

Botanical Statement

Proposed Dana Bay emergency access road, Mossel Bay

November 2022



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Mark Berry is an independent botanical specialist with 25 years of experience mainly in the Western Cape, but also in the adjacent provinces, Free State and KwaZulu-Natal. He is also experienced in undertaking/compiling Environmental Impact Assessments (EIA's), Environmental Management Programmes (EMPr's), Environmental Control Officer (ECO) duties, audits, land use surveys and due diligence investigations. CV is available upon request.


Citation of report

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Declaration of Independence

I Mark Gerald Berry, as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that I:

- in terms of the general requirement to be independent:
 - **other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity;** or
 - am not independent, but another specialist (the “Review Specialist”) that meets the general requirements set out in Regulation 13 has been appointed to review my work (Note: a declaration by the review specialist must be submitted);
- in terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- 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
- am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations, 2014 (as amended).

Signature of the Specialist: 

Name of Company: Mark Berry Botanical Consulting

Date: 10 November 2022

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1. Introduction

Proposed development and area assessed

This report investigates the biodiversity aspects of the proposed route for an emergency access road (2.0 km) to Dana Bay through the remainder of Portion 7 of Farm Rietvalley 225, northwest of Dana Bay (**Figure 1-1**). The southern section of the route is located inside a proclaimed road reserve on Erf 14797. The route passes through a grazing field (pasture), with a passage through natural vegetation at the southern end and some fallow land on the northern side (**Figure 1-2**). The aim of the study, which was requested by Sharples Environmental Services (EAP), is to determine the botanical value of the site and to identify mitigation measures to ameliorate the impact. The main concern is that the route runs through areas mapped as critical biodiversity areas (CBA's). The latter forms part of a coastal biodiversity corridor that runs from Mossel Bay westwards around the northern side of Dana Bay.

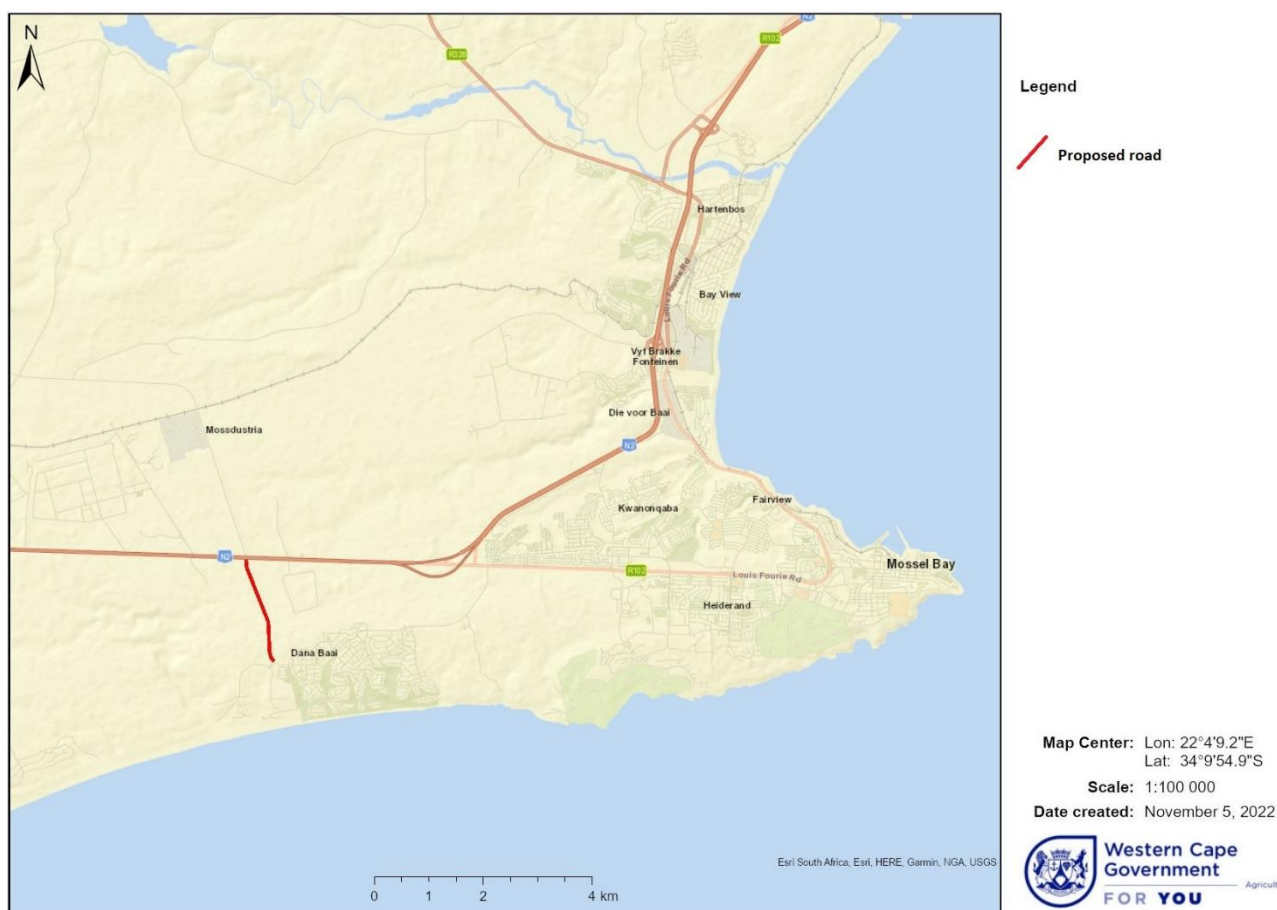


Figure 1-1: Location of the proposed road on north-western side of Dana Bay.

Due to fire safety risks associated with having only one access road into Dana Bay and due to peak hour congestion, Mossel Bay Municipality proposes to construct an additional emergency access road on the north-western side of Dana Bay, which will essentially

extend Flora Road across the remainder of Portion 7 of Farm 225 and junction with the N2 opposite the existing R327 (Herbertsdale Rd) junction. The gravel road surface will be 6 m wide and the road reserve is proposed to be 20 m wide. The initial proposal was for an 8.8 m wide tarred surface, which was subsequently found not to be viable. No construction activities will occur outside of the road reserve, apart from temporary disturbances from access and storage areas in certain disturbed areas. The landowner (farmer) also requested for a cattle creep to allow cattle to move safely across the road.



Figure 1-2: Aerial photograph of proposed new access road.

According to the Screening Report, generated by Sharples Environmental Services (EAP) on 15 November 2021, the site or a part thereof has been mapped as Medium sensitive in the plant species theme, and Very High sensitive in the terrestrial biodiversity theme. The Very High sensitivity is ascribed to the presence of, among other, a mapped critical biodiversity area (CBA 1) and a degraded critical biodiversity area (CBA 2). As a result, Mark Berry Botanical Consulting was contracted to undertake a botanical survey of the property.

Terms of Reference

The terms of reference agreed upon for this botanical study include:

- Adhere to the EAP's terms of reference for the study, including a *status quo* assessment, followed by either a Compliance Statement or a Botanical Assessment Report, depending on the outcome of the *status quo* assessment;

- Identify and describe biodiversity patterns at a community and ecosystem level (main vegetation type, plant communities and threatened/vulnerable ecosystems), at species level (Species of Conservation Concern and protected species) and in terms of significant landscape features;
- Describe the sensitivity of the site and its immediate surroundings;
- Map or describe the presence of invasive alien plants;
- Review the relevant biodiversity plans compiled in terms of the National Environmental Management Biodiversity Act (Act 10 of 2004);
- Make recommendations with regards to the protection/management of biodiversity; and
- Adhere to the NEMA and CapeNature guidelines/protocols for biodiversity assessments.

Limitations and Assumptions

The following limitations and assumptions apply to the study:

- Fieldwork was carried out at the end of the winter season and again in late spring. Flowering plants that only flower at other times of the year (e.g. autumn to early winter), such as certain bulbs, may have been missed. The overall confidence in the completeness and accuracy of the botanical findings is however considered to be good.

Notwithstanding the above limitation and the fact that the vegetation is highly transformed in places, the specialist is of the opinion that the survey and findings are adequate to aid decision making.

Use of this report

This report reflects the professional judgment of its author(s). The information and recommendations presented in this report are specific to the project and site at hand and do not extend to future developments or neighbouring sites. Use of this report is therefore restricted.

2. Site Sensitivity Verification

The Department of Environmental Affairs online Environmental Screening Tool indicates that the plant species theme is of Medium sensitivity for the site (see Screening Report, generated by the EAP on 15 November 2021). **Table 2-1** lists the threatened species and their sensitivity from the Screening Report. The Screening Report further indicates that the terrestrial biodiversity theme is of Very High sensitivity. This rating is ascribed to the presence of, among other, a mapped critical biodiversity area (CBA 1) and a degraded critical biodiversity area (CBA 2).

Table 2-1: Threatened plant species as listed in the Screening Report.

Sensitivity	Feature(s)
Medium	<i>Lampranthus ceriseus</i>
Medium	<i>Lampranthus diutinus</i>
Medium	<i>Lampranthus fergusoniae</i>
Medium	<i>Lampranthus foliosus</i> (= <i>ceriseus</i>)
Medium	<i>Lampranthus pauciflorus</i>
Medium	<i>Ruschia leptocalyx</i>
Medium	<i>Argyrolobium harmsianum</i>
Medium	<i>Aspalathus campestris</i>
Medium	<i>Aspalathus obtusifolia</i>
Medium	<i>Lebeckia gracilis</i>
Medium	<i>Leucadendron galpinii</i>
Medium	<i>Leucospermum muirii</i>
Medium	<i>Leucospermum praecox</i>
Medium	<i>Wahlenbergia polyantha</i>
Medium	<i>Selago glandulosa</i>
Medium	<i>Selago villicaulis</i>
Medium	<i>Erica unicolor</i> ssp. <i>mutica</i>
Medium	<i>Hermannia lavandulifolia</i>
Medium	Sensitive species 153
Medium	Sensitive species 268
Medium	<i>Thamnochortus muirii</i>
Medium	Sensitive species 1024
Medium	<i>Athanasia cochlearifolia</i>
Medium	<i>Agathosma eriantha</i>
Medium	<i>Agathosma muirii</i>
Medium	<i>Agathosma riversdalensis</i>
Medium	<i>Euchaetis albertiniana</i>
Medium	<i>Muraltia cliffortiifolia</i>
Medium	<i>Muraltia knysnaensis</i>
Medium	<i>Polygala pubiflora</i>
Medium	<i>Nanobubon hypogaeum</i>
Medium	Sensitive species 516
Medium	<i>Drosanthemum lavisii</i> (probably <i>D. edwardsiae</i> , which is very similar and known from area)
Medium	Sensitive species 800
Medium	Sensitive species 500
Medium	Sensitive species 654
Medium	<i>Agathosma microcarpa</i>

In circumstances where the *status quo* assessment proves the contrary to the above (i.e. where the site is deemed to be of Low sensitivity in respect of both themes, the GN320 of 2020 requires that a Terrestrial Biodiversity Compliance Statement is submitted as set out by the National Environmental Management Act (NEMA) (Act No. 107 of 1998) Regulations of 2020 (as amended). If the above is confirmed, then a biodiversity assessment will be required.

3. Methodology

The methodology used in this terrestrial biodiversity compliance assessment, including a desktop background assessment and one site visit, is outlined in the subsections below.

Desktop assessment

A brief review of online (e.g. Google Earth, iNaturalist.org and CapeFarmMapper) and desktop resources (available literature and reports) was undertaken to determine the nature of the site, the expected vegetation type(s), the presence of natural vegetation remnants and species of conservation concern (SCC), hydrological features, and the significance of the site in terms of biodiversity planning.

Site survey

Botanical surveys of the site were undertaken on 14 November 2019 and 30 October 2022 by the author. A qualitative assessment of the type and condition of affected vegetation on site, disturbances and presence of alien species, SCC and protected tree species was carried out. The path walked during the second survey (30 October 2022) is shown in **Figure 3-1**. Plant species not identified in the field, were collected and/or photographed and identified at the office and Compton (Kirstenbosch) Herbarium. The 2012 South African Vegetation Map and the latest floristic taxonomic literature and reference books were used for the purpose of this specialist study. The 2018 version of the Vegetation Map for the Mossel Bay area is highly flawed/inaccurate. Any plants classified as rare or endangered in the Red List of South African Plants online database¹ are highlighted. The assessment follows the relevant national guidelines/protocols for biodiversity assessments as listed in the Government Gazette No. 43110 on 20 March 2020.

The following information was recorded during the site visit:

1. The condition of the vegetation. Is the vegetation either disturbed or degraded? A disturbed or degraded area could range from agricultural fields (fallow land), or areas previously disturbed by mining activities, to an area that has been severely eroded or degraded as a result of bad land management or alien infestation.
2. Species diversity (alpha diversity). This refers to the numbers of different indigenous plant species occurring on site.
3. Species of Conservation Concern (SCC), endemics, as well as protected tree species occurring on site. This would include near threatened, rare, vulnerable, endangered or critically endangered species. SCC and protected tree species were mapped using Easy GPS v2.5 software on an iPhone. Accuracy is given as ± 4 m.

¹ [Threatened Species Programme | SANBI Red List of South African Plants](#)

4. Identification of the vegetation type(s) and communities (if discernible) on the site. This would include trying to establish the known range of a vegetation type and whether or not it is vulnerable, endangered or critically endangered.
5. Connectivity with (or isolation from) nearby natural vegetation.



Figure 3-1: Satellite photo showing the survey track.

4. Literature Study

A desktop literature review was undertaken during the biodiversity assessment using both online resources and existing maps and reports. A summary of the most relevant information to this assessment is presented below. Some of the information was ground-truthed during the site survey.

Location, topography & land use

The proposed route (2.0 km) is located on an elevated coastal platform west of Mossel Bay between Dana Bay and the N2. The site, situated between 140 and 180 m above sea level, rises gently from its southern end over a stretch of 500 m to the top of a fynbos-covered sand dune before sloping down towards the northern end (**Figure 4-1**). The southern end (road reserve) is located in a fynbos setting, while the longer northern section is located on a dairy farm, a large part of which comprise a pasture and some fallow land (**Figures 4-2 & 4-3**). The coastal town of Dana Bay is situated on the south-eastern side, while Mossdustria is situated a little bit further away to the northwest (on northern side of N2).

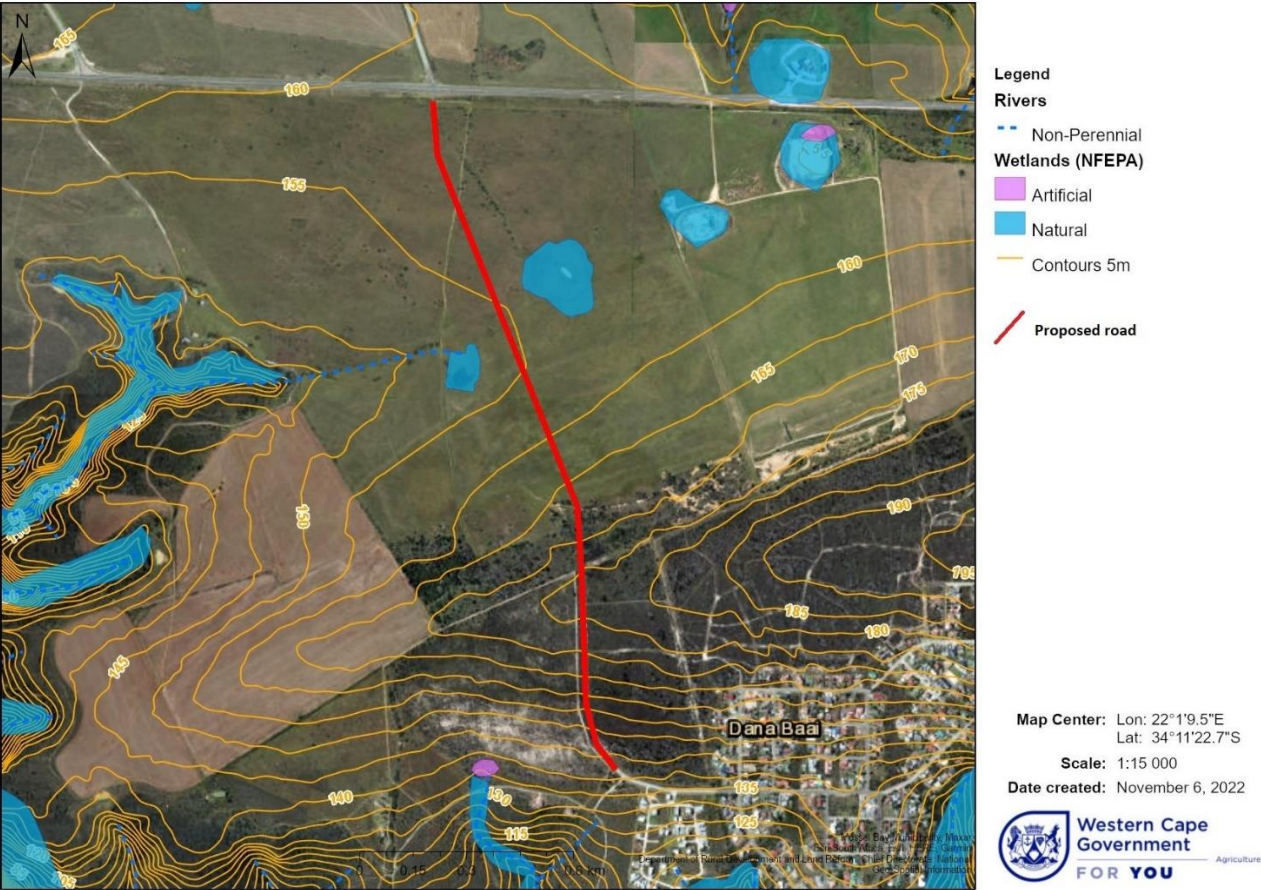


Figure 4-1: Combined topography and hydrology map.



Figure 4-2: Pasture, looking north towards the proposed junction with the N2.



Figure 4-3: Looking south across the fallow land portion of the site.

While the coastal strip between Mossel Bay and Glentana is largely transformed by coastal developments, the coastline west of the Mossel Bay area is much better preserved. Alien infestation remains a big concern in the larger area, notably rooikrans, port jackson and spider gum. While farming activities (cattle/dairy) still prevail on the farm through which the route passes, the southern end, especially along the road reserve, is still covered with intact fynbos.

Hydrology

According to CapeFarmMapper, the proposed route does not run through any mapped watercourses or wetlands. It avoids two NFEPA (National Freshwater Ecosystem Priority Area) wetlands situated in the northern part of the site (**Figure 4-1**). Apart from these, the most notable watercourse in the area is the Blinderivier located in the small valley 1.5 km to the west of the site. The latter watercourse and wetlands have all been included in the biodiversity network.

Climate

Rainfall in the region ranges from 350 mm in the west to 750 mm per annum in the east, with about 40% of the rain falling in summer (October–March) and 60% in the winter (April–September) as per Mucina & Rutherford’s description of the climate for Groot Brak Dune

Strandveld (Mucina, 2006). It is even throughout the year, with slight peaks in March and October/November (Mucina, 2006). Mean daily maximum and minimum temperatures are 26.8°C and 7.7°C for February and July, respectively (Mucina, 2006).

Geology

According to the 3422 AA Mossel Bay 1:50 000 geological map, the southern part of the site is underlain by non-shelly sand (a target for sand mining activities), which changes into loam and sandy loam soil in the northern part. The base rock comprises Table Mountain Group sandstone, presumably Skurweberg Formation (**Figure 4-4**). These sediments typically support fynbos types.



Figure 4-4: Exposed Table Mountain Group sandstone (Skurweberg Formation) in the fallow land.

Biodiversity Planning Context

Being located on the Southern Cape coastal plain in close proximity to the coast, the site occurs in a typical coastal fynbos/thicket environment. This is confirmed by the presence of fynbos species, such as *Erica versicolor*, *Leucospermum praecox*, *Protea lanceolata* and several restio species, as well as thicket species, such as *Putterlickia pyracantha*, *Diospyros dichrophylla*, *Pterocelastrus tricuspidatus* and *Lauridia tetragona*. According to the 2012 SA Vegetation Map, the southern part of the site has been mapped as Canca Limestone Fynbos and the northern part as North Langeberg Sandstone Fynbos (**Figure**

4-5). Groot Brak Dune Strandveld (along the coast), Albertinia Sand Fynbos and Central Coastal Shale Band Vegetation are also present in the larger area.

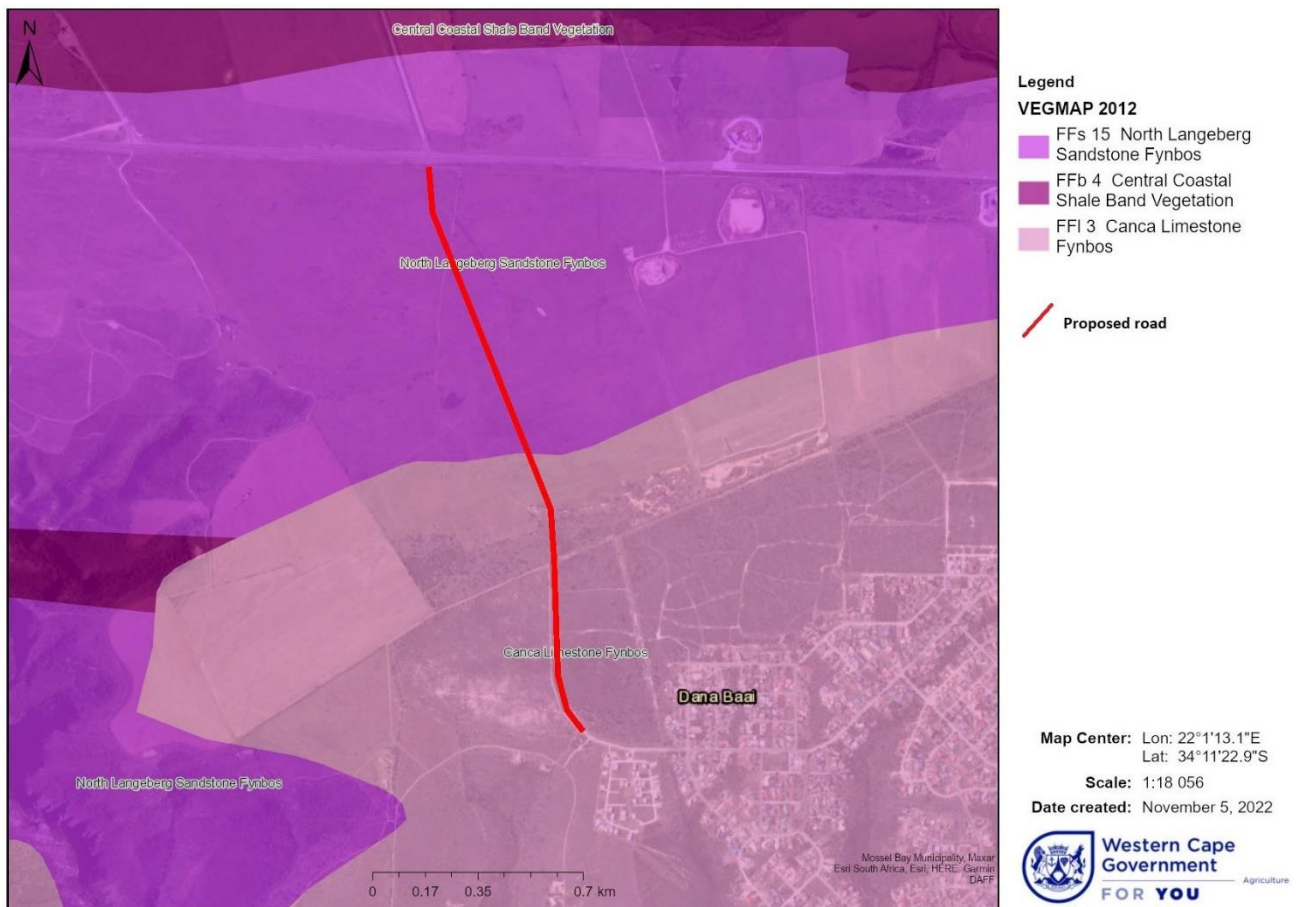


Figure 4-5: Extract of the 2012 SA Vegetation map.

Canca Limestone Fynbos stretches across the Southern Cape lowlands from Witsand (Cape Infanta) in the west to the Mossel Bay area in the east, while North Langeberg Sandstone Fynbos is associated with the northern slopes of the Langeberg, as well as the Aasvoëlberg hills from Albertinia to Mossel Bay (Mucina, 2006). Groot Brak Dune Strandveld stretches from the Gouritz mouth in the west to Victoria Bay in the east (Mucina, 2006). The latter, which is easy to spot with its impenetrable, thorny thicket structure, occurs in more sheltered areas along the coast and along drainage lines. Albertinia Sand Fynbos is associated with deeper sand habitats commonly found on the Albertinia flats.

During the site survey it was found that the vegetation in the southern part of the site comprises fynbos with a strong thicket influence in a few places. The latter could be the result of senescence. With regards to vegetation type, it leans more towards Albertinia Sand Fynbos, with *Erica versicolor*, *Leucospermum praecox*, *Bobartia robusta* and *Thamnochortus insignis* important taxa in the latter type. However, there is also an affinity with Canca Limestone Fynbos and North Langeberg Sandstone Fynbos, with *Protea lanceolata* an important taxon in the former, and *Erica versicolor* and *Leucadendron*

salignum important in the latter. *Carissa bispinosa*, *Diospyros dichrophylla*, *Putterlickia pyracantha*, *Pterocelastrus tricuspidatus*, *Gymnosporia buxifolia* and *Lauridia tetragona* are important Groot Brak Dune Strandveld taxa.

Being well represented in the larger area, Canca Limestone Fynbos is currently not considered a threatened vegetation type. However, agricultural activities, alien plant infestation and coastal developments remain major threats for certain species restricted to this vegetation type. About 81% of Canca Limestone Fynbos remains (Skowno, 2019). However, due to its poor conservation status its protection in the coastal areas should remain a priority. Less than 1% is formally conserved in the Pauline Bohnen and Geelkrans Nature Reserves (Mucina, 2006). Albertinia Sand Fynbos, on the other hand, is listed as Vulnerable (DEA, 2011). About 55% of it is still left (Skowno, 2019), while only 5% is formally protected in the De Hoop, Pauline Bohnen, Geelkrans, Kleinjongensfontein, Blomboschfontein and Skulpiesbaai Nature Reserves (DEA, 2011). North Langeberg Sandstone Fynbos is not listed as threatened. About 92% of it remains, while 13% is formally conserved in the Boosmansbos Wilderness Area and an additional 45% in mountain catchment areas (Mucina, 2006).

The proposed access road runs through two areas mapped as terrestrial critical biodiversity areas (CBA's) (**Figure 4-6**). The southern portion forms part of a biodiversity corridor that runs in an east-west direction past the northern side of Dana Bay. Apart from providing a backbone to the local biodiversity network, the latter corridor serves as an important passage along which fauna can migrate between the vegetation remnants. It is unclear what the rationale is behind the patchy CBA at the northern end of the route next to the N2. On the ground there does not seem to be any difference between the CBA patches and the areas in between, mapped as 'other natural areas'.

There are no formally protected areas within a 20 km radius of the site, only a few private game reserves. Reasons for the importance of the above-mentioned CBA's include the presence of SA vegetation types (Canca Limestone Fynbos and North Langeberg Sandstone Fynbos), a critically endangered vegetation variant (Petrosa Fynbos-Renosterveld), threatened vertebrate habitat (bontebok) and a few wetland types.

CBA's are defined as areas in a natural condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure (Pool-Stanvliet, 2017). These sites are selected for meeting national targets for species, habitats and ecological processes (Pool-Stanvliet, 2017). Many of these areas support known occurrences of threatened plant species, and/or may be essential elements of designated ecological corridors. Loss of designated CBA's is therefore not recommended. With the proposed road running through the CBA corridor one can expect some impact on its functionality.

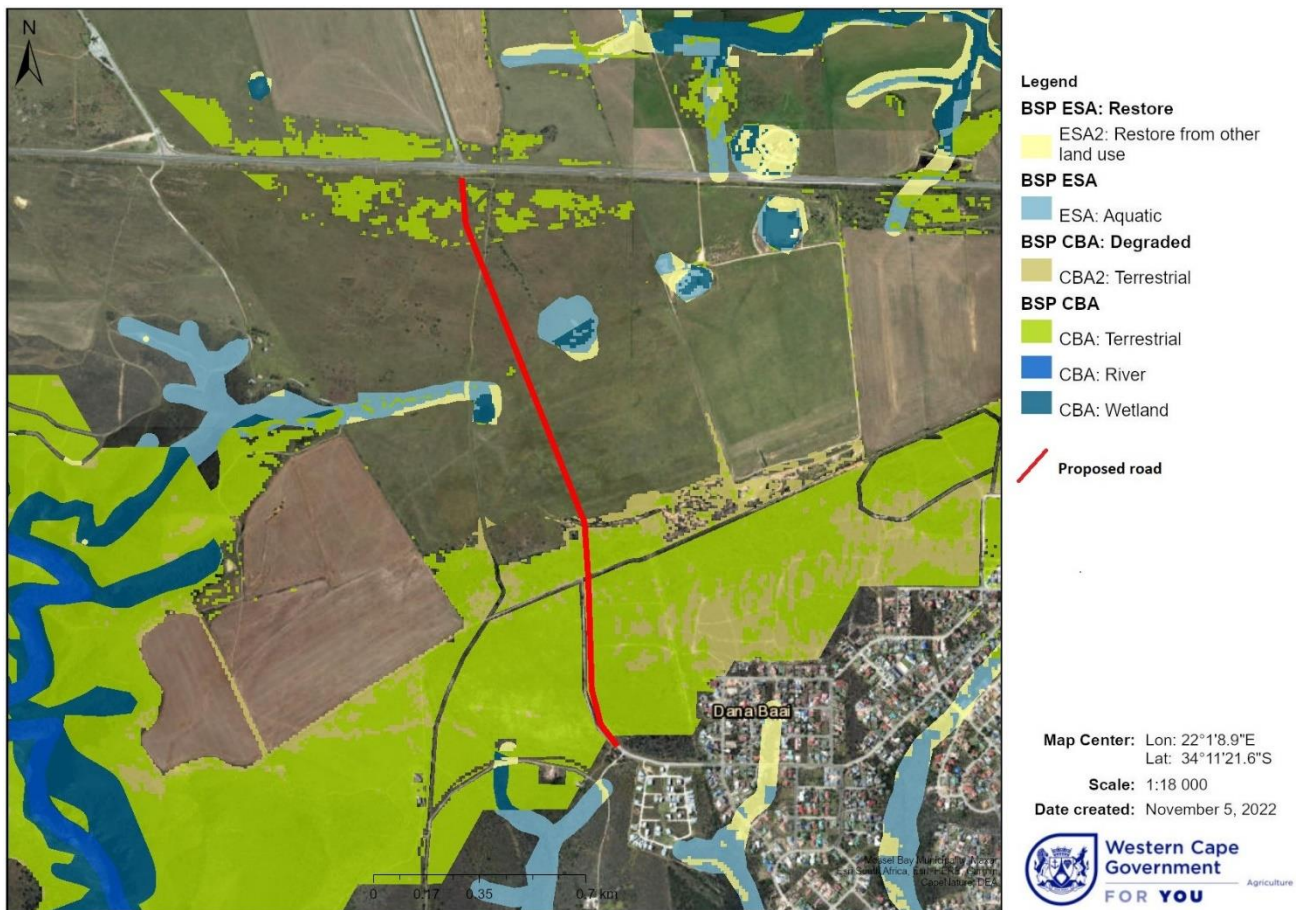


Figure 4-6: Extract of the 2018 SA Vegetation map.

5. Results

In order to fulfil in the requirements of the terrestrial biodiversity and plant species protocols, this section describes the vegetation (terrestrial biodiversity) and plant species encountered in two subsections. In the plant species subsection specific reference is made to species of conservation concern (SCC).

Terrestrial biodiversity (vegetation)

The vegetation at the southern end of proposed route, especially along the road reserve, comprises a fynbos type that shows a strong affinity with Albertinia Sand Fynbos. There is also a bit of influence from Groot Brak Dune Strandveld and Canca Limestone Fynbos. Structurally, it can be described as a low to mid-high (0.5-2 m) closed shrubland following Campbell's classification (Campbell, 1981). It is low (<1 m) along the road reserve and somewhat taller (1-2 m) in the strip between the road reserve and pasture. Dominant species include *Helichrysum patulum*, *Osteospermum moniliferum*, *Searsia lucida* and *Passerina corymbosa*. The fynbos along the road reserve is generally of a good quality

(**Figure 5-1**). The presence of a two-track dirt road, some *Acacia cyclops* (rooikrans) and a few disturbed patches do not detract from its value or quality.



Figure 5-1: Good quality fynbos in the road reserve.

The strip of vegetation between the road reserve and pasture shows clear signs of disturbance by cattle grazing and alien infestation, notably *A. cyclops* and some *Opuntia ficus-indica* (prickly pear) (**Figure 5-2**). It was also noted to be senescent (very woody) and in need of a fire. Fire is an important trigger for germination in fynbos and it can also be used in an integrated manner to control invasive aliens.

The history of the old (fallow) land is not clear, but a fair bulb population was noted here, notably *Albuca cf. acuminata*, *Ornithogalum dubium*, *Drimia capensis*, *Haemanthus coccineus*, *Crossyne guttata* and *Boophone disticha*. The shrub component (<0.4 m high) comprises a few scattered *Elytropappus rhinocerotis* (renosterbos), *Metalasia acuta*, *Athanasia quinqueidentata*, *Delosperma neethlingiae*, *Lampranthus elegans*, *Muraltia ericoides* and *Crassula nudicaulis*. It shows some potential to revert back to the original vegetation (presumably North Langeberg Sandstone Fynbos), but only if further farming activities in the area are ceased. The pasture is significantly degraded or devoid of indigenous vegetation. It is currently used for grazing purposes. **Figure 5-3** shows the vegetation attributes of the site.



Figure 5-2: Strip of senescent fynbos between the road reserve and pasture.

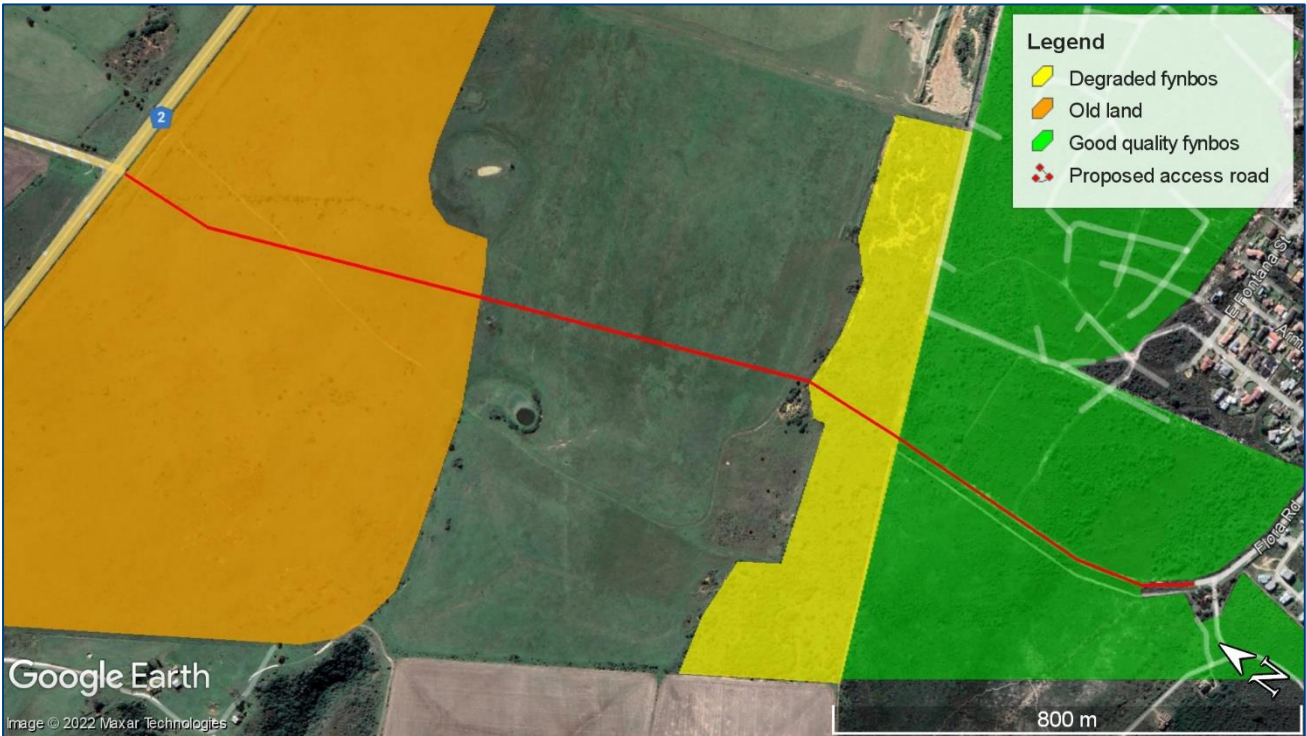


Figure 5-3: Vegetation attributes of the site. The untuned area(s) are devoid of significant vegetation.

Plant species

Shrub species recorded along the road reserve include *Protea lanceolata*, *P. repens*, *Leucospermum praecox*, *Leucadendron salignum*, *Erica versicolor*, *Osteospermum moniliferum*, *Tarchonanthus littoralis*, *Metalasia densa*, *M. acuta*, *M. brevifolia*, *Seriphium plumosum*, *Helichrysum patulum*, *H. teretifolium*, *H. rugulosum*, *H. cymosum*, *Senecio ilicifolius*, *Osteospermum imbricatum*, *Cullumia carlinoides*, *Berkheya carlinoides*, *Ursinia anthemoides*, *U. discolor*, *Chrysocoma ciliata*, *Aspalathus crassisepala*, *A. quinquefolia*, *Searsia lucida*, *S. glauca*, *Diospyros dichrophylla*, *Carpobrotus edulis*, *C. muiirii*, *C. acinaciformis*, *Crassula subulata*, *Passerina corymbosa*, *Gnidia chrysophylla*, *G. squarrosa*, *Struthiola striata*, *Agathosma apiculata*, *A. imbricata*, *Euchaetis burchellii*, *Muraltia cf. ericoides*, *G. Gymnosporia buxifolia*, *Lauridia tetragona*, *Pterocelastrus tricuspoidatus*, *Euclea crispa*, *Pittosporum viridiflorum*, *Grewia occidentalis*, *Carissa bispinosa*, *Hermannia salviifolia*, *H. lavandulifolia*, *Trichocephalus stipularis*, *Cliffortia stricta*, *Anthospermum aethiopicum*, *Leonotis ocymifolia*, *Pelargonium capitatum*, *P. fruticosum*, *P. betulinum*, *Chironia baccifera*, *Asparagus rubicundus*, *Lobelia tomentosa* and *Rhoicissus digitata*. Restios and geophytes recorded here include *Thamnochortus muiirii*, *T. insignis*, *Elegia stipularis*, *Staberoha distachyos*, *Restio triticeus*, *Mastersiella spathulata*, *Drimia capensis*, *Aristea africana* and *Bobartia robusta*.

Additional shrub species recorded (inside the fynbos strip north of the road reserve and on old land) include *Elytropappus rhinocerotis*, *Athanasia quinquentata*, *Felicia aethiopica*, *Berkheya rigida*, *Gerbera tomentosa*, *Indigofera nigromontana*, *Rhynchosia caribaea*, *Searsia rosmarinifolia*, *Delosperma inconspicuum*, *Ruschia tenella*, *Delosperma neethlingiae*, *Lampranthus elegans*, *Crassula nudicaulis*, *Aloe maculata*, *Gnidia nodiflora*, *Asparagus aethiopicus*, *Hermannia flammula*, *Salvia africana-lutea*, *Phyllica cf. imberbis*, *Solanum rigescens*, *Wahlenbergia desmantha*, *Putterlickia pyracantha* and *Cynanchum obtusifolium*. Grasses and extra bulbs recorded inside fynbos strip and on old land include *Eragrostis curvula*, *Albuca juncifolia*, *A. cf. acuminata*, *Ornithogalum dubium*, *Haemanthus coccineus*, *Crossyne guttata*, *Boophone disticha* and *Moraea bulbifera*.

Figure 5-4 shows a few of the indigenous species recorded.

Most of the recorded species are widespread and fairly common in the Mossel Bay area. *Leucospermum praecox* (VU), *Cullumia carlinoides* (NT), *Carpobrotus muiirii* (NT), *Gnidia chrysophylla* (NT), *Hermannia lavandulifolia* (VU) and *Thamnochortus muiirii* (VU) are listed SCC (**Figure 5-5**). Other regional endemics recorded on site include *Protea lanceolata* and *Bobartia robusta*. A few *Pittosporum viridiflorum* trees, a protected tree species in terms of the National Forests Act (Act 84 of 1998), were recorded in the fynbos in close proximity to the proposed road. No milkwoods (*Sideroxylon inerme*), another protected tree species common in the area, were recorded. The removal of these trees requires a permit from the Department of Forestry.



Figure 5-4: A few indigenous species recorded on site, with *Leucospermum praecox* (top left), *Carpobrotus muiirii* (top right), *Erica versicolor* (middle left), *Cullumia carlinoides* (middle right), *Ornithogalum dubium* (bottom left) and *Lampranthus elegans* (bottom right).

Only a few woody and succulent exotic species were recorded, namely *Acacia cyclops* (rooikrans, category 1b), *A. saligna* (port jackson, 1b) and *Opuntia ficus-indica* (prickly pear, 1b). As indicated above, all three species are Category 1b invaders. In terms of the National Environmental Management: Biodiversity Act (NEMBA) (Act 10 of 2004) Alien and

Invasive Species List (2016), category 1b invasive species require compulsory control as part of an invasive species control programme.



Figure 5-5: Recorded SSC and protected tree species.

6. Potential Impacts

Terrestrial biodiversity (vegetation)

The impact on fynbos involves its removal in a ± 12 m wide strip as follows:

- ± 480 m of good quality fynbos;
- ± 260 m of degraded fynbos; and
- ± 600 m through fallow land.

The affected vegetation types have been identified as Albertinia Sand Fynbos (southern section of route) and North Langeberg Sandstone Fynbos (northern part/old land). Only Albertinia Sand Fynbos is currently listed as threatened. The impact will involve considerable earthworks and the constant movement of construction vehicles through the area. During this phase care must be exercised in the fynbos and old land areas to avoid the unnecessary disturbance of the adjacent veld. Given the linear nature of the project and the disturbed/transformed state of parts of the site, the impact on vegetation is of a moderate concern. The rehabilitation potential of the disturbed areas is very good though. Likely, most of the species which originally occurred along the route will return to the road reserve, including the aliens. As an indirect impact, soil disturbance caused by earthworks will provide ideal conditions for the establishment of invasive alien species.

The presence of rooikrans and port jackson will exacerbate this impact. **Table 6-1** summarises the impact on terrestrial biodiversity.

Table 6-1: Impact on terrestrial biodiversity.

Phase	Construction Phase	Operational Phase
Nature of impact(s)	<ul style="list-style-type: none"> - Vegetation loss. - Impact on biodiversity network. - Increased opportunity for alien infestation. 	<ul style="list-style-type: none"> - Increased alien infestation.
Extent of impact	Development footprint and immediate surroundings	Development footprint and immediate surroundings
Duration	Long term	Long term
Intensity	Medium	Low
Probability of occurrence	High	High
Degree of reversibility	Medium	High
Irreplaceability of resource	Medium	Low-medium
Mitigatory potential	High	High
Significance before mitigation	Medium	Medium
Significance after mitigation	Low	Very Low
Mitigation		
<ul style="list-style-type: none"> - During the construction phase, demarcate/fence off the development footprint. Restrict all construction activities, such as stockpiling and parking, to already disturbed areas away from natural vegetation. The contractor(s) must be made aware of the sensitive surroundings. The fynbos and old land areas outside the road footprint must be declared a 'no-go' area and not be disturbed in any way. - Remove topsoil and/or seedbearing plant material from fynbos and old land areas to be disturbed for use in the rehabilitation of disturbed areas after construction. - Engage in alien clearing, focussing on invasive species such as rooikrans, port jackson and prickly pear. These species are category 1b invaders that require compulsory control as part of an invasive species control programme. This will become a long-term maintenance requirement. - Allow 24 months for the monitoring of rehabilitation success and alien infestation post construction. 		

The proposed access road passes through two CBA's. The southern section forms part of an important biodiversity corridor that runs in an east-west direction past the northern side of Dana Bay. Apart from providing a backbone to the local biodiversity network, the latter corridor serves as an important passage along which fauna can migrate between the vegetation remnants. With the proposed road running through the CBA corridor one can expect an impact on its functionality. This impact can unfortunately not be avoided by means of rerouting the road. Being an emergency road, there will not be a regular flow of traffic through the area which should lessen the impact on the network considerably.

As an operational phase maintenance concern, keep the road reserve clear of invasive aliens, such as rooikrans, port jackson and prickly pear. The former adds to the fuel load and may increase the risk of wildfires in the long term. As stated earlier, it is a legal requirement for the landowner(s) to clear/control the invasive aliens on their land.

Plant species

The impact on plant species, especially SCC and protected species, is also of some concern and needs to be managed during the construction phase. Most of the recorded species are widespread and fairly common in the Mossel Bay area. Six SCC were recorded, including three which are listed as Vulnerable, namely *Leucospermum praecox*, *Hermannia lavandulifolia* and *Thamnochortus muirii*. Fortunately, they are still frequently encountered in similar habitats in the Mossel Bay area. Literally, hundreds of *L. praecox* are present on the large undeveloped property directly north of Dana Bay. With regards to protected tree species, three *Pittosporum viridiflorum* trees were recorded in the fynbos close to the proposed road. They can potentially be avoided during the construction phase. If not, a permit will be needed for their removal. **Table 6-2** summarises the impact on flora, SCC and protected tree species.

Table 6-2: Impact of the project on flora, SCC and protected tree species.

Phase	Construction Phase	Operational Phase
Nature of impact(s)	- Loss of indigenous flora, SCC and protected tree species	- Alien infestation and resulting displacement of indigenous flora and SCC.
Extent of impact	Development footprint and immediate surroundings	Development footprint and immediate surroundings
Duration	Long term	Long term
Intensity	Medium	Low-medium
Probability of occurrence	High	High
Degree of reversibility	Medium-high	High
Irreplaceability of resource	Medium	Medium
Mitigatory potential	High	High
Significance before mitigation	Medium	Medium
Significance after mitigation	Low	Low
Mitigation		
<ul style="list-style-type: none"> - The contractor(s) must be made aware of the presence of SCC and protected tree (<i>Pittosporum viridiflorum</i>) species. Removal of the latter requires a permit from the Department of Forestry. - During the staking out of the construction footprint take cognisance of the presence of recorded SCC and protected trees. Try and avoid these as far as practically possible. It is recommended that a botanist be involved during this process. 		

- Search and rescue bulbs from the construction footprint for replanting in the adjacent areas or rehabilitation of disturbed areas after construction. Topsoil, cuttings and seedbearing plant material can also be salvaged for this purpose, especially cuttings from *Carpobrotus* and *Pelargonium* species. Bulbs should be removed along with some soil, placed in gel, bagged and then taken to a nursery for temporary storage or transplanted directly in the receiving area.

Due to a considerable presence of bulbs in the fallow land portion, it is recommended that the affected bulbs be searched and rescued and replanted in the adjacent fallow land area. Search and rescue should be done at an appropriate time of the year, preferably when the soil is wet during the raining season(s). Ideally, bulbs should be salvaged during leaf fall, but before or after flowering.

The probability of SCC listed in the Screening Report to occur in the vicinity of the site is indicated in **Table 6-3**. Given their habitat preferences, five species have a medium or higher probability to occur on the property. Those with a lesser probability to occur here have not been recorded in Mossel Bay or were recorded in different habitats or vegetation types.

Table 6-3: Threatened plant species as listed in the Screening Report.

Sensitivity	Feature(s)	Probability of occurring on site
Medium	<i>Lampranthus ceriseus</i>	Low
Medium	<i>Lampranthus diutinus</i>	Low
Medium	<i>Lampranthus fergusoniae</i>	Low
Medium	<i>Lampranthus pauciflorus</i>	Low
Medium	<i>Ruschia leptocalyx</i>	Low
Medium	<i>Argyrolobium harmsianum</i>	Low
Medium	<i>Aspalathus campestris</i>	Low-medium
Medium	<i>Aspalathus obtusifolia</i>	Low-medium
Medium	<i>Lebeckia gracilis</i>	Low-medium
Medium	<i>Leucadendron galpinii</i>	Low
Medium	<i>Leucospermum muirii</i>	Low
Medium	<i>Leucospermum praecox</i>	Recorded on site
Medium	<i>Wahlenbergia polyantha</i>	Low-medium
Medium	<i>Selago glandulosa</i>	Low-medium
Medium	<i>Selago villicaulis</i>	Low-medium
Medium	<i>Erica unicolor</i> ssp. <i>mutica</i>	Low
Medium	<i>Hermannia lavandulifolia</i>	Recorded on site
Medium	Sensitive species 153	Low-medium
Medium	Sensitive species 268	Low
Medium	<i>Thamnochortus muirii</i>	Recorded on site
Medium	Sensitive species 1024	Low-medium
Medium	<i>Athanasia cochlearifolia</i>	Low-medium
Medium	<i>Agathosma eriantha</i>	Low-medium
Medium	<i>Agathosma muirii</i>	Low
Medium	<i>Agathosma riversdalensis</i>	Low
Medium	<i>Euchaetis albertiniana</i>	Medium
Medium	<i>Muraltia cliffortiifolia</i>	Low

Sensitivity	Feature(s)	Probability of occurring on site
Medium	<i>Muraltia knysnaensis</i>	Low
Medium	<i>Polygala pubiflora</i>	High
Medium	<i>Nanobubon hypogaeum</i>	Low-medium
Medium	Sensitive species 516	Low
Medium	<i>Drosanthemum lavisii</i>	Low
Medium	Sensitive species 800	Low-medium
Medium	Sensitive species 500	Low-medium
Medium	Sensitive species 654	Low-medium
Medium	<i>Agathosma microcarpa</i>	Low

The **cumulative botanical impact** of the project is expected to be equivalent to the impact on terrestrial biodiversity and SCC described above, i.e. the continued erosion of Albertinia Sand Fynbos, the biodiversity network, and loss of SCC as a result of development.

7. Recommended Mitigation Measures

The following mitigation measures are required to ensure that the impact on terrestrial biodiversity and plant species is minimised:

- During the construction phase, demarcate/fence off the development footprint. Restrict all construction activities, such as stockpiling and parking, to already disturbed areas away from natural vegetation. The contractor(s) must be made aware of the sensitive surroundings. The fynbos and old land areas outside the road footprint must be declared a 'no-go' area and not be disturbed in any way.
- Remove topsoil and/or seedbearing plant material from fynbos and old land areas to be disturbed for use in the rehabilitation of disturbed areas after construction.
- The contractor(s) must be made aware of the presence of SCC and protected tree (*Pittosporum viridiflorum*) species. Removal of the latter requires a permit from the Department of Forestry in terms of the National Forests Act.
- During the staking out of the construction footprint take cognisance of the presence of recorded SCC and protected trees. Try and avoid these as far as practically possible. It is recommended that a botanist be involved during this process.
- Search and rescue bulbs from the construction footprint for replanting in the adjacent areas or rehabilitation of disturbed areas after construction. Topsoil, cuttings and seedbearing plant material can also be salvaged for this purpose, especially cuttings from *Carpobrotus* and *Pelargonium* species. Bulbs should be removed along with some soil, placed in gel, bagged and then taken to a nursery for temporary storage or transplanted directly in the receiving area.

- Engage in alien clearing, focussing on invasive species such as rooikrans, port jackson and prickly pear. In terms of the NEMBA (Act 10 of 2004) Alien and Invasive Species List (2016), these species are category 1b invaders that require compulsory control as part of an invasive species control programme. This will become a long-term maintenance requirement. One-year old seedlings can be hand-pulled, preferably when soil is wet after a rainfall. If left to grow, removal becomes more difficult and costly. The use of heavy plant, such as bush cutters or D9 Caterpillar, for alien clearing is not recommended. Port jackson stumps must also be treated with herbicides to prevent coppicing.
- Allow 24 months for the monitoring of rehabilitation success and alien infestation post construction. In this regard, a rehabilitation plan should be compiled and submitted before the start of construction work. This plan will also detail the search and rescue of plants, which are to be used for rehabilitation process.

8. Conclusion & Recommendations

This report sets out the results from a desktop study, as well as two field surveys conducted on 14 November 2019 and 30 October 2022, to ascertain the terrestrial biodiversity and plant species constraints and possible impacts associated with the construction of an emergency access road (2.0 km) to Dana Bay through the remainder of Portion 7 of Farm Rietvalley 225, northwest of Dana Bay. The southern section of the route is located inside a proclaimed road reserve on Erf 14797.

The anticipated impact on the affected vegetation types (i.e. Albertinia Sand Fynbos and North Langeberg Sandstone Fynbos), the biodiversity network, SCC and protected trees is of medium concern. The southern section of the route passes through good quality fynbos and a CBA corridor. All the SCC and protected trees were also recorded here. The rest of the route is either transformed (pasture) or degraded (old land). Nevertheless, the impact can be mitigated to a low significance if the recommended mitigation measures are adhered to. Rehabilitation potential of disturbed areas is very good. An important mitigation measure will be the control of invasive aliens after the construction phase, which will become a long-term maintenance task.

It is therefore recommended that the proposed project be considered for approval, subject to the consideration of the proposed mitigation measures.

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