
**VISUAL IMPACT ASSESSMENT FOR ESKOM LANDFILL SITE-
SCREENING AND SITE SELECTION**

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LIST OF ABBREVIATIONS

EIA	Environmental Impact Assessment
GIS	Geographical Information System
VAC	Visual Absorption Capacity
VIA	Visual Impact Assessment
ZVI	Zone of Visual Influence

1 INTRODUCTION

I-scape in association with Green Contour Landscape Architects, were appointed by Envirolution Consulting (Pty) Ltd to complete a Visual Impact Assessment (VIA) for the proposed Eskom Landfill and Hazardous Waste Facility near Lephalale (Ellisras). Currently the process is in the scoping phase and five sites have been identified as possible locations for the landfill and hazardous waste facility.

The purpose of this report is to comment on the five sites and include recommendations as to which site should be taken further into the Environmental Impact Assessment (EIA) phase. The sites will be briefly assessed according to the following parameters:

- Visibility from sensitive viewpoints;
- Visual Absorption Capacity (VAC);
- Degree and extent of existing disturbances; and
- Ability to mitigate potential impacts.

1.1 LIMITATIONS AND ASSUMPTIONS

This section provides a clear understanding of the limitations and assumptions that negatively affects the accuracy of the assessment and influences the confidence of the visual specialist in its professional judgement.

- It is unknown at this stage what the height and footprint size of the landfill and hazardous waste facility will be. It has however been established that a volume of 1.2M m³ must be accommodated on the site;
- It is assumed that the facility will be a permanent man-made landform in the landscape and that there is no intention to remove the facility at the end of its operational life time, however it is noted that rehabilitation of the site in terms of the minimum requirements shall be undertaken when the site is decommissioned; and
- At this stage it is unclear as to the rehabilitation strategy of the final facility. It is assumed that landfill will be a regularly shaped mound and natural vegetation will be re-established on the landform.

2 SITE DESCRIPTIONS

All five sites are located in areas with slight topographic variation and dense vegetation covers. The low topographic relief and dense vegetation cover ensures that all the sites can accommodate a fair degree of surface disturbances without negatively affecting views. This statement is made under the assumption that the screening ability of the vegetation is retained to such a degree that sensitive viewpoints are not exposed to the impact and visibility of the operations is kept to a minimum.

None of these sites are close to densely populated residential areas and the only sensitive viewers are motorists making use of the local road system. Motorists are usually exposed to impacts for a brief period due to the speed they travel and their attention on the road. Considering the limited visibility of the landfill and waste facility from potential viewpoints, the determining factor for the preferred site will be impact on the character of the region and/or site.

The character of the region within which sites 1-4 are located is fairly monotonous. A continuous and uniform natural vegetation cover drapes the fairly level landscape with the exception of a grouping of small hills in the south-western corner of the farm Grootvallei 515 LQ. The farm appears to be in a visually pristine and natural condition with most of the indigenous vegetation still intact. The only obvious disturbances to the natural condition of the farm are the dirt roads and the power lines traversing the farm. Generally speaking, the character of the farm is predominantly natural and the man-made infrastructure can be considered as minor intrusions.

With the operation of the landfill and waste facility on any of sites 1-4 the following activities will negatively impact on the prevailing character of the region:

- Site clearance will remove the natural vegetation cover and may negatively influence the VAC of the sites. The removal of vegetation will reduce the tolerances of the sites to accommodate surface disturbances;
- Additional access roads will have to be constructed which will also cause a removal of the natural vegetation;
- During operation, an increase in traffic will occur in the area which will impact on the sense of place;
- At the close of the facility, a man-made landform will be a permanent impact. It can be assumed that the landform will be uncharacteristic in terms of its form, profile and cover compared to the natural landforms. The impact will therefore be on the natural character of the area; and
- Such a facility opens up the possibility for future expansion of the landfill. Although the probability is limited, one can not ignore the fact.

Site 5 is located within the site boundaries of the existing Matimba Power Station. Site 5 is located in the north-western corner of the Matimba site, adjacent the Stockpoort road. A section of the site was previously used as a waste dump which has since been rehabilitated. The remainder of the site portray the typical dense vegetation cover that is found else where. Site 5 is located among a number of man-made infrastructures such as roads, railway lines, power lines, conveyor belts and the Matimba Power Station. The region is subject to a visual clutter of overhead transmission lines and telecommunication services. The character of the region is dominated with service delivery infrastructure. Although large areas are still dominated by natural vegetation, it is highly fragmented and the natural character is fairly disturbed.

3 CONCLUSION AND RECOMMENDATIONS

Site 5 is the most preferred site for the establishment of the landfill and hazardous waste facility. It is argued that the operation of a landfill and waste facility on site 5 will have the least impact on the character of the region. The presence of an existing man-made landform (existing landfill) on the site, further mitigates the impact on the character of the site. The site is well screened from the road and motorists are expected to experience minimal exposure to the impact.

No design layout has been done for the landfill and thus we suggest to wait for a preliminary design layout before any mitigation measure recommendations be made.

The other four sites (Sites 1-4) will each cause similar impacts should the landfill and waste facility be operated there. Impacts on viewers will again be limited to motorists. The impacts on the sense of place and the character of the landscape are the distinguishing factors. With an increase in traffic on the roads, the sense of place will be impacted on. The pristine character of the landscape will be severely altered on a local scale and the operation of a landfill site will blemish the predominantly natural environment. Furthermore, the end landform will contrast with the natural landforms of the region. Its shape and volumetric proportions will be too regular opposed to the organic proportions of the hills in the area.

4 ADDENDUM

4.1 VIA OBJECTIVES

The objectives of this VIA will be to:

- Address the concerns that are raised during public participation events which relates to visual or sense of place aspects;
- Determine the impact on the visual resource, i.e. the impact on the aesthetic values placed on the landscape and the sense of place;
- Determine the impact on the observers in the study area due to change to the visual characteristics of the receiving environment;
- Recommend mitigation measures to alleviate or reduce the anticipated impacts; and
- Conclude with a comparative analysis between the five alternative site locations.

4.2 VIA METHODOLOGY

The above objectives will be met through the implementation of the following methodology:

- Delineate the study area through the use of GIS visibility mapping;
- Discuss the proposed project's visible elements and divide the project into logical phases and development components;
- Conduct a Visual Resource Assessment (VRA) in which the aesthetic value of the visual resource is assessed through the evaluation of quantitative and qualitative parameters;
- Identify the affected observers through the use of GIS visibility mapping in order to delineate the Zone of Visual Influence (ZVI);
- Identify key viewpoints from which to assess the potential visual impact during day and night time conditions;
- Determine the sensitivity of the visual resource and its susceptibility to impacts on its character and sense of place;
- Determine the sensitivity of the affected observers and their visual perception of the proposed project;
- Assess the significance of the impacts on the visual resource and observers as a result of the proposed project for each of the different phases and alternative sites;
- Recommend mitigation measures in order to alleviate the impacts on the visual resource and on the affected observers; and
- Conclude with a comparative analysis between the different site locations and conclude with a preferred option based on the visual impacts.

4.3 ANTICIPATED VISUAL IMPACTS

Impact on Sense of Place: Sites 1 – 4 is in a relatively pristine natural condition and has a tranquil and undisturbed sense of place. The operation of a landfill site and the associated increase in vehicular traffic will impact on the sense of place. Site 5 is located in an area that is more disturbed and the sense of place is already impacted on. The location of the landfill site on site 5 is anticipated to have a limited impact on the prevailing sense of place.

Impact on the character of the landscape: The character of the landscape on farm Grootvallei is largely determined by the natural elements such as the vegetation cover and the

topography. The establishment of a landfill site will firstly remove some of the vegetation cover on the site and for the access road and secondly alter the topography with the addition of a man-made landform. Both activities will impact on the landscape character on a local scale.

Site 5 has a different landscape character due to its proximity to the Matimba Power Station and the relatively high concentration of other infrastructure such as railway lines, roads, overhead power lines and conveyor belt systems. In addition, site 5 was previously used as a landfill site. The landscape character is therefore more tolerant to absorb a land use such as a landfill site due to the existing impacts. Site 5 has managed to retain most of its natural vegetation, but is visually fragmented from greater areas with a natural character. The impact on the landscape character is anticipated to be less than on sites 1 - 4. It is important to mention that the impact on the character of the landscape will be permanent even after closure of the site. The impact may be reduced after rehabilitation.

Impact on viewers: All the sites have a well established vegetation cover on them that will screen most surface disturbances from sensitive viewpoints. This argument is made under the assumption that a sufficient visual buffer will be retained between the site and sensitive viewpoints. As it is unknown what the height of the landfill will be, it is premature to identify all the visual receptors (viewers) that may be affected. The most obvious receptors will be motorists passing the sites. They may be exposed to the unsightly character of the landfill. This impact can be mitigated.

Please take note that the physical design layout of the landfill has not been determined and that these impacts are largely speculative. Once the footprint and height of the landfill is determined, the impacts can be assessed critically.