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Isle of Wight Unitary Development Plan
North of Carisbrooke Park Estate/ Worsley Road, Newport

Agricultural Land Classification
Semi-Detailed Survey
ALC Map and Report

May 1997

Resource Planning Team
Eastern Region
FRCA, Reading

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AGRICULTURAL LAND CLASSIFICATION REPORT

ISLE OF WIGHT UNITARY DEVELOPMENT PLAN (UDP)
WORSLEY ROAD, NEWPORT

SEMI-DETAILED SURVEY

INTRODUCTION

1. This report presents the findings of a semi-detailed Agricultural Land Classification (ALC) survey on approximately 44 hectares of land to the south west of Worsley Road and to the north of Carisbrooke Park Estate, north west of Newport, on the Isle of Wight. The survey was carried out during May 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 the Isle of Wight UDP. 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, the majority of agricultural land was under permanent grassland; a small area in the centre of the site had been recently ploughed. The areas shown as 'Other Land' include an electricity substation, open water, agricultural buildings, residential dwellings and areas of scrub. The south of the site is mapped as 'Agricultural land not surveyed'; this land already has outline planning approval.

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 below.

Table 1: Area of grades and other land

Grade/Other land	Area (hectares)	% surveyed area	% site area
3b	20.5	64.3	46.7
4	11.4	35.7	26.0
Agricultural land not surveyed	6.6	N/A	15.0
Other land	5.4	N/A	12.3
Total surveyed area	31.9	100.0	72.7
Total site area	43.9	-	100.0

7. The fieldwork was conducted at an average density of one boring every two hectares. A total of 25 borings and two soil inspection pits were described.

8. The majority of agricultural land on this site has been classified as Subgrade 3b (moderate quality) because of significant soil wetness and workability limitations. Soil profiles typically comprise medium textured topsoils which directly overlie poorly structured clay and clay loam subsoils which act to impede soil drainage. The interaction between the medium textured topsoils, poor soil drainage and the relatively wet local climate means that this land is subject to soil wetness restrictions. Soil wetness acts to restrict the flexibility of cropping, stocking and cultivations and adversely affects yields. Where heavier topsoils occur, the land is prone to more severe workability limitations and, consequently, the land has been classified as Grade 4 (poor quality).

9. Areas of land in the northern third of the site (immediately to the north of the stream) are also limited by slope restrictions to Subgrade 3b and Grade 4. Where slopes in excess of 7°, but less than 11°, occur the land has been classified as Subgrade 3b. These steep slopes may act to limit the range of agricultural machinery which can be safely and efficiently used. Grade 4 land has been mapped where slopes greater than 11° occur, as the resulting slope limitations are more severe than for land assigned to Subgrade 3b.

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).

Table 2: Climatic and altitude data

Factor	Units	Values		
Grid reference	N/A	SZ 492 896	SZ 490 895	SZ 489 898
Altitude	m, AOD	10	15	25
Accumulated Temperature	day°C (Jan-June)	1554	1548	1537
Average Annual Rainfall	mm	867	868	871
Field Capacity Days	days	179	179	179
Moisture Deficit, Wheat	mm	110	109	108
Moisture Deficit, Potatoes	mm	105	104	102
Overall climatic grade	N/A	Grade 1	Grade 1	Grade 1

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.

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, the climate is relatively wet in regional terms. As a result, the likelihood of soil wetness problems may be increased. The high accumulated temperature in this area results in an early start to the growing season. No local climatic factors, such as frost risk or exposure, are believed to adversely affect the land quality on the site. All of the land on the site is climatically Grade 1.

Site

15. The lowest lying land on the site, which lies at approximately 10 m AOD, occurs adjacent to the stream running west-east through the centre of the site and next to the stream running along the western site boundary. The land rises through moderate and steep slopes to lie at approximately 20 and 35 m AOD along the southern and northern site boundaries, respectively. North of the central stream gradients in excess of 11° occur; such land can be graded no higher than Grade 4. Where slopes occur in the range of 7-11°, the land is classified as Subgrade 3b because of slope limitations. Immediately north of the central stream the terrain is highly irregular. Such areas would usually be limited to Subgrade 3b because of microrelief restrictions. However, in this area, the steep slopes means that the land can be classified no higher than Grade 4.

Geology and soils

16. The published geology map (BGS, 1976) shows most of the site to be underlain by Hamstead Beds. Part of the southern site boundary is shown to be underlain by Bembridge Marls.

17. The published reconnaissance soil survey map (SSEW, 1983) for the area shows almost all of the site to comprise soils of the Wickham 4 Association. 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). In the extreme south of the site, there is a possibility that soils of the Bursledon Association may occur. These soils are described as 'Deep fine loamy soils with slowly permeable subsoils and slight seasonal waterlogging associated with deep coarse loamy soils variably affected by groundwater.' (SSEW, 1983). Detailed field work found soils typical of the Wickham 4 Association across all of the land surveyed.

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 7.

Subgrade 3b

20. Approximately two-thirds of the agricultural land surveyed has been classified as Subgrade 3b (moderate quality). All of this land is subject to significant soil wetness and workability limitations. Medium textured topsoils directly overlie heavy textured subsoils (heavy (silty) clay loams and (silty) clays); occasionally, some profiles have a narrow medium silty clay loam upper subsoil. From Pits 1 and 2, which represent such profiles, it could be seen that the medium silty clay loam upper subsoils are moderately structured and the heavier subsoils poorly structured. All subsoils were assessed as being slowly permeable and, given the local climate, such profiles are assessed as poorly drained (Wetness Class IV). The interaction between the medium textured topsoils, poor soil drainage and relatively wet local climate means that this land is limited by soil wetness and workability. Soil wetness can adversely affect seed germination and survival and can inhibit the development of a good root system. It also influences the sensitivity of soil to structural damage and is, therefore, a major factor in determining the number of days when cultivation, trafficking or grazing can take place.

21. Parts of the land classified as Subgrade 3b are also limited by slope restrictions. Slopes in the range of 7.5°-10.5° occur to the south of Worsley Road and along parts of the western site boundary. Such slopes may act to limit the range of agricultural machinery which can be safely and efficiently used.

Grade 4

22. The remaining agricultural land has been classified as Grade 4 (poor quality). All of this land is subject to significant soil wetness and workability limitations. Profiles are similar to those described in paragraph 20 but have heavier topsoils (typically heavy clay loams and heavy silty clay loams and, occasionally, clays). The heavier topsoils exacerbate workability restrictions and, consequently, Grade 4 is appropriate. Land to the north of the central stream is also equally limited to Grade 4 because of slope restrictions. Gradients of 11.5°-12° are likely to preclude the use of certain agricultural machinery and thus restrict the range of crops which could be grown.

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SOURCES OF REFERENCE

British Geological Survey (1976) *Special Sheet (Sheets 344 and 345 and parts of 330 and 331), Isle of Wight, 1:50,000 (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, Soils of South East England, 1:250,000 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:

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. **GLEY/SPL**: 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. **GLEY:** 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 peds 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 **VF**: very friable **FR**: friable **FM**: firm **VM**: very firm
EM: extremely firm **EH**: extremely hard

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

SOIL PIT DESCRIPTION

Site Name : I OF WIGHT UDP CARISBROK Pit Number : 1P

Grid Reference: SZ49308980
Average Annual Rainfall : 867 mm
Accumulated Temperature : 1554 degree days
Field Capacity Level : 179 days
Land Use : Permanent Grass
Slope and Aspect : 04 degrees SW

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 24	MZCL	10YR51 00	0	2	HR	M				
24- 38	C	25 Y62 00	0	2	HR	M	STCPR	VM	P	
38- 60	C	25 Y63 62	0	2	HR	M	STCAB	VM	P	

Wetness Grade : 3B
Wetness Class : IV
Gleying : 0 cm
SPL :024 cm

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

FINAL ALC GRADE : 3B
MAIN LIMITATION : Wetness

SOIL PIT DESCRIPTION

Site Name : I OF WIGHT UDP CARISBROK Pit Number : 2P

Grid Reference: SZ49178950
Average Annual Rainfall : 867 mm
Accumulated Temperature : 1554 degree days
Field Capacity Level : 179 days
Land Use : Ploughed
Slope and Aspect : 02 degrees N

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 20	MZCL	10YR42 52	0	2	HR	C				
20- 46	MZCL	25Y 62 00	0	0		M	MDCPR	FR	M	
46- 70	C	25Y 62 61	0	0		M	MDCPR	FM	P	

Wetness Grade : 3B
Wetness Class : IV
Gleying : 0 cm
SPL :020 cm

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

FINAL ALC GRADE : 3B
MAIN LIMITATION : Wetness

SAMPLE NO.	GRID REF	USE	ASPECT	GRDNT	--WETNESS-- GLEY	SPL	CLASS	-WHEAT- GRADE	AP	MB	-POTS- AP	MB	M.REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1	SZ48808990	PGR	W	04	0	022	4	4		0		0					WE	4	
1P	SZ49308980	PGR	SW	04	0	024	4	3B		0		0					WE	3B	
2	SZ48948991	PGR			0	020	4	4		0		0					WE	4	
2P	SZ49178950	PLO	N	02	0	020	4	3B		0		0					WE	3B	
3	SZ49208990	PGR	S	03	005	005	4	4		0		0					WE	4	
4	SZ48908980	PGR	W	03	0	020	4	4		0		0					WE	4	
5	SZ41908980	PGR	SE	02	0	020	4	4		0		0					WE	4	Q med. t/soil
6	SZ49308980	PGR	S	05	0	028	4	3B		0		0					WE	3B	
7	SZ49008970	PGR	SE	02	0	020	4	3B		0		0					WE	3B	
8	SZ49108970	PGR	S	02	0	020	4	3B		0		0					WE	3B	
9	SZ49208970	PGR	S	04	010	010	4	4		0		0					WE	4	Plastic 27
10	SZ49308970	PGR	SE	03	0	025	4	3B		0		0					WE	3B	Plastic 42
11	SZ49408970	PGR	SE	03	0	025	4	3B		0		0					WE	3B	
12	SZ49108960	PGR			028	028	4	3B		0		0					WE	3B	
13	SZ49308960	PGR	S	09	010	010	4	4		0		0					WE	4	Plastic 38
14	SZ49408960	PGR	S	06	0	020	4	4		0		0					WE	4	Q med. t/soil
15	SZ49508960	PGR	S	06	010	010	4	3B		0		0					WE	3B	Plastic 50
16	SZ49008950	PLO	N	02	025	025	4	3B		0		0					WE	3B	Imp flints 70
17	SZ49178950	PLO	N	02	025	025	4	3B		0		0					WE	3B	
18	SZ49408950	PGR	S	13	010	010	4	4		0		0		Y			WE	4	Also G4 slope
19	SZ49608950	PGR	S	09	0	025	4	4		0		0					WE	4	3B slope
20	SZ48908940	PGR	N	03	0	010	4	4		0		0					WE	4	
21	SZ49108940	PLO	N	01	020	020	4	3B		0		0					WE	3B	
22	SZ48808930	PGR	NW	03	0	020	4	3B		0		0					WE	3B	
23	SZ49008930	PLO	N	02	025	025	4	4		0		0					WE	4	
24	SZ49308920	PGR	SW	01	042	042	3	3B		0		0					WE	3B	
25	SZ49228914	PGR			0	028	4	4		0		0					WE	4	

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	0-22	c	25Y 42 00	10YR46 00	C			Y	0	0		0							
	22-45	c	25Y 52 00	10YR68 00	M			Y	0	0		0		P			Y		
	45-70	c	25Y 52 62	10YR58 68	M			Y	0	0		0		P			Y		
1P	0-24	mzcl	10YR51 00	75YR46 00	M			Y	0	0	HR	2							
	24-38	c	25 Y62 00	10YR68 00	M			Y	0	0	HR	2	STCPR	VM	P	Y		Y	
	38-60	c	25 Y63 62	10YR56 00	M			Y	0	0	HR	2	STCAB	VM	P	Y		Y	
2	0-20	hcl	25Y 41 00	10YR46 00	C			Y	0	0	HR	2							
	20-70	c	25Y 62 00	10YR58 68	M			Y	0	0	HR	5		P			Y		
2P	0-20	mzcl	10YR42 52	75YR46 00	C			Y	0	0	HR	2							
	20-46	mzcl	25Y 62 00	75YR58 68	M			Y	0	0		0	MDCPR	FR	M	Y		Y	
	46-70	c	25Y 62 61	10YR58 00	M		00MN00 00	Y	0	0		0	MDCPR	FM	P	Y		Y	
3	0-5	mzcl	10YR42 00						0	0	HR	2							
	5-70	c	25 Y63 00	75YR68 00	M		10YR61 00	Y	0	0		0		P			Y		
4	0-20	hcl	25Y 41 51	10YR58 00	C			Y	0	0		0							
	20-50	c	25Y 52 62	10YR68 00	M			Y	0	0		0		P			Y		
	50-70	c	05Y 62 61	10YR68 00	M			Y	0	0		0		P			Y		
5	0-20	hcl	10YR42 00	10YR46 00	C			Y	0	0		0							Border med. t/soil
	20-30	c	25Y 52 00	10YR56 00	C		00MN00 00	Y	0	0		0		P			Y		
	30-70	c	25Y 62 00	10YR68 00	M			Y	0	0	CH	10		P			Y		
6	0-28	mzcl	10YR42 00	75YR46 00	C			Y	0	0	HR	2							
	28-70	c	25 Y63 00	10YR68 00	M		25 Y71 00	Y	0	0	HR	2		P			Y		
7	0-20	mcl	25Y 41 00	10YR46 00	C			Y	0	0		0							
	20-25	hcl	25Y 42 52	10YR58 00	C			Y	0	0		0		P			Y		Spl (see 2P)
	25-35	c	25Y 52 00	10YR58 00	M			Y	0	0		0		P			Y		
	35-70	c	25Y 62 63	10YR68 00	M			Y	0	0		0		P			Y		
8	0-20	mzcl	10YR42 00	10YR46 00	C			Y	0	0		0							
	20-28	c	25Y 52 00	10YR58 00	C		00MN00 00	Y	0	0		0		P			Y		
	28-70	c	25Y 62 00	10YR68 00	M			Y	0	0		0		P			Y		
9	0-10	mzcl	10YR52 00						0	0		0							
	10-27	hcl	10YR51 00	75YR56 00	M			Y	0	0		0		P			Y		Spl (see 2P)
	27-70	c	05Y 73 00	75YR68 00	M			Y	0	0		0		P			Y		
10	0-25	mzcl	10YR52 00	10YR68 00	C			Y	0	0	HR	5							
	25-42	zc	25Y 62 00	10YR68 00	M			Y	0	0	HR	5		P			Y		
	42-70	zc	25Y 62 00	10YR68 00	M			Y	0	0		0		P			Y		
11	0-25	mzcl	10YR52 00	10YR68 00	C			Y	0	0	HR	5							
	25-42	zc	25Y 62 00	10YR68 00	M			Y	0	0	HR	5		P			Y		
	42-70	zc	25Y 62 00	10YR68 00	M			Y	0	0		0		P			Y		

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	
12	0-28	fszl	10YR31 00						8	2	HR	15							
	28-50	c	25Y 42 00	10YR58 00	C		00MN00 00	Y	0	0	HR	10		P			Y		
	50-70	c	25Y 52 00	10YR58 00	M			Y	0	0		0		P			Y		
13	0-10	mzcl	10YR52 00						0	0		0							
	10-38	c	25Y 52 62	75YR68 00	M		00MN00 00	Y	0	0		0		P			Y		
	38-70	c	05Y 62 00	75YR68 00	M			Y	0	0		0		P			Y		
14	0-20	hzcl	10YR42 53	10YR58 00	C			Y	0	0	HR	2							
	20-60	c	25Y 63 00	75YR68 00	M			Y	0	0		0		P			Y		
15	0-10	mzcl	10YR32 00						0	0		0							
	10-25	mzcl	10YR53 00	10YR58 00	C			Y	0	0		0		M			Y		Spl (see 2P)
	25-50	c	25 Y53 62	10YR68 00	M		00MN00 00	Y	0	0	HR	2		P			Y		
	50-70	c	05 Y72 63	75YR68 00	M			Y	0	0	HR	2		P			Y		
16	0-25	mzcl	10YR42 43						1	0	HR	5							
	25-45	hzcl	25Y 53 00	10YR56 00	C		00MN00 00	Y	0	0	HR	5		P			Y		Spl (see 2P)
	45-70	c	25Y 52 62	75YR58 00	M		00MN00 00	Y	0	0	HR	10		P			Y		Imp 70, flints
17	0-25	mzcl	10YR42 43	10YR46 00	F				0	0	HR	2							
	25-40	hzcl	10YR53 00	10YR58 00	M		00MN00 00	Y	0	0	HR	5		P			Y		
	40-80	c	25Y 62 00	10YR68 00	M			Y	0	0		0		P			Y		
18	0-10	mzcl	10YR42 00						0	0		0							
	10-28	c	10YR53 00	10YR58 00	M			Y	0	0	CH	10		P			Y	Y	
	28-70	c	05 Y62 00	10YR58 00	M			Y	0	0	CH	5		P			Y	Y	
19	0-25	hzcl	10YR42 00	75YR46 00	C			Y	0	0		0							
	25-35	c	10YR42 00	75YR46 00	C		00MN00 00	Y	0	0		0		P			Y		
	35-70	c	25 Y62 00	10YR68 00	M		00MN00 00	Y	0	0		0		P			Y		
20	0-10	mzcl	10YR41 00	75YR46 00	C			Y	0	0	HR	2							
	10-32	hcl	10YR52 00	75YR58 00	M			Y	0	0	HR	2		P			Y		Spl (see 2P)
	32-70	c	25 Y63 00	75YR68 00	M			Y	0	0		0		P			Y		
21	0-20	mzcl	10YR32 00						0	0	HR	3							
	20-55	hzcl	10YR53 63	10YR56 00	C		00MN00 00	Y	0	0	HR	5		P			Y		Spl (see 2P)
	55-100	c	25YZ52 62	75YR68 00	M		00MN00 00	Y	0	0	HR	5		P			Y		
22	0-20	mzcl	10YR41 42	75YR46 00	C			Y	0	0	HR	2							
	20-35	hcl	10YR52 00	75YR46 00	M			Y	0	0	HR	2		P			Y		Spl (see 2P)
	35-70	c	25 Y54 56	10YR58 00	M			Y	0	0		0		P			Y		
23	0-25	hzcl	10YR41 42						0	0	HR	2							
	25-70	c	25 Y63 64	75YR58 00	M		00MN00 00	Y	0	0	HR	2		P			Y		
24	0-35	hzcl	10YR42 00	10YR56 00	C				0	0	HR	2							
	35-42	c	10YR53 00						0	0	HR	2		M					Q gleying
	42-80	c	10YR64 00	10YR58 00	C		00MN00 00	Y	0	0		0		P			Y		

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC
25	0-28	hzcl	10YR51 00	75YR46 00	C			Y	0	0		0						
	28-70	c	10YR62 00	75YR58 00	M		10YR61 00	Y	0	0		0		P			Y	