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Pri.Sci.Nat # 400045/08

BOTANICAL ASSESSMENT FOR SECTION 24G PROCESS - PORTION 48 OF FARM FRANSCHE KRAAL 708, FRANSKRAAL, WESTERN CAPE.

Compiled for: Lornay Environmental, Hermanus

Applicant: Mr J du Toit, Franskraal

27 Feb 2025

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.

NA Helme

ABRIDGED CV:

Contact details as per letterhead.
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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 south-western Cape. Since the end of 2001 I have been the Sole Proprietor of Nick Helme Botanical Surveys, and have undertaken over 2000 site assessments in this period.

A selection of relevant previous botanical work is as follows:

- Scoping and Constraints studies for Cape Winelands Airport (PHS Consulting 2022-2024)
- Strandfontein Coastal Node IA (Infinity Environmental 2024)
- Hazendal Ptns 31 & 33 (Monique Sham 2024)
- N7 weighbridge IA (SES 2023)
- Macassar WWTW IA (Zutari 2023)
- Botanical assessment of proposed development on Ptn 29 of Farm 410 Caledon (PHS Consulting 2022)
- Botanical assessment of proposed development on Ptn 10 of Broken Hill 88, Heidelberg (Isikhova 2021)

- Botanical assessment of Ptns 3 & 6 of Farm 563 Kleinmond (Lornay Environmental 2021)
- Botanical assessment of Ptn 9 of Farm 429 Gabrielskloof, Caledon (Infinity Environmental 2021)
- Baseline ecological assessment of Karwyderskraal 584, Caledon (Terramanzi 2021)
- Botanical impact assessment of proposed development of Ptn 29 of Farm 410, Caledon (PHS Consulting 2021)
- Botanical assessment of proposed new cultivation on Welbedacht farm, Tra Tra Mountains (Footprint Environmental 2020)
- Biodiversity Compliance Statement - Philippi erf 1/1460 (Infinity Environmental 2020)
- Botanical assessment of Kleinmond WWTW expansion (Aurecon 2020)
- Botanical assessment of Mooreesburg WWTW expansion (Aurecon 2020)
- Botanical assessment of Struisbaai cemetery sites (Infinity Environmental 2020)
- Botanical assessment of MoPama development site, Swellendam (Landscape Dynamics 2020)
- Botanical assessment of Ptn of Rem of Erf 1 Caledon (Theewaterskloof Municipality 2019)
- Botanical assessment of proposed new cultivation on Portion of Wittewater 148, Piketberg (Cornerstone Environmental 2019)
- Botanical assessment of Droogerivier farm Leipoldtville (Footprint Environmental 2018)
- Botanical assessment of Sebulon farm, Redelinghuys (Natura Libra Environmental Services 2018)
- Botanical assessment of proposed new cultivation on Ptn 2 of farm Groenevalley 155, Piketberg (Cederberg Environmental Assessment Practise 2017)
- Botanical assessment of proposed new cultivation on farm Rosendal, Koue Bokkeveld (Cederberg Environmental Assessment Practise 2016)
- Botanical assessment of proposed cultivation on farm Kransvlei, Clanwilliam (Cederberg Environmental Assessment Practise 2016)
- Botanical assessment of proposed cultivation on farm Erfdeel, Bo-Swaarmoed, Ceres (Cederberg Environmental Assessment Practise 2016)

CONDITIONS RELATING TO THIS REPORT:

The methodology, findings, results, conclusions and recommendations in this report are based on the author's best scientific and professional knowledge, and on referenced material and available knowledge. Nick Helme Botanical Surveys and its staff reserve the right to modify aspects of the report, including the recommendations and conclusions, if and when additional relevant information becomes available.

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TABLE OF CONTENTS

1. INTRODUCTION

This botanical assessment was requested to inform the Section 24g environmental rectification and authorisation process being followed for the alleged unauthorised clearing of Critically Endangered natural vegetation and infilling of a wetland on Portion 48 of Farm Fransche Kraal 708 in the Caledon district of the Western Cape (Figure 1). The relevant cleared and infilled area is about 1.2ha in extent, with the property being 5.95ha, and the activity would appear to have been undertaken in late 2023 to early 2024.

Figure 1: Extract from Cape Farm Mapper, showing the property, with cleared and infilled area clearly visible. This image (evidently taken prior to the main house being built, probably in mid-2024). The similar development across the R43, on farm 1890, evidently took place in 2023.

2. TERMS OF REFERENCE

The terms of reference for this study were as follows:

- Undertake a site visit to assess the vegetation in the study area, with a focus on and near the area allegedly cleared and infilled without authorisation
- Identify and describe the vegetation in the study area and place it in a regional context, including its status in terms of the CapeNature Spatial Biodiversity Plan (CBA/ESA/ONA, etc)
- Identify and locate any (likely) plant Species of Conservation Concern in and around the study area, based on observation, literature and iNaturalist website review

- Provide an overview and map of the likely botanical conservation significance (sensitivity) of the site, and compare this to Screening Tool findings
- Identify and assess (according to standard IA methodology) the botanical impacts and significance of the unauthorised clearing, including impacts associated with the development and operational phases
- Recommend mitigation measures to minimise impacts and to help mitigate impacts associated with the clearing and infilling
- Discuss the need for a biodiversity offset and assess whether this may be necessary, and provide comments on the possible quantum required.

3. LIMITATIONS, ASSUMPTIONS AND METHODOLOGY

The site was visited on 13 February 2025. This was outside the optimal winter – spring flowering season in this mostly winter rainfall area, but the area does get some summer rain, and given the nature of the 5.95ha study area the seasonality was not considered an important constraint. The author has undertaken extensive work within the region, including on various nearby properties, which facilitates the making of local and regional comparisons and inferences of habitat quality and conservation value.

The cleared area (defined as being up to 1.2ha in extent) and surrounding parts of Portion 48 were walked. Photographs of some of the key plant species were made using a Fuji mirrorless slr camera and a Xiaomi cellphone, and have been uploaded to the biodiversity website iNaturalist.org. Google Earth satellite imagery and time series from 2012 to 2023 was used to inform this assessment, and for mapping. No Google Earth imagery of the site is available subsequent to the clearing (but see Figure 1, from Cape Farm Mapper), which took place after May 2023. Polygon areas were calculated using Google Earth.

The botanical sensitivity of a site is a product of plant species diversity, plant community composition, rarity of habitat, degree of habitat degradation, rarity of species, ecological viability and connectivity, restorability of habitat, vulnerability to impacts, and reversibility of threats.

The meaning of the No Go alternative in this case is difficult to define, and is not particularly relevant, as the focus area has been cleared.

4. REGIONAL CONTEXT OF THE VEGETATION

The study area is located near the western edge of the Overberg Ruens region, and is within the Core Cape Subregion (CCR) of the Greater Cape Floristic Region (GCFR; Manning & Goldblatt 2012). The study area is part of the Fynbos biome. The GCFR is one of only six Floristic Regions in the world, and it is also by far the smallest floristic region. The Core Cape Subregion occupies only 0.1% of the world's land surface, and supports about 9400 plant species, almost half of all the plant species in southern Africa, and some 20% of the plant species in sub-Saharan Africa. About 68% of all the species in the CCR do not occur elsewhere, and many have very small home ranges (these are known as narrow endemics). Most 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 Red Data Book listing process undertaken for South Africa is that 67% of the threatened plant species in the country occur only in the Fynbos biome, 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. Developments in this area thus need to take this into account.

The study area could be considered to be part of the Southwest Fynbos bioregion (Mucina & Rutherford 2006). The bioregion is renowned as one of the most biodiverse regions in the country, but is under heavy development pressure, and pressure from invasive alien plants, and virtually all quality remnants support large numbers of threatened plant species (Raimondo *et al* 2009).

The CapeNature Spatial Biodiversity Plan (2023) for the area (Figure 2) shows that the cleared area is mapped as ESA (aquatic) and ESA 2, with about 50% as unmapped, with no areas mapped as high priority CBA1 (Critical Biodiversity Areas). CBAs are Critical Biodiversity Areas, and should not be developed, lost or impacted, as they support critical habitat and species, and appropriate land uses should be low impact and biodiversity sensitive. Note that a large part of the development on the adjacent property north of the R43 was undertaken in a CBA1. Some CBA1 is found on the western side of the property, and on the property to the west.

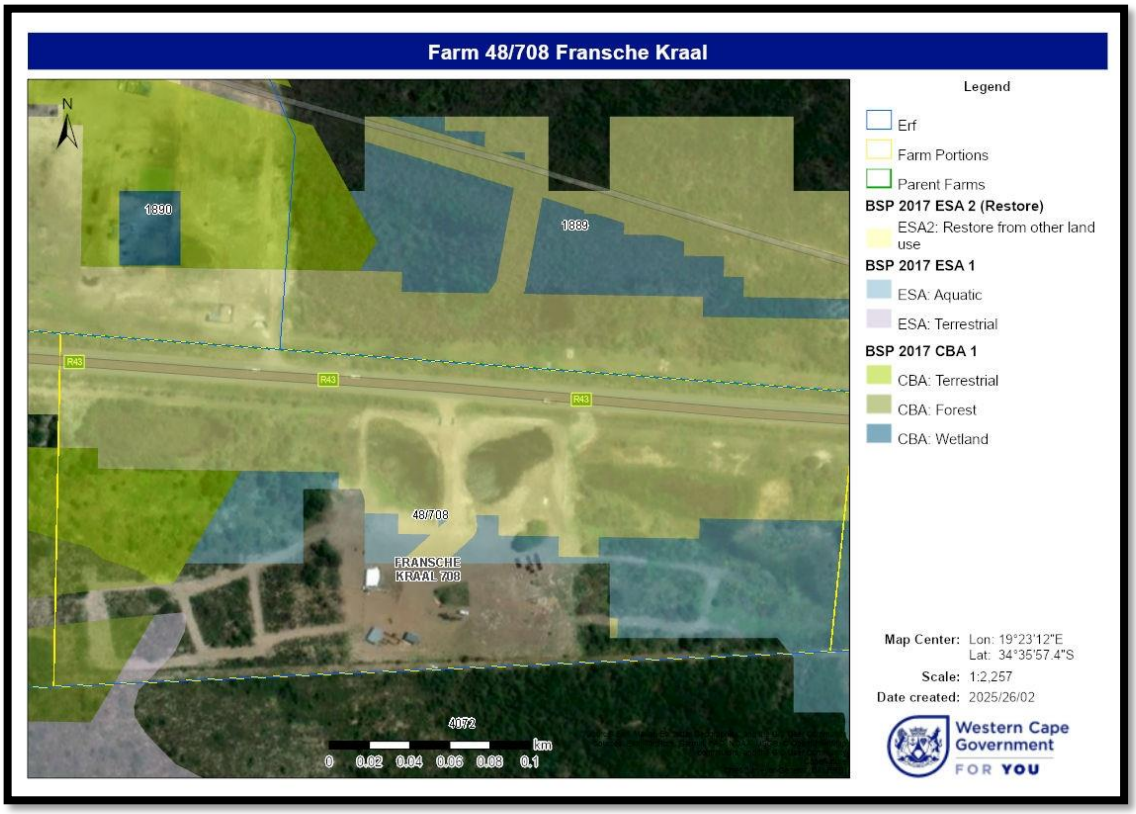

Fig 2: Extract of the CapeNature Spatial Biodiversity Plan (CapeNature 2023), showing that the most of the focus area was mapped as ESA2, and the southern part unmapped.

5. THE VEGETATION

5.1 Description of the Study Area

The study area is relatively flat, with a slight depression running from west to east along the northern boundary, which marks the wetland area and direction of drainage. The soils on site are fairly deep alkaline to neutral sands, with underlying calcrete in the southern section, and patches of ferricrete (koffieklip) and associated clays and sandy loams in the northeast. There is thus something of a perched water table in the area (as sands are permeable but clays, calcrete and ferricrete are generally not), and in the wet season the northern part of the site is essentially a wetland. The soils range from white sands to dark loams, and the latter are strongly indicative of wetland conditions. The sandier parts of the study area are better drained than the peaty, loamy soils, and slowly grade into each other. The vegetation in the southwestern part of the property area was burned in late 2018. As shown in Plates 1-3 there was clearly previous disturbance on the property, starting with near total bush clearing in 2011/2012

(see Plate 1), and then progressive invasion by *Acacia cyclops* and *Acacia saligna* in the subsequent decade.

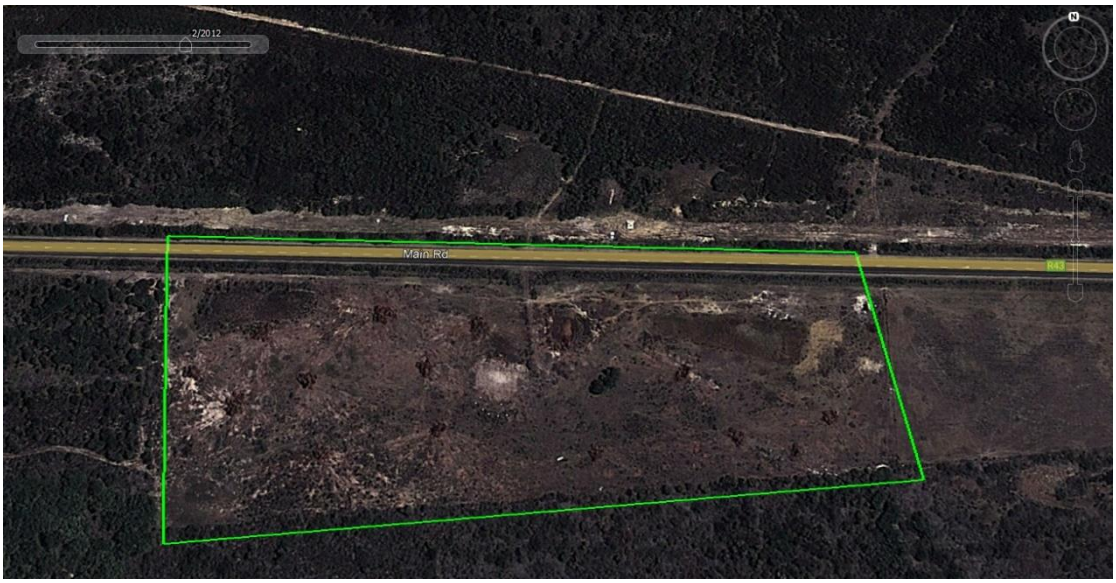

Plate 1: Screenshot from Google Earth imagery dated February 2012, showing that vegetation on the site was cleared and piled into heaps, as was the property to the east.

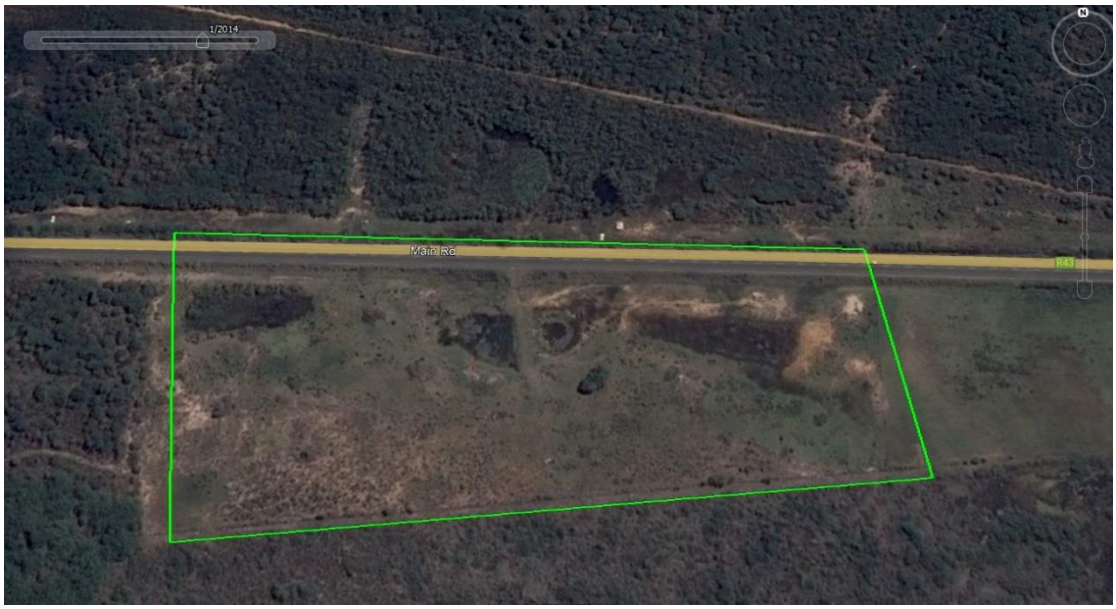

Plate 2: Screenshot from January 2014, showing how the property and property to the east were clearly different from the adjacent, undisturbed areas. The wetland areas in the northern parts are clearly visible in this image.

Plate 3: Screenshot from May 2023, just prior to the current activity on site, with the property to the north being cleared. Note how the vegetation has re-established on the focus property (albeit in a green, grassy form), and how evident the wetlands are in the north (brown and dark green patches).

5.2 The vegetation

The vegetation map of South Africa (Mucina & Rutherford 2006 and online update dated 2024) indicates that most of the original vegetation type present on site is mapped as **Agulhas Limestone Fynbos,** with a patch of **Southern Coastal Forest** in the southwest (Figure 3). The latter is a clear mapping error - due to satellite image misinterpretation, due to the many alien invasive trees (*Acacia* spp.) being mistaken for milkwoods!

Agulhas Limestone Fynbos has 95% of its original extent still intact, some 8% conserved, and a national conservation target of 32% of original total extent (Rouget *et al* 2004). The vegetation unit is gazetted as **Critically Endangered** on a national scale (Government of South Africa 2022), due to its restricted global extent and threatening processes (mainly invasive alien plants).

In reality the vegetation on site is a mix of four different vegetation types – and could be best described as **Overberg Dune Strandveld** (Endangered) in the southern parts, and **Elim Ferricrete Fynbos** (Critically Endangered) in the northern (wetland) section, although the latter is not formally mapped as occurring closer than Uilenkraal, some 17km away. Analysis of this site thus shows that relying purely on published vegetation maps is not always wise, as these can be very inaccurate, especially in the hyper diverse Cape region.

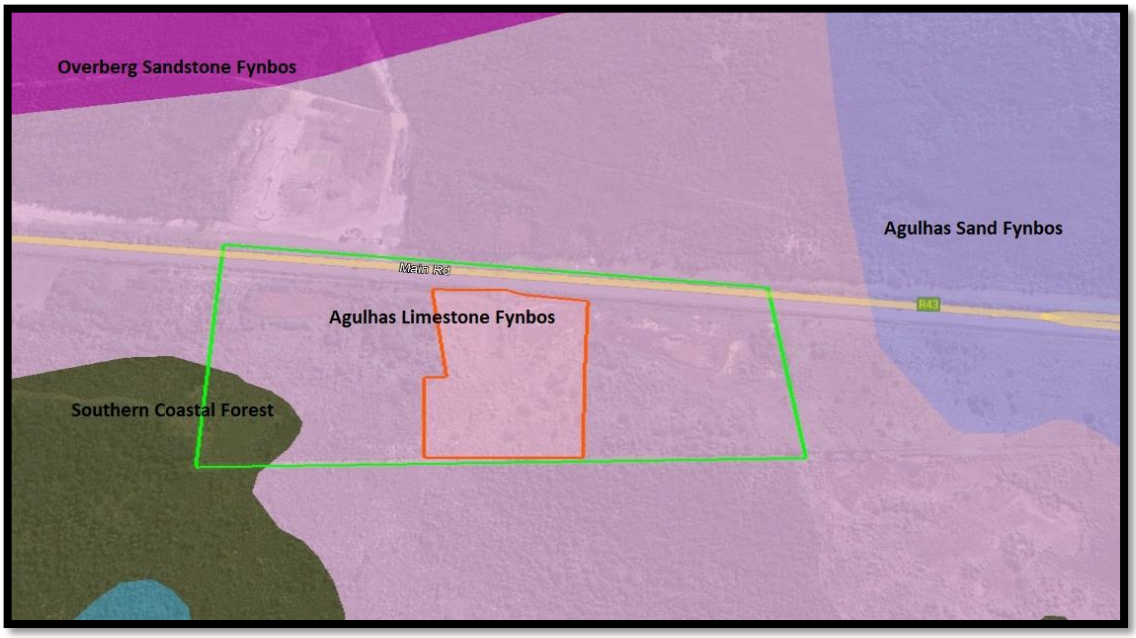

Figure 3: Extract of the SA Vegetation Map (Mucina & Rutherford) showing that the primary vegetation type on site is mapped as Agulhas Limestone Fynbos, with some Southern Coastal Forest mapped in the southwestern corner (which is clearly an error). What is clear is that five different vegetation types occur in the immediate area (including Overberg Dune Strandveld), which suggests that the vegetation is ecotonal (transitional), and has elements of most of these, which would be more accurate.

The cleared and infilled area now supports very little indigenous vegetation, and overall vegetation cover is probably less than 5%. The few indigenous species noted include *Cynodon dactylon* (kweekgras), *Stenotaphrum secundatum* (buffalo grass), *Salicornia natalensis* (common glasswort), *Plantago carnosa* (beach plantain), *Senecio burchelli* (kill ragwort), *Cyperus* sp., *Falkia repens* (pink ear) and *Crassula expansa*.

Plate 1: View of infilled and levelled area, looking southwest. *Bolboschoenus maritimus* (sawgrass) in the pond, and *Cynodon dactylon* (kweekgras) dominant around the side.

Common alien invasive herbs and grasses in the disturbed area include *Cenchrus clandestinus* (kikuyu grass), *Plantago lanceolata* (ribwort) and *Chenopodiastrum murale* (goosefoot).

Prior to any disturbance or clearing this area is likely to have supported a rich and diverse seasonal wetland plant community, as is still found in the undisturbed area to the east.

The wetland elements in the disturbed and infilled areas are mostly indigenous and include *Typha capensis* (bulrush), *Bolboschoenus maritimus* (sawgrass), and *Juncus kraussii* (steekriet).

The undisturbed wetland area to the east, on loamy soils, supports the following indigenous species: *Bolboschoenus maritimus, Typha capensis, Juncus kraussii, Orphium frutescens, Senecio halimifolius, Salicornia natalensis*, *Nidorella pinnatifida, Plantago carnosa, Gnidia spicata, Elelgia nuda, Athanasia dentata, Mariscus thunbergii, Frankenia repens, Helichrysum fruticans, Stenotaphrum secundatum, Limonium* sp.nov., *Plecostachys serpyllifolia, Triglochin striata, Carpobrotus edulis* and *Metalasia muricata*.

At least one listed plant **Species of Conservation Concern** (SoCC) was recorded in the undisturbed eastern area (see Plate 2), growing with another undescribed species that should also be considered as a SoCC.

Gnidia spicata is Redlisted as Vulnerable, as it has a limited range in seasonally wet lowlands from the Cape Flats to Cape Agulhas. A large (about 50 plants) and viable population occurs in the eastern area, The population on site is considered regionally significant.

An undescribed *Limonium* species is also fairly common in the same area (see Plate 2), and this species is largely restricted to seasonal wetlands on the coastal plain from Gansbaai to Agulhas, and it should be considered Vulnerable. The population on site is considered regionally significant, and it is likely to have occurred in parts of the cleared and infilled area.

Leucadendron linifolium was the only SoCC found in the western part of the property (west of the cleared area), where just a few, trampled, remnant plants were found next to the wetland. This species is Redlisted as Near Threatened, and still occurs in many localities between Hawston and Stilbaai. The population on site is not considered regionally significant, and it may have occurred in parts of the cleared and infilled area.

Plate 2: Very High sensitivity seasonal wetland east of the infilled area, which is presumably what much of the infilled area looked like. The reddish groundcover is *Salicornia natalensis*. The tree is the invasive alien rooikrans (*Acacia cyclops*).

This is the area where the undescribed *Limonium* occurs, along with *Gnidia spicata* (Vulnerable).

Plate 3: Degraded Overberg Dune Strandveld in area southeast of house, with *Acacia saligna* (Port Jackson) prominent. The dead and partly shrubs are indigenous bietou (*Osteospermum moniliferum*), with sourfig groundcover (*Carpobrotus edulis).*

The southern and eastern areas (Plates 3 & 4) are more typical of Overberg Dune Strandveld, with deep, alkaline sands and some calcrete. Indigenous vegetation in this area includes *Leonotis leonurus, Passerina corymbosa, Otholobium bracteolatum, Searsia laevigata, Ehrharta villosa, Metalasia muricata, Carpobrotus edulis, Helichrysum patulum, Ruschia macowanii, Stenotaphrum secundatum, Mesembryanthemum canaliculatum, Sideroxylon inerme, Euclea racemosa, Salvia aurea, Cynodon dactylon, Thamnochortus insignis, Gnidia squarrosa, Tetragonia fruticosa, Muraltia spinosa* and *Helichrysum niveum*. Invasive alien vegetation here includes *Cenchrus clandestinus* (kikuyu grass), *Acacia saligna* (Port Jackson), and *Acacia cyclops* (rooikrans). Grazing and trampling impacts are severe in parts of this area, and are leading to notable species loss.

Plate 4: Ostriches in the western part of the site (looking east), not cleared, but degraded and starting to get denuded by heavy ostrich and livestock trampling and browsing. Most of the palatable plants have already been eaten. Deep, alkaline sands here are indicative of Overberg Dune Strandveld.

5.3 Botanical Sensitivity

Botanical sensitivity on site prior to the disturbance is shown in Figure 4, and after the disturbance in Figure 5. High sensitivity areas have decreased in area, and Low sensitivity areas have increased, reflecting the loss of natural and partly natural habitat, and conversion of areas from High to Low sensitivity. The main areas of High sensitivity are now in the northeast (east of an internal fence), and along the northern boundary west of the access road. All three plant SoCC recorded on this site are restricted to the High sensitivity areas.

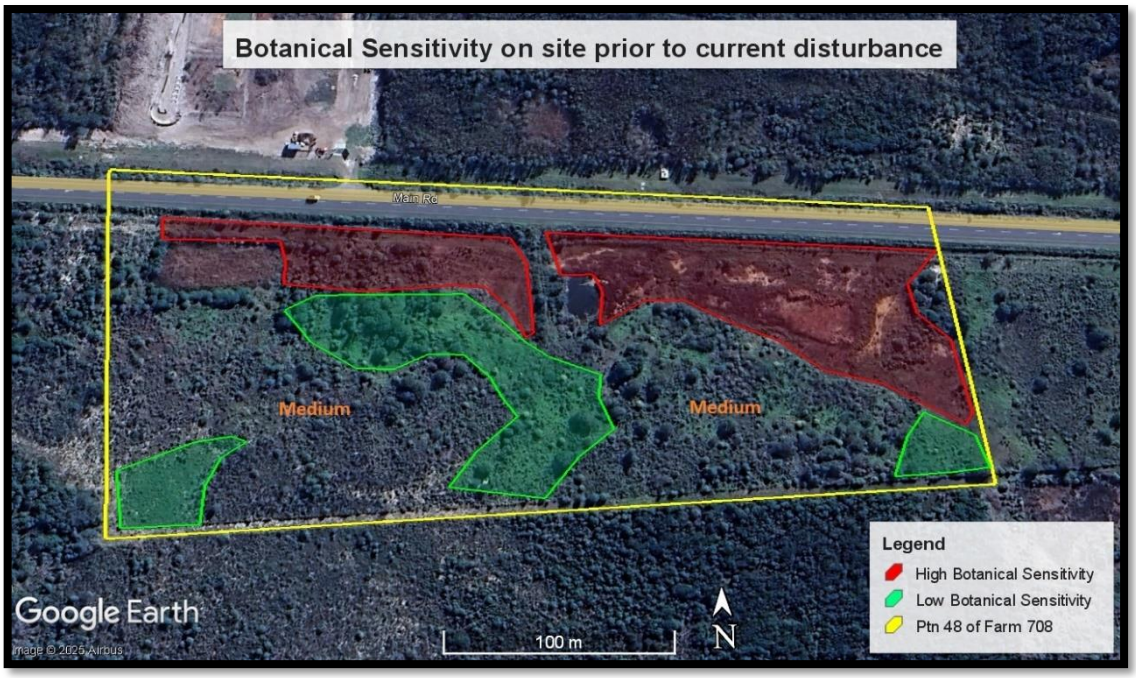

Figure 4: Map of botanical sensitivity on site prior to current disturbance.

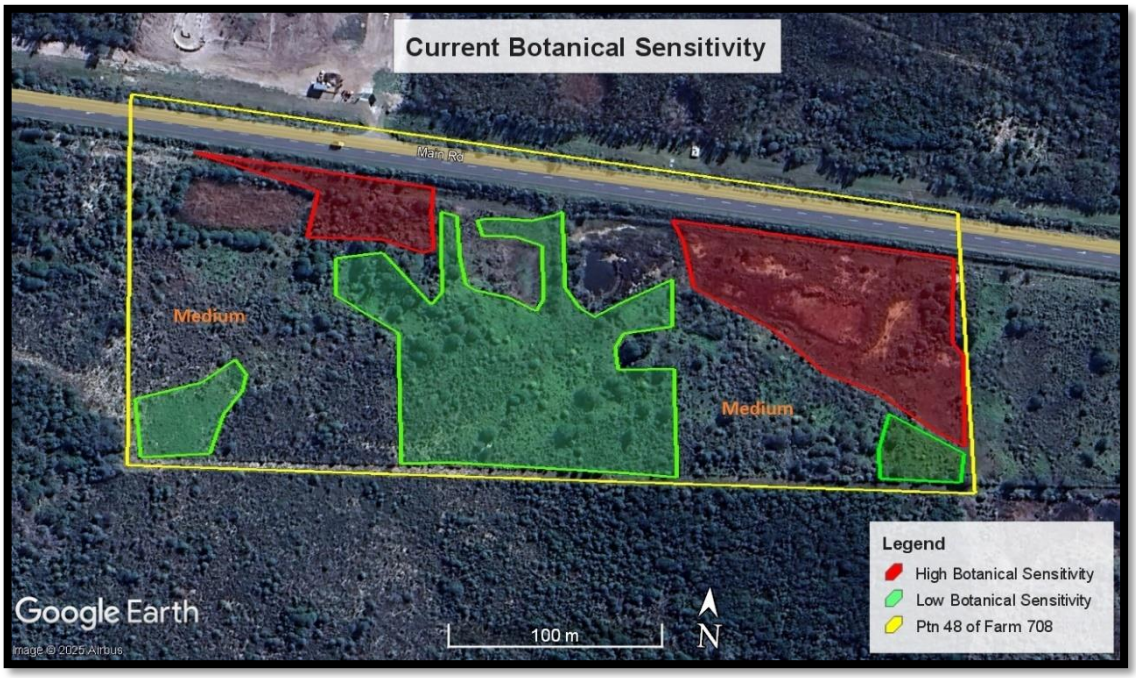

Figure 5: Map of current botanical sensitivity on site.

6. IMPACT ASSESSMENT

6.1 Construction Phase (Direct) Botanical Impacts

The primary construction phase (which has already taken place) botanical impact of the clearing and infilling was loss and degradation of the pre-existing natural and partly natural vegetation in the 1.2ha development area. Further construction is not assessed. The mapped vegetation type (Agulhas Limestone Fynbos) is gazetted as Critically Endangered on a national basis (Government of South Africa 2022), but it is noted that part of the area would be better characterised as Overberg Dune Strandveld, which is listed as Endangered. As the applicant has agreed to try and rehabilitate much of the cleared and infilled area (pers. comm., Feb 2025) the loss can be assumed to be of a long term rather than permanent nature. The botanical significance of this loss is deemed to be **Low to Medium negative** (before and after mitigation)**,** as the extent and scale is relatively small (compared to for example a housing development or conventional cultivation). Mitigation could be implemented at the operational phase.

At least two plant Species of Conservation Concern (*Gnidia spicata* and *Limonium* sp.nov., and perhaps a third - *Leucadendron linifolium*) are likely to have occurred in the cleared area. The sensitivity of the vegetation in the impacted area probably ranged from Low (40%), to Medium (40%) to High (20%). The botanical significance of this loss is deemed to be **Low to Medium negative** (before and after mitigation), as the scale and numbers of individuals are relatively small.

The No Go alternative would clearly have had a lower direct (construction phase) botanical impact than the clearing - presumably best rated as Neutral.

The extent of the impacts are deemed to be local and regional, but also national, in that the vegetation types are assessed at a national level.

Impact	Extent of impact	Duration of impact	Intensity	Probability of impact	Irreplaceable loss of biodiversity	Significance before mitigation	Significance after mitigation *
Loss of about 1.2ha of Low, Medium and High sensitivity vegetation (Critically Endangered or Endangered)	Local & regional	Mostly Long term, some permanent	Medium to High	Definite	Low to Medium	Low to Medium -ve	Low to Medium -ve

No Go	Local	Unknown and variable	Neutral to low negative	Not likely	Low	Neutral	Neutral

Table A: Summary table for construction phase botanical impacts associated with the unauthorised loss of about 1.2ha of natural and partly natural vegetation in the study area in 2023/2024. The primary construction phase impacts are long term and permanent loss of natural vegetation in the study area, including possible loss of an estimated 3 plant SoCC. *Mitigation in this case has not yet been implemented, and includes all steps required in Section 7 of this report.

6.2 Operational Phase Botanical Impacts

Operational phase impacts will take effect as soon as the natural vegetation in the focus area is lost or disturbed – which has already occurred - and will persist in perpetuity, or as long as the area is not adequately rehabilitated. Operational phase impacts include loss of previous levels of fair moderatennectivity across the area, and associated habitat fragmentation, plus ongoing grazing and trampling by livestock, both in the focus area and elsewhere on the property (especially in the west) – as seen in Plate 5.

Overall the operational phase botanical impact of the clearing in the 1.2ha area is likely to be **Low to Medium negative** (prior to mitigation), and **Low negative** after mitigation.

The No Go alternative would clearly have a lower indirect (operational phase) botanical impact than the clearing of the focus area, although even in the No Go the applicant could presumably legally maintain very high stocking rates on site that lead to severe overgrazing, trampling and denudation of whatever vegetation remains.

Positive ecological impacts could be realised in the future only if the applicant implements all required mitigation, but the confidence level associated with rehabilitate success are only moderate, but are higher for formalised conservation of the sensitive eastern area.

Development Area	Extent of impact	Duration of impact	Intensity	Probability of impact	Irreplaceable loss of biodiversity function	Significance before mitigation	Significance after mitigation *
Loss of 1.2ha of natural and partly natural vegetation (Critically Endangered and Endangered)	Local & regional	Long term and permanent	Low to Medium	Medium	Low	Low to Medium -ve	Low -ve
No Go	Local	Unknown and variable	Neutral	Likely	Low	Neutral	Neutral

Table B: Summary table for operational phase botanical impacts associated with the clearing of 1.2ha in 2023/2024. The main operational phase impacts would be loss of previous ecological connectivity across the area and associated habitat fragmentation, plus ongoing trampling and grazing impacts in parts. *Mitigation in this case has not yet been implemented, and includes all steps required in Section 7 of this report.

6.3 The No Go Alternative

The No Go alternative is usually considered to mean a continuation of the status quo, which in this case is taken to mean no further habitat loss to development, moderate unmanaged alien plant invasion, moderate to severe ongoing grazing and trampling by livestock, and possible unpredictable future agricultural type impacts. Confidence in the likelihood of impacts is thus low, but the No Go alternative would on balance have been the environmentally preferred alternative, with perhaps a Very Low negative impact, but as impact has occurred this is totally theoretical.

6.4 Cumulative Impacts

The cumulative ecological impacts are in many ways equivalent to the regional ecological impacts, in that the vegetation type/s impacted by the new development and grazing have been, and will continue to be, impacted by numerous developments and other factors (the cumulative impacts) within the region. The primary cumulative impacts in the region are loss of natural vegetation and threatened plant species to ongoing agriculture, urban development and alien plant invasion (Mucina & Rutherford 2012; Helme *et al* 2016).

The overall cumulative ecological impact of the 1.2ha of new clearing in the study area at the regional scale is likely to have been Low negative.

6.5 Positive Impacts

No positive ecological impacts of the site clearing have been recorded, and none are expected. The only positive impact that could possibly be flagged is the removal of all woody alien invasive vegetation on the site, as required in Section 7, but given that this is any case a legal requirement for landowners (as per NEMA, although widely ignored) this is not a redeeming factor in this impact assessment.

7. REQUIRED MITIGATION

The following mitigation for the unauthorised clearing of about 1.2ha of vegetation in the study area in 2023/2024 is deemed feasible, reasonable and mandatory:

- All woody invasive alien vegetation (mainly *Acacia saligna* and *Acacia cyclops)* on the greater 5.95ha property must be felled using a hand or chainsaw, following appropriate methodology as per Martens *et al* (2021). No heavy machinery may be used, and Port Jackson (*Acacia saligna*) stems should be cut at close to ground level and immediately (within ten minutes) painted (not sprayed) with a suitable herbicide such as Garlon. This alien vegetation control must be undertaken within six months of any 24g authorisation, and must repeated annually to ensure no regrowth.
- No disturbance of the current High sensitivity areas (as per Figure 6) may take place at any stage in the future, and to safeguard and ensure this a new fence needs to be put in west of the access road, partly parallel to the access road, and mostly parallel to the R43 (see Figure 6). The eastern High sensitivity area is already fenced off and should remain so.
- No livestock may be allowed into the fenced off High sensitivity sections.
- Rehabilitation of the disturbed (Low sensitivity) areas should be undertaken wherever these areas are not needed for current activity, such as vehicular access or parking. Key steps are outlined here:
    1) Any planting must be undertaken at the start of the winter rain season, to ensure maximum establishment time before the summer dry season.
    2) All rehabilitation areas need to be fenced off from all livestock, in order to prevent grazing and trampling.

3) Rehabilitation areas should be ripped or scarified before planting, as the soil is currently badly compacted. No fertiliser should be added, but plant based, sterile (no alien plant seeds) compost can be used, along with sterile mulch. Irrigation may be necessary through the first summer. Plants (plugs, seeds and rooted cuttings) should be sourced from a nearby indigenous nursery, such as Green Futures.
4) Wind fences should be erected every 5 or 8m, at 90 degrees to the prevailing winds. These should be 1m high, made of black shadecloth, and can be removed once plants are about two years old.
5) Suitable indigenous groundcovers are *Arctotis stoechadifolia, Gazania maritima, Stenotaphrum secundatum* (buffalo grass), *Falkia repens*, *Tetragonia fruticosa, Salicornia natalensis* (saltwort), *Psoralea repens, Plantago carnosa, Mesembryanthemum (Phyllobolus) canaliculatus, Ruschia macowanii* and *Cynodon dactylon* (kweek grass).
6) Suitable indigenous shrubs include *Senecio halimifolius* (wetter areas), *Searsia laevigata* (dunetaaibos), *Searsia glauca* (kunibos), *Salvia aurea* (brown sage), *Leonotis leonurus* (wildedagga), *Orphium frutescens (vleiroos), Athanasia dentata, Athanasia quinquedentata, Helichrysum paulum, Metalasia muricata, Gnidia squarrosa, Otholobium bracteolatum* and *Pelargonium capitatum*.
7) The most appropriate trees to plant would be milkwoods (*Sideroxylon inerme).*

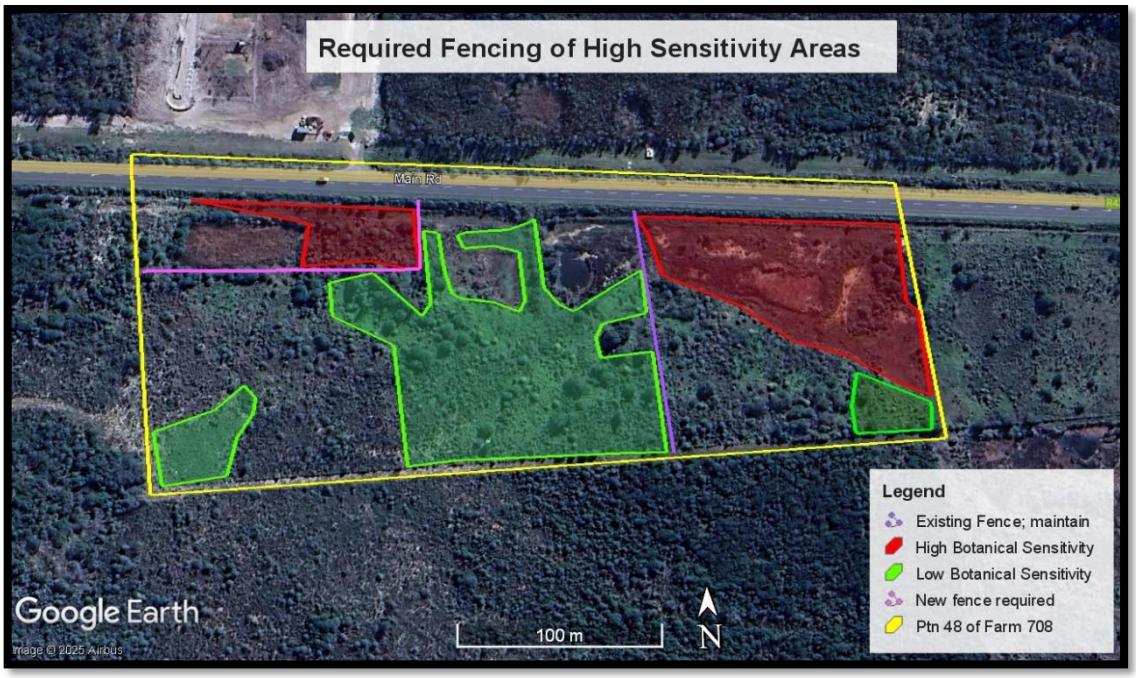

Figure 6: Map showing the required fencing around the High sensitivity areas on site. The eastern fence is already in place, and the western one still needs to be put in.

8. CONCLUSIONS

- The vegetation on the site, and presumably in the cleared area, is a mix of Overberg Dune Strandveld (Endangered) and Agulhas Limestone Fynbos (Critically Endangered; Government of South Africa 2022).
- The 1.2ha cleared area was of Low, Medium and High botanical conservation value, and may have supported as many as three plant SoCC. All three are still found elsewhere on the property, and are restricted to the remaining High sensitivity areas.
- All mitigation noted in Section 7 is considered feasible, reasonable and essential, and must be timeously and properly implemented, in which case the post mitigation impact of the unauthorised clearing could be reduced to Low negative, from Low to Medium negative prior to mitigation.
- No additional biodiversity offset or fine is deemed necessary if the mitigation outlined in Section 7 is properly and timeously implemented.

9. REFERENCES

CapeNature. 2023. Western Cape Biodiversity Spatial Plan. CapeNature, Cape Town, South Africa.

Dept. of Forestry, Fisheries & Environment. 2022. National Biodiversity Offset Guideline. Government Gazette 25 March 2022. No. 46088.

Government of South Africa. 2022. South African Red List of Terrestrial Ecosystems: assessment details and ecosystem descriptions. Government Notice 2747, Gazette 4526. Technical Report #7664, SANBI Pretoria, South Africa.

Helme, N., P. Holmes & A. Rebelo. 2016. Strandveld Ecosystems. In: Cadman, A (ed.). *Ecosystem Guidelines for Environmental Assessment in the Western Cape, Ed*.2. Fynbos Forum, Fish Hoek, South Africa.

Manning, J. and P. Goldblatt. 2012. Plants of the Greater Cape Floristic Region 1: The Core Cape flora. *Strelitzia 29*. South African National Biodiversity Institute, Pretoria.

Martens, C., Deacon, G., Ferreira, D., Auret, W., Dorse, C., Stuart, H., Impson, F., Barnes, G. and C. Molteno. 2021. *A practical guide to managing invasive alien plants: A concise handbook for land users in the Cape Floral Region.* WWF South Africa, Cape Town, South Africa.

Mucina, L. and M. Rutherford. *Eds.* 2024 online update, on bgis.sanbi.org. Vegetation map of South Africa, Lesotho, and Swaziland. *Strelitzia 19*. South African National Biodiversity Institute, Pretoria.

Raimondo, D., Von Staden, L., Foden, W., Victor, J.E., Helme, N.A., Turner, R.C., Kamundi, D.A., and Manyama, P.A. (eds.) 2009 and online updates on redlist.sanbi.org. Red List of South African Plants 2009. *Strelitzia 25*. South African National Biodiversity Institute, Pretoria.

Rouget, M., Reyers, B., Jonas, Z., Desmet, P., Driver, A., Maze, K., Egoh, B. & Cowling, R.M. 2004. *South African National Spatial Biodiversity Assessment 2004: Technical Report. Volume 1: Terrestrial Component.* Pretoria: South African National Biodiversity Institute.