TERRESTRIAL BIODIVERSITY COMPLIANCE STATEMENT
KEURBOOMS LIFESTYLE VILLAGE, PLETTENBERG BAY
BITOU MUNICIPAL AREA

View of the existing entrance to the property with *Phoenix reclinata* (Reclining Date Palm)

Benjamin Walton for Cape Vegetation Surveys

o.b.o. the applicant Intergreen (Pty) Ltd

October 2024

STATEMENT OF INDEPENDENCE

I, Benjamin Alan Walton, trading as *Cape Vegetation Surveys*, in terms of section 33 of the NEMA, 1998 (Act No. 107 of 1998), as amended, hereby declare that I provide services as an independent botanical specialist and receive remuneration for services rendered for expressing a factual account of the baseline environment. I have no financial or other vested interest in the project. Botanical information contained in the report may not be copied without the author's consent.

An abridged Curriculum Vitae:

Benjamin Alan Walton

Botanical Science (Pr. Sci. Nat.)

SACNASP registration #138424

Experience:

Cape Vegetation Surveys: Consulting Botanist 2017-2023

Western Cape Nature Conservation Board (CapeNature) Scientist: Land Use Advisor for Central Karoo & Garden Route Districts 2010-2017

Department of Environmental Affairs and Development Planning, Principal Environmental Officer (George) Central Karoo & Garden Route Districts 2008-2010

Cape Vegetation Surveys: Consulting Botanist (Cape Town) 2006-2008

Qualification:

M.Sc. Forestry (Conservation Ecology), Stellenbosch University, 2001- 2006

B.Sc. Botany & Zoology, University of Cape Town, 1986-1989

BENJAMIN WALTON

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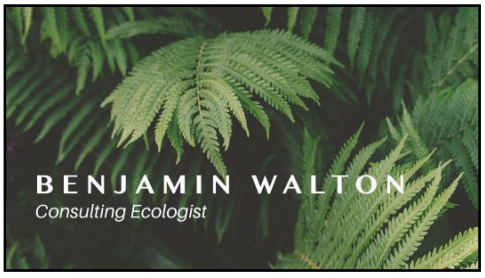
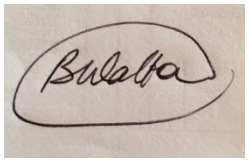
Wilderness



DECLARATION OF THE SPECIALIST

I, Benjamin Alan Walton, as the appointed Botanical and Biodiversity Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that:

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



Signature of the Specialist: Date: 2024/10/18

Cape Vegetation Surveys

Name of company:

Contents

Requirements of the specialist assessment protocol for reporting of environmental impacts on terrestrial biodiversity of low sensitivity:

1. The compliance statement hereunder is prepared by Benjamin Walton, a registered scientist in the field of botanical science.
2. The compliance statement must state:
    a. The assessment is applicable to the preferred site and proposed development footprint.
    b. The site is confirmed as having a “low sensitivity” for terrestrial biodiversity.
    c. The proposed development will have a negligible impact on the biodiversity feature.
3. The compliance statement must contain, as a minimum, the following information:
    a. The contact details of the specialist, their SACNASP registration number, their field of expertise and a curriculum vitae (see above);
    b. A signed statement of independence by the specialist;
    c. A statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;
    d. A baseline profile description of biodiversity and ecosystems of the site is described hereunder;
    e. The methodology used to verify the sensitivities of the terrestrial biodiversity features on the site entailed a foot survey of the study area, including photographs taken with a mobile phone, and GPS coordinates taken with a handheld GPS device.
    f. In the case of a linear activity, confirmation from the terrestrial biodiversity specialist that, in their opinion, based on the mitigation and remedial measures proposed, the land can be returned to the current state within two years of completion of the construction phase;
    g. Where required, proposed impact management outcomes or any monitoring requirements for inclusion in the EMPr;
    h. A description of the assumptions made and any uncertainties or gaps in knowledge or data; and
    i. Any conditions to which this statement is subjected.
4. A signed copy of the compliance statement must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.

1 Executive Summary

The author was commissioned to compile a rapid Botanical Assessment of the receiving environment for an environmental Compliance Statement for a site of "low" terrestrial biodiversity sensitivity for the proposed installation of utilities upgrade and link for water and sewerage pipelines within road reserves. The site is in Plettenberg Bay adjacent to Goose Valley Golf Estate along Rietvlei Road and the National Route N2.

Site inspections were conducted to evaluate the vegetation unit and habitat condition at the receiving environment. The habitat is mostly transformed (entirely along the N2) and otherwise disturbed with remnant pockets of Goukamma Dune Thicket elements of Least Concern along Rietvlei Road (see Fig. 1). The property has a gentle topography. After a thorough evaluation of the receiving environment the Biodiversity Report hereunder was completed, containing a Terrestrial Biodiversity Compliance Statement.

Figure 1: Showing some indigenous dune fynbos plant species along the Rietvlei Road Reserve adjacent to the property.

2 Terms of Reference

The terms of reference are to conduct a vegetation survey to confirm the vegetation unit and conservation status for a Basic Assessment application to install the necessary bulk service infrastructure to service a newly proposed lifestyle development in Plettenberg Bay; and describe the vegetation and sensitivity, with reference to Fynbos Forum ecosystem guidelines and NEMA specialist guidelines[1]. This is to inform the environmental impact (botanical and terrestrial sensitivity) of the proposed development within unmapped Goukamma Dune Thicket habitat; and identify risks, suggest mitigation, and make recommendations for the linear development. The sensitivity of the study area, for installation of pipelines within road reserves in Plettenberg Bay (see Figs. 2 and 3) is described in context of the mostly transformed habitat and some remaining natural habitat.

3 Site sensitivity verification and minimum content requirements for reporting

3.1 Scope of assessment - screening tool

The Department of Forestry, Fisheries and Environment (DFEE) screening report generated for the Keurbooms Lifestyle Village for "Utilities Infrastructure | Pipelines | Water | Waste Water" identified*, inter alia*, that a terrestrial biodiversity impact assessment be undertaken based on the Very High Terrestrial Biodiversity Sensitivity of the area, with a Medium Relative Plant Species Sensitivity.

This report complies with the minimum requirements for terrestrial biodiversity assessments.

3.2 Site sensitivity verification

The current land use and site sensitivity was ascertained to confirm and / or refute the findings of the screening tool report.

3.2.1 The site verification was undertaken by the author as a specialist.

3.2.2 The site area was analyzed using desktop satellite imagery (Google Earth and Cape Farm Mapper), and geo-referenced biodiversity informants viewed and verified in Quantum GIS (QGIS) prior to and following site surveying.

3.3 Landuse and vegetation status

3.3.1 The proposed development area was ground-truthed during October 2024 during late spring to ascertain the environmental sensitivity and impact of the proposed linear activity for installation of services within transformed or disturbed habitat. The study area consists of the transformed National Route N2 Road Reserve and transformed or disturbed Road Reserve of Rietvlei Road.

[1] Government Gazette No. 43110, GN No. 320 (2020) National Environmental Management Act, 1998 (Act No. 107 of 1998) Procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998, when applying for environmental authorisation.

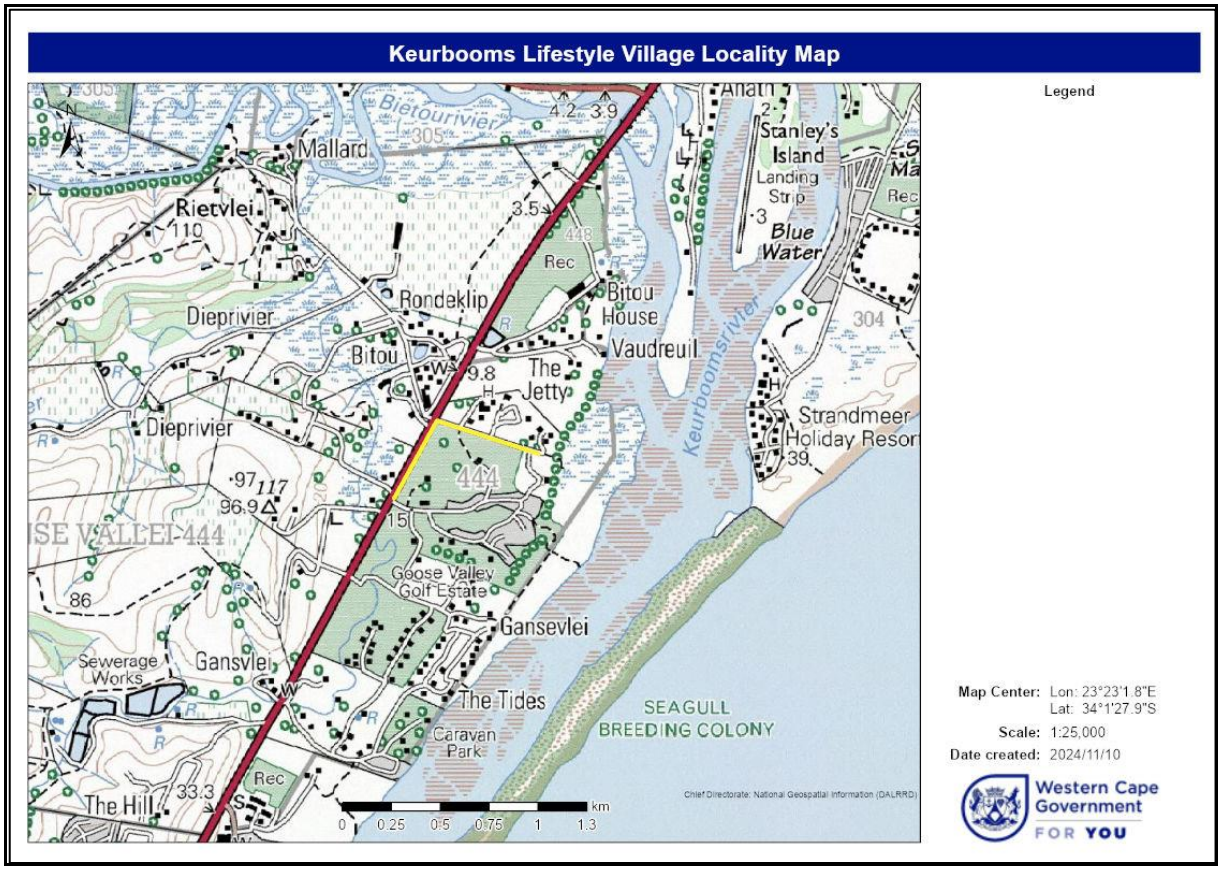


Figure 2: Locality map for the proposed bulk service infrastructure (yellow line) adjacent to and along the northern boundary of Goose Valley Estate in Plettenberg Bay (image courtesy of Cape Farm Mapper).

This report describes the vegetation status and sensitivity occurring within the verified habitat for Goukamma Dune Thicket elements at the property. The study area has a mixture of either transformed or disturbed to near-natural vegetation, the latter being of Medium Terrestrial Biodiversity Sensitivity with a Medium Species Sensitivity where intact; and the former with Very Low Terrestrial Biodiversity Sensitivity with a Low Species Sensitivity where transformed. Thus, a negligible impact on biodiversity is foreseen.

3.3.2 The report contains a description of the vegetation and sensitivity with photographic evidence to confirm the findings.

The vegetation is primarily secondary where the habitat has been transformed as Road Reserve and composed of grasses and weedy plant species, and frequently mowed. The eastern extent of the study area at the Rietvlei Road Reserve has a band of natural vegetation and considered of medium sensitivity, whereas the western extent is transformed, brushcut and / or mowed. Thus, the findings of the screening report (liner development with 50 m buffer area) are refuted for the property containing vegetation of a Very High Terrestrial Biodiversity Sensitivity and are rather considered generally to be

vegetation of Very Low Terrestrial Biodiversity Sensitivity & Low Terrestrial Biodiversity Sensitivity with a Low to Medium Relative Plant Species Sensitivity.

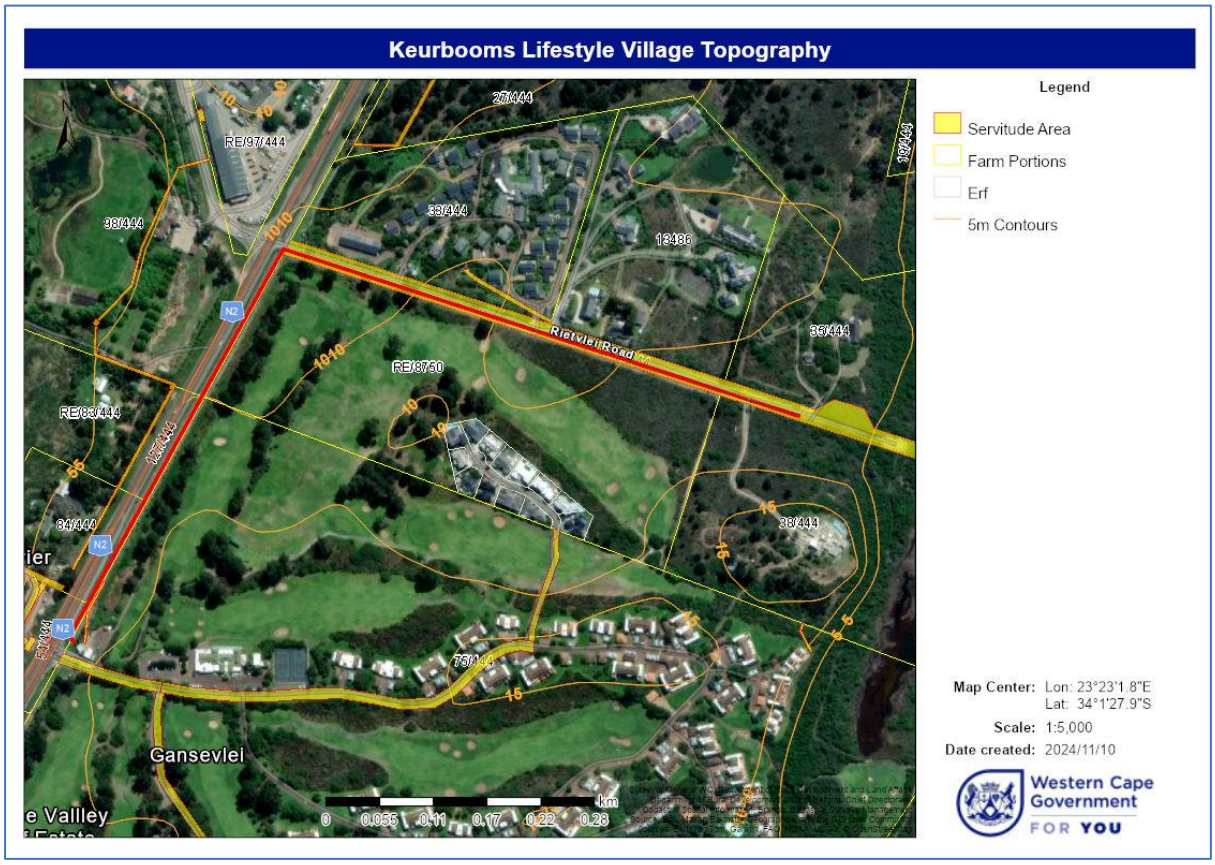


Figure 3: Showing the receiving environment (red line) with a gentle coastal plain, at Plettenberg Bay (image courtesy of Cape Farm Mapper).

4 Proposed development footprint

As part of the Basic Assessment application for a lifestyle estate various pipelines are required to service the development.

The following sewage pipelines are required to connect to the Bitou Municipal System (see Fig. 4):

- A new sewer rising main pipeline (75 mm pipeline diameter, of approximately 470 m in length) in the Rietvlei Road Reserve.
- A new sewer outfall pipeline (160 mm pipeline diameter, of approximately 120 m in length) in the Rietvlei Road Reserve and N2 Road Reserve.
- A new sewer outfall pipeline (250 mm pipeline diameter, of approximately 445 m in length) in the N2 Road Reserve to connect to the existing Goose Valley main pump station.

The following upgrade of a water pipeline in the Rietvlei Road is required:

- The existing 75 mm diameter pipeline in Rietvlei Road Reserve needs to be upgraded to a 110 mm diameter pipeline (extending approximately 220 m in length) to comply with the fire flow criteria.

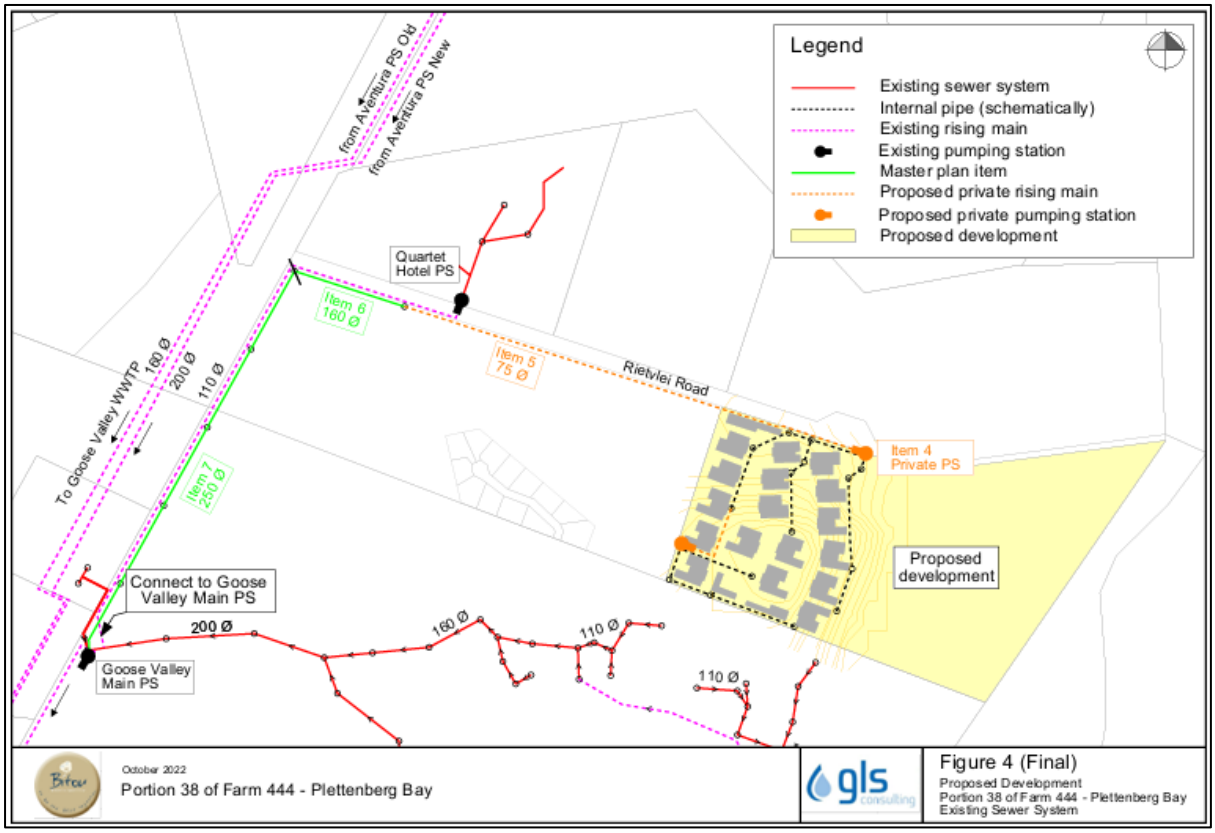


Figure 4: Showing the proposed reticulation network for the sewerage system to connect from the proposed development site to the Goose Valley main pump station.

THE BIODIVERSITY IMPORTANCE OF THE SITE AND SURROUNDING RECEIVING ENVIRONMENT

5 Vegetation description

According to the updated Vegetation Map of South Africa, Lesotho & Swaziland the main mapped vegetation unit occurring at the property (see Fig. 9) is *Endangered* Garden Route Shale Fynbos (FFh 9), a declared threatened ecosystem i.t.o. the National Environmental Management Biodiversity Act's, revized list of threatened ecosystems[2]. However, the receiving environment is mostly transformed and appears to resemble a suitable Dune Thicket habitat with accompanying elements. *Least Threatened* Goukamma Dune Thicket (AT 36) often contains pockets of Southern Coastal Forest as is present at the property along the eastern extent flanking the Estuary, outside of the receiving environment.

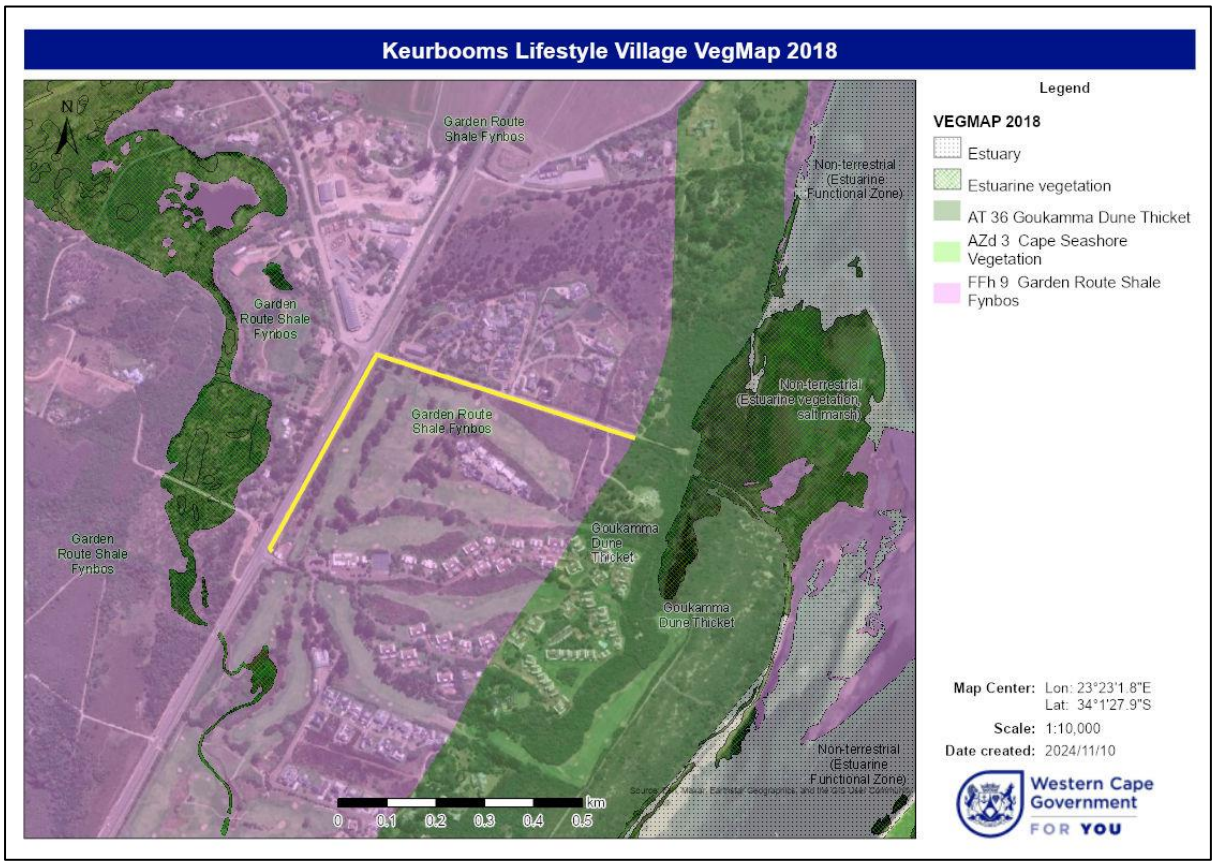


Figure 5: The property in context of national vegetation units indicated within *Endangered* Garden Route Shale Fynbos, abutting onto *Least Threatened* Goukamma Dune Thicket.

[2] Government Gazette No. 47256, GN No. 2747 (2022) National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004): The Revised National List of Ecosystems that are Threatened and in need of Protection.

The composite fine-scale Vegetation Map for the Garden Route[3] delineated broad habitat types with associated vegetation variants, here as: *Sedgefield Coastal Grassland* on a mostly level foreland; broadly corresponding with the baseline habitat occurring on site (see Fig. 6). Here these vegetation variants delineate different plant communities at a finer scale than the broad scale Vegetation Map of South Africa and are largely habitat based; and in this instance depicting the habitat type as Grassy Fynbos flanked by Wilderness Forest/Thicket.

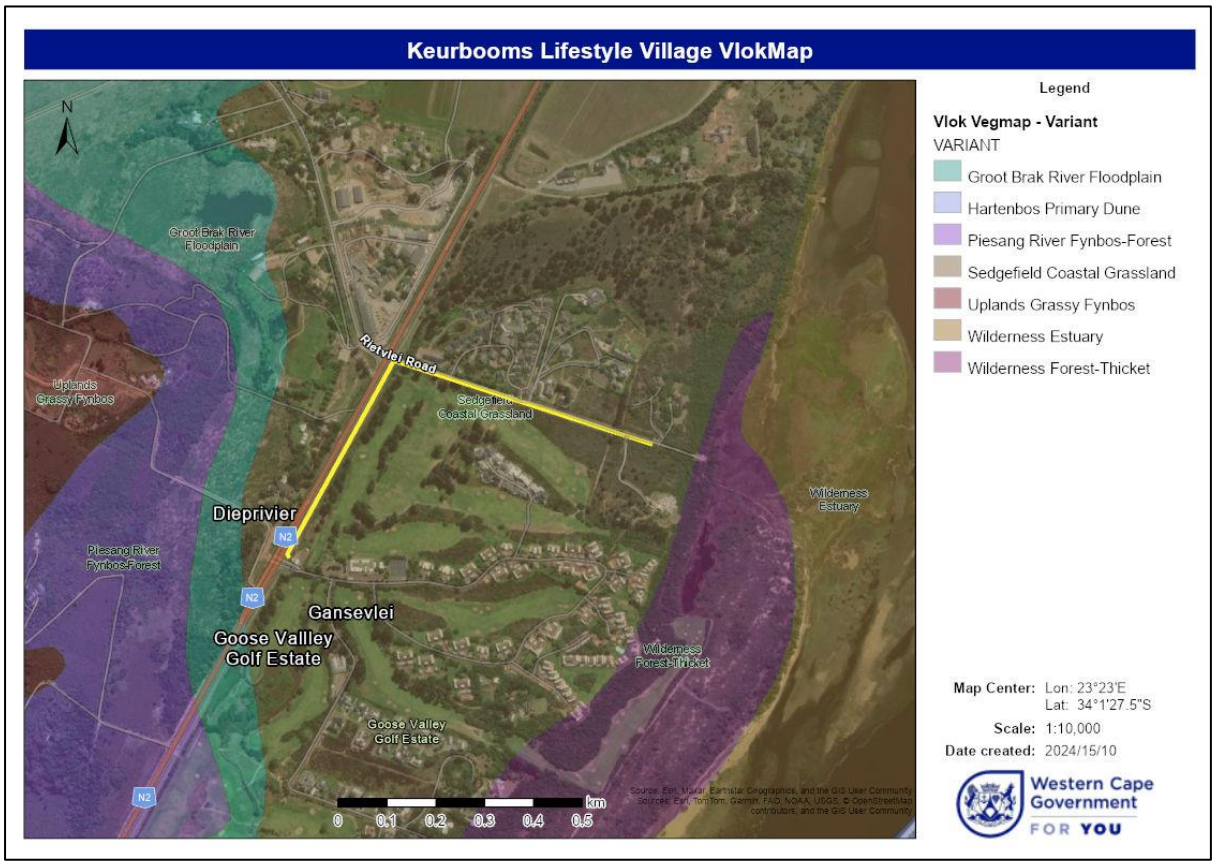


Figure 6: The property in context of the fine-scale vegetation variants as indicated within *Sedgefield Coastal Grassland*.

Fragmentation of biodiversity patterning has occurred in the vicinity of the property and receiving environment due to development of various housing and lifestyle estates and roadway constructions (see Fig. 7). Thus, disturbed vegetation occurs along the eastern half of Rietvlei Road Reserve and otherwise the vegetation is brushcut or mowed until the junction with the National Route N2. The entire road reserve of the National Route N2 is transformed.

[3] Vlok JHJ, Euston-Brown DIW and Wolf T (2008) Vegetation Map for the Garden Route Initiative. Unpublished 1:50 000 maps and reports supported by CAPE FSP task team.

Figure 7: The receiving environment shown outside of the mapped remnants of threatened ecosystems.

THE BIODIVERSITY IMPORTANCE OF THE AREA IN CONTEXT OF A LANDSCAPE PERSPECTIVE

Figure 8: The property and surrounds in context of the Biodiversity Spatial Plan, 2017.

6 The Biodiversity Spatial Plan

The Biodiversity Spatial Plan[4] (BSP) has identified important remaining biodiverse sites across the Western Cape Province and indicates that the study area and surrounds are outside of sensitive areas (see Figs. 8 & 9). However, the four spatial planning polygons that intersect the study area contain the following specific geographic features in the vicinity listed below, are based on a climate adaptation corridor, Critically Endangered vegetation variant, ecological processes, an estuary, SA Vegetation Type, Threatened SA Vegetation Type, and as a water resource protection area:

Feature 1: Cape Coastal Lagoons (LT) (eastern extent of Rietvlei Road).

Feature 2: Climate adaptation corridor (eastern extent of Rietvlei Road).

Feature 3: Coastal resource protection- Eden (eastern extent of Rietvlei Road).

Feature 4: Garden Route Shale Fynbos (EN) – not present within the study area.

[4] http://bgis.sanbi.org/Projects/Detail/194

Feature 5: Keurbooms (Core) Estuary.

Feature 6: Sedgefield Coastal Grassland (Vlok variant- CR).

Feature 7: Watercourse protection- South Eastern Coastal Belt

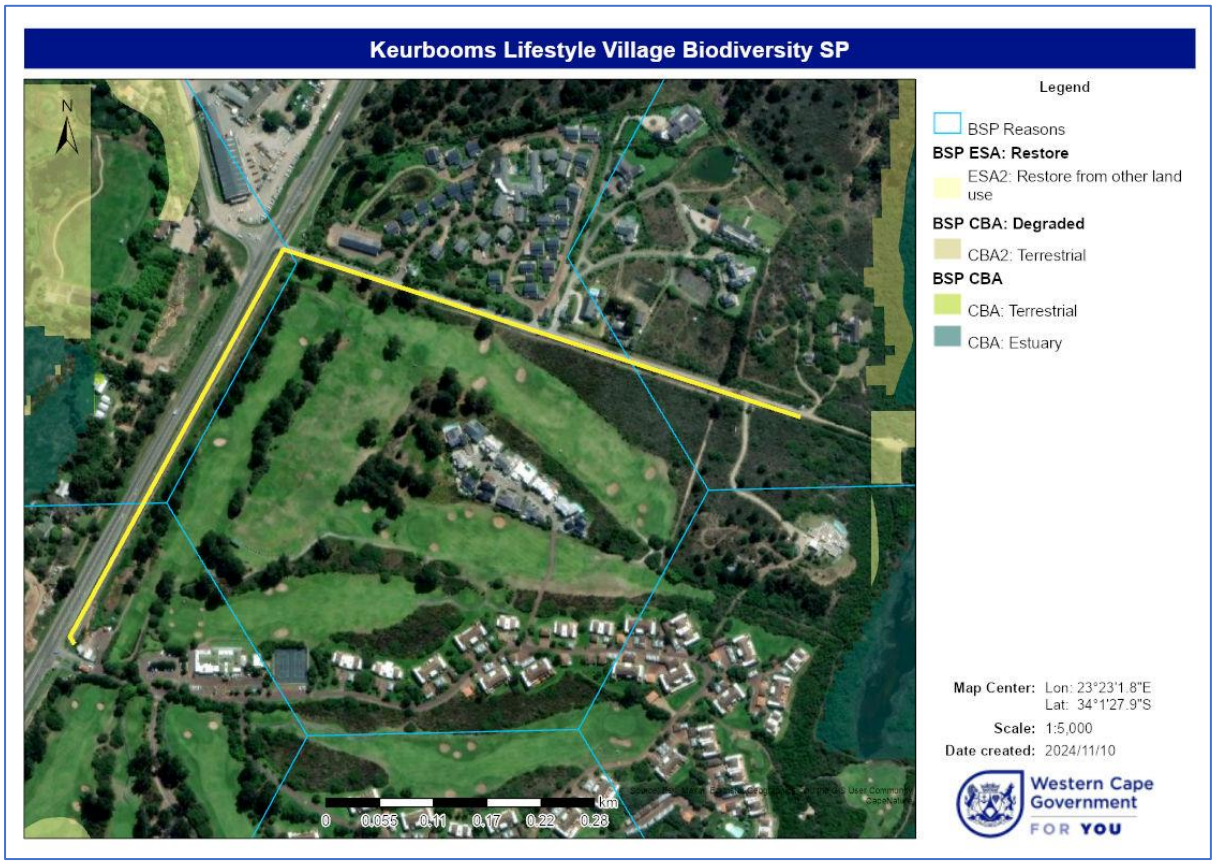


Figure 9: The linear development footprint (yellow line) in context of the Biodiversity Spatial Plan, 2017, outside of sensitive areas.

The specific geographic features mentioned above pertain to the regional importance of the landscape and the existing ecological processes, water sources and watercourses, with associated remaining Dune Thicket and Shale Fynbos ecosystems worthy of protection.

<u>The prescribed conservation management objectives for Protected Areas like Critical Biodiversity Area (CBAs)</u>:

The prescribed management objective for sensitive areas, as well as in terms of the Duty of Care principle (section 28 of the NEMA), is to maintain them in a natural or near- natural state, with prevention of further loss of habitat. Whereas degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land uses are appropriate.

No CBAs occur within the study area.

The prescribed conservation management objectives for Ecological Support Areas (ESAs):

Primary ESAs are areas that are not essential for meeting biodiversity targets, however they are important for supporting the functioning of Protected Areas or Critical Biodiversity Areas and are often vital for ecosystem service delivery. Thus, primary ESAs should be maintained in a functional, near-natural state. Some habitat loss is acceptable, provided the underlying biodiversity objectives and ecological functioning are not compromised.

No ESAs occur within the study area.

SITE SENSITIVITY VERIFICATION

7 Description of the plant community and habitat condition

Figure 10: Showing the vegetation east of the entrance along Rietvlei Road dominated by the common shrub *Passerina glomerata*.

Based on a site inspection and ground surveying conducted during late spring on the 8th of October 2024, the habitat at the receiving environment along the National Route N2 Road Reserve is transformed and composed of grasses and weedy plant species, and frequently mowed. The eastern extent of the study area at the Rietvlei Road Reserve has a band of natural vegetation and considered of medium sensitivity (see Fig. 10), whereas the western extent is transformed, brushcut and / or mowed. Thus, the vegetation along the National Route N2 Road Reserve is of Very Low Terrestrial Biodiversity Sensitivity & Very Low Relative Plant Species Sensitivity. The vegetation along the western half of Rietvlei Road is transformed and mowed or brushcut and is of Low Terrestrial Biodiversity Sensitivity with a Low Relative Plant Species Sensitivity. The disturbed but remaining natural vegetation along the eastern half of Rietvlei Road within the study area is of Medium Terrestrial Biodiversity

Sensitivity with a Medium Relative Plant Species Sensitivity, and composed of tall shrubs and small trees, herbs, bulbs and annual grasses.

Of about 54 plant species present on site (see Table 1), 44 are local indigenous Dune Thicket species which occur mostly along the eastern extent of the Rietvlei Road Reserve, whereas the verge along the National Route N2 consists of weedy annuals and grasses only which are mostly exotic.

Table 1: Plant species observed within the Road Reserves at the receiving environment consist of:

SCIENTIFIC NAME	Rietvlei Road	N2 RR	IAS
Abutilon sonneratianum (Butter and Cheese)	1		
Aloe arborescens (Krantz Aloe)	1		
Anthospermum sp.	1		
Arctotheca prostrata (Prostrate Capeweed)	1	1	
Asparagus africanus	1		
Bromus hordeaceus (Common Soft Brome)	1		1
Brunsvigia orientalis (Candelabra Lily)	1		
Carpobrotus deliciosus	1		
Cerastium glomeratum (Sticky Mouse-ear Chickweed)		1	1
Chasmanthe aethiopica (Cobra Lily)	1		
Cheilanthes viridis var. viridis (Common Lip Fern)	1		
Chionanthus foveolatus ssp. tomentellus (Cape Pock-Ironwood)	1		
Colchicum eucomoides (Green Men-in-a-Boat)	1		
Conyza sp.		1	1
Cotula laxa (Little Buttons)	1		
Crassula sp. Groundcover	1		
Crassula subulata (Bihair Stonecrop)	1		
Diospyros dichrophylla subsp. dichrophylla (Common Star-Apple)	1		
Ehrharta calycina (Perennial Veldtgrass)	1		
Eragrostis curvula (Weeping Love Grass)	1	1	
Erica sparsa	1		
Euclea racemosa (Dune Guarri)	1		
Exomis microphylla (Brakbos)	1		
Festuca myuros (Rattail Sixweeks Grass)	1		1
Ficinia sp.	1		
Grewia occidentalis (Kruisbessie)	1		
Helichrysum cymosum subsp. cymosum	1		
Helichrysum teretifolium (Needle Everlasting)	1		
Hibiscus aethiopicus (Cape Hibiscus)	1		
Indigofera sp.	1		
Knowltonia vesicatoria (Common Burnleaf)	1		
Lotus subbiflorus (Hairy Bird's-Foot-Trefoil)		1	1
Maytenus procumbens (Dune Kokotree)	1		
Medicago sativa (Lucerne)		1	1

Megathyrsus maximus (Guinea Grass)	1		
Melinis repens (Natal Grass)	1	1	
Metalasia muricata (Strandveld Blombush)	1		
Ornithopus compressus (Yellow Serradella)		1	1
Osteospermum moniliferum (Bietou)	1		
Paspalum dilatatum (Dallis Grass)		1	1
Passerina corymbosa (Common Gonna)	1		
Pelargonium capitatum (Common Storksbill)	1		
Pennisetum clandestinum (Kikuyu)		1	1
Petrorhagia prolifera (Proliferous Pink)	1	1	1
Phoenix reclinata (Reclining Date Palm)	1		
Pinus radiata (Monterey Pine)	1		1
Pittosporum viridiflorum (Cheesewood - Protected)	1		
Plantago lanceolata (Ribwort Plantain)	1	1	1
Pterocelastrus tricuspidatus (Candlewood)	1		
Rapistrum rugosum (Annual Bastard Cabbage)		1	1
Rhoicissus digitata (climber)	1		
Rhynchosia caribaea (Common Snoutbean)	1		
Salvia aurea (Brown Sage)	1		
Searsia crenata (Bluefruit Currantrhus)	1		
Searsia glauca	1		
Selago corymbosa (Stiff Bitterbush)	1		
Senecio burchellii (Kill Ragwort)	1		
Seriphium plumosum (Common Snakebush)	1		
Sideroxylon inerme subsp. inerme (Southern White Milkwood - Protected);	1		
Silene gallica (Small Catchfly)		1	1
Sonchus oleraceus (Common Sow-Thistle)		1	1
Thamnochortus insignis (True Thatchreed)	1		
Trifolium campestre (Hop Trefoil)		1	1
Ursinia dentata (Needletooth Paraseed)	1		
Veronica persica (Bird's-eye Speedwell)		1	1
	54	16	17

The National Forest Act (NFA), 1998 (Act No. 84 of 1998), as amended, stipulates that i.t.o. section 15(1), a licence is required to (a) *cut, disturb, damage or destroy any protected tree, or* (b) *possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, or any forest product derived from a protected tree*.

It is not foreseen that a single Cheesewood or Milkwood will be affected by the linear development activity as these individuals occur outside of the development footprint area (see Fig. 11).

Figures 11 & 12: Showing the position of a single protected Cheesewood tree within vegetation in the Road Reserve outside of the proposed linear development footprint, above, and the vegetation occurring along the eastern half of Rietvlei Road, below.

Figures 13 to 16: Clockwise from top left are shown *Diospyros dichrophylla*, *Pterocelastrus tricuspidatus* (Candlewood), *Pittosporum viridiflorum* (Cheesewood) and the bulbous plant *Brunsvigia orientalis* (Candelabra Lily).

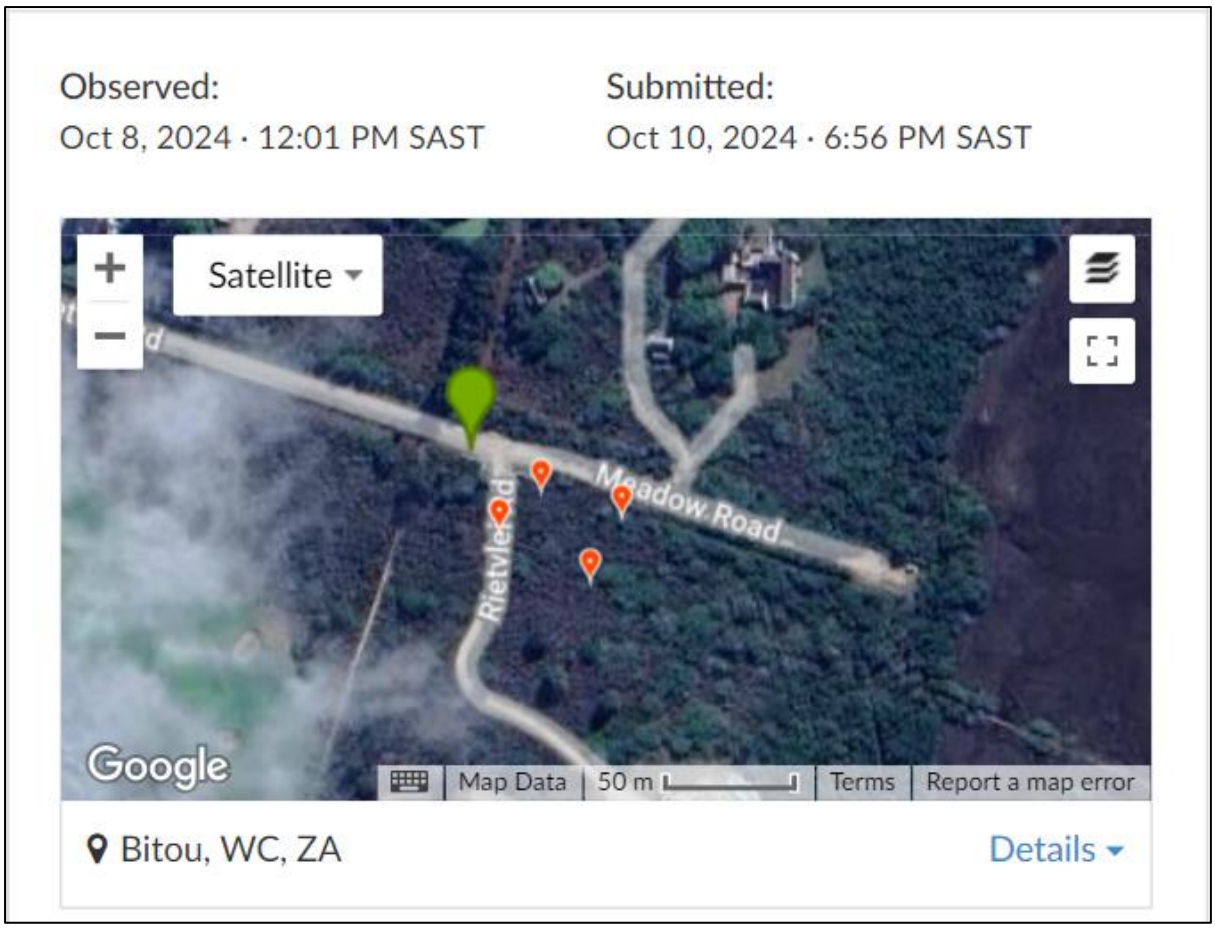


Figure 17: Showing a screenshot of observations of *Brunsvigia orientalis* (Candelabra Lily) at the existing entrance area.

Brunsvigia orientalis when emergent is easily rescuable and can be relocated and transplanted within the property in the undeveloped areas.

8 Broad site habitats

The Road Reserve habitats are either transformed or disturbed and/or degraded being either maintained by mowing or brushcutting in part to near-natural where remaining.

Figure 18: Showing the transformed (yellow polygon) and disturbed (green polygon) habitats at the property the latter composed of annual grasses and herbs, and the former with remaining thicket vegetation (image courtesy of Google Earth).

Figure 18 above shows the two broad habitats within the Road Reserves being: the transformed habitat along the N2 and western half of Rietvlei Road (yellow polygon); and the disturbed habitat composed of Dune Thicket vegetation along the eastern half of Rietvlei Road (green polygon).

Figures 19 & 20: Showing sections of brushcut vegetation along the Rietvlei Road Reserve.

9 List of Plant Species of Special Concern

The Animal and Plant Species Assessment Protocols require specialists to identify:

- the nature and the extent of the potential impact of the proposed development on species of conservation concern occurring on the proposed development site;
- the potential impact of the proposed development on the habitat of the species of conservation concern; and
- any alternative development footprints within the preferred development site which would be of 'low' sensitivity as identified by the screening tool and verified through the site sensitivity verification

The screening tool reports' list of all confirmed occurring and potentially occurring Plant Species of Special Concern (SSC) within the vicinity of the proposed development footprint are shown in Table 2 below. The property was investigated for their presence, yet none of the listed species were observed there (see Figs. 19 to 21) and are unlikely to occur in the habitat there. Based on personal observations most of the SSC listed in the screening report do not occur in Dune Thicket habitat.

Table 2: List of species of medium relative plant species sensitivity and their estimated geographic area of occurrence.

Sensitivity	Taxon	Common name	IUCN status	Distribution	Habitat	Occupancy (km^2)	Occurrence probability
Medium	Lampranthus pauciflorus		Endangered	Southern Coast	Rocky coastal slopes and clayish hills	6.26	Low – not present
	Ruschia duthiae		Vulnerable	Sedgefield to Nature's Valley	Gentle north-facing sandstone or shale slopes with grassy fynbos.		Low – not present
	Lebeckia gracilis		Endangered	Bredasdorp to Port Elizabeth	Coastal fynbos, renosterveld & strandveld in deep, sandy soil < 300 m.	1.49	Low – not present
	Leucospermum glabrum		Endangered	Outeniqua & Tsitsikamma Mountains, Southern Cape	Wet south slopes in sandstone fynbos.	77.93	Very Low – not present
	Selago burchelli		Vulnerable	George to Plettenberg Bay	Coastal slopes and flats.		Low – not present
	Erica chloroloma		Vulnerable	Wilderness to the Fish River Mouth.	Coastal dune fynbos.	17.04	Low – not present
	Erica glandulosa subsp.		Vulnerable	Mossel Bay to Cape St Francis.	Coastal fynbos.	55.42	Low – not present

Sensitivity	Taxon	Common name	IUCN status	Distribution	Habitat	Occupancy (km^2)	Occurrence probability
	fourcadei						
	Hermannia lavandulifolia		Vulnerable	Worcester – Overberg - Southern Cape coastal lowlands to Plettenberg Bay.	Clay slopes in renosterveld & valley thicket.		Low – not present
	Sensitive species 657		Endangered	Great Brak River to Port Elizabeth.	Coastal sands.	6.02	Low – not present
	Sensitive species 1032		Vulnerable	Wilderness to Port Alfred.	Open places on fixed dunes close to the shoreline, 0-150 m.	40.64	Low – not present
	Cotula myriophylloides		Critically Endangered	Cape Peninsula to Plettenberg Bay.	Seasonal coastal pools, but also in marshes and on wet sand.		Very Low – not present
	Acmadenia alternifolia		Vulnerable	Coastal headlands Knysna to Plettenberg Bay.	Slopes in exposed positions in coastal headlands and inland.	37.74	Low – not present
	Muraltia knysnaensis		Endangered	Coastal lowlands Mossel Bay to Keurbooms River.	Fynbos, on dry flats and hills.	10.99	Low – not present
	Sensitive species 800		Vulnerable	Cape Peninsula to Knysna.	Limestone & clay loam soil, fynbos & renosterveld on coastal lowlands.	36.54	Low – not present
	Erica glumiflora		Vulnerable	Wilderness to East London and extending inland around Grahamstown.	Sandy coastal flats and dunes and low coastal hills.	24.24	Low – not present
	Sensitive species 500		Endangered	Cape Flats to Port Elizabeth.	Lowland sandy flats, stabilised dunes and coastal rock promontories.	27.07	Low – not present
	Sensitive species 763		Vulnerable	Riversdale to Port St Johns	Dry coastal renosterveld & grassy places in coastal forest.	2.67	Low – not present
	Zostera capensis		Endangered	Olifants Estuary to Kosi Bay.	Intertidal zone of permanently open estuaries	1.05	Very Low – not present

Figure 21: Showing the transformed verge along the National Route N2 Road Reserve composed of annual exotic and indigenous grasses and weeds.

10 Site Ecological Importance (SEI)

According to the Species Environmental Assessment Guideline the Site Ecological Importance (SEI) is a function of the biodiversity importance (BI) of the receptor (e.g., species of conservation concern, the vegetation/fauna community or habitat type present on the site) and its resilience to impacts (receptor resilience [RR]) as follows:

$$SEI = BI + RR$$

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

$$BI = CI + FI$$

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

Functional integrity (FI) is defined as: *"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*".

Combining these factors and attributes for the broad habitat provides an indication of the importance of the site, as shown in table 3 below.

Table 3: Site Ecological Importance of habitats occurring at the site.

Habitat	**Conservation importance**	**Functional integrity**	**Receptor resilience**	**Site ecological importance**
Transformed verge & brushcut thicket	Very Low	Very Low	Very Low	SEI =Low BI = Very Low
Disturbed Thicket	Medium	Medium	Medium	SEI =Medium BI = Medium

The transformed verge and brushcut thicket habitat have a very low conservation importance and functional integrity with a low SEI. The disturbed Dune Thicket habitat has a medium conservation importance and functional integrity with a medium SEI. Disturbed Dune Thicket as well as currently brushcut Dune Thicket has a medium receptor resilience and biodiversity importance as they can "bounce back" if maintained for biodiversity.

Table 4 below indicates the level of disturbances and impacts that can be managed in various scenarios.

Table 4: Guidelines for interpreting the SEI in the context of the proposed development activities

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

11 Sensitivity Map and Assessment of impact

The proposed linear development (see Fig. 18 above) will impact on a transformed habitat along the National Route N2 and western half of Rietvlei Road with Very Low Terrestrial Biodiversity Sensitivity. A section of disturbed Dune Thicket vegetation of Medium Terrestrial Biodiversity Sensitivity along the eastern half of Rietvlei Road will be impacted upon by installation of services. The dominant plants in vegetated areas are common indigenous plants like *Diospyros dichrophylla* (Common Star-apple), *Euclea racemosa* (Dune Guarri), *Grewia occidentalis* (Kruisbessie), *Maytenus procumbens* (Dune Kokotree), *Osteospermum moniliferum* (Bietou), *Passerina corymbosa* (Common Gonna), *Pterocelastrus tricuspidatus* (Candlewood), *Salvia aurea* (Brown Sage), *Searsia spp.*, and scattered individual indigenous tree species like *Pittosporum viridiflorum* (Cheesewood – Protected).

From a Botanical perspective the condition of the transformed and degraded habitat over most of the receiving environment is of Very Low Terrestrial Biodiversity Sensitivity with a Low Relative Plant Species Sensitivity.

The study area according to the BSP is not mapped as sensitive.

However, the development impact in disturbed Dune Thicket of Medium Terrestrial Biodiversity Sensitivity, is a minor impact for plant community functioning and ecosystem services, and positive impact for infrastructural development.

The impact is site specific in extent to the study area and surrounding adjacent environment.

The duration of the impact is temporary should passive secondary succession be facilitated within the vegetated sections of the Rietvlei Road Reserve. Following disturbance, the spread of Invasive Alien Species (IAS) must be monitored and controlled.

The impact is of low intensity on biodiversity, and it is predicted that the control of IAS will be positive for the recovery of vegetation patterning where the Road Reserve was vegetated. The impact on pristine Dune Thicket or Fynbos habitat is improbable based on the disturbed condition and low species richness present.

The impact on Dune Thicket or Fynbos habitat and effect on biodiversity, predicted with a high level of confidence in the assessment, is of low significance.

12 Mitigation and Recommendations for management

12.1 As sections of the property are sensitive the applicant must conduct activities carefully and reuse or relocate as much bulk plant material as is practical prior to construction (specifically *Brunsvigia orientalis* is rescuable).

12.2 Topsoil should be appropriately stored outside of the development footprint to aid in rehabilitation use. As there is a potential for dispersal and supply of indigenous plant propagules at the property it is recommended that natural succession occur following the

activity as passive rehabilitation, within previously vegetated sections of Rietvlei Road Reserve.

12.3 Prior to the installation of pipelines and the upgrade of Rietvlei Road surface an ECO should identify any protected tree species and/or bulb species present within the Road Reserve that can be rescued and relocated.

12.4 Excavation and earthworks proposed to be conducted must remain within the development footprint and be demarcated from the remaining areas.

12.5 During construction exposed surfaces and slopes may be covered with mulch or hessian cloth to prevent loss of soil by natural wind and water erosion.

Conclusion

The receiving environment was investigated for the potential impact of the installation of services on biodiversity within the N2 Road Reserve and Rietvlei Road Reserve.

It is the opinion of the author that the proposed linear development activity, shall not compromize biodiversity pattern and process or fragment landscape and ecological connectivity of the surrounding area.

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