RIXTON NEW HALL
WARRINGTON

Agricultural Land Classification Survey
Verification
February 1997

Resource Planning Team
Wolverhampton Statutory Group
ADAS Wolverhampton

ADAS Reference: **25/RPT/0816**
MAFF Reference: **EL06/11464**
LUPU Commission: **WO 2293**

VERIFICATION REPORT FOR RIXTON NEW HALL, WARRINGTON

1. INTRODUCTION

1.1 ADAS Statutory have been commissioned by MAFF to carry out a verification of the Agricultural Land Classification (ALC) report for the Rixton New Hall mineral extraction and landfill by Reading Agricultural Consultants (RAC).

2.0 SUMMARY

2.1 The ALC survey of the 65 ha site undertaken by RAC includes Grade 2, Subgrades 3a, and 3b and Grade 4 with the main limitation being soil wetness and soil droughtiness.

2.2 ADAS Statutory surveyed the site in February 1997 and found the site to include Grade 2, Subgrades 3a and 3b and Grade 4 with the main limitations being soil wetness and soil droughtiness.

2.3 ADAS Statutory found a higher proportion of best and most versatile land in comparison to the RAC survey. Table 1 gives the areas and percentages for each grade and subgrade as identified by ADAS Statutory and RAC.

Table 1: Comparison of RAC and ADAS Statutory findings.

ALC Grade	RAC Findings		ADAS Statutory Findings	
	Area (ha)	% of site	Area (ha)	% of site
2	24	35	30.2	46
3a	15	22	16.7	26
3b	8	12	6.6	10
4	18	26	8.8	14
Other	c.3	c.5	2.7	4
Total Area	68	100	65	100

3.0 BACKGROUND

3.1 A detailed ALC survey was carried out by the Resource Planning Team, ADAS Statutory on the 65 ha site at Rixton New Hall in February 1997. This survey was carried out in order to verify a survey carried out by RAC.

3.2 At the time of survey the site was part under cereal, part under grass and part ploughed.

4.0 FACTORS INFLUENCING ALC GRADE

4.1 Climate

4.1.1 Climate affects the grading of land through the assessment of an overall climatic limitation and also through interactions with soil characteristics.

4.1.2 The key climatic variables used for grading this site are given in Table 2 below and were obtained from the published 5km grid datasets using standard interpolation procedures (Met. Office, 1989).

4.1.3 The climatic criteria are considered first when classifying land as climate can be overriding in the sense that severe limitations will restrict land to low grades irrespective of favourable site or soil conditions.

Table 2: Climatic and altitude data

Factor	Units	Values
Grid reference	N/A	SJ 689 897
Altitude	m, AOD	15
Accumulated Temperature	day°C	1435
Average Annual Rainfall	mm	847
Field Capacity Days	days	199
Moisture Deficit, Wheat	mm	90
Moisture Deficit, Potatoes	mm	78

4.1.4 The main parameters used in the assessment of an overall climatic limitation are average annual rainfall (AAR), as a measure of overall wetness, and accumulated temperature (AT0, January to June), as a measure of the relative warmth of a locality.

4.1.5 The combination of rainfall and temperature at this site means that there is no overall climatic limitation. The site is climatically Grade 1.

4.1.6 Climatic information is given in the RAC report at paragraph 1.3 and is identical to the ADAS Statutory climatic details with the exception of the number of field capacity days. This factor does not affect the grading of the site.

5. SITE

5.1 ADAS Statutory found no limitations to the agricultural use of the land due to site factors of gradient, microrelief and flooding across the site. RAC identify gradients of 8°+ in paragraph 2.2. ADAS Statutory measured gradient over the site and found none to be limiting. This does not alter the overall grading of the land in these areas as the soils are of Subgrade 3b quality.

6.0 GEOLOGY

6.1 The published geological information for the site (BGS, sheet number 98 1983), shows the site to have a solid geology of Lower Keuper Marl and a drift geology of fluvio-glacial gravel.

7.0 SOILS

7.1 The RAC report identifies the soil types in paragraph 2.4 for each grade and subgrade.

7.2 Grade 2 soils are described by RAC as having sandy loam textured topsoil and upper subsoil with the occasional sandy clay loam topsoil over loamy medium sand and sand. Grade 2 land covers 24 ha or 35% of the site according to the RAC report.

7.3 ADAS Statutory agree in part with the description of the Grade 2 soil profiles by RAC, but also observed some profiles with clay present at depth, and a number of profiles with sandy clay loam topsoil. Grade 2 land covers 30.2 ha or 46% of the site according to ADAS Statutory.

7.4 Land adjacent to Lane End in the north of the site was classified by RAC as Subgrade 3b. ADAS Statutory classified this area as Grade 2 as no slowly permeable clay subsoil was found.

7.5 RAC classified land in the north east of the site as Subgrade 3b. This was found to be of Grade 2 quality by ADAS Statutory. ADAS Statutory describe the topsoil texture as sandy loam and no clay subsoils were found in this area.

7.6 Land to the south of Rixton New Hall is classified as Subgrade 3a and Subgrade 3b by RAC. The soil profiles are described by RAC as having a sandy loam or sandy clay loam topsoil over sandy loam, loamy sand or sand subsoil onto sand below 50 cm to depth. In the Subgrade 3b area, RAC describe a subsoil of clay below a depth of 50 cm. ADAS Statutory agree in part with the soils as described in the RAC report within this area. ADAS Statutory found no clay subsoils though and drought calculations classified soils within this area as Grade 2 not Subgrade 3a.

7.7 ADAS Statutory classified a small area in the south west of the site as Grade 2 which had been mapped as Grade 4 by RAC. RAC describe the soils as having a silty clay loam or heavy clay loam topsoil over clay or silty clay to depth. ADAS Statutory found sandy clay loam topsoil onto sand at depth within this area and graded the land as Grade 2 accordingly.

7.8 The prevailing local climate results in sandy clay loam soils being restricted in terms of land utilisation due to soil wetness and topsoil workability.

7.9 The lighter sandy loam soils are restricted by soil droughtiness.

7.10 Subgrade 3a soils are described by RAC as having a sandy loam topsoil with localised areas of a loamy medium sand topsoil. The Subsoils are predominantly sandy.

7.11 Similar descriptions of Subgrade 3a soils were given by ADAS Statutory and RAC for the area in the south east of the site, opposite Rye Park House. ADAS Statutory found subsoils of sand or clay to depth. Evidence of gleying together with the depth to a slowly permeable layer resulted in the soils being limited by wetness.

7.12 Other areas of Subgrade 3a mapped by ADAS Statutory do not correspond to those mapped by RAC. Subgrade 3a covers a total of 16.7 ha or 26% of the site according to ADAS Statutory whilst RAC record 15 hectares or 22% of the site as Subgrade 3a.

7.13 Land to the west of the track leading to Rixton New Hall was mapped by RAC as Grade 2 and Grade 4. ADAS Statutory found this area to be of Subgrade 3a quality. RAC described the Grade 2 soils as having sandy clay loam topsoil over sandy clay loam subsoil onto sand to depth. The Grade 4 soils are described by RAC as silty clay loam or heavy clay loam topsoil over clay or silty clay to depth. ADAS Statutory found similar soils to those described by RAC in this area although ADAS Statutory also found a number of profiles with a lower subsoil of clay rather than sand. The presence of gleying within the top 40 cm of the soil profile and the absence of a slowly permeable layer place these soils in Wetness Class II and Subgrade 3a.

7.14 To the north west and south west of Rixton New Hall ADAS Statutory mapped two discrete areas of Subgrade 3a which were mapped by RAC as Grade 2. The soils are described by RAC as sandy loam topsoil over sandy loam, sandy clay loam or loamy sand subsoil onto sand to depth. ADAS Statutory observed gleying within the top 40 cm of some profiles with sandy clay loam or clay loam topsoil, which would result in these soils being graded as Subgrade 3a. Where ADAS Statutory found soils similar to those described by RAC, droughtiness was the limiting factor and soils were graded as Subgrade 3a.

7.15 An area of Grade 4 land in the south west of the site, described by RAC as silty clay loam or heavy clay loam topsoil, over clay or silty clay to depth, was classified by ADAS Statutory as Subgrade 4a. The soils were as described by RAC although no slowly permeable layer was found within 80 cm of the soil surface therefore ADAS Statutory classified the soils as subgrade 3a.

7.16 Where profiles have sandy subsoils the main limitation to ALC grade is droughtiness. In other profiles where heavier clay loam and clay subsoils are present then soil wetness is the main limitation to the ALC grade.

7.17 Areas of Subgrade 3b mapped by ADAS Statutory cover a total of 6.6 ha or 10% of the site. The soils have clay loam topsoil over silty clay loam or clay to depth, topsoil of sandy clay loam were found occasionally within the Subgrade 3b areas. RAC describe Subgrade 3b soils as covering a total of 8 ha or 12% of the site. The Subgrade 3b soils detailed in the RAC report are similar to those found by ADAS Statutory. RAC and ADAS Statutory have generally mapped Subgrade 3b land over matching areas of the site. The exception to this is an area mapped by RAC as Grade 4 to the north west of the track leading to Rixton New Hall. The soils described by RAC for this area are heavy clay loam or heavy silty clay loam topsoil over clay or silty clay to depth. ADAS found topsoil texture of medium clay loam and this classified the land as Subgrade 3b, rather than Grade 4 (RAC).

7.18 ADAS Statutory agree with the findings of the RAC report that the principle limitation to the ALC grade of these soils is wetness.

7.19 Two discrete areas of Grade 4 land were mapped by ADAS Statutory, one in the central eastern part of the site and the other along the western boundary of the site. ADAS Statutory found the Grade 4 land to cover 8.8 ha or 15% of the site. In the two areas mapped as Grade 4 ADAS Statutory agree with the described of the soils as given in the RAC report i.e. heavy clay loam or heavy silty clay loam topsoil with clay or silty clay subsoil to depth.

7.20 RAC state that Grade 4 land covers 18 ha or 26% of the site. ADAS Statutory found a smaller area of Grade 4 land to that described in the RAC report, the reasons for this have been detailed in paragraphs 7.1 to 7.18 of this report.

7.21 Soil wetness is the main limitation to the land in this grade.

8.0 AGRICULTURAL LAND CLASSIFICATION

8.1 The agricultural land at Rixton New Hall has been classed by RAC as a mixture of Grade 2, Subgrade 3a, Subgrade 3b, Grade 4 and other land. This was found to be the case by ADAS Statutory although the amounts of land in each grade and subgrade was found to be different, as illustrated in Table 1. The reasons for these differences between the ADAS Statutory and the RAC survey are described in detail in Section 7 of this report.

8.1.1 A discrepancy is found in the total site area. In RAC's report the site is said to be 68 hectares whilst ADAS Statutory measure the site as 65 hectares. From the maps used in the RAC report the site boundary appears to cover the same area as surveyed by ADAS Statutory.

8.1.2 The area of best and most versatile land (Grade 2 and Subgrade 3a) identified by RAC covers 39 hectares or 57% of the site. ADAS Statutory have found a greater area of Grade 2 and Subgrade 3a covering a total of 46.9 hectares or 72% of the site.

9.0 CONCLUSION

9.1 ADAS Statutory identified a larger area of the site to be of Grade 2 and Subgrade 3a quality than found by RAC.