Report of the MAFF Agricultural Land Classification Survey - The Nash, Kempsey

1. Summary:

The land has been classified following the Agricultural Land Classification of England and Wales - revised guidelines and criteria for grading the quality of agricultural land (MAFF, 1988). Of the site nearly 60% is classified as Grades 1 and 2 with over 30% in sub-grades 3a and 3b.

2. Climatic Limitations:

The main parameters used in the assessment of the climatic limitations are average annual rainfall (AAR), as a measure of overall wetness and accumulated temperature (ATO), as a measure of the relative warmth of the locality. The figures of AAR and ATO indicate that there are no climatic limitations on this site.

3. Site Limitations:

The assessment of site factors is primarily concerned at the way in which topography influences the use of agricultural machinery and hence the cropping potential of the land. There is a site limitation affecting the use of the land in the north eastern part of the site.

4. Soil Limitations:

The main soil properties which affect the cropping potential and management requirements of land are texture, structure, depth, stoniness and chemical fertility. These may act as limitations separately, in combination or through interactions with climate or site factors. The physical limitations which result from interactions between climate, site and soil are soil wetness, droughtiness, and erosion.

To achieve full yield potential a crop requires an adequate supply of soil moisture through the season. Droughtiness is most likely to be a significant limitation to crop growth in the areas with relatively low rainfall or high evapro-transpiration or where the soil holds only small reserves of moisture available to plant roots. The severity of the limitation in an area depends on the relationship between the soil properties and climatic factors and the moisture requirements of the crops grown. These relationships are complex and the degree of moisture stress varies from year to year according to the weather. In the ALC system the method used to assess the droughtiness provides an indication of the average droughtiness based on two reference crops, winter wheat and main crop potatoes. The method used to assess *droughtiness takes account of crop rooting and foliar* characteristics to obtain an estimate of the average soil moisture balance (MB) for the reference crops at a given location. The moisture balance is calculated on the basis of two parameters - the crop adjusted available water capacity of the soil profile and the moisture deficit. Irrigation can significantly enhance the potential of agricultural land and as it is current practice on the site, has been taken into account in the ALC grading. Reference will be made to droughtiness where it is a limiting factor in Section 7.

A soil wetness limitation exists where the soil water regime adversely affects plant growth or imposes restrictions on cultivations or grazing by livestock. The soil wetness assessment takes account of a climatic regime, the soil water regime and the texture of the top 25 cm of the soil. Reference will be made to soil wetness where it is a limiting factor in Section 7

5. Background Information:

The underlying solid geology is mapped as Triassic Mudstone (Geology of UK South, scale 1:625,000). River Terrace deposits are found in the area (Soils of Worcester and the Malverns District, Soil Survey).

6. **Agricultural Land Use:**

At the time of the survey June-July 1991 the site was under wheat, potatoes, beans, and field vegetables. A small area to the north east of The Nash was down to grass for sheep.

7. **Agricultural Land Quality (Appendix 1):**

Grade 1 - Land in this grade is found to the south of Baynhall Farm and to the west of Quaking House Farm. The soils have a deep sandy loam texture extending to 60 cm overlying loamy sand and sand at depth. The moisture balance indicates a drought limitation limiting the grade of this land to Grade 2. However with the use of irrigation the land is upgraded by one grade to Grade 1.

Grade 2 - Land in this grade is found to the east of Baynhall Farm and to the north of The Nash. Typically the soil has a sandy loam texture extending to about 40 cm overlying loamy sand and sand. The moisture balance indicates a drought limitation of sub-grade 3a on this land. However with the use of irrigation this land is upgraded by one grade to Grade 2.

Occasionally some profiles have a clay horizon present giving rise to a soil wetness limitation. Where this occurs the soils are placed in wetness class II or wetness class III according to the depth to gleying and the slowly permeable layer.

Sub-Grade 3a - land is classified as sub-grade 3a where there is either a drought limitation or a soil wetness limitation. Where a drought limitation exists the soil has a sandy loam or loamy sand texture overlying further depths of loamy sand and sand. The moisture balance indicates a grading of sub-grade 3b, but with irrigation it is upgraded by one sub-grade to sub-grade 3a.

In places the land is classified as sub-grade 3a because a soil wetness limitation is present. The soil has a medium clay loam texture overlying heavy clay loam and clay. The presence of gleying and depth to the slowly permeable layer places it in wetness class III, hence a grading of sub-grade 3a.

Sub-Grade 3b - The main area is found at the north eastern boundary of the site where there is a site limitation and also a soil wetness limitation. Over part of this area the gradient exceeds 7° hence limiting it to Sub-Grade 3b. The soil wetness limitation exists where soils have a heavy clay loam texture overlying clay. Observations of gleying and the depth to the slowly permeable layer indicate wetness class III and a grading of sub-grade 3b.

Other land - includes woodland areas and agricultural buildings.

Resource Planning Group

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APPENDIX 1

DESCRIPTION OF THE GRADES AND SUBGRADES

Grade 1 - excellent quality agricultural land

Land with no or very minor limitations to agricultural use. A very wide range of agricultural and horticultural crops can be grown and commonly includes top fruit, soft fruit, salad crops and winter havested vegetables. Yields are high and less variable than on land of lower quality.

Grade 2 - very good quality agricultural land

Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultual crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1.

Grade 3 - good to moderate quality agricultural land

Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.

Subgrade 3a - good quality agricultural land

Land capable of consistently producing moderate to high yields of a narrow range of arable crops, especially cereals, or moderate yields of a wide range of crops including cereals, grass, oilseed rape, potatoes, sugar beet and the less demanding horticultural crops.

Subgrade 3b - moderate quality agricultural land

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.

Grade 4 - poor quality agricultural land

Land with severe limitation which significantly restrict the range of crops and/or level of yields. It is mainly suited to grass with occasional arable crops (eg cereals and forage crops) the yields of which are variable. In moist climates, yields of grass may be moderate to high but there may be difficulties in utilisation. The grade also includes very droughty arable land.

Grade 5 - very poor quality agricultural land

Land with very severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

Descriptions of other land categories used on ALC maps

Urban

Built-up or 'hard' uses with relatively little potential for a return to agriculture including: housing, industry, commerce, education, transport, religious buildings, cemetries. Also, hard-surfaced sports facilities, permanent caravan sites and vacant land; all types of derelict land, including mineral workings which are only likely to be reclaimed using derelict land grants.

Non-agricultural

'Soft' uses where most of the land could be returned relatively easily to agriculture, including: golf courses, private parkland, public open spaces, sports fields, allotments and soft-surfaced areas on airport/airfields. Also active mineral workings and refuse tips where restoration conditions to 'soft' after-uses may apply.

Woodland

Includes commercial and non-commercial woodland. A distinction may be made as necessary between farm and non-farm woodland.

Agricultural buildings

Includes the normal range of agricultural buildings as well as other relatively permanent structures such as glasshouses. Temporary structures (eg polythene tunnels erected for lambing) may be ignored.

Open water

Includes lakes, ponds and rivers as map scale permits.

Land not surveyed

Agricultural land which has not been surveyed.

Where the land use includes more than one of the above land cover types, eg buildings in large grounds, and where map scale permits, the cover types may be shown separately. Otherwise, the most extensive cover type will usually be shown.

Agricultural Land Classification - The Nash, Kempsey

Grade	ha	as % of total	as % of agricultural land
1	7.55	7	8
2	56.42	51	56
3a	22.09	20	22
3b	13.83	12	14
	(99.89)		
Non-Agricultural	8.53	8	-
Agricultural Buildings	2.33	2	100
	110.75	100	100