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Basingstoke and Deane Borough Local Plan
Sites 18-21,
Land to the south west of Basingstoke
Agricultural Land Classification
Reconnaissance Survey
ALC Map and Report
June 1996

Resource Planning Team
Guildford Statutory Group
ADAS Reading

ADAS Reference: 1501/085/96
MAFF Reference: EL 15/01414
LUPU Commission: 02486

AGRICULTURAL LAND CLASSIFICATION REPORT

BASINGSTOKE AND DEANE BOROUGH LOCAL PLAN, SITES 18-21, LAND TO THE SOUTH WEST OF BASINGSTOKE.

Introduction

1. This report presents the findings of a reconnaissance Agricultural Land Classification (ALC) survey of 175.5 hectares of land to the south west of Basingstoke, near Dummer in Hampshire. The survey was carried out during June 1996.
2. The survey was commissioned by the Ministry of Agriculture, Fisheries and Food (MAFF) from its Land Use Planning Unit in Reading in connection with the Basingstoke and Deane Borough Local Plan. The results of this survey supersede any previous ALC information for this land.
3. The work was conducted by members of the Resource Planning Team in the Guildford Statutory Group of ADAS. The land has been graded in accordance with the published MAFF ALC guidelines and criteria (MAFF, 1988). A description of the ALC grades and subgrades is given in Appendix I.
4. At the time of survey, the agricultural land on this site was either in arable crops or grass. The areas of the site shown as Other Land include domestic dwellings, various tracks and roadways and woodland. Part of the site was not surveyed as an established crop of oilseed rape prevented access.

Summary

5. The findings of the survey are shown on the enclosed ALC map. The map has been drawn at a scale of 1:15,000. It is accurate at this scale, but any enlargement would be misleading.
6. The area and proportions of the ALC grades and subgrades on the surveyed land are summarised in Table 1 below.

Table 1: Area of grades and other land

Grade/Other land	Area (hectares)	% Total site area	% Surveyed Area
2	47.1	26.8	32.2
3a	88.3	50.3	60.4
3b	10.8	6.2	7.4
Other land	6.5	3.7	-
Not Surveyed	22.8	13.0	-
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Total surveyed area	146.2	-	100
Total site area	175.5	100	-

7. The fieldwork was conducted at an average density of slightly less than 1 boring every 3 hectares. A total of 63 borings and 6 soil pits were described.

8. The land at this site has been classified as Grade 2 (very good quality), Subgrade 3a (good quality) and Subgrade 3b (moderate quality) on the basis of soil wetness and soil droughtiness limitations.

9. The areas shown as Grade 2 are principally limited by minor soil droughtiness and/or workability restrictions. Soils commonly comprise variably stony medium silty topsoils and subsoils sometimes passing to chalk at depth in the profile. The combination of soil textures, stones in the profile and restricted rooting into the chalk causes profile available water to be slightly restricted in these soils given the prevailing climate, which is relatively moist in regional terms. Soil droughtiness may affect plant growth and yield in some years.

10. Over the majority of the site, Subgrade 3a has been mapped. The most common restriction to land quality in these areas is soil droughtiness, although soil wetness/workability is limiting across localised parts of the site. Where soil droughtiness is the principal limitation, variably stony, medium silty topsoils and upper subsoils overlie chalk at shallow to moderate depths in the profile. The presence of chalk in the profile causes plant rooting depth to be restricted to the extent that given the local climatic regime this land is affected by soil droughtiness to the extent that Subgrade 3a is appropriate. Soil droughtiness may affect plant growth and yield in some years.

11. The remaining areas which are mapped as Subgrade 3a and all of the land assigned to 3b are limited by soil wetness/workability where soils have developed from deposits of Clay-with-Flints. In these areas the soils commonly comprise medium, or occasionally heavy, silty, topsoils over similar upper subsoils which overlie slightly gleyed and slowly permeable clays at shallow to moderate depths in the profile. These slowly permeable horizons cause drainage to be impeded so that land utilisation is restricted. The depth at which these horizons occur determines the severity of the soil wetness restrictions and therefore the ALC grade.

Factors Influencing ALC Grade

Climate

12. Climate affects the grading of land through the assessment of an overall climatic limitation and also through interactions with soil characteristics.

13. The key climatic variables used for grading this site are given in Table 2 and were obtained from the published 5km grid datasets using the standard interpolation procedures (Met. Office, 1989).

14. The climatic criteria are considered first when classifying land as climate can be overriding in the sense that severe limitations will restrict land to low grades irrespective of favourable site or soil conditions.

15. The main parameters used in the assessment of an overall climatic limitation are average annual rainfall (AAR), as a measure of overall wetness, and accumulated temperature (ATO, January to June), as a measure of the relative warmth of a locality.

Table 2: Climatic and altitude data

Factor	Units	Values	Values
Grid reference	N/A	SU 580 486	SU 578 475
Altitude	m, AOD	142	160
Accumulated Temperature	day°C (Jan-June)	1375	1355
Average Annual Rainfall	mm	848	867
Field Capacity Days	days	183	187
Moisture Deficit, Wheat	mm	92	89
Moisture Deficit, Potatoes	mm	80	76

16. The combination of rainfall and temperature at this site mean that there is no overall climatic limitation (Climatic Grade 1). However, climatic factors can interact with soil properties to influence soil wetness and droughtiness. At this locality the climate is relatively cool and moist, in regional terms, such that the risk of soil droughtiness will be reduced, whilst the chances of soil wetness restrictions are likely to be enhanced.

17. Local climatic factors such as frost risk and exposure are not thought likely to adversely affect agricultural land use on this site.

Site

18. The land on this site ranges from 135m AOD in the south-west to 160m AOD in the west. The land slopes gently around two dry valley features, one running north-west to south-east through the centre of the site, and the other running north-east to south-west across the southern part of the site. Gradient and microrelief do not affect agricultural land quality across the site.

19. Flooding does not appear to be limiting on this site.

Geology and soils

20. The relevant geological sheet for the site (BGS, 1981) shows most of the site to be underlain by Upper Chalk, with isolated patches of Clay-with-Flints drift deposits around Bulls Bushes Farm and to the south-east of Dean Heath Copse.

21. The most recently published soils information for this area (SSEW, 1983) maps the Carstens soil association across most of the site with areas of Charity 2 association soils through the valley bottoms on the site. The former are described as 'well drained fine silty over clayey, clayey and fine silty soils, often very flinty' (SSEW, 1983). The latter are 'well drained, flinty fine silty soils in valley bottoms. Calcareous fine silty soils over chalk or chalk rubble on valley sides, sometimes shallow.' (SSEW, 1983).

Agricultural Land Classification

22. The details of the classification of the site are shown on the attached ALC map and the area statistics of each grade are given in Table 1, page 1.

23. The location of the auger borings and pits is shown on the attached sample location map and the details of the soils data are presented in Appendix III.

Grade 2

24. Very good quality agricultural land has been mapped where minor soil droughtiness and/or workability limitations restrict the use of the land. Soil profiles typically comprise non-calcareous (occasionally calcareous), medium silty clay loam topsoils which contain between 3 and 12% total flints by volume (1-8% >2cm). These overlie similar, or slightly heavier, upper subsoils, passing to heavy silty clay loam lower subsoils which tend to become progressively more stony with depth. Within the Grade 2 mapping unit towards the north-west of the site, profiles were commonly impenetrable to the soil auger at depths greater than 30cm due to the presence of flints in the subsoil. However, soil pits 2 and 5 (see Appendix III) proved that the soil resource extended to at least 90cm depth, although lower subsoil horizons contained between 25 and 50% flints by volume. There was some evidence of slight seasonal waterlogging in the form of mottling and manganese concretions in a number of the profiles, but these soils are assessed as wetness class I. However, given the combination of medium silty clay loam topsoil textures and the relatively high field capacity day range at this locality, the land cannot be graded higher than Grade 2 on the basis of a minor soil workability restriction. This will restrict the opportunities for landwork and/or grazing. In addition, the interaction of stony soils with the climatic conditions which prevail, results in a minor soil droughtiness restriction. This will affect the level and consistency of crop yields.

25. Towards the south of the site soils are similar to those described above, the difference being that chalk bedrock was encountered at depths between 55 and 75cm depth. Soil pit 6 (Appendix III) is typical of these soils. Due to chalk being encountered within crop rooting depth, there is a restriction on the profile available water. Moisture balance calculations indicate that there are insufficient reserves of soil moisture to meet the demands of a growing crop throughout the year, such that Grade 2 is appropriate on the basis of a slight soil droughtiness limitation.

Subgrade 3a

26. Land assigned to this grade is limited in its agricultural use by soil droughtiness and/or soil wetness/workability. Soils fall into one of two types.

27. The majority of the soils within the Subgrade 3a mapping unit, are characterised by being relatively shallow over chalk. Typically calcareous or non-calcareous medium, or occasionally heavy, silty clay loam topsoils, containing 3-12% total flints by volume (1-3% >2cm), overlie similar upper subsoils and pass to chalk bedrock between 25 and 55cm depth. A number of profiles, particularly towards the south of the site, were found to be impenetrable to the soil auger due to the presence of flints in the subsoil horizons. Soil inspection pits 3 and 4 (see Appendix III), are representative of these soils. Rooting into the chalk bedrock was found to be restricted, such that profile available water is unlikely to be sufficient to meet the demands of a growing crop throughout the year. Moisture balance calculations suggest that the degree of soil moisture deficit is consistent with a land classification of Subgrade 3a.

28. Isolated soils within the Subgrade 3a mapping unit, most notably on the higher land, are derived from deposits of Clay-with-Flints, and as such are more clayey throughout and are

restricted by soil wetness/workability. Soil pit 1 is typical of these soils. Medium or heavy clay loam topsoils, overlies similar upper subsoils, and pass to clay lower subsoils which were found to be slowly permeable, from shallow depth. Such soils will be imperfectly drained to the extent that wetness class III and Subgrade 3a is appropriate, given the prevailing climatic regime. This land is affected by a combination of soil wetness and/or workability which will result in restrictions on the versatility of the land and the opportunities for cultivations, trafficking and grazing by livestock.

Subgrade 3b

29. Moderate quality land is mapped as three small mapping units across the site. Soils have developed from deposits of Clay-with-Flints and comprise non-calcareous heavy silty clay loam topsoils which directly overlies slowly permeable clay subsoils. Soils with such drainage characteristics are assessed as wetness class III, which when combined with the heavy topsoil textures, and the relatively moist climatic regime at this locality, results in a land classification of Subgrade 3b. This land will be severely limited by soil wetness/workability, and the utilisation of the land will thereby be restricted.

Michelle Leek
Resource Planning Team
ADAS Reading

SOURCES OF REFERENCE

BRITISH GEOLOGICAL SURVEY (1981) *Sheet No. 284, Basingstoke*. BGS: London.

MINISTRY OF AGRICULTURE, FISHERIES AND FOOD (1988) *Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land*. MAFF: London.

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

SOIL SURVEY OF ENGLAND AND WALES (1983) *Sheet 6, Soils of South East England*. SSEW: Harpenden

SOIL SURVEY OF ENGLAND AND WALES (1984) *Soils and their Use in South East England, Bulletin No. 15* SSEW: Harpenden

APPENDIX I

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 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 or horticultural crops can usually be grown but on some land of this 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 land.

Grade 3: Good to Moderate Quality Land

Land with moderate limitations which affect the choice of crops, the 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 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 that 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 the 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 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 severe limitations that restricts use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

APPENDIX II

SOIL WETNESS CLASSIFICATION

Definitions of Soil Wetness Classes

Soil wetness is classified according to the depth and duration of waterlogging in the soil profile. Six soil wetness classes are identified and are defined in the table below.

Wetness Class	Duration of waterlogging ¹
I	The soil profile is not wet within 70 cm depth for more than 30 days in most years. ²
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 only wet within 40 cm depth for 30 days in most years.
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 present within 80 cm depth, it is wet within 70 cm for more than 180 days, but only wet within 40 cm depth for between 31-90 days in most years.
IV	The soil profile is wet within 70 cm depth for more than 180 days but not wet within 40 cm depth for more than 210 days in most years or, if there is no slowly permeable layer present within 80 cm depth, it is wet within 40 cm depth for 91-210 days in most years.
V	The soil profile is wet within 40 cm depth for 211-335 days in most years.
VI	The soil profile is wet within 40 cm depth for more than 335 days in most years.

Assessment of Wetness Class

Soils have been allocated to wetness classes by the interpretation of soil profile characteristics and climatic factors using the methodology described in *Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land* (MAFF, 1988).

¹ The number of days is not necessarily a continuous period.

² 'In most years' is defined as more than 10 out of 20 years.

APPENDIX III

SOIL DATA

Contents:

Sample location map

Soil abbreviations - Explanatory Note

Soil Pit Descriptions

Soil boring descriptions (boring and horizon levels)

Database Printout - Horizon Level Information

SOIL PROFILE DESCRIPTIONS: EXPLANATORY NOTE

Soil pit and auger boring information collected during ALC fieldwork is held on a computer database. This uses notations and abbreviations as set out below.

Boring Header Information

1. **GRID REF:** national 100 km grid square and 8 figure grid reference.
2. **USE:** Land use at the time of survey. The following abbreviations are used.

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

3. **GRDNT:** Gradient as estimated or measured by a hand-held optical clinometer.
4. **GLEYSPL:** Depth in centimetres (cm) to gleying and/or slowly permeable layers.
5. **AP (WHEAT/POTS):** Crop-adjusted available water capacity.
6. **MB (WHEAT/POTS):** Moisture Balance. (Crop adjusted AP - crop adjusted MD)
7. **DRT:** Best grade according to soil droughtiness.
8. 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

9. **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		

Soil Pits and Auger Borings

1. **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 Clay 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 sub-divided according to the clay content: **M:** Medium (<27% clay) **H:** Heavy (27-35% clay)

2. **MOTTLE COL:** Mottle colour using Munsell notation.
3. **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% +

4. **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

5. **PED. COL:** Ped face colour using Munsell notation.
6. **GLEYS:** If the soil horizon is gleyed a 'Y' will appear in this column. If slightly gleyed, an 'S' will appear.

7. **STONE LITH:** Stone Lithology - One of the following is used.

HR: all hard rocks and stones	SLST: soft oolitic or dolomitic limestone
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/metamorphic rock	

Stone contents (>2cm, >6cm and total) are given in percentages (by volume).

SOIL PIT DESCRIPTION

Site Name : BASINGSTOKE LP N WALTHAM Pit Number : 1P

Grid Reference: SU57104800 Average Annual Rainfall : 848 mm
 Accumulated Temperature : 1384 degree days
 Field Capacity Level : 185 days
 Land Use : Wheat
 Slope and Aspect : 01 degrees N

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 30	MZCL	10YR43 00	2	6	HR					
30- 47	HZCL	75YR56 00	0	10	HR	C	MDCSAB	FR	M	
47- 70	C	05Y 46 00	0	10	HR	M	MDCAB	FM	P	

Wetness Grade : 3A Wetness Class : III
 Gleying : cm
 SPL : 047 cm

Drought Grade : 3A APW : 096mm MBW : 4 mm
 APP : 107mm MBP : 28 mm

FINAL ALC GRADE : 3A
 MAIN LIMITATION : Wetness

SOIL PIT DESCRIPTION

Site Name : BASINGSTOKE LP N WALTHAM Pit Number : 2P

Grid Reference: SU57204820 Average Annual Rainfall : 848 mm
 Accumulated Temperature : 1384 degree days
 Field Capacity Level : 185 days
 Land Use : Wheat
 Slope and Aspect : 02 degrees N

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 32	MZCL	10YR43 00	2	8	HR					
32- 53	MZCL	10YR54 00	0	10	HR		MDCSAB	FR	M	
53- 72	MZCL	10YR54 00	0	15	HR	F	MDCSAB	FR	M	
72-120	HZCL	10YR54 00	0	50	HR			FR	M	

Wetness Grade : 2 Wetness Class : I
 Gleying : cm
 SPL : No SPL

Drought Grade : 1 APW : 128mm MBW : 36 mm
 APP : 113mm MBP : 34 mm

FINAL ALC GRADE : 2
 MAIN LIMITATION : Workability

SOIL PIT DESCRIPTION

Site Name : BASINGSTOKE LP N WALTHAM Pit Number : 3P

Grid Reference: SU57404835 Average Annual Rainfall : 848 mm
 Accumulated Temperature : 1384 degree days
 Field Capacity Level : 185 days
 Land Use : Cereals
 Slope and Aspect : 02 degrees SE

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 30	MZCL	10YR43 00	2	8	HR					Y
30- 67	CH	10YR81 74	0	3	HR				P	Y
67- 82	CH	10YR81 00	0	3	HR				P	Y

Wetness Grade : 2 Wetness Class : I
 Gleying : cm
 SPL : No SPL

Drought Grade : 3A APW : 084mm MBW : -8 mm
 APP : 089mm MBP : 10 mm

FINAL ALC GRADE : 3A
 MAIN LIMITATION : Droughtiness

SOIL PIT DESCRIPTION

Site Name : BASINGSTOKE LP N WALTHAM Pit Number : 4P

Grid Reference: SU57804700 Average Annual Rainfall : 848 mm
 Accumulated Temperature : 1384 degree days
 Field Capacity Level : 185 days
 Land Use : Cereals
 Slope and Aspect : 02 degrees SE

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 23	MZCL	10YR43 00	11	15	HR					
23- 40	HZCL	10YR44 54	20	30	HR			FR	M	
40- 66	CH	10YR81 00	0	7	HR				P	Y

Wetness Grade : 2 Wetness Class : I
 Gleying : cm
 SPL : No SPL

Drought Grade : 3A APW : 078mm MBW : -14 mm
 APP : 083mm MBP : 4 mm

FINAL ALC GRADE : 3A
 MAIN LIMITATION : Droughtiness

SOIL PIT DESCRIPTION

Site Name : BASINGSTOKE LP N WALTHAM Pit Number : 5P

Grid Reference: SU57804800 Average Annual Rainfall : 848 mm
 Accumulated Temperature : 1384 degree days
 Field Capacity Level : 185 days
 Land Use : Permanent Grass
 Slope and Aspect : 01 degrees SE

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 29	MZCL	10YR43-00	5	10	HR					
29- 70	MZCL	10YR54-64	8	35	HR	F		FR	M	
70- 80	MZCL	10YR54-64	0	25	HR	F			M	
80- 90	MZCL	10YR54-64	0	25	HR				M	

Wetness Grade : 2 Wetness Class : I
 Gleying : cm
 SPL : No SPL

Drought Grade : 2 APW : 000mm MBW : 0 mm
 APP : 000mm MBP : 0 mm

FINAL ALC GRADE : 2
 MAIN LIMITATION : Workability

SOIL PIT DESCRIPTION

Site Name : BASINGSTOKE LP N WALTHAM Pit Number : 6P

Grid Reference: SU58804750 Average Annual Rainfall : 848 mm
 Accumulated Temperature : 1384 degree days
 Field Capacity Level : 185 days
 Land Use : Cereals
 Slope and Aspect : 01 degrees E

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 28	MZCL	10YR43 00	1	5	HR					
28- 55	HZCL	75YR54 00	0	8	HR	F	MDCSAB	FR	M	
55- 69	CH	10YR81 00	0	3	HR				P	Y
69- 73	CH	10YR81 00	0	3	HR				P	Y

Wetness Grade : 2 Wetness Class : I
 Gleying : cm
 SPL : No SPL

Drought Grade : 2 APW : 099mm MBW : 7 mm
 APP : 107mm MBP : 28 mm

FINAL ALC GRADE : 2
 MAIN LIMITATION : Soil Wetness/Droughtiness

SAMPLE NO.	GRID REF	ASPECT USE	--WETNESS--		-WHEAT-		-POTS-		M.REL		EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
			GRDNT	GLEY	SPL	CLASS	GRADE	AP	MB	AP					
1	SU57204860	LEY SE	02		1	2	110	18	113	34	2		WD	2	SL. GLEY 25
1P	SU57104800	WHT N	01	047	3	3A	096	4	107	28	3A		WE	3A	SL. GLEY 30
2	SU57404860	WHT S	01	025	3	3A	110	18	101	22	2		WE	3A	SL. GLEY 25
2P	SU57204820	WHT N	02		1	2	128	36	113	34	1		WK	2	
3	SU58004860	WHT N	03		1	2	141	49	115	36	1		WK	2	SL. GLEY 45
3P	SU57404835	CER SE	02		1	2	084	-8	089	10	3A		DR	3A	
4	SU58104860	WHT N	01		1	2	143	51	112	33	1		WK	2	SEE 2P
4P	SU57804700	CER SE	02		1	2	078	-14	083	4	3A		DR	3A	
5	SU57104850	CER S	02		1	2	065	-27	065	-14	3B		DR	3B	PROB 2
5P	SU57804800	PGR SE	01		1	2	000	0	000	0	2		WK	2	
6	SU57904850	WHT N	02	028	3	3B	000	0	000	0			WE	3B	SL. GLEY 28
6P	SU58804750	CER E	01		1	2	099	7	107	28	2		WD	2	
7	SU58004850	WHT N	02		1	2	084	-8	087	8	3A		DR	3A	SL. GLEY 28
8	SU58104850	WHT N	01	027	3	3B	087	-5	098	19	3A		WE	3B	SL. GLEY 27
9	SU57004840	LEY SW	02		1	2	093	1	099	20	3A		DR	3A	PROB 2, SEE 2P
10	SU57104840	CER S	01		1	2	091	-1	097	18	3A		DR	3A	CHALK 40
11	SU57204840	LEY SE	02		1	2	079	-13	082	3	3A		DR	3A	
12	SU57404840	WHT SE	02		1	2	085	-7	089	10	3A		DR	3A	
13	SU57604840	WHT SE	02		1	2	081	-11	081	2	3A		DR	3A	SL. GLEY 28
14	SU57904840	WHT S	01	050	3	3B	086	-6	092	13	3A		WE	3B	SL. GLEY 30
15	SU57104830	CER E	01		1	2	086	-6	091	12	3A		DR	3A	CHALK 35
16	SU57204830	CER S	02		1	2	095	3	101	22	3A		DR	3A	CHALK 40
17	SU57404830	WHT S	02		1	2	073	-19	074	-5	3A		DR	3A	ROOTS 55
18	SU57904830	WHT S	02		1	2	085	-7	089	10	3A		DR	3A	
19	SU56704820	CER NW	02		1	2	070	-22	070	-9	3B		DR	3B	PROB 2, SEE 2P
20	SU56804820	CER N	03		1	2	109	17	117	38	2		WD	2	IMP 75
21	SU57004820	CER N	03		1	2	100	8	114	35	2		WD	2	IMP 70
22	SU57204820	CER N	02		1	2	103	11	117	38	2		WD	2	SL. GLEY 40
23	SU57404820	OSR			1	2	051	-41	051	-28	3B		DR	3B	POSS 2/3A, 5P
24	SU57604820	WHT S	02		1	2	076	-16	079	0	3A		DR	3A	
25	SU57804820	WHT S	02		1	2	079	-13	079	0	3A		DR	3A	
26	SU57404810	OSR N	03		1	2	106	14	119	40	2		WD	2	
27	SU57704810	CER			1	2	060	-32	060	-19	3B		DR	3B	POSS 2/3A, 5P
28	SU57004800	CER N	02		1	2	097	5	106	27	3A		WD	2	SEE 2P
29	SU57104800	CER N	02		1	2	114	22	114	35	2		WE	3A	SEE 1P
30	SU57604800	CER N	02		1	2	094	2	102	23	3A		DR	3A	PROB 2, SEE 2P
31	SU57804800	CER NE	01		1	2	070	-22	070	-9	3B		DR	3B	PROB 2, SEE 5P
32	SU58004800	PEA W	01		1	2	095	3	101	22	3A		DR	3A	
33	SU57104790	CER			1	3A	080	-12	080	1	3A		WD	3A	SEE 1P
34	SU58104790	PEA W	03		1	2	090	-2	096	17	3A		DR	3A	
35	SU57604780	CER N	02		1	2	111	19	119	40	2		WD	2	IMP 75
36	SU57804780	CER NE	02	055	3	3A	100	8	112	33	2		WE	3A	SL. GLEY 30

SAMPLE NO.	GRID REF	ASPECT USE	GRDNT	--WETNESS--		-WHEAT-		-POTS-		M.REL		EROSN	FROST	CHEM	ALC	COMMENTS
				GLEY	SPL	CLASS	GRADE	AP	MB	AP	MB	DRT	FLOOD	EXP	DIST	
37	SU58004780	CER NW	03		1	2	088	-4	091	12	3A			DR	3A	IMP 60
38	SU58204780	PEA W	01		1	2	092	0	099	20	3A			DR	3A	
39	SU58404780	CER E	02		1	2	089	-3	095	16	3A			DR	3A	
40	SU57704770	CER NE	03		1	2	097	5	104	25	2			WD	2	IMP 60
41	SU58604770	PGR E	01		1	2	072	-20	072	-7	3A			DR	3A	POSS 2
42	SU57604760	CER E	02	040	3	3B	080	-12	085	6	3A			WE	3B	SL. GLEY 23
43	SU57704760	CER NW	02		1	2	087	-5	087	8	3A			DR	3A	POSS 2
44	SU57804760	CER NW	02		1	2	078	-14	081	2	3A			DR	3A	
45	SU58404760	CER SE	02		1	2	098	6	106	27	2			WD	2	
46	SU58604760	CER E	01		1	2	100	8	103	24	2			DR	2	
47	SU58804760	PGR E	01		1	2	097	5	101	22	2			WD	2	
48	SU57804750	CER NW	02	055	3	3A	101	9	116	37	2			WE	3A	POSS 2
49	SU57804740	CER NW	02	040	3	3A	110	18	107	28	2			WE	3A	SL. GLEY 40
50	SU57804720	CER SE	02		1	2	079	-13	082	3	3A			DR	3A	
51	SU58004720	CER SE	02		1	2	085	-7	088	9	3A			DR	3A	
52	SU57604700	CER SE	02		1	2	074	-18	077	-2	3A			DR	3A	CHALK 30
53	SU57804700	CER SE	02		1	2	060	-32	060	-19	3B			DR	3A	IMP 35, SEE 4P
54	SU58004700	WHT S	03		1	2	034	-58	034	-45	4			DR	4	POSS 3A
55	SU58104700	CER SE	01		1	2	066	-26	066	-13	3B			DR	3B	POSS 3A
56	SU58204700	WHT N	03		1	2	101	9	111	32	2			WD	2	
57	SU58004690	CER SW	01		1	2	068	-24	068	-11	3B			DR	3B	POSS 3A
58	SU57904680	CER SE	01		1	2	056	-36	056	-23	3B			DR	3B	POSS 3A
59	SU58004680	WHT N	04	028	2	3A	067	-25	067	-12	3B			WE	3A	
60	SU58204680	CER			1	2	000	0	000	0				WK	2	
61	SU58004660	CER		030	3	3A	000	0	000	0				WE	3A	SL. GLEY 30
62	SU58004650	CER SE	03		1	2	056	-36	056	-23	3B			DR	3B	POSS 3A
63	SU57904640	CER SE	01		1	2	088	-4	094	15	3A			DR	3A	

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED COL.	----STONES-----			STRUCT/ CONSIST	SUBS			CALC	
				COL	ABUN	CONT		GLEY	>2	>6		LITH	TOT	STR		POR
7	0-28	mzc1	10YR43 00					3	0	HR	8					
	28-45	hzc1	10YR54 00	10YR56 00	C		S	0	0	HR	10		M			
	45-55	c	75YR54 00	75YR56 00	C		S	0	0	HR	30		M			Imp, flints
8	0-27	hzc1	10YR43 44					2	0	HR	8					
	27-70	c	05YR46 56	00MN00 00	C		S	0	0	HR	10		P		Y	Imp, flints
9	0-25	mzc1	10YR43 00					1	0	HR	5					
	25-40	mzc1	10YR44 00					0	0	HR	5		M			
	40-60	hzc1	75YR44 54	75YR56 00	F			0	0	HR	15		M			Imp, flints
10	0-30	mzc1	10YR43 00					1	0	HR	3					
	30-40	mzc1	10YR44 00					0	0	CH	70		M			Y
	40-70	ch	10YR81 00					0	0		0		P			Y
11	0-30	mzc1	10YR43 53					2	0	HR	8					Y
	30-60	ch	10YR81 74					0	0	HR	3		P			Y
12	0-25	mzc1	10YR43 00					2	0	HR	8					Y
	25-35	hzc1	75YR44 00	00MN00 00	C			0	0	HR	5		M			Y
	35-55	ch	10YR81 74					0	0	HR	3		P			Y
	55-65	ch	10YR81 00					0	0	HR	3		P			Y
13	0-28	mzc1	10YR43 00					2	0	HR	8					
	28-50	mzc1	10YR43 44	75YR56 00	C		S	0	0	HR	15		M			Imp, flints
14	0-30	hzc1	10YR43 44					1	0	HR	5					
	30-50	c	75YR54 00	05YR56 00	C	00MN00 00	S	0	0	HR	5		P			
	50-60	c	05YR56 58	00MN00 00	M		S	0	0	HR	5		P		Y	Imp, flints
15	0-30	mzc1	10YR43 00					2	0	HR	5					Y
	30-35	mzc1	10YR44 00					0	0	HR	10		M			Y
	35-65	ch	10YR81 00					0	0	HR	5		P			Y
16	0-30	mzc1	10YR43 00					2	0	HR	5					Y
	30-40	mzc1	10YR44 00					0	0	HR	5		M			Y
	40-70	ch	10YR81 00					0	0		0		P			Y
17	0-28	mzc1	10YR43 00					2	0	HR	10					Y
	28-55	ch	10YR81 74					0	0	HR	3		P			Y
	55-80	ch	10YR81 00					0	0	HR	3		P			Y
18	0-28	mzc1	10YR43 00					3	0	HR	8					Y
	28-35	hzc1	75YR54 00					0	0	CH	20		M			Y
	35-65	ch	10YR81 00					0	0	HR	3		P			Y
19	0-30	mzc1	10YR43 00					2	0	HR	5					
	30-40	mzc1	10YR54 00					0	0	HR	10		M			Imp, flints

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED COL.	----STONES----			STRUCT/ CONSIST	SUBS					
				COL	ABUN	CONT		GLE	>2	>6		LITH	TOT	STR	POR	IMP	SPL
20	0-30	mzc1	10YR43 54					2	0	HR	5						
	30-40	mzc1	10YR54 00					0	0	HR	5		M				
	40-50	mzc1	10YR54 00					0	0	HR	10		M				
	50-75	hzc1	75YR56 00	00MN00	00	C		0	0	HR	10		M				Imp, flints
21	0-30	mzc1	10YR43 54					0	0	HR	5						
	30-40	mzc1	10YR54 00					0	0	HR	5		M				
	40-70	c	75YR46 00					0	0	HR	10		M				Imp, flints
22	0-32	mzc1	10YR43 54					2	0	HR	5						
	32-40	mzc1	10YR44 54					0	0	HR	5		M				
	40-50	mzc1	10YR54 00	75YR46	00	C		S	0	0	HR	5		M			
	50-60	hzc1	10YR54 00	75YR46	00	C		S	0	0	HR	10		M			
	60-70	c	75YR46 00	00MN00	00	C		S	0	0	HR	10		M			Imp, flints
23	0-30	mzc1	10YR43 00					8	0	HR	12						Imp, flints
24	0-27	mzc1	10YR43 53					2	0	HR	10						Y
	27-60	ch	10YR81 74					0	0	HR	3		P				Y
25	0-28	mzc1	10YR43 00					2	0	HR	8						Y
	28-45	mzc1	10YR44 46					0	0	HR	15		M				Y
	45-50	mzc1	10YR74 81					0	0	CH	60		P				Y Imp, flints
26	0-30	mzc1	10YR43 00					1	0	HR	5						
	30-55	mzc1	10YR54 00					0	0	HR	5		M				
	55-70	hzc1	10YR54 00	00MN00	00	C		0	0	HR	5		M				
27	0-30	mzc1	10YR42 00					3	0	HR	8						Y
	30-35	mzc1	10YR44 00					0	0	HR	10		M				Y Imp, flints
28	0-25	mzc1	10YR43 54					0	0	HR	2						
	25-42	hzc1	10YR54 00					0	0	HR	2		M				
	42-55	c	10YR54 00					0	0	HR	2		M				
	55-62	c	75YR46 00					0	0	HR	10		M				Imp, flints
29	0-35	mzc1	10YR43 00					2	0	HR	5						
	35-90	c	75YR44 46	00MN00	00	M		0	0	HR	10		M				Q SPL
30	0-28	mzc1	10YR43 00					1	0	HR	4						
	28-50	hzc1	75YR46 00	00MN00	00	C		0	0	HR	5		M				
	50-60	c	75YR46 00	00MN00	00	C		0	0	HR	5		M				Imp, flints
31	0-25	mzc1	10YR43 00					0	0	HR	3						
	25-40	mzc1	10YR44 00					0	0	HR	8		M				Imp, flints
32	0-28	mzc1	10YR43 00					2	0	HR	10						Y
	28-45	mzc1	10YR74 81					0	0	HR	3		M				Y
	45-70	ch	10YR81 00					0	0	HR	3		P				Y

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED COL.	----STONES----			STRUCT/ CONSIST	SUBS					
				COL	ABUN	CONT		GLE	>2	>6		LITH	TOT	STR	POR	IMP	SPL
33	0-25	hzc1	10YR33 34					0	0	HR	8						
	25-40	c	75YR44 54	00M00	00	M		0	0	HR	10	M					
	40-50	c	05YR46 56	00M00	00	M		0	0	HR	10	M					Imp, flints
34	0-33	mzc1	10YR43 00					1	0	HR	5						Y
	33-70	ch	10YR81 74					0	0	HR	3	P					Y
	70-80	ch	10YR81 00					0	0	HR	3	P					Y
35	0-28	mzc1	10YR43 00					1	0	HR	3						
	28-50	mzc1	10YR44 54					0	0	HR	3	M					
	50-65	mzc1	10YR54 00	00M00	00	F		0	0	HR	10	M					
	65-75	hzc1	10YR54 00	00M00	00	F		0	0	HR	10	M					Imp, flints
36	0-30	mzc1	10YR43 00					0	0	HR	2						
	30-55	c	75YR46 00	00M00	00	C		S	0	HR	5	M					
	55-70	c	05YR46 00	00M00	00	M		S	0	HR	10	P		Y			Imp, flints
37	0-30	mzc1	10YR43 00					0	0	CH	4						Y
	30-40	mzc1	10YR43 44					0	0	CH	25	M					Y
	40-60	ch	10YR81 00					0	0		0	P					Y
38	0-25	mzc1	10YR43 00					2	0	HR	8						
	25-55	zc	75YR54 56	00M00	00	C		0	0	HR	10	M					
	55-70	ch	10YR81 00					0	0	HR	3	P			Y		Imp, flints
39	0-25	mzc1	10YR43 00					3	0	HR	10						Y
	25-40	mzc1	10YR54 44					0	0	HR	15	M					Y
	40-70	ch	10YR81 00					0	0	CH	5	P					Y
40	0-30	mzc1	10YR43 00					0	0	HR	3						
	30-40	mzc1	10YR54 00					0	0	HR	2	M					
	40-60	hzc1	10YR54 00					0	0	HR	8	M					Imp, flints
41	0-25	mzc1	10YR43 00					2	0	HR	10						
	25-45	mzc1	10YR54 00					0	0	HR	15	M					Imp, flints
42	0-23	hzc1	10YR43 44					0	0	HR	3						
	23-40	c	75YR46 00	00M00	00	C		S	0	HR	10	M					
	40-60	c	05YR46 00	00M00	00	M		S	0	HR	15	P		Y			Imp, flints
43	0-30	mzc1	10YR43 00					1	0	HR	3						
	30-40	mzc1	10YR54 00	00M00	00	F		0	0	HR	10	M					
	40-50	hzc1	75YR56 00	00M00	00	F		0	0	HR	5	M					Imp, flints
44	0-25	mzc1	10YR43 00					0	0	CH	5						Y
	25-60	ch	10YR81 00					0	0		0	P					Y
45	0-25	mzc1	10YR43 00					2	0	HR	5						Y
	25-55	mzc1	10YR44 54					0	0	HR	10	M					Y
	55-70	ch	10YR81 00					0	0	HR	3	P					Y

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED		----STONES----				STRUCT/ CONSIST	SUBS					
				COL	ABUN	CONT	COL.	GLE	>2	>6	LITH	TOT		STR	POR	IMP	SPL	CALC	
46	0-25	mzc1	10YR43 44						3	0	HR	10							
	25-55	mzc1	10YR44 54	10YR56	00	F			0	0	HR	15		M					
	55-75	mzc1	10YR74 81						0	0	CH	50		P			Y		
	75-80	ch	10YR81 00						0	0	HR	3		P			Y		
47	0-30	mzc1	10YR43 00						2	0	HR	8							
	30-55	zc	75YR54 00						0	0	HR	10		M					
	55-75	ch	10YR81 00						0	0	HR	3		P			Y		
48	0-30	mzc1	10YR43 00						2	0	HR	5							
	30-40	hzc1	75YR46 00	00MNO0	00	C			0	0	HR	5		M					
	40-55	c	75YR56 00	00MNO0	00	C			0	0	HR	5		M					
	55-65	c	05YR46 00	00MNO0	00	C			0	0	HR	5		M			Y		
	65-70	c	05YR46 00	00MNO0	00	C			0	0	CH	30		M			Y	Y	Imp, flints
49	0-28	mzc1	10YR43 00						4	0	HR	10						Y	
	28-40	c	75YR46 00	00MNO0	00	F			0	0	HR	10		M				Y	
	40-60	c	75YR44 00	05YR46	00	C	00MNO0	00	S	0	0	HR	2		M			Y	Y
	60-90	ch	10YR81 00						0	0		0		P				Y	
50	0-30	mzc1	10YR43 00						0	0	HR	12						Y	
	30-50	mzc1	10YR47 00						0	0	CH	70		P				Y	
	50-60	ch	10YR81 00						0	0		0		P				Y	
51	0-28	mzc1	10YR43 00						0	0	HR	2						Y	
	28-40	mzc1	10YR47 81						0	0	CH	60		M				Y	
	40-60	ch	10YR81 00						0	0		0		P				Y	
52	0-20	mzc1	10YR43 00						2	0	HR	5						Y	
	20-30	mzc1	10YR44 00						0	0	CH	80		P				Y	
	30-60	ch	10YR81 00						0	0	HR	2		P				Y	
53	0-30	mzc1	10YR43 00						3	0	HR	8						Y	
	30-35	mzc1	10YR44 00						0	0	HR	15		M				Y	Imp, flints
54	0-20	mzc1	10YR53 00						6	0	HR	10							Imp, flints
55	0-28	mzc1	10YR43 00						3	0	HR	10							
	28-40	mzc1	10YR44 54						0	0	HR	15		M					Imp, flints
56	0-30	mzc1	10YR53 00						2	0	HR	5							
	30-65	mzc1	10YR54 00						0	0	HR	5		M					Imp, flints
57	0-25	mzc1	10YR43 00						3	0	HR	10							
	25-42	mzc1	10YR44 54						0	0	HR	15		M					Imp, flints
58	0-25	mzc1	10YR43 00						5	0	HR	12							
	25-35	mzc1	10YR44 54						0	0	HR	20		M					Imp, flints

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED	----STONES----			STRUCT/ CONSIST	SUBS						
				COL	ABUN	CONT	COL.	GLE	>2	>6		LITH	TOT	STR	POR	IMP	SPL	CALC
59	0-28	mzc1	10YR53 00						4	0	HR	8						
	28-40	mzc1	10YR53 00	75YR46	00	C			Y	0	0	HR	12		M			Imp, flints
60	0-28	mzc1	10YR43 00						0	0		0						Y
	28-80	c	75YR64 00						0	0		0		M				
61	0-30	mzc1	10YR43 00						0	0		0						
	30-60	c	05YR56 00	75YR56	00	C			S	0	0		0		P		Y	Imp, flints
62	0-25	mzc1	10YR43 44						5	0	HR	12						
	25-35	hzc1	75YR44 54						0	0	HR	20		M				Imp, flints
63	0-25	mzc1	10YR43 00						3	0	HR	10						Y
	25-60	hzc1	10YR44 00	10YR46	00	F	00M00 00		0	0	HR	15		M				Imp, flints