eco assessments
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Tholoana Sustainable Development and Environmental Consultants
PO Box 1549
HONEYDEW
2040

ATTENTION: **Ms Motshabi Molope**

Dear Sir/Madam

INITIAL ECOLOGICAL ASSESSMENT: PROPOSED RESIDENTIAL ESTATE - MUNSIEVILLE, MOGALE CITY (KRUGERSDORP)

Eco Assessments was approached by Tholoana Consulting to ascertain the ecological features & sensitivities of a site located north of the Munsieville township in Mogale City, Western Gauteng, to assess the ecological status and sensitivity of the site.

The project entails the establishment of a residential estate on an area that extends approximately 28 hectares.

LOCATION

Munsieville is located northwest of the city of Krugersdorp. The site is located south of the Protea Ridge complex north of Krugersdorp. The townships Dan Pienaarville and Rant en Dal lies east of the site, a cemetary to the east, and other suburbs of Munsieville to the west and south of the site(Figure 1).

The R563 (Van Riebeeck Road) lies on the eastern border of the site and links Mogale City with The Cradle of Humankind World Heritage Site, as well as towns like Hekpoort and Magaliesburg.

LIMITATIONS

This information is based on a screening level assessment to highlight red flags, and therefore the detailed ecological function of the site and all species possibly occurring is not captured in this report.

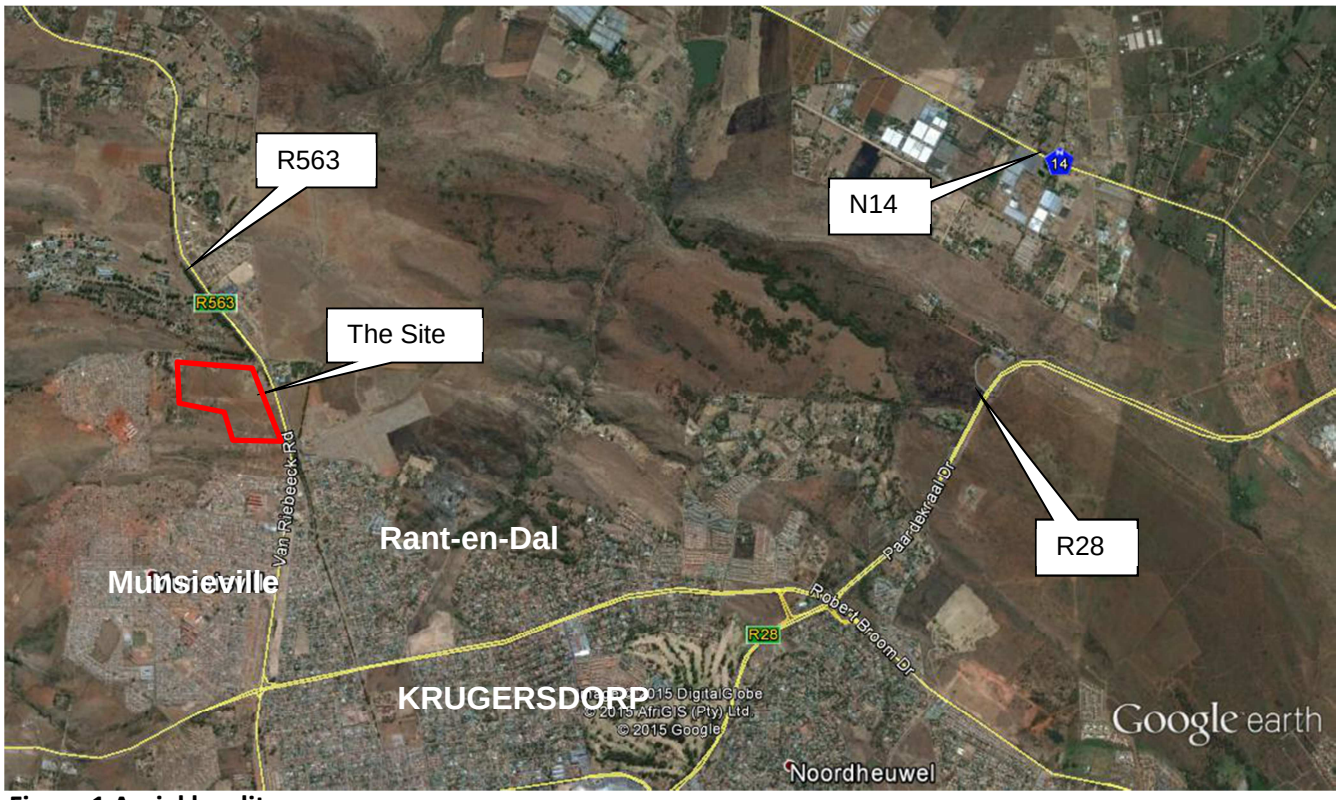


Figure 1 Aerial locality map

NATURAL FEATURES AND LAND USE

The site comprises a rural piece of land with associated grasslands and fields.

The vegetation units observed, included (Figure 2):

Natural grassland (A)

A large part of the site was covered by natural grassland. The largest part of the grassland area was disturbed by historic factors meaning that several indigenous species are still present but that some species may have increased or some species such as forbs have decreased due to the disturbing factor. In this case, the grazing of the site over long periods, may have disturbed the natural grassland structure.

Other parts of the natural grassland was dominated by the grass species *Digitaria eriantha* and *Andropogon shirensis*, and *Eragrostis chloromelas*. These species have good grazing potential. Other grasses observed included *Melinis repens* and *Schizachyrium sanguineum* as well as forbs such as *Babiana hypogea, Dichapetalum cymosum* and *Cleome maculata.* Most of the natural grassland was found to support a moderate to low species richness.

Altered grassland (B)

In these areas the vegetation has significantly been altered by homesteads and gardens that has since been demolished. Disturbances also relate to significant rubble and waste dumping in these areas. At one of the demolished house sites, a variety of exotic species has established including *Arundo donax* (Spanish reed), *Pennisetum clandestinum* (kikuyu), *Bidens formosa* (Cosmos) and *Cereus peruvianus* (Queen of the night).

Rocky outcrops (C)

A natural feature occurring on site worth mentioning is a line of rocky outcrops located along Helena Street . Species on these outcrops resembled the original natural vegetation typical of quartzite ridges and included the trees *Englerophytum magalismontanum* (Stamvrug), *Diospyros lycioides* (Blue bush), *Searsia pyroides* (Taaibos) and the uncommon *Rothmannia capensis* (Wild Gardenia). Forbs and grasses included *Wahlenbergia caledonica, Senecio venosus, Brachiaria serrata* and *Aristida transvaalensis*.

Rocky outcrops (low hill) (D)

A low lying hill (D) is located on the southern edges of the site. The vegetation along the eastern side of the hill has been altered, while the vegetation on the western part is mostly undisturbed and representative of Gauteng ridge vegetation including species such as *Englerophytum magalismontanum* (Stamvrug), *Diospyros lycioides* (Blue bush) and *Canthium gilfillanii.*

Undisturbed grassland (E)

A small patch of undisturbed grassland was observed along the low rocky hill. A wide variety of grass and forbs species such as *Schizachyrium sanguineum, Eragrostis racemosa, Bulbine* sp. and the shrub *Lopholaena coriifolia* were observed. This section of grassland has not been affected by the historic farming and other activities of the site. The area is approximately 0.5 ha in extent.

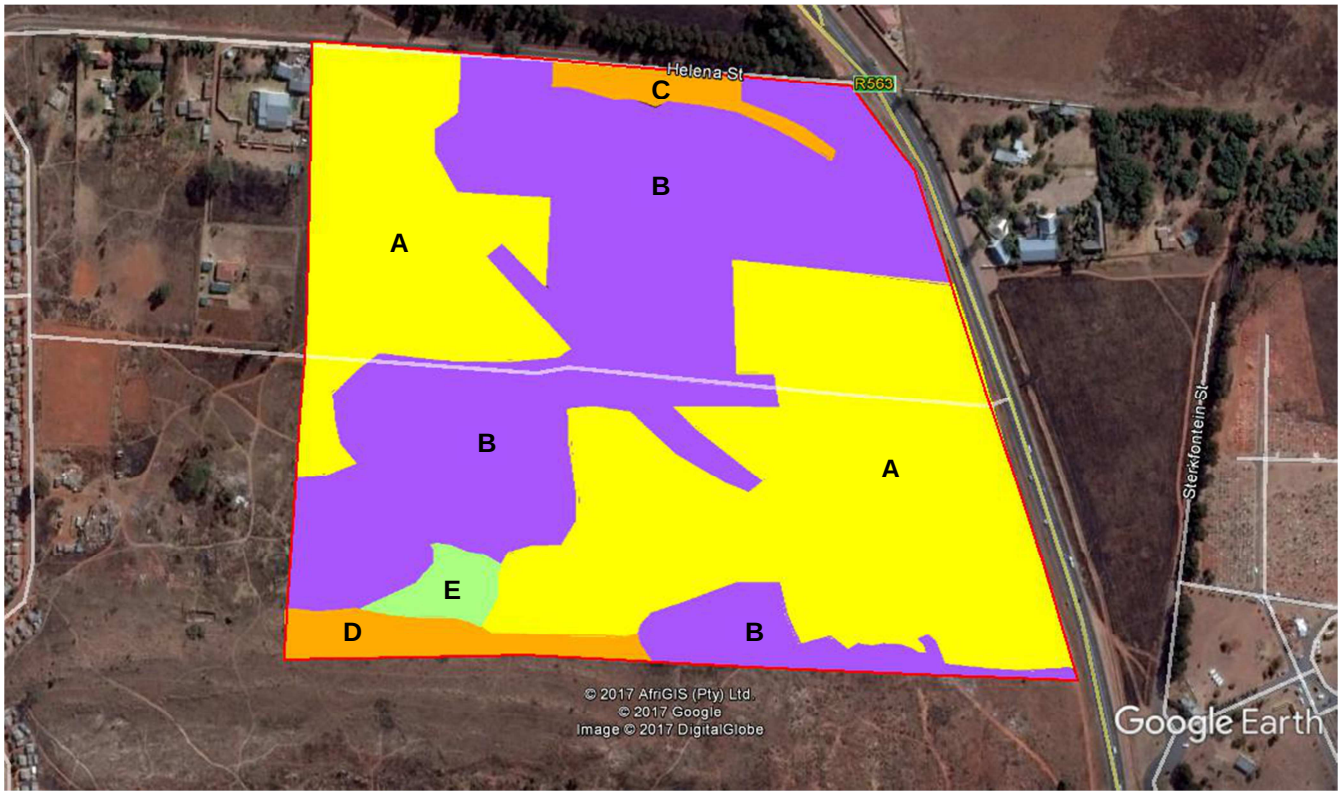


Figure 2 Vegetation units

VEGETATION TYPES

The site is located on the border of two main vegetation types namely the Gold Reef Mountain Bushveld (SVcb9) – which resembles the ridge vegetation to the east, and the Soweto Highveld Grassland (Gm8). The status of the Gold Reef Mountain Bushveld vegetation type is Least Threatened due to protection in the Magaliesberg Nature Area. The Soweto Highveld Grassland vegetation type (flatter parts of the site) is Endangered as only small patches are statutorily conserved.

FAUNA AND FLORA

Several databases were assessed as part of a desktop assessment in order to assess if any sensitive ecological features could be affected by the proposed development.

Flora

No scarce flora has been recorded on the site or within the vicinity of the site according to GDARD (Gauteng Department of Agriculture and Rural Development) records. GDARD however indicates that one sensitive species

has been recorded within a 5 km radius of the site and a further ten (10) species were recorded in the 1 in 50 000 grid of the site.

The site inspection indicated that there is a low likelihood of scarce species occurring on most of the site. The southern rocky hill (E) and undisturbed grassland (D) may however harbour sensitive species as these habitats are undisturbed.

Fauna

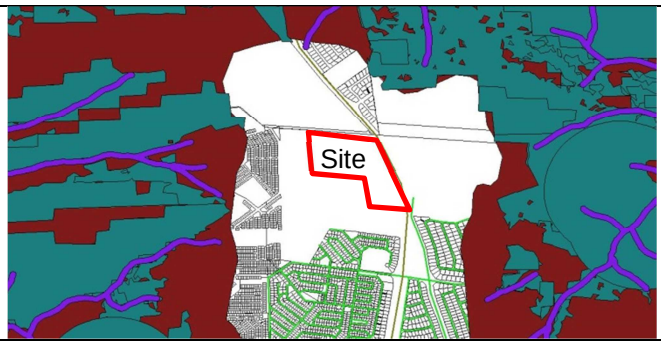
The site is located adjacent to open rural areas and it can therefore be expected that larger wild animals may frequent the site occasionally. Pedestrian and vehicle movement observed during the site assessment may however limit such visits to the site, and it is subsequently not considered to be an optimal site for faunal activity.

No sensitive fauna (including large mammals, small mammals, birds or reptiles) is further likely to occur on site due to limited habitat diversity and place for shelter in the grassland areas. The low rocky hill provides a more diverse habitat and can be expected to harbour some reptile and small mammal species.

GAUTENG INFORMATION DATA SYSTEM (GIDS) VERSION 3 (2011)

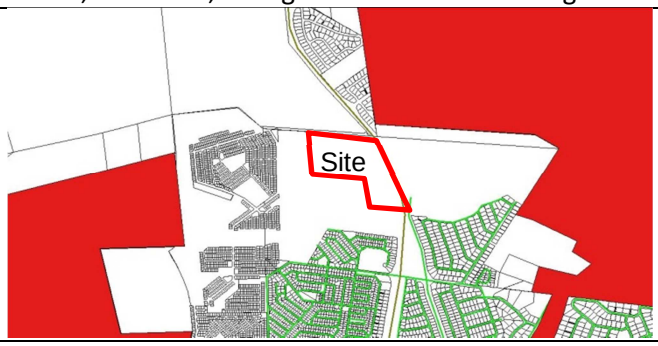
This database highlights the occurrence of sensitive features such as ridges, natural vegetation, rivers, caves, wetlands and other natural elements on the site (Figure 3).

C – Plan



Rivers, Wetlands, Orange Listed Plants and Ridges

World Heritage Site boundary (blue)



Protected areas (Red)

Figure 3 GIDS maps

From the above, it can be seen that the site is not affected by any sensitive feature listed in the GIDS. The site is however in close proximity to the Cradle of Humankind World Heritage Site (Figure 4).

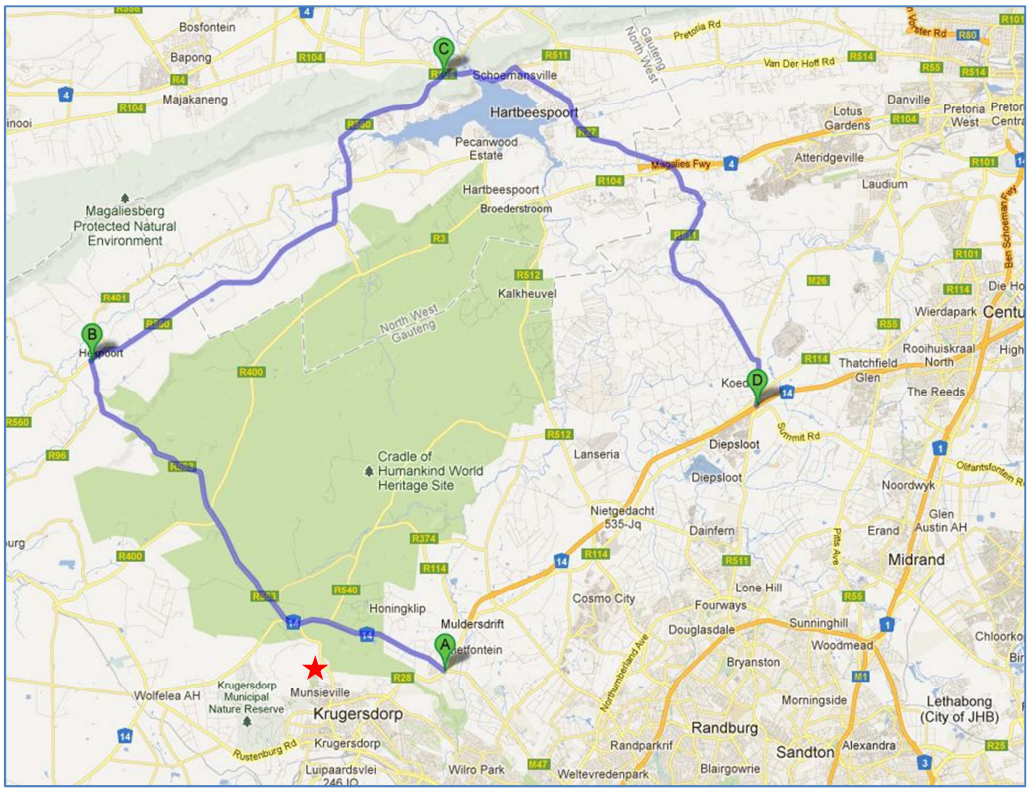


Figure 4 **The Site in relation to the Cradle of Humankind World Heritage Site**

SENSITIVITY TABLE

Sensitivity class	Presence on site Y/N	Sensitivity class High/Medium/Low
Primary grassland/vegetation	Y (0.5ha)	Medium
Red listed flora	Possible on undisturbed	Medium on undisturbed
Red listed fauna	N	Medium
Hill (Low rocky hill)	Y	High
Cave	N	Low
Wetland	N	Low
River/Stream	N	Low
River stream crossing –access road to site	N	Low
Ecological function (other)	Unknown	Unknown

In summary, the grassland vegetation on most of the site has a moderate to low status and ecological sensitivity. It is unlikely that Red listed flora will occur on these areas . No ridges, caves, wetland or streams occur on the site. However a low rocky hill is located along the southern border of the site. Adjacent to this ridge is a small piece of undisturbed grassland. Sensitive floral species my occur in these areas and they are therefore awarded a moderate to high sensitivity.

PHOTOS

Grassland (A)

Grassland (A)

Altered grassland (B): Dumping in sections of the site

Altered grassland(B): Demolition of a house in north eastern corner of site

Rocky outcrops along northern border of site (C)

Rocky outcrops along northern border of site (C)

Rocky hill in south (D)

Undisturbed grassland at foot of hill (E)

DISCUSSION AND CONCLUSION

The proposed development site was scanned for possible ecological sensitivities during March 2015 and July 2017.

Most of the flat grassland areas was found to support tracks of disturbed grassland with a Moderate to Low conservation value. The habitat consisted of natural species although the species composition indicates that the grassland may have previously been overgrazed and/or frequently burnt. In addition, large scale waste dumping all over the site, has altered significant patches of grassland. The species richness recorded on site was found to be moderate to low. Subsequently the probability of red data species occurring on most of the grassland areas are considered to be low.

The low ridge in the south and the rocky outcrops in the north, as well as a small section of undisturbed grassland, are considered the most sensitive features of the site. The location of the rocky hill features around the edges of the proposed development property, allows for the incorporation of these elements into open spaces. It is suggested that the low hill in the south be managed such that controlled access is possible to residents to limit trampling, litter etc. Alternatively the hill can be fenced off entirely. The conservation of the small section of grassland, is not considered feasible with a high density development proposal next door to it.

Common faunal species may occur on site. The site is however not considered optimal for any sensitive faunal species due to the high concentration of people living close by and subsequent pedestrian and vehicle traffic across and adjacent to the site. Dumping is a problem on site and this adds to making the site limiting for faunal species.

The site is located close to the south western corner of the World Heritage Site with culturally and ecologically important features. Where possible, the development on site can take note or incorporate the principles and goals of this important area.

RECOMMENDATIONS

- A scan for medicinal plants and sensitive plants should be done in the undisturbed grasslands areas below the low rocky hill as well as on the hill, before site development. Such scans should be done in November, December or January. If such plants are found, they should be removed to an alternative but suitable habitat in an appropriate manner;
- The rocky outcrops on the northern boundary of the site and the low rocky hill on the southern border should be incorporated into an open space system.

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Ecologist MSc