter 8).

Of the three alternatives, Option C will result in the lowest overall loss of Overberg Dune Strandveld; and includes the designation of a portion of the project area (2.65 ha) in the north as Open Space which would maintain ecological connectivity with the portion of near-intact Overberg Dune Stranveld just north of the boundary of the project area. Considering the significance of the residual impacts associated with Option C which are classified as LOW in comparison to Option A and B, it is the opinion of the specialist that Option C is the preferred development alternative and that a biodiversity offset is not required, provided the Open Space Area is considered as a no-go area for development and maintained in its current near-natural state.

**Option A and B** would result in six (6) residual impacts of MEDIUM significance. In terms of the National Biodiversity Offset Guideline (2023), where residual negative biodiversity impacts are evaluated to be of medium or high significance, a biodiversity offset would be required. The Starting Offset Ratio for Overberg Dune Strandveld is 10:1 in terms of Annexure A of the Biodiversity Offset Guideline (2023). Furthermore, a higher ratio of 30:1 is applied to all CBA sites. Considering the site is located within a CBA 1, the higher or the two ratios would apply as the starting ratio. However, the Biodiversity Offset Guideline (2023) also states that other factors may justify smaller ratios, such as when the impact occurs in an urban setting where there are severe spatial constraints. Option A and B would therefore require a biodiversity offset.

As for the way forward, it is recommended that the Competent Authority (CA) be consulted regarding the proposed development and the requirement for an offset confirmed.

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# APPENDIX 1: PLANT SPECIES RECORDED WITHIN THE PROJECT AREA

**Table A1.1: Plant Species recorded within the project area.**

| Family | Scientific Name | Common Name | Threat Status | WC NCLA (2000) | NEM:BA 2004 | List of protected Trees (2024) |
|---|---|---|---|---|---|---|
| Asteraceae | *Senecio elegans* | Red-purple Ragwort | LC | | | |
| Aizoaceae | *Jordaaniella dubia* | Strandveld Beachfig | LC | Schedule 4 | | |
| Aizoaceae | *Lampranthus bicolor* | Twocolour Brightfig | LC | Schedule 4 | | |
| Aizoaceae | *Lampranthus fergusoniae* | Limestone Brightfig | VU B1ab(ii,iii,iv,v) | Schedule 4 | | |
| Aizoaceae | *Mesembryanthemum canaliculatum* | Beach Dropfig | LC | Schedule 4 | | |
| Aizoaceae | *Ruschia macowanii* | Beach Tentfig | LC | Schedule 4 | | |
| Aizoaceae | *Tetragonia fruticosa* | Sprawling Seacoral | LC | Schedule 4 | | |
| Aizoaceae | *Carpobrotus acinaciformis* | Sally-my-handsome | LC | Schedule 4 | | |
| Amaranthaceae | *Exomis microphylla* | Brakbos | LC | | | |
| Amaryllidaceae | *Brunsvigia orientalis* | candelabra lily | LC | Schedule 4 | | |
| Amaryllidaceae | *Haemanthus coccineus* | Spotted Bloodlily | LC | Schedule 4 | | |
| Anacardiaceae | *Searsia glauca* | Blue Kunibush | LC | | | |
| Anacardiaceae | *Searsia laevigata* | Dune Currantrhus | LC | | | |
| Anacardiaceae | *Searsia lucida* | Glossy Currantrhus | LC | | | |
| Apiaceae | *Annesorhiza macrocarpa* | Wild Aniseroot | LC | | | |
| Apiaceae | *Dasispermum grandicarpum* | Limestone Sandcelery | DDD | | | |
| Apocynaceae | *Cynanchum africanum* | Cape Buckhorn | LC | | | |
| Apocynaceae | *Cynanchum zeyheri* | Sprawling Buckhorn | VU B2ab(ii,iii,iv,v) | | | |
| Araceae | *Zantedeschia aethiopica* | calla lily | LC | | | |
| Asparagaceae | *Asparagus declinatus* | Weeping Asparagus | LC | | | |
| Asparagaceae | *Asparagus lignosus* | Fire Asparagus | NT | | | |

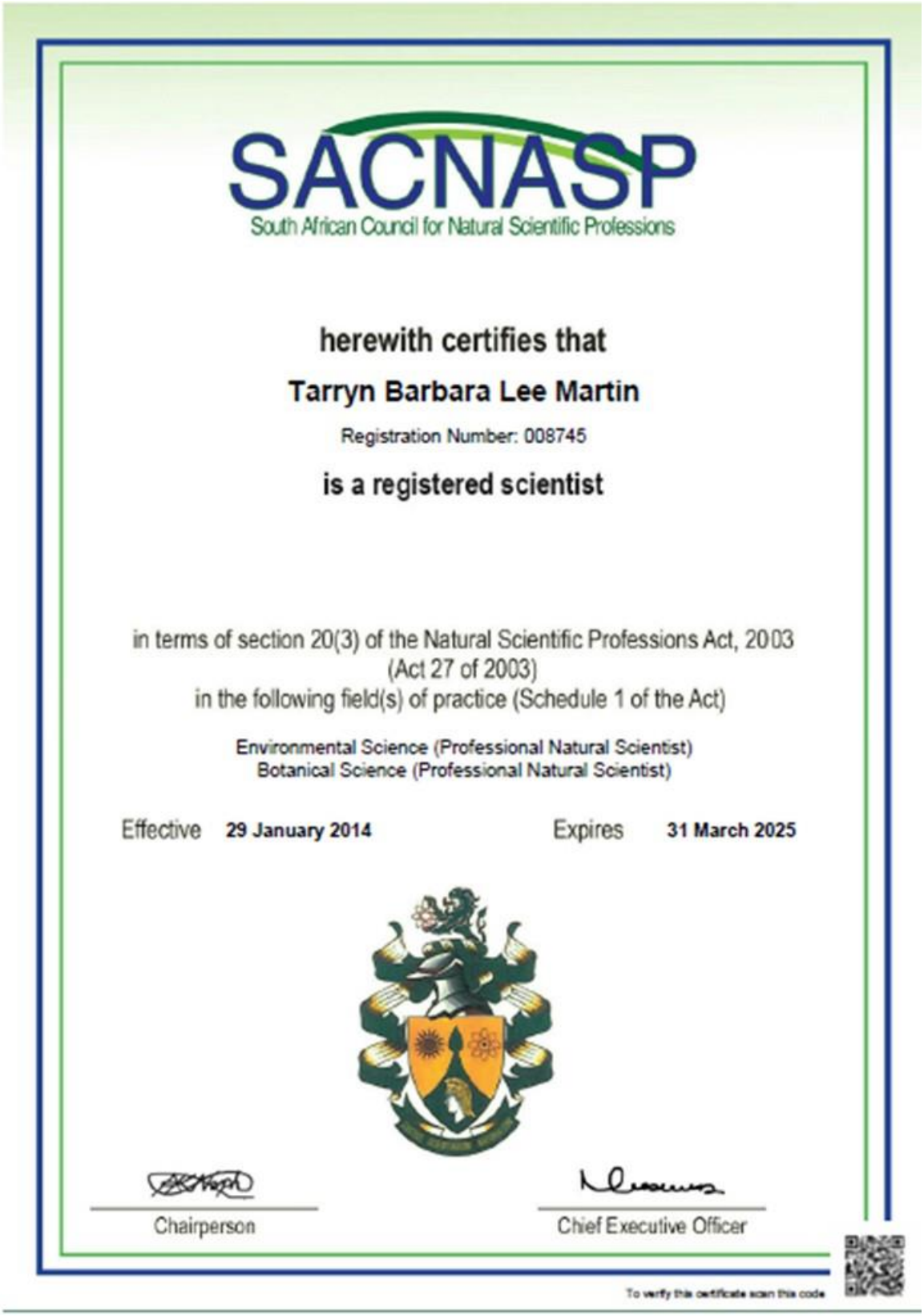
| | | | | | | |
|---|---|---|---|---|---|---|
| Asphodelaceae | *Bulbine annua* | | LC | | | |
| Asphodelaceae | *Bulbine lagopus* | Bunnypaw Kopieva | LC | | | |
| Asphodelaceae | *Trachyandra ciliata* | Common Capespinach | LC | | | |
| Asteraceae | *Eriocephalus racemosus* | Kapkap Kapok | LC | | | |
| Asteraceae | *Arctotheca calendula* | Capeweed | LC | | | |
| Asteraceae | *Athanasia quinquedentata rigens* | | VU | | | |
| Asteraceae | *Cineraria geifolia* | Hairy Cineraria | LC | | | |
| Asteraceae | *Cotula pruinosa* | Yellow Turban Buttons | | | | |
| Asteraceae | *Gazania pectinata* | Cockscomb Gazania | LC | | | |
| Asteraceae | *Helichrysum dasyanthum* | Fynbos Everlasting | LC | | | |
| Asteraceae | *Helichrysum patulum* | Honey Everlasting | LC | | | |
| Asteraceae | *Helichrysum revolutum* | Pale Everlasting | LC | | | |
| Asteraceae | *Metalasia muricata* | White bristle bush | LC | | | |
| Asteraceae | *Osteospermum moniliferum* | Bietou | LC | | | |
| Asteraceae | *Pteronia uncinata* | Beach Gumbush | LC | | | |
| Asteraceae | *Senecio arenarius* | Sandveld Ragwort | LC | | | |
| Asteraceae | *Senecio burchellii* | Kill Ragwort | LC | | | |
| Asteraceae | *Ursinia anthemoides* | Star of the Veldt | LC | | | |
| Brassicaceae | *Heliophila africana* | African Sunspurge | LC | | | |
| Brassicaceae | *Heliophila linearis* | Needle Sunspurge | LC | | | |
| Campanulaceae | *Wahlenbergia tenella* | Fine Capebell | LC | | | |
| Caryophyllaceae | *Silene aethiopica* | African Annual Catchfly | LC | | | |
| Celastraceae | *Cassine peragua barbara* | Coastal Spoonwood | LC | | | |
| Celastraceae | *Lauridia tetragona* | Climbing Saffron | LC | | | |
| Celastraceae | *Maytenus oleoides* | Rock Candlewood | LC | | | |
| Celastraceae | *Pterocelastrus tricuspidatus* | Candlewood | LC | | | |
| Colchicaceae | *Colchicum eucomoides* | Green Men-in-a-Boat | LC | | | |
| Crassulaceae | *Crassula glomerata* | Orange Stonecrop | LC | | | |
| Cyperaceae | *Ficinia bulbosa* | Bulbous Sedge | LC | | | |
| Cyperaceae | *Ficinia dunensis* | | LC | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Cyperaceae | *Ficinia marginata* | Common Annual Clubrush | LC | | | |
| Cyperaceae | *Ficinia ramosissima* | Branch Clubrush | LC | | | |
| Cyperaceae | *Hellmuthia membranacea* | Helmet Sedge | LC | | | |
| Ebenaceae | *Euclea racemosa* | Dune Gwarrie | LC | | | |
| Euphorbiaceae | *Euphorbia terracina* | carnation spurge | NE | | | |
| Fabaceae | *Acacia cyclops* | western coastal wattle | NE | | | |
| Fabaceae | *Aspalathus sp.* | | | | | |
| Fabaceae | *Aspalathus forbesii* | Forb Capegorse | LC | | | |
| Fabaceae | *Aspalathus hispida* | Bristle Capegorse | LC | | | |
| Fabaceae | *Indigofera heterophylla* | Diverse Indigo | LC | | | |
| Fabaceae | *Lessertia frutescens* | cancer bush | LC | | | |
| Fabaceae | *Lessertia miniata* | Trifling Bubblepod | LC | | | |
| Fabaceae | *Otholobium bracteolatum* | Strand Dottypea | LC | | | |
| Fabaceae | *Tephrosia capensis* | Cape Hoarypea | LC | | | |
| Fumariaceae | *Cysticapnos vesicaria* | Coconut-weed | LC | | | |
| Gentianaceae | *Chironia baccifera* | Christmas Berry | LC | | | |
| Geraniaceae | *Erodium malacoides* | Soft Stork's-bill | NE | | | |
| Geraniaceae | *Geranium incanum* | carpet crane's-bill | LC | | | |
| Geraniaceae | *Pelargonium betulinum* | Camphor Storksbill | LC | | | |
| Geraniaceae | *Pelargonium suburbanum* | dune pelargonium | LC | | | |
| Hyacinthaceae | *Albuca cooperi* | Dainty Soldier-in-a-Box | LC | | | |
| Hyacinthaceae | *Lachenalia variegata* | Spotty Viooltjie | LC | Schedule 4 | | |
| Hyacinthaceae | *Massonia depressa* | Hedgehog Lily | LC | | | |
| Iridaceae | *Chasmanthe aethiopica* | Cobra Lily | LC | Schedule 4 | | |
| Iridaceae | *Gladiolus cunonius* | Red Pypie | LC | Schedule 4 | | |
| Iridaceae | *Micranthus alopecuroides* | Swordleaf Combflower | LC | Schedule 4 | | |
| Iridaceae | *Moraea fugax* | Sweet Tulp | LC | Schedule 4 | | |
| Iridaceae | *Romulea sp.* | Froetangs | | Schedule 4 | | |
| Iridaceae | *Moraea collina* | Cape Tulip | LC | Schedule 4 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Lamiaceae | *Salvia aurea* | Brown Sage | LC | | | |
| Malvaceae | *Hermannia angustibracteata* | | | | | |
| Malvaceae | *Hermannia ternifolia* | Sweet Doll's-rose | LC | | | |
| Menispermaceae | *Cissampelos capensis* | Cape Moonseed Vine | LC | | | |
| Myrsinaceae | *Myrsine africana* | African Boxwood | LC | | | |
| Oleaceae | *Olea exasperata* | Dune olive | LC | | | |
| Orchidaceae | *Disperis villosa* | Granny's-bonnet | LC | Schedule 4 | | |
| Orchidaceae | *Satyrium carneum* | Pink Satyre | LC | Schedule 4 | | |
| Orobanchaceae | *Hyobanche sanguinea* | Inkblom | LC | | | |
| Orobanchaceae | *Orobanche minor* | Common Broomrape | NE | | | |
| Plantaginaceae | *Plantago lanceolata* | ribwort plantain | LC | | | |
| Poaceae | *Avena barbata* | slender wild oat | NE | | | |
| Poaceae | *Bromus diandrus* | great brome | NE | | | |
| Poaceae | *Bromus hordeaceus* | common soft brome | NE | | | |
| Poaceae | *Ehrharta calycina* | Perennial Veldtgrass | LC | | | |
| Poaceae | *Festuca sp.* | Fescues | | | | |
| Poaceae | *Lagurus ovatus* | Hare's Tail Grass | LC | | | |
| Poaceae | *Pentameris pallida* | Pale Fiveawn | NE | | | |
| Poaceae | *Phalaris aquatica* | harding grass | NE | | | |
| Poaceae | *Thinopyrum distichum* | Sea Wheat | NE | | | |
| Poaceae | *Tribolium hispidum* | Haregrass | LC | | | |
| Polygalaceae | *Muraltia satureioides* | Sand Purplegorse | LC | | | |
| Polygalaceae | *Polygala garcinii* | Slender Falsepea | LC | | | |
| Polygonaceae | *Rumex cordatus* | Heart Dock | LC | | | |
| Ranunculaceae | *Anemone vesicatoria* | Common Burnleaf | LC | | | |
| Restionaceae | *Restio eleocharis* | Beach Pegreed | LC | | | |
| Restionaceae | *Restio triticeus* | Wheat Capereed | LC | | | |
| Restionaceae | *Thamnochortus insignis* | True Thatchreed | LC | | | |
| Rhamnaceae | *Phylica ericoides* | Heath Hardleaf | LC | | | |
| Rutaceae | *Agathosma capensis* | Cape Buchu | LC | Schedule 4 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Santalaceae | *Colpoon sp.* | Tanninbushes | | | | |
| Santalaceae | *Thesium fragile* | Beach Rootthug | DDT | | | |
| Santalaceae | *Viscum capense* | Cape Mistletoe | LC | | | |
| Scrophulariaceae | *Chaenostoma hispidum* | Bristle Skunkbush | LC | | | |
| Scrophulariaceae | *Lyperia lychnidea* | Clove Tearbush | LC | | | |
| Scrophulariaceae | *Manulea cheiranthus* | Spider Fingerflox | LC | | | |
| Scrophulariaceae | *Manulea tomentosa* | Beach Fingerflox | LC | | | |
| Scrophulariaceae | *Myoporum montanum* | waterbush | NE | | | |
| Scrophulariaceae | *Nemesia affinis* | Common Lionface | LC | | | |
| Scrophulariaceae | *Selago scabrida* | | LC | | | |
| Scrophulariaceae | *Zaluzianskya villosa* | Downy Drumsticks | LC | | | |
| Scrophulariaceae | *Diascia sp.* | Twinspurs | | Schedule 4 | | |
| Scrophulariaceae | *Dischisma ciliatum* | Fringe Falseslugwort | LC | | | |
| Scrophulariaceae | *Jamesbrittenia albomarginata* | Crossed Jaybee | LC | | | |
| Scrophulariaceae | *Pseudoselago gracilis* | Fine Puffbush | LC | | | |
| Thymelaeaceae | *Passerina corymbosa* | Common Gonna | LC | | | |
| Thymelaeaceae | *Passerina rigida* | Beach Gonna | LC | | | |
| Zygophyllaceae | *Roepera flexuosa* | Thin Twinleaf | LC | | | |
| Zygophyllaceae | *Tribulus terrestris* | puncture vine | LC | | | |
| Apiaceae | *Torilis africana* | African Hedgeparsley | | | | |

# APPENDIX 2: PROOF OF SACNASP REGISTRATION AND HIGHEST QUALIFICATION



SACNASP

South African Council for Natural Scientific Professions

herewith certifies that

**Tarryn Barbara Lee Martin**

Registration Number: 008745

**is a registered scientist**

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

Environmental Science (Professional Natural Scientist)
Botanical Science (Professional Natural Scientist)

Effective **29 January 2014** Expires **31 March 2025**

Chairperson

Chief Executive Officer

To verify this certificate scan this code

# RHODES UNIVERSITY

THIS IS TO CERTIFY THAT

TARRYN BARBARA LEE MARTIN

WAS THIS DAY AT A CONGREGATION OF THE UNIVERSITY
ADMITTED TO THE DEGREE OF

## MASTER OF SCIENCE

**IN**

**BOTANY**

**WITH DISTINCTION**

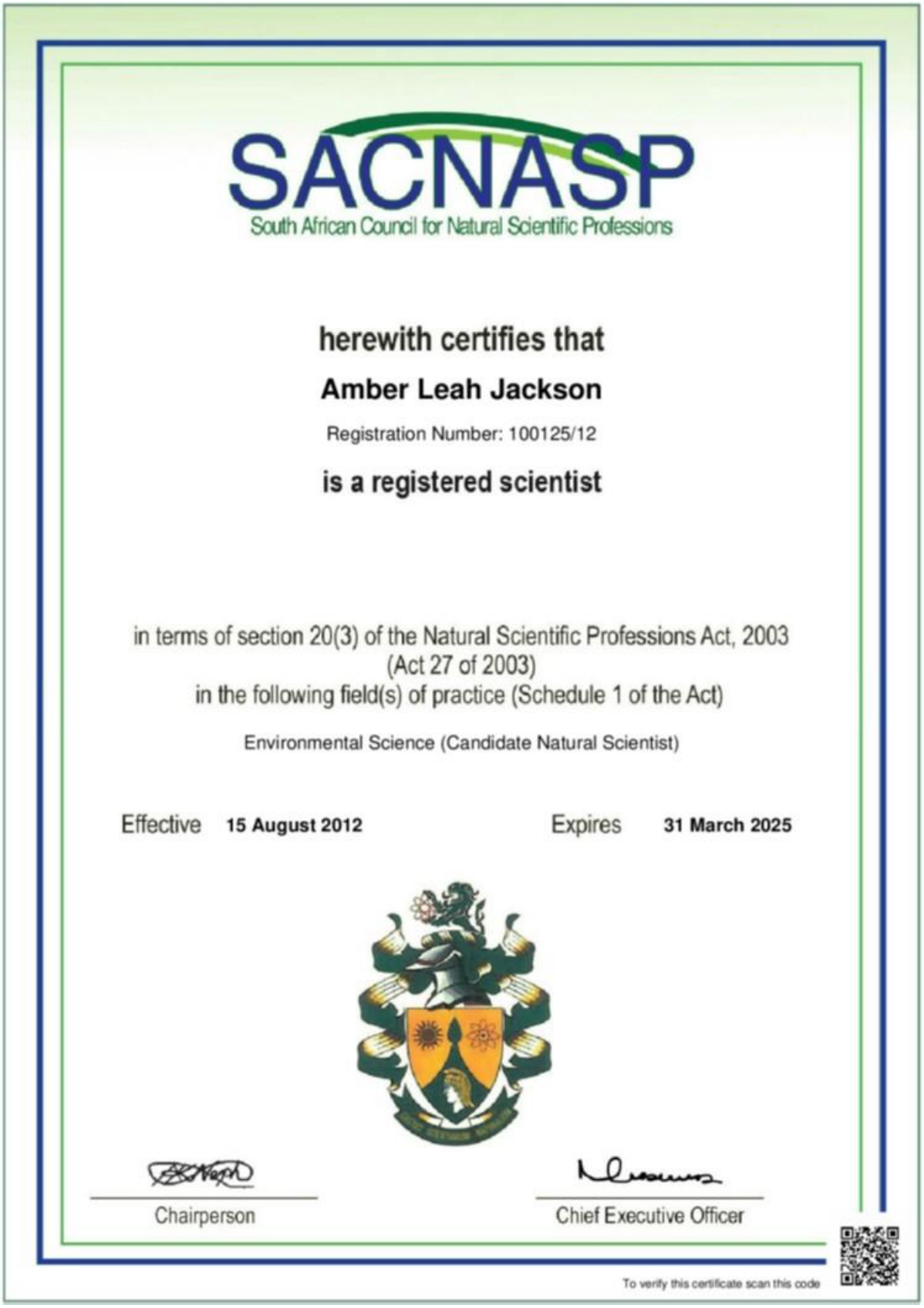
VICE CHANCELLOR

DEAN OF THE FACULTY OF SCIENCE

REGISTRAR

GRAHAMSTOWN
10 APRIL 2010

Application for Professional Natural Science in the field of Zoology is currently awaiting approval.



SACNASP

South African Council for Natural Scientific Professions

herewith certifies that

**Amber Leah Jackson**

Registration Number: 100125/12

**is a registered scientist**

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

Environmental Science (Candidate Natural Scientist)

Effective **15 August 2012** Expires **31 March 2025**

Chairperson

Chief Executive Officer

To verify this certificate scan this code

University of Cape Town • iYunivesithi yaseKapa • Universiteit van Kaapstad

*we certify that*

**Amber Leah Jackson**

*was admitted to the degree of*

# Master of Philosophy

## in Environmental Management

*on 9 June 2011*

Vice-Chancellor

Registrar

SACNASP

South African Council for Natural Scientific Professions

**herewith certifies that**

**Nicole Nadine Wienand**

Registration Number: 130289

**is a registered scientist**

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

Environmental Science (Certificated Natural Scientist)
Botanical Science (Professional Natural Scientist)

Effective **3 March 2021** Expires **31 March 2025**

Chairperson

Chief Executive Officer

To verify this certificate scan this code

NELSON MANDELA
UNIVERSITY

This is to certify that, all the requirements
having been met, the degree

# Bachelor of Science Honours in Botany

with all the associated rights and privileges,
was conferred upon

**Nicole Nadine Wienand**
ID no.: 9501170150088

at a congregation of the Nelson Mandela University on
13 December 2018

Certificate no.: 20185249

Vice-Chancellor

Registrar

00008632

# APPENDIX 3: CV

## CONTACT DETAILS

| | |
|---|---|
| **Name** | **Nicole Dealtry (née Wienand)** |
| **Name of Company** | Biodiversity Africa |
| **Designation** | Senior Botanist |
| **Professional Affiliations** | SACNASP Pri. Sci. Nat. Botany Reg No. 130289<br>IAIAsa Membership No. 6176<br>SAAB: Member of the South African Association of Botanists |
| **E-mail** | nicole@biodiversityafrica.com |
| **Contact Number** | +27 (0)81 044 1925 |
| **Education** | April 2018: Bachelor of Science (BSc) Bontany and Geology<br>December 2018: Bachelor of Science (BSc) Honours (Hons) Botany |
| **Nationality** | South African |
| **Key areas of expertise** | ➢ Ecological Impact Assessments<br>➢ Botanical Micro-siting<br>➢ GIS Mapping |

## PROFILE

Nicole (SACNASP Pri. Sci. Nat. Botany Reg No. 130289) is a Botanical Specialist with over 4 years' experience. Nicole obtained her BSc Honours in Botany (Environmental Management) from Nelson Mandela University (NMU) in December 2018. She also holds a BSc Degree in Environmental Management (Cum Laude) from NMU. Nicole has undertaken numerous Ecological Impact Assessments for a range of developments, including Wind Energy Facilities (WEFs), mines, powerlines, housing developments, roads, amongst others, ensuring that these specialist assessments are undertaken and prepared in accordance with the Protocols for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity (GN R. 320), Plant Species and Animal Species (GN R. 1150) whilst working closely with developers to ensure a development which is environmentally sustainable as well as financially and technically feasible. Nicole also has experience with conducting specialist assessments in other African countries, including Sierra Leone and Mozambique.

**EMPLOYMENT EXPERIENCE**

**Botanical Specialist, Biodiversity Africa**
*March 2023 – present*

- Botanical and Ecological Impact Assessments
- Alien Management Plans
- GIS Mapping

**Environmental Consultant and Botanical Specialist, Coastal and Environmental Services (CES)**
*07 January 2019 – February 2023*

- Ecological Impact Assessments
- Botanical Micro-siting
- GIS Mapping
- Basic Assessments
- Public Participation
- Environmental Auditing/Compliance Monitoring
- Environmental Management Programmes (EMPr)

**ACADEMIC QUALIFICATIONS**

**Nelson Mandela University,** Port Elizabeth
BSc Honours Botany (Environmental Management)
2018

**Nelson Mandela Metropolitan University,** Port Elizabeth
BSc Environmental Sciences
2015-2017

**CONSULTING EXPERIENCE**

***Basic Assessments***

- Basic Assessment Report (BAR) for the proposed Duyker Island Prospecting Right, North West Province (Role: Assistant Report Writer).
- Basic Assessment Report (BAR) for the proposed Fairview Sand Mine near Port Alfred, Eastern Cape Province (Role: Report Writer).
- Basic Assessment Report (BAR) for the proposed Kareekrans Boerdery Agricultural Development near Kirkwood, Eastern Cape Province (Role: Report Writer).
- Basic Assessment Report (BAR) for the proposed Sitrusrand Dwarsleegte Farm Citrus Development near Kirkwood, Eastern Cape Province (Role: Report Writer).
- Basic Assessment Report (BAR) for the Proposed Private Jetty in Bushman's Estuary near Kenton-On-Sea, within the Eastern Cape Province (Role: Report Writer).

***Ecological Impact Assessments and Related Work***

- ZMY Steel Traders (Pty) Ltd., Steel Recycling Plant, Zone 5 of the Coega SEZ, Eastern Cape Province (Role: Ecological Specialist and Ecological Chapter Writer).
- Ecological Impact Assessment for the proposed Kareekrans Boerdery Agricultural Development near Kirkwood Eastern Cape Province (Role: Botanical specialist and Lead Report Writer).
- Ecological Impact Assessment for the proposed Sitrusrand Dwarsleegte Farm Citrus Development near Kirkwood, Eastern Cape Province – Ecological Impact Assessment and Report Writing (Role: Botanical Specialist and Lead Report Writer).
- Ecological Impact Assessment for the proposed Uitsig Boerdery Trust Citrus Development near Kirkwood, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Ground Truthing Survey for Aloe bowiea on Portion 2 of Farm 683 for the proposed Uitsig Boerdery Trust Citrus Development near Kirkwood, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Mosselbankfontein Coastal Dune and Ecological Impact Assessment near Witsand, Western Cape Province (Role: Botanical Specialist and Lead Report Writer).

- Mangrove Forest Survey for the Kenmare Biodiversity Management Plan, Topuito, Mozambique (Role: Botanical Specialist and Lead Report Writer).
- Ecological Impact Assessment for the proposed Refele Village Sports Facility, Mount Fletcher, Elundini Local Municipality, Eastern Cape Province of South Africa (Role: Lead Report Writer).
- Ecological Impact Assessment for the proposed Hamburg Quarry Expansion, R72, Ngqushwa Local Municipality (Role: Lead Report Writer).
- Ecological Opinion and Site Sensitivity Report for the proposed Woodlands Dairy 22kV Overhead Line near Humandsdorp, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Ecological Impact Assessment Report for the proposed Edendale Quarry, R56, Matatiele Local Municipality, Eastern Cape Province (Role: Report Writer).
- Ecological Impact Assessment for the proposed TWFT Piggery near Tsitsikamma, Koukama Local Municipality, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Ecological Impact Assessment for the proposed Oudtshoorn Cemetery Expansion, Oudtshoorn Local Municipality, Western Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Tyolomnqa River Estuary Situation Assessment (Role: Assistant Report Writer).
- Ecological Opinion Letter for the Proposed Umsobomvu Infrastructure Development, Eastern and Northern Cape Provinces (DEFF Reference Number: 14/12/16/3/3/1/2040) (Role: Report Writer).
- Ecological Opinion Letter for the Proposed Coleskop Infrastructure Development, Eastern and Northern Cape Provinces (DEFF Reference Number: 14/12/16/3/3/1/2039) (Role: Report Writer).
- Quinera Estuary Draft Situation Assessment Report (Role: Report Writer).
- Ecological Impact Assessment for the Proposed Umoyilanga 132 kV Overhead Line in the Sundays River Valley Local Municipality and the Nelson Mandela Bay Municipality, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Ecological Impact Assessment for the Proposed Umoyilanga Ancillary Infrastructure near Uitenhage, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Ecological Impact Assessment Report for the proposed Marine Servitude Project, Zone 10, Coega SEZ, Eastern Cape Province, South Africa (Role: Botanical Specialist and Lead Report Writer).
- Botanical Micro-siting Report for the proposed Umoyilanga 132 kV Overhead Line in the Sundays River Valley Local Municipality and the Nelson Mandela Bay Municipality, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Botanical Micrositing Report for the Proposed Dassiesridge (Umoyilanga) Wind Energy Facility near Uitenhage, Nelson Mandela Bay Municipality and Sundays River Valley Local Municipality, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Ecological Screening Report for the Proposed Hlaziya 400-132 kV Powerline Project (the MTS Integration Project) from close to Jeffrey's Bay to Grassridge, near the Coega Sez, Eastern Cape Province (Role: Lead Report Writer).
- Ecological Impact Assessment for the proposed Umsobomvu Substation, Concrete Tower Manufacturing Facilities and Temporary Laydown Area, situated in the Umsobomvu Local Municipality (Northern Cape Province) and the Inxuba Yethemba Local Municipality (Eastern Cape Province) (Role: Botanical Specialist and Lead Report Writer).
- Botanical Micro-siting Report for the Eskom Infrastructure MTS situated in the Umsobomvu Local Municipality (Northern Cape Province) (Role: Botanical Specialist and Lead Report Writer).
- Botanical Micro-siting Report for the Proposed Coleskop Wind Energy Facility situated in the Umsobomvu Local Municipality (Northern Cape Province) and the Inxuba Yethemba Local Municipality (Eastern Cape Province) (Role: Botanical Specialist and Lead Report Writer).
- Botanical Micro-siting Report for the Proposed Umsobomvu Wind Energy Facility situated in the Umsobomvu Local Municipality (Northern Cape Province) and the

Inxuba Yethemba Local Municipality (Eastern Cape Province) (Role: Botanical Specialist and Lead Report Writer).

- Ecological Impact Assessment for the Proposed Ganspan Pering 132 kV Overhead Line near Pampierstand, North West and Northern Cape Provinces (Role: Botanical Specialist and Lead Report Writer).
- Botanical Micro-Siting Investigation for the R342 Road Upgrade Between Paterson And Addo, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Terrestrial Biodiversity Compliance Statement for the proposed Stedin College, Walmer, Nelson Mandela Bay Municipality, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Ecological Impact Assessment Report for a proposed Hippo Enclosure on Glen Boyd Farm, Makana Local Municipality, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Ecological Impact Assessment for the Proposed Senqu Rural Water Supply Scheme, Joe Gqabi District Municipality, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Environmental Management Site Specification for the Rehabilitation of Land within the Coastal Dune System Impacted by the Zone 10 Services Project, Coega SEZ, Eastern Cape Province (Role: Site Visit and Assistant Report Writer).
- Botanical Assessment Report for the proposed Agricultural Development on the Remainder of Erf 60845, Zone 1, East London Industrial Development Zone, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Botanical Impact Assessment for the proposed FG Gold Limited Baomahun Gold Project, Sierra Leone (Role: Botanical Specialist and Lead Report Writer).
- Biodiversity Management Plan for the proposed FG Gold Limited Baomahun Gold Project, Sierra Leone (Role: Lead Report Writer).
- Ecological Baseline Assessment for the proposed Jeffreys Bay Eco-Estate, Eastern Cape Province (Role: Botanical Specialist and Co-Author).
- Ecological Impact Assessment for the proposed Mulilo Newcastle Wind Energy Facility, KwaZulu-Natal Province (Role: Botanical Specialist and Assistant Report Writer).
- Ecological Impact Assessment for the proposed Ngxwabangu Wind Energy Facility and Grid Connection near Cofimvaba, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Ecological Impact Assessment for the proposed Umoyilanga Buffer Yard, Site Camp and Site Camp Access Road near Uitenhage, Nelson Mandela Bay Municipality and Sundays River Valley Local Municipality, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Terrestrial Biodiversity Compliance Statement for the proposed Reverse Osmosis Plant for the Matla Power Station near Kriel, Mpumalanga Province (Role: Lead Report Writer).
- Ecological Impact Assessment for the proposed Great Kei Ancillary Infrastructure located near Komga, Eastern Cape Province.

***Environmental Auditing***

- Khayamnandi Extension on Erven 114, 609, 590 and 24337, Bethelsdorp, within the Nelson Mandela Bay Municipality;
- Aberdeen Bulk Water Supply Phase 2, Dr Beyers Naude Local Municipality, Eastern Cape Province, South Africa;
- The Milkwoods Integrated Residential Development, Remainder Erf 1953, Victoria Drive, Walmer, Nelson Mandela Bay Municipality, Eastern Cape Province;
- Fishwater Flats Wastewater Treatment Works Refurbishment, Nelson Mandela Bay Municipality, Eastern Cape Province;
- The Refurbishment of the Kwanobuhle Wastewater Treatment Plant, Nelson Mandela Bay Municipality, Eastern Cape Province, South Africa; and
- Driftsands Sewer Collector Augmentation (Phase Ii), Within the Nelson Mandela Bay Municipality, Eastern Cape Province.

***Geographical Information Systems (GIS) Mapping***

- ZMY Steel Traders – Basic Assessment Report and Biophysical Mapping.
- Duyker Island – Prospecting Area Mapping & Biophysical Mapping.

- Fairview Sand Mine near Port Alfred, Eastern Cape Province – Biophysical and Layout Mapping.
- St Francis Coastal Protection Scheme – Kromme Estuary Functional Zone Mapping; Biophysical Mapping; and Sand Source Area Mapping.
- Kareekrans Boerdery Agricultural Development – Biophysical and Layout Mapping.
- Sitrusrand Dwarsleegte Farm Citrus Development – Biophysical and Layout Mapping.
- Marine Intake and Outfall Infrastructure Servitude Project, Zone 10, Coega SEZ, Eastern Cape Province, South Africa – Biophysical and Layout Mapping.
- Proposed Private Jetty in Bushman's Estuary near Kenton-On-Sea, within the Eastern Cape Province – Biophysical and Layout Mapping.
- Proposed Woodlands Dairy 22kV Overhead Line near Humandsdorp, Eastern Cape Province – Biophysical and Layout Mapping.
- Tyolomnqa River Estuary Situation Assessment – Biophysical and Layout Mapping.
- Hamburg Quarry Expansion, R72, Ngqushwa Local Municipality – Biophysical and Layout Mapping.
- Refele Village Sports Facility, Mount Fletcher, Elundini Local Municipality, Eastern Cape Province of South Africa – Biophysical and Layout Mapping.
- The proposed Woodlands Dairy 22kV Overhead Line near Humandsdorp, Eastern Cape Province – Biophysical and Layout Mapping.
- Ecological Impact Assessment Report for the proposed Edendale Quarry, R56, Matatiele Local Municipality, Eastern Cape Province – Biophysical and Layout Mapping.
- The proposed TWFT Piggery near Tsitsikamma, Koukama Local Municipality, Eastern Cape Province – Biophysical and Layout Mapping.
- Tyolomnqa River Estuary Situation Assessment – Biophysical and Layout Mapping.
- Quinera Estuary Draft Situation Assessment Report – Biophysical and Layout Mapping.
- The Proposed Umoyilanga 132 kV Overhead Line in the Sundays River Valley Local Municipality and the Nelson Mandela Bay Municipality, Eastern Cape Province – Biophysical and Layout Mapping.
- The Proposed Umoyilanga Ancillary Infrastructure near Uitenhage, Eastern Cape Province – Biophysical and Layout Mapping.
- Proposed Hlaziya 400-132 kV Powerline Project (the MTS Integration Project) from close to Jeffrey's Bay to Grassridge, near the Coega Sez, Eastern Cape Province - Biophysical and Layout Mapping.
- Proposed Umsobomvu Substation, Concrete Tower Manufacturing Facilities and Temporary Laydown Area, situated in the Umsobomvu Local Municipality (Northern Cape Province) and the Inxuba Yethemba Local Municipality (Eastern Cape Province) - Biophysical and Layout Mapping.
- Eskom Infrastructure MTS situated in the Umsobomvu Local Municipality (Northern Cape Province) - Biophysical and Layout Mapping.
- Botanical Micro-siting Investigation for the Proposed Umsobomvu Wind Energy Facility situated in the Umsobomvu Local Municipality (Northern Cape Province) and the Inxuba Yethemba Local Municipality (Eastern Cape Province) - Biophysical and Layout Mapping.
- Proposed Ganspan Pering 132 kV Overhead Line near Pampierstand, North West and Northern Cape Provinces - Biophysical and Layout Mapping.
- The proposed Agricultural Development on the Remainder of Erf 60845, Zone 1, East London Industrial Development Zone, Eastern Cape Province - Biophysical and Layout Mapping.
- The proposed Reverse Osmosis Plant for the Matla Power Station near Kriel, Mpumalanga Province - Biophysical and Layout Mapping.

***Public Participation process***

- Duyker Island Prospecting Right, North West Province St Francis Coastal Protection Scheme.
- Fairview Sand Mine near Port Alfred, Eastern Cape Province.
- Kareekrans Boerdery Agricultural Development near Kirkwood Eastern Cape Province,
- Proposed Coastal Protection Scheme, St Francis Bay, Kouga Local Municipality, Eastern Cape Province; and

- Sitrusrand Dwarsleegte Farm Citrus Development near Kirkwood, Eastern Cape Province.
- Marine Intake and Outfall Infrastructure Servitude Project, Zone 10, Coega SEZ, Eastern Cape Province, South Africa.
- Proposed Hlaziya 400-132 kV Powerline Project (the MTS Integration Project) from close to Jeffrey's Bay to Grassridge, near the Coega Sez, Eastern Cape Province.

***Social Auditing***

- Malawi Millennium Development Trust – Resettlement Action Plan Implementation Auditing.

## CONTACT DETAILS

| | |
|---|---|
| **Name** | **Amber Jackson** |
| **Name of Company** | **Biodiversity Africa** |
| **Designation** | Director |
| **Profession** | Faunal Specialist and Environmental Manager |
| **E-mail** | amber@biodiversityafrica.com |
| **Office number** | +27 (0)78 340 6295 |
| **Education** | 2011 M. Phil Environmental Management (University of Cape Town)<br>2008 BSc (Hons) Ecology, Environment and Conservation (University of the Witwatersrand)<br>2007 BSc 'Ecology, Environment and Conservation' and Zoology (WITS) |
| **Nationality** | **South African** |
| **Professional Body** | **SACNASP**: South African Council for Natural Scientific Profession (100125/12)<br>**ZSSA**: Zoological Society of Southern Africa<br>**HAA**: Herpetological Association of Southern Africa<br>**IAIASa**: Member of the International Association for Impact Assessments South Africa |
| **Key areas of expertise** | • Biodiversity Surveys and Impact Assessments<br>• Environmental Impact Assessments<br>• Critical Habitat Assessments<br>• Biodiversity Management and Monitoring Plans |

## PROFILE

Amber has over ten years' experience in environmental consulting and has managed projects across various sectors including mining, agriculture, forestry, renewable energy, housing, coastal and wetland recreational infrastructure. Most of these projects required lender finance and therefore met both in-country, lender and sector specific requirements.

Amber completed the IFC lead and Swiss funded programme in Environmental and Social Risk Management course in 2018. The purpose of the course was to upskill Sub-Saharan African environmental consultants to increase the uptake of E&S standards by Financial Institutions.

Amber specialises in terrestrial vertebrate faunal assessments. She has conducted large scale faunal impact assessments that are to international lender's standards in Mozambique, Tanzania, Lesotho and Malawi. In South Africa her faunal impact assessments comply with the protocols for the specialist assessment and minimum report content requirements for environmental impacts on terrestrial biodiversity and follows the SANBI Species Environmental Assessment Guideline. Her specialist input goes beyond impact assessments and includes faunal opportunities and constraints assessments, Critical Habitat Assessments, Biodiversity related Management Plans and Biodiversity Monitoring Programmes.

Amber holds a BSc (Zoology and Ecology, Environment & Conservation) and BSc (Hons) in Ecology, Environment & Conservation from WITS University and an MPhil in Environmental Management from University of Cape Town. Amber's honours focused on the landscape effects on Herpetofauna in Kruger National Park and her Master's thesis focused on the management of social and natural aspects of environmental systems with a dissertation in food security that investigated the complex food system of informal and formal distribution markets

## EMPLOYMENT EXPERIENCE

**Director and Faunal Specialist,** Biodiversity Africa

*July 2021 - present*

- Faunal assessments for local and international EIAs in Southern Africa
- Identifying and mapping habitats and sensitive areas
- Designing and implementing biodiversity management and monitoring plans
- Critical Habitat Assessments
- Large ESIA studies
- Managing budgets

**Principal Environmental Consultant and Faunal,**
Coastal and Environmental Services

*September 2011-June 2021*

- Faunal and ecological assessments for local and international EIAs in Southern Africa
- Identifying and mapping habitat and sensitive areas

- Designing and implementing biodiversity management and monitoring plans
- Critical Habitat Assessments
- Large ESIA studies
- Coordinating specialists and site visits
- Faunal Impact Assessment
- Project Management, including budgets, deliverables and timelines.
- Environmental Impact Assessments and Basic Assessments project
- Environmental Control Officer
- Public/client/authority liaison
- Mentoring and training of junior staff

**COURSES**

- **Herpetological Association of Southern Africa Conference- Cape St Frances** September 2019
- **International Finance Corporation Environmental and Social Risk Management (ESRM) Program** January – November 2018
- **IAIA WC EMP Implementation Workshop** 27 February 2018
- **IAIAsa National Annual Conference** August 2017
  Goudini Spa, Rawsonville.
- **Biodiversity & Business Indaba, NBBN** April 2017
  Theme: Moving Forward Together (Partnerships & Collaborations)
- **Snake Awareness, Identification and Handling course, Cape Reptile Institute (CRI)** November 2016
- **Coaching Skills programme, Kim Coach** November 2016
- **Western Cape Biodiversity Information Event, IAIAsa** May 2016
  Theme: Biodiversity offsets & the launch of a Biodiversity Information Tool
- **Photography Short Course** 2015.
  Cape Town School of Photography,
- **Mainstreaming Biodiversity into Business: WHAT, WHY, WHEN and HOW** June 2014 Hosted by Dr Marie Parramon Gurney on behalf of the NBBN at the Rhodes Business School
- **IAIAsa National Annual Conference** September 2013
  Thaba'Nchu Sun, Bloemfontein
- **St Johns Life first aid course** July 2012

**CONSULTING EXPERIENCE**

**International Projects**

- 2018-Crooks Brothers Post EIA Work- Environmental and Social EMPr, Policies, E&S Management Plans and Monitoring Programmes
- 2018-Triton Ancuabe Graphite Mine (ESHIA), Mozambique. IFC Standards.
- 2016-Bankable Feasibility Study of Simandou Infrastructure Project – Port and Railway Summary of critical habitat, biodiversity offset plan and monitoring and evaluation plan.
- 2016-Lurio Green Resources Forestry Projects ESIA project upgrade to Lender standards including IFC, EIB, FSC and AfDB.
- 2014-Green Resources Woodchip and MDF plant (EPDA).
- 2014-Niassa Green Resources Forestry Projects ESIA to Lender standards including IFC, EIB, FSC and AfDB.
- 2020-Kenmare Faunal Biodiversity Management Plan, Mozambique.
- 2020-Kenmare Faunal Monitoring Pogramme (year 1)- Baseline, Mozambique.
- 2019-Kenmare addendum ESIA Faunal Impact Assessment, Mozambique.
- 2019-Kenmare infrastructure corridor ESIA Faunal Impact Assessment, Mozambique.
- 2019/20-Olam Cocoa Plantation Faunal Impact Assessment, Tanzania.
- 2019-JCM Solar Voltaic project Faunal desktop critical habitat assessment, Cameroon.
- 2018-Suni Resources Balama Graphite Mine Project Faunal Impact Assessment, Mozambique.
- 2017/18-Battery Minerals Montepuez Graphite Mine Project Faunal Impact Assessment, Mozambique.

- 2017-Triton Minerals Nicanda Hills Graphite Mine Project Faunal Impact Assessment, Mozambique.
- 2017-Sasol Biodiversity Assessment, Mozambique.
- 2014-Lesotho Highlands Water Project Faunal Impact Assessment, Lesotho.
- 2012-Malawi Monazite mine Projects (ESIA) EMP ecological management contribution
- Liberia Palm bay & Butow (ESIA)
- PGS Seismic Project (ESIA), Mozambique.

**South African Projects**

- 2018-Port St Johns Second Beach Coastal Infrastructure Project - E&S Risk Assessment
- 2015-Blouberg Development Initiative- E&S Risk Assessment
- 2019-Boulders Powerline BA Faunal desktop impact assessment, WC, SA.
- 2019-Ramotshere housing development BA Faunal desktop impact assessment, NW, SA.
- 2019-Cape Agulhas Municipality Industrial development faunal impact assessment, WC, SA.
- 2019-SANSA Solar PV BA Faunal desktop impact assessment, WC, SA.
- 2019-Wisson Coal to Urea Faunal desktop assessment, Mpumalanga.
- 2019-Assessment Boschendal Estate Faunal Opportunities and Constraints, WC, SA.
- 2019-Ganspan-Pan Wetland Reserve Recreational and Tourist Development Avifaunal Impact Assessment, NC, SA.
- 2018-City of Johannesburg Municipal Reserve Proclamation for Linksfield Ridge and Northcliff Hill Faunal Assessment, South Africa.
- 2017-Augrabies falls hydro-electric project Hydro-SA Faunal Impact Assessment.
- Port St Johns Second Beach Coastal Infrastructure Project (EIA), South Africa.
- Woodbridge Island Revetment checklist.
- Belmont Valley Golf Course and Makana Residential Estate (EIA)
- Belton Farm Eco Estate (BA).
- Ramotshere housing development (BA).
- G7 Brandvalley Wind Energy Project (EIA)
- G7 Rietkloof Wind Energy Project (EIA)
- G7 Brandvalley Powerlines (BA)
- G7 Rietkloof Powerlines (BA)
- Boschendal wine estate Hydro-electric schemes (BA, 24G and WULA)
- Mossel Bay Wind Energy Project (EIA)
- Mossel Bay Powerline (BA) 132kV interconnection
- Inyanda Farm Wind Energy (EIA)
- Middleton Wind Energy (EIA)
- Peddie Wind Energy (EIA)
- Cookhouse Wind Energy Project (EIA)
- Haverfontein Wind Energy Project (EIA)
- Plan 8 Wind Energy Project (EIA)
- Brakkefontein Wind Energy Project (EIA)
- Grassridge Wind Energy Project (EIA) (Coega)
- St Lucia Wind Energy Project (EIA)
- ACSA ECO CT (Lead ECO)
- Enel Paleisheuwel Solar farm (Lead ECO)
- NRA Caledon road upgrade ECO
- Solar Capital DeAar Solar farm annual audits
- Eskom Pinotage substation WUL offset compliance