

Botanical Statement

Proposed residential development on Portion 21 of Farm Kraai Bosch 195, George

August 2023



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Mark Berry is an independent botanical specialist with over 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, etc. CV is available upon request.

Citation of report

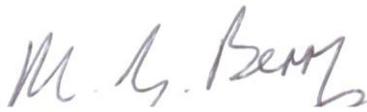
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Declaration of Independence

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 Surveys

Date:

17 August 2023

Table of Contents

Author details	2
Declaration of Independence	3
Table of Contents	4
1. Introduction	5
Proposed development and area assessed	5
Terms of Reference	7
Limitations and Assumptions	7
Use of this report	8
2. Site Sensitivity Verification	8
3. Methodology	9
Desktop assessment	9
Site survey	9
4. Literature Study	10
Location, topography & land use	10
Hydrology	11
Climate	13
Geology	13
Biodiversity Planning Context	14
5. Results	17
Terrestrial biodiversity (vegetation)	17
Plant species	20
6. Potential Impacts	23
Terrestrial biodiversity (vegetation)	23
Plant species	23
7. Recommended Mitigation Measures	24
8. Conclusion & Recommendations	25
References	26

1. Introduction

Proposed development and area assessed

The applicant is investigating the feasibility of a residential development on Portion 21 of Farm Kraai Bosch 195 on the eastern side of George (**Figure 1-1**). The property is 23.3 ha in extent and 17 ha are available for housing. It is currently used for grazing purposes (cattle). The farm also includes a few farm dwellings and a garden, which will be retained as part of a historical precinct (**Figure 1-2**). The estate will comprise the following residential/land uses (**Figure 1-3**):

- A. 128 Single Residential II Zoning - 3 storey apartments;
- B. Business Zone III with neighbourhood shop and flats above;
- C. Historic Precinct (clubhouse, restaurant and gym);
- D. 40 High density group housing (cottages);
- E. 47 Group housing; and
- F. 101 Single residential erven.

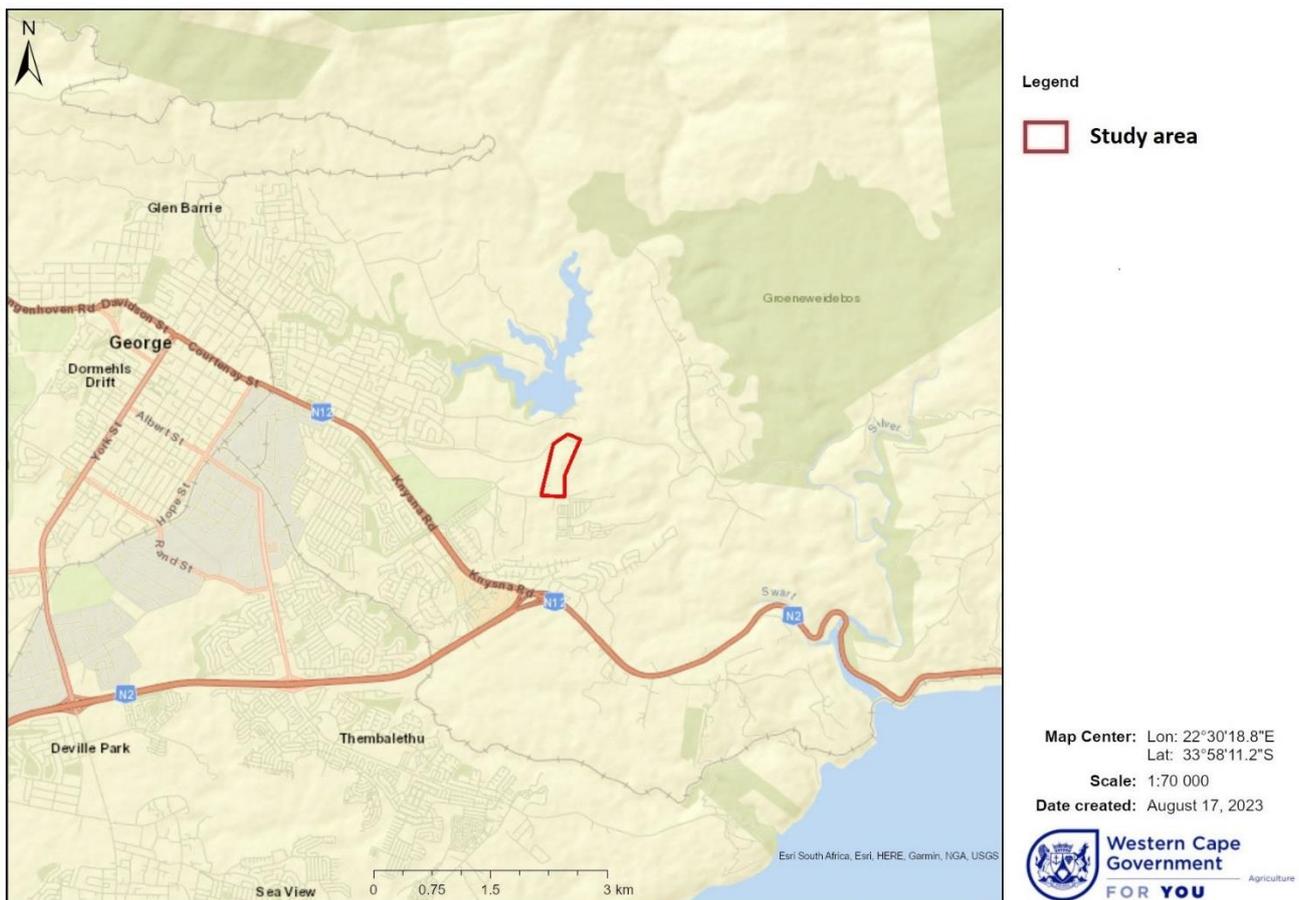


Figure 1-1: Location of site on the eastern side of George.



Figure 1-2: One of the farm dwellings on site.



Figure 1-3: Proposed development.

The surrounding land uses include vacant/farming areas (similar to the subject property) to the east and west, plantations (forested areas) to the north and residential complexes to the south. Some of the latter is still under construction. There is another farm directly south of the site between the two residential complexes.

According to the Screening Report, generated by Sharples Environmental Services (EAP) on 23 August 2022, the site 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 partly ascribed to the possible presence of a critically endangered ecosystem and critical biodiversity areas (CBA's) on the site. 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 tree 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 in the summer season, considered to be a suitable time for many flowering species in the Southern Cape. However, plants that only flower at other times of the year (e.g. winter to spring), such as certain bulbs (Iridaceae and Orchidaceae), 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 property is highly transformed, 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 23 August 2022). **Table 2-1** lists the threatened species and their sensitivity from the Screening Report.

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

Sensitivity	Feature(s)
Medium	<i>Lampranthus pauciflorus</i>
Medium	<i>Leucospermum glabrum</i>
Medium	<i>Selago burchellii</i>
Medium	Sensitive species 1081
Medium	Sensitive species 1032
Medium	Sensitive species 1024
Medium	Sensitive species 980
Medium	Sensitive species 800
Medium	Sensitive species 763
Medium	Sensitive species 500
Medium	Sensitive species 419
Medium	<i>Diosma passerinoides</i>

The Screening Report further indicates that the terrestrial biodiversity theme is of Very High sensitivity. This rating is ascribed to the possible presence of a critical biodiversity area 1 (CBA1), critical biodiversity area 2 (CBA2), an ecological support area 1 (ESA1), ecological support area 2 (ESA2), strategic water source areas and an endangered or critically endangered ecosystem (i.e. Garden Route Granite Fynbos).

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

A botanical survey of the site was undertaken on 24 January 2023 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 survey 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 2018 South African Vegetation Map and the latest floristic taxonomic literature and reference books were used for the purpose of this specialist study. 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

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

- 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.
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 this vegetation type 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 compliance 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 site is located on a coastal shelf (145–220 masl) directly east of George. The largest part of the site slopes gently down towards the north, with a dip (drainage line) in the north-eastern corner (**Figure 4-1**). The northern end drops steeply down towards the Swart River, which flows from the Garden Route Dam a few hundred meters north of the site. The landscape east of George is highly transformed by agricultural activities, forestry and

residential developments, with only the incised river valleys and steeper slopes left partially intact. The farm itself is being used for grazing (cattle). Prior to a recent veld fire, the north-eastern part was covered by alien trees (gums and wattles).

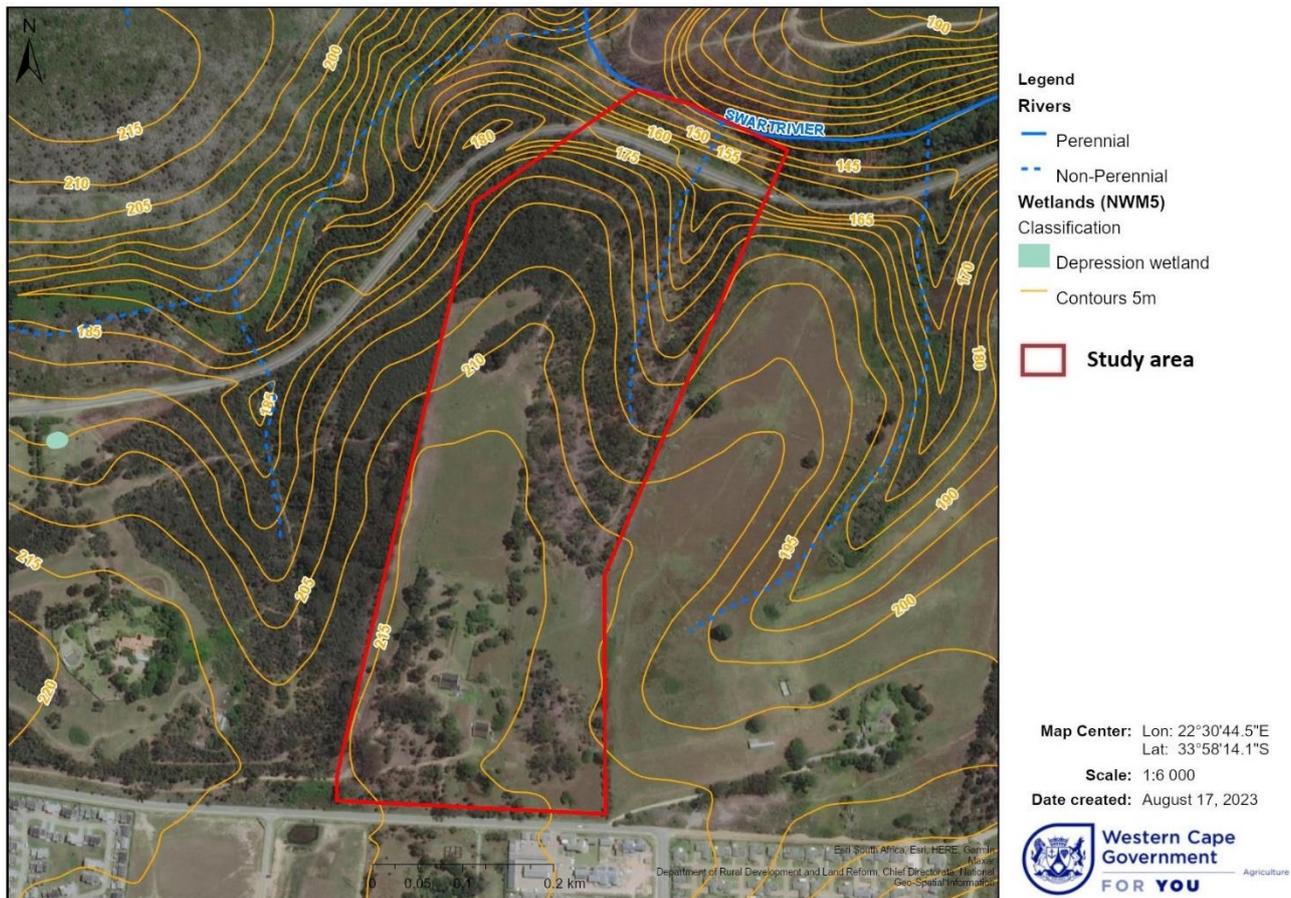


Figure 4-1: Combined topography and hydrology map.

Hydrology

According to CapeFarmMapper, there is one non-perennial watercourse running across the northern part of the site towards the Swart River on the northern boundary (**Figure 4-1**). This was confirmed during the site survey (**Figure 4-2**). These watercourses have been included in the biodiversity network as an aquatic CBA (Swart River) and a degraded CBA (non-perennial watercourse). However, there are also a few contour dams and a degraded/modified seep wetland on the site itself (**Figures 4-3 & 4-4**). The latter is located on the southern boundary of site. It seems to have formed part of a larger seep wetland which was bisected by the bypassing road (Debbie Fordham pers. comm.). The closest NFEPA (National Freshwater Ecosystem Priority Area) wetlands are the Garden Route Dam (artificial) to the north and two small artificial bench wetlands (contour dams) 400 m to the west of the site.



Figure 4-2: Dip in north-eastern corner of site with non-perennial watercourse.



Figure 4-3: One of the contour dams, covered with sedges and water lilies.



Figure 4-4: Modified seep wetland on southern boundary of site.

Climate

The mean annual rainfall for the property is 781 mm (as per Cape Farm Mapper climatic data for 1950 to 2000). The peak rainfall periods are the months of March (autumn) and October (spring), while the winter months of June and July are the driest, i.e. bimodal rainfall regime. The study area lies in the transition zone between the winter and summer rainfall regions. Mean monthly maximum and minimum temperatures are 23.9°C and 8.2°C for February and July, respectively (as per Cape Farm Mapper data). Frost incidence is only 2–3 days per annum (Mucina, 2006). The Köppen–Geiger climate classification for the area is Cfb (temperate, no dry season, warm summer).

Geology

According to the 3322 Oudtshoorn 1:250 000 geological map, the northern half of the site is underlain by Kaaimans Group sediments (Homtini Member), comprising phyllite, feldspathic grit and quartzite. It is of Namibian age and are of the oldest sediments found in the region. The southern half of site is underlain by Maalgaten Granite (George pluton), a pre-Cape intrusive rock formation (**Figure 4-5**). It comprises gneissic granite, granodiorite and albitite. Its age is estimated to be between 600 and 650 million years (Toerien, 1979). It typically supports Garden Route Granite Fynbos.



Figure 4-5: Exposed granite in the north-eastern corner of site.

Biodiversity Planning Context

The 2018 Vegetation Map of South Africa classifies the main vegetation types found in the area as Garden Route Granite Fynbos and Garden Route Shale Fynbos (**Figure 4-6**). The former occurs as three blocks from Botterberg (south of Robinson Pass) in the west to Hoogekraal Pass (west of Karatara) in the east (Mucina, 2006). The site occurs on the northern edge of the largest block between Groot Brak and Wilderness. It is described as a dense proteoid and ericoid shrubby grassland (Mucina, 2006). In the west, most of the remnants are dominated by proteas (Mucina, 2006). Eastwards, graminoid and ericaceous fynbos are dominant on the flatter areas (Mucina, 2006). Garden Route Shale Fynbos occurs in patches along the coastal foothills from northeast of Heidelberg in the Western Cape to Clarkson in the Eastern Cape (Mucina, 2006). Structurally, it is described as a tall, dense proteoid and ericaceous fynbos in wetter areas, and graminoid fynbos in the drier areas (Mucina, 2006).

Due to its transformed state, Garden Route Granite Fynbos is currently listed as Endangered in the National List of Threatened Ecosystems (DEA, 2011), with 41% still left (Skowno, 2019). It has been transformed mainly for cultivation, pine plantations and urban development (Mucina, 2006). Remnants largely remain in isolated pockets on steeper slopes (Mucina, 2006). In CapeNature's 2016 threat status assessment its status was elevated to Critically Endangered (Pool-Stanvliet, 2017). This status was reaffirmed in the

2018 National Biodiversity Assessment Report (Skowno, 2019). Only about 1% is conserved in the Garden Route National Park (Mucina, 2006). Its protection should therefore remain a priority. Less than 50% of Garden Route Shale Fynbos is still left and it is currently listed as Vulnerable (DEA, 2011). Garden Route Shale Fynbos has been significantly transformed by cultivation and pine plantations. It is also considered to be poorly protected, with only 4–5% formally protected in the Garden Route National Park and Boosmansbos Wilderness Area (DEA, 2011). Like all fynbos types, Garden Route Granite Fynbos and Garden Route Shale Fynbos are maintained by a regular fire regime. Unfortunately, landscape fragmentation is disrupting this ‘maintenance’ requirement, often leading to localised species loss and bush encroachment or alien infestation (pers. obs.).

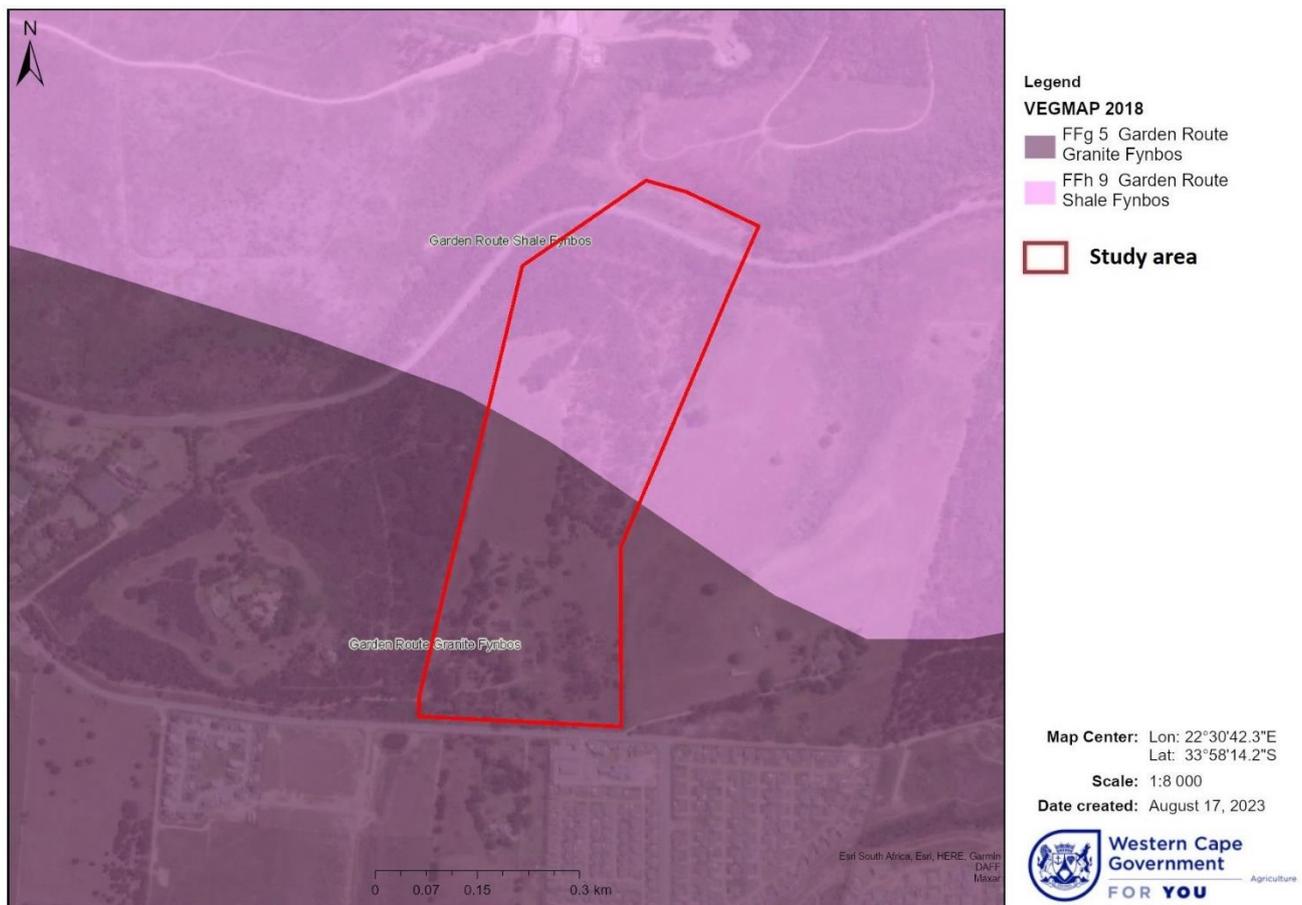


Figure 4-6: Extract of the 2018 SA Vegetation map.

The site falls inside the Western Cape (George) biodiversity network (**Figure 4-7**). The southern half has been largely mapped as a transformed ecological support area (ESA2), recommended for restoration. Narrow strips of degraded critical biodiversity area (CBA2) were also mapped along its southern boundary and panhandle (outside the site), which coincide with bits of degraded (secondary) fynbos next to the farm road (outside the site). The northern half has been largely mapped as a terrestrial ESA and CBA2 (non-perennial watercourse), with strips of terrestrial and aquatic CBA along the edges. The terrestrial CBA coincides with the steep, wooded embankment above and below the bypassing

Saasveld (Seven Passes) Road, while the aquatic CBA is aligned with the Swart River. All the above forms part of an extensive biodiversity network (buffer) between George and the Groeneweide Forest (Garden Route National Park). The closest protected area is the Katrivier Nature Reserve (municipal) upstream from the Garden Route Dam. Reasons for the importance of the above mapped units include the presence of threatened vertebrate habitat (bontebok), critically endangered vegetation variant (Wolwedans Grassy Fynbos), threatened SA vegetation type (Garden Route Shale Fynbos), indigenous forest type, river type and water resource protection (Kaaimans River and South Eastern Coastal Belt).

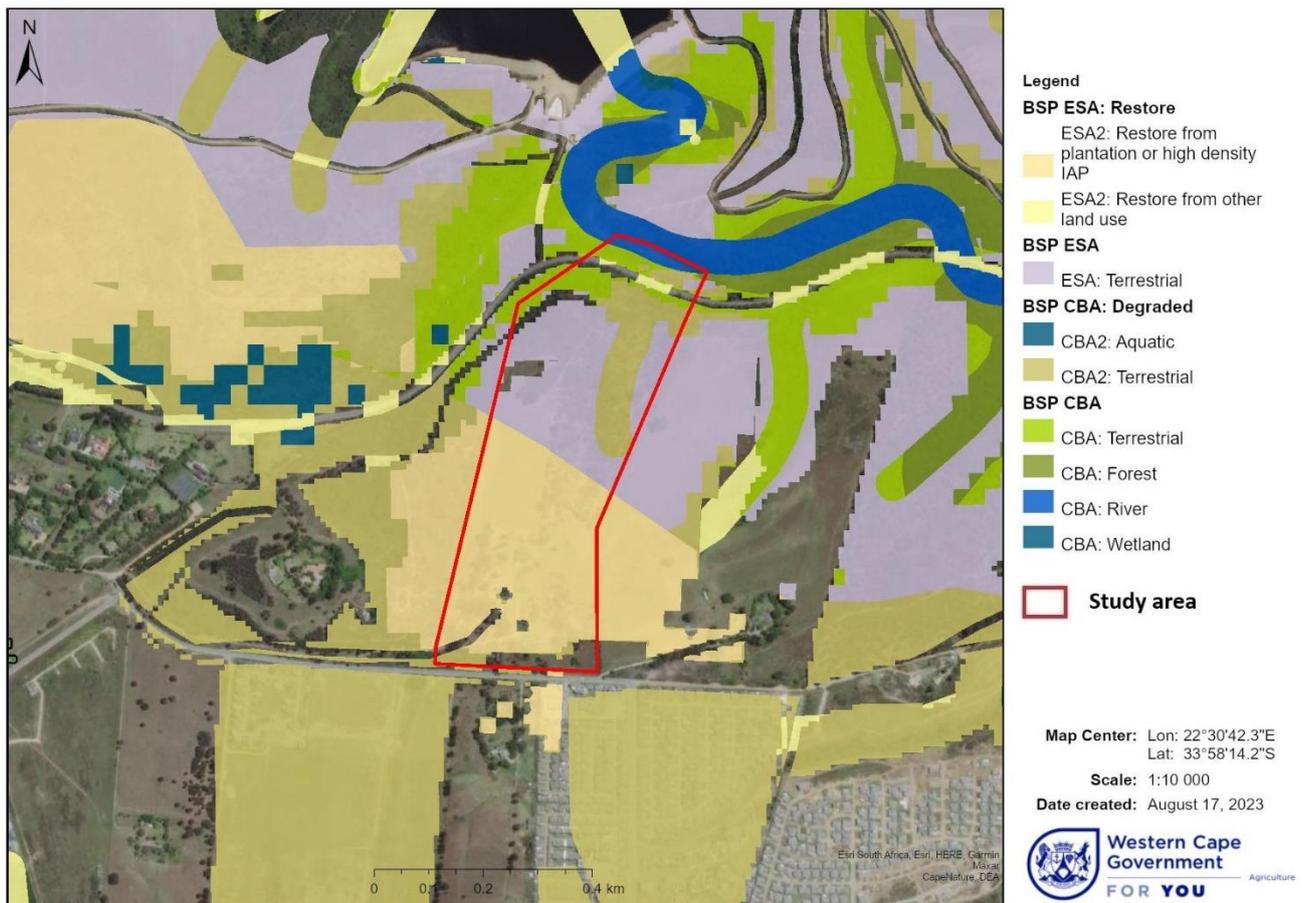


Figure 4-7: Extract of the Western Cape biodiversity network map.

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. ESA's, on the other hand, are supporting zones required to prevent the degradation of CBA's and Protected Areas.

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 property is covered mainly by pastures and an alien woodland (north-eastern corner) (**Figures 5-1 to 5-3**). The latter was severely damaged during a recent veld fire. Tree felling is also currently underway. A strip of degraded (secondary) fynbos was also noted along the panhandle outside the site (**Figure 5-4**). This 'fynbos' is dominated by weeds, grasses and a few indigenous species, such as *Helichrysum petiolare*, *Senecio purpureus* and *Rubus pinnatus*. No real fynbos was detected elsewhere on the site, except for a few scattered indigenous species, such as *Erica sparsa*, *Passerina montivaga* and *Aspalathus angustifolia*. A degraded seep wetland was recorded on the southern boundary of the site populated by *Typha capensis*, *Juncus effusus* and *Cyperus thunbergia* (**Figure 4-4**). The remnant woodland in the north-eastern corner of the site, as well as the embankments above and below the Saasveld Road are mostly covered by gums, blackwood, black wattle and bugweed (**Figure 5-5**). A few forest elements were noted among the aliens, including *Searsia chirindensis*, *Gymnosporia nemorosa* and *Canthium inerme*, but does not constitute what can be described as indigenous forest.

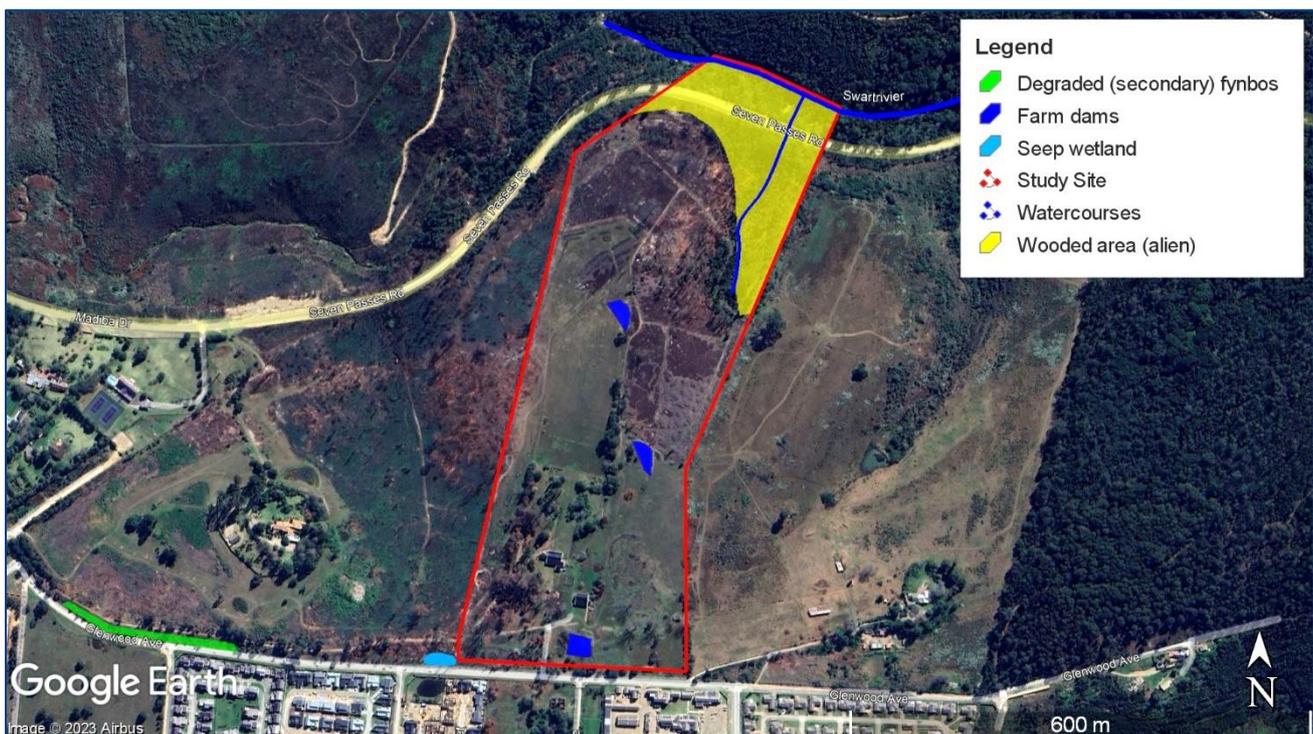


Figure 5-1: Botanical attributes of the site. The untuned areas are transformed.



Figure 5-2: Pasture in the northern part of site.



Figure 5-3: Remnant alien woodland in the north-eastern corner of site.



Figure 5-4: Secondary ‘fynbos’ along the panhandle (outside the site).



Figure 5-5: Alien woodland next to the Saasveld Road.

Plant species

Indigenous shrub species recorded include *Erica sparsa*, *E. gracilis*, *Helichrysum petiolare*, *H. foetidum*, *H. cymosum*, *H. odoratissimum*, *Nidorella ivifolia*, *Senecio ilicifolius*, *S. purpureus*, *Euryops chrysanthemoides*, *Seriphium plumosum*, *Arctotheca prostrata*, *Tarchonanthus littoralis*, *Aspalathus angustifolia*, *Searsia rehmanniana* var. *glabrata*, *S. chirindensis*, *S. lucida*, *Canthium inerme*, *Passerina montivaga*, *Aloe arborescens* (planted!), *Asparagus asparagoides*, *Polygala fruticosa*, *Rubus rigidus*, *R. pinnatus*, *Diospyros dichrophylla*, *Gymnosporia nemorosa*, *Halleria lucida*, *Scutia myrtina*, *Afrocarpus falcatus* (planted in garden and along southern boundary), *Trimeria grandifolia*, *Montinia caryophyllacea*, *Gomphocarpus physocarpus*, *Solanum linnaeanum*, *Lobelia coronopifolia*, *Lobelia flaccida*, *Monopsis unidentata* and *Selago corymbosa*. Hemicryptophytes and geophytes recorded include *Eragrostis capensis*, *E. plana*, *Cyperus congestus*, *Juncus effusus*, *Typha capensis*, *Pteridium aquilinum*, *Cheilanthes viridis*, *Agapanthus praecox* (planted!), *Tulbaghia violacea*, *Hypoxis sobolifera* and *H. cf. villosa*. **Figure 5-6** shows a few of the recorded indigenous species.

All the recorded species are widespread and common. Due to the time of the survey, spring flowering bulbs, especially members of the Iridaceae and Orchidaceae families, were not picked up. Floristic association with Garden Route Granite Fynbos is very poor with only one important taxon recorded, namely the grass *Eragrostis capensis*. Association with Garden Route Shale Fynbos is also poor with only a few important taxa recorded, including *Helichrysum cymosum*, *Searsia lucida*, *Selago corymbosa* and *Pteridium aquilinum*. This alone illustrates the transformed state of the site. Apart from the planted *Afrocarpus falcatus* (Outeniqua yellowwood), no SCC or protected tree species were recorded. There are also no known (iNaturalist) records of listed SCC within a 500 m radius from the site.

Exotic species recorded include *Acacia mearnsii* (black wattle, category 2), *A. melanoxylon* (blackwood, 2), *Eucalyptus globulus* (southern blue gum), *Corymbia ficifolia* (red flowering gum), *Araucaria bidwillii* (bunya pine), *Quercus suber* (cork oak), *Melia azedarach* (seringa, 1b), *Lagerstroemia indica* (crape myrtle), *Solanum mauritianum* (bugweed, 1b), *S. nigrum* (nightshade), *Datura stramonium* (olieboom, 1b), *Cirsium vulgare* (spear thistle, 1b), *Erigeron cf. bonariensis* (flax-leaf fleabane), *Phytolacca octandra* (forest inkberry, 1b), *Physalis peruviana* (gooseberry), *Nicandra physalodes* (Apple-of-Peru, 1b), *Hibiscus trionum* (Terblansbossie), *Cynoglossum amabile* (Chinese forget-me-not), *Verbena bonariensis* (purple top, 1b), *Juncus tenuis* (slender rush), *Bambusa* sp (bamboo), *Paspalum urvillei* (giant paspalum) and *Cortaderia selloana* (Pampas grass, 1b). **Figure 5-7** shows a few of the alien species. The presence/dominance of wattles, such as black wattle and blackwood, in certain parts of the site is indicative of past disturbances or agricultural activities.



Figure 5-6: A few indigenous species recorded on site, with *Erica sparsa* (top left), *Hypoxis sobolifera* (top right), *Monopsis unidentata* (middle left), *Helichrysum foetidum* (middle right), *Euryops chrysanthemoides* (bottom left) and *Rubus rigidus* (bottom right).

As indicated above, nearly half of the above species are Category 1b and 2 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. Further in terms of the above Act, the harbouring of category 2 invaders, such as black wattle and

blackwood, is prohibited without a permit. Concern is expressed about the presence of these species in the northern part of the site as it presents a fire risk to the neighbouring properties, especially the wooded area to the north. It is noted that some of these trees are currently being removed, which is encouraging.



Figure 5-7: A few exotic species recorded on site, with *Eucalyptus globulus* (top left), *Solanum mauritianum* (top right), with *Cirsium vulgare* (middle left), *Nicandra physalodes* (middle right), *Corymbia ficifolia* (bottom left) and *Cortaderia selloana* (bottom right).

6. Potential Impacts

Terrestrial biodiversity (vegetation)

It is the author's opinion that the site is significantly transformed/degraded, with the chance of rehabilitation slim.

Due to the highly transformed state of the site and a high presence of invasive aliens, the impact posed by the development on terrestrial biodiversity is expected to be of low significance. Although the proposed development encroaches significantly onto an ESA and ESA2, it is not expected to impact on the functionality of the biodiversity network for the reason(s) mentioned above. Obviously, the situation can be improved by clearing all the aliens and keeping it clear. This will be a challenging and expensive task given the alien seedbanks. The steeper (>1:4) slopes on the northern side and non-perennial watercourse in the north-eastern corner will not be developed. This may allow for the establishment of suitable fynbos and Afrotemperate forest species in this area once the aliens are cleared.

In the case of the site not being developed (no-go alternative), it will still need to be cleared of the invasive aliens which present a high fire risk, especially the black wattle, blackwood and gums. In addition, a firebreak (to be determined by a fire safety specialist) must be maintained around the property. This will aid in safeguarding the property and adjacent properties from wildfires. 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, including potential SCC and protected tree species, is also expected to be of little significance or concern. All the recorded species are common and widespread. The only gap in the information provided above is the possible presence of spring flowering bulbs, which may include threatened or sensitive species. This can only be ascertained during a spring survey. *Afrocarpus falcatus*, a protected tree species, has been planted in the garden next to the dwellings, as well as few along the southern boundary. With careful design, these can be incorporated in the development. Since they were planted, it is uncertain if a permit is needed for their removal.

The probability of SCC listed in the Screening Report to occur in the vicinity of the site is indicated in **Table 6-1**. Given their habitat preferences, only one species has a medium probability of occurring here, namely sensitive species 1081 (EN). It has been recorded in a similar habitat 500 m west of the site. Those with a low-medium probability to occur on site have been recorded in similar habitats elsewhere in the George area. However, there are no known (iNaturalist) records of these species within a 500 m radius from the site.

Table 6-1: Threatened plant species as listed in the Screening Report.

Sensitivity	Feature(s)	Habitat & probability of presence
Medium	<i>Lampranthus pauciflorus</i> (EN)	Rocky coastal slopes; Low
Medium	<i>Leucospermum glabrum</i> (EN)	Moist lower slopes; Low
Medium	<i>Selago burchellii</i> (VU)	Coastal slopes and flats; Low-med
Medium	Sensitive species 1081 (EN)	Clay soils; Med
Medium	Sensitive species 1032 (VU)	Dunes close to the shoreline; Low
Medium	Sensitive species 1024 (EN)	Dry to moist stony slopes; Low-med
Medium	Sensitive species 980 (EN)	Clay flats and low slopes; Low
Medium	Sensitive species 800 (VU)	Calcareous sands and limestone; Low
Medium	Sensitive species 763 (VU)	Coastal renosterveld and fynbos; Low-med
Medium	Sensitive species 500 (EN)	Recent sand; Low
Medium	Sensitive species 419 (VU)	Damp sandstone slopes in coastal fynbos; Low
Medium	<i>Diosma passerinoides</i> (VU)	Silcrete slopes; Low

The identified construction and operational phase impacts are as follows:

Construction Phase

- No significant impact identified.

Operational phase

- Increased alien infestation and fire risk, unless an alien clearance plan is drawn up and implemented.

The **cumulative botanical impact** of the project is expected to be equivalent to the impact on terrestrial biodiversity described above. In this instance, the loss of biodiversity and resultant cumulative impact is considered small (acceptable) due to the transformed state of the site.

7. Recommended Mitigation Measures

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

- Draw up and implement an invasive plant clearance programme. As part of this plan, a fire break needs to be maintained around the site.
- As a duty of care measure, indigenous bulb species (if present) can be searched and rescued to be replanted in the allocated open space area in the north-eastern corner of site.

- It is recommended that locally indigenous fynbos and forest species be sourced and introduced to the open space areas, such as the north-eastern corner of site. Only introduce indigenous species once the area has been cleared of aliens.

8. Conclusion & Recommendations

This report sets out the results from a desktop study, as well as a field survey conducted on 24 January 2023, to ascertain terrestrial biodiversity and plant species constraints and possible impacts associated with the proposed residential development on Portion 21 of Farm Kraai Bosch 195 on the eastern side of George.

Due to the highly transformed state of the site, the impact on both terrestrial biodiversity and plant species is expected to be of low significance. Despite the site's position inside the biodiversity network, it is highly compromised by past agricultural activities and invasive aliens. The chance of successful rehabilitation is slim. It is however recommended that the invasive aliens be eradicated with the aid of an alien clearance programme and the open spaces rehabilitated using locally indigenous species.

It is therefore recommended that the proposed development be approved, subject to the consideration of the proposed mitigation measures.

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