

**Brickworth Park, Whiteparish
Agricultural Land Classification**

June 1998

Resource Planning Team
Bristol
FRCA Western Region

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**BRICKWORTH PARK WHITEPARISH
AGRICULTURAL LAND CLASSIFICATION SURVEY**

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BRICKWORTH PARK WHITEPARISH

AGRICULTURAL LAND CLASSIFICATION SURVEY

INTRODUCTION

1 This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 105.4 ha of land at Brickworth Park Whiteparish. Field survey was based on 92 auger borings and 5 soil profile pits and was completed in May 1998. During the survey 4 samples were analysed for particle size distribution (PSD).

2 The survey was conducted by the Resource Planning Team of FRCA Western Region on behalf of MAFF in its statutory role in connection with an application to the Planning Authority under the Town and Country Planning Act 1990 for a golf course.

3 Information on climate, geology and soils and from previous ALC surveys was considered and is presented in the relevant section. Apart from the published regional ALC map (MAFF 1977) which shows the site at a reconnaissance scale as being all Grade 3, the site had not been surveyed previously. However, the current survey uses the Revised Guidelines and Criteria for grading the quality of agricultural land (MAFF 1988) and supersedes any previous ALC survey. Grade descriptions are summarised in Appendix I.

4 An area of 25.3 ha on the adjacent Whelpley Farm was surveyed in 1993 for a potential landfill site. These profiles were well drained and usually shallow over weathered chalk parent material. The land was mapped as Subgrade 3a and 3b with moderate workability limitations depending on the topsoil textures of heavy clay loam and clay respectively. Three PSD samples were analysed during this survey.

5 At the time of survey at Brickworth Park land cover was mostly winter wheat with some permanent grassland. Other land which was not surveyed included residential areas, farm buildings and areas of woodland.

SUMMARY

6 The distribution of ALC grades is shown on the accompanying 1:10,000 scale ALC map. The detail of information shown at this scale is appropriate to the intensity of field survey but could be misleading if enlarged or applied to small areas. Areas are summarised in the Table 1.

Table 1 Distribution of ALC grades Brickworth Park Whiteparish

Grade	Area (ha)	% Surveyed Area (89 ha)
3a	40.9	46
3b	44.2	50
5	3.9	4
Other land	16.4	
Total site area	105.4	100

7 Of the land surveyed 46% was found to be best and most versatile. These profiles are well drained with heavy clay loam topsoils usually over shallow weathered chalk with a moderate workability limitation. The Subgrade 3b land has clay topsoils over well drained profiles or heavy clay loam topsoils over a slowly permeable clay upper subsoil with moderate workability and wetness limitations respectively. The Grade 4 mapping unit and other isolated Grade 4 profiles within the Subgrade 3b mapping unit have clay topsoils over the slowly permeable upper subsoil giving severe wetness limitations.

CLIMATE

8 Estimates of climatic variables for this site were derived from the published agricultural climate dataset Climatological Data for Agricultural Land Classification (Meteorological Office 1989) using standard interpolation procedures. Data for key points around the site are given in Table 2 below.

9 Since the ALC grade of land is determined by the most limiting factor present, overall climate is considered first because it can have an overriding influence by restricting land to a lower grade despite more favourable site and soil conditions. Parameters used for assessing overall climate are accumulated temperature, a measure of relative warmth and average annual rainfall, a measure of overall wetness. The results shown in Table 2 indicate that there is no overall climatic limitation.

10 Climatic variables also affect ALC grade through interactions with soil conditions. The most important interactive variables are Field Capacity Days (FCD) which are used in assessing soil wetness and potential Moisture Deficits calculated for wheat and potatoes which are compared with the moisture available in each profile in assessing soil droughtiness limitations. These are described in later sections.

Table 2 Climatic Interpolations Brickworth Park

Grid Reference	SU 218 252	SU 224 244	SU 230 237
Altitude (m)	156	110	68
Accumulated Temperature (day °C)	1378	1431	1478
Average Annual Rainfall (mm)	842	846	836
Overall Climatic Grade	1	1	1
Field Capacity Days	184	186	184
Moisture deficit (mm)			
Wheat	92	96	101
Potatoes	79	86	93

RELIEF

11 Altitude ranges from 66 metres on the A27 to 156 metres at Pepperbox Hill with gentle and moderately sloping gradients.

GEOLOGY AND SOILS

12 The underlying geology of the site is shown on the published geology map (IGS 1976) as being all Upper Chalk (soft with flints) except for a small area of valley gravels which are mapped where Whelpley Farm drive joins the A27 This was borne out by the soil types found in the current survey

13 Soils were mapped by the Soil Survey of England and Wales at a reconnaissance scale of 1 250 000 (SSEW 1983) Most of the site is shown to comprise soils from the Andover Association with an area from the Carstens Association being mapped at the northern end of the site

14 Andover soils are described as being shallow well drained calcareous flinty soils over chalk on slopes and crests Deeper calcareous and non calcareous fine silty soils are found in valley bottoms Carstens soils are well drained fine silty over clayey clayey and fine silty soils often very flinty

15 Soils similar to those described as belonging to the Andover Association were found throughout the site Flinty soils over chalk which are similar to the Carstens Associations were also found throughout the site To the north east of Brickworth House and in the northern part of the site soils which are also similar to the Carstens Association were found but they had a slowly permeable flinty clay upper subsoil over the weathered chalk

AGRICULTURAL LAND CLASSIFICATION

16 The distribution of ALC grades found by the current survey is shown on the accompanying 1 10 000 scale map and areas are summarised in Table 1 The detail of information shown at this scale is appropriate to the intensity of field survey but could be misleading if enlarged or applied to small areas

Subgrade 3a

17 Soils which have a heavy clay loam topsoil and are well drained assessed at Wetness Class I (see Appendix II) were mapped as Subgrade 3a with a moderate workability limitation They typically consist of heavy clay loam topsoils over weathered chalk subsoils In places there is also a permeable flinty upper clay subsoil Soil profile pits 2 and 5 are examples of this mapping unit

18 Some of the auger borings were impenetrable due to the flints found in the upper subsoil The stone contents were assessed visually in the soil profile pits but even when slightly exaggerated stone contents were used in available water calculations droughtiness was not found to be a primary limitation

19 The chalk parent material found in the auger borings and soil pits was moist and well fractured Soil was found in voids together with soil staining to depths of 65 110 cm Very fine roots were also observed to 110 cm so available water calculations were calculated to 120 cm

20 A small area of land at the northern end of the site has a slowly permeable clay upper subsoil and was assessed as Wetness Class III PSD analysis showed the topsoil texture to be sandy clay loam which gives a moderate wetness limitation Soil pit 4 is an example of this land

Subgrade 3b

21 Soil profiles similar to those mentioned in Paragraph 18 but with clay topsoils have been mapped as Subgrade 3b with a moderate workability limitation

22 In the Subgrade 3b units adjacent to the woodland at Upper Bushes the flinty clay upper subsoil was found to be slowly permeable In the auger borings the level of porosity in the clay horizon was indicated by the presence or absence of manganese concretions The borings were assessed as Wetness Class III and have heavy clay loam topsoils Some isolated borings have clay topsoils which give a severe wetness limitation and are Grade 4 These Grade 4 borings could not be mapped as an individual unit at this level of survey

Grade 4

23 The Grade 4 mapping unit has a severe wetness limitation The profiles have clay topsoils over flinty clay upper subsoils which have common and many manganese concretions and are slowly permeable layers They were assessed as Wetness Class III and are represented by Pit 1

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June 1998

REFERENCES

ADAS RESOURCE PLANNING TEAM (1993) Agricultural Land Classification Survey of Whelpley Farm Whiteparish Scale 1 10 000 Reference 88/93 ADAS Bristol

INSTITUTE OF GEOLOGICAL SCIENCES (1976) Sheet 298 Salisbury 1 50 000 series Drift edition IGS London

HODGSON J M (Ed) (1997) Soil Survey Field Handbook Soil Survey Technical Monograph No 5 Silsoe

MAFF (1977) 1 250 000 series Agricultural Land Classification South West Region MAFF Publications Alnwick

MAFF (1988) Agricultural Land Classification of England and Wales Revised Guidelines and Criteria for grading the quality of agricultural land MAFF Publications Alnwick

METEOROLOGICAL OFFICE (1989) Climatological Data for Agricultural Land Classification Meteorological Office Bracknell

SOIL SURVEY OF ENGLAND AND WALES (1983) Sheet 5 Soils of South West England 1 250 000 scale SSEW Harpenden

SOIL SURVEY OF ENGLAND AND WALES (1984) Soils and Their Use in South West England Bulletin No 14 SSEW Harpenden

APPENDIX I

DESCRIPTION OF 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 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 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 limitations 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 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

Source MAFF (1988) Agricultural Land Classification of England and Wales Revised Guidelines and Criteria for Grading the Quality of Agricultural Land MAFF Publications Alnwick

APPENDIX II

DEFINITION OF SOIL WETNESS CLASSES

Soil wetness is classified according to the depth and duration of waterlogging in the soil profile

Wetness Class I

The soil profile is not wet within 70 cm depth for more than 30 days in most years

Wetness Class II

The soil profile is wet within 70 cm depth for 31-90 days in most years or if there is no slowly permeable layer within 80 cm depth it is wet within 70 cm for more than 90 days but not wet within 40 cm depth for more than 30 days in most years

Wetness Class III

The soil profile is wet within 70 cm depth for 91-180 days in most years or if there is no slowly permeable layer within 80 cm depth it is wet within 70 cm for more than 180 days but only wet within 40 cm depth for between 31 and 90 days in most years

Wetness Class IV

The soil profile is wet within 70 cm depth for more than 180 days but not within 40 cm depth for more than 210 days in most years or if there is no slowly permeable layer within 80 cm depth it is wet within 40 cm depth for 91-210 days in most years

Wetness Class V

The soil profile is wet within 40 cm depth for 211-335 days in most years

Wetness Class VI

The soil profile is wet within 40 cm depth for more than 335 days in most years

Notes The number of days specified is not necessarily a continuous period

In most years is defined as more than 10 out of 20 years

Source Hodgson J M (Ed) (1997) Soil Survey Field Handbook Soil Survey Technical Monograph No 5 Silsoe

APPENDIX III

ABBREVIATIONS AND TERMS USED IN SURVEY DATA

Soil pit and auger boring information collected during ALC survey is held on a computer database and is reproduced in this report. Terms used and abbreviations are set out below. These conform to definitions contained in the Soil Survey Field Handbook (Hodgson 1997)

1 Terms used on computer database in order of occurrence

GRID REF National 100 km grid square and 8 figure grid reference

LAND USE At the time of survey

WHT	Wheat	SBT	Sugar Beet	HTH	Heathland
BAR	Barley	BRA	Brassicas	BOG	Bog or Marsh
OAT	Oats	FCD	Fodder Crops	DCW	Deciduous Wood
CER	Cereals	FRT	Soft and Top Fruit	CFW	Coniferous Woodland
MZE	Maize	HRT	Horticultural Crops	PLO	Ploughed
OSR	Oilseed Rape	LEY	Ley Grass	FLW	Fallow (inc Set aside)
POT	Potatoes	PGR	Permanent Pasture	SAS	Set Aside (where known)
LIN	Linseed	RGR	Rough Grazing	OTH	Other
BEN	Field Beans	SCR	Scrub		

GRDNT Gradient as estimated or measured by hand held optical clinometer

GLEYSPL Depth in centimetres to gleying or slowly permeable layer

AP (WHEAT/POTS) Crop adjusted available water capacity

MB (WHEAT/POTS) Moisture Balance (Crop adjusted AP - crop potential MD)

DRT Best grade according to soil droughtiness

If any of the following factors are considered significant Y will be entered in the relevant column

MREL	Microrelief limitation	FLOOD	Flood risk	EROSN	Soil erosion risk
EXP	Exposure limitation	FROST	Frost prone	DIST	Disturbed land
CHEM	Chemical limitation				

LIMIT The main limitation to land quality. The following abbreviations are used

OC	Overall Climate	AE	Aspect	EX	Exposure
FR	Frost Risk	GR	Gradient	MR	Microrelief

FL	Flood Risk	TX	Topsoil Texture	DP	Soil Depth
CH	Chemical	WE	Wetness	WK	Workability
DR	Drought	ER	Erosion Risk	WD	Soil Wetness/Droughtiness
ST	Topsoil Stoniness				

TEXTURE Soil texture classes are denoted by the following abbreviations

S	Sand	LS	Loamy Sand	SL	Sandy Loam
SZL	Sandy Silt Loam	CL	Clay Loam	ZCL	Silty Clay Loam
ZL	Silt Loam	SCL	Sandy Loam	C	Clay
SC	Sandy clay	ZC	Silty clay	OL	Organic Loam
P	Peat	SP	Sandy Peat	LP	Loamy Peat
PL	Peaty Loam	PS	Peaty Sand	MZ	Marine Light Silts

For the sand loamy sand sandy loam and sandy silt loam classes the predominant size of sand fraction will be indicated by the use of the following prefixes

F	Fine (more than 66% of the sand less than 0.2mm)
M	Medium (less than 66% fine sand and less than 33% coarse sand)
C	Coarse (more than 33% of the sand larger than 0.6mm)

The clay loam and silty clay loam classes will be subdivided according to the clay content **M** Medium (< 27% clay) **H** heavy (27-35% clay)

MOTTLE COL Mottle colour using Munsell notation

MOTTLE ABUN Mottle abundance expressed as a percentage of the matrix or surface described

F few <2% **C** common 2-20% **M** many 20-40% **VM** very many 40%+

MOTTLE CONT Mottle contrast

F	faint indistinct mottles evident only on close inspection
D	distinct mottles are readily seen
P	Prominent mottling is conspicuous and one of the outstanding features of the horizon

PED COL Ped face colour using Munsell notation

GLEYS If the soil horizon is gleyed a **Y** will appear in this column. If slightly gleyed an **S** will appear

STONE LITH Stone Lithology One of the following is used

HR	All hard rocks and stones	SLST	Soft oolitic or dolimitic limestone
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CH	Chalk	FSST	Soft fine grained sandstone
ZR	Soft argillaceous or silty rocks	GH	Gravel with non porous (hard) stones
MSST	Soft medium grained sandstone	GS	Gravel with porous (soft) stones
SI	Soft weathered igneous or metamorphic rock		

Stone contents are given in % by volume for sizes >2cm >6cm and total stone >2mm

STRUCT The degree of development size and shape of soil peds are described using the following notation

<u>Degree of development</u>	WA	Weakly developed Adherent	WK	Weakly developed
	MD	Moderately developed	ST	Strongly developed
<u>Ped size</u>	F	Fine	M	Medium
	C	Coarse	VC	Very coarse
<u>Ped Shape</u>	S	Single grain	M	Massive
	GR	Granular	AB	Angular blocky
	SAB	Sub angular blocky	PR	Prismatic
	PL	Platy		

CONSIST Soil consistence is described using the following notation

L	Loose	VF	Very Friable	FR	Friable	FM	Firm
VM	Very firm	EM	Extremely firm		EH	Extremely Hard	

SUBS STR Subsoil structural condition recorded for the purpose of calculating profile droughtiness **G** Good **M** Moderate **P** Poor

POR Soil porosity If a soil horizon has poor porosity with less than 0.5% biopores >0.5mm a **Y** will appear in this column

IMP If the profile is impenetrable to rooting a **Y** will appear in this column at the appropriate horizon

SPL Slowly permeable layer If the soil horizon is slowly permeable a **Y** will appear in this column

CALC If the soil horizon is calcareous with naturally occurring calcium carbonate exceeding 1% a **Y** will appear in this column

2 Additional terms and abbreviations used mainly in soil pit descriptions

STONE ASSESSMENT

VIS	Visual	S	Sieve	D	Displacement
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MOTTLE SIZE

EF	Extremely fine <1mm	M	Medium 5-15mm
VF	Very fine 1-2mm	C	Coarse >15mm
F	Fine 2-5mm		

MOTTLE COLOUR May be described by Munsell notation or as ochreous (OM) or grey (GM)

ROOT CHANNELS In topsoil the presence of rusty root channels should also be noted

MANGANESE CONCRETIONS Assessed by volume

N	None	M	Many	20-40%
F	Few <2%	VM	Very Many	>40%
C	Common 2-20%			

POROSITY

P	Poor	less than 0.5% biopores at least 0.5mm in diameter
G	Good	more than 0.5% biopores at least 0.5mm in diameter

ROOT ABUNDANCE

The number of roots per 100cm ²		Very Fine and Fine	Medium and Coarse
F	Few	1-10	1 or 2
C	Common	10-25	2-5
M	Many	25-200	>5
A	Abundant	>200	

ROOT SIZE

VF	Very fine	<1mm	M	Medium	2-5mm
F	Fine	1-2mm	C	Coarse	>5mm

HORIZON BOUNDARY DISTINCTNESS

Sharp	<0.5cm	Gradual	6-13cm
Abrupt	0.5-2.5cm	Diffuse	>13cm
Clear	2.5-6cm		

HORIZON BOUNDARY FORM Smooth wavy irregular or broken *

* See Soil Survey Field Handbook (Hodgson 1997) for details

SITE NAME Brickworth Park		PROFILE NO Pit 1 (Asp 59)	SLOPE AND ASPECT 2 South East	LAND USE Wheat	Av Rainfall 846 mm	PARENT MATERIAL Upper Chalk	
JOB NO 49/98		DATE 29/4/98	GRID REFERENCE SU 2220 2432	DESCRIBED BY HLJ/GN	ATO 1431 day C	PSD SAMPLES TAKEN None (Asp 52 C*HCL S25 Z39 C36)	
					FC Days 186		
					Climatic Grade 1		
					Exposure Grade 1		

Horizon No	Lowest Av Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness Size Type and Field Method	Mottling Abundance Contrast Size and Colour	Mangan Concs	Structure Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots Abundance and Size	Calcium Carbonate Content	Horizon Boundary Distinctness and form
1	22	C	10YR43	5% 2cm () 10% <2 m () 15% HR TOTAL	None	None					CF+VF		Sharp Smooth
2	58	C	7.5YR46	5% 2cm (s) 15% <2 cm () 20% HR TOTAL	None	Many	WAVCSAB	Very Firm	Poor	Low	CF+VF		Clear Irregular
3	76	C	0.5Y81 10YR53	55% CH ()	None	None	MDCSAB	Firm	Moderate	Good	FF+VF		Clear Smooth
4	95+	Chalk	0.5Y81	95% CH ()	None	None			Moderate ²	Good	FVF ³		

Profile Gleyed From	Not gleyed	Available Water	Wheat	111 mm	Final ALC Grade	4
Slowly Permeable Horizon From	22-58 cm		Potatoes	86 mm	Main Limiting Factor(s)	Wetness
Wetness Class	III	Moisture Deficit	Wheat	96 mm		
Wetness Grade	4		Potatoes	86 mm		
		Moisture Balance	Wheat	15 mm	Remarks	Hard rock in H1 and H2 is flint
			Potatoes	0 mm		¹ Soil in voids and pores
		Droughtiness Grade	2	(Calculated to 120 cm)		² assumed
						³ seen to 95 cm

SITE NAME		PROFILE NO	SLOPE AND ASPECT	LAND USE	Av Rainfall	846 mm	PARENT MATERIAL				
Brickworth Park		Pit 2 (Asp 75)	2 West	Permanent Grass	ATO	1431 day C	Upper Chalk				
JOB NO		DATE	GRID REFERENCE	DESCRIBED BY	FC Days	186	PSD SAMPLES TAKEN				
49/98		30/4/98	SU 2230 2410	HLJ/GL	Chmatic Grade	1	None				
					Exposure Grade	1					

Horizon No	Lowest Av Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness Size Type and Field Method	Mottling Abundance Contrast Size and Colour	Mangan Concs	Structure Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots Abundance and Size	Calcium Carbonate Content	Horizon Boundary Distinctness and form
1	25	HCL	10YR44	3% HR ()	None	None					MF+VF		Abrupt Smooth
2	46	C	10YR46/56	5% HR+CH (s)	None	None	WKCSAB (breaking to MDMSAB)	Friable	Moderate	Good	CF+VF		Gradual Smooth
3	110+	Chalk	0 5Y81 10YR84	95% CH ()	None	None	WKMSAB (breaking to MDFSAB)	Friable	Good	Good	FF+VF ¹		

Profile Gleyed From Not gleyed

Slowly Permeable Horizon From No spl

Wetness Class I

Wetness Grade 3a

Available Water Wheat 129 mm

Potatoes 100 mm

Moisture Deficit Wheat 96 mm

Potatoes 86 mm

Moisture Balance Wheat 33 mm

Potatoes 14 mm

Droughtiness Grade 1 (Calculated to 120 cm)

Final ALC Grade 3a

Main Limiting Factor(s) Wetness

Remarks
 Hard rock is flint
 Chalk felt moist
 Roots becoming mainly VF below 85 cm but still obvious
 Chalk stones present in H3 which are > 2 cm but are soft to a fingernail and can be snapped

SITE NAME		PROFILE NO	SLOPE AND ASPECT		LAND USE		Av Rainfall 846 mm		PARENT MATERIAL			
Brickworth Park		Pit 3 (Asp 93)	3 South		Grass (reseed)		ATO 1431 day C		Upper Chalk			
JOB NO		DATE	GRID REFERENCE		DESCRIBED BY		FC Days 186		PSD SAMPLES TAKEN			
49/98		6/5/98	SU 2270 2390		HLJ		Climatic Grade 1		None (Asp 72 C*HCL S29 Z36 C35)			
Exposure Grade 1												

Horizon No	Lowest Av Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness Size Type and Field Method	Mottling Abundance Contrast Size and Colour	Mangan Concs	Structure Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots Abundance and Size	Calcium Carbonate Content	Horizon Boundary Distinctness and form
1	26	C	10YR43	5% HR (s)	None	None					CF+VF		Abrupt Smooth
2	35	C	7.5YR46	2% HR (s)	None	None	WKCSAB	Friable	Moderate	Good	CF+VF		Abrupt Smooth
3	75	Chalk ¹	0.5Y81 10YR53	90% CH () ³ 15% HR ()	None	None	WKCSAB	Friable	Moderate	Good	FF+VF		Clear Smooth
4	100+	Chalk ²	0.5Y81	99% CH (s)	None	None			Moderate	Good	FVF ⁵		

Profile Gleyed From	Not gleyed	Available Water	Wheat	116 mm	Final ALC Grade	3b
Slowly Permeable Horizon From	No spl		Potatoes	87 mm	Main Limiting Factor(s)	Workability
Wetness Class	I	Moisture Deficit	Wheat	96 mm		
Wetness Grade	3b		Potatoes	86 mm		
		Moisture Balance	Wheat	20 mm		
			Potatoes	1 mm		
		Droughtiness Grade	2	(Calculated to 120 cm)	Remarks	* ¹ & * ² chalk felt moist * ³ some chalk stones (>2 cm soft) * ⁴ large (>6 cm) flints near top of horizon * ⁵ seen to 100 cm Hard rock is flint

SITE NAME		PROFILE NO		SLOPE AND ASPECT		LAND USE		Av Rainfall		846 mm		PARENT MATERIAL	
Brickworth Park		Pit 4 (Asp 10)		2 South East		Wheat		ATO		1431 day C		Upper Chalk	
JOB NO		DATE		GRID REFERENCE		DESCRIBED BY		FC Days		186		PSD SAMPLES TAKEN	
49/98		7/5/98		SU 2180 2510		HLJ		Climatic Grade		1		None (Asp 5 SCL S64 Z14 C22)	
Exposure Grade								1					

Horizon No	Lowest Av Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness Size Type and Field Method	Motthing Abundance Contrast Size and Colour	Mangan Concs	Structure Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots Abundance and Size	Calcium Carbonate Content	Horizon Boundary Distinctness and form
1	28	SCL	10YR43	5% HR (s)	None	None					CF+VF		Abrupt Smooth
2	80	C	7.5YR56	10% HR (s)	None	Many	WKCSAB	Firm	Moderate	Poor	FF+VF		

Profile Gleyed From	Not gleyed	Available Water	Wheat	99 mm	Final ALC Grade	3a
Slowly Permeable Horizon From	28 cm		Potatoes	106 mm	Main Limiting Factor(s)	Wetness
Wetness Class	III	Moisture Deficit	Wheat	96 mm		
Wetness Grade	3a		Potatoes	86 mm		
		Moisture Balance	Wheat	3 mm	Remarks	Hard rock is flint
			Potatoes	20 mm		No worse than 3a drought whatever is below 80 cm
		Droughtiness Grade	3a	(Calculated to 80 cm)		

SITE NAME		PROFILE NO	SLOPE AND ASPECT		LAND USE		Av Rainfall		846 mm		PARENT MATERIAL		
Brickworth Park		Pit 5 (Asp 44)	3 South		Wheat		ATO		1431 day C		Upper Chalk		
JOB NO		DATE	GRID REFERENCE		DESCRIBED BY		FC Days		186		PSD SAMPLES TAKEN		
49/98		7/5/98	SU 2248 2460		HLJ		Climatic Grade		1		None		
							Exposure Grade		1				

Horizon No	Lowest Av Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness Size Type and Field Method	Mottling Abundance Contrast Size and Colour	Mangan Concs	Structure Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots Abundance and Size	Calcium Carbonate Content	Horizon Boundary Distinctness and form
1	28	HCL	10YR44	5% HR () 5% CH ()	None	None					CF+VF		Abrupt Smooth
2	60	Chalk	0 5YR81 10YR53	95% CH (s)	None	None	WKCSAB	Friable	Moderate	Good	FF+VF		Clear Smooth
3	100+	Chalk ¹	0 5YR81	99% CH ()	None	None			Moderate ²	Good	FVF ³		

Profile Gleyed From	Not gleyed	Available Water	Wheat	119 mm	Final ALC Grade	3a
Slowly Permeable Horizon From	No spl		Potatoes	90 mm	Main Limiting Factor(s)	Workability
Wetness Class	I	Moisture Deficit	Wheat	96 mm		
Wetness Grade	3a		Potatoes	86 mm		
		Moisture Balance	Wheat	23 mm	Remarks	Hard rock is flint
			Potatoes	4 mm		¹ compact hard dry
		Droughtiness Grade 2	(Calculated to 120 cm)			² assumed
						³ individual roots still at 90 cm