



Ecological Opinion to Inform the Environmental Authorization process for the Groblerhoop Landfill Site, Northern Cape

October 2015

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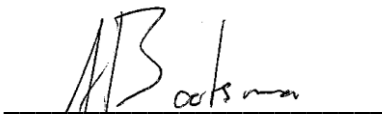
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I, **Antoinette Bootsma**, in my capacity as a specialist consultant, hereby declare that I -

- Act as an independent consultant;
- Do not have any financial interest in the undertaking of the activity, other than remuneration for the work performed in terms of the National Environmental Management Act, 1998 (Act 107 of 1998);
- Undertake to disclose, to the competent authority, any material information that has or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the National Environmental Management Act, 1998 (Act 107 of 1998);
- As a registered member of the South African Council for Natural Scientific Professions, will undertake my profession in accordance with the Code of Conduct of the Council, as well as any other societies to which I am a member; and
- Based on information provided to me by the project proponent, and in addition to information obtained during the course of this study, have presented the results and conclusion within the associated document to the best of my professional judgement.


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Date



Indemnity

This report is based on survey and assessment techniques which are limited by time and budgetary constraints relevant to the type and level of investigation undertaken. The findings, results, observations, conclusions and recommendations given in this report are based on the author's best scientific and professional knowledge as well as information available at the time of study. Therefore the author reserves the right to modify aspects of the report, including the recommendations, if and when new information may become available from ongoing research or further work in this field, or pertaining to this investigation.

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EXECUTIVE SUMMARY

Limosella Consulting was appointed by GA Environment to undertake a desktop based ecological opinion to inform the Environmental Authorization process for the landfill site at Groblershoop, Northern Cape.

The terms of reference for the study were as follows:

- Highlight sensitive environmental components including watercourses, conservation-worthy vegetation and fauna habitat.
- Discuss potential impacts, mitigation and management procedures relevant to the protection of the conservation-worthy aspects of the site, and also downstream areas.

The Groblershoop landfill site is impacted by existing activities and edge effects from the town and associated impacts to the north of the site. A large expanse of untransformed vegetation and fauna habitat lies to the west, east and south of the site. The site is not considered to be regionally sensitive in terms of hydrology, fauna or flora.

Continuation of the landfill activities on the site is not likely to negatively affect local ecological function. It is however important that best practice be applied in containment of the waste material to ensure that pollution and littering does not occur. It is further important that annual monitoring for establishment of alien invasive plant species should be done.

The site falls within Zone 2 as identified in the Siyanda District Municipality's Environmental Management Framework which refers to a potential wind erosion area. Activities in this zone should not create conditions favourable to wind erosion.



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1 INTRODUCTION

Limosella Consulting was appointed by GA Environment to undertake a desktop based ecological opinion to inform the Environmental Authorization process for the landfill site at Groblershoop, Northern Cape.

1.1 Terms of Reference

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- Highlight sensitive environmental components including watercourses, conservation-worthy vegetation and fauna habitat.
- Discuss potential impacts, mitigation and management procedures relevant to the protection of the conservation-worthy aspects of the site, and also downstream areas.

1.2 Assumptions and Limitations

The ecological opinion assessment presented in this report is based on available aerial imagery. No site visit was undertaken by the authors. A detailed description of species assemblages is therefore not provided in this report.

1.3 Definitions and Legal Framework

This assignment is conducted in accordance with the 2010 Environmental Impact Assessment (EIA) Regulations (No. R. 982, DEAT, Department of Environmental Affairs and Tourism, 4 December 2014) and their latest guidelines (Notice 891 of 2014) that emanate from Chapter 5 of NEMA, the National Environmental Management Act, 1998 (Act No. 107 of 1998).

It is widely recognised that the natural resources on Earth are essential in providing the ecological processes and life support systems that maintain healthy and viable populations of plants and animals, including humans. Therefore, for any sustainable development to take place, all possible impacts of such development on the environment must be considered before it can be approved by the relevant authorities. This has led to various and increasing legislation that protects the natural environment in South Africa. In 1992, the Convention of Biological Diversity (CBD), a landmark international convention, was signed by >90 % of members of the United Nations. In South Africa, the Environmental Conservation Act (ECA, Act 73 of 1989), the National Environmental Management Act (NEMA, Act 107 of 1998) and the National Environmental Management Biodiversity Act (NEMBA, Act 10 Of 2004) ensure the protection of ecological processes, natural systems and natural beauty, as well as the preservation of biotic diversity within the natural environment. They also ensure the protection of the environment against disturbance, deterioration, defacement or destruction as a result of man-made structures, installations, processes, products or activities. In support of these Acts, a draft list of Threatened Ecosystems was published (Government Gazette 2009), as part of the NEMBA (Act 10 of 2004). Details of these Threatened Ecosystems have been described by SANBI & DEAT (2009) and a list of Threatened or Protected Species (ToPS) regulations is also available (NEMBA Notice 388 of 2013). International and national Red Data lists have also been produced for various threatened plant and animal taxa.



The National Water Act, 1998 (Act No. 36 of 1998) [NWA] provides for Constitutional water demands including pollution prevention, ecological and resource conservation and sustainable utilisation. In terms of this Act, all water resources are the property of the State and are regulated by the Department of Water and Sanitation (DWS). The NWA sets out a range of water use related principles that are to be applied by DWS when taking decisions that significantly affect a water resource. The NWA defines a water resource as including a watercourse, surface water, estuary or aquifer. A watercourse includes a river or spring; a natural channel in which water flows regularly or intermittently; a wetland, lake, pan or dam, into which or from which water flows; any collection of water that the Minister may declare to be a watercourse; and were relevant its beds and banks.

Authorisations related to wetlands are regulated by Government Notices R.1198 and R.1199 of 18 December 2009. GN 1198 and 1199 of 2009 grants General Authorisation (GA) for the above water uses on certain conditions:

GN R.1198: Any activity in a wetland for the rehabilitation of a wetland for conservation purposes.

GN R.1199: Any activity more than 500 m from the boundary of a wetland.

These regulations also stipulate that these water uses must be registered with the responsible authority. Any activity that is not related to the rehabilitation of a wetland and which takes place within 500 m of a wetland are excluded from a GA under either of these regulations. Wetlands situated within 500 m of proposed activities should be regarded as sensitive features potentially affected by the proposed development (GN 1199). Such an activity requires a Water Use Licence (WUL) from the relevant authority.

In addition to the above, the proponent must also comply with the provisions of the following relevant national legislation, conventions and regulations applicable to wetlands and riparian zones:

- Convention on Wetlands of International Importance - the Ramsar Convention and the South African Wetlands Conservation Programme (SAWCP).
- National Environmental Management Act, 1998 (Act No. 107 of 1998) [NEMA].
- National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004).
- National Environment Management Protected Areas Act, 2003 (Act No. 57 of 2003).
- Regulations GN R.982, R.983, R. 984 and R.985 of 2014, promulgated under NEMA.
- Conservation of Agriculture Resources Act, 1983 (Act 43 of 1983).
- Regulations and Guidelines on Water Use under the NWA.
- South African Water Quality Guidelines under the NWA.
- Mineral and Petroleum Resources Development Act, 2002 (Act No. 287 of 2002).

1.4 Locality of the study site

The landfill site lies approximately 400m to the south of an extension of the town of Groblershoop, Northern Cape. The N10 Road lies approximately 63m to the west of the site. The Orange River lies approximately 2.4km to the north of the site. Approximate central coordinates for the site are 28°55'2.34"S and 22° 0'10.42"E. Figure 1 presents the locality of the study site.



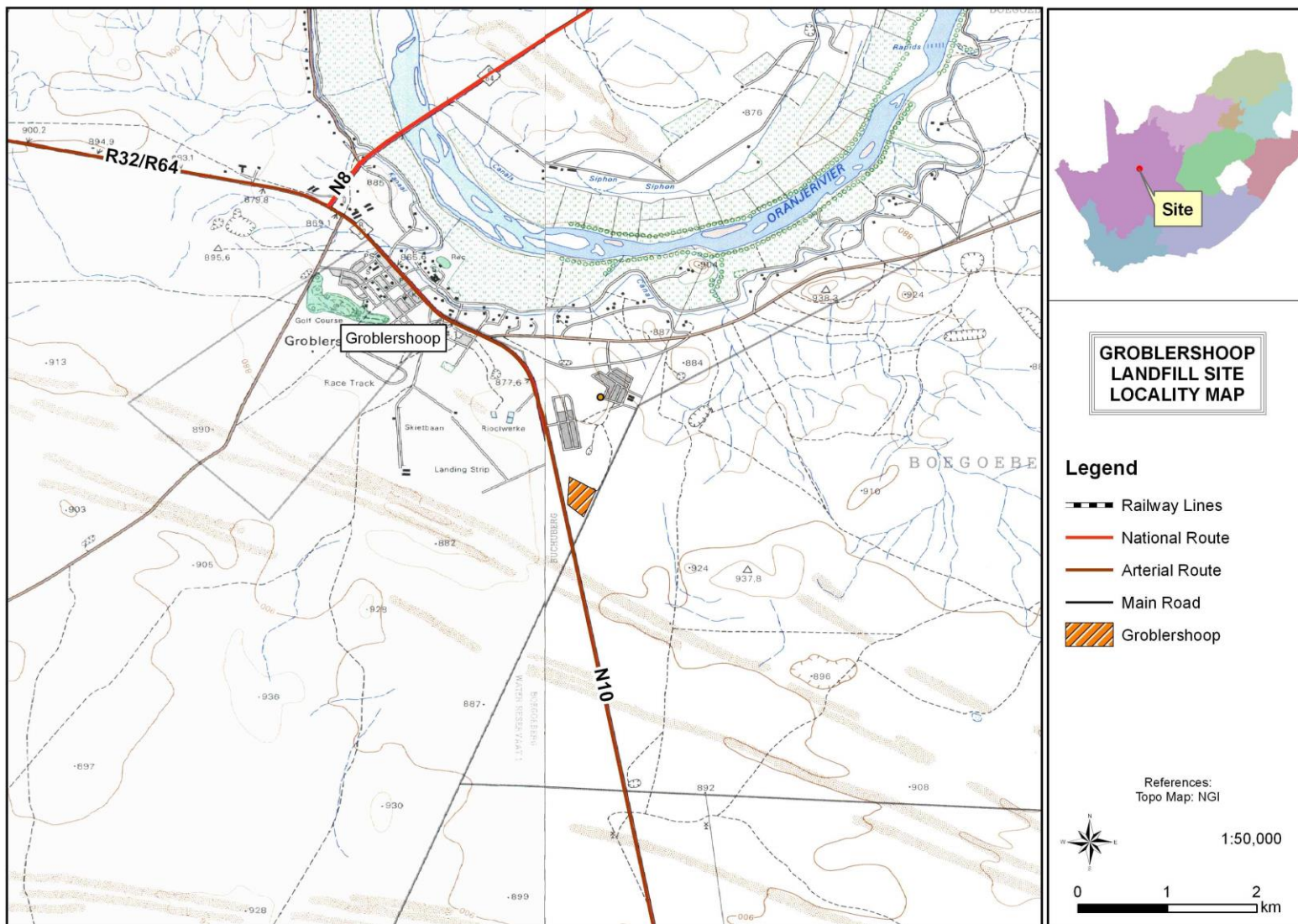


Figure 1: Locality Map



2 RESULTS

2.1 Land Use, Cover and Ecological State

Landfill activities are clearly visible on aerial imagery from 2010. To the south and east of the site, untransformed vegetation extends for many kilometres. To the west of the site the natural environment is disturbed only by the N10 Road and a landing strip. To the north, the town of Groblershoop with its associated residential infrastructure, roads and pathways exists. To the north of the town agricultural practices on the banks of the Orange River have transformed riparian and floodplain habitat. The site is quite flat, very slightly sloping towards the north. An average slope of 0.8% was evident from the Google Earth Show Elevation Model function. Figure 2 shows the general characteristics of the study site.



Figure 2: General characteristics of the study site

The site falls within Zone 2 as identified in the Siyanda District Municipality's Environmental Management Framework (2008) which refers to a potential wind erosion area. Due to the sandy nature and the grain size of the sand that occur in the area, the area is prone to severe wind erosion if the groundcover that acts as a protective layer is disturbed over large areas or in exposed places. The following management parameters are suggested for the zone:

- Land uses and activities that are compatible with the zone and may be allowed without further assessment:
 - Nature conservation;
 - Stock farming that does not exceed the carrying capacity of the veld, provided that the veld has not been overgrazed already; and
 - Game farming that does not exceed the carrying capacity of the veld provided that the veld has not been overgrazed already.
- Land uses and activities that may be compatible (depending on the specific nature of land use or activity) and that may be considered in the zone after an appropriate level of impact assessment (as required by law) has been conducted:
 - Agriculture of any kind;
 - Establishment of towns or settlements (including components thereof) and related infrastructure;
 - Opencast mining and quarrying; and



- Roads, railways, pipelines and cables.
- Land uses and activities that are not appropriate for this zone:
 - Stock farming on land that has already been overgrazed; and
 - Game farming on land that has already been overgrazed;
 - Off-road vehicle driving except where it is done under the supervision of a recognized suitably qualified person.
- General parameters for the zone:
 - The creation of unnecessary bare earth areas should be avoided at all cost;
 - New roads and tracks should be kept to the minimum necessary;
 - Exposed bare areas should be paved or be rehabilitated with vegetation cover whenever feasible; and
 - Over stocking with domestic animals or game must be prevented at all cost.

2.1.1 Hydrology

No watercourses (including drainage lines, wetlands or rivers) are evident in proximity to the site. The closest hydrological feature is the Orange River which lies approximately 2.4 km to the north of the site. Buffers are created between the site and this river by the town, Buffer Street and the cultivated fields along the river. Soils are predominantly deep, freely drained soils (Mucina and Rutherford, 2006).

2.1.2 Fauna

Desktop assessment of vertebrate fauna at a site rests mainly on point data or mapping, usually at a quarter-degree grid-cell scale, especially for birds (www.sabap2.adu.org.za), and also judgement of habitats based on photo and satellite images. Landfill sites have the potential to attract and negatively affect fauna if any edible waste remains uncovered and available. Vertebrates of all sizes attracted to small animals as prey, or larger species to carcasses and other forms of offal/carrion/medical-veterinary waste are especially vulnerable, since such waste often contain dangerous medicines (e.g. diclofenac) or poisons (e.g. lead fragments or pesticides), that can incapacitate such Red-data vertebrate species as carnivores and primates, vultures and raptors, or herpetofauna. Workers on and visitors to sites should not enter surrounding habitats, be supplied with adequate ablution facilities, but be made aware of and avoid disturbing any threatened species that might visit the site.

2.1.3 Birds

The landfill site itself is not expected to attract any species classified as threatened (Taylor 2015) or otherwise of local conservation concern, including from the nearby Orange/Gariep River. Based on SABAP data, Kori Bustard (*Ardeotis kori*) and Karoo Korhaan (*Eupodotis vigorsii*; both Near Threatened), and Martial Eagle (*Polemaetus bellicosus*; Endangered) are expected in the area, especially given the proximity of the Boegoebergdam Nature Reserve. The bustard and korhaan are too shy to be attracted, but the eagle might forage on the site if small animals are attracted or carcasses are dumped.



2.1.4 Vegetation

The site falls within the vegetation type Bushmanland Arid Grassland *sensu* Mucina and Rutherford (2006). This vegetation type is characterised by sparsely vegetated plateaus dominated by *Stipagrostis* grass species. In places low shrubs of *Salsola* species change the vegetation structure. This vegetation unit is classified as 'Least Threatened' since very little of the area has been transformed, or is threatened by transformation (Mucina and Rutherford, 2006).

Plant species richness and density is likely to be affected by the edge effects from the town that lies to the north of the site as well as landfill activities that have occurred on the site for at least five years or longer. The impacted nature of the site, together with the expanse of untransformed vegetation to the west, east and south of the site lead to the suggestion that the study site is not regionally ecologically important. It is not likely to be a refuge to sensitive plant species.

3 IMPACTS AND MITIGATIONS

Continuation of the landfill activities on the site is not likely to negatively affect local ecological function. It is however important that best practice be applied in containment of the waste material to ensure that pollution and littering does not occur. It is further important that annual monitoring for establishment of alien invasive plant species should be done. The risk of wind erosion should be considered and monitored.

4 CONCLUSION

The Groblershoop landfill site is impacted by existing activities and edge effects from the town and associated impacts to the north of the site. A large expanse of untransformed vegetation and fauna habitat lies to the west, east and south of the site. The site is not considered to be regionally sensitive in terms of hydrology, fauna or flora. Monitoring for potential wind erosion should be monitored.



REFERENCES

Department of Water Affairs (2010). National Water Act, 1998 (Act No 36 of 1998) S21(c) & (i) Water Uses. Version: February 2010. Training Manual.

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