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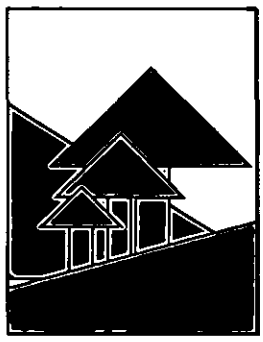

LAND
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A D A S

AGRICULTURAL DEVELOPMENT AND ADVISORY SERVICE

VAUXHALL - BEDFORD RECREATION CLUB

PROPOSED SPORTSFIELD DEVELOPMENT AT
CHAUL END, CADDINGTON, BEDFORDSHIRE

ADAS

VAUXHALL-BEDFORD RECREATION CLUB

KIMPTON ROAD

LUTON

BEDFORDSHIRE

ADAS REPORT AND APPRAISAL ON PROPOSED SPORTSFIELD DEVELOPMENT: LAND AT CHAUL END, CADDINGTON, BEDS.

1/80/89 ADCH

September 1989

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SUMMARY

1.1. Vauxhall-Bedford Recreation Club own 56 ha (138 acres) of land at Chaul End, Caddington, Bedfordshire. 42.5 ha (105 acres) of land have until recently been farmed by the Club, but have now been entered into the MAFF Set Aside Scheme.

1.2. Approximately 15 ha (37 acres) of the agricultural land owned by the club are proposed for sportsfield development. This proposal arises from the need to relocate Club activities from the current facilities in Luton where the site is required for redevelopment by Vauxhall Motors Ltd.

1.3. A detailed Agricultural Land Classification by ADAS has identified the proposed site as sub-grade 3a agricultural land. Two soil types within the site have been defined and soil drainage and stone content limitations on agricultural use identified.

1.4. The ADAS appraisal concludes that for specified development purposes, stoniness limitations can be overcome and that the proposed development is reversible. The proposal follows the guidance given on development involving agricultural land in DoE Circular 16/87 and therefore does not affect the long-term national agricultural interest.

2. INTRODUCTION

2.1 This report considers the effects on agriculture of the proposed sports field development of approximately 15 hectares (37 acres) of land at Chaul End, Caddington, Bedfordshire in the context of Government policy on development involving agricultural land as set out in Department of the Environment Circular 16/87. Specific attention is paid to the information and technical guidance on agricultural matters given in Annex B of the circular to assist local planning authorities in applying the policy.

2.2 The facts given in this report are based on information provided by the owners of the site, Vauxhall-Bedford Recreation Club, and a detailed Agricultural Land Classification and soil resources survey carried out by ADAS during September 1989. The ADAS soil and water engineering specialist adviser for the area was consulted on the possible soil constraints and remedies identified in the report.

2.3 The appraisal is an independent, impartial assessment by ADAS.

3. BACKGROUND TO THE SITE

3.1 It is understood that proposed major redevelopment of Vauxhall Motors' Luton site will involve the loss of sports pitches within the town. Club activities such as football, cricket, rugby and hockey will need to be relocated. The chosen site extends to approximately 15 hectares (37 acres) and comprises part of the Vauxhall-Bedford Recreation Club land-holding at Chaul End, Caddington (outlined in red and blue respectively on the map at Appendix 1).

3.2 Current land use is as follows:

	Approx hectares	Approx acres
Agricultural land	42.5	105
Golf course	11.0	27
Model flying area	2.5	6
Total	56.0	138

There is no farmstead (house or buildings) - i.e. this is a 'bare land' holding.

3.3 Up to the 1989 harvest and for several years previously, the agricultural land has been farmed by the Club, in partnership with a local farmer. The 1988/89 crop was oilseed rape, which followed a series of cereals crops. All the agricultural land has now been entered into the MAFF Set-Aside Scheme and no crops will be grown for the next 5 years. Management during this period will be as 'permanent fallow'; if the proposed planning application for recreational development is successful, a lower rate of set-aside payment will be made for the area concerned.

4. AGRICULTURAL LAND CLASSIFICATION (ALC) AND SOIL RESOURCES

4.1 In order to establish the suitability of the site for recreational development, both in physical and planning terms, a detailed ALC and soil resources survey of this 15 hectare (37 acre) area was carried out during September 1989.

4.2 The ALC system provides a framework for classifying land according to the extent to which its physical or chemical characteristics impose long-term limitations on agricultural use. The limitations can operate in one or more of 4 principal ways: they may affect the range of crops which can be grown, the level of yield, the consistency of yield and the cost of obtaining it. The classification system gives considerable weight to flexibility of cropping, whether actual or potential, but the ability of some land to produce consistently high yields of a somewhat narrower range of crops is also taken into account.

4.3 The principal physical factors influencing agricultural production are climate, site and soil. The main climatic factors which are taken into account are temperature and rainfall, although account is also taken of exposure, aspect and frost risk. The site factors used in the classification system are gradient, micro-relief and flood risk. Soil characteristics of particular importance are texture, structure, depth and stoniness. In some situations chemical properties may also influence the long-term potential of land and are taken into account.

4.4 These factors result in varying degrees of constraint on agricultural production. They can act separately or in combination, the most important interactive limitations being soil wetness and droughtiness. The grade or sub-grade of land is determined by the most limiting factor present. Five grades of land are recognised, ranging from Grade 1 land of excellent to Grade 5 land of very poor quality. Grade 3, which constitutes about half of the agricultural land in England and Wales, is divided into 2 sub-grades designated 3a and 3b.

4.5 Details of the ALC system are contained in MAFF's Technical Report 'Revised guidelines and criteria for grading the quality of agricultural land'. Brief descriptions of the ALC grades and sub-grades are provided in Appendix 2.

4.6 The site is shown as Grade 3 agricultural land on the Ministry's published 1:63360 scale provisional ALC map (sheet 147, 1969). For detailed site-specific appraisals, however, these maps are inappropriate as they were initially surveyed at a reconnaissance level for strategic planning purposes, and often do not show smaller areas (i.e. less than 80 hectares - 200 acres) of individual ALC grades.

4.7 A total of 18 soil inspections were made over the site using a hand-held 125 centimetre Dutch soil auger. These inspections were supplemented by observations from 2 soil pits. A detailed report on the physical factors affecting land quality and description of the soil types identified is provided at Appendix 3.

4.8 The whole of the survey area has been graded 3a - see Appendix 3, map 2. This grade is associated with 2 soil types on the site, as described in Appendix 3, Annex and map 1.

4.9 The soils of soil type A, which cover most of the site, are fine textured with slowly permeable lower subsoils. The combination of heavy topsoil texture and impeded drainage at depth imposes a moderate limitation on the agricultural potential, especially for arable cropping, of this land. As a result, the land is excluded from a higher grade.

4.10 The coarser textured soils of soil type B, which occurs in the northern part of the site, hold good reserves of water, have porous subsoils and are freely draining. However, topsoil stone content ranges from 10-15% medium and large subangular flints. These flints act as a moderate impediment to cultivation, harvesting and crop growth and may reduce nutrient capacity of the soil. As a result, this topsoil stone limitation restricts the land to sub-grade 3a.

5. GOVERNMENT POLICY ON DEVELOPMENT INVOLVING AGRICULTURAL LAND

5.1 Department of the Environment Circular 16/87 gives guidance on development involving agricultural land, in the context of surpluses of agricultural products and the need to foster the diversification of the rural economy so as to open up wider and more varied employment opportunities.

5.2 Paragraph 3 of the Circular says "... when considering the allocation of land for development and in deciding any application for planning permission that affects agricultural land, the agricultural implications must be considered together with the environmental and economic aspects. The agricultural quality of the land and the need to control the rate at which land is taken for development are among the factors to be included in that assessment, together with the need to facilitate development and economic activity that provides jobs, and the continuing need to protect the countryside for its own sake rather than primarily for the productive value of the land".

5.3 Paragraph 4 continues: "In assessing these various functions, while agricultural quality of the land will often be a relevant consideration, it also has to be borne in mind that the demand for agricultural products fluctuates over time and, once land is developed, return to agricultural use is seldom practicable. The best and most versatile land has a special importance and should not be built on unless there is no other site suitable for the particular purpose. This land is a national resource for the long term and should in general be protected from irreversible development".

5.4 Under the provisions of the Town and Countryside Planning General Development Order (GDO) 1988, local planning authorities must consult MAFF about all proposed developments involving loss of more than 20 hectares (50 acres) of Grade 1, 2 or 3a land, or involving less than 20 hectares if the loss is likely to lead to further losses amounting cumulatively to 20 hectares or more. This requirement replaces the previous threshold of 4 hectares (10 acres) contained in the 1977 GDO and reflects the policy set out in Circular 16/87.

6. APPRAISAL

6.1 ADAS experience is that land to be used for sports or recreation always needs to be well drained. If it is wet with poor or inadequate drainage, it will only be of limited use - the pitches will become muddy and the playing season will be shortened. In our opinion, the drainage limitation noted on soil type A can be corrected to facilitate the use for sports field purposes by the installation of a properly designed underdrainage system.

6.2 The 2 soil types have topsoil stone contents described for the purposes of ALC as 'slightly stony' - 10% in the case of soil type A and 10-15% for soil type B. In the case of sports field development, if uncorrected these levels of stone content could present a major hazard to players of games such as rugby or hockey. In our opinion such stones could largely be removed from the proposed playing areas by the use of appropriate specialist equipment in the pitch preparation process. Importation of a thin layer of loam to create the seeded surface could also be considered.

6.3 The southern area has a gentle eastward slope (average 3%), whilst the northern area slopes somewhat more steeply northwards. The laying out of sports pitches on soil type A should be easily achieved without major soil movement, thus ensuring the long-term possibility of a return to agricultural production if this was ever necessary. Given the topsoil stone content and slopes the area of soil type B is only suitable for recreational purposes, such as model flying.

6.4 The proposal involves the recreational development of 15 hectares of sub-grade 3a agricultural land. Bearing in mind the points made in paragraphs 6.1-6.3 above, the development is considered to be reversible. There are no 'other factors' (see Circular 16/87, Annex B), such as farm structure which affect the agricultural consideration of this proposal. In my opinion the proposed sports-field development follows the guidance given in DoE Circular 16/87 and therefore does not affect the long-term national agricultural interest.

E A ROGERS ARICS
Land Management Adviser

September 1989

APPENDIX 2

AGRICULTURAL LAND CLASSIFICATION SYSTEM

Brief Description of the Grades

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 harvested 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 horticultural 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 choices of crops, timing and type of cultivation, harvesting or the level of yield. When 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 3a - 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 higher yields of grass which can be grazed or harvested over most of the year.

Grade 4 - poor quality agricultural land

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

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.

APPENDIX 3

AGRICULTURAL LAND CLASSIFICATION

LAND AT CHAUL END, CADDINGTON, BEDFORDSHIRE

PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

1. Site specific climate data has been obtained by interpolating information contained in the 5 km grid dataset produced by the Meteorological Office (Met. Office, 1989).

2. This dataset indicates that for the site's typical altitude range of 185-200m the annual average rainfall ranges from 701 mm (27.6") to 707 mm (27.8"). Soils are likely to be at field capacity for a moderate period of 146-148 days. During this time the timeliness of cultivations is critical to avoid structural damage to these fine textured soils.

3. The accumulated temperature for this area ranges from 1267 to 1283 degrees celsius. This parameter indicates the cumulative build-up of warmth available for crop growth and has an influence on the development of soil moisture deficits (SMD)* and susceptibility to drought; the soil moisture deficits for potatoes and wheat range from 79-82 mm and 91-94 mm respectively.

4. The site is neither particularly exposed nor frost-prone.

5. The climatic characteristics described in paragraphs 2 to 4 above impose a slight climatic limitation on the ALC grading of the site. As a result the land can at best be Grade 2.

* SMD represents the balance between rainfall and potential evapotranspiration occurring during the growing season. For ALC purposes the soil moisture deficits developing under a winter wheat and maincrop potato cover are considered. These 'reference' crops have been selected because they are widely grown, and in terms of their susceptibility to drought, are representative of a wide range of crops.

Altitude and Relief

6. The land falls gently northeast-eastwards at about 5% (1 in 20) from 200m AOD, adjacent to Twentynine Wood, to 185m AOD. Gradient and altitude do not constitute limitations to the ALC grade.

Geology and soils

7. A published geology map covering the site is not available. However the Soil Survey of England and Wales Bulletin No 13 (1984) indicates that the soils north of Caddington are typically derived from Plateau Drift and Clay-with-flints which cap chalk plateaux at 90 to 250 m OD. Their reconnaissance scale (1:250,000) map entitled "The Soils of Eastern England", shows the occurrence of the Batcombe Association* within the survey area. During the current survey a more detailed inspection of the soils was carried out. Two main soil types occur over the site.

7.1 **Soil Type A** (refer to Annex and Map 1)

These soils cover the majority of the site. They typically comprise slightly stony (10%) heavy clay loam topsoil over slightly stony clay subsoils which invariably become gleyed at depth. Soil profile pit observations indicate that these soils are slightly droughty and have a wetness class of II**.

7.2 **Soil Type B** (refer to Annex and Map 1)

These soils are lighter and occur on the lower land (altitude 185 m AOD) towards the northern edge of the site They generally comprise slightly stony (10-15%) medium clay loam or heavy clay loam topsoils over slightly stony medium clay loam subsoils. Soil profile pit observations indicate that these soils are very slightly droughty and have a wetness class of I.

7.3 Soils are typically very slightly or non-calcareous and field pH measurements range from 6.5 to 7.0.

* Batcombe Association: Fine silty over clayey and fine loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging. Some well drained clayey soils over chalk. Variably flinty.

** At a few locations the wetness class was assessed as wetness class I, however these soils cover too small an area to delineate separately.

ANNEX

DESCRIPTION OF SOILS

SOIL TYPE A

Topsoil	texture	: heavy clay loam
	colour	: 10 yr 4/4; 10 yr 5/4
	stone	: approx 10% medium subangular flints
	depth	: 30/40 cm
Upper suboil	texture	: clay
	stone	: 10-15% medium and large subangular flints; very firm consistence
	structure	: weakly developed coarse subangular blocky;
	mottles	: few distinct or common faint ochreous 5 yr 5/6; 7.5 yr 5/6
	depth	: 60/70 cm
Lower subsoil	texture	: clay
	stone	: slightly stony (10-15% medium and large flints)
	structure	: moderately developed coarse prismatic; extremely hard consistence
	mottles	: common distinct ochreous - 5 yr 5/6
	depth	: 120 cm

SOIL TYPE B

Topsoil	texture	: heavy or medium clay loam
	colour	: 10 yr 4/4
	stone	: 5-10% medium and 5% large subangular flints
	depth	: 40 cm
Subsoil	texture	: medium clay loam
	stone	: 10% medium and large subangular flints
	mottles	: none seen
	structure	: weakly developed medium and coarse subangular blocky; very firm consistence
	colour	: 10 yr 4/6
	depth	: 120 cm

Slightly stony 6-15%
Moderately stony 16-35%

References

MAFF, 1969 — Agricultural Land Classification Map Sheet 147, 1:63360.

MAFF, 1988 — Agricultural Land Classification of England and Wales. (Revised Guidelines and criteria for grading the quality of Agricultural Land), Alnwick.

Meteorological Office, 1989 — Published climatic data extracted from the ALC agroclimatic dataset, compiled by the Meteorological Office.

SOIL SURVEY OF ENGLAND AND WALES, 1965 — Bedford and Luton, Special Report 1 Map Sheet 147 (1:63360 scale).

SOIL SURVEY OF ENGLAND AND WALES, 1983 — 'The Soils of Eastern England' Sheet 4 (1:250,000 scale).

SOIL SURVEY OF ENGLAND AND WALES, 1984 — 'Soils and their use in Eastern England' Bulletin No. 13, Harpenden.