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**BOTANICAL IMPACT ASSESSMENT OF FARMER'S
ALTERNATIVE ROUTING OF R300 CAPE TOWN RING ROAD**

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1. INTRODUCTION

In August 2003 the consultants for the Cape Town Ring Road Project EIA (initiated in March 2002) were asked to assess a new alternative route alignment of a portion of the proposed road. This alignment is known as the "Farmer's Alternative" (henceforth known as the "new alignment"), and extends from the farm Vrymansfontein west to the N7 Interchange, a distance of about 11km. The new alignment lies slightly further north than the original layout, and was proposed by landowners in the area who objected to the original layout. Also required during this assessment was to assess two small alternative routes for the new alignment (known as B1 and B2, which are combined for a short distance).

2. TERMS OF REFERENCE

- Assess the significance of impacts and conservation importance of the natural vegetation along the the Farmer's Alternative routing (new route) using the latest guidelines available in terms of the C.A.P.E. project.
- Make recommendations in terms of mitigation of impacts.
- Comment on guidelines for rehabilitation, landscaping, etc.

3. BASELINE ENVIRONMENT

This description uses the mileage (chainage) distances as marked on the map provided, commencing at 0.0km south of the farm Vrymansfontein, and ending at 11.3km at the N7 Interchange.

Over the majority of the route the original natural vegetation would have been Swartland Renosterveld on the predominant shale-derived loams, with elements of Blackheath Sandplain Fynbos coming in on the sands in the vicinity of the N7. However, due to intense agricultural pressure there is now minimal natural vegetation remaining in the area, and the route itself crosses no significant undisturbed patches of natural vegetation.

3.1 New alignment

Right at the start (0.0 - 0.1km) is a wetland area around and upstream of a farm dam on the farm Vrymansfontein. This wetland lies directly in the path of the proposed road. The vegetation in this area is rather disturbed and is dominated by the invasive kikuyu grass (*Pennisetum clandestinum*), and the resilient indigenous

shrub *Conyza scabrida* and the bulb *Zantedeschia aethiopica* (arum lily). Species diversity is poor, and rare species are very unlikely. The botanical conservation value of this area is Low – Moderate, but it does support numerous frogs and birds and therefore has an undoubted ecological refuge value in this highly transformed landscape.

North of Vrymansfontein the new layout crosses a totally eutrophic stream that has been swamped by kikuyu grass. The alignment then passes about 20m to the north of a fairly small and heavily grazed remnant patch of Renosterveld on a steep south facing slope, west of Sondagsfontein. From here the road crosses extensive wheatfields.

At about 6.0km the road cross the Diep River, which is of ecological interest only, due to high levels of disturbance and eutrophication having largely destroyed any Renosterveld vegetation. The river valley has also been invaded by Port Jackson willow (*Acacia saligna*) and kikuyu grass. No rare species are likely to occur here.

At 7.9km and again at 8.2km the road crosses smaller seasonal streams whose banks have also been heavily disturbed by grazing, fertiliser runoff from the surrounding fields, and alien plant invasion. Alien invasive grasses (*Lolium*, *Briza*, *Avena*) are very common, and *Phragmites australis* reeds take up much of the streamcourse. Port Jackson willow (*Acacia saligna*) is also common on the river banks, and no rare species are likely. The trees and particularly the reeds are favoured places for birds to roost and thus have an ecological value, but there is no significant natural vegetation in terms of regional conservation value.

At about 10.3km the road enters a dense gum (*Eucalyptus*) plantation that also has dense stands of alien *Acacia saligna* on its edges. Very few indigenous plants persist in this area. West of Van Schoorsdrift Road the gum plantation continues, only to be replaced at about 11.0km by a very dense stand of *Acacia saligna* (90% cover) in what may once have been disturbed ground. Remnant Renosterveld vegetation is found in this area, with elements of Sandplain Fynbos, with species such as *Calopsis viminea*, *Berkheya armata*, *Babiana* sp., and *Ischyrolepis capensis* noted. There is a Moderate – High likelihood of rare species occurring in this area (eg. *Erica ferrea*, *Leucadendron thymifolium*), but the area is already highly disturbed, fragmented,

poorly managed, and unlikely to have much of a conservation future. Although Swartland Renosterveld has a 100% Irreplaceability rating in terms of the C.A.P.E. project targets, this area does not present much of an opportunity for effective longterm conservation due to the abovementioned factors.

3.2 Alternative alignment B1

This alternative branches off from the original alignment at chainage 41000 and then passes through vineyards for about 600m before joining up with Alternative B2. No natural vegetation is crossed by this alignment.

3.3 Alternative alignment B2

This alternative branches off the original alignment at about chainage 39500 and then crosses wheatfields, vineyards, and a small farm dam, before joining up with Alternative B1. No natural vegetation is crossed by this alignment, but the small dam (just west of Spes Bona Road) supports various frogs and may thus have some ecological value in this highly transformed landscape.

3.4 Combined Portion of B1 and B2

The two alternative strips join up just north of the road to Lochlynne farm and then cross wheatlands before joining up with the new alignment west of Sondagsfontein. No significant natural vegetation is impacted by this alignment.

3.5 Area between Alignments B1 and B2

The area between these two alternative strips is totally transformed farmland with no natural vegetation.

4. ISSUES IDENTIFIED

The new alignment will not impact on any regionally important areas of natural vegetation. The bulk of the alignment passes through heavily transformed farmland (mainly wheatlands) of no conservation value. The few issues identified are:

- The partly natural wetland that lies directly in the path of both the old and new alignment 0.4km southeast of Vrymansfontein has some ecological value, but low botanical value.

- A small patch of Renosterveld on a steep south facing slope between 2.0km and 3.0km on the new alignment would not appear to be within the likely area of impact, but should nevertheless be noted and avoided.
- The crossing of the Diep River and two other seasonal streams is likely to have minimal botanical impact due to the lack of significant indigenous vegetation in these areas.
- There is a moderate chance of rare species occurring just east of the N7 and west of Van Schoorsdrift Road (near the N7 Interchange), and once the detailed alignment has been pegged out on the ground a Search and Rescue program should be conducted for any such species.
- A small farm dam of some ecological value is likely to be impacted by Alternative B2, but there is no natural vegetation in this area.

5. PROPOSED MITIGATION

5.1 Design Phase

- The partly natural wetland that lies directly in the path of both the old and new alignment 0.4km southeast of Vrymansfontein should be avoided if possible.
- A small patch of Renosterveld on a steep south facing slope between 2.0km and 3.0km (west of Sondagsfontein) on the new alignment would not appear to be within the likely area of impact, but should nevertheless be noted and avoided.
- The crossing of the Diep River and two other seasonal streams should be designed to minimise the extent of impact on the streambank and channel.
- A small farm dam just west of Spes Bona Road should be avoided by Alternative B2.

5.2 Construction Phase

- An ECO should be appointed to oversee all construction, and should be present from the moment that machinery moves into the area.
- Where important areas lie just downslope of the proposed route care should be taken to avoid slippage or disturbed material (sediment, soil, rocks, etc.) down into the sensitive areas. These indirect impacts can be significant and very damaging.

- A Search and Rescue program should be conducted for any significant species (especially any rare species) in the area just east of the N7 and west of Van Schoorsdrift Road (near the N7 Interchange), but only once the detailed alignment has been pegged out on the ground. This should involve a horticulturist and a suitably qualified botanist to point out the important plants.
- If the small wetlands and dams mentioned in the design phase mitigation cannot be avoided they should be recreated by the contractors close to the road in a suitable place that will receive adequate drainage. The new sites should be excavated and then the plant material in the wetlands and dams should be loaded up and transported to the replacement sites at the start of the rainy season.

5.3 Operational Phase

- Alien clearing is recommended during this phase. The proponents should fund an experienced alien clearing crew to clear, on an annual basis, all invasive alien plants from the N7 Interchange/ Van Schoorsdrift Road areas, and to remove all shrubby and woody alien invasives from all drainage lines crossed, and from the entire road reserve.
- Planting of large numbers of suitable (ie. Swartland Renosterveld) locally indigenous species along the route would greatly enhance the area. Recommended species include *Olea europaea* ssp. *africana* (wild olive), *Otholobium hirtum* (grys keurtjie), *Leonotis leonurus* (wildedaga), *Eriocephalus africanus* (wilderroosmaryn), *Phyllica plumosa* (veerkoppie), *Melianthus* spp. (kruidjie roer my nie), *Lampranthus amoenus* (pienkbosvygie), *Sutherlandia frutescens* (now *Lessertia frutescens*; kankerbos), *Athanasia capitata* (in wetter areas), and *Lobostemon fruticosus* (luibos). In the N7 Interchange area species more typical of the Sandplain Fynbos / Renosterveld ecotone could be planted (details to be discussed with appointed horticulturist; plants dependant on availability).

6. IMPACT ASSESSMENT

The proposed Farmer's Alternative is unlikely to have any significant direct negative impacts on natural vegetation, except perhaps in the area just east of the N7 (see Impact Table 1). Impact Table 2 is a combined impact table for the three partly

natural drainage lines that are crossed (Diep River plus two others) by the alignment, these being the only other notable areas of even vaguely natural vegetation along the route.

Impact Table 1: Destruction of remnant natural vegetation between Van Schoorsdrift Rd. and N7

Mitigation: Search and Rescue of selected species; planting of selected indigenous species after construction; removal of alien invasives

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without mitigation	Local	Permanent	Moderate -ve	Negative	Medium -ve	Moderate	High
With mitigation	Local	Permanent	Low +ve	Positive	Low +ve	Moderate	Moderate

Impact Table 2: Destruction of limited remnant natural vegetation along 3 disturbed drainage lines

Mitigation: Planting of selected indigenous species after construction; removal of alien invasives

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without mitigation	Local	Permanent	Low -ve	Negative	Low -ve	Moderate	Moderate
With mitigation	Local	Permanent	Low +ve	Positive	Low +ve	Moderate	Moderate

As can be seen from the tables if all the proposed mitigation is successfully carried out (all phases) it is possible that the slightly negative overall impacts of the route can be turned into slightly positive impacts. This is based largely on the concept of restoration of an already highly degraded area.