

Terrestrial Biodiversity Compliance Statement

prepared in accordance with the
*"Protocol for the Specialist Assessment and minimum report content
requirements for environmental impacts on Terrestrial Biodiversity"*

Portion 1 of Duinekroon 591, Stilbaai in the Western Cape
Province



David Hoare Consulting (Pty) Ltd



David Hoare
Consulting (Pty) Ltd

Address:
Postnet Suite #116
Private Bag X025
Lynnwood Ridge
0040

41 Soetdoring Avenue
Lynnwood Manor
Pretoria

Cell: 083 284 5111
david@davidhoareconsulting.co.za

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04 August 2022

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SPECIALIST DETAILS & DECLARATION

This report has been prepared in accordance with the "Protocol for the specialist assessment and minimum report content requirements for environmental impacts on terrestrial biodiversity", as promulgated in terms of Section 24 (5) of the National Environmental Management Act, 1998 (Act No. 107 of 1998), published in GN. No. 320 dated 20 March 2020. It has been prepared independently of influence or prejudice by any parties.

The details of Specialists are as follows –

Table 1: Details of Specialist

Specialist	Qualification and accreditation
Dr David Hoare (Pr.Sci.Nat.)	<ul style="list-style-type: none">• PhD Botany• SACNASP Reg. no. 400221/05 (Ecology, Botany)

Declaration of independence:

David Hoare Consulting (Pty) Ltd in an independent consultant and hereby declare that it does not have any financial or other vested interest in the undertaking of the proposed activity, other than remuneration for the work performed in terms of the National Environmental Management Act, 1998 (Act 107 of 1998). In addition, remuneration for services provided by David Hoare Consulting (Pty) Ltd is not subjected to or based on approval of the proposed project by the relevant authorities responsible for authorising this proposed project.

Disclosure:

David Hoare Consulting (Pty) Ltd undertake to disclose, to the competent authority, any material information that has or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) and will provide the competent authority with access to all information at its disposal regarding the application, whether such information is favourable to the applicant or not.

Based on information provided to David Hoare Consulting (Pty) Ltd by the client and in addition to information obtained during the course of this study, David Hoare Consulting (Pty) Ltd present the results and conclusion within the associated document to the best of the author's professional judgement and in accordance with best practise.



Dr David Hoare

04 August 2022
Date

TERMS OF REFERENCE

PROTOCOL FOR THE SPECIALIST ASSESSMENT AND MINIMUM REPORT CONTENT REQUIREMENTS FOR ENVIRONMENTAL IMPACTS ON TERRESTRIAL BIODIVERSITY

This site sensitivity assessment follows the requirements of The Environmental Impact Assessment Regulations, as promulgated in terms of Section 24 (5) of the National Environmental Management Act, 1998 (Act No. 107 of 1998), published in GN. No. 320 dated 20 March 2020.

General information

1.1. An applicant intending to undertake an activity identified in the scope of this protocol, on a site identified on the screening tool as being of **"very high sensitivity"** for terrestrial biodiversity, must submit a Terrestrial Biodiversity Specialist Assessment.

1.2. An applicant intending to undertake an activity identified in the scope of this protocol on a site identified by the screening tool as being **"low sensitivity"** for terrestrial biodiversity, must submit a Terrestrial Biodiversity Compliance Statement.

1.3. However, where the information gathered from the site sensitivity verification differs from the designation of "very high" terrestrial biodiversity sensitivity on the screening tool and it is found to be of a "low" sensitivity, then a Terrestrial Biodiversity Compliance Statement must be submitted.

1.4. Similarly, where the information gathered from the site sensitivity verification differs from that identified as having a "low" terrestrial biodiversity sensitivity on the screening tool, a Terrestrial Biodiversity Specialist Assessment must be conducted.

1.5. If any part of the proposed development footprint falls within an area of "very high" sensitivity, the assessment and reporting requirements prescribed for the "very high" sensitivity apply to the entire footprint, **excluding linear activities** for which impacts on terrestrial biodiversity are temporary and the land in the opinion of the terrestrial biodiversity specialist, based on the mitigation and remedial measures, can be returned to the current state within two years of the completion of the construction phase, in which case a compliance statement applies. Development footprint in the context of this protocol means the area on which the proposed development will take place and includes any area that will be disturbed.

For the purposes of this application a Biodiversity Compliance Statement is deemed appropriate given the site conditions, historical land use, location within the urban edge, surrounding land uses and sensitivities.

Terrestrial Biodiversity Compliance Statement

2.1 The Terrestrial Biodiversity Compliance Statement, must be prepared by a suitably qualified specialist in the field of ecological sciences, on the site being submitted as the preferred development site and must verify:

2.1.1 **That the site is of "low" sensitivity for terrestrial biodiversity;** and

2.1.2 Whether or not the proposed development will have any (significant) impact on the biodiversity feature.

According to the Protocols, the Terrestrial Biodiversity Compliance Statement, must contain, as a minimum, the following information:

3.1 Contact details and curriculum vitae of the specialist including SACNASP registration number and field of expertise;

3.2 A signed statement of independence by the specialist;

- 3.3 Baseline profile description of biodiversity and ecosystems, including the duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment;
- 3.4 Methodology used to verify the sensitivities of the terrestrial biodiversity on the national web based environmental screening;
- 3.5 Methodology used to undertake the site survey and prepare the Compliance Statement, including equipment and modelling used where relevant;
- 3.6 Where required, proposed impact management outcomes or any monitoring requirements for inclusion in the EMPr;

INTRODUCTION

Site location

The site is Portion 1 of the Farm Duinekroon 591, Stilbaai in the Western Cape Province. It is situated immediately to the west of the existing town. The site is 10.05 hectares in size. Refer to Figure 1 below for the general location.

The site is accessed from Biutekant Street, which runs along the eastern boundary of the site. The other boundaries are cadastral property boundaries.

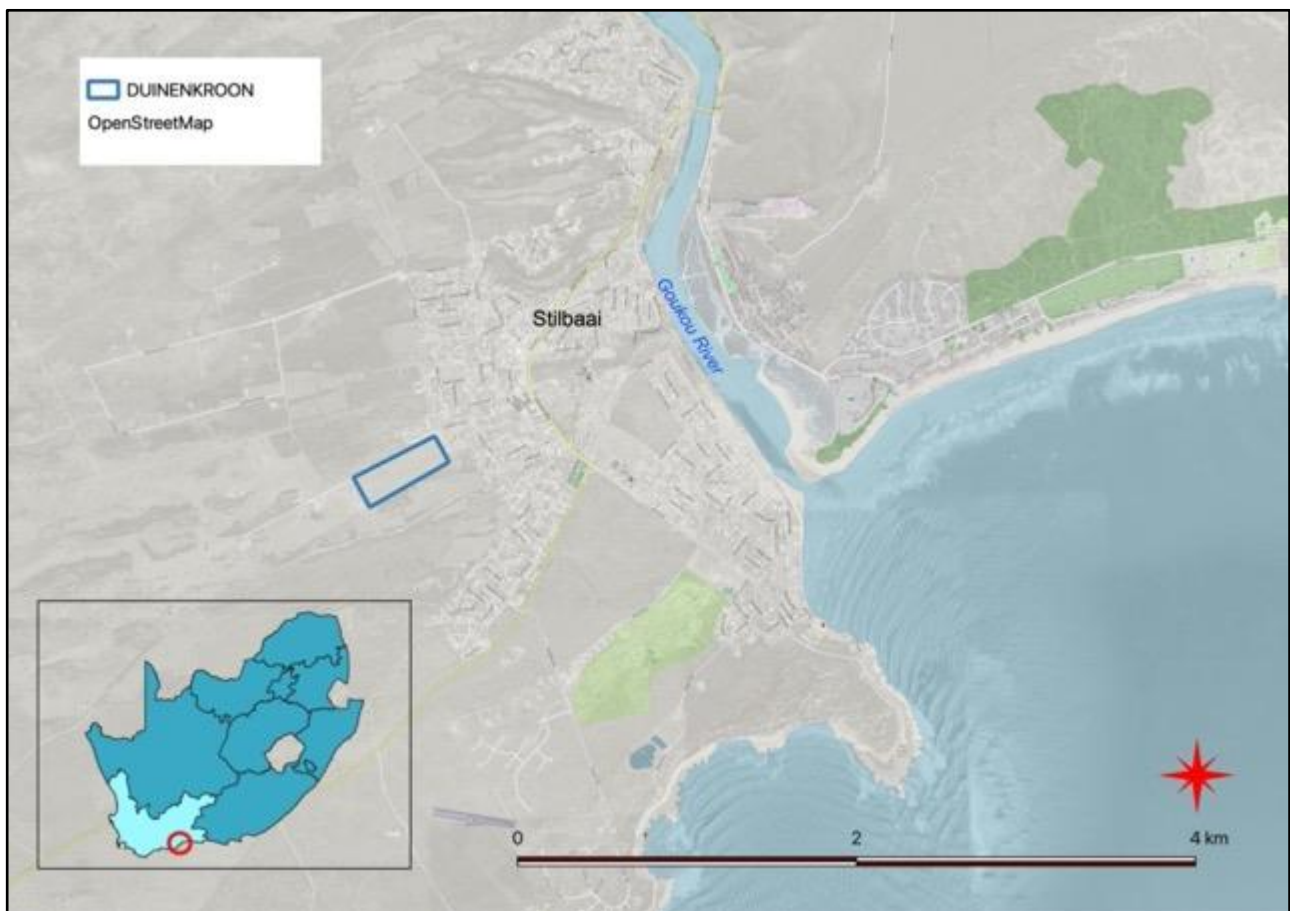


Figure 1: Location of the site.

Identified Theme Sensitivities

A sensitivity screening report from the DEA Online Screening Tool was requested in the application category: Transformation of land | From agriculture or afforestation. The DEA Screening Tool report for the area, indicates the following sensitivities:

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Terrestrial Biodiversity Theme				X

ASSESSMENT METHODOLOGY

The detailed methodology followed as well as the sources of data and information used as part of this assessment is described below.

Project Area of Influence (PAOI)

Anticipated impacts will mostly occur during the construction phase of the residential development. These impacts are **not expected to extend beyond the boundaries** of the study area. The PAOI is therefore treated here as the development footprint within which direct impacts will occur. An aerial image of the site is shown in Figure 2.



Figure 2: Aerial image of the site and surrounding areas.

Survey timing

The study commenced as a **desktop-study** followed by site-specific field study on **5 April 2022**. The site is within the Fynbos Biome with an all-year rainfall season with a slight dip in early winter (Figure 3). A more accurate indication of rainfall seasonality, which drives most ecological processes, is shown in Figure 4, which shows that Stilbaai has year-round rainfall, with a peak in April and November. The timing of the survey in April is therefore optimal in terms of assessing the terrestrial habitat of the site. The overall condition of the vegetation was able to be assessed with a high degree of confidence.

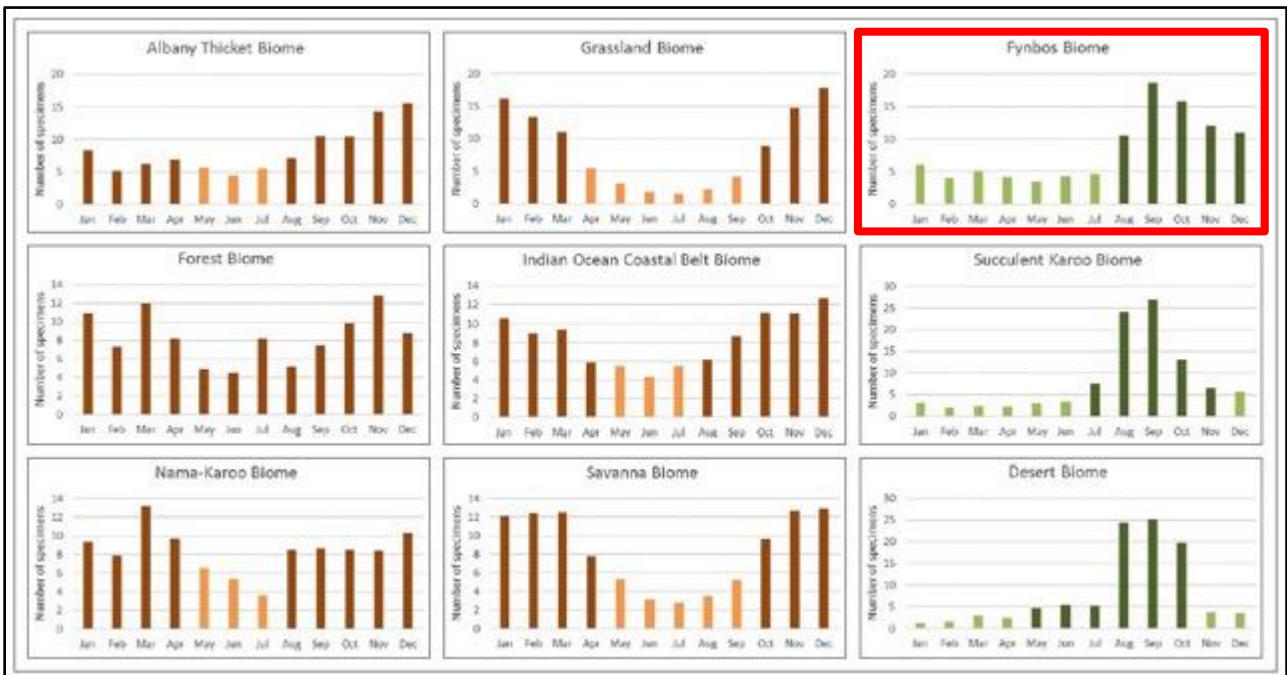


Figure 3: Recommended survey periods for different biomes (Species Environmental Assessment Guidelines). The site is within the Fynbos Biome.

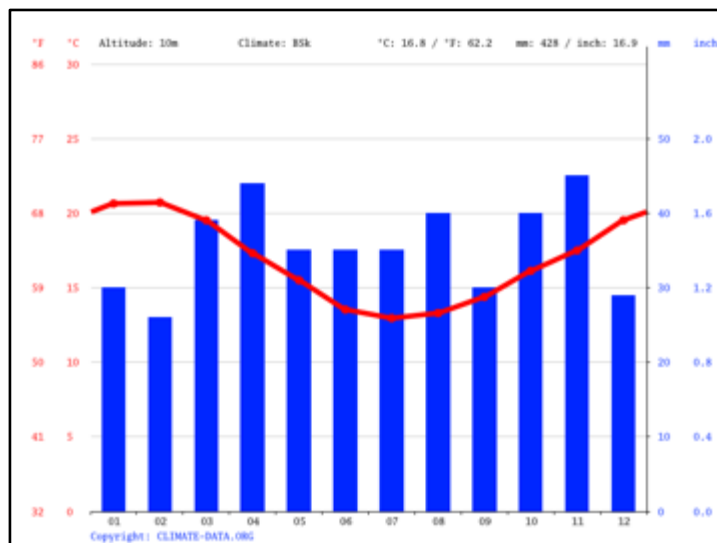


Figure 4: Climate diagram for Stilbaai.

Field survey approach

During the field survey of habitats on site, the entire site was **assessed on foot**. A meander approach was adopted with no time restrictions - the objective was to comprehensively examine all natural areas. Digital photographs were taken of **ecological features** and **habitats** on site, as well as of all **plant species** that were noted.

Aerial imagery from Google Earth was used to **identify and assess habitats** on site. This included **historical imagery** that may show information not visible in any single dated image. Patterns identified from satellite imagery were verified on the ground.

Sources of information

Regional Vegetation

- Broad vegetation types occurring on site were obtained from Mucina and Rutherford (2006), with updates according to the SANBI BGIS website (<http://bgis.sanbi.org>), as follows:
 - Mucina, L. and Rutherford, M.C. (editors) 2006. Vegetation map of South Africa, Lesotho and Swaziland: an illustrated guide. Strelitzia 19, South African National Biodiversity Institute, Pretoria.
 - South African National Biodiversity Institute 2018 Final Vegetation Map of South Africa, Lesotho and Swaziland [Vector] 2018. Available from the Biodiversity GIS website, downloaded on 23 September 2021.

Threatened Ecosystems

- The conservation status of the vegetation types were obtained from Mucina and Rutherford (2006) and the National List of Ecosystems that are Threatened and in need of protection (GN1002 of 2011), published under the National Environmental Management: Biodiversity Act (Act No. 10, 2004). **Updates from the National Biodiversity Assessment 2018 were taken into consideration, although these have not yet been gazetted.**
- The **plant species checklist of species** that could potentially occur on site was compiled from a plant species checklist extracted from the NewPosa database of the South African National biodiversity Institute (SANBI) for the quarter degree grid in which the site is located.
- The **IUCN Red List Category for plant species**, as well as supplementary information on **habitats and distribution**, was obtained from the **SANBI Threatened Species Programme** (Red List of South African Plants, <http://redlist.sanbi.org>).

Regional plans

- Information from the **National Protected Areas Expansion Strategy** (NPAES) was consulted for possible inclusion of the site into a protected area in future (available on <http://bgis.sanbi.org>).
- The **2017 Western Cape Biodiversity Spatial Plan (WCBS) Maps** were consulted for inclusion of any parts of the site into any Critical Biodiversity Areas or Ecological Support Areas (CapeNature. 2017 WCBS Hessequa [Vector] 2017. Available from the Biodiversity GIS website (biodiversityadvisor.sanbi.org)).

OUTCOME OF THE ASSESSMENT

Broad vegetation patterns

There is one regional vegetation type on site, namely **Hartenbos Dune Thicket** (Figure 5). The vegetation type that occurs on site, according to the national map, is briefly described below.

Hartenbos Dune Thicket

Distribution

This vegetation type occurs in the Western Cape Province. In coastal stretches from the Duiwenhoks River Mouth eastward to Glentana near the Great Brak River.

Vegetation & Landscape Features

On flat to moderately undulating coastal dunes. A mosaic of low (1 - 3 m) thicket, occurring in small bush clumps dominated by small trees and woody shrubs, in a mosaic of low (1 - 2 m) asteraceous fynbos. Thicket clumps are best developed in fire-protected dune slacks, and the fynbos shrubland occurs on upper dune slopes and crests. Succulent karroid elements (*Aloe ferox*, *A. arborescens*, *Eriosephalus africanus*) occur along bands of mudstone and shale.

Geology & Soils

Predominantly occurs in Wankoe and Strandveld Formations. The most important land types are Fc, Hb, Ha.



Figure 5: Regional vegetation types of the site and surrounding areas.

Climate

Non-seasonal rainfall dominates the region, with MAP between 261 mm and 666 mm. Frost is present for approximately 3 days per year. The mean monthly maximum is 25.19 °C in February and the mean monthly minimum is 6.47 °C in July. Altitude ranges from 0 - 273 masl.

Important Taxa

Growth form	Species
Small tree	<i>Pterocelastrus tricuspidatus</i> (d), <i>Sideroxylon inerme</i> (d)
Succulent tree	<i>Aloe ferox</i>
Succulent shrub	<i>Aloe arborescens</i> , <i>Carpobrotus acinaciformis</i> (d), <i>Carpobrotus edulis</i> , <i>Conicosia pugioniformis</i> , <i>Cotyledon orbiculata</i> , <i>Crassula nudicaulis</i> , <i>Cleretum bellidiforme</i> ,, <i>Euphorbia burmannii</i> , <i>Euphorbia caput-medusae</i> , <i>Jordaaniella dubia</i> , <i>Roepera morgsana</i> (d)
Succulent herb	<i>Carpobrotus muirii</i> , <i>Haworthia mirabilis</i> var. <i>paradoxa</i> , <i>Euphorbia bayeri</i>
Geophytic herb	<i>Brunsvigia orientalis</i> , <i>Chasmanthe aethiopica</i> , <i>Freesia leichtlinii</i> , <i>Haemanthus coccineus</i> , <i>Ixia orientalis</i>
Low shrub	<i>Eriocephalus africanus</i> , <i>Eriocephalus africanus</i> var. <i>paniculatus</i> , <i>Felicia echinata</i> , <i>Helichrysum patulum</i> , <i>Muraltia spinosa</i> , <i>Salvia africana-lutea</i> (d), <i>Agathosma apiculata</i> (d), <i>Agathosma muirii</i> , <i>Athanasia cochlearifolia</i> , <i>Athanasia quinquedentata</i> subsp. <i>rigens</i> , <i>Diosma aristata</i> , <i>Euchaetis albertiniana</i> , <i>Hermannia muirii</i> , <i>Muraltia barkerae</i> , <i>Muraltia depressa</i>
Graminoid	<i>Restio eleocharis</i> (d), <i>Sporobolus fimbriatus</i> , <i>Stenotaphrum secundatum</i> (d), <i>Themnochortus insignis</i> (d), <i>Themeda triandra</i> (d)
Tall shrub	<i>Azima tetraacantha</i> , <i>Carissa bispinosa</i> , <i>Cassine peragua</i> , <i>Cussonia thyrsiflora</i> , <i>Euclea racemosa</i> (d), <i>Grewia occidentalis</i> , <i>Lauridia tetragona</i> , <i>Maytenus procumbens</i> (d), <i>Metalasia muricata</i> (d), <i>Morella cordifolia</i> , <i>Myroxylon aethiopicum</i> , <i>Olea exasperata</i> (d), <i>Osteospermum moniliferum</i> (d), <i>Passerina rigida</i> (d), <i>Putterlickia pyracantha</i> , <i>Robsonodendron maritimum</i> , <i>Scutia myrtina</i> , <i>Searsia crenata</i> (d), <i>Searsia glauca</i> , <i>Searsia lucida</i> , <i>Searsia pterota</i> , <i>Leucospermum praecox</i>
Herbaceous climber	<i>Cynanchum ellipticum</i> , <i>Rhoicissus digitata</i> , <i>Solanum africanum</i>

Listed threatened ecosystems

The National List of Ecosystems that are Threatened and need of protection (GN1002 of 2011), published under the National Environmental Management: Biodiversity Act (Act No. 10, 2004), lists ecosystems, which are often national vegetation types, that are afforded protection on the basis of rates of transformation. The site is not within any listed ecosystem.

Conservation status of vegetation types

Hartenbos Dune Thicket is a newly described vegetation type (Grobler et al. 2018) resulting from ongoing review of the National Vegetation Map. This newly described vegetation type has been assessed as being Least Concern (Table 2).

Table 2: Conservation status of different vegetation types occurring in the study area.

Vegetation Type	Conservation status		
	Driver et al. 2005 ; Mucina et al., 2006	2018 NBA (Skowno et al. 2019)	National Ecosystem List (NEM:BA) (2018)
Hartenbos Dune Thicket	None	Least Concern	None

Note that this is a desktop description of what could possibly occur on site, based on mapped ecosystems. The on-site habitat assessment, described in a section below, determines whether any such vegetation occurs on site or not.

It is therefore verified that the site does not occur within any mapped Listed Ecosystem, as listed in The National List of Ecosystems that are Threatened and need of protection (GN1002 of 2011). The site therefore has sensitivity of LOW with respect to this attribute.

Biodiversity Conservation Plans

The Western Cape Biodiversity Spatial Plan (WCBSBP) classifies the habitats of the province according to conservation value in decreasing value, as follows:

1. Protected Areas (PA);
2. Critical Biodiversity Areas 1 (CBA1);
3. Critical Biodiversity Areas 2 (CBA2);
4. Ecological Support Area 1 (ESA1);
5. Ecological Support Area 2 (ESA2);

The WCBSBP map for Hessequa shows that **the site is not within any conservation zone** (Figure 6). This indicates that the **site is not considered to be important for local biodiversity conservation**.



Figure 6: Western Cape Biodiversity Spatial Plan of the site and surrounding areas.

This desktop description verifies that the site is not included in any conservation zones and therefore has LOW sensitivity with respect to this attribute.

Historical disturbance on site

Historical aerial photographs from 1954, 1964 and 1967 show that the site was **cultivated** at that time. It is therefore certain that the **original vegetation that occurred naturally in this area was removed by cultivation**. Any vegetation on site is therefore definitely **secondary**.

Assessment of habitats on site

Based on a detailed field survey to verify conditions on site, it was determined **that no natural habitat remains** on site. The entire site consists of **secondary grassland** in previously cultivated areas. A series of photographs are provided below that give various views on site (Figures 7 - 10). Note that the expected natural habitat for this site is Hartenbos Dune Thicket. Examples of the vegetation that would be expected to be found on site may be seen approximately 300 m south of the site.

A list of plant species was compiled for the site to evaluate habitat conditions (see Appendix 1). A total of only 16 plant species were recorded on site, of which four are naturalized exotics. The dominant species are the grasses, ***Cenchrus clandestinus**** (**kikuya**) and ***Cynodon dactylon*** (**kweek**) typically associated with agricultural grazing areas (as confirmed by historical arials and site verification).



Figure 8: Typical view of the site.



Figure 7: Fenceline along Reservoir Road side of site (northern boundary).



Figure 10: Secondary thicket along southern boundary fence.



Figure 9: Typical ground-cover on site overlooking Stilbaai-West township extensions.

CONCLUSION

Desktop information, field data collection and mapping from aerial imagery provides the following verifications of patterns for various themes:

1. The entire site consists of **secondary grassland** with **low indigenous diversity**, consisting primarily of weedy species. It is considered to have **low biodiversity value**.
2. The site is **not within any listed ecosystem, not within any Critical Biodiversity Area (CBA) or Ecological Support Area (ESA)**. The **habitat is not considered to be representative of any natural ecosystem**. Although it contains some indigenous species, these are **not representative of the ecosystem type**, and are **post-disturbance colonisers**.
3. The site has **Low sensitivity** with respect to the **Terrestrial Biodiversity Theme**.
4. The proposed development is entirely within areas mapped as secondary grassland that has low sensitivity.
5. Development of the site will have **no impact on listed ecosystems**. The development is therefore supported.
6. Removal/cutting/trimming of **Sideroxylon inerme (PROTECTED)** found along the southern boundary will require a permit in terms of the Forestry Act.
7. No further mitigation measures are required.

REFERENCES

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- Grobler, A., Vlok, J., Cowling, R, van der Merwe, S., Skowno, A.L., Dayaram, A. 2018. Technical Report: Integration of the Subtropical Thicket Ecosystem Project (STEP) vegetation types into the VEGMAP national vegetation map 2018.
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- Skowno AL, Matlala M, Slingsby J, Kirkwood D, Raimondo DC, von Staden L, Holness SD, Lotter M, Pence G, Daniels F, Driver A, Desmet PG, Dayaram A (2019). Terrestrial ecosystem threat status assessment 2018 - comparison with 2011 assessment for provincial agencies. National Biodiversity Assessment 2018 Technical Report. South African National Biodiversity Institute, Pretoria.

APPENDICES:

Appendix 1: Plant species recorded on site.

Asparagus suaveolens
Azima tetraantha
Cenchrus clandestinus*
Cynanchum viminalis
Cynodon dactylon
Empodium plicatum
Lepidium bonariense*
Mesembryanthemum aitonis
Osteospermum moniliferum
Pseudodictamnus africanus
Rumex spinosus*
Searsia pterota
Senecio inaequidens
Sideroxylon inerme (PROTECTED)
Solanum linnaeanum*