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**BASINGSTOKE AND DEANE LOCAL PLAN
Additional land at Overton**

**Agricultural Land Classification
ALC Maps and Report
May 1999**

**Resource Planning Team
Eastern Region
FRCA Reading**

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AGRICULTURAL LAND CLASSIFICATION REPORT

BASINGSTOKE AND DEANE LOCAL PLAN ADDITIONAL LAND AT OVERTON

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of approximately 28 ha of land, in 6 parcels, around Overton, Hampshire. The survey was carried out during May 1999.
2. The work was undertaken by the Farming and Rural Conservation Agency (FRCA)¹ on behalf of the Ministry of Agriculture, Fisheries and Food (MAFF). The survey was carried out in connection with MAFF's statutory input to the Basingstoke and Deane Local Plan. This survey supersedes any previous ALC information for this land.
3. The work was conducted by members of the Resource Planning Team in the Eastern Region of FRCA. 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 most of the agricultural land was in cereals, while the remainder (principally Sites E and G) was in grass. The areas mapped as 'Other land' include residential property, woodland and utility facilities (gas and electricity sub-stations).

SUMMARY

5. The findings of the survey are shown on the enclosed ALC maps. The first map covers sites A and B plus the area in between (Area A extension), while the second map covers sites C, E and G. The maps have been drawn at a scale of 1:10,000. They are accurate at this scale but any enlargement would be misleading.
6. The area and proportions of the ALC grades and subgrades for the total area surveyed are summarised in Table 1. Individual areas of grades for each of the sites identified by Basingstoke and Deane Borough Council follow.

Table 1: Area of grades and other land

Grade/Other land	Area (hectares)	% surveyed area	% site area
2	2.0	7.2	7.1
3a	25.6	92.8	91.1
Other land	0.5	-	1.8
Total surveyed area	27.6	100.0	98.2
Total site area	28.1	-	100.0

¹ FRCA is an executive agency of MAFF and the Welsh Office

7. The fieldwork was conducted at an average density of 1 boring per hectare of agricultural land. In total, 32 borings and four soil pits were described.
8. Almost all the land included in the survey has been classified as Subgrade 3a, with soil droughtiness being the principal limitation. Within site G, a small area of Grade 2 was mapped. The droughtiness limitation is sufficient to limit the amount of water for plant growth and restricts the potential rooting depth for crops. This limitation will reduce the level and consistency of crop yields.
9. In some areas, topsoil stoniness acts as an equal limitation to droughtiness. The main effects of stones are to act as an impediment to cultivation, harvesting and crop growth. A high percentage of stones in the topsoil can increase production costs by causing extra wear and tear to implements and tyres, and crop quality can be reduced by causing distortion of roots or bruising of crops during harvest.

Area A

10. Area A is located on the north-western edge of Overton. The land use at the time of survey was predominantly barley, with a small area of permanent grassland. The distribution of grades for this land are as follows:

Table 2: Area of grades, Area A

Grade	Area (ha)
3a	3.8
Total site area	3.8

11. The entire site has been classified as Subgrade 3a (good quality agricultural land). The principal limitation across the site is soil droughtiness, although in places, topsoil stoniness also imparts an equal limitation. Soils in this unit are well drained and comprise two types. At higher elevations, slightly stony medium silty clay loam topsoils lie directly over chalk. The second soil type is typically found on the lower slopes, comprising a slightly stony medium silty clay loam topsoil, passing to an increasingly stony heavy silty clay loam subsoil, which becomes coarser textured with depth.

Area A Extension

12. Area A Extension is immediately to the north of Area A. Land use at the time of survey was barley. The area has been classified as:

Table 3: Area of grades, Area A Extension

Grade	Area (ha)
3a	12.3
Total site area	12.3

13. The Subgrade 3a land is affected by a soil droughtiness limitation, although in parts, topsoil stoniness imparts an equal limitation. The soils in this area are relatively uniform and well drained, comprising medium silty clay loam topsoils lying directly over chalk.

Area B

14. Area B is located to the north-west of Overton, immediately adjacent to the railway line. At the time of the survey the land use was barley with land prepared for game cover crops along the northern and western edges. The land has been classified as follows:

Table 4: Area of grades, Area B

Grade	Area (ha)
3a	8.5
Total site area	8.5

15. Soil droughtiness is the main limitation, restricting land quality to Subgrade 3a. In places, workability is also an equally significant limitation due to the heavy nature of the topsoils. Soils are well drained and comprise slightly stony medium or heavy silty clay loam topsoils, over a moderately stony clay subsoil, before passing to chalk.

Area C

16. Area C is located to the north of Overton and at the time of survey was in wheat. The land has been classified as:

Table 5: Area of grades, Area C

Grade	Area (ha)
3a	2.6
Other land	0.2
Total surveyed area	2.6
Total site area	2.8

17. The land is graded Subgrade 3a based on a soil droughtiness limitation. The soils are well drained and comprise medium silty clay topsoils directly lying over chalk.

Area E

18. Area E is located to the north-east of Overton. Agricultural land use at the time of survey was a grass ley. The land has been classified as follows:

Table 5: Area of grades, Area E

Grade	Area (ha)
3a	3.1
Other land	0.1
Total surveyed area	3.1
Total site area	3.2

19. The Subgrade 3a land is limited by soil droughtiness. The soils are well drained and comprise medium silty clay loam topsoils over chalk.

Area G

20. Area G is located to the north-east of Overton. Land use at the time of survey was predominantly permanent grassland with a small area of 'Other land' associated with a residential property. The land has been classified as follows:

Table 5: Area of grades, Area G

Grade	Area (ha)
2	2.0
3a	0.3
Other land	0.2
Total surveyed area	2.3
Total site area	2.5

21. The area classified as Grade 2 (very good quality land) is limited by minor soil droughtiness and comprises deeper soils over chalk. Typical profiles are well drained and comprise medium and heavy silty clay loam topsoils over heavy silty clay loam and heavy clay loam subsoils over chalk. The Subgrade 3a land is restricted by droughtiness with soils comprising medium silty clay loam topsoils directly over chalk. Due to the absence of an upper subsoil, the amount of water available to plants in the Subgrade 3a land is reduced to a greater extent than in the better quality Grade 2 land.

FACTORS INFLUENCING ALC GRADE

Climate

22. Climate affects the grading of land through the assessment of an overall climatic limitation and also through interactions with soil characteristics.
23. The key climatic variables used for grading these sites are given in Table 2 and were obtained from the published 5 km grid datasets using the standard interpolation procedures (Met. Office, 1989).

Table : Climatic and altitude data

Factor	Units	Values			
Grid reference	N/A	SU 509 498	SU 508 500	SU 507 502	SU 508 504
Altitude	m, AOD	85	102	111	116
Accumulated Temperature	day°C (Jan-June)	1441	1422	1411	1406
Average Annual Rainfall	mm	792	802	807	810
Field Capacity Days	days	174	175	176	177
Moisture Deficit, Wheat	mm	105	103	101	100
Moisture Deficit, Potatoes	mm	97	95	93	92
Overall climatic grade	N/A	Grade 1	Grade 1	Grade 1	Grade 1

24. 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.
25. 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 (AT0, January to June), as a measure of the relative warmth of a locality.
26. The combination of rainfall and temperature at this site means that there is no overall climatic limitation. In addition, the site does not suffer from significant exposure or frost risk. As such, the site may be considered as being climatically Grade 1. Climatic factors do however interact with soil properties to influence soil wetness and soil droughtiness. Around Overton, the 175/176 FCD isohyt is straddled for Area A (Extension) and G but does not have a significant affect on grading as other factors notably droughtiness and topsoil stoniness.

Site

27. The sites range in altitude, from 85 to 116 m AOD. The highest land is located on Area C, adjacent to Overton Mill, whereas the lowest occurs along the Test valley in Areas A and G. Nowhere on the site do microrelief, gradient or flooding restrict agricultural land quality.

Geology and soils

28. The published geological information for the area (BGS, 1975) shows all areas to be underlain by Cretaceous Upper Chalk. Such chalk is characterised by seams of tabular and nodular flints.
29. The most recent published soils information for the area maps two soil associations across the sites. Over the majority of the areas, Andover 1 Association is mapped. These are described as "Shallow, well drained calcareous silty soils over chalk on slopes and crests. Deep calcareous and non-calcareous fine silty soils in valley bottoms. Striped soil patterns locally" (SSEW, 1983). In the south of Area A, Charity 2 Association is mapped. These soils are described as "Well drained, flinty fine silty soils in valley bottoms. Calcareous fine silty soils over chalk rubble on valley sides, sometimes shallow" (SSEW, 1983). Soils corresponding to these descriptions were observed over most of the sites. However, in Area B the soils appear to be more closely associated with the Carstens Association, which are described as "Well drained fine silty over clayey, clayey and fine silty soils, often very flinty" (SSEW, 1983). Since these are mapped immediately to the north of the site, it is thought that perhaps their influence extends further south than shown on the published map.

AGRICULTURAL LAND CLASSIFICATION

30. 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.
31. The location of the auger borings and pits is shown on the attached sample location maps and the details of the soils data are presented in Appendix II.

Subgrade 3a

32. Although most of the surveyed area has been mapped as Subgrade 3a, with a small area of Grade 2 (very good agricultural quality land), three different soil types have been identified, which will be discussed in relation to the individual sites. -

Area A - FRCA ref:1501/034/99

33. In the south of the site, typically on the lower lying land towards the River Test and predominantly within area A, soils differ from those surveyed elsewhere in that soil profiles pass to stony sandy material possibly derived from river gravel deposits. Typical profiles in this area comprise calcareous, slightly stony (<15% stones by volume) medium silty clay loam topsoils over heavy silty clay loam upper subsoils, being impenetrable to the auger at 50 cm depth. Pit evidence from 3P revealed that this upper subsoil contained 28% stones by volume, passing to a slightly stonier (30% flints by volume) heavy silty clay loam. At approximately 70 cm depth, a thin horizon of fine sandy silt loam occurred, overlying a very stony (53% stone by volume) coarse sand to depth. Drought calculations on this profile suggest that Subgrade 3a is an appropriate grade for these soils. Due to the large percentage of stones throughout the profile, the amount of available water for plants is restricted which may reduce the level and consistency of yields. As the land rises soils become shallow over chalk, typical of those described for the extension area (see description below)

Area A Extension - FRCA ref:1501/034/99

34. In the surveyed area between the areas marked A and B, soil profiles typically comprise calcareous, slightly to moderately stony medium silty clay loams lying directly over chalk at shallow depths (30-35 cm). Profiles are typified by Pit 2P. Evidence from the pit suggested that rooting within the chalk extended to a depth of 85 cm. Calculations carried out using local climatic data, pit evidence and profile information suggest that soil droughtiness in these soils is the principal limitation, sufficient to place the land in Subgrade 3a.

Area B - FRCA ref:1501/034/99

35. In Area B, to the north of the site, soil profiles typically comprise slightly stony (7-8% hard rock by volume) medium or heavy silty clay loams over slightly to moderately stony clay upper subsoils. In places a high volume of chalk rock (up to 50%) within the clay lower subsoil is present before passing into the chalk bedrock. Soil pit 1P is typical of such soils. Pit 1 comprises a slightly stony (13% total flints by volume) medium silty clay loam topsoil over a moderately stony (16% total by volume) clay upper subsoil. This passes into chalk bedrock. Roots were noted to a depth of 68cm. The combination of soil textures, stone contents and the local climatic regime result in a grading of Subgrade 3a grading for this land. The soil droughtiness restriction will limit the amount of available water for plant uptake and may reduce the level and consistency of yields.

Area C - FRCA ref:1501/035/99

36. In Area C, north of the railway line, soil profiles are well drained (Wetness Class I), calcareous medium silty clay loams with up to 10% Chalk in the topsoils. These rest directly

over the Chalk bedrock impeding the soil auger to a maximum depth of 50cm. Soil Pit 1 (see Appendix II) is typical of these shallow soils over Chalk. Rooting within the pit was observed to a depth of 68 cm. Moisture balance calculations which take account of the interaction of these soil characteristics and the local climate indicate Subgrade 3a is appropriate for these soils. A slight soil droughtiness limitation may limit the amount of available water for plant uptake and may reduce the level and consistency of yields.

Area E - FRCA ref:1501/035/99

37. In Area E, south of the railway line and east of Area C, soil profiles are well drained (Wetness Class I), calcareous medium silty clay loams with up to 10% Chalk in the topsoils. These rest directly over the Chalk bedrock which in places was soft enough not to restrict the soil auger, in other places the chalk was harder restricting the auger to a maximum depth of 40cm. Soil Pit 1 (see Appendix II) is typical of these shallow soils over Chalk. Rooting within the pit was observed to a depth of 68 cm. Moisture balance calculations which take account of the interaction of these soil characteristics and the local climate indicate Subgrade 3a is appropriate for these soils. A slight soil droughtiness limitation may limit the amount of available water for plant uptake and may reduce the level and consistency of yields.

Area G - FRCA ref:1501/035/99

38. In Area G, south of Area E, soil profiles similar to those described in Areas C and E were observed extending into the northern section of the site. Over the majority of Area G the soil profiles were deeper giving rise to Grade 2 (very good quality) agricultural land with a minor soil droughtiness and/or workability limitation. These deeper soils are well drained (Wetness Class I) with a heavy or medium silty clay loam topsoil with 2% hard rock or 10% Chalk by volume. These pass to heavy silty clay loam upper subsoils with between 5 and 30 hard rock and overlie Chalk or heavy clay loam to depth. It is the increased soil resource which makes the land less droughty and is confirmed by the moisture balance calculations with Grade 2 appropriate. Grade 2 land which straddles the 175 FCD isohyete boundary is also affected by a minor soil workability limitation which may limit the opportunity for grazing or trafficking by machinery.

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SOURCES OF REFERENCE

British Geological Survey (1975) *Sheet No. 283, Andover*.
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.

Met. Office (1989) *Climatological Data for Agricultural Land Classification*.
Met. Office: Bracknell.

Soil Survey of England and Wales (1983) *Sheet 6, Soils of South East England*.
SSEW: Harpenden.

APPENDIX I

DESCRIPTIONS 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 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 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 which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

APPENDIX II

SOIL DATA

Contents:

Sample location map

Soil abbreviations - explanatory note

Soil pit and soil boring descriptions (boring and horizon levels)

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	OTH: Other
DCW: Deciduous woodland	BOG: Bog or marsh	SAS: Set-Aside
HTH: Heathland	HRT: Horticultural crops	PLO: Ploughed

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	ST: Topsoil Stoniness
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
EX: Exposure		

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 | FSST: soft, fine grained sandstone |
| ZR: soft, argillaceous, or silty rocks | CH: chalk |
| MSST: soft, medium grained sandstone | GS: gravel with porous (soft) stones |
| SI: soft weathered igneous/metamorphic rock | GH: gravel with non-porous (hard) stones |

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

8. **STRUCT:** the degree of development, size and shape of soil pedes are described using the following notation:

Degree of development	WK: weakly developed	MD: moderately developed
	ST: strongly developed	
Ped size	F: fine	M: medium
	C: coarse	
Ped shape	S: single grain	M: massive
	GR: granular	AB: angular blocky
	SAB: sub-angular blocky	PR: prismatic
	PL: platy	
9. **CONSIST:** Soil consistence is described using the following notation:

L: loose	FM: firm	EH: extremely hard
VF: very friable	VM: very firm	
FR: friable	EM: extremely firm	
10. **SUBS STR:** Subsoil structural condition recorded for the purpose of calculating profile droughtiness:
G: good **M:** moderate **P:** poor
11. **POR:** Soil porosity. If a soil horizon has less than 0.5% biopores >0.5 mm, a 'Y' will appear in this column.

12. **IMP:** If the profile is impenetrable to rooting a 'Y' will appear in this column at the appropriate horizon.
13. **SPL:** Slowly permeable layer. If the soil horizon is slowly permeable a 'Y' will appear in this column.
14. **CALC:** If the soil horizon is calcareous, a 'Y' will appear in this column.
15. Other notations:

APW: available water capacity (in mm) adjusted for wheat
APP: available water capacity (in mm) adjusted for potatoes
MBW: moisture balance, wheat
MBP: moisture balance, potatoes

SAMPLE NO.	GRID REF	ASPECT USE	GRDNT	--WETNESS--		-WHEAT-		-POTS-		M.REL		EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
				SPL	CLASS	GRADE	AP	MB	AP	MB	DRT					
1	SU50705040	PLO S	1		1	2	115	14	107	14	2			WD	2	IMP90/SEE1P
1A	SU50615035	PLO S	2		1	2	87	-14	93	0	3A			DR	3A	IMP65/SEE1P
2	SU50805040	CER			1	2	113	12	105	12	2			WD	2	IMP75/SEE1P
3	SU50905040	CER E	1		1	3A	80	-21	83	-10	3A			WD	3A	SEE1/PB083A
4	SU50705030	CER S	1		1	2	89	-12	96	3	3A			DR	3A	IMP60/SEE1P
5	SU50805030	CER S	1		1	2	88	-13	93	0	3A			DR	3A	IMP48/SEE1P
6	SU50905030	CER E	1		1	2	89	-12	94	1	3A			DR	3A	IMP55/SEE1P
7	SU50705020	CER S	3		1	2	103	2	102	9	3A			DR	3A	AT 1P
8	SU50805020	CER S	2		1	2	87	-14	91	-2	3A			DR	3A	IMP88/SEE1P
9	SU50705010	WHT S	2		1	1	60	-45	60	-37	3B			DR	3B	IMP40/SEE1P
10	SU50605000	WHT SW	3		1	1	108	3	100	3	3A			DR	3A	SEE 2P
11	SU50705000	WHT S	3		1	1	93	-12	89	-8	3A			DR	3B	SEE 2P
12	SU50805000	WHT S	3		1	1	96	-9	98	1	3A			DR	3A	SEE 2P
13	SU50604990	WHT S	3		1	1	100	-5	92	-5	3A			DR	3A	AT 2P
14	SU50704990	WHT S	4		1	1	98	-7	96	-1	3A			DR	3A	SEE 2P
15	SU50804990	WHT S	4		1	1	101	-4	93	-4	3A			DR	3A	SEE 2P
16	SU50904990	WHT S	4		1	1	94	-11	103	6	3A			DR	3A	IMP70 SEE 2P
17	SU50604980	WHT S	2		1	1	104	-1	96	-1	3A			DR	3A	SEE 2P
18	SU50704980	WHT S	3		1	1	100	-5	92	-5	3A			DR	3A	SEE 2P
19	SU50804980	WHT S	2		1	1	73	-32	73	-24	3B			DR	3A	DR AT 3P
20	SU50904980	WHT S	2		1	1	77	-28	77	-20	3B			DR	3A	DR 150 SEE 3P
1P	SU50705020	CER S	3		1	2	89	-12	101	8	3A			DR	3A	PIT70/ROOTS 68
2P	SU50604990	BAR S	3		1	1	89	-16	84	-13	3A			DR	3A	PIT90/ROOTS 85
3P	SU50804980	BAR S	2		1	1	98	-7	87	-10	3A			DR	3A	PIT95/AUG120

SAMPLE	DEPTH	TEXTURE	COLOUR	---MOTTLES---			PED		----STONES----			STRUCT/ STR	SUBS POR	IMP	SPL	CALC
				COL	ABUN	CONT	COL.	GLE	>2	>6	LITH					
1	0-35	MZCL	10YR42						0	0	HR	8				
	35-75	C	10YR44						0	0	HR	20	M			
	75-90	CH	05Y 81						0	0		0	P		Y	IMP90 CHALK
1A	0-28	MZCL	10YR42						4	2	HR	9				
	28-35	C	10YR43						0	0	HR	1	M			
	35-85	CH	05Y 81						0	0		0	P		Y	CALCT068/SEE1P
2	0-25	MZCL	10YR43						0	0	HR	8				
	25-30	C	10YR43						0	0	HR	1	M		Y	
	30-45	C	75YR44						0	0	CH	35	M		Y	
	45-95	C	75YR44						0	0	CH	50	M		Y	IMP95 CHALK
3	0-25	HZCL	10YR32						4	1	HR	8				
	25-48	C	10YR42						0	0	HR	25	M			
	48-85	CH	05Y 81						0	0		0	P		Y	CALCT059/SEE1P
4	0-28	MZCL	10YR4243						0	0	HR	7				
	28-55	C	10YR44						0	0	HR	20	M			
	55-80	CH	05Y 81						0	0		0	P		Y	SEE 1P
5	0-28	MZCL	10YR4243						0	0	HR	7				
	28-35	C	10YR444						0	0	HR	10	M			
	35-78	CH	05Y 81						0	0		0	P		Y	CALCT068/SEE1P
6	0-27	MZCL	10YR43						0	0	HR	6			Y	
	27-36	C	10YR43						0	0	HR	5	M		Y	
	36-75	CH	05Y 81						0	0		0	P		Y	CALCT068/SEE1P
7	0-30	MZCL	10YR42						0	0	HR	7				AT 1P
	30-58	C	10YR44						0	0	HR	20	M			
	58-85	CH	05Y 81						0	0		0	P		Y	
8	0-25	MZCL	10YR42						4	1	HR	8				
	25-39	C	10YR44						0	0	HR	5	M		Y	
	39-50	C	10YR44						0	0	CH	50	M		Y	
	50-88	CH	05Y 81						0	0		0	P		Y	CALCT061/SEE1P
9	0-28	HZCL	10YR43						12	0	HR	16			Y	
	28-40	ZC	75YR43						0	0	HR	15	M		Y	IMP 40CM
10	0-35	MZCL	10YR53						0	0	HR	2			Y	
	35-90	CH	25Y 71						0	0		0	P		Y	SEE 2P
11	0-30	MZCL	10YR53						11	0	HR	15			Y	
	30-85	CH	25Y 71						0	0		0	P		Y	SEE 2P
12	0-30	HZCL	10YR53						6	0	HR	10			Y	
	30-45	HZCL	10YR54						0	0	CH	20	M		Y	
	45-75	CH	25Y 71						0	0		0	P		Y	SEE 2P

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----			PED	----STONES----			STRUCT/	SUBS	SPL	CALC
				COL	ABUN	CONT	COL.	GLE	>2	>6	LITH	TOT		
13	0-35	MZCL	10YR53					9	0	HR	15			Y
	35-90	CH	25Y 71					0	0		0	P		Y SEE 2P
14	0-35	MZCL	10YR53					8	0	HR	15			Y
	35-65	HZCL	10YR54					0	0	CH	55	M		Y
	65-85	CH	25Y 71					0	0	HR	10	P		Y SEE 2P
15	0-35	MZCL	10YR53					10	0	HR	13			Y
	35-90	CH	25Y 71					0	0	HR	5	P		Y SEE 2P
16	0-35	MZCL	10YR43					6	0	HR	12			Y
	35-65	HZCL	25Y 7374					0	0	CH	35	M		Y
	65-70	CH	25Y 71					0	0		0	P		Y SEE 2P
17	0-35	MZCL	10YR53					0	0	CH	8			Y
	35-90	CH	25Y 71					0	0		0	P		Y SEE 2P
18	0-35	MZCL	10YR42					9	0	HR	15			Y
	35-90	CH	25Y 71					0	0		0	P		Y SEE 2P
19	0-25	HZCL	10YR53					14	2	HR	18			Y
	25-50	HZCL	25Y 73					0	0	CH	40	M		Y AT 3P
20	0-30	MZCL	10YR43					8	0	HR	12			Y
	30-50	HZCL	25Y 73					0	0	CH	40	M		Y SEE 3P
1P	0-26	MZCL	10YR43					6	3	HR	13			WET SIEVED
	26-57	C	10YR44					0	0	HR	16	MDCSAB FM M		WET SIEVED
	57-68	CH	05Y 81					0	0		0	P		Y ROOTS TO 68CM
2P	0-29	MZCL	10YR44					9	0	HR	15			Y
	29-85	CH	25Y 7181					0	0		0	P		Y ROOTS TO 80CM
3P	0-30	MZCL	10YR4353					12	0	HR	25			Y
	30-45	HZCL	10YR73					0	0	HR	28	MDVCPL FR P		Y NOT SPL
	45-70	HZCL	10YR73					0	0	HR	30	M		Y
	70-80	FSZL	10YR64					0	0	HR	5	M		Y
	80-120	CS	10YR74					0	0	HR	53	M		Y

SAMPLE NO.	GRID REF	ASPECT		GRDNT	--WETNESS--		-WHEAT-		-POTS-		M. REL		EROSN	FROST		CHEM	ALC	COMMENTS
		USE			CLASS	GRADE	AP	MB	AP	MB	DRT	FLOOD	EXP	DIST	LIMIT			
1	SU51505090	CER	W	5	1	2	72	-29	72	-20	3B					DR	3A	IMP50/SEE1P
2	SU52105090	LEY	W	5	1	2	104	3	96	4	3A					DR	3A	IMP90 CHALK
3	SU52205090	LEY	SW	2	1	2	121	20	92	0	2					WD	2	SOFT CHALK
4	SU51505080	CER	W	1	1	2	63	-38	63	-29	3B					DR	3A	IMP40/SEE1P
5	SU51605080	CER			1	3A	70	-31	70	-20	3B					WD	3A	IMP45/SEE1P
6	SU52105080	LEY	S	2	1	2	52	-49	52	-40	3B					DR	3A	IMP30/SEE1P
7	SU52005050	PGR	S	2	1	2	102	1	109	17	3A					DR	2	PROB DR2
8	SU52005040	PGR	S	2	1	2	135	34	119	27	1					WK	2	IMP100
9	SU52065067	LEY	S	1	1	2	63	-38	63	-29	3B					DR	3A	IMP40/SEE1P
10	SU52035056	LEY	S	2	1	2	43	-58	43	-49	4					DR	3A	IMP25/SEE1P
11	SU52065042	LEY	SW	1	1	1	124	23	96	4	2					DR	2	SOFT CHALK
1P	SU52105080	LEY	S	2	1	2	82	-19	87	-5	3A					DR	3A	ROOTS TO 68

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED		----STONES----			STRUCT/ CONSIST	SUBS			CALC	
				COL	ABUN	CONT	COL.	GLE	>2	>6	LITH		TOT	STR	POR		IMP
1	0-30	MZCL	10YR42						0	0	CH	10				Y	
	30-50	CH							0	0		0		P			IMP50 SEE 1P
2	0-30	MZCL	10YR43						0	0	CH	5				Y	
	30-90	CH							0	0		0		P			IMP90 CHALK
3	0-30	MZCL	10YR43						0	0	CH	10				Y	
	30-120	CH							0	0		0		P			ROOTING DEPTH?
4	0-25	MZCL	10YR42						0	0	CH	10				Y	
	25-45	CH							0	0		0		P			IMP40 SEE 1P
5	0-35	HZCL	10YR32						5	0	CH	16				Y	
	35-45	CH							0	0		0		P		Y	IMP45 SEE 1P
6	0-30	MZCL	10YR43						0	0	CH	10				Y	IMP30 SEE 1P
7	0-30	MZCL	10YR32						0	0	HR	2					
	30-55	HZCL	10YR43						0	0	CH	25		M		Y	
	55-70	CH	10YR43						0	0		0		P		Y	
8	0-35	HZCL	10YR32						0	0	HR	2					
	35-55	HZCL	10YR64						0	0	HR	5		M		Y	
	55-100	HCL	10YR64	10YR56		F	D		0	0	HR	10		M		Y	IMP100
9	0-30	MZCL	10YR43						0	0	CH	10				Y	
	30-40	CH							0	0		0		P			IMP40 SEE 1P
10	0-25	MZCL	10YR43						0	0	HR	10				Y	IMP25 SEE 1P
11	0-25	MZCL	10YR42						7	0	HR	10					
	25-50	HZCL	10YR54						0	0	HR	30		M			
	50-60	HCL	10YR44						0	0	CH	40		M			
	60-120	CH							0	0		0		P			
1P	0-30	MZCL	10YR43						5	0	CH	18				Y	
	30-68	CH	05Y 81						0	0		0		P			ROOTS68 PIT70