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Pri.Sci.Nat # 400045/08

TERRESTRIAL BIODIVERSITY COMPLIANCE STATEMENT – PROPOSED DEVELOPMENT ON PORTION 11 OF FARM 1674 (YORK FARM), BOSCHENDAL.

Submitted to: Chand Environmental, Cape Town

Client: Boschendal (Pty) Ltd, Pniel

15 Oct 2021

Drafts: 20 July 2020

27 March 2021

DECLARATION OF INDEPENDENCE

In terms of Chapter 5 of the National Environmental Management Act of 1998 specialists involved in Impact Assessment processes must declare their independence and include an abbreviated Curriculum Vitae.

I, N.A. Helme, do hereby declare that I am financially and otherwise independent of the client and their consultants, and that all opinions expressed in this document are substantially my own, notwithstanding the fact that I have received fair remuneration from the client for preparation of this report.

NA Helme

The author believes that the information presented in this report complies with the PROTOCOL FOR THE SPECIALIST ASSESSMENT AND MINIMUM REPORT CONTENT REQUIREMENTS FOR ENVIRONMENTAL IMPACTS ON TERRESTRIAL PLANT SPECIES (Government Gazette No. 43855 of 30 October 2020).

Abridged CV:

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University of Cape Town, South Africa. BSc (Honours) – Botany (Ecology & Systematics). 1990.

Since 1997 I have been based in Cape Town, and have been working as a specialist botanical consultant, specialising in the diverse flora of the great Cape Floristic Region. Since the end of 2001 I have been working on my own and trade as Nick Helme Botanical Surveys, and have undertaken over 1600 botanical assessments.

A selection of recent projects undertaken includes:

- Botanical assessment of Ptns 6 & 7 of Farm Waterfall 1159, Franschoek (Footprint Environmental 2019)

- Botanical baseline assessment of Boschendal Estate (Chand Environmental 2019)
- Botanical impact assessment of Farm 736 Re, Klapmuts (Infinity Consultants 2018)
- Baseline botanical assessment of Swartklip site (Infinity Consultants 2018)
- Baseline botanical assessment of Imhoff Farm, Kommetjie (Khula Environmental 2017)
- Botanical baseline assessment of Droogerivier farm, Leipoldtville (Footprint Environmental 2018)
- Baseline botanical assessment of Swartklip site (Infinity Consultants 2018)
- Botanical assessment of Sebulon farm, Redelinghuys (Natura Libra Environmental Services 2018)
- Botanical assessment of proposed new cultivation on farm Wittewater 93, Piketberg (Cederberg Environmental Assessment Practise 2017)
- Baseline botanical assessment of Imhoff Farm, Kommetjie (Khula Environmental 2017)
- Botanical assessment of Dragon's Nest, Hout Bay (Khula Environmental 2017)
- Botanical assessment of Rem Farm 643, Eersterivier (DBA 2017)
- Ecological assessment of proposed refurbishment of Eskom Kleinmond – Arabella 11kV powerline (Landscape Dynamics 2015)
- Botanical assessment of proposed petrol station at CTFS (Chand Environmental 2016)
- Specialist review of botanical IA studies for proposed Kapteinsklip development node, Mitchells Plain (Khula Environmental 2016)
- Botanical assessment of proposed development on farm Palmiet Valley 54, Wellington (Doug Jeffery Environmental Consultants 2015)
- Ecological assessment of proposed Arcelor Mittal power station, Saldanha (ERM 2015)
- Ecological assessment of proposed Globeleq power station, Saldanha (ERM 2015)
- Botanical assessment of proposed iGas pipeline Saldanha – Ankerlig (CES/ EOH 2015)
- Botanical baseline of Communicare land, Morningstar (mlh architects 2015)
- Ecological assessment of proposed refurbishment of 11kV powerline from Kleinmond to Arabella, Western Cape (Landscape Dynamics 2015)

- Botanical walkdown study of new Eskom 132kV powerline Ankerlig – Sterrekus (EIMSA 2015)
- Botanical assessment of proposed cultivation on Rem. Andriesgrond 204, Clanwilliam (Cederberg Environmental Assessment Practise 2015)
- Botanical assessment of proposed dam on Modderfontein farm, Citrusdal (Cederberg Environmental Assessment Practise 2015)

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1. INTRODUCTION

This terrestrial biodiversity impact statement was requested to inform the environmental authorisation process for the proposed development of a retreat centre on a portion of Portion 11 of Farm 1674, Boschendal (see Figure 1). The study area is part of what was and is still known as York Farm (also part of greater Boschendal), and is about 2.3ha in extent, and is located about 3km northeast of Pniel.

The need for this statement was determined on reading of the "Procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998, when applying for environmental authorisation", as published in the Government Gazette 4310 (20 March 2020). The new minimum requirements and specialist assessment protocols came into effect recently. In cases where the National Environmental Screening Tool identifies a site as having 'Very High' sensitivity (i.e. the whole of the Cape Floristic Region, there are now only two options:

1) Conduct a full terrestrial biodiversity impact assessment, or
2) If the EAP or the specialist thinks, based on a site inspection, that the site is in fact not 'Very High' but 'Low' sensitivity, then prepare a 'Terrestrial Biodiversity Compliance Statement' that includes a baseline profile description of biodiversity and ecosystems of the site.

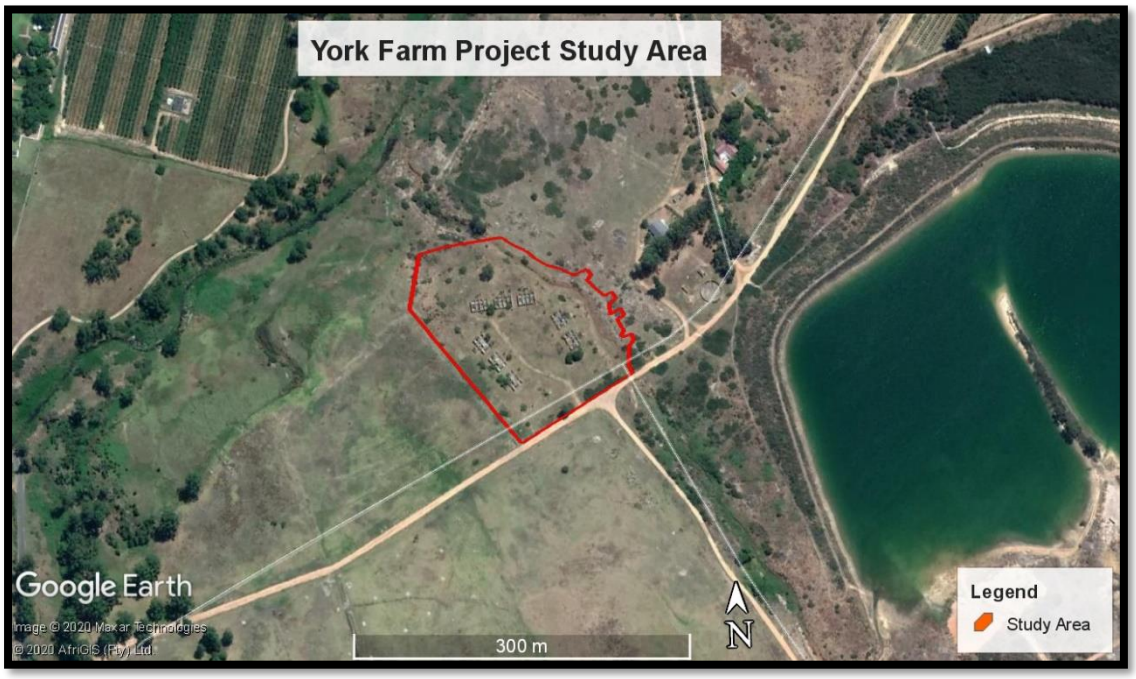

Figure 1: Google Earth image, showing the study area (red outline).

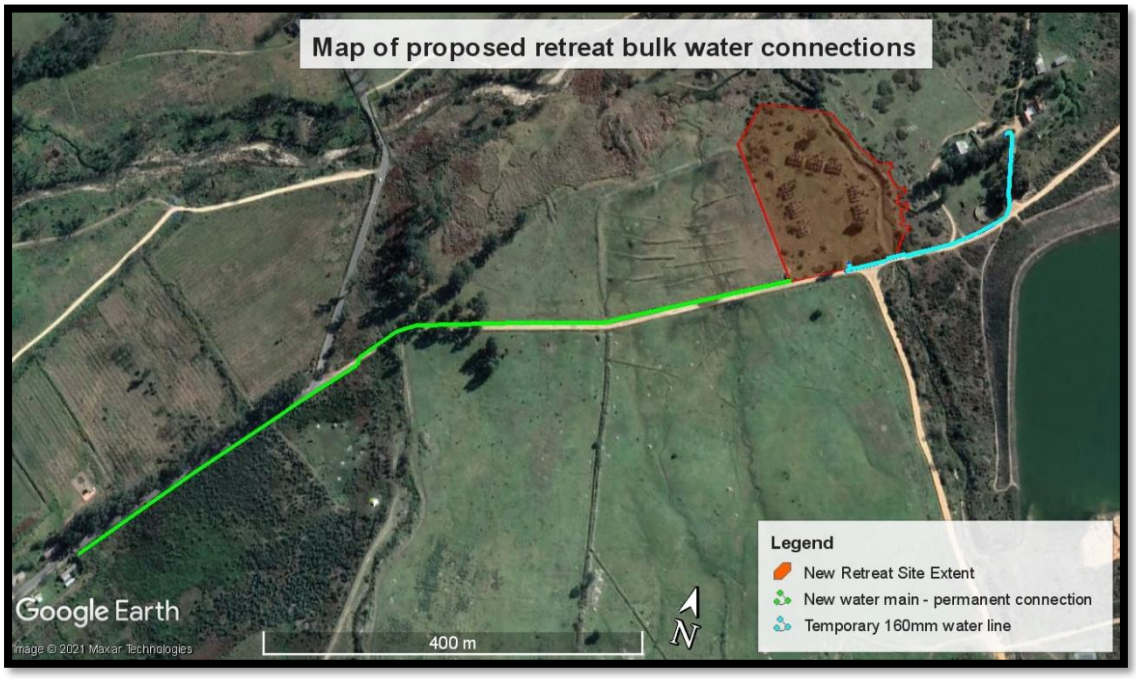

Figure 1b: Map showing site's proposed permanent bulk water connection to Lanquedoc, as well as temporary 160mm connection to farm's irrigation supply.

2. TERMS OF REFERENCE

The terms of reference for this study were to:

- Undertake a site visit to assess the vegetation on site
- Provide a description of the vegetation on the site, including the status of the area in terms of the CoCT BioNet
- Provide a terrestrial ecological sensitivity map, showing any No Go areas (map provided as Google Earth kmz files)
- Assess the terrestrial ecological sensitivity of the site, with reference to the National Screening tool categorization
- Identify likely terrestrial ecological impacts of the proposed project
- Make recommendations for any mitigation required
- Provide a professional statement on whether the proposed project should be authorised.

3. LIMITATIONS, ASSUMPTIONS AND METHODOLOGY

The site was visited most recently on 30 June 2020, which is early in the optimal winter to spring flowering season in this winter rainfall area, and was previously surveyed in December 2018 as part of a botanical baseline of the whole Boschendal Estate (Helme 2019). Potential geophytes (bulbs) and annuals were thus mostly sterile but identifiable and evident, and the seasonality of the most

recent site visit is not regarded as a significant constraint on the reliability or comprehensiveness of the botanical observations. In addition, a habitat based approach was used, whereby habitat diversity and quality was used as the primary determinant of conservation value (and hence sensitivity). In order to supplement to data on rare species reference was made to the CapeRares GIS database of threatened plants (maintained by CREW (Custodians of Rare and Endangered Wildflowers) at SANBI), plus observation on the biodiversity website inaturalist.org. The author believes that sufficient information was available to make an accurate assessment of the vegetation and its significance, and the confidence level in the accuracy of the findings is high.

The study area was walked or driven and all plant and animal species were noted, and various digital photographs were taken (and provided by EAP). No faunal trapping or sampling was undertaken and only incidental faunal observations were made during the site visit. The GIS based South African National Biodiversity Institute (SANBI) vegetation map for South Africa (Mucina & Rutherford 2006 and various online updates) was consulted, along with the National Spatial Biodiversity Assessment (NSBA; Rouget *et al* 2004; Skowno *et al* 2019) and the National List of Threatened Ecosystems (DEA 2011). Conclusions were drawn based on this documentation and professional experience in the area and the region.

Google Earth satellite imagery dated December 2018 (and earlier time series images, going back to 2001) was used to verify vegetation patterns, and for mapping purposes. For purposes of this report the terms site and study area are used interchangeably. Total disturbance footprint associated with the permanent water pipeline installation is assumed to be less than 1.5m wide, and similar for the temporary 160mm diameter pipeline off the farm's irrigation supply.

This is not a full impact assessment report.

4. STUDY AREA AND REGIONAL CONTEXT

Soils in the area are alluvial sands and loamy sands, with extensive embedded alluvial cobbles (stones and rocks). No rocky outcrops occur on site, and the site is essentially flat, although slightly northwest facing. There are slight depressions in places, some of which are potentially seasonally wet, and there is a highly degraded seasonal drainage line along the eastern boundary of the site, all of

which will be discussed by the freshwater specialist, but there is no natural surface water. The ruins of eight buildings are present on site. Fallow, previously cultivated land surrounds the site (except to the southeast), and the grassy fields to the south and southwest are highly eutrophied by decades of pig manure and grazing (York Farm was a pig farm).

4.1 National and Regional Context

The site is located within the Boland region, within the southwest coastal region of the Core Region of the Greater Cape Floristic Region (GCFR), and the region is firmly part of the Fynbos biome. The CFR is one of only six Floristic Regions in the world and is the only one confined to a single country. It is also by far the smallest floristic region, occupying only 0.1% of the world's land surface, and supporting about 9500 plant species, almost half of all the plant species in South Africa. At least 70% of all the species in the Cape region do not occur elsewhere, and many have very small home ranges (these are known as narrow endemics). Many of the lowland habitats are under pressure from agriculture, urbanisation and alien plants, and thus many of the range restricted species are also under severe threat of extinction, as habitat is reduced to extremely small fragments. Data from the nationwide plant Red Listing process undertaken is that 67% of the threatened plant species in the country occur only in the southwestern Cape, and these total over 1800 species (Raimondo *et al* 2009)! It should thus be clear that the southwestern Cape is a major national and global conservation priority, and is quite unlike anywhere else in the country in terms of the number of threatened plant species.

The CapeNature Spatial Biodiversity Plan (Pence 2017) does not indicate any Critical Biodiversity Areas (CBA) on the retreat site, but does map about 75% of the site (and the off-site berm) as Ecological Support Area 2 (ESA2; see Figure 2). The guidelines for this category are that it is degraded habitat that should be restored, mainly for its ecological connectivity value. Reasons given for selection of this area as an ESA2 include the threatened status of the underlying (original) vegetation type, water resource protection, and potential habitat for threatened vertebrates (Cape Mountain Zebra). The latter is purely theoretical, as is the former, with negligible natural habitat remaining on site.

The proposed permanent pipeline passes through degraded, unmapped land in the eastern half, but the western half passes through wetlands and watercourses mapped as ESA1 and ESA2 (see Figure 2). The status of these wetlands will be addressed in detail by the freshwater specialist.

The temporary water supply pipeline will be routed largely along existing roads, and hence does not impact on any mapped areas of CBA or ESA.

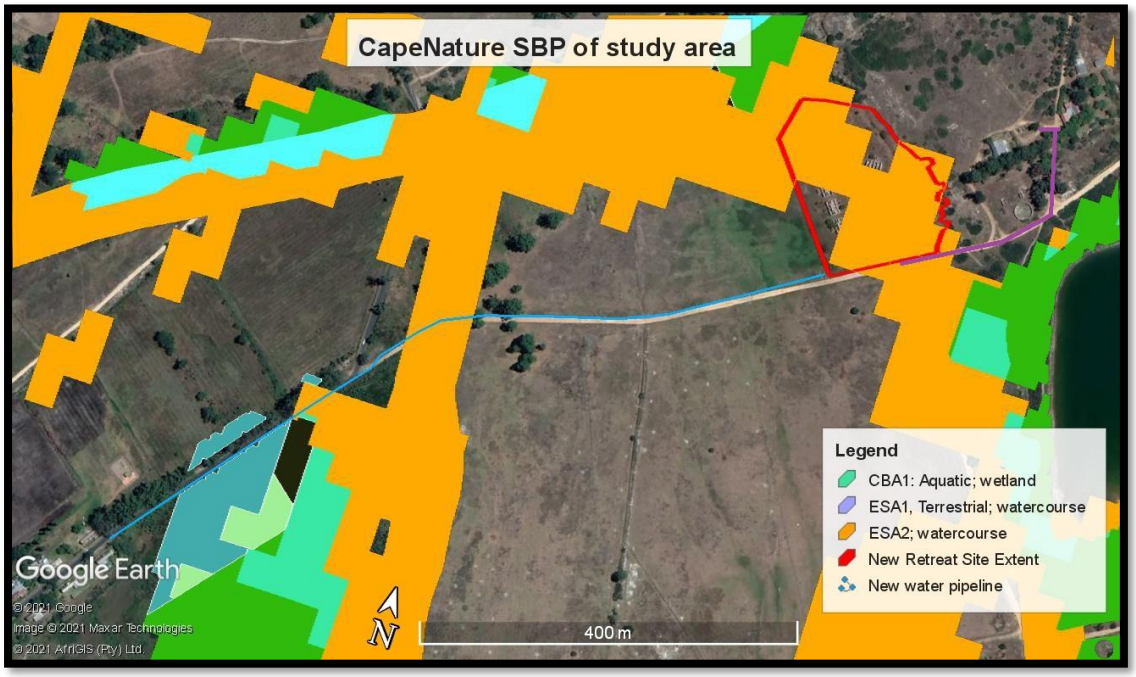

Figure 2: Extract of the CapeNature Spatial Biodiversity Plan, showing that about 75% of the site is mapped as a terrestrial ESA 2, a relatively low level of priority. The western half of the proposed permanent pipeline however goes through ESA2 and ESA1 wetlands and watercourses. The temporary water pipeline is marked in purple, and although it seems to cross some mapped ESA2 it will in fact be within an existing road at this point.

5. DESCRIPTION OF THE VEGETATION ON SITE

The vegetation map of South Africa (Mucina & Rutherford 2012) indicates that the original natural vegetation on the retreat site (prior to human influence) would have been **Swartland Alluvium Fynbos**. There is so little remaining indigenous vegetation on site that it is not possible to confirm or dispute this classification, but based on what is present nearby, the location, and based on the underlying soils, this classification is supported.

The National List of Threatened Ecosystems (DEA 2011) classifies **Swartland Alluvium Fynbos** as Critically Endangered, although this was downlisted to Endangered by Skowno *et al* (2019), due to different habitat loss thresholds being applied, but it is still gazetted as Critically Endangered.

The SA Vegetation map shows that **Boland Granite Fynbos** is the primary vegetation type throughout most of the pipeline route, but this author does not agree with this mapping, as the underlying sandy soil with alluvial cobbles is the same throughout (and is indicative of Alluvium Fynbos), and thus believes it would be better described as **Swartland Alluvium Fynbos**.

Retreat Site

There is almost no indigenous vegetation remaining on site, nor in the eastern half of the permanent pipeline route, due to a long history of agricultural disturbance. The entire site may have been ploughed at some stage, and was then used mostly as accommodation, prior to these buildings becoming abandoned more than ten years ago. Most of the indigenous vegetation on site now has re-established since the site was abandoned.

The temporary water pipeline will be routed entirely within an existing dirt road, and will thus not impact on any natural vegetation. Where it crosses over the drainage line the pipeline can be surface fixed to the bridge.

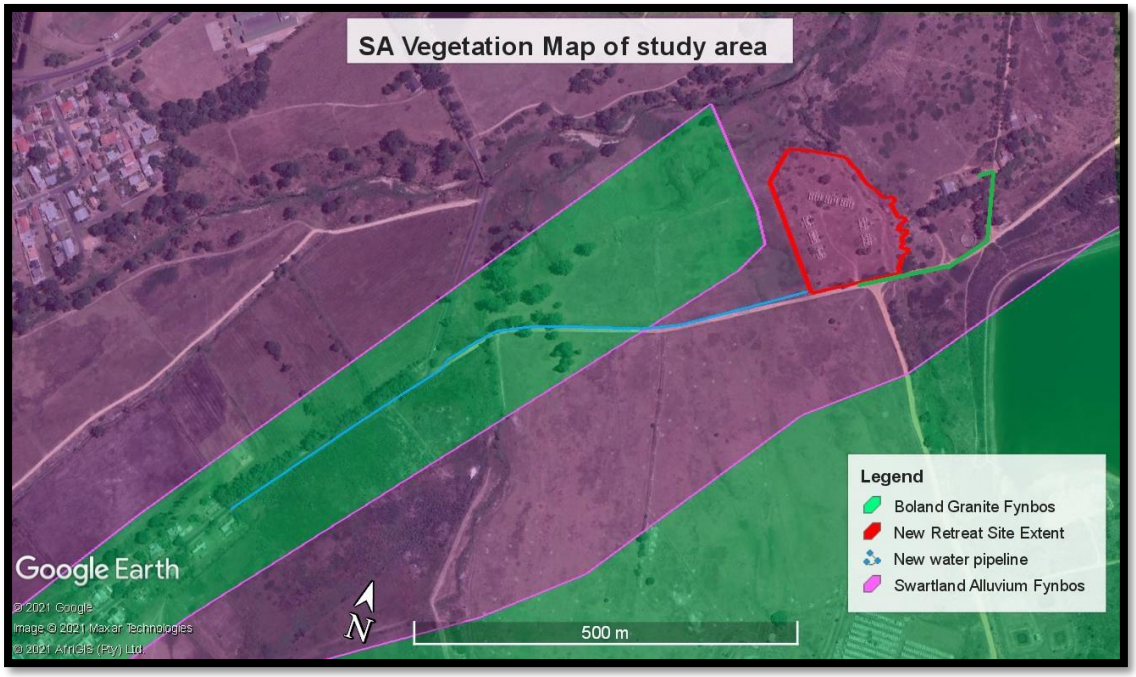

Figure 2: Extract of SA Vegetation Map, showing the two mapped vegetation types in the study area. The temporary water pipeline is shown as a green line.

Common alien invasive species in the area include *Plantago lanceolata, Echium plantagineum* (Patterson's curse), *Hypochaeris radicata* (dandelion), *Lupinus* sp.

(lupins), *Lolium* sp. (ryegrass), *Avena* spp. (wild oats), *Acacia saligna* (Port Jackson), *Senna didymobotrya*, *Lavatera* sp., *Bromus diandrus* (ripgut brome), *Erigeron bonariensis*, *Raphanus rapistrum* (wildemostert), *Brassica tournefortii, Trifolium angustifolium* and *Pennisetum clandestinum* (kikuyu grass). Various exotic trees are present, some of them quite large.

Plate 1: Photo of the central portion of the site, with existing building shells. Note the complete absence of indigenous shrubs.

Indigenous species diversity is very low, not unexpectedly, and species noted include *Cynodon dactylon* (fynkweek), *Carpobrotus edulis* (suurvy), *Ehrharta calycina, Senecio burchellii* (hongerblom), *S. pterophorus, Seriphium plumosum* (slangbos), *Albuca canadensis, Searsia angustifolia* (smalblaar), *Pennisetum macrourum* (fonteingras), *Anthospermum aethiopicum, Watsonia meriana, Diospyros glabra, Leonotis leonurus* (wildedagga), *Oxalis pescaprae, Chasmanthe aethiopica, Ficinia nodosa, Juncus capensis, Cyperus longus* and *Pycreus polystachyos*. Total combined coverage of all indigenous plants is estimated to be about 500m^2.

No plant Species of Conservation Concern were recorded in the study area, and none are expected to survive in this heavily disturbed area.

Permanent Pipeline Route

The eastern half of the permanent pipeline route is totally degraded, with no natural vegetation remaining. The area was extensively irrigated and fertilised with pig manure, and was used as a grazing meadow, dominated by alien invasive kikuyu grass (*Pennisetum clandestinum*).

The western half of the pipeline route is more intact, and there is substantial natural vegetation remaining, mainly on the upper (south) side of the Lanquedoc road (see Plate 2). Most of the northern side of the road verge is bare of vegetation, until one reaches an extensive planted avenue of exotic gum trees (Eucalyptus; see Plate 2). However, south of the road there is still quite diverse indigenous vegetation right up to the road, with extensive soil moisture – in fact much of this is wetland vegetation, as the road provides a barrier for the water draining downhill towards the river, and has caused backup of this soil moisture. The vegetation in this area is a mix of invasive alien and indigenous species. Invasive aliens include *Eucalyptus* (gum trees), *Acacia saligna* (Port Jackson) and *Acacia mearnsii* (black wattle), but these only make up about 5-10% of the cover. Indigenous species include *Cliffortia strobilifera, Watsonia meriana, Monopsis lutea, Paspalum urvillei, Searsia angustifolia, Pennisetum macrourum* and *Senecio pubigerus*.

No plant Species of Conservation Concern were observed within 2m either side of the road, and none are likely to occur here.

Temporary water pipeline route

The temporary 160mm diameter water pipeline that will connect to the farm's irrigation supply will be routed entirely within existing dirt roads, and will thus not impact on any natural vegetation. Where it crosses the drainage line it can be surface fixed onto the existing road bridge (as advised by the engineers).

Plate 2: Photo along the Lanquedoc road, showing avenue of gum trees on north side (left), and partly natural wetland vegetation on south side (right).

Off-site berm

For flood protection reasons an improved berm is required upstream of the site, and will be positioned as shown in Figure 3. This will be located in a previously disturbed area of Low botanical sensitivity, avoiding the clumps of smalblaar (*Searsia angustifolia*) just to the south. The berm area is currently dominated by weedy grasses such as *Eragrostis curvula* and shrubs such as *Senecio pubigerus* and *Leonotis leonurus*, and no plant Species of Conservation Concern occur here.

6. FAUNA

A range of common and widespread birds are likely to use the proposed development area but few of these were observed on site. Species observed include Hadeda (*Bostrychia hagedash*), Shrub Karoo Prinia (*Prinia maculosa*), Fiscal Shrike (*Lanius collaris*) and Cape wagtail (*Motacilla capensis*).

Frogs were heard calling from the damper areas, including along the western part of the proposed main pipeline (along the Lanquedoc road), and these were all the widespread *Strongylopus grayii* (clicking stream frog). No other frogs are likely on site. Few reptiles are likely to be resident, although occasional molesnake (*Pseudaspis cana*) and Cape cobra *(Naja nivea*) may cross the site or visit to hunt some of the small mammals on site.

Small mammals likely to be resident are striped fieldmouse (*Rhabdomys pumilio*) and Cape Grey mongoose (*Galerella pulverulenta*), and the characteristic sand turrets of molerat (*Bathyergus suillus* or *Georychus capensis*) were observed.

The faunal diversity of the site is low, and typical of disturbed, remnant habitat in the region. No animal Species of Conservation Concern were recorded in the study area, and none are expected to survive in this disturbed area. Faunal sensitivity is Low on a regional scale, except on the southern side of the Lanquedoc road section, where it is rated Low to Medium (Figure 3).

7. ECOLOGICAL SENSITIVITY

Both the botanical and faunal sensitivity of the proposed development areaand the off-site berm is Low on a regional scale, in contrast to the National Screening Tool which classifies all remnants in the Cape region as Very High sensitivity, irrespective of ecological condition or diversity. Key informants of this Low sensitivity include the probable previous cultivation and subsequent heavy use of the site for accommodation and farming purposes, the subsequent low current plant and animal diversity, and the absence of any plant or animal Species of Conservation Concern.

The botanical and faunal diversity and sensitivity on the less disturbed southern side of the Lanquedoc road section is rated Low to Medium (see Figure 3).

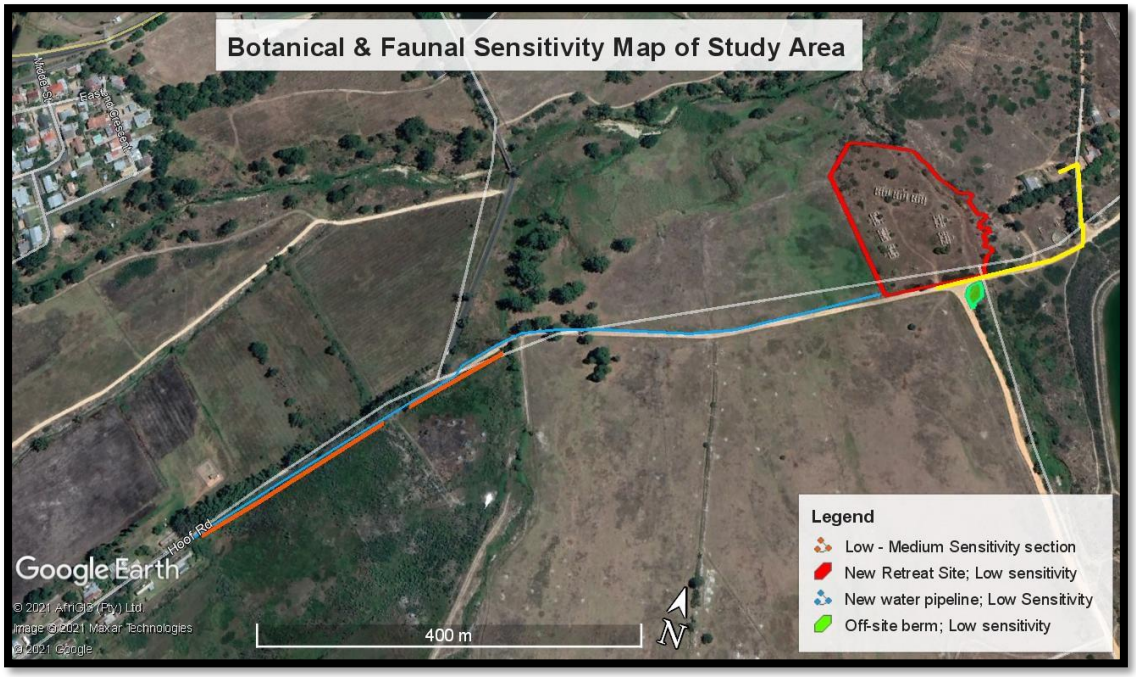

Figure 3: Ecological Sensitivity Map of the study area. Note that all unmarked areas along the pipelines or with the retreat site are deemed to be of Low ecological sensitivity. The temporary pipeline within the road is marked in yellow.

8. IDENTIFICATION OF LIKELY IMPACTS

The likely construction phase ecological impacts of the proposed development are loss of remnant vegetation and faunal habitat on site (and along the permanent pipeline), as well as possible loss of the few individual animals that are unable to move to adjacent sites. Impact significance is expected to be Low negative, before and after mitigation. Note that no further impact assessment is necessary regarding the proposed bulk water pipeline routing given that the location of the line would be routed within the low sensitivity areas indicated in Figure 3. This routing has been intentionally devised so as not to impact on the more sensitive habitat and thus avoids potential adverse impact in this regard.

The temporary pipeline would be entirely within the existing dirt road surface and thus will have no impact on vegetation or fauna.

The minor operational phase ecological impacts of the proposed development are primarily habitat fragmentation and loss of current levels of ecological connectivity across the site (not relevant for the pipeline). Impact significance of

this is likely to be Very Low negative before mitigation, and Low positive after mitigation.

There will be minor loss of areas mapped as ESA1 and ESA2, in both the development area, the off-site berm and the permanent pipeline, and the freshwater assessment will expand on these impacts (which are all related to wetlands).

9. CONCLUSIONS AND RECOMMENDATIONS

- The proposed development site and the temporary pipeline route are of Low botanical and faunal diversity and sensitivity, and present no faunal or botanical constraints to the proposed development, other than the seasonal drainage line on the eastern edge of the site (to be addressed by freshwater specialist), where development planning should be in line with what is recommended by the freshwater specialist.
- The south side of the Lanquedoc road section of the proposed permanent pipeline is deemed to be of Low to Medium ecological sensitivity and diversity, and is of higher sensitivity than the northern side of this road.
- The overall ecological significance of the development of the site (excluding the seasonal drainage line on the eastern edge of the development site) and the proposed temporary and permanent pipelines would be Low negative (before and after mitigation) on a regional scale.
- The proposed site development (but not the pipeline portions) could actually enhance the ecological status of this area, by means of increasing the current indigenous plant diversity and cover (as proposed in development layouts), and making it more attractive to a wider range of birds and insects.
- No specific ecological mitigation is thus required for the retreat site, but it is noted that the landscaping plan is proposing extensive use of indigenous plants, which is supported. The proposed *Podocarpus falcatus* (Real yellowwood) should be replaced with *Ekebergia capensis* (Cape ash) or *Harpephyllum caffrum (*Wild plum*)*, as the former is not adapted to the hot, dry summers in this area. The tall restio *Restio paniculatus* should also be added to the planting list, for damper areas.
- All woody alien invasive species on the south side of the Lanquedoc road section of pipeline, and within 20m of the pipeline, should be removed

during the construction phase. All cut stems must be painted with herbicide immediately after felling to prevent resprouting.

- Trenching for the proposed pipelines should be minimised, and should be closed up as soon as possible, to prevent entrapment of animals. Twice daily inspection of the trenches should be undertaken by the ECO to remove any trapped animals.
- The proposed development could be authorised without any regionally or nationally significant ecological impacts.

10. REFERENCES

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