AGRICULTURAL LAND CLASSIFICATION

WAVENEY DISTRICT LOCAL PLAN, SUFFOLK

1.0 BACKGROUND

1.1 The twelve sites surveyed, covering 163.1 hectares in total, form part of the Waveney District Plan. ADAS Statutory Group surveyed the sites in March/April 1994 to assess the agricultural land quality at an auger boring density of approximately 1 boring per hectare. These borings were supplemented by soil inspection pits to provide additional information on subsoil conditions. The sites are known as; Benacre Road, Beccles (1), north of Hill Farm Road, Halesworth (16), east of Hill Farm Road, Halesworth (17), St Margarets Road, Bungay (23), Church Lane, Corton (30), west of London Road, Kessingland (47), east of London Road, Kessingland (48), south of Benacre Road, Ellough (50), land between Ellough Road and Oak Lane, Beccles (51 sites A, B and C) and south of Bloodmoor, Gisleham (57).

1.2 On the published Provisional 1:63,360 scale Agricultural Land Classification Map, Sheet 137 (scale 1:63,360) the survey areas are predominantly mapped as grade 3. However, site 30 is entirely grade 2 and site 23 has a small area of grade 4 corresponding to the access track across it. Non-agricultural land is mapped at site 48 where it covers the majority of the site, and at site 50 where it corresponds to the runways and a small area of woodland in the south. The northwest half of site 51 is depicted as urban. Since this map is of a reconnaissance nature designed primarily for strategic planning purposes, the current survey was undertaken to provide more detailed information on land quality for the survey area.

2.0 PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

2.1 Site specific climatic information for the twelve sites has been obtained by interpolating information contained in the 5 km grid dataset produced by the Meteorological Office (1989). This information is shown in summary at Appendix 1.

2.2 These climatic characteristics do not impose any climatic limitation to the land quality of any of the sites.

Altitude and Relief

2.3 The sites are located throughout the Waveney District and much of the land is gently undulating. All the sites lie between the altitude range of 5 m and 30 m AOD.

2.4 Neither gradient nor altitude constitute limitations to the ALC grade of these sites.

Geology and Soils

2.5 The published 1:253,440 scale drift edition geology map Sheets 12 and 16 (Geological Survey of Great Britain 1964 and 1907 respectively) show the survey areas to be covered by glacial drift deposits. A boulder clay plateau occurs in the centre with sand and gravel deposits outcropping at the edge of the plateau on the valley sides at sites 16 and 17 and closer to the coast, covering the southern part of site 30 and a small area in the west of site 57. At site 51 the underlying geology has been exposed by a small stream to reveal the underlying Norwich and Red Crags strata.

2.6 The Soil Survey of England and Wales (Sheet 4, Soils of Eastern England, 1983, scale 1:250,000) reconnaissance map shows the occurrence of four soil associations within the survey area. Soils of the Hanslope Association (*1) occur in conjunction with the boulder clay drift and cover sites 16, 17 and 23 entirely and the majority of site 51, where it is mapped in conjunction with Beccles 1 Association (*2) soils which occur in the southwest of the site. Beccles 1 soils are similarly extensive throughout the survey area also corresponding to the boulder clay drift, covering the whole of sites 1 and 50 and are the predominant soil at sites 47 and 48. The latter two sites are shown to have Newport 3 Association (*3) soils on the southeast, while this is present over the whole of site 57. Closer to the coast at site 30 soils of the Wick 3 Association (*4)occur. During the current ADAS survey a more detailed inspection of the soils was carried out, 4 main soils types were also identified.

2.6.1 Clayey soils which are present on the boulder clay plateau are the predominate soil type covering the survey areas (Site: whole 1, whole 16, majority 17, majority 23, part 30, part 48, whole 50, majority of areas 51, part 57). Typically these soils are very slightly stony throughout and consist of non-calcareous heavy clay loam or clay topsoils over gleyed clay subsoils which often become chalky with depth (occasionally also containing flints). The drainage of these soils is generally impeded at a shallow depth (wetness class III) with smaller areas of better drained soils (wetness class II) having sandy clay loam, heavy

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(*1) Hanslope Association: Slowly permeable calcareous clayey soils. Some slowly permeable non-calcareous clayey soils. Slight risk of water erosion.

(*2) Beccles 1 Association: Slowly permeable seasonally waterlogged fine loamy over clayey soils and similar soils with only slight seasonal waterlogging. Some calcareous clayey soils especially on steeper slopes.

(*3) Newport 3 Association: Deep well drained sandy and coarse loamy soils. Some coarse and fine loamy soils with slowly permeable subsoils and slight seasonal waterlogging. Risk of wind erosion.

(*4) Wick 3 Association: Deep well drained coarse loamy often stoneless soils. Some similar sandy soils. Complex pattern locally. Risk of water erosion.

clay loam or sandy clay upper subsoils. Occasionally sand lenses may also be present within these soil profiles and in a few instances topsoil textures are sandy clay loam.

2.6.2 Smaller areas of coarser textured soils occur around the edges of the boulder clay plateau (Sites: part 17, part 23, part 47, majority 57). These soils typically comprise very slightly to slightly stony medium sandy loam (or occasionally sand clay loam) topsoils over very slightly stony medium sandy loam or loamy medium sand subsoils which often merge to sand at depth. Slightly stony bands may occur within some profiles. These deep well drained soils are assessed as wetness class I.

2.6.3 Another light textured loamy soil type occurs within the survey areas (Sites: part 30, majority 47, part 48, part 51, part 57). These soils typically comprise sandy clay loam or medium sandy loam topsoils over similar textured upper subsoils which become medium sandy loam or loamy medium sand (occasionally sand) at depth. These soils are free draining (wetness class I). However, drainage may be impeded in some profiles by gleyed sandy clay or sandy clay loam in the lower subsoil (wetness class II). Soils are typically very slightly stony or occasionally slightly stony throughout.

2.6.4 Stony soils are present in the south of site 17. They typically comprise slightly stony medium sandy loam topsoils overlying sand or occasionally loamy medium sand subsoils with varying quantities of flints (up to 50% flints in the subsoil matrix).

3.0 AGRICULTURAL LAND CLASSIFICATION

3.1 The definitions of the Agricultural Land Classification (ALC) grades are included in Appendix 2.

3.2 The table overleaf shows the ALC grades for each of the survey sites.

AGRICULTURAL LAND CLASSIFICATION

SITE	GRADE	HECTARES	PERCENTAGE
1	3b	2.1	27
	Urban	3.8	49
	Non-Agricultural	1.9	24
	TOTAL	7.8	100
16	3a	2.2	42
	3b	3.0	58
	TOTAL	5.2	100
17	3a	1.2	26
	3b	3.5	74
	TOTAL	4.7	100
23	2	8.4	74
	3a	1.1	10
	Non-Agricultural	1.8	16
	TOTAL	11.3	100
30	3a	10.9	87
	Urban	0.6	5
	Non-Agricultural	0.8	6
	Agricultural Buildings	0.2	2
	TOTAL	12.5	100
47	3a	10.2	94
	Non-Agricultural	0.7	6
	TOTAL	10.9	100
48	3a	6.5	98
	Non-Agricultural	0.1	2
	TOTAL	6.6	100

(Continued)

SITE	GRADE	HECTARES	PERCENTAGE
50	3b	28.0	70
	Urban	9.3	23
	Non-Agricultural	1.1	3
	Woodland	1.2	3
	Agricultural Buildings	0.3	1
	TOTAL	39.9	100
51 Site A	2	4.2	49
	~~3a~~ 3b .	4.4	51
	TOTAL	8.6	100
51 Site B	2	0.9	10
	~~3a~~ 3b .	8.2	90
	TOTAL	9.1	100
51 Site C	2	4.6	21
	~~3a~~ 3b.	17.3	79
	TOTAL	21.9	100
57	3a	10.5	43
	3b	14.1	57
	TOTAL	24.6	100

Benacre Road, Beccles - Site 1 (7.8 hectares)

Subgrade 3b

3.3 The agricultural land on the site has been graded 3b. This area correlates with the clayey soils described in paragraph 2.6.1. These profiles have slowly permeable horizons directly below the topsoil (wetness class III). This factor in combination with the non-calcareous heavy clay loam and clay topsoils restricts land quality to subgrade 3b (moderate quality agricultural land) on wetness and workability limitations.

Urban

3.4 The depot, vehicle storage area and a concreted gravel stockpile area which was playing fields have all been mapped as urban.

Non-Agricultural

3.5 This corresponds to a small area in the northwest of the site where a disturbed soil stockpile occurs.

North of Hill Farm Road, Halesworth - Site 16 (5.2 hectares)

Subgrade 3a

3.6 Along the western edge of the site land has been graded 3a in association with the flinty better drained soils described in paragraph 2.6.1. Soil profile pit observations indicate that these soils hold moderate reserves of available water and are often slowly permeable in the horizon above the chalky/flinty material. In the former situation the presence of many flints in the lower horizons reduces the moisture retention characteristics of the land thus restricting it to subgrade 3a (good quality agricultural land). In the latter situation the wetness class has been assessed as II. This combined with the heavy clay loam, non-calcareous topsoils imposes a moderate wetness and workability limitation which excludes the land from a higher grade.

Subgrade 3b

3.7 The majority of the site has been graded 3b and occurs in association with the heavier textured, poorer drained clayey soils described in paragraph 2.6.1. Due to the presence of a slowly permeable layer directly below the topsoil the wetness class has been assessed as III. This combined with the fine textured,

non-calcareous topsoils to impose a significant wetness and workability limitation which restricts the land to subgrade 3b.

East of Hill Farm Road, Halesworth - Site 17 (4.7 hectares)

Subgrade 3a

3.8 The central quarter of the site is graded 3a and coincides with the light textured, droughty soils described in paragraph 2.6.2. These profiles of medium sandy loam which become loamy medium sand at depth hold moderate supplies of available water for crop growth due to the predominance of light textures throughout the profile. This factor imposes a moderate droughtiness limitation which restricts the land to subgrade 3a.

Subgrade 3b

3.9 Most of the land graded 3b occurs in association with the poorly drained, clayey soils described in paragraph 2.6.1. Due to the presence of a slowly permeable layer directly below the topsoil the wetness class has been assessed as III. This combines with the non-calcareous, heavy clay loam topsoils to impose a significant wetness and workability limitation which restricts the land to subgrade 3b.

3.10 Adjacent to the Holton Road land has been graded 3b where the stony soils described in paragraph 2.6.4 occur. The presence of many flints directly below the topsoil in combination with the light profile textures result in low reserves of water being available for crop growth. In consequence significant droughtiness imperfections exclude the land from a higher grade.

St Margarets Road, Bungay - Site 23 (11.3 hectares)

Grade 2

3.11 The majority of the site has been mapped as grade 2 and correlates with the better drained, fine loamy soils described in paragraph 2.6.1. Due to the moderately high moisture deficits that are prevalent in this area moisture balance calculations indicate that these soils will be slightly droughty, holding moderately good reserves of water available for crop growth. This slight droughtiness limitation restricts the land to grade 2 (very good quality agricultural and). In addition, wetness and workability imperfections also exclude the land from a higher grade.

Subgrade 3a

3.12 The coarse loamy soils in the north of the site, described in paragraph 2.6.2 have been assigned this subgrade. Due to the sandy nature of the deeper subsoils, these soils will have only moderate reserves of available water for crop growth. Therefore, these moderate droughtiness imperfections restrict the land to subgrade 3a.

Non-Agricultural

3.13 On the eastern side of the site the deeply incised gully referred to as Love Lane, which leads to St Margarets Road has been mapped as non-agricultural. This steeply sloping land is covered by scrub woodland. Leading from the northwest corner of the site is a narrow grass access track leading through an area of woodland to the B1062 road in the north. This has also been mapped as non-agricultural.

Church Lane, Corton - Site 30 (12.5 hectares)

Subgrade 3a

3.14 In the northwest and east of the site land graded 3a occurs in association with the lighter textured, soils described in paragraph 2.6.1 which have sandy clay loam topsoils overlying clay or sandy clay at depth. These profiles show evidence of wetness in the upper subsoil (wetness class III). This factor in combination with the topsoil texture imposes a moderate wetness and workability limitation restricting land quality to subgrade 3a.

3.15 In the centre of the site land has been graded 3a where the loamy soils described in paragraph 2.6.3 occur. Due to the moderately high moisture deficits that are prevalent in this area moisture balance calculations indicate that these soils will be droughty, holding moderately good reserves of water available for crop growth. This moderate droughtiness limitation restricts the land to subgrade 3a.

Urban

3.16 The farmhouse at Church Farm and associated buildings and garden have been mapped as urban.

Non-Agricultural

3.17 The allotment gardens in the southeast of the site and a small pond adjacent to Church Lane have been depicted as non-agricultural.

Agricultural Buildings

3.18 Farm buildings occur in the northwest of the site.

Land west of London Road, Kessingland - Site 47 (10.9 hectares)

Subgrade 3a

3.19 The majority of the site has been graded 3a and includes the medium sandy loam soils which overlie gleyed horizons at depth described in paragraph 2.6.3 and the medium sandy loam profiles which become loamy medium sand described in paragraph 2.6.2. These light textured profiles impose a moderate limitation on the water reserves available for crop growth and thus the land is graded 3a.

Non-Agricultural

3.20 A wooded disused pit occurs in the west of the site and this has been mapped as non-agricultural.

Land east of London Road, Kessingland - Site 48 (6.6 hectares)

Subgrade 3a

3.21 The majority of the site has been graded 3a and includes in the east the sandy clay loam topsoils overlying gleyed clay in the lower subsoil (wetness class II) described in paragraph 2.6.1 and the deep medium sandy loam profiles which become loamy medium sand described in paragraph 2.6.3. Due to the moderately high moisture deficits that are prevalent in this area moisture balance calculations indicate that these soils will be droughty, holding moderately good reserves of water available for crop growth. This moderate droughtiness limitation restricts the land to subgrade 3a.

Non-Agricultural

3.22 A very small area of non-agricultural land corresponding to a disused pit is present in the centre of the site.

South of Benacre Road, Ellough - Site 50 (39.9 hectares)

Subgrade 3b

3.23 All the agricultural land on the site has been classified as subgrade 3b. This corresponds to the boulder clay derived soils which are described in paragraph 2.6.1 and which have been assessed as wetness class III due to slowly permeable horizons occurring directly below the topsoil. This factor in combination with the non-calcareous clay topsoil textures restricts land quality to subgrade 3b on wetness and workability limitations.

Urban

3.24 The concrete and tarmac runways have been mapped as urban. In addition in the north of the site an area of scrub woodland containing an old concrete building has also been mapped as urban.

Non-Agricultural

3.25 An area of non-agricultural land has been mapped on the eastern side of the site which comprises an area of soil heaps which are covered with scrub vegetation. Two other very small areas have been mapped which comprise a small hollow in the southwest of the site and a small area of scrub adjacent to the western end of the main runway.

Woodland

3.26 The southeast corner of the site includes a small area of woodland.

Agricultural Buildings

3.27 Farm buildings are present in the southwest of the site.

Land between Ellough Road and Oak Lane, Beccles - Site 51 A (8.6 hectares)

Grade 2

3.28 In the valley feature to the northeast of the site land is graded 2 and is associated with the light textured soils described in paragraph 2.6.3. These soils hold moderately good reserves of water available for crop growth and this slight droughtiness limitation restricts the land to grade 2.

Subgrade 3b

3.29 The western edge of the site has been graded 3b where the clayey soils described in paragraph 2.6.1 occur. Profiles are slowly permeable directly below the topsoil (wetness class III) and topsoils comprise non-calcareous heavy clay loams or clays. These two factors combine to impose a significant wetness and workability limitation on the agricultural potential of this land, excluding it from a higher grade.

Land between Ellough Road and Oak Lane, Beccles - Site 51 B (9.1 hectares)

Grade 2

3.30 In the northwest of the site within the valley feature land is graded 2 and is associated with the light textured soils described in paragraph 2.6.3. These soils hold moderately good reserves of water available for crop growth and this slight droughtiness limitation restricts the land to grade 2.

Subgrade 3b

3.31 The majority of the site has been graded 3b where the clayey soils described in paragraph 2.6.1 occur. Profiles are slowly permeable directly below the topsoils (wetness class III) and topsoils comprise non-calcareous heavy clay loams or clays. These two factors combine to impose a significant wetness and workability limitation on the agricultural potential of this land, excluding it from a higher grade.

Land between Ellough Road and Oak Lane, Beccles - Site 51 C (21.9 hectares)

Grade 2

3.32 In the valley feature to the northeast of the site land is graded 2 and is associated with the light textured soils described in paragraph 2.6.3. These hold moderately good reserves of water available for crop growth and this slight droughtiness limitation restricts the land to grade 2.

Subgrade 3b

3.33 The majority of the site has been graded 3b where the clayey soils described in paragraph 2.6.1 occur. Profiles are slowly permeable directly below the topsoil (wetness class III) and topsoils comprise non-calcareous heavy clay loams or clays. These two factors combine to impose a significant wetness and workability limitation on the agricultural potential of this land, excluding it from a higher grade.

South of Bloodmoor, Gisleham - Site 57 (24.6 hectares)

Subgrade 3a

3.34 Land graded 3a occurs in the north of the site and is associated with the better drained, sandy clay loam soils described in paragraph 2.6.1 (wetness class II) and the sandy clay loam soils which become coarser with depth described in paragraph 2.6.3. Due to the moderately high moisture deficits that are prevalent in this area moisture balance calculations indicated that these soils will be droughty, holding moderately good reserves of water available for crop growth. This moderate droughtiness limitation excludes the land from grade 2.

Subgrade 3b

3.35 The majority of the site in the south and extreme north comprises deep sandy profiles described in paragraph 2.6.2. These light textured soils have a reduced available water holding capacity and this limits this land to subgrade 3b due to moderately severe droughtiness imperfections.

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REFERENCES

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MAFF, 1973. Agricultural Land Classification Map (Provisional), Sheet 137, 1:63 360 scale.

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METEOROLOGICAL OFFICE, 1989. Data extracted from the published agroclimatic dataset.

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

Appendix 1

AGROCLIMATIC DATA FOR THE TWELVE SITES

	SITES									
	1	**16**	**17**	**23**	**30**	**47**	**48**	**50**	**51(AB+C)**	**57**
Annual Average Rainfall (mm)	641	606	606	510	599	604	604	640	642	605
Altitude (m)	25	30	30	25	5	15	15	25	25	10
Field Capacity Days	125	116	116	119	112	111	111	125	125	112
MD Wheat (mm)	119	118	118	119	125	124	124	119	119	123
MD Potatoes (mm)	114	113	113	114	121	121	121	114	114	121
Accumulated Temperature (°C)	1404	1404	1404	1407	1420	1415	1415	1404	1404	1419

Appendix 2

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 include 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 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 limitations which significantly restrict the range of crops and/or levels of yields. It is mainly suited to grass with occasional arable crops (eg. cereals and forage crops) the yield 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 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.