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AGRICULTURAL LAND CLASSIFICATION AND PHYSICAL CHARACTERISTICS REPORT

LAND NORTH OF CHILDERS SOUTH DROVE, SPALDING

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1. BACKGROUND

1.1 The site, an area of 8.4 hectares is the subject of an application for a borrow pit. ADAS surveyed the site in July 1993 at an auger boring density of approximately 1 boring per hectare. These borings were supplemented by 1 soil inspection pit in order to assess subsoil conditions.

1.2 On the published provisional 1:63,360 scale Agricultural Land Classification Map Sheet 123 (1971) the entire site is shown as grade 1. The current survey was undertaken to provide a more detailed representation of the agricultural land quality.

2. PHYSICAL CHARACTERISTICS AFFECTING LAND QUALITY

Climate

2.1 Climate data was obtained by interpolating information contained in the published agricultural climatic dataset (Met Office, 1989). This indicates for a modal site altitude of 0 (zero)m AOD, the annual average rainfall is 557 mm. This also indicates that the field capacity days are 101 and moisture deficits for potatoes and wheat are 115 mm and 120 mm respectively.

Relief

2.2 The site is flat. Gradient, altitude and relief do not constitute any limitation to land quality.

Geology and Soils

2.3 No detailed geology map exists for this area. The published reconnaissance scale (1:253,240) drift edition geology map, Sheet 12 (Geological Survey of England and Wales, 1912) shows the survey area to comprise Post Glacial and Recent Alluvium, Peat and Fen Silts.

2.4 No detailed soils map exists for this area. On the reconnaissance 1:250,000 scale soil map "Soils of Eastern England" (Soil Survey of England and Wales, 1983) the site is mapped as the Wallasea 2 Association(*). During the current more detailed survey work two soil types were identified.

2.5 The first soil type covers the western two-thirds of the site and comprises medium silty clay loam topsoils which are either underlain by silty clay or have a medium silty clay loam upper subsoil above the silty clay lower subsoil. Due to the existence of a stable coarse pore network within the subsoil, soil drainage is good and wetness class is assessed as I.

2.6 The second soil type covers the eastern third of the site where profiles are free draining (Wetness Class I) fine sandy silt loam topsoils over fine sandy silt loam, fine sandy loam or loamy fine sand subsoils.

3.0 AGRICULTURAL LAND CLASSIFICATION

3.1 The definitions of the ALC grades is provided in Appendix 1.

3.2 The entire site is graded 2 and is limited by minor droughtiness imperfections. It should be noted that many of the highly water retentive deep sandy silt loam profiles in the eastern third of the site are or approach grade 1 but have not been separately delineated.

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(*) Wallasea 2 Association. Deep stoneless clayey soils, calcareous in places. Some deep calcareous silty soils. Flat land often with low ridges giving a complex soil pattern. Groundwater controlled by ditches and pumps.

REFERENCES

GEOLOGICAL SURVEY OF ENGLAND AND WALES (1912). Sheet 12, 1:233,440 scale. Drift edition.

MAFF (1971). Agricultural Land Classification Map Sheet 123 Provisional 1:63,360 scale.

MAFF (1988). Agricultural Land Classification of England and Wales (Revised guidelines and criteria for grading the quality of land). Alnwick.

METEOROLOGICAL OFFICE (1989). Published climatic data extracted from the agroclimatic dataset, compiled by the Meteorological Office.

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

Appendix I

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 yields 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 winter 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.

Appendix II

SOIL PHYSICAL CHARACTERISTICS, LAND SOUTH OF CHILDERS DROVE, SPALDING

Soil Type 1: 5.3 hectares

Topsoil	Texture	:	medium silty clay loam, medium clay loam
	$CaCO_3$	:	mainly calcareous, occasionally non-calcareous
	Colour	:	10YR 4/3
	Stone	:	none
	Structure	:	cultivation zone - not applicable
	Boundary	:	clear, smooth
	Roots	:	common fine and very fine
	Depth	:	35-37 cm
Upper Subsoil	Texture	:	medium silty clay loam, medium clay loam or silty clay
	$CaCO_3$	:	calcareous
	Colour	:	10YR 5/3, 10YR 4/3, 10YR 5/1
	Mottles	:	common distinct ochreous mottles. 10YR 4/6 from 37+cm
	Stone	:	none
	Structure	:	medium clay loam is moderately developed coarse subangular blocky; silty clay is strong developed very coarse angular and subangular blocky
	Consistence	:	medium clay loam is friable; silty clay is firm
	Porosity	:	+0.5% comprising numerous vertical reed channels
	Roots	:	common fine and very fine
	Depth	:	35 cm - 65/80 cm

Lower Subsoil	Texture	:	silty clay
	$CaCO_3$	:	non-calcareous
	Colour	:	10YR 5/1
	Mottles	:	common distinct ochreous mottles 10YR 4/6
	Stone	:	none
	Structure	:	strongly developed very coarse angular and subangular blocky
	Consistence	:	firm
	Porosity	:	+0.5% comprising numerous vertical reed channels
	Roots	:	common fine and very fine
	Depth	:	65/80 cm to 100 cm

Soil Type 2: 3.1 hectares

Topsoil	Texture	:	fine sandy silt loam
	$CaCO_3$	:	calcareous
	Colour	:	10YR 4/3
	Stone	:	none
	Depth	:	30/35 cm
Subsoil	Texture	:	fine sandy silt loam, medium silty clay loam, fine sandy loam, fine loamy sand
	$CaCO_3$	:	calcareous
	Colour	:	10YR 5/3, 10YR 4/3, 10YR 5/4, 10YR 5/8
	Stone	:	none
	Depth	:	30/35 - 100 cm

No information on structure, porosity, consistence, roots, or horizon boundary was collected for Soil Type 2 as this soil unit is insufficiently extensive to merit separate handling.