

**TERRESTRIAL BIODIVERSITY
ENVIRONMENTAL SENSITIVITY REPORT
REMAINDER ERF 1627 SEDGFIELD**

KNYSNA MUNICIPAL AREA

DFFE REFERENCE #:



View of the property

Benjamin Walton for Cape Vegetation Surveys
o.b.o. Rodney Nel Management Services (Pty) Ltd
September 2021

STATEMENT OF INDEPENDENCE

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

An abridged Curriculum Vitae:

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Western Cape Nature Conservation Board (CapeNature), Scientist: Land Use Advisor 2010-2017;

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(1) Introduction and Terms of Reference

The terms of reference is to conduct a vegetation survey to confirm the vegetation unit and conservation status at the property; and describe the vegetation and sensitivity, with reference to the fynbos forum ecosystems and NEMA specialist guidelines. This is to inform the environmental impact (specifically botanical) of activities within Southern Cape Dune Fynbos habitat; and identify risks, suggest mitigation and make recommendations for implementation. The sensitivity of the study area (see Fig. 1) is described in context of the remaining natural habitat, land use and suitability of development.

Checklist of minimum requirements for reporting:

1 Scope of assessment - screening tool

The DFEE screening report generated for a development footprint at the Remainder of Erf 1627, adjacent to the Mosaic Market in Sedgefield, for “transformation of land - indigenous vegetation” identified, *inter alia*, that a terrestrial biodiversity assessment be undertaken based on the Very High Terrestrial Biodiversity Sensitivity of the area; with a Medium Relative Plant Species Sensitivity. This report complies with the minimum requirements for terrestrial biodiversity assessments¹.

2 Site sensitivity verification and minimum content requirements

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

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

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

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

2.3.a. The current land use at the property is vacant and undeveloped on mostly transformed land containing remnant Fynbos patches and the Perdespruit wetland area, of varying ecological sensitivity. This report describes the vegetation status and sensitivity occurring within the verified Dune Fynbos habitat within the study area of Low to Medium Terrestrial Biodiversity Sensitivity with a Low to Medium Plant Species Sensitivity. Thus an impact on biodiversity is expected to occur.

2.3.b. The report contains a description of the vegetation and sensitivity with photographic evidence to confirm the findings in the form of a photo album. Photographs were taken at the various micro-sites for resort unit development.

3 Specialist assessment and minimum report content requirements

A Terrestrial Biodiversity Assessment for vegetation of Low to Medium Sensitivity with Medium Plant Species Sensitivity is contained in this report.

Verification and assessment of the sensitivity of the receiving environment was conducted by surveys on foot in August 2021 where plant species were observed and recorded and select waypoints were taken with a GPS. The waypoints were used as a reference to orientate with vegetation patterning and boundaries of the study area and property.

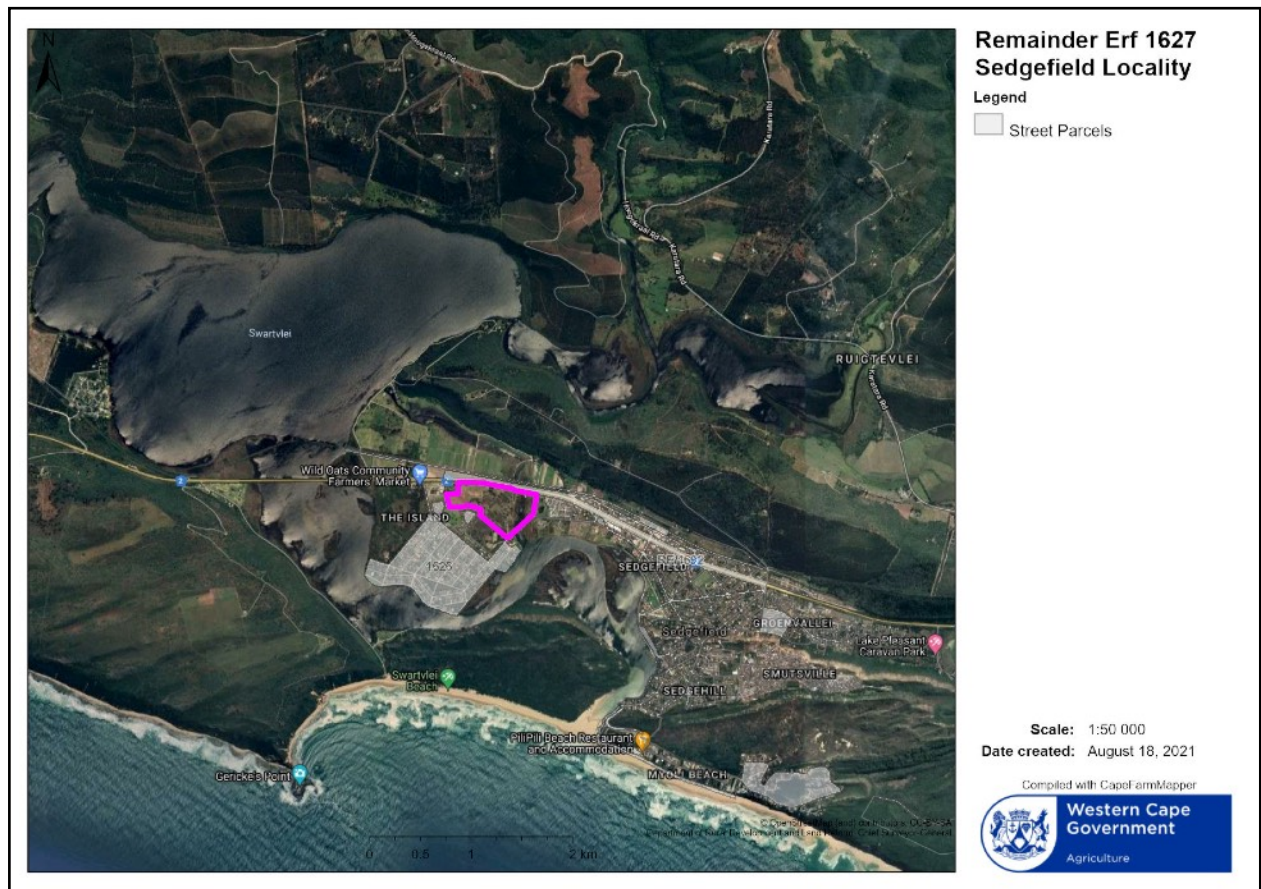


Figure 1: Showing the location of the Remainder of Erf 1627 situated in Sedgefield (image courtesy of Cape Farm Mapper).

(2) The property and description of the proposed development

The Remainder of Erf 1627 (26.50563 ha) is presumably zoned Undetermined Zone I and located west of Sedgefield and adjacent to the National Route N2, with the main access derived from Dr Malan Street with an alternative access via Erf 5008 (Mosaic Village) in Sedgefield, and is hereinafter referred to as the “property” (see Figs. 1 & 2).

The proposed mixed use development, as per the Site Development Plan (see Fig. 3), entails the construction of:

- An assisted living / frail care complex;
- An institutional zone for an educational facility;

- A tourism facility and agricultural production zone with private open space;
- Eco-friendly dwelling units;
- Tented camps for tourism activities;
- A set-aside area for conservation of fynbos and the Perdespruit wetland area.



Figure 2: Showing the property adjacent to the National Route N2 (image courtesy of Cape Farm Mapper).



Figure 3: Showing the proposed development layout.

The undeveloped property has been used for agricultural purposes as early as 1936 based on aerial imagery, and was cleared of vegetation. Thus the receiving environment is currently mostly transformed and with successive invasions by Invasive Alien Species has caused degradation of the fynbos ecosystem (see Fig. 4).

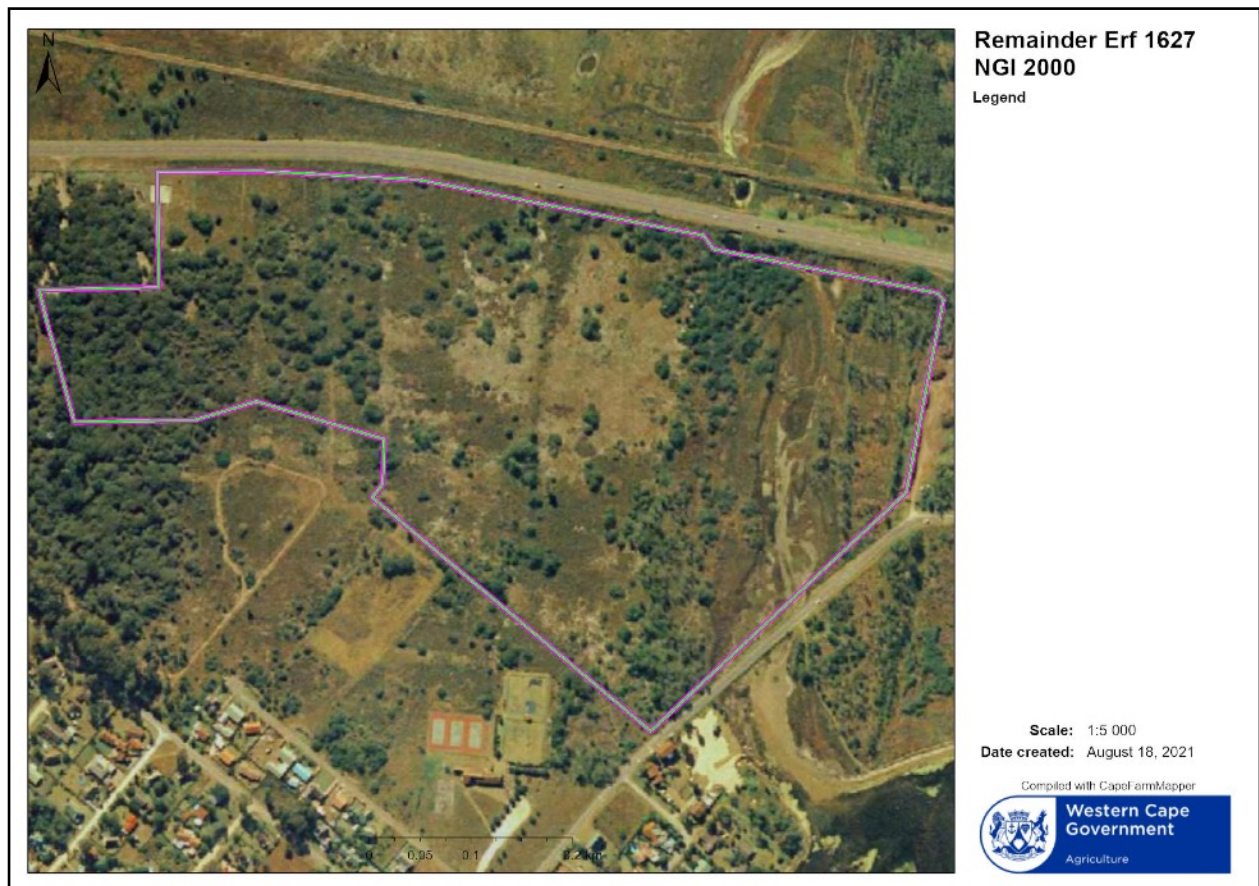


Figure 4: Showing the property ca. 2000 with encroaching Pine trees and Rooikrans (image courtesy of Cape Farm Mapper).

(3) Assessment and reporting of impacts on terrestrial biodiversity

Baseline description of the site with the following features

(3)(1) The ecological processes affecting a fynbos type ecosystem are largely dependant on aspect, soil patterning and fire frequency, which may be affected in part by loss of habitat due to transformation. Fynbos is dependant on fire for plant succession and turnover of species occupying the same niche with different lifecycles and times of maturity, thus contributing to overall plant species richness. Bulbous flowering plant species thrive and flower following wildfires in the absence of dominant shrubs excluding or reducing light. Thereafter shrubs continue to grow in succession and representative fynbos elements like Proteaceae, flower and hold seed following their maturity cycle of up to 15 years. Fire intervals

of less than 15 years, or less than the maturity lifecycle of locally occurring species are detrimental to succession and recruitment of seedlings.

(3)(2) Primary ecological functioning and processes that operate within the site are characteristic of fynbos and wetland vegetation, as a haven for pollinators, avifauna and small and large mammals.

(3)(3) 2.3.3. The activity may slightly alter some connectivity of vegetation and wildlife refuge and movement corridors.

(3)(4) 2.3.4. The property is within significant terrestrial landscape features of Very High Sensitivity namely Forest and a Strategic Water Source Area (SWSA) and Freshwater Ecosystem Priority Area.

(4) Freshwater Ecosystem Priority Areas (FEPAs)

“Description of significant terrestrial landscape features like SWSAs, FEPAs”.

This report concerns the terrestrial biodiversity features of the property; and does not purport to document the fine-scale aquatic features at the property. The area is indicated by the screening tool as having a Very High Relative Aquatic Biodiversity theme, as a Strategic Water Source Area (SWSA) and FEPA of the Moderately Protected Swartvlei Estuary (see Fig. 5).

Measures should therefore be implemented to prevent erosion and increased storm water runoff and pollutants from impacting on land, groundwater and surface watercourses.

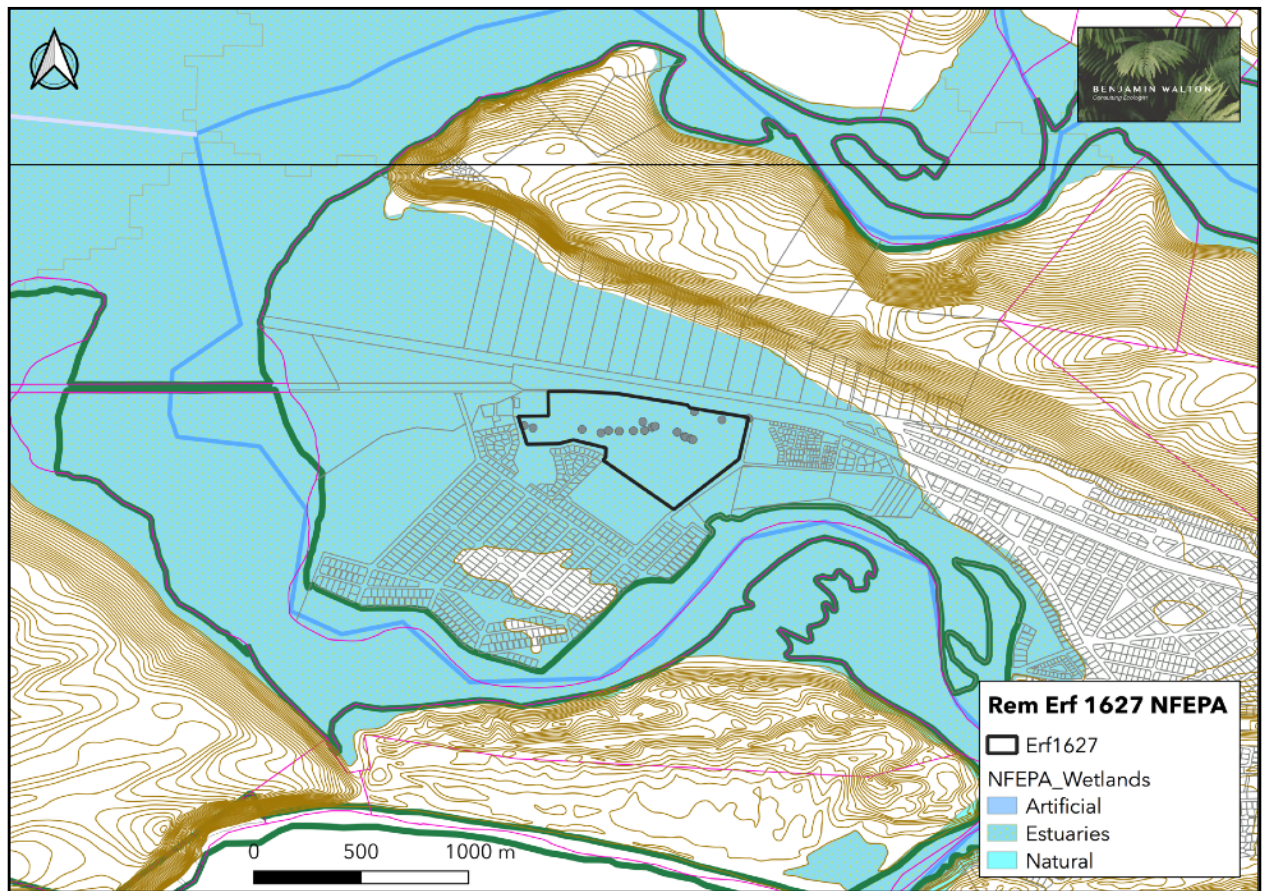


Figure 5: Showing the property overlain with the estuarine functional zone of the Swartvlei Estuary.

THE BIODIVERSITY IMPORTANCE OF THE SITE AND SURROUNDING RECEIVING ENVIRONMENT²

(5) Vegetation description

According to the updated Vegetation Map of South Africa, Lesotho & Swaziland the main mapped vegetation unit occurring within the study area (see Fig. 6) is Southern Cape Dune Fynbos (FFd 11) of Least Concern; with a Non-terrestrial (Estuarine Functional Zone) wetland area (the Perdespruit).

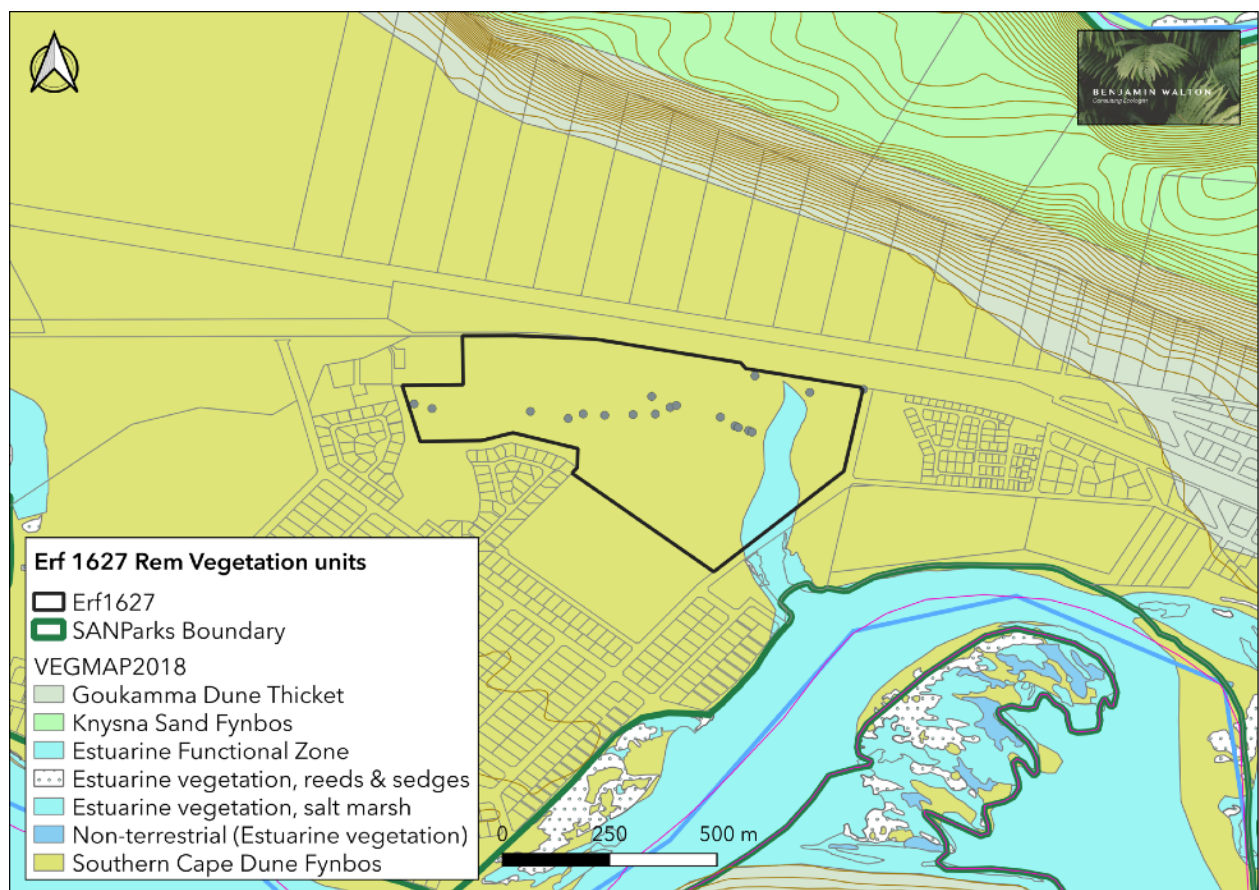


Figure 6: The property in context of the mapped national vegetation units within Southern Cape Dune Fynbos.

² As prescribed by the minimum requirements for reporting of terrestrial biodiversity and ecosystems on site a description is provided: a) main vegetation types; b) threatened ecosystems and local habitat types; c) ecological connectivity, fragmentation, ecological processes and fine-scale habitats; d) species, distribution, important habitats and movement patterns identified"

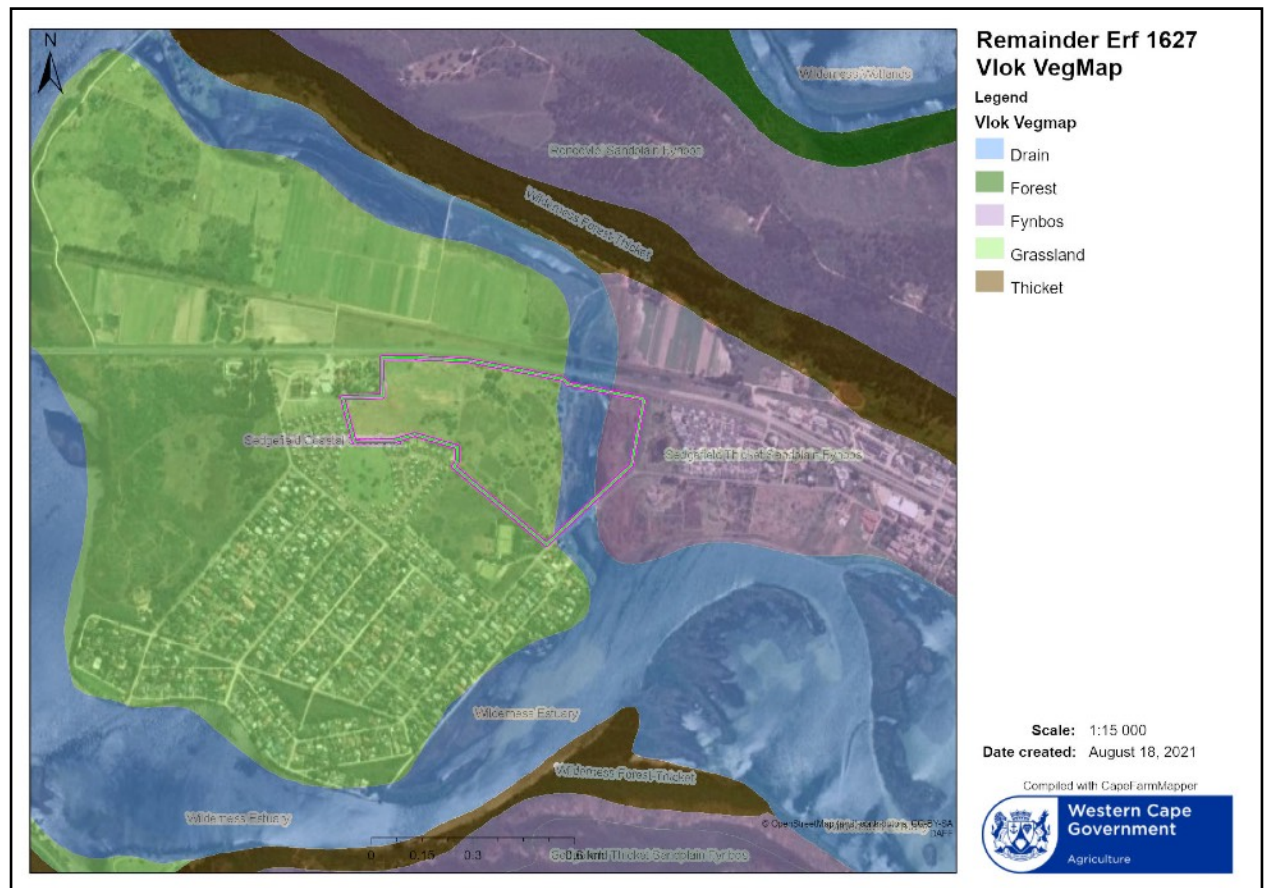


Figure 7: The study area in context of the fine-scale vegetation map for the Garden Route, mostly within *Sedgfield Coastal Grassland* and dissected by *Wilderness Estuary* with *Sedgfield Thicket Sandplain Fynbos* at the eastern extent.

The composite fine-scale Vegetation Map for the Garden Route (Vlokmap) delineated broad habitat types with associated vegetation variants, here as: *Sedgfield Coastal Grassland* over most of the property; and dissected by the Perdespruit mapped as *Wilderness Estuary* with *Sedgfield Thicket Sandplain Fynbos* at the eastern extent of the property (see Fig. 7); broadly corresponding with the baseline habitats occurring on site.

Based on site surveying the study area contains plant species representative of Dune Fynbos and Wetland ecosystems; aside from the grassy areas. The screening tool mapped the study area as having a

Very High Terrestrial Biodiversity Sensitivity and Medium Relative Plant Species sensitivity. It is the opinion of the author that based on the representative plant species the study area contains vegetation with a Low to Medium Relative Plant Species Sensitivity.

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

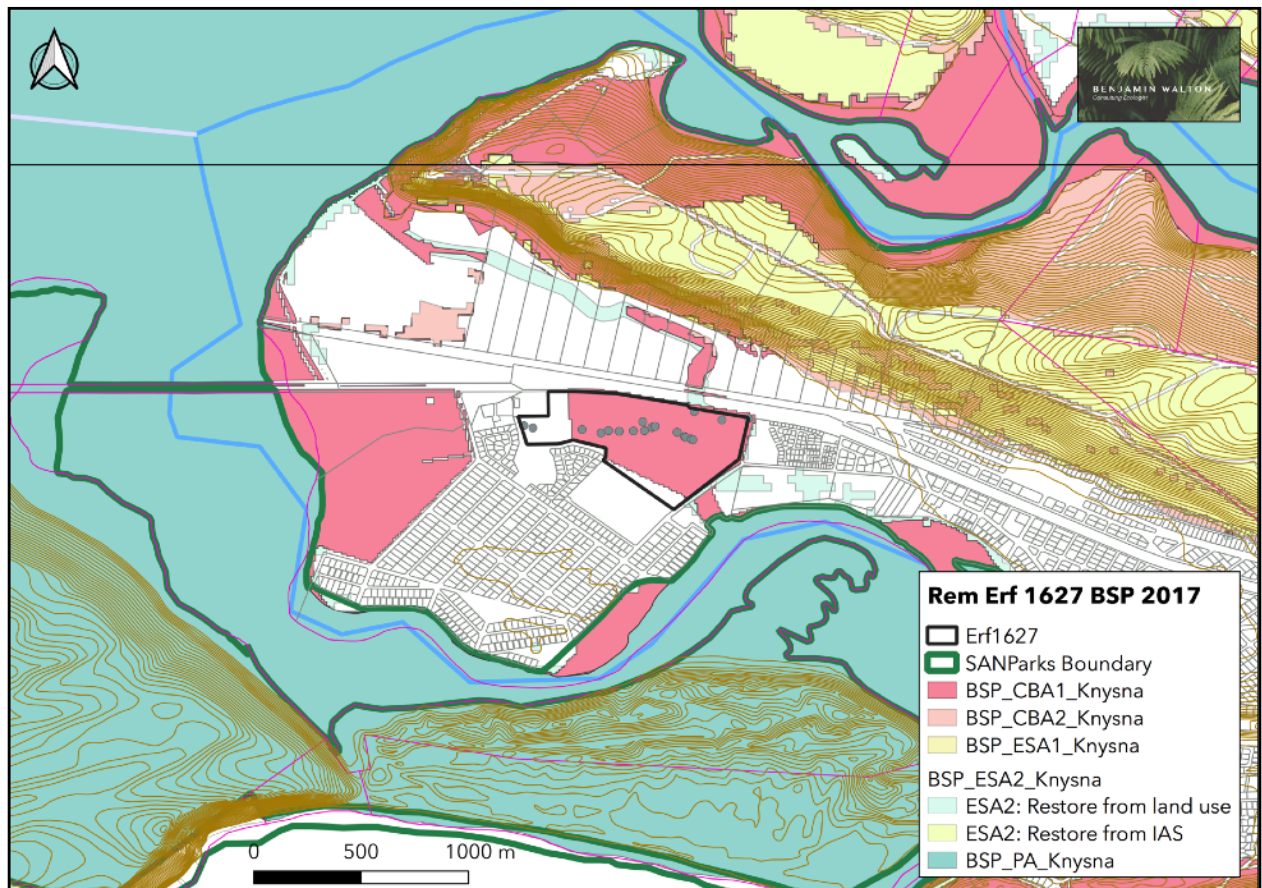


Figure 8: The property in context of the Biodiversity Spatial Plan, 2017, within a Critical Biodiversity Area.

(6) The Biodiversity Spatial Plan³

The property is situated on the Sedgefield Island area just west of Sedgefield and is within the Wilderness Protected Environment (previously the National Lakes Area), buffered around the proclaimed Wilderness National Park managed by SANParks. The property is within the Garden Route Environmental Management Framework area corresponding with the Protected Areas, Forest and Lakes Areas.

³ <http://bgis.sanbi.org/Projects/Detail/194>

The Biodiversity Spatial Plan has identified important remaining biodiverse sites across the Province and indicates that most of the property is within a sensitive area being a primary aquatic Critical Biodiversity Area (CBA - estuary) with a small area as a secondary Ecological Support Areas (see Figs. 8 and 9) based on the following specific geographic features:

- (6)(1) Cape Estuarine Salt Marshes (LT);
- (6)(2) FEPA River Corridor;
- (6)(3) Sedgefield Coastal Grassland (Vlok variant- CR);
- (6)(4) Southern Cape Dune Fynbos (VU);
- (6)(5) Swartvlei (Core) Estuary;
- (6)(6) Water source protection- Swartvlei;
- (6)(7) Watercourse protection- South Eastern Coastal Belt.

The specific geographic features mentioned above pertain to the regional importance of the landscape and protection with associated sources and watercourses, an estuary; wetlands, fynbos and salt marsh vegetation. The property is also a vital area of connectivity for pollinators, avifauna and small and large mammals.

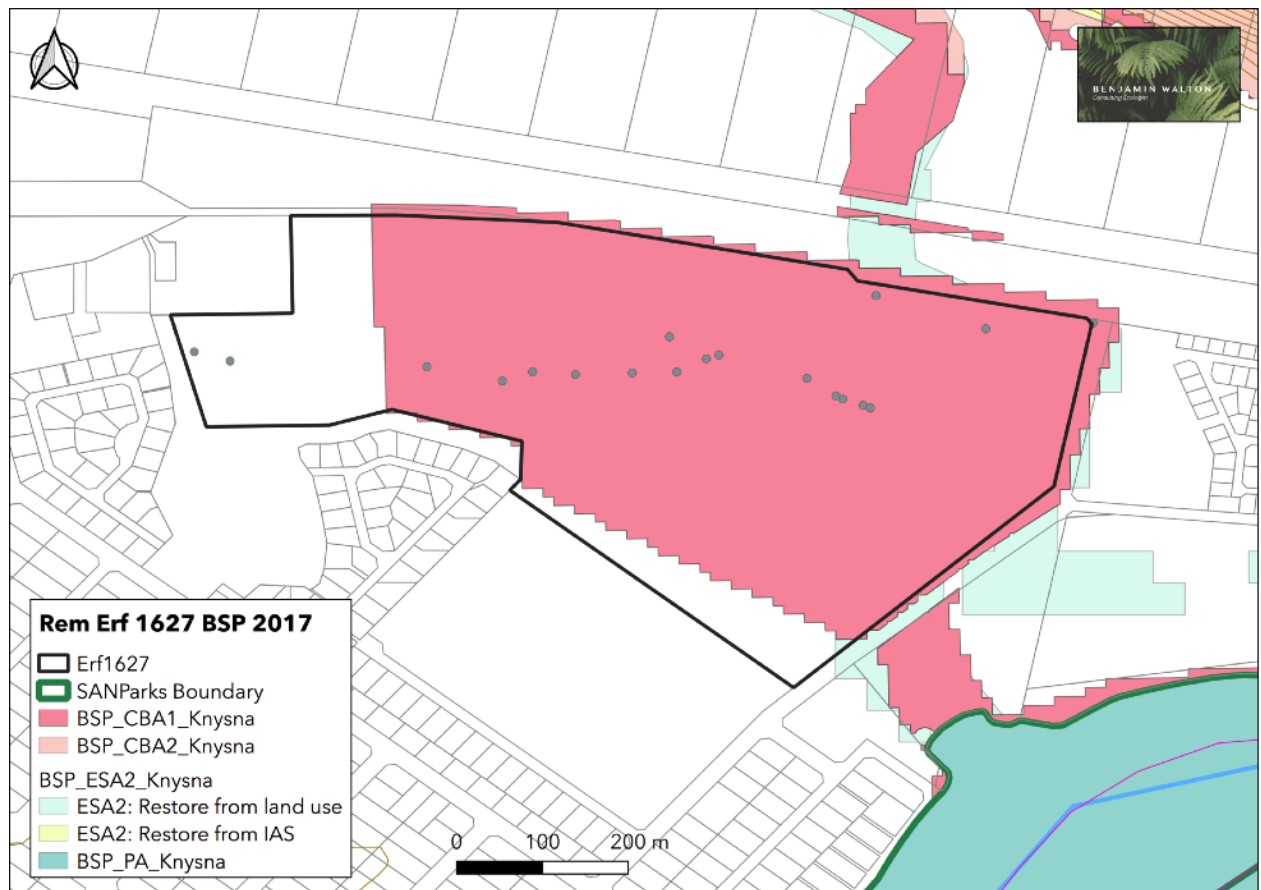


Figure 9: The receiving environment within a Critical Biodiversity Area.

The prescribed conservation management objectives for CBAs:

Primary Critical Biodiversity Areas are areas in a natural condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure.

The prescribed management objective for these sensitive areas, as well as in terms of the Duty of Care principle (section 28 of the NEMA), is to maintain the habitat in a natural or near-natural condition, and prevent further loss of habitat. Where degraded- those areas should be rehabilitated; and only low-impact, biodiversity-sensitive land uses are appropriate (see Fig. 10).



Figure 10: Showing a remnant patch of degraded Southern Cape Dune Fynbos.

(7) Site inspection identification and findings of assessment

Assessment and reporting of impacts on terrestrial biodiversity⁴

(7)(1) The study area is within an aquatic Critical Biodiversity Area (CBA).

⁴ Government Gazette No. 43110, GN No. 320 (2020) National Environmental Management Act, 1998 (Act No. 107 of 1998) Procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of section 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998, when applying for environmental authorization..

- (7)(1)(1) The reasons why it's a CBA are: Cape Estuarine Salt Marshes (LT); FEPA River Corridor; Sedgefield Coastal Grassland (Vlok variant- CR); Southern Cape Dune Fynbos (VU); Swartvlei (Core) Estuary; Water source protection- Swartvlei; Watercourse protection- South Eastern Coastal Belt.
- (7)(1)(2) The proposed activity may be inconsistent with CBA management objectives.
- (7)(1)(3) The proposed activity will impact on species composition and vegetation structure of vegetation of Low to Moderate Terrestrial Biodiversity Sensitivity (see Fig. 11).
- (7)(1)(4) The impact will not elevate the ecosystem threat status of the remaining extent of Southern Cape Dune Fynbos.
- (7)(1)(5) The impact on Fynbos subtypes is unknown.
- (7)(1)(6) The impact on overall species and ecosystem diversity of the site is of low to medium intensity.
- (7)(1)(7) The impact on threat status of species of special concern is unknown based on the plant species observed.
- (7)(2) The study area is not within a Protected Area.
- (7)(2)(1) Ecological services within and across the site may be impacted by the activity.
- (7)(2)(2) The activity may have a moderate impact on ecological processes and ESA functionality.
- (7)(2)(3) The proposed activity may reduce ecological connectivity at the surrounding areas.
- (7)(3) The proposal is within an Environmental Management Framework area.
- (7)(4) The property is near the Sedgefield section of the Wilderness National Park managed by SANParks.
- (7)(5) The property is within a Strategic Water Source Area.
- (7)(6) The property is within a River Freshwater Ecosystem Priority Area.

(7)(7) The proposal may impact on the ecological integrity of remaining indigenous fynbos elements at the property.



Figure 11: Showing the transformed habitat recently cleared of Invasive Alien Species and currently mowed.

SITE SENSITIVITY VERIFICATION

(8) Baseline description of biodiversity and ecosystem condition

Based on an initial site meeting held on the 9th of August 2021 and preliminary ground surveying conducted on the 23rd of August 2021, the property is situated on a level low-lying area with the Perdespruit wetland area at the eastern extent. A large section of the property is proposed for a mixed use development excluding the Perdespruit area and some remnant Dune Fynbos patches (see Fig. 12).



Figure 12: Showing an area in the middle of the property with a remnant patch of Dune Fynbos.

Dune Fynbos plant community:

The community of plants occurring within the study area at the various intact fynbos patches are representative of Dune Fynbos; and are composed of: *Acacia cyclops* (Rooikrans); *Anthospermum paniculatum*; *Carpobrotus deliciosus* (Delicious Sourfig); *Carpobrotus edulis* (Edible Sourfig); *Cenchrus clandestinus* (Kikuyu Grass); *Cestrum laevigatum* (Inkberry); *Chironia baccifera* (Christmas Berry); *Cyperus polystachyos*; *Dischisma ciliatum* (Fringe Falseslugwort); *Ehrharta villosa* var. *villosa* (Common Pipe Grass); *Felicia amoena* ssp. *latifolia*; *Felicia echinata*; *Geranium incanum* (Carpet Crane's-Bill); *Gladiolus carinatus* (Blue Afrikaner - see Fig. 13); *Grewia occidentalis* (Kruisbessie); *Helichrysum cymosum* subsp. *cymosum*; *Helichrysum foetidum*; *Helichrysum patulum*; *Helichrysum teretifolium*; *Metalasia muricata* (Strandveld Blombush); *Oxalis obtusa* (Reverse Sorrel); *Passerina corymbosa* (Common Gonna); *Pelargonium capitatum*; *Pentameris barbata*; *Pinus pinaster*; *Salvia aurea* (Brown Sage); *Searsia crenata* (Bluefruit Curranthus); *Searsia glauca* (Blue Kunirhus); *Searsia lucida* (Glossy Curranthus); *Senecio purpureus*; *Stenotaphrum secundatum* (Buffalo grass); and *Trachyandra ciliata* (Common Capespinach).

Bushclump plant community:

Bushclumps are naturally interspersed across the Dune Fynbos habitat and are a haven for birdlife and small mammals. The community of plants within the bushclumps are composed of: *Acacia cyclops* (Rooikrans); *Acacia saligna* (Port Jackson Willow); *Anthospermum paniculatum*; *Cynanchum ellipticum* (Monkeyrope Buckhorn); *Ficinia bulbosa* (Bulbous Sedge); *Grewia occidentalis* (Kruisbessie); *Helichrysum cymosum* subsp. *cymosum*; *Helichrysum foetidum*; *Lysimachia arvensis* (Scarlet Pimpernel); *Pelargonium capitatum*; *Pittosporum viridiflorum* (Cheesewood - Protected); *Rumex sagittatus* (Climbing Dock); *Searsia glauca* (Blue Kunirhus); *Senecio purpureus*; *Silene undulata* ssp. *undulata* (Common Cape Catchfly); *Sideroxylon inerme* subsp. *inerme* (White Milkwood - Protected); *Solanum africanum* (Drunken Berry); and *Trachyandra ciliata* (Common Capespinach).

Open mowed areas:

The majority of the property has been transformed by mowing of vegetation and consequent removal of woody shrubs and herbs, with only prostrate plants, annuals and some herbs remaining. The property was infested with Invasive Alien Species which have now mostly been removed by the applicant. The open areas are composed of: *Acacia saligna* (Port Jackson Willow); *Anredera cordifolia* (Madeira Vine) - localized on a rubble pile; *Arctotheca prostrata* (Prostrate Capeweed); *Bidens pilosa* (Blackjack); *Carpobrotus deliciosus* (Delicious Sourfig); *Cerastium capense* (Cape Mouse-ear Chickweed); *Chenopodium murale* (Nettle-leaved Goosefoot); *Commelina benghalensis* (Benghal Dayflower); *Conicosia pugioniformis* subsp. *muiri*; *Crassula* weedy; *Cynodon dactylon*; *Cyperus polystachyos*; *Dischisma ciliatum* (Fringe Falseslugwort); *Ehrharta villosa* var. *villosa* (Common Pipe Grass); *Eragrostis curvula*; *Ficinia incomtula*; *Fumaria officinalis* (Common Fumitory); *Geranium incanum* (Carpet Crane's-Bill); *Lolium perenne* (Perennial Ryegrass); *Malva* sp.; *Medicago polymorpha* (Bur Clover); *Osteospermum moniliferum* (Bietou); *Oxalis caprina* (Goat Sorrel); *Oxalis obtusa* (Reverse Sorrel); *Passerina corymbosa* (Common Gonna); *Pelargonium capitatum*; *Phytolacca octandra* (Inkweed); *Pinus pinaster*; *Pittosporum viridiflorum* (Cheesewood - Protected); *Raphanus raphanistrum* (Jointed Charlock); *Rumex hypogaeus* (Prickly Jack); *Senecio burchellii*; *Senecio elegans* (Red-purple Ragwort); *Senecio ilicifolius*; *Sonchus asper* (Prickly Sowthistle); *Stellaria media* (Common Chickweed); *Tetragonia fruticosa* (Sprawling Seacoral); *Trachyandra ciliata* (Common Capespinach) and *Trifolium repens* (White Clover).

Many of the plant species occurring in the open areas are characteristic of previous agricultural use - i.e. ruderal species.

Wetland area: (see Fig. 14)

Acacia cyclops (Rooikrans); *Acacia saligna* (Port Jackson Willow); *Atriplex*; *Carpobrotus deliciosus* (Delicious Sourfig); *Cyperus polystachyos*; *Elegia tectorum* (Cape Deckreed); *Falkia repens* (Pink Ear); *Ficinia incomtula* (Isolepis); *Ficinia nodosa* (Stembract Clubrush); *Grewia occidentalis* (Kruisbessie); *Nidorella ivifolia* (Ivy Vleiweed); *Osteospermum moniliferum* (Bietou); *Oxalis caprina* (Goat Sorrel); *Phytolacca octandra* (Inkweed); *Salicornia maritima* (Slender Glasswort); *Searsia crenata* (Bluefruit Currantrhus); *Sonchus asper* (Prickly Sowthistle); *Stenotaphrum secundatum* (Buffalo grass); *Triglochin elongata* (Upper Tidal Arrowgrass); *Phragmites australis* ssp. *australis* (Common Reed)

Appendix 1 has a table listing plant species occurring at the property.



Figure 13: *Gladiolus carinatus* (Blue Afrikaner) occurring in the Dune Fynbos patches and elsewhere.



Figure 14: Showing the Perdespruit Wetland area proposed for conservation.

(9) Assessment of Impact

The study area according to the BSP is mapped as sensitive for having the following features: Cape Estuarine Salt Marshes (LT); FEPA River Corridor; Sedgefield Coastal Grassland (Vlok variant- CR); Southern Cape Dune Fynbos (VU); Swartvlei (Core) Estuary; Water source protection- Swartvlei; and Watercourse protection- South Eastern Coastal Belt.

From a Botanical perspective the Dune Fynbos plant communities are in a degraded condition; and are of **Low to Medium Terrestrial Biodiversity Sensitivity** with a **Medium Plant Species Sensitivity**.

Thus the proposed development within Dune Fynbos habitat of **Low to Medium Terrestrial Biodiversity Sensitivity**, and transforming the

habitat, is a negative impact for local habitat functioning and positive impact for suburban development.

The **impact is site specific** in extent to the study area and surrounding adjacent environment. However the activities will have impacts on land and watercourse functioning downstream if erosion is unmanaged.

The **duration** of the impact is permanent should development proceed; and with mitigation and partial rehabilitation the impact will be of a medium term with vegetation succession in the undeveloped set-aside areas.

The impact is of **medium intensity** on biodiversity as a small amount of pattern and process will be altered or lost by development.

The impact on pristine fynbos habitat is **improbable** based on the history of previous agricultural use at the study area.

The impact on fynbos habitat and effect on biodiversity, predicted with a **High** level of confidence in the assessment, is of **low significance**.

Figure 15 shows the delineated sensitivity map of the property. The western extent is not mapped as a Critical Biodiversity Area and has a Very Low Terrestrial Biodiversity Sensitivity. An area east of that has a Low Terrestrial Biodiversity Sensitivity with some bush clumps and flowering bulbous plants. The majority of the property has a Medium Terrestrial Biodiversity Sensitivity containing bush clumps and Dune Fynbos elements. The eastern extent is the Perdespruit area and is deemed to be a sensitive area and Wetland. The eastern most area is degraded and mostly covered with Kikuyu grass.



Figure 15: Showing the sensitivity map of the property.

OPTIONS AND RECOMMENDATIONS FOR MANAGEMENT

(10) Environmental Risks

(10)(1) Increased potential for stormwater erosion

The proposed development is adjacent to the Perdespruit area and measures must be implemented to manage stormwater discharge and avoid direct discharge into the Wetlands (see Fig. 16).

(11) Further Mitigation and Rehabilitation Guidelines

(11)(1) As sections of the property are generally sensitive the applicant must conduct activities carefully and reuse or relocate as much plant material as is practical prior to rehabilitation.

- (11)(2) An ECO must oversee the rescue and relocation of plant material and initial rehabilitation activities; and thereafter conduct follow up inspections.
- (11)(3) Ensure drainage and runoff is managed to prevent erosion and soil loss during the operational lifespan of the activities.
- (11)(4) Prevent the spread of Invasive Alien Species from entering or dispersing from the property.
- (11)(5) It is recommended that the Perdespruit Wetland area and buffer be rezoned for Conservation use i.t.o. the municipal land use planning bylaw.



Figure 16: Showing the Perdespruit channelled under the N2, which attracts many bird species like Comorants.

Conclusion

It is the opinion of the author that development may proceed over most of the transformed property and a set-aside area be maintained for conservation of the indigenous vegetation and diverse birdlife.

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