
Soil Environment Services Ltd

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6th May 2015

Dear Richard,

RE: Land at Aston Road, Chipping Campden, Application 15/00419/OUT

Soil Environment Services Ltd (SES) was instructed by Gloucester County Council (GCC) to undertake an Agricultural Land Classification (ALC) survey, Ref: SES/GCC/AR#1 on November 12th 2014 at the above site. The survey was conducted in accordance with the current guidance documents;

- **Agricultural Land Classification of England and Wales.** *Guidance and criteria for grading the quality of agricultural land.* MAFF 1988
- **Agricultural Land Classification of England and Wales.** *Guidance and criteria for grading the quality of agricultural land.* Second Revision MAFF Draft May 1996
- **Agricultural Land Classification Survey.** *1:250 000 map.* MAFF 1983
- **Soil Survey Field Handbook.** *Technical Monograph No. 5.* Soil Survey of England and Wales 1976
- **Soil Classification for Soil Survey.** *Monographs on Soil Survey.* Butler, B E 1980
- **Climatological Data for Agricultural Land Classification.** The Meteorological Office 1989
- **Soil Map of England and Wales.** *1:250 000 map.* Soil Survey of England and Wales, Harpenden
- **Soils and their use in Midland and Western England.** Soil Survey of England and Wales, Harpenden
- **British Geological Survey.** *1: 50 000 map.* Solid and Drift Geology

and concluded the land to be classified as ALC Grade 3b across the entire site.

Subsequently, a report has been submitted to GCC following a site survey by Chipping Campden Town Council (CCTC) which challenges the findings of the SES report. The CCTC report raises conflicting findings to those identified by SES and subsequently a different ALC Grade of 1 or 2 across the site.

SES have been commissioned by GCC to review the CCTC report with respect to the methodology in the ALC guidance documents to assess the validity of the claims made. The queries highlighted by SES have been assessed on a section-by-section basis, as outlined in the CCTC report.

1. Background

CCTC have conducted a review of the 1988 Ministry of Agriculture, Food and Fisheries (MAFF) map, identifying the site as lying within ALC Grade 1 and 3. The CCTC report correctly states that '*resolving detail to the level of a specific field is not recommended from this map*'.

CCTC have produced a detailed survey conducted by ADAS dated September 1992 in which a number of sites around Chipping Campden were surveyed. The survey produced ALC grades ranging from ALC Grade 2 to 3b. When comparing these grades to the 1988 MAFF mapping grades the CCTC report states that there was be a '*drop of between ½ and 1 grade...this could infer a drop for the Aston Field site from Grade 1 to perhaps Grade 2*'. The CCTC report has made this conclusion based on the comparison of two surveys and applied this trend to the site in question, without sufficient knowledge

on the subject. It is possible and very common for a site, when surveyed at a detailed scale with on-site soil examination, to have significantly different ALC grades compared to the 1988 MAFF mapping, which in most cases did not undergo a site soil survey.

The 1988 maps produced by MAFF were conducted at a large scale using existing geological and soils maps to estimate a provisional grading for England and Wales. In most cases a site survey was not conducted and the 1988 maps are subsequently unable to be used to identify ALC grades on a site-by-site basis.

The ADAS 1992 report cannot be used to contradict SES site findings as ADAS did not conduct any surveys within the site, nor within a similar soil type nearby. There is therefore no trend in relation to nearby mapping that could be applied to the current site.

3. Depth of soil

The CCTC report '*cross-checked soil depth at 4 site positions*' to oppose the SES report. CCTC have concluded depths ranging from 50 to 60 cm compared to SES depths ranging from 40 to 42 cm. According to the MAFF and Natural England guidance documents an ALC site survey should have a minimum sampling density of 1 borehole conducted per hectare. Given that the site is 6 hectares there should have been a minimum of 6 boreholes conducted to provide a representative sample across the site.

The CCTC report criticises the SES site survey approach using a hand auger to conduct the borehole sampling. The use of a Dutch hand auger is the standard method to conduct ALC site surveys. The CCTC report implies that auger borings are '*a less certain measurement of depth*'. This is incorrect and all ALC surveys currently undertaken by soil scientists and members of the Institute of Professional Soil Scientists use augers. Auger borings are used to measure accurately soil horizon boundary depths and depths to rock (if encountered).

The CCTC report takes issue with the SES use of auger borings to assess the soil. However these were used due to the restrictions in depth due to stoniness. As discussed above, the use of hand augers is standard practice to undertake an ALC survey and pits can be added if needed. The shallow depth to very stony soil or rock will impact on the ALC grade. Very stony subsoils will restrict plant rooting, among a number of other factors, leading to lower yields of certain crops (detailed in MAFF guidance documents 1988 and 1996, paragraph 3.42) and consequently a lower ALC Grade. Given the resulting limiting impact of stones or rock on plant growth at shallow depths on this site, no further depth investigation is needed.

Photographic evidence of soil depth was also provided by SES of the two different general soil types identified on site. This offers more detail than most ALC consultant's reports.

Three holes were dug by CCTC at locations '*estimated to be at a similar location to SES points*' in order to assess the soil depth as identified by SES. No map or GPS references have been provided to demonstrate these locations. If the CCTC dig positions were conducted within an estimated area around the SES boreholes this will not be sufficiently accurate to directly compare the findings on depth between the reports.

In addition, the CCTC report states '*TC cross-checked soil depth at 4 site positions*', yet only three of these locations are discussed within the report. No discussion has been provided on the findings of TC3 position.

There are some discrepancies within Table 1 of the CCTC report, namely the table states the SES report graded all the borehole locations as ALC Grade 3a. This is incorrect as the SES report concluded ALC Grade 3b across the site. There is also no reference made to any strata identified in the dig points below the subsoil. If rock was encountered, the type of rock should be stated as this has significance in terms of water availability for the droughtiness calculations.

In the conclusions of this section the CCTC report challenges the SES report in stating that '*the totally uniform 25 cm SES topsoil values seem somewhat unlikely*'. The soil had recently been ploughed and a uniform soil depth would therefore be expected and dictated by plough depth setting. Plough to 25 cm depth is very common and minor depth variations will not affect the ALC grade

4. Stoniness

The site survey was conducted in accordance with relevant guidance documents and the Soil Survey Field Handbook. Figure 5 (Pages 16 and 17) is used to estimate the stone percentage when in the field. The CCTC report has not made reference to using this handbook to assess the stone percentage and instead has used photographs. It is important to note that merely looking at the face of a pit excavation is not a clear indication of the percentage stones within the soil and is not in line with the procedure outlined in the Field Handbook.

SES has complied with in-field measurements as detailed in the guidance documents.

SES has stored soil samples from the site for further evidence if needed.

5. Climatic conditions

The CCTC report makes reference to '*access to rainfall figures which show a higher value than that used by SES*'. This reference is not disclosed and therefore this cannot be used to assess the ALC grade. The SES report correctly used the Meteorological Office dataset to assess climate, in accordance with the MAFF guidance documents.

7. Versatility of crop

The versatility of the site for crop growth is not used to assess the ALC Grade for the site but rather the reverse. However it should be noted that ALC Grade 3b land is described as '*land capable of producing moderate yields of a narrow range of crops, principally cereals and grass or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year*' and is classified as '*moderate quality agricultural land*'.

Figure 2.

The CCTC report has included the 1992 ADAS ALC map which shows a number of site surveys to the south east of the Aston Road site. It is important to note that this area is mapped as having the same soil type across the area and ALC Grade 1 or 2 according to the 1988 MAFF maps. Yet the detailed survey identifies ALC Grades 2, 3a and 3b within this area. This clearly demonstrates the degree of soil variability within this small area and the contrast that can occur between the 1988 MAFF ALC grades compared to later detailed ALC surveys.

Figure 3 in the CCTC report is a poor demonstration of photography for soil pit examination for two major reasons: 1- it is difficult to determine the horizon depths given the angle of the viewpoint and the shadow; 2-the pit face has not been successfully cut to demonstrate the soil structure and stone content. It is therefore concluded that this evidence is invalid.

Appendix 1

The CCTC report has incorrectly referenced MAFF 1988 guidance document Page 44 to calculate the droughtiness, this should in fact be Pages 25-29.

The TAv and EAv for the topsoil stones has incorrectly been referenced as '*limestone*'. These values were used in accordance with the MAFF guideline document values for '*hard rocks and stones*' from Table 15, which is the stone type identified from the site survey.

Although the CCTC report moisture balance calculations have not used the correct TAv and EAv for the stones identified within the soil, this does not alter the ALC grade when determined using the CCTC data or correct SES site survey findings.

Experience

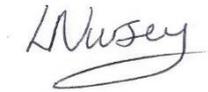
SES are an independent company with 20 years experience in agricultural surveying work with senior staff being members of the Institute of Professional Soil Scientists. The surveyor of the current site has conducted hundreds of ALC surveys across the UK, with experience of reviewing and providing expert opinions on ALC surveys conducted by other consultancies. SES have also had the benefit of many reviews of their reports by other consultants. As such SES continually share methods and techniques with other consultants across the UK on a regular basis.

The CCTC survey was not conducted by a qualified consultant, nor was the survey conducted in accordance with the relevant guidance documents.

SES stands by the original conclusions of the site survey and report. SES would conclude that the results of the CCTC site survey could not be used to evaluate the findings of the SES report.

Please contact if you have any queries.

Yours sincerely,

A handwritten signature in black ink that reads "Nursey". The signature is written in a cursive style with a long, sweeping underline.

Lauren Nursey BSc (Hons)
Environmental Consultant