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Hart District Replacement Local Plan
Objector Site 435, Crondall, Hampshire

Agricultural Land Classification
ALC Map and Report

April 1997

Resource Planning Team
Eastern Region
FRCA Reading

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AGRICULTURAL LAND CLASSIFICATION REPORT

HART DISTRICT REPLACEMENT LOCAL PLAN
OBJECTOR SITE 435, CRONDALL, HAMPSHIRE

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of approximately 38.1 hectares of land to the south of Crondall village, north east Hampshire. The survey was carried out during April 1997.

2. The survey was undertaken by the Farming and Rural Conservation Agency (FRCA) on behalf of the Ministry of Agriculture, Fisheries and Food (MAFF), in connection with its statutory input to the Hart District Replacement 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 the 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, all of the agricultural land was in arable use (peas and cereal). The areas mapped as 'Other land' include a recreation ground and roads.

SUMMARY

5. The findings of the survey are shown on the enclosed ALC map. The map has been drawn at a scale of 1:10,000. 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.

Table 1: Area of grades and other land

Grade/Other land	Area (hectares)	% surveyed area	% site area
2	20.8	60.3	54.5
3a	11.9	34.5	31.3
3b	1.8	5.2	4.7
Other land	3.6	N/A	9.5
Total surveyed area	34.5	100.0	90.6
Total site area	38.1	-	100.0

7. The fieldwork was conducted at an average density of approximately one boring per hectare. A total of 32 borings and three soil pits were described.

8. The majority of land on the site has been classified as Grade 2 and Subgrade 3a (very good and good quality, respectively). The higher land in the west of the site has been classified as Subgrade 3b (moderate quality).

9. Most of the land classified as Grade 2 is limited by soil droughtiness and/or soil wetness. Where soil droughtiness is limiting, coarse loamy soils overlie flinty lower subsoils or Upper Chalk at depth within the soil profile. The interaction between these soil characteristics and the local climate acts to impart slight soil droughtiness, which may act to slightly lower the level and consistency of crop yields. In some profiles, clayey lower subsoils act to slightly impede drainage. Consequently, this land may be prone to minor restrictions on the flexibility of cropping, stocking and cultivations. Where the flinty horizons or Upper Chalk occur at shallower depths within the soil profile, the resulting soil droughtiness limitations are slightly more severe; this land has been classified as Subgrade 3a. Where Upper Chalk occurs directly below the topsoil, the land is classified as Subgrade 3b. This land may suffer from low and inconsistent crop yields as a result of soil droughtiness.

FACTORS INFLUENCING ALC GRADE

Climate

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

11. 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).

12. 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.

13. 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		
Grid reference	N/A	SU 799 482	SU 796 483	SU 788 483
Altitude	m, AOD	95	106	100
Accumulated Temperature	day°C (Jan-June)	1424	1411	1418
Average Annual Rainfall	mm	715	721	723
Field Capacity Days	days	154	155	156
Moisture Deficit, Wheat	mm	103	102	102
Moisture Deficit, Potatoes	mm	95	93	94
Overall climatic grade	N/A	Grade 1	Grade 1	Grade 1

14. The combination of rainfall and accumulated temperature at this site mean that there is no overall climatic limitation. However, climatic factors do interact with soil properties to influence soil wetness and droughtiness limitations. At this locality, both the soil moisture deficit and field capacity day values are average for this region. No local climatic factors, such as exposure or frost risk, are believed to adversely affect the land quality on the site. This site is climatically Grade 1.

Site

15. The site has a gently undulating landscape typical of the Hampshire Downs, with gradients of 0-4°. The highest land (106 m AOD) occurs in the east of the site, south of Chaundlers Croft. The lowest land (90 m AOD) occurs in the valley bottom in the centre of the northern site boundary. Nowhere on the site do gradient or microrelief adversely affect agricultural land quality.

Geology and soils

16. The published geology map (BGS, 1981) shows the entire site to be underlain by Upper Chalk. A small area of low level terrace deposits (valley gravel) are mapped across the lowest lying land in the central northern part of the site.

17. The most detailed published soil map for this area (SSEW, 1983) maps the entire site as soils of the Coombe 1 Association. These soils are described as 'Well drained calcareous fine silty soils, deep in valley bottoms, shallow to chalk on valley sides in places. Slight risk of water erosion.' (SSEW, 1983). Soils of the Wickham 4 Association are mapped to the immediate north east of the site. These soils are described as 'Slowly permeable seasonally waterlogged fine loamy over clayey and fine silty over clayey soils associated with similar clayey soils, often with brown subsoils.' (SSEW, 1983). Detailed field examination found soils broadly similar to those ascribed to the Coombe 1 Association.

AGRICULTURAL LAND CLASSIFICATION

18. 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.

19. 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 II, page 8.

Grade 2

20. Just under two-thirds of the agricultural land surveyed has been classified as Grade 2 (very good quality). Most of this land is limited by minor soil droughtiness, arising from coarse loamy soils which overlie flinty lower subsoils or Upper Chalk at depth within the soil profile. Occasionally, the soil profiles pass into clay lower subsoils at depth. The latter gives rise to land limited by minor soil wetness which, in parts, is also equally limited by soil droughtiness.

21. Topsoils typically comprise calcareous and non-calcareous medium clay loams and are slightly stony (containing 0-3% of flints > 2 cm and 2-6% total flints by volume). Occasionally, the topsoils are lighter in texture (medium sandy loams and fine sandy silt loams) or heavier in texture (heavy clay loams). Where the latter occur, the local climate means that minor soil workability restrictions also equally limit the land to Grade 2. As such, this land may have slight restrictions on the flexibility of cropping, stocking and cultivations. All of these topsoils tend to overlie medium and heavy clay loam upper subsoils which are brownish, permeable and moderately structured.

22. Where the land is limited by soil droughtiness, the soil profiles either pass into flinty lower subsoils at approximately 70-75 cm depth or pass into Upper Chalk at approximately 70-90 cm depth. With regard to the former, it is likely that these flinty lower subsoils contain approximately 40-55% total flints by volume (please refer to Pit 1 which was dug in the Subgrade 3a mapping unit). With regard to the latter, it is likely that the crop roots penetrate 20-25 cm into the Upper Chalk (please refer to Pit 3, which was dug in the Subgrade 3a mapping unit). All of these profiles are well drained (Wetness Class I). Across this area, the interaction between the soil characteristics and the prevailing local climate means that the profile available water is not quite sufficient to fully meet crop needs. Consequently, there is a minor risk of drought stress for those crops which are grown. This will result in slightly lower yield potential and less consistent crop yields and Grade 2 is appropriate.

23. Where the land is limited by soil wetness, at approximately 70 cm depth the profiles pass into poorly structured clay which shows signs of soil wetness. From Pit 2, which represents such profiles, it could be seen that the clay is slowly permeable and, as such, would act to impede soil drainage. Given that this clay occurs relatively deep within the soil profile, these profiles are moderately well drained (Wetness Class II). The interaction between the soil drainage status, the medium textured topsoils and the prevailing climate gives rise to a land classification of Grade 2. This land may have slightly reduced flexibility of cropping, stocking and cultivations because of the resultant minor soil wetness limitation.

Subgrade 3a

24. Land classified as Subgrade 3a (good quality) occurs across the lower lying area in the central northern part of the site, and on the higher land which forms part of the southern site boundary. All of this land has been graded on the basis of a soil droughtiness limitation. Across the lower lying area, soils derived from valley gravel deposits give rise to stonier land than that assigned to Grade 2. Here, non-calcareous and calcareous medium clay loam topsoils are (very) slightly stony (containing 0-6% of flints > 2 cm, 0-2% of flints > 6 cm and 3-12% total flints). These overlie medium and heavy clay loam upper subsoils which are slightly to moderately stony (8-17% total flints). At approximately 40-50 cm depth these profiles proved impenetrable to a soil auger because of underlying gravelly deposits. Consequently, Pit 1 was dug to assess the lower subsoil conditions.

25. From Pit 1 it could be seen that the lower subsoils comprise very stony (about 40% total flints) heavy clay loams which become heavier and stonier (clay containing 55% total flints) at approximately 56 cm depth. In turn, these pass into Upper Chalk at 87 cm depth with crop roots observed to 97 cm depth. The flinty lower subsoils and restricted rooting into the chalk (about 10 cm) restrict the moisture content of the profiles, and moisture balance

calculations indicate that the amount of water available to a growing crop may not be sufficient to meet its needs throughout the growing season. The resulting drought stress may cause the level and consistency of yields to be depressed. Subgrade 3a is appropriate.

26. On the higher land along part of the southern site boundary, the soils are more chalky and less flinty. Topsoils comprise calcareous medium clay loams and, to a lesser extent, medium silty clay loams and heavy clay loams. Topsoils are (very) slightly stony (containing 0-2% of flints > 2 cm and 2-5% total flints, or, 5-10% total chalk fragments). These typically overlie medium and heavy clay loam upper subsoils which tend to be very stony (containing 45-60% total chalk fragments together with up to 10% total flints). At approximately 40 to 55 cm depth these profiles pass into Upper Chalk, which contains 2-5% total flints. From Pit 3, which represents such soils, crop roots were found to extend to approximately 77 cm depth. The interaction between the chalky upper subsoils and the restricted rooting into the Upper Chalk (about 23 cm) with the prevailing local climate means that Subgrade 3a is appropriate because of a soil droughtiness limitation.

Subgrade 3b

27. A small area of the higher land in the west of the site has been classified as Subgrade 3b (moderate quality) because of a soil droughtiness limitation. Across this area, calcareous medium clay loam topsoils which are moderately stony (3% of flints > 2 cm and 6% total flints together with 10% total chalk fragments) directly overlie Upper Chalk. In comparison to land assigned to Subgrade 3a (please refer to paragraph 26), the lack of an upper subsoil significantly reduces the amount of water available in the profile. The interaction between such shallow soils, the restricted rooting into the Upper Chalk and the climate at this locality results in significant soil droughtiness. This land will be subject to low and inconsistent crop yields.

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SOURCES OF REFERENCE

British Geological Survey (1981) *Sheet No. 284, Basingstoke, 1:50,000 (solid and drift edition).*
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, 1:250,000 scale, Soils of South East England and accompanying legend.*
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 NO.	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	--WETNESS-- CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	M.REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1	SU79204860	CER					1	1	122	18	110	14	2				DR	2	Imp95 flinty
1P	SU79104840	CER					1	1	93	-11	87	-9	3A				DR	3A	CH 87;gravelly
2P	SU79504820	CER	N	01		070	2	2	137	33	114	18	1				WE	2	
3P	SU79304810	CER	W	03			1	1	97	-7	99	3	3A				DR	3A	Chalk 54
4	SU79104850	CER					1	1	81	-23	81	-15	3B				DR	3A	Imp50 see 1P
5	SU79204850	CER	N	02			1	1	76	-28	76	-20	3B				DR	3A	Imp45 flinty
8	SU79004840	PEA					1	1	94	-10	101	5	3A				DR	2	Imp70 flinty
9	SU79104840	CER					1	1	67	-37	67	-29	3B				DR	3A	Imp40 see 1P
10	SU79204840	CER	N	02			1	1	99	-5	102	6	3A				DR	3A	Chalk 50
11	SU78804830	PEA	SE	03			1	1	68	-36	68	-28	3B				DR	3B	Chalk 27
12	SU78904830	PEA	SE	02			1	1	98	-6	107	11	3A				DR	2	Imp75 flinty
13	SU79004830	PEA	N	02			1	1	100	-4	108	12	3A				DR	2	Imp80 flinty
14	SU79104830	CER					1	1	82	-22	82	-14	3B				DR	3A	Imp50 see 1P
15	SU79204830	CER	W	03			1	1	92	-12	96	0	3A				DR	3A	Chalk 50
16	SU79504830	CER					1	1	137	33	112	16	1					1	Q spl 65 -G2
17	SU79604830	CER					1	1	148	44	114	18	1					1	Sl.gleyed 105
18	SU79804830	CER	E	01			1	2	120	16	110	14	2				WD	2	Pure chalk 90
19	SU79904830	CER	S	01			1	1	141	37	115	19	1					1	Q rooting 90+
20	SU78704820	PEA	SE	03			1	1	73	-31	75	-21	3B				DR	3B	Chalk 26
21	SU78804820	PEA					1	1	99	-5	107	11	3A				DR	2	Imp65 flinty
22	SU79204820	CER	W	02			1	1	135	31	112	16	1					1	Chalk 90
23	SU79304820	CER	W	02			1	2	99	-5	114	18	3A				WD	2	Imp70 flinty
24	SU79404820	CER	W	01		080	2	2	141	37	116	20	1				WE	2	Sl.gleyed 80
25	SU79504820	CER	N	01	080	080	2	2	141	37	115	19	1				WE	2	Spl 70 see 2P
26	SU79604820	CER	S	01	028	075	2	2	136	32	104	8	2				WD	2	Sl. disturbed
27	SU79704820	CER	E	02			1	1	110	6	109	13	2				DR	2	Chalk 65
28	SU79804820	CER	S	02	070	070	2	2	133	29	113	17	2				WD	2	
29	SU79904820	CER	NE	01			1	1	104	0	116	20	3A				DR	2	Imp70 flinty
30	SU79204810	CER	W	01			1	1	107	3	114	18	3A				DR	2	Imp75 flinty
31	SU79304810	CER	W	03			1	2	99	-5	100	4	3A				DR	3A	Chalk 55
32	SU79404810	CER	W	01			1	1	153	49	116	20	1					1	
33	SU79504810	CER	N	01		065	2	3A	134	30	114	18	1				WE	3A	Sl.gleyed 50
34	SU79604810	CER	E	01			1	1	88	-16	93	-3	3A				DR	3A	Chalk 45
35	SU79204800	CER					1	1	80	-24	80	-16	3B				DR	3A	Imp48 see 1P
36	SU79304800	CER	W	03			1	2	81	-23	83	-13	3B				DR	3B	Chalk 35

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC	
1	0-35	msl	10YR42 00						0	0	HR	2							
	35-75	msl	10YR44 00						0	0	HR	2		M					
	75-90	scl	10YR44 00						0	0	HR	2		M					Imp 90 flinty
1P	0-22	mcl	10YR42 00						6	2	HR	12							
	22-42	mcl	10YR44 46						0	0	HR	17	WKCSAB	FR M			Y		
	42-56	hcl	10YR46 00						0	0	HR	55		M			Y		
	56-87	c	10YR46 56						0	0	HR	40		M			Y		
	87-97	ch	10YR81 00						0	0	HR	5		P			Y		c.10cm rooting
2P	0-28	mcl	10YR43 00						1	0	HR	2							
	28-58	mcl	10YR44 00						0	0	HR	4	MVCSAB	FR M					
	58-70	hcl	10YR56 00	00MN00 00	F				0	0	HR	2	MVCSAB	FR M					
	70-120	c	10YR54 56	10YR58 00	F		00MN00 00		0	0	HR	2	MDCAB	FM P	Y		Y		Pale ped faces
3P	0-30	mcl	10YR42 43						2	0	HR	5						Y	+ 2% chalk
	30-54	hcl	10YR64 00						0	0	CH	45	MDCSAB	FM M				Y	+ 10% flints
	54-77	ch	10YR81 00						0	0	HR	5		P				Y	c.23cm rooting
4	0-30	mcl	10YR42 00						0	0	HR	3							
	30-50	hcl	10YR43 00						0	0	HR	10		M					Imp 50 flinty
5	0-30	mcl	10YR42 00						0	0	HR	2						Y	
	30-38	hcl	10YR44 54						0	0	HR	2		M				Y	
	38-45	c	75YR56 00						0	0	HR	10		M					Imp 45 flinty
8	0-25	msl	10YR42 00						3	0	HR	6							
	25-40	msl	10YR44 46						0	0	HR	10		M					
	40-70	msl	10YR46 00						0	0	HR	10		M					Imp 70 flinty
9	0-30	mcl	10YR42 00						0	0	HR	3						Y	
	30-40	mcl	10YR43 00						0	0	HR	8		M				Y	Imp 40 flinty
10	0-27	mcl	10YR42 00						0	0	HR	2						Y	
	27-45	hcl	10YR44 54						0	0	CH	5		M				Y	
	45-50	hcl	10YR54 00						0	0	CH	50		M				Y	
	50-73	ch	10YR81 00						0	0		0		P				Y	c.23cm rooting (3P)
11	0-27	mcl	10YR43 53						3	0	HR	6						Y	+ 10% chalk
	27-50	ch	10YR81 00						0	0	HR	2		P				Y	c.23cm rooting (3P)
12	0-20	mcl	10YR43 00						3	0	HR	6						Y	
	20-30	mcl	10YR44 00						0	0	HR	6		M				Y	
	30-50	hcl	10YR44 46						0	0	HR	10		M				Y	
	50-68	c	10YR46 00						0	0	HR	10		M				Y	
	68-75	hcl	10YR54 64						0	0	CH	25		M				Y	Imp 75 flinty
13	0-25	fsl	10YR43 00						3	0	HR	6							
	25-35	mcl	10YR44 43						0	0	HR	10		M					
	35-60	c	75YR46 00						0	0	HR	10		M					
	60-80	c	75YR46 00	75YR68 00	F				0	0	HR	10		M					I80 flinty;Q spl(2P

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
14	0-28	mcl	10YR41 42						0	0	HR	3						Y	
	28-45	mcl	10YR43 00						0	0	HR	6		M				Y	
	45-50	hcl	10YR43 00						0	0	HR	8		M				Y	Imp 50 flinty
15	0-25	hcl	25Y 42 00						0	0	CH	5						Y	+ 3% flints
	25-50	hzcl	10YR43 00						0	0	CH	60		M				Y	+ 2% flints
	50-73	ch	10YR81 00						0	0	HR	2		P				Y	c.23cm rooting (3P)
16	0-28	mcl	10YR43 00						2	0	HR	5						Y	+ fine sand
	28-55	mcl	10YR54 00						0	0	HR	5		M				Y	+ medium sand
	55-65	hcl	10YR54 00						0	0	HR	2		M					+ medium sand
	65-120	c	10YR56 00				00MN00	00	0	0	HR	8		M					Q spl (2P)
17	0-28	mcl	10YR43 00						2	0	HR	5						Y	+ 2% chalk
	28-65	mcl	10YR44 00						0	0	HR	2		M				Y	+ 2% chalk
	65-105	hcl	10YR54 00						0	0	HR	2		M					+ sand
	105-120	c	10YR66 00	10YR58 00	C			S	0	0	HR	5		M					Sl gleyed; Q spl(2P
18	0-28	hcl	10YR43 00						1	0	HR	3							
	28-38	hcl	10YR44 00						0	0	HR	5		M					
	38-50	c	10YR44 00	75YR58 00	F		00MN00	00	0	0	HR	5		M					
	50-60	c	10YR44 00						0	0	CH	20		M				Y	
	60-70	c	10YR44 00						0	0	CH	50		M				Y	
	70-90	ch	10YR81 44						0	0	HR	2		P				Y	+ 20% clay
	90-103	ch	10YR81 00						0	0	HR	2		P				Y	c.23cm rooting (3P)
19	0-29	mcl	10YR43 00						0	0	HR	2							
	29-40	hcl	10YR44 00						0	0	HR	2		M					
	40-60	c	10YR44 00	10YR58 00	F				0	0	HR	5		M					Q spl (2P)
	60-90	hzcl	10YR64 00						0	0	CH	10		M				Y	
	90-120	ch	10YR81 64						0	0	HR	2		P				Y	+ 20% hzcl
20	0-26	mcl	10YR43 00						3	0	HR	6						Y	+ 10% chalk
	26-57	ch	10YR81 00						0	0	HR	2		P				Y	c.23cm rooting (3P)
21	0-20	fszl	10YR43 00						3	0	HR	6						Y	
	20-45	mcl	10YR44 00						0	0	HR	10		M				Y	
	45-65	hcl	75YR46 00						0	0	HR	10		M					Imp 65 flinty
22	0-30	mcl	10YR42 00						0	0	HR	4						Y	
	30-80	hcl	10YR43 00						0	0	HR	6		M				Y	+ 2% chalk
	80-90	hcl	10YR43 00						0	0	HR	5		M				Y	+ 10% chalk
	90-113	ch	10YR81 00						0	0	HR	5		P				Y	c.23cm rooting (3P)
23	0-29	hcl	10YR42 00						2	0	HR	2						Y	
	29-40	hcl	10YR44 00						0	0	HR	2		M				Y	+ 2% chalk
	40-70	c	75YR54 56	75YR58 00	F		00MN00	00	0	0	HR	5		M				Y	I70 flinty;Q spl(2P

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	PED GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC	
24	0-29	mcl	10YR43 00						0	0	HR	2							
	29-80	hcl	10YR44 00						0	0	HR	2		M					
	80-120	c	75YR56 00	75YR68 00	F		00MN00 00		0	0	HR	2		P		Y			Prob spl (2P)
25	0-28	mcl	10YR43 00						0	0	HR	2							
	28-45	mcl	10YR44 54						0	0	HR	2		M					
	45-80	hcl	10YR44 00	00MN00 00	F				0	0	HR	2		M					
	80-120	c	10YR56 00	75YR58 00	C		00MN00 00	S	0	0		0		P		Y			See 2P
26	0-28	mcl	10YR42 00						2	0	HR	5						Y	
	28-40	hcl	25Y 72 00	10YR68 00	C			Y	0	0	HR	2		M				Y	
	40-55	scl	25Y 72 00	10YR68 00	C			Y	0	0	HR	2		M				Y	
	55-75	ch	10YR81 00						0	0		0		P				Y	
	75-120	c	25Y 63 00	10YR58 00	C		00MN00 00	Y	0	0	HR	2		P		Y		Y	Prob spl (2P)
27	0-28	mcl	10YR43 00						1	0	HR	5						Y	
	28-65	c	10YR56 00						0	0	HR	5		M				Y	
	65-90	ch	10YR81 56						0	0	HR	5		P				Y	c.23cm rooting (3P)
28	0-32	mcl	10YR43 00						2	0	HR	4							
	32-50	hcl	10YR44 00						0	0	HR	5		M					
	50-70	c	10YR44 54						0	0	HR	5		M					
	70-95	c	10YR56 00	75YR58 00	C		00MN00 00	S	0	0	HR	2		P		Y			
	95-120	c	10YR56 00	75YR58 00	C		00MN00 00	S	0	0	CH	10		P		Y		Y	
29	0-32	mcl	10YR43 00						0	0	HR	2							
	32-55	mcl	10YR44 00						0	0	HR	2		M					
	55-70	hcl	10YR44 00						0	0	HR	2		M					Imp 70 flinty
30	0-30	mcl	10YR42 00						0	0	HR	3						Y	
	30-60	hcl	10YR43 00						0	0	HR	3		M				Y	
	60-75	hcl	10YR43 00						0	0	HR	8		M				Y	Imp 75 flinty
31	0-30	hcl	10YR42 43						1	0	HR	2						Y	
	30-55	hcl	10YR54 00						0	0	CH	50		M				Y	
	55-78	ch	10YR81 00						0	0	HR	5		P				Y	c.23cm rooting (3P)
32	0-32	mcl	10YR43 00						0	0	HR	2							
	32-120	hcl	10YR44 00						0	0	HR	2		M					
33	0-25	hcl	10YR43 00						0	0	HR	2						Y	
	25-50	hcl	10YR44 54						0	0	HR	2		M				Y	
	50-65	c	75YR54 00	75YR58 00	C		00MN00 00	S	0	0		0		M					Friable-not spl
	65-100	c	10YR56 00	75YR58 00	C		00MN00 00	S	0	0		0		P		Y			
	100-120	c	10YR56 00	75YR58 00	C		00MN00 00	S	0	0	CH	10		P		Y		Y	
34	0-30	mzcl	10YR43 00						0	0	CH	10						Y	
	30-40	mzcl	10YR56 00						0	0	CH	45		M				Y	
	40-65	ch	10YR81 00						0	0	HR	2		P				Y	c.23cm rooting (3P)

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
35	0-32	mcl	10YR42 00						0	0	HR	3						Y	
	32-48	mcl	10YR43 00						0	0	HR	8		M				Y	Imp 48 flinty
36	0-28	hcl	10YR43 00						0	0	HR	2						Y	
	28-35	hcl	10YR44 54						0	0	HR	2		M				Y	
	35-58	ch	10YR81 00						0	0	HR	2		P				Y	c.23cm rooting (3P)