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AGRICULTURAL AGRO-ECOSYSTEMS SPECIALIST REPORT FOR THE PROPOSED SOLAR ENERGY FACILITY ON FARM 438 BRAKFONTEIN NEAR CITRUSDAL, WESTERN CAPE

Report by
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EXECUTIVE SUMMARY

The overall conclusion of this assessment is that the proposed development is acceptable because it can provide benefits to the agriculture operation of the farming enterprise but leads to no loss of existing viable cropland.

The investigated site is assessed as being unsuitable for most cropping, including small grains, due to a combination of climate (low rainfall) and soil constraints (low water and nutrient holding capacity). The site would be suitable for the specific crop of rooibos tea which is grown in the surrounding area and tolerant of the site constraints.

The screening tool classifies the assessed site as being entirely very high agricultural sensitivity. The site is generally not suitable for viable crop production and is not currently cropped. It is, however, suitable for the specific crop of rooibos tea which is grown in the surrounding area and tolerant of the site constraints. Because it is suitable for a particular crop, its true sensitivity, as assessed on the ground, is high. This assessment therefore disputes the very high sensitivity classification of the site by the screening tool and verified the site as high sensitivity because of its assessed copping potential.

An agricultural impact must by definition cause a change to the future agricultural production potential of land. If there is no change, there is no impact. The site is not currently utilised for crop production, but it is land that has sufficient potential for some crop production. The proposed development will result in the loss of this land to agriculture, which will result in a loss of future agricultural production potential in terms of national food security. However, the overall negative agricultural impact of the development (loss of future agricultural production potential) is assessed here as being of low significance. The factor that lessens the significance of the agricultural impact, making it low and not higher, is that the solar facility is for the farming enterprise's own power and to serve only the farming operation. It is therefore part of the farming infrastructure, like the packing facility, that must occupy land on the farm. It adds to the farm's agricultural productivity rather than decreasing it. The agricultural impact is therefore assessed as acceptable.

From an agricultural impact point of view, it is recommended that the proposed development be approved.

1 INTRODUCTION

Environmental authorisation is being sought for the proposed solar energy facility on farm 438 Grootbrakfontein near Citrusdal, Western Cape Province (see location in Figure 1). In terms of the National Environmental Management Act (Act No 107 of 1998 - NEMA), an application for environmental authorisation requires an agricultural assessment. In this case, because of the verified high agricultural sensitivity of the site (see Section 8), the level of agricultural assessment required by NEMA's agricultural protocol is an Agricultural Agro-Ecosystem Specialist Assessment. However, the only difference between this and the lower level of assessment, an Agricultural Compliance Statement, is that the former requires information about the current farming activities on the site, which is not relevant because the land is not currently farmed.

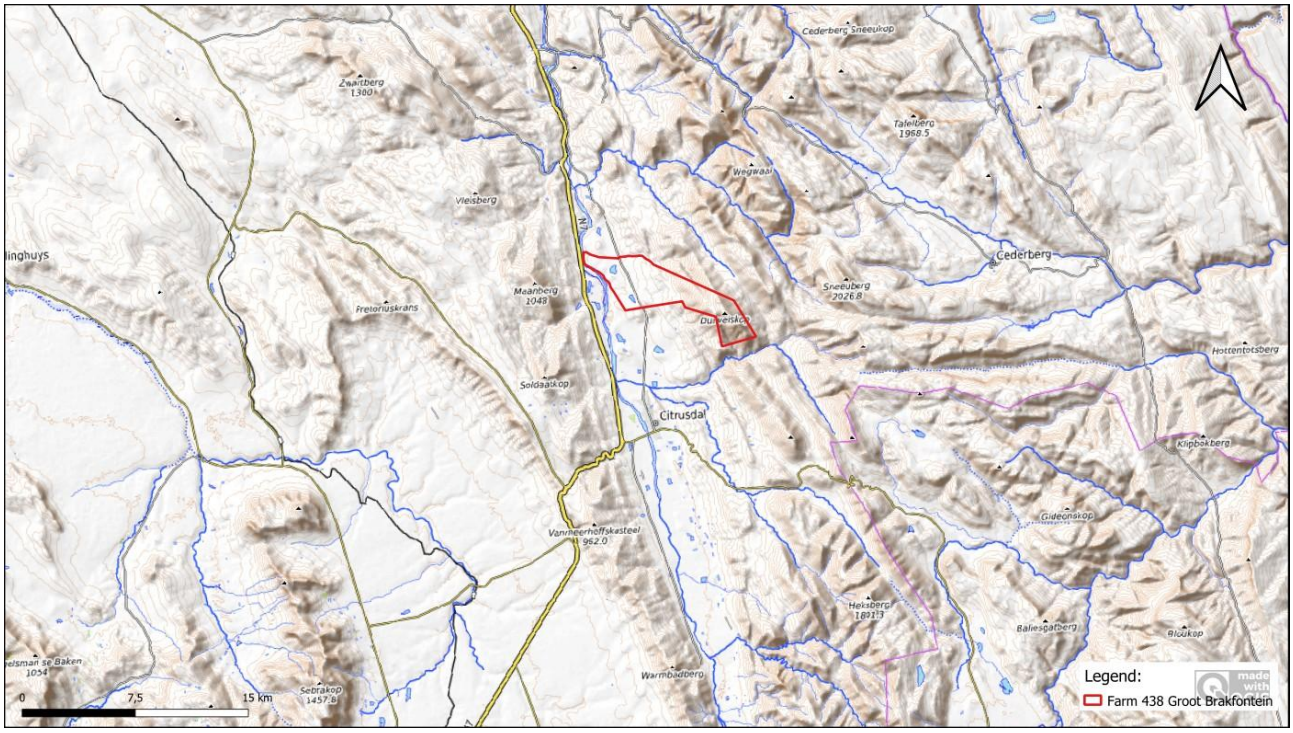

Figure 1. Locality map of the property boundary north of Citrusdal.

The purpose of an agricultural assessment is to answer the question:

> Will the proposed development cause a significant reduction in future agricultural production potential, and most importantly, will it result in a loss of arable land?

Section 9 of this report unpacks this question, particularly with respect to what constitutes a significant reduction. To answer the above question, it is necessary to determine the existing agricultural production potential of the land that will be impacted, and specifically whether it is viable arable land or not. This is done in Section 7 of this report. Sections 7 and 9 of this report

directly address the above question and therefore contain the essence and most important part of the agricultural impact assessment.

2 PROJECT DESCRIPTION

The proposed development is for a 2.5MW solar facility on farm 438 Brakfontein near Citrusdal, Western Cape Province. The proposed solar facility will be used to support the overall farming practice of the framing enterprise, involving power generation for the pack and storage facilities located adjacent to the proposed site. Therefore, the proposed solar facility forms part of the farming infrastructure. The of the proposed facility is shown in the map below.

The exact nature and layout of the different infrastructure within the boundary fence of a solar energy facility have absolutely no bearing on the significance of agricultural impacts. All that is of relevance is simply the total footprint of the facility that excludes agricultural land use. For a solar facility, this is the area within the facility fence. Whether that footprint comprises, for example, a solar array, a road or a BESS is irrelevant to agricultural impact. The total relevant footprint of the facility, as shown in the maps below, is 2.96 hectares.

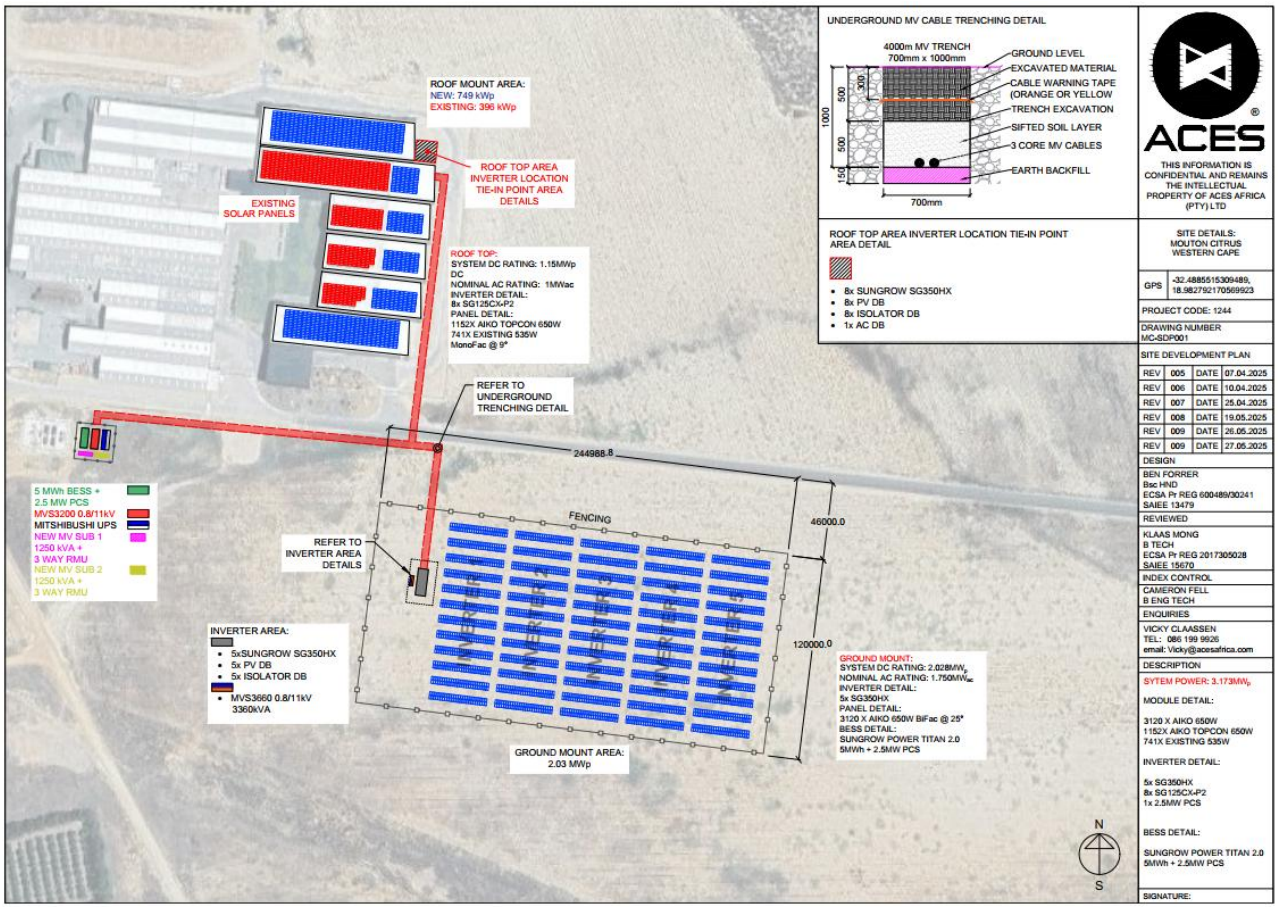

Figure 2. Layout of the proposed solar facility.

3 TERMS OF REFERENCE

The terms of reference for this study are to fulfill the requirements of the *Protocol for the specialist assessment and minimum report content requirements of environmental impacts on agricultural resources*, gazetted on 20 March 2020 in GN 320 (in terms of Sections 24(5)(A) and (H) and 44 of NEMA, 1998).

The terms of reference for an Agricultural Agro-Ecosystem Specialist Assessment, as copied exactly from the protocol, are listed in the table below, and included, is the place in this report where each is addressed.

Table 1: Reporting requirements as per NEMA's Agricultural Protocol.

Number	Requirement	Where it is addressed
2.	Agricultural Agro-Ecosystem Specialist Assessment	
2.1	The assessment must be undertaken by a soil scientist or agricultural specialist registered with the South African Council for Natural Scientific Professionals (SACNASP).	Appendix 3
2.2	The assessment must be undertaken on the preferred site and within the proposed development footprint.	Section 7
2.3	The assessment must be undertaken based on a site inspection as well as an investigation of the current production figures, where the land is under cultivation or has been within the past 5 years, and must identify:	
2.3.1	the extent of the impact of the proposed development on the agricultural resources; and	Section 9
2.3.2	whether or not the proposed development will have an unacceptable impact on the agricultural production capability of the site, and in the event where it does, whether such a negative impact is outweighed by the positive impact of the proposed development on agricultural resources.	Section 9
2.4	The status quo of the site must be described, including the following aspects which must be considered as a minimum in the baseline description of the agro-ecosystem:	Section 7
2.4.1	the soil form/s, soil depth (effective and total soil depth), top and sub-soil clay percentage, terrain unit and slope;	Appendix 4
2.4.2	where applicable, the vegetation composition, available water sources as well as agro-climatic information;	Section 7

2.4.3	the current productivity of the land based on production figures for all agricultural activities undertaken on the land for the past 5 years, expressed as an annual figure and broken down into production units;	Section 7
2.4.4	the current employment figures (both permanent and casual) for the land for the past 3 years, expressed as an annual figure; and	Section 7
2.4.5	existing impacts on the site, located on a map (e.g. erosion, alien vegetation, non-agricultural infrastructure, waste, etc.).	Section 11
2.5	Assessment of impacts, including the following aspects which must be considered as a minimum in the predicted impact of the proposed development on the agro-ecosystem:	Section 9
2.5.1	change in productivity for all agricultural activities based on the figures of the past 5 years, expressed as an annual figure and broken down into production units;	Section 7
2.5.2	change in employment figures (both permanent and casual) for the past 5 years expressed as an annual figure; and	Section 7
2.5.3	any alternative development footprints within the preferred site which would be of “medium” or “low” sensitivity for agricultural resources as identified by the screening tool and verified through the site sensitivity verification.	Not applicable
2.6	The findings of the Agricultural Agro-Ecosystem Specialist Assessment must be written up in an Agricultural Agro-Ecosystem Specialist Report.	
2.7	This report must contain the findings of the agro-ecosystem specialist assessment and the following information, as a minimum:	
2.7.1	details and relevant experience as well as the SACNASP registration number of the soil scientist or agricultural specialist preparing the assessment including a curriculum vitae;	Appendix 3
2.7.2	a signed statement of independence by the specialist;	Appendix 2
2.7.3	the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;	Section 4
2.7.4	a description of the methodology used to undertake the on-site assessment inclusive of the equipment and models used, as relevant;	Section 4
2.7.5	a map showing the proposed development footprint (including supporting infrastructure) with a 50m buffered development envelope, overlaid on the agricultural sensitivity map generated by the screening tool;	Section 8
2.7.6	an indication of the potential losses in production and employment from the change of the agricultural use of the land as a result of the proposed development;	Not applicable
2.7.7	an indication of possible long term benefits that will be generated by the project in relation to the benefits of the agricultural activities on the	Section 11

	affected land;	
2.7.8	additional environmental impacts expected from the proposed development based on the current status quo of the land including erosion, alien vegetation, waste, etc.;	Section 11
2.7.9	information on the current agricultural activities being undertaken on adjacent land parcels;	Section 7
2.7.10	an identification of any areas to be avoided, including any buffers;	Not applicable
2.7.11	a motivation must be provided if there were development footprints identified as per paragraph 2.5.3 above that were identified as having a "medium" or "low" agriculture sensitivity and that were not considered appropriate;	Not applicable
2.7.12	confirmation from the soil scientist or agricultural specialist that all reasonable measures have been considered in the micro-siting of the proposed development to minimise fragmentation and disturbance of agricultural activities;	Section 11
2.7.13	a substantiated statement from the soil scientist or agricultural specialist with regards to agricultural resources on the acceptability or not of the proposed development and a recommendation on the approval or not of the proposed development;	Section 12
2.7.14	any conditions to which this statement is subjected;	Not applicable
2.7.15	where identified, proposed impact management outcomes or any monitoring requirements for inclusion in the Environmental Management Programme (EMPr); and	Section 10
2.7.16	a description of the assumptions made and any uncertainties or gaps in knowledge or data.	Section 5
2.8	The findings of the Agricultural Agro-Ecosystem Specialist Assessment must be incorporated into the Basic Assessment Report or Environmental Impact Assessment Report, including the mitigation and monitoring measures as identified, which are to be contained in the EMPr.	

4 METHODOLOGY OF STUDY

The assessment was based on an on-site investigation of the soils and agricultural conditions conducted on 29 April 2026. It was also informed by existing climate, soil, and agricultural potential data for the site (see references). The aim of the on-site assessment was to assess and determine the cropping potential across the site. Soils were assessed based on existing soil exposures and

indications of the surface conditions and topography. Soils were classified according to the South African soil classification system (Soil Classification Working Group, 2018).
An assessment of soils and long-term agricultural potential is in no way affected by the season in which the assessment is made, and therefore the date on which this assessment was done has no bearing on its results. The level of agricultural assessment is considered entirely adequate for an understanding of on-site agricultural production potential for the purposes of this assessment.

5 ASSUMPTIONS, UNCERTAINTIES OR GAPS IN KNOWLEDGE OR DATA

There are no specific assumptions, uncertainties or gaps in knowledge or data that affect the findings of this study.

6 APPLICABLE LEGISLATION AND PERMIT REQUIREMENTS

This section identifies all applicable agricultural legislation and permit requirements over and above what is required in terms of NEMA.

The project is likely to require agricultural approval (or at least comment from Department of Agriculture) as part of the required approval in terms of applicable municipal land use legislation, as well as in terms of the Subdivision of Agricultural Land Act (Act 70 of 1970 - SALA), because it is on land currently zoned for agriculture. A planning professional will be able to confirm exactly what is required.

It should be noted that the Preservation and Development of Agricultural Land Act (Act 39 of 2024) (PDALA) has been enacted but is not yet in operation because many of the norms, standards, and detailed regulations are still to be finalised. Once this act comes into operation it will replace SALA, but it is not yet known when it will come into operation.

7 BASELINE DESCRIPTION OF THE AGRO-ECOSYSTEM

The purpose of this section is firstly to present the baseline information that controls the agricultural production potential of the site and then, most importantly, to assess that potential. Agricultural production potential, and particularly cropping potential, is one of four factors that determines the significance of an agricultural impact, together with magnitude of impact, size of footprint, and duration of impact. (see Section 9). Cropping potential also directly determines the true agricultural sensitivity of the land and therefore informs the site sensitivity verification.

All the important parameters that control the agricultural production potential of the site are given in the table below. Soil data are given in Appendix 4. A Site Development Plan is given in Figure 2 and site photographs are given in the figures below.

The site is within a Protected Agricultural Area (PAA) (DALRRD, 2020). A PAA is a demarcated area in which the climate, terrain, and soil are generally conducive for agricultural production and which, historically, or in a regional context, has made important contributions to the production of the various crops that are grown across South Africa. Within PAAs, the protection of viable, arable land is considered a priority for the protection of food security in South Africa.

Table 2: Parameters that control and/or describe the agricultural production potential of the site.

	Parameter	**Value**
Climate	Köppen-Geiger climate description (Beck *et al*, 2018)	Arid, steppe, hot
	Mean Annual Rainfall (mm) (Schulze, 2009)	265
	Reference Crop Evaporation Annual Total (mm) (Schulze, 2009)	1471
	Climate capability classification (out of 9) (DAFF, 2017)	4 (low-moderate)
Terrain	Terrain type	Valley flood plain
	Terrain morphological unit	Footslope
	Slope gradients (%)	0 to 3
	Altitude (m)	178
	Terrain capability classification (out of 9) (DAFF, 2017)	6 (moderate-high) to 7 (high)
Soil	Geology (DAFF, 2002)	Mainly shale and sandstone of the Ceres Subgroup; Bokkeveld Group.
	Land type (DAFF, 2002)	Fb783
	Description of the soils	Deep to moderately deep (to 800 to 1400mm), very light textured (3% clay), yellow coloured, imperfectly drained soils on underlying clay. Soils are very uniform across the site.
	Dominant soil form	Pinedene
	Soil suitability on 10-point Western Cape rating system	5.0
	Soil capability classification (out of 9) (DAFF, 2017)	3 (low) to 4 (low-moderate)

	Parameter	Value
	Soil limitations	Low water and nutrient holding capacity
Land use	Agricultural land use in the surrounding area	Orchards, fallow lands
	Agricultural land use on the site	None
General	Long-term grazing capacity (ha/LSU) (DAFF, 2018)	66
	Land capability classification (out of 15) (DAFF, 2017)	6 (low-moderate) to 7 (low-moderate)
	Within Protected Agricultural Area (DALRRD, 2020)	Yes, Citrusdal PAA, Rating: B, Type: Irrigated
	Within Renewable Energy Development Zone (REDZ)	No

The agricultural protocol requires the current productivity of the land based on detailed production figures and it requires the current employment figures. However, yield details are notoriously hard to get and are not considered necessary for this assessment of agricultural impact. What is relevant is simply that the site is suitable for rooibos production, regardless of what yields have been, and any loss of this land is therefore a loss of future potential for rooibos production.

There are no existing impacts on the site that are relevant to this assessment of agricultural impact.

7.1 Assessment of the agricultural production potential

This assessment of the agricultural production potential of the site is based on an integration of the different parameters in the above table, which was informed by the on-site investigation.

The investigated site is assessed as being unsuitable for most cropping, including small grains, due to a combination of climate (low rainfall) and soil constraints (low water and nutrient holding capacity). The site would be suitable for the specific crop of rooibos tea which is grown in the surrounding area and tolerant of the site constraints.

Figure 3. Typical site conditions showing sandy soils.

Figure 4. Typical site conditions showing the underlying, excavated, gleyic material and the Mouton Citrus pack facility, adjacent to the site, in the background.

Figure 5. Typical site conditions.

Figure 6. Typical site conditions.

8 SITE SENSITIVITY VERIFICATION

A specialist agricultural assessment is required to include a verification of the agricultural sensitivity of the development site as per the sensitivity categories used by the web-based environmental screening tool of the Department of Forestry, Fisheries and the Environment (DFFE). The screening tool's classification of sensitivity is merely an initial indication of what the sensitivity of a piece of land might be, as indicated by the only data that is available. What the screening tool attempts to indicate is whether the land is suitable for crop production (high and very high sensitivity) or unsuitable for crop production (low and medium sensitivity). To do this, the screening tool uses three independent criteria, from three independent data sets, which are all indicators of suitability for crop production but are limited and were not designed for this purpose. The three criteria are:

1. Whether the land is classified as cropland or not on the field crop boundary data set (Crop Estimates Consortium, 2019). All classified cropland is, by definition, either high (annual crops) or very high sensitivity (permanent or irrigated crops).
2. Its land capability rating as per the Department of Agriculture's updated and refined, country-wide land capability mapping (DAFF, 2017). Land capability is defined as the combination of soil, climate, and terrain suitability factors for supporting rain-fed agricultural production. The direct relationship between land capability rating, agricultural sensitivity, and rain-fed cropping suitability is summarised by this author in the table below.
3. Whether the land is classified as a protected agricultural area (PAA) or not (DALRRD, 2020). All classified PAAs are, by definition, either high or very high sensitivity.

The limitations for determining cropping suitability based on these data are as follows:

1. The field crop boundary data set used by the screening tool is very outdated.
2. Land capability mapping is fairly coarse, modelled data which is not accurate at site scale.
3. PAAs are demarcated broadly, not at a fine scale, and there is therefore much variation of cropping suitability within a PAA. All land within these demarcated areas is not necessarily of sufficient agricultural potential to be suitable for crop production, due to finer scale terrain, soil, and other constraints, and therefore not all land within a PAA necessarily deserves to be classified as more than medium agricultural sensitivity.

These three inputs operate independently, and the screening tool's agricultural sensitivity is simply determined by whichever of these gives the highest sensitivity rating. The agricultural sensitivity of the site, as classified by the screening tool, is shown in the maps below.

Table 3: Relationship between land capability, agricultural sensitivity, and rain-fed cropping suitability.

<table>
<tr><th rowspan="2">Land capability value</th><th rowspan="2">Agricultural sensitivity</th><th colspan="2">Rain-fed cropping suitability</th></tr>
<tr><th>Summer rainfall areas</th><th>Winter rainfall areas</th></tr>
<tr><td>1 - 5</td><td>Low</td><td rowspan="3">Unsuitable</td><td rowspan="2">Unsuitable</td></tr>
<tr><td>6</td><td rowspan="2">Medium</td></tr>
<tr><td>7</td><td rowspan="3">Suitable</td></tr>
<tr><td>8 - 10</td><td>High</td><td rowspan="2">Suitable</td></tr>
<tr><td>11 - 15</td><td>Very High</td></tr>
</table>

The true agricultural sensitivity of any land is equivalent to its actual suitability for crop production on the ground, rather than being determined by a parameter that serves as a proxy for crop suitability in a dataset, which is how the screening tool determines sensitivity. The land's suitability for cropping directly determines how important it is to conserve that land as agricultural production land. To determine suitability for crop production, and hence sensitivity, requires a site-specific assessment, as has been conducted in this assessment, rather than a reliance on data sets that have significant limitations.

Despite the detail in this section above, the determinants of agricultural sensitivity are actually very straightforward and may be summed up as follows. If land is suitable for viable crop production - that is if it has the capability to deliver an above break-even crop yield on a sustainable basis - then it is of high or very high agricultural sensitivity. If it has limitations that prevent it from being able to deliver an above break-even crop yield on a sustainable basis, then it is of medium or low agricultural sensitivity.

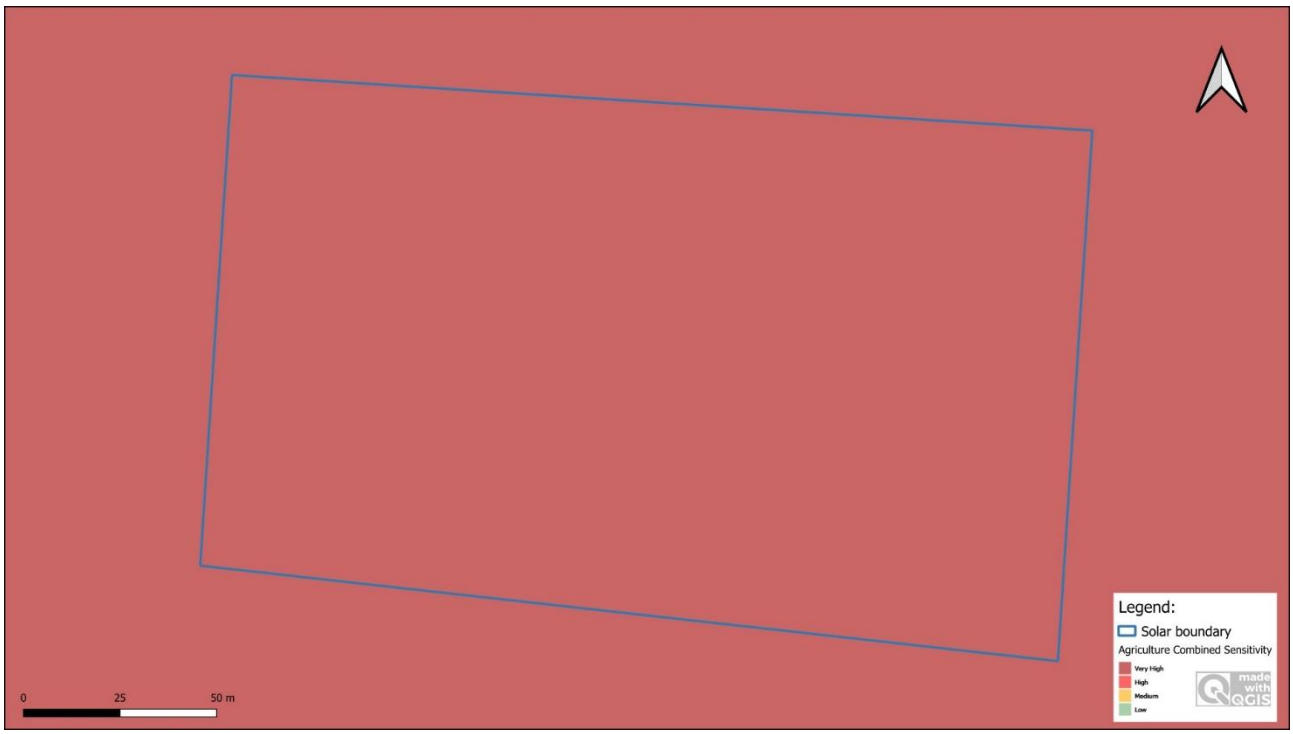

Figure 7. The assessed site *(blue outline) overlaid on agricultural sensitivity, as given by the screening tool*.

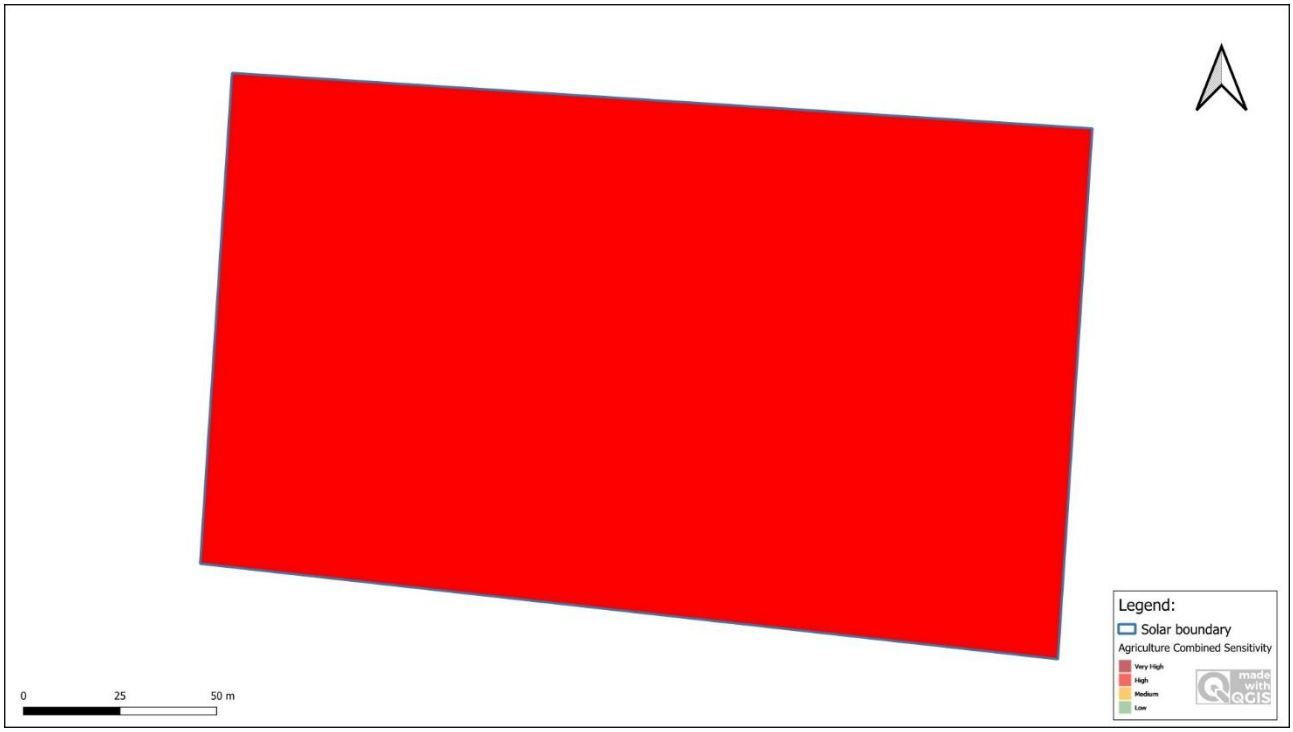

Figure 8. Agricultural sensitivity of the site, as verified by this assessment.

The screening tool classifies the assessed site as being entirely very high agricultural sensitivity. The

very high sensitivity classification by the screening tool is due to the PAA status of the site. As shown in the previous section, the site is generally not suitable for viable crop production and is not currently cropped. It is, however, suitable for the specific crop of rooibos tea which is grown in the surrounding area and tolerant of the site constraints. Because it is suitable for a particular crop, its true sensitivity, as assessed on the ground, is high. This assessment therefore disputes the very high sensitivity classification of the site by the screening tool and verified the site as high sensitivity because of its assessed copping potential.

9 ASSESSMENT OF THE AGRICULTURAL IMPACT

9.1 Impact identification and assessment

It should be noted that an Agricultural Compliance Statement is not required to formally rate agricultural impacts by way of impact assessment tables.

An agricultural impact is a change to the future agricultural production potential of land. In this development, the potential for any change is primarily caused by the exclusion of potential future agriculture from the footprint of the development. Soil erosion and degradation may also contribute to loss of agricultural production potential. However, these can be effectively prevented by generic mitigation measures that are all inherent in the project engineering of such a development and are standard, best-practice for construction sites. Soil degradation does not therefore pose a significant impact risk. The significance of any exclusion of agriculture from land is a direct function of the following three factors:

1. the size of the footprint of land from which agriculture will be excluded
2. the baseline production potential (particularly cropping potential) of that land
3. the length of time for which agriculture will be excluded

The most significant loss of potential, for any development anywhere in the country, is on high yielding cropland, and the least significant possible, is on low carrying capacity grazing land. Cropping potential is highlighted in factor 2, above, because the threshold, above which it is a priority to conserve land for agricultural production, is determined by the scarcity of arable crop production land in South Africa (approximately only 13% of the country's surface area) and the relative abundance of the rest of agricultural land across the country that is only good enough to be used for grazing. If land can support viable and sustainable crop production, then it is considered to be above the threshold and is a priority for being conserved as agricultural production land. If land is unable to support viable and sustainable crop production, then it is considered to be below the threshold and of much lower priority for being conserved.

The site is not currently utilised for crop production, but it is land that has sufficient potential for

some crop production. The proposed development will result in the loss of this land to agriculture, which will result in a loss of future agricultural production potential in terms of national food security. However, the overall negative agricultural impact of the development (loss of future agricultural production potential) is assessed here as being of low significance. The factor that lessens the significance of the agricultural impact, making it low and not higher, is that the solar facility is for the farming enterprise's own power and to serve only the farming operation. It is therefore part of the farming infrastructure, like the packing facility, that must occupy land on the farm. It adds to the farm's agricultural productivity rather than decreasing it. The agricultural impact is therefore assessed as acceptable.

9.2 Cumulative impact assessment

Specialist assessments for environmental authorisation are required to include an assessment of cumulative impacts. The cumulative impact of a development is the impact that development will have when its impact is added to the incremental impacts of other past, present, or reasonably foreseeable future activities that will affect the same environment. The potential cumulative agricultural impact of importance is a regional loss of future agricultural production potential.

The potential cumulative agricultural impact of importance is a regional loss of future agricultural production potential. Due to it having a positive agricultural impact, the assessed development will contribute positively to the cumulative impact. It is therefore recommended, from a cumulative agricultural impact perspective, that the development be approved.

9.3 Assessment of alternatives

Specialist assessments for environmental authorisation are required to include a comparative assessment of alternatives, including the no-go alternative. As already noted, the exact nature and layout of the different infrastructure within the development site boundary have absolutely no bearing on the significance of agricultural impacts, because agriculture will be completely excluded from within the boundary, regardless of layout. Any alternative layouts within the boundary will have equal agricultural impact and are assessed as equally acceptable.

The no-go alternative considers impacts that will occur to the agricultural environment in the absence of the proposed development. There are no agricultural impacts of the no-go alternative, or of the development, and so from an agricultural impact perspective, there is no preferred alternative between the no-go and the development.

10 MITIGATION

The most important and effective mitigation of agricultural impacts for any development is

avoidance of viable, potential cropland. is development has already applied this mitigation by deliberately locating the facility where it avoids all viable, potential cropland in the area.

Generic mitigation measures that are effective in preventing soil degradation are all inherent in the engineering of such a project and/or are standard, best-practice for construction sites. These include:

- A system of storm water management, which will prevent erosion on and downstream of the site, will be an inherent part of the engineering design on site. Any occurrences of erosion must be attended to immediately and the integrity of the erosion control system at that point must be amended to prevent further erosion from occurring there.
- Any excavations done during the construction phase, in areas that will be re-vegetated during or at the end of the construction phase, must separate the upper 30 cm of topsoil from the rest of the excavation spoils and store it in a separate stockpile. When the excavation is back-filled, the topsoil must be back-filled last, so that it remains at the surface. Topsoil should only be stripped in areas that are excavated. Across most of the site, including construction lay down areas, it will be much more effective for rehabilitation, to retain the topsoil in place. If levelling requires significant cutting, topsoil should be temporarily stockpiled and then re-spread after cutting, so that there is a covering of topsoil over the entire cut surface. It will be advantageous to have topsoil and vegetation cover below the panels during the operational phase to control dust and erosion.

11 ADDITIONAL ASPECTS REQUIRED IN AN AGRICULTURAL ASSESSMENT

11.1 Micro-siting

The agricultural protocol requires confirmation that all reasonable measures have been taken through micro-siting to minimize fragmentation and disturbance of agricultural activities. The choice of the site has already avoided viable cropland. Further micro-siting will make no material difference to agricultural impacts and disturbance.

11.2 Confirmation of linear activity exclusion

If linear infrastructure that is located on land of high agricultural sensitivity has been given exclusion from requiring an Agricultural Agro-Ecosystem Specialist Assessment because of its linear nature, and therefore only requires an Agricultural Compliance Statement, the protocol requires confirmation that the land impacted by that linear infrastructure can be returned to the current state within two years of completion of the construction phase. No such exclusion applies because this

project does require an Agricultural Agro-Ecosystem Specialist Assessment, anyway, due to non-linear infrastructure on land of high agricultural sensitivity.

11.3 Compliance with the allowable development limits

The agricultural protocol stipulates allowable development limits for renewable energy developments of > 20 MW and explains them as follows:

Allowable development limits refer to the area of a particular land capability that can be directly impacted (i.e. taken up by the physical footprint) by a renewable energy development. Physical footprint in this context is the area that is directly occupied by all infrastructure, including roads, hard standing areas, buildings, substations, etc. that is associated with the renewable energy generation facility during its operational phase, and that result in the exclusion of that land from potential cultivation or grazing. It excludes all areas that were already occupied by roads and other infrastructure prior to the establishment of the renewable energy facility but includes the surface area required for expanding existing infrastructure (e.g. widening existing roads). It excludes the corridor underneath overhead power lines but includes the pylon footprints. It therefore represents the total land that is actually excluded from agricultural use as a result of the renewable energy facility.

The allowable development limits are only applicable to facilities of > 20 MW and are not therefore applicable to this development. Nevertheless, this facility is in fact within the limit.

11.4 Long term benefits versus agricultural benefits

The development will provide additional power generation for the operation of the framing enterprise. The development, therefore, forms part of the farming infrastructure.

11.5 Additional environmental impacts

There are no additional environmental impacts of the proposed development that are relevant to this agricultural assessment.

12 CONCLUSION: AGRICULTURAL AGRO-ECOSYSTEMS SPECIALIST REPORT

The overall conclusion of this assessment is that the proposed development is acceptable because it can provide benefits to the agriculture operation of the farming enterprise but leads to no loss of existing viable cropland.

The investigated site is assessed as being unsuitable for most cropping, including small grains, due

to a combination of climate (low rainfall) and soil constraints (low water and nutrient holding capacity). The site would be suitable for the specific crop of rooibos tea which is grown in the surrounding area and tolerant of the site constraints.

The screening tool classifies the assessed site as being entirely very high agricultural sensitivity. The site is generally not suitable for viable crop production and is not currently cropped. It is, however, suitable for the specific crop of rooibos tea which is grown in the surrounding area and tolerant of the site constraints. Because it is suitable for a particular crop, its true sensitivity, as assessed on the ground, is high. This assessment therefore disputes the very high sensitivity classification of the site by the screening tool and verified the site as high sensitivity because of its assessed copping potential.

An agricultural impact must by definition cause a change to the future agricultural production potential of land. If there is no change, there is no impact. The site is not currently utilised for crop production, but it is land that has sufficient potential for some crop production. The proposed development will result in the loss of this land to agriculture, which will result in a loss of future agricultural production potential in terms of national food security. However, the overall negative agricultural impact of the development (loss of future agricultural production potential) is assessed here as being of low significance. The factor that lessens the significance of the agricultural impact, making it low and not higher, is that the solar facility is for the farming enterprise's own power and to serve only the farming operation. It is therefore part of the farming infrastructure, like the packing facility, that must occupy land on the farm. It adds to the farm's agricultural productivity rather than decreasing it. The agricultural impact is therefore assessed as acceptable.

From an agricultural impact point of view, it is recommended that the proposed development be approved. The conclusion of this assessment on the acceptability of the proposed development and the recommendation for its approval is not subject to any conditions.

13 REFERENCES

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Schulze, R.E. 2009. South African Atlas of Agrohydrology and Climatology, available on Cape Farm Mapper. Available at: https://gis.elsenburg.com/apps/cfm/

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APPENDIX 1: SPECIALIST CURRICULUM VITAE

Johann Lanz
Curriculum Vitae

Education

M.Sc. (Environmental Geochemistry)	University of Cape Town	1996 - 1997
B.Sc. Agriculture (Soil Science, Chemistry)	University of Stellenbosch	1992 - 1995
BA (English, Environmental & Geographical Science)	University of Cape Town	1989 - 1991
Matric Exemption	Wynberg Boy's High School	1983

Professional work experience

I have been registered as a Professional Natural Scientist (Pri.Sci.Nat.) in the field of soil science since 2012 (registration number 400268/12) and am a member of the Soil Science Society of South Africa.

Soil & Agricultural Consulting **Self employed** **2002 - present**

Within the 23 years of running my soil and agricultural consulting business, I have completed more than 1000 agricultural assessments (EIAs, SEAs, EMPRs) in all 9 provinces for renewable energy, mining, electrical grid infrastructure, urban, and agricultural developments. I was the appointed agricultural specialist for the nation-wide SEAs for wind and solar PV developments, electrical grid infrastructure, and gas pipelines. My regular clients include: Zutari; CSIR; SiVEST; SLR; WSP; SRK; Environamics; Royal Haskoning DHV; ABO; Enertrag; WKN-Windcurrent; JG Afrika; Mainstream; Redcap; G7; Mulilo; and Tiptrans. Agricultural clients for soil resource evaluations and mapping include Cederberg Wines; Western Cape Department of Agriculture; Vogelfontein Citrus; De Grendel Estate; Zewenwacht Wine Estate; and Goedgedacht Olives. In 2018 I completed a ground-breaking case study that measured the agricultural impact of existing wind farms in the Eastern Cape.

Soil Science Consultant **Agricultural Consultors International (Tinie du Preez)** **1998 - 2001**

Responsible for providing all aspects of a soil science technical consulting service directly to clients in the wine, fruit and environmental industries all over South Africa, and in Chile, South America.

Contracting Soil Scientist **De Beers Namaqualand Mines** **July 1997 - Jan 1998**

Completed a contract to advise soil rehabilitation and re-vegetation of mined areas.

Publications

- Lanz, J. 2012. Soil health: sustaining Stellenbosch's roots. In: M Swilling, B Sebitosi & R Loots (eds). *Sustainable Stellenbosch: opening dialogues*. Stellenbosch: SunMedia.
- Lanz, J. 2010. Soil health indicators: physical and chemical. *South African Fruit Journal*, April / May 2010 issue.
- Lanz, J. 2009. Soil health constraints. *South African Fruit Journal*, August / September 2009 issue.
- Lanz, J. 2009. Soil carbon research. *AgriProbe*, Department of Agriculture.
- Lanz, J. 2005. Special Report: Soils and wine quality. *Wineland Magazine.*

I am a reviewing scientist for the *South African Journal of Plant and Soil*.

forestry, fisheries & the environment
Department:
Forestry, Fisheries and the Environment
REPUBLIC OF SOUTH AFRICA

Private Bag X447, Pretoria, 0001, Environment House, 473 Steve Biko Road, Pretoria, 0002 Tel: +27 12 399 9000, Fax: +27 86 625 1042

APPENDIX 2: SPECIALIST DECLARATION FORM AUGUST 2023

Specialist Declaration form for assessments undertaken for application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended (the Regulations)

REPORT TITLE: AGRICULTURAL AGRO-ECOSYSTEMS SPECIALIST REPORT FOR THE PROPOSED SOLAR ENERGY FACILITY ON FARM 438 BRAKFONTEIN NEAR CITRUSDAL, WESTERN CAPE

Kindly note the following:

1. This form must always be used for assessment that are in support of applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting, where this Department is the Competent Authority.
2. This form is current as of August 2023. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at https://www.dffe.gov.za/documents/forms.
3. An electronic copy of the signed declaration form must be appended to all Draft and Final Reports submitted to the department for consideration.
4. The specialist must be aware of and comply with '*the Procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the act, when applying for environmental authorisation - GN 320/2020)'*, where applicable.

1. SPECIALIST INFORMATION

Title of Specialist Assessment	Agricultural Assessment
Specialist Company Name	SoilZA (sole proprietor)
Specialist Name	Johann Lanz
Specialist Identity Number	6607045174089
Specialist Qualifications:	M.Sc. (Environmental Geochemistry)
Professional affiliation/registration:	Registered Professional Natural Scientist (Pr.Sci.Nat.) Reg. no. 400268/12 Member of the Soil Science Society of South Africa
Physical address:	2 Roeland Terrace, CAPE TOWN, 8001
Postal address:	Postnet Suite #500, Private Bag X16 Constantia, 7848
Telephone	Not applicable
Cell phone	+27 82 927 9018
E-mail	johann@soilza.co.za

2. DECLARATION BY THE SPECIALIST

I, **Johann Lanz** declare that –

- I act as the independent specialist in this application;
- I am aware of the procedures and requirements for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the National Environmental Management Act (NEMA), 1998, as amended, when applying for environmental authorisation which were promulgated in Government Notice No. 320 of 20 March 2020 (i.e. “the Protocols”) and in Government Notice No. 1150 of 30 October 2020.
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing –
  - any decision to be taken with respect to the application by the competent authority; and;
  - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 48 and is punishable in terms of section 24F of the NEMA Act.

Signature of the Specialist

SoilZA (sole proprietor)

Name of Company:

28 March

Date

3. UNDERTAKING UNDER OATH/ AFFIRMATION

I, **Johann Lanz**, swear under oath that all the information submitted or to be submitted for the purposes of this application is true and correct.

Signature of the Specialist

SoilZA – sole proprietor

Name of Company

28/03/2026

Date

Signature of the Commissioner of Oaths

2026-03-28

Date

SUID-AFRIKAANSE POLISIEDIENS
HOUT BAY
28 MAR 2026
COMMUNITY SERVICE
SOUTH AFRICAN POLICE DEPARTMENT

APPENDIX 3: SACNASP REGISTRATION CERTIFICATE

SACNASP

South African Council for Natural Scientific Professions

herewith certifies that

Johan Lanz

Registration Number: 400268/12

is a registered scientist

in terms of section 20(3) of the Natural Scientific Professions Act, 2003
(Act 27 of 2003)
in the following field(s) of practice (Schedule 1 of the Act)

Soil Science (Professional Natural Scientist)

Effective **15 August 2012** Expires **31 March 2027**

President of Council

Chief Executive Officer

To verify this certificate scan this code

APPENDIX 4: SOIL DATA

Table 4: Land type soil data

Land type	Soil series (forms)	Depth (mm)	Clay % A horizon	Clay % B horizon	Depth limiting layer	% of land type
Fb783	Ms	100 - 300	10 - 20		R	32.5
Fb783	Gs	150 - 200	10 - 20	15 - 35	so,R	10.8
Fb783	Fw	1000 - 1200	0 - 3		R	9.8
Fb783	R					8.5
Fb783	Sw	150 - 300	10 - 20	25 - 55	vr,vp	8.0
Fb783	Lo, Av, Ss, Du, Cv					6.6
Fb783	Cv	600 - 1200	0 - 6	2 - 6	R	5.6
Fb783	Es	400 - 600	0 - 6	25 - 35	pr	5.0
Fb783	Oa	900 - 1200	2 - 20	6 - 40	R	3.7
Fb783	Oa	600 - 1200	10 - 15	15 - 25	R	3.3
Fb783	Kd	600 - 1000	0 - 6	25 - 35	gc	2.5
Fb783	T					2.0
Fb783	Va	200 - 300	10 - 20	25 - 30	vr	2.0