Figure 9: Geological Profile
FIGURE 10: GEOTECHNICAL SUITABILITY
FIGURE 11: AGRICULTURAL POTENTIAL
2.6.4. AGRICULTURAL POTENTIAL

The agricultural potential of Emfuleni varies from high to low potential (GDACE, 2002). As illustrated on Figure 11, most of the high-potential agricultural soils found within Emfuleni are located within the southwestern quadrant of Emfuleni, in the vicinity of Lochval Barrage and Vaal Oewer. GDARD has demarcated this region of Emfuleni as a provincial agricultural hub. This provincial initiative requires this hub to be protected from urban development and expansion. Because the Agricultural Hub is a Provincial initiative, it is considered a higher-order and therefore overriding land use initiative. Thus, all land use proposal made within this region of Emfuleni are subject to the requirements and guidelines of the Agricultural Hub Initiative.

The rest of Emfuleni, and in particular the Sonlandpark region, contains only scattered and sporadically located high-potential agricultural soil conditions. These pockets of high-potential agricultural soils are mixed with low and medium potential agricultural soil areas, thus not forming an identifiable agricultural region, as is found in the southwestern quadrant of Emfuleni. This reduces the legitimacy of protecting these high-potential agricultural areas for agricultural purposes, thus making these areas potentially suitable for urban development and expansion.

2.6.5. ENVIRONMENTAL SENSITIVITY

C-Plan2, which was compiled by GDACE (2005), provides an overview of ecologically sensitive sites within Gauteng and is used (in conjunction with site surveys) by GDACE to determine whether a site is suitable for urban development. It therefore provides an indication of the chances of having a township application approved within a specific area. C-Plan2 divides ecologically sensitive sites into two categories: ‘Irreplaceable Sites’, which contain fauna and flora that are not found elsewhere, and ‘Important Sites’, which are required for the healthy functioning of an eco-system.

An ‘Irreplaceable Site’ is defined as a site that is essential in meeting targets set for the conservation of biodiversity. Options for achieving these targets will be reduced should such a site not be protected. According to C-Plan2, which is depicted by Figure 12, there are a number of land parcels within Emfuleni that contain conservation-worthy habitats and have consequently been designated as ‘Irreplaceable Sites’. The most notable of these is the Sharpeville Dam. Although this dam has been polluted in the past by a neighbouring sewer works, it remains a significant ecological area within Emfuleni. In fact, a biodiversity study of the site is currently being conducted by WSP Environment and Energy South Africa. Preliminary finding have shown that the dam attracts a rich birdlife that is worth protecting. The future closure of the Leeuwkuil waste water treatment works abutting...
Sharpeville Dam, once the planned Sedibeng regional waste water treatment works is operational, should significantly contribute to the rehabilitation of the Sharpeville Dam in future. In addition to the aforementioned, the dam provides significant recreational opportunities within the heart of the Emfuleni urban complex. It also provides aesthetic gateway conditions on the R59 freeway; approaching Vanderbijlpark.

Apart from the ‘Irreplaceable Sites’ found within Emfuleni, a number of ‘Important Sites’ are also found within Emfuleni, as defined by C-Plan2. Two important sites in particular need mentioned. The first site is located to the east of Sebokeng and basically covers Falcon Ridge, which is found in these parts of Emfuleni. This ‘Important Site’ also contains a tributary of the Vaal River. The significance of this site is pronounced by the fact that it is located within the path of eastward expansion of Sebokeng. For example, Lethabong is a planned township that borders the western edge of this site. This eastward advance of Sebokeng, as well as the westward advance of Sonlandpark, will increasingly place pressure on this environmental site; requiring the protection of the environmental site for urban expansion.

The second ‘Important Site’ worth mentioning is the mountain range situated on the southwestern boundary of Emfuleni, next to the Vaal Oewer settlement. This environmental site provides a scenic quality to Emfuleni, which in turn benefits the tourism industry within Emfuleni. This site requires protection from settlement development and agricultural practices that will destroy the scenic qualities of this mountain range.

The ‘Irreplaceable Sites’ and the ‘Important Site’ of C-Plan2 need to be included in the proposed open space lattice of Emfuleni. These sites can be linked to the open space lattice by utilizing rivers and tributaries as corridors linking these environmental sites. For example, a tributary of the Vaal River runs along the foot of Falcon Ridge and this tributary can therefore be used to link this site to the large Emfuleni open space lattice. This will help maintain specie migration corridors within Emfuleni.

2.7. LAND USE

Taken geographically, Emfuleni is still largely rural in character. However, Emfuleni contains a significant urbanized component. This urbanized component houses more than 80% of Emfuleni’s population, making Emfuleni an urban area in this respect. In addition, Emfuleni is increasingly under pressure for further urban development and expansion, as is evident from the many township establishment applications that were submitted in recent years.