Botanical Specialist

Compliance Statement Report for

Proposed Village Ridge Estate Development

on erven 21028 & 21029 of George.

This report was prepared during November 2021 (updated 14 February 2022) by:

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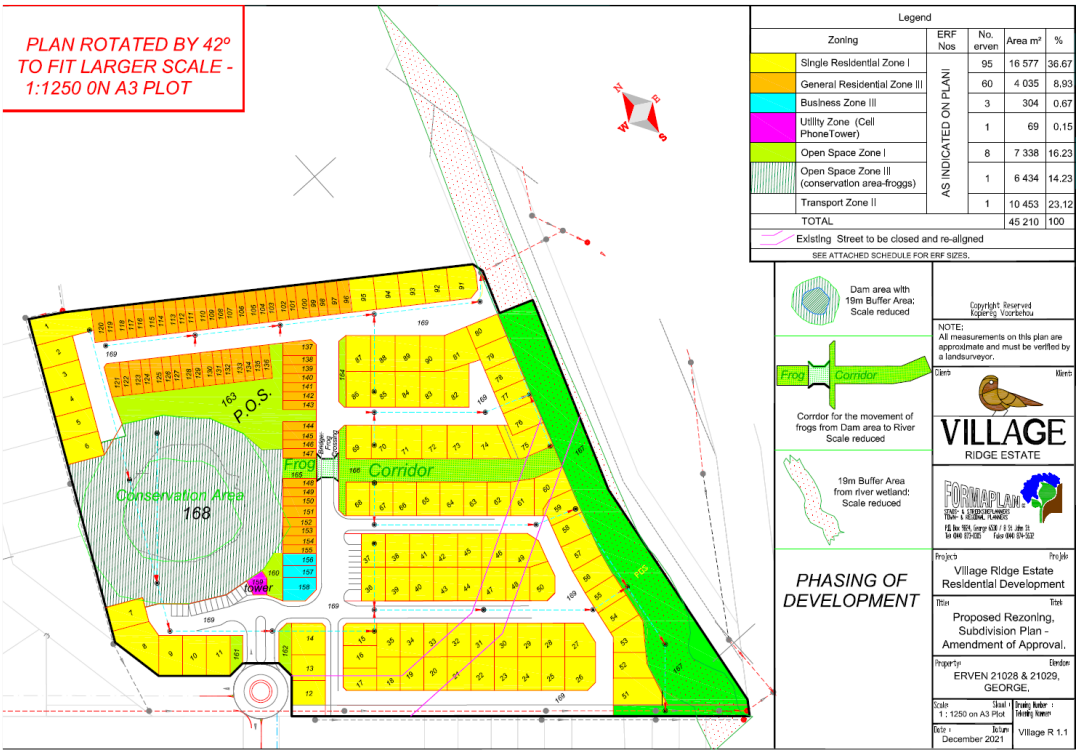
INTRODUCTION

Regalis Environmental Services CC was appointed to prepare a botanical specialist compliance report for the proposed development on erven 21028 and 21029 in the George Municipality. This report follows after an initial botanical sensitivity report prepared during 2014 to guide development on the erven. For the sake of convenience, I attach my initial report as Appendage 1. My main recommendation in the 2014 report was to exclude development from the 'No Go' and Sensitive Areas that were indicated on Map 1 in my initial report. The initial report is here expanded to ratify the requirements of a botanical impact assessment (as is prescribed in Government Notice no. 1150 dated 30/10/2020) in terms of the current preferred proposed development layout plan (see Map 1 below).



Map 1: Current proposed development layout plan.

Jan Vlok of RES resurveyed the affected area during September and again in November 2021 after initial development works for the proposed development have been done to establish the currently proposed development plan and my findings and recommendations on the second survey are here provided.

METHODOLOGY, UNCERTAINTY AND ASSUMPTIONS

The national status of the affected vegetation type was determined by means of consulting Mucina *et al (*2006) and updates thereof [South African National Biodiversity Institute (2006-2019). The Vegetation Map of South Africa, Lesotho and Swaziland, Mucina, L., Rutherford, M.C. and Powrie, L.W. (Editors), Online, http://bgis.sanbi.org/Projects/Detail/186, Version 2018]. The regional conservation value of the affected vegetation was determined by means of consulting the fine-scale conservation plan for the region by Pence (2017) [and updates thereof on Elsenburg's Cape Farm Mapper program].

The property was surveyed on foot to determine the ecological condition of the affected area and to establish if any rare or endangered plant species (*sensu* Raimondo *et al*, 2009 and updates thereof in www.sanbi.redlist) are, or may be present. All the plant species encountered could be identified with certainty as many were in flower after good recent rain, which resulted even in a flush of usually spring annuals. A thorough search was done for rare and threatened species known to occur on the general area (e.g. *Disa lugens*, etc.).

In this revised report I checked to see if there have been any recent changes in the conservation status of the affected environment recently and as there are none, I am thus confident that the methodology followed for a botanical sensitivity analyses and impact assessment complies with:

1. Appendix 6 of the 2014 National Environmental Management Act, 1998 (No. 107 of 1998) (NEMA) Environmental Impact Assessment (EIA) Regulations (and as amended), detailing the requirements for specialist's reports; and,
2. The principals outlined in the *Guideline for Biodiversity Specialists* (WC: DEA&DP, 2005) and those of the *Western Cape Biodiversity Spatial Plan Handbook* (Pool-Stanvliet et al, 2017).
3. The protocols prescribed for a botanical impact assessment prescribed in Government Notice no. 1150 dated 30/10/2020.

To the best of my knowledge, I have no uncertainties and assumptions to declare regarding the findings and recommendations in this report.

STUDY RESULTS OF MORE RECENT SURVEYS

As noted in my initial 2014 report the affected properties should be regarded as a sensitive area. The affected national vegetation type is Garden Route Granite Fynbos (status = Critically Endangered) and the eastern portion of the affected area was identified as a Critical Biodiversity Area.

The clearly delineated isolated depression wetland in the development area was severely disturbed during initial development actions, but the wetland vegetation returned surprisingly well after good rain. Species typical of wetlands such *Centella asiatica, Cotula coronopifolia, Ficinia spp., Hydrocotyle bonariensis, Isolepis spp., Scirpus spp.* and *Typha capensis* established well after the disturbance event (see Photo 1). Despite the disturbance there are clear indications that the original isolated wetland still acts an ecological refugium as there is a rich faunal component present (such as damselflies, dragonflies, frogs, etc.).

Photo 1: Early recovery of the wetland vegetation in September 2021.

Most of the other terrestrial vegetation on the property was altered over years due to continuous mowing and then completely destroyed when the topsoil was scraped off and roads were cut even beyond the underlying laterite layer. This area previously indicated as 'sensitive' has low sensitivity. At the eastern boundary the soil was not deeply disturbed and some of the original natural vegetation re-established on the embankment at the eastern boundary of the affected area. This area was also identified as a sensitive zone in the initial report and continues to have medium sensitivity. Heavy rain caused serious soil erosion along this embankment, but the soil erosion was fortunately curbed when rapid erosion control measures were rapidly applied. Alien annual grass species, mostly *Avena* (wild oats) and *Lolium* species (rye grass) were sown to assist in the soil erosion measures because they are aggressive growers (required for fast ground cover establishment to prevent unwanted soil erosion), but these sometime suppress the recovery of indigenous species until they die down after a year and allows other indigenous species to recoer.

Despite the disturbance and presence of the alien grasses some of the natural vegetation did recover in this area with some trees such as *Gymnosporia buxifolia* and ferns such as *Pteridium aquilinum*, resprouting. Many seedlings of early pioneer plants such as *Helichrysum petiolare, Phyllopodium bracteatum, Nemesia elata, Senecio ilicifolia* and *Selago corymbosa* are also establishing (see Photo 2). One of these species, *Nemesia elata,* is a threatened species with a current formal status of Vulnerable.

Photo 2: Recovery of the vegetation along the eastern embankment in September 2021.

CONCLUSIONS AND RECOMMENDATIONS

The conservation value of the natural vegetation in the affected changed considerably since my 2014 report. The continued mowing over the years and subsequent removal of the topsoil, alteration of natural water drainage by cutting roads into the laterite layer and the sowing of aggressive alien grass species renders natural restoration of vegetation in most of the area near impossible. The sensitivity map in the 2014 report is thus no longer applicable.

Despite the disturbance the wetland and the eastern embankment of the affected area, these are deemed to have high sensitivity and should still be regarded as very sensitive areas as indigenous species did re-establish in these two areas. No threatened plant species were found in the wetland but a healthy population of one threatened species (*Nemesia elata*; status = Vulnerable) was found along the eastern embankment. The current revised proposed

development layout plan (see Map 1) addresses these sensitive areas and I can support the revised development layout plan fully.

Mitigation actions proposed for the construction phase are:

1. Retain disturbance to the proposed infrastructure sections within the current layout plan.
2. Appoint an ecological control officer to ensure that the sensitive parts are not damaged in any way and to oversee the eradication of alien plants that are and will be establishing in the sensitive areas.
3. Develop a pragmatic, but ecologically sound, management plan for the sensitive parts of the proposed development in conjunction with CapeNature and the to local municipality.
4. Develop a sound ecological vegetation restoration plan for the proposed corridor between the wetland and river.

Mitigation actions proposed for the operational phase are:

1. Establish a management team in conjunction with CapeNature, NGO's and the local municipality to oversee the management the sensitive areas.
2. Establish a ring-fenced fund to support activities and the management team to maintain the sensitive areas in an ecologically sound condition.
3. Maintain and support an alien eradication plan for the open areas, with a focus to reduce re-establishment of alien grasses, shrubs and trees.

My impact assessments for construction and operational phases (with and without mitigation actions) are provided in Appendage 3.

REFERENCES

Mucina, L., Rutherford, M.C. and Powrie, L.W. (eds.), 2006. Vegetation Map of South Africa, Lesotho and Swaziland. 1:1 000 000 scale sheet maps. SANBI, Pretoria.

Pence, G.Q.K., 2017. Western Cape Biodiversity Framework 2017. Status Update: Critical Biodiversity Areas of the Western Cape. Unpublished CapeNature report.

Pool-Stanvliet, R., Duffel-Canham, A., Pence, G. & Smart, R. 2017. Western Cape Biodiversity Spatial Plan Handbook. Stellenbosch, CapeNature.

Raimondo, D., Von Staden, L., Foden, W., Victor, J.E., Helme, N.A., Turner, R.C., Kamundi, D.A. & Manyama, P.A., 2009. Red List of South African plants. Strelitzia 25, SANBI, Pretoria.

APPENDAGE 1: COPY OF INITIAL BOTANICAL SCREENING REPORT

BOTANICAL SCREENING REPORT

FOR PROPERTY IN KING GEORGE PARK

IN GEORGE.

This report was prepared during February 2014 by:

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6620 Oudtshoorn

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INTRODUCTION

The Environmental Partnership requested Regalis Environmental Services to perform a botanical screening study of several government properties located in King George Park in George.

The location of the site in indicated in Map 1, along with the Critical Biodiversity Area that occurs along the eastern boundary of the site.

Map 1: Location of the site.

I visited the site during February 2014 and the results of my study and recommendations are provided here.

RESULTS

The site occurs along the western bank of the Rooi River that flows through the center of George. The vegetation that occurs directly along the river is still near-pristine and is typical of these freshwater river systems. It is dominated by a few shrubs (*Cliffortia odorata, Clutia alaternoides, Helichrysum cymosum, H. foetidum* and *H. petiolare*), with some trees present (*Diospyros dichrophylla, Gymnosporia buxifolia, Halleria lucida, Searsia laevigata* and *Tarchonanthus littoralis*) with some grass (*Stenotaphrum secundatum*) and ferns (*Pteridium aquilinum*) present in open areas (See Photo 1).

Photo 1. Intact Riverine vegetation at eastern boundary of the site.

Immediately west of this riverine vegetation occur quite severely transformed fynbos vegetation that is often mown and severely invaded by Kikuyu grass (*Pennisetum clandestinum*). This area is not very rich in species, with only the following indigenous species recorded; *Arctotheca calendulacea, Aristea pusilla, Centella asiatica, Cheilanthes viridis, Cliffortia linearifolia, Eragrostus curvula, Erica gracilis, Helichrysum cymosum, H. foetidum, H. petiolare, Hypoxis villosa, Lobelia erinus, Monopsis unidentata, Ranunculus multifidus, Senecio purpureus, Sporobolus fimbriatus, and Wahlenbergia procumbens.* Many of these species are indicative of seasonal waterlogging, which is predictable as there is a well-defined wetland in this section. In the wetland the vegetation is dominated by *Typha*

capensis and several Cyperaceae and Juncaceae. This wetland supports a rich array fauna that are typical of wetlands, such as Vlei rat, Clicking frogs, Damselflies and Dragonflies (See Photo 2).

Photo 2. Wetland with tall *Typha* dominant and surrounding transformed fynbos vegetation in central part of the site.

The vegetation at the western end of the property (area in which several houses have been built) is completely transformed and now dominated by Kikuyu grass (*Pennisetum clandestinum*).

Conclusion and Recommendations

The vegetation along the eastern boundary of the property falls within a Critical Biodiversity Area and should be regarded as highly sensitive and a 'No Go' area. The wetland has not been included in the Critical Biodiversity Area, but should also be regarded as a 'No Go' area. The transformed fynbos vegetation around the wetland should be regarded as sensitive as it acts as an important ecological buffer area that links the wetland and the Rooi River. This area is clearly also periodically waterlogged and hence not suitable for development. The western section of the site is completely transformed with no natural vegetation remaining. The location of the sensitive areas is indicated on Map 2.

Map 2: Botanical sensitivity of the site.

I recommend that:

1. Future development should be limited to the section mapped as 'Not Sensitive'.
2. The 'No Go' and 'Sensitive' areas should be rezoned to Open Space III to ensure that no development will occur in the area.

APPENDAGE 2: *CV* OF CONSULTANT.

Johannes Hendrik Jacobus Vlok

Biographical Information

Birth: 6th December 1957, Calvinia, South Africa.
Identity Number: 571206 5133 089
Criminal Record: None.
Married to Anne Lise Schutte-Vlok and we have one daughter, Marianne Helena Vlok.

Education

1975 Matriculated at Bellville High School.
1982 Diploma in Forestry, Saasveld Forestry College.
1997 MSc (*Cum Laude*), University of Natal.

Employment

1982-1990. Department of Forestry (later Water Affairs, Forestry and Environmental Affairs), as research technician.
1990-1997. Cape Nature Conservation, as regional botanist.
1997-present. Self employed as environmental advisor (Regalis Environmental Services).

Research Output

One book and more than 50 scientific and popular articles published in international & national journals as primary or as co-author. Delivered several keynote and >20 other verbal papers at scientific forums on ecological and floristic studies. Delivered >300 presentations to civil society (public meetings, radio, newspaper and television) on plant ecology and conservation. Current ResearchGate rating > 26 and has > 1 700 citations.

Awards

2003. Leslie Hill medal. **Succulent Society of South Africa**.
2006. Gold award. **C.A.P.E.**
2006. Certificate of Appreciation. **Western Cape Conservation Stewardship Association**.
2008. Special Award. **CapeNature**
2010. Marloth medal. **Botanical Society of South Africa**.

Consultation & Advisory Capacity

Consultant to WWF-SA, Cape Nature and SANPARKS to determine conservation status of land. Several of the studies resulted in the purchase of the properties, now amounting to a value of >R30 million.

Consultant to National, Provincial and private institutions for vegetation restoration projects, environmental impact assessment and environmental management plans. Some of these assignments won national awards.

Referee for international and national scientific articles and donor funded grants.

Classified, described and mapped Forest, Subtropical Thicket, Fynbos and Succulent Karoo vegetation units in four major donor funded projects.

Expert witness in Magistrate and Supreme Court cases.

Research associate of Nelson Mandela University (Saasveld campus).

Professional Membership

Registered at South African Council for Natural Scientific Professions (SACNASP) as botanical scientist with membership number 130942.

APPENDAGE 3: BOTANICAL IMPACT ASSESMENT.

Please note that the assessment below is the same for the **construction** and **operational** phases.

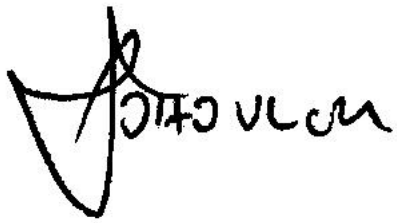
Impact description Without mitigation actions.	Extent	Magnitude	Duration	Probability	Confidence	Reversibility	Significance
Disturbance of sensitive wetland area.	Local	Medium	Long term	Certain	Certain	Irreversible	Medium
Loss of sensitive vegetation, including a threatened species (*Nemesia elat*a).	Local	Medium	Long term	Certain	Certain	Irreversible	Medium

Impact description With mitigation actions.	Extent	Magnitude	Duration	Probability	Confidence	Reversibility	Significance
Disturbance of sensitive wetland area.	Local	Low	Short term	Probable	Certain	Reversible	Low
Loss of sensitive vegetation, including a threatened species (*Nemesia elat*a).	Local	Medium	Long term	Probable	Certain	Reversible	Low

APPENDAGE 4: DECLARATION OF INDEPENDANCE

I J.H.J. Vlok 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:	Regalis Environmental Services CC
Date:	11th February 2022