

**Agricultural site sensitivity verification  
for Environmental Authorisation process for  
Khauta Solar PV Cluster, Welkom**

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**1 Introduction**

The purpose of including an agricultural component in Environmental Authorisation is to ensure that South Africa balances the need for development against the need to ensure the conservation of the natural agricultural resources, including land, required for agricultural production and national food security. The aim of the agricultural protocol of NEMA is primarily to preserve the agricultural production potential of scarce arable land by ensuring that development does not exclude agricultural production from such land or impact it to the extent that the crop production potential is reduced.

Practically and legislatively the agricultural aspects come down to getting agricultural approval from the Department of Agriculture, Land Reform and Rural Development (DALRRD) through rezoning and SALA approval.

The site sensitivity verification has confirmed that the entire site has limitations that make the land non-viable for sustainable crop production and it is therefore within a category of land that should receive agricultural approval for solar development.

**2 Site sensitivity verification**

Agricultural sensitivity, as used in the national web-based environmental screening tool, is a direct function of the capability of the land for agricultural production. The general assessment of agricultural sensitivity that is employed in the national web-based environmental screening tool, identifies all arable land that can support viable crop production, as high (or very high) sensitivity.

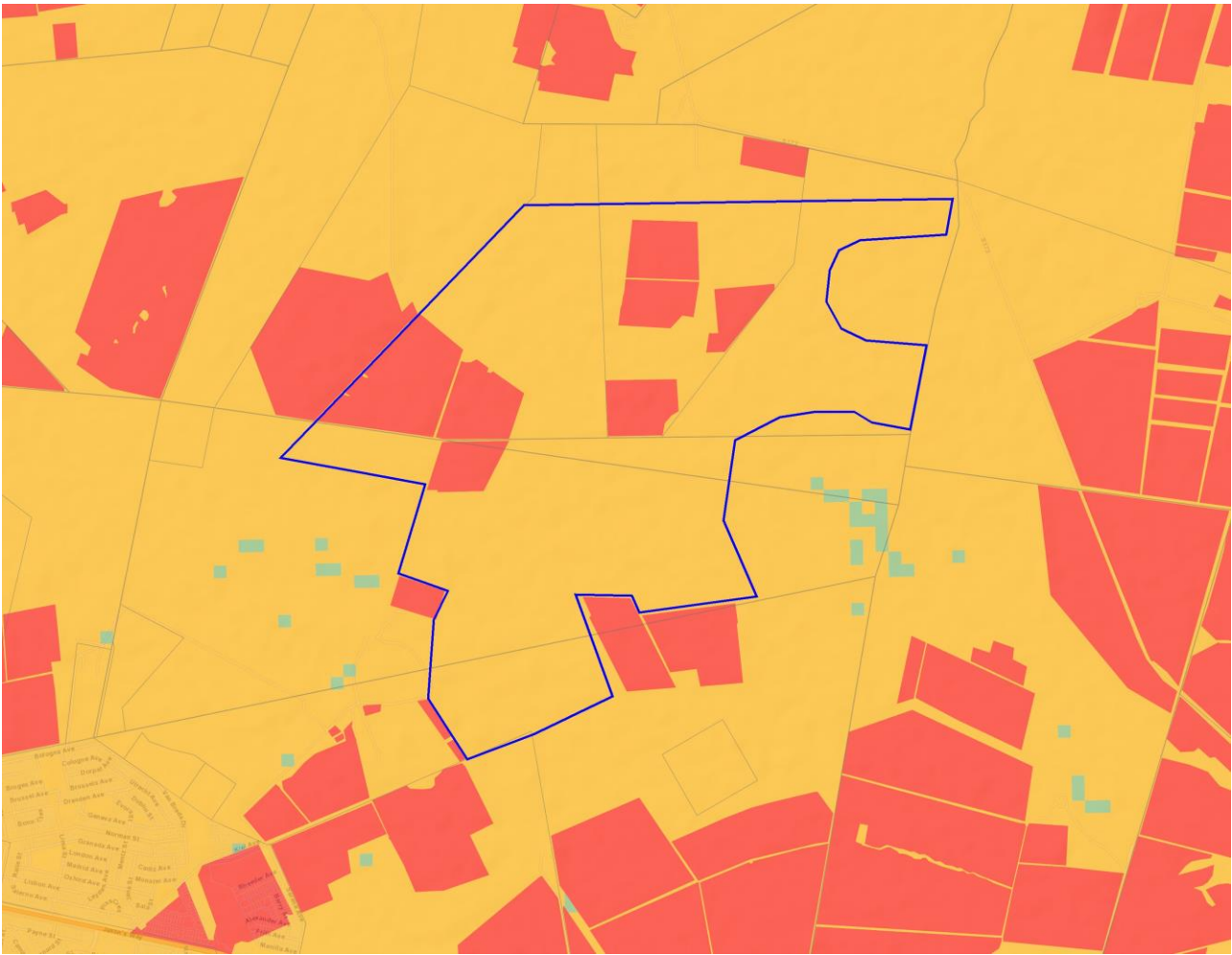
This is because there is a scarcity of arable production land in South Africa and its conservation for agricultural use is therefore a priority. Land which cannot support viable crop production is much less of a priority to conserve for agricultural use, and is rated as medium or low agricultural sensitivity.

The screening tool classifies agricultural sensitivity according to only two independent criteria – the land capability rating and whether the land is used for cropland or not. All cropland is classified as at least high sensitivity, based on the logic that if it is under crop production, it is indeed suitable for it, irrespective of its land capability rating.

The screening tool sensitivity categories in terms of land capability are based upon the Department of Agriculture's updated and refined, country-wide land capability mapping, released in 2016. The data is generated by GIS modelling. Land capability is defined as the combination of soil, climate and terrain suitability factors for supporting rain fed agricultural production. It is an indication of what level and type of agricultural production can sustainably be achieved on any land, based on its soil, climate and terrain. The higher land capability values ( $\geq 8$  to 15) are likely to be suitable as arable land for crop production, while lower values are only likely to be suitable as non-arable grazing land.

A map of the proposed development area overlaid on the screening tool sensitivity is given in Figure 1. The land capability of the site on the screening tool is predominantly 7, but also includes some 6. The small scale differences in the modelled land capability across the project area are not very accurate or significant at this scale and are more a function of how the data is generated by modelling, than actual meaningful differences in agricultural potential on the ground. Values of 6 and 7 translate to a medium agricultural sensitivity.

The allocation of high sensitivity to parts of the site (red in Figure 2) is because the land is classified as cropland in the data set used by the screening tool. However that data set is outdated. The lands indicated as cropland on the screening tool are no longer under crops and have not been, according to the historical imagery on Google Earth, for at least 7 years. All the lands across the project area are now used only for grazing. These lands are likely to have been cropped with economic viability in the past, but they have been abandoned as cropland because they were found to be too marginal for viable crop production as the agricultural economy became more challenging, particularly in terms of high input costs. These lands should therefore no longer be classified as cropland or allocated high sensitivity because of it.



**Figure 1.** The proposed development site overlaid on agricultural sensitivity, as given by the screening tool (green = low; yellow = medium; red = high).

The cropping potential of the soils across the site is constrained. The land type across the site has a high proportion of shallow, clay-rich soils of the Sterkspruit and Valsrivier soil forms that are unsuitable for crop production. The on-site soil investigation confirmed the dominance of these shallow, clay-rich soils across the site. Although there are pockets of better soil on the site, these are too small and occur between unsuitable soils, so are not viable for cropping. The cropping potential is constrained by the shallow depth above the limiting, dense clay horizon in the subsoil. In the relatively low rainfall of the site (491 to 500 mm per annum), the shallow soils have too little potential root volume and moisture reservoir to support viable cropping. This land is therefore only suitable for grazing.

Because of the lack of cropping potential, a high agricultural sensitivity or a land capability of more than 7 is not therefore justified for this site. The high agricultural sensitivity attributed to parts of the site by the screening tool as a result of cropping status is therefore disputed by this assessment.

This site sensitivity verification verifies the entire site as being of less than high agricultural sensitivity with a maximum land capability value of 7. The land capability value is in keeping with the soil and climate limitations that make the site too marginal for crop production.

### **3 Applicable legislation and permit requirements**

A renewable energy facility requires approval from the National Department of Agriculture, Land Reform and Rural Development (DALRRD) if the facility is on agriculturally zoned land. There are two approvals that apply. The first is a No Objection Letter for the change in land use issued by the Deputy Director General (Agricultural Production, Health and Food Safety, Natural Resources and Disaster Management). This letter is one of the requirements for receiving municipal rezoning. It is advisable to apply for this as early in the renewable development process as possible because not receiving this DALRRD approval is a fatal flaw for a project. Note that a positive EA does not assure DALRRD's approval of this. This application requires a motivation backed by good evidence that the development will not significantly compromise the future agricultural production potential of the development site.

The second required approval is a consent for long-term lease in terms of the Subdivision of Agricultural Land Act (Act 70 of 1970) (SALA). If DALRRD approval for the development has already been obtained in the form of the No Objection letter, then SALA approval should be easy and not present any difficulties. Note that SALA approval is not required if the lease is over the entire farm portion. SALA approval (if required) can only be applied for once the Municipal Rezoning Certificate and EA is in hand.

### **4 Other observations**

Grid connection infrastructure is a non-issue in terms of agricultural impact because it has negligible impact, regardless of the agricultural sensitivity of the site. This is because its direct, permanent, physical footprint that has any potential to interfere with or exclude agriculture, is insignificantly small. All agricultural activities can continue completely unhindered underneath transmission lines.

The land use committee of DALRRD, who are responsible for decision making for agricultural approval, seem to somewhat inconsistently apply their so called 10% 'rule' to their decisions. This 'rule' states that a renewable energy facility may not result in the exclusion from agricultural use of more than 10% of a farm portion. If they did apply this rule in the Khauta decision, it would mean that the project would not get approval, although it is unlikely that they will impose the 10% rule in this environment.

## 5 Conclusions

This site sensitivity verification has found the entire site to be of medium agricultural sensitivity with a land capability of 7, due predominantly to soil constraints in combination with the climate. The site is not suitable for viable and sustainable crop production and is used only for grazing. The allowable development limits of the agricultural protocol on such land fall into the most lenient category of 2.5 hectares per megawatt and allow for solar development anywhere on the PV site. There are no agricultural no-go areas across the entire site. Agricultural impact considerations will therefore have no affect on the design and layout of the facilities.

The agricultural impact of the grid connections is insignificant because they do not decrease the agricultural production potential of the land they cross. Therefore, there are no preferred grid connection alternatives and all are acceptable from an agricultural impact point of view. There should be absolutely no problem with achieving agricultural approval for the grid connections.

The risk of not achieving agricultural approval for the Khauta Solar PV Cluster is assessed as low. However, it must be noted that approval is subject to the unpredictability of DALRRD decision making. In addition, their 10% rule does pose some risk to the project, although it is unlikely that they will impose the 10% rule in this environment.