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Isle of Thanet Local Plan
Site 4 Staner Hill, Ramsgate
ALC Map and Report
December 1994

AGRICULTURAL LAND CLASSIFICATION REPORT

ISLE OF THANET LOCAL PLAN
SITE 4 STANER HILL, RAMSGATE

1 Summary

1 1 ADAS was commissioned by MAFF s Land Use Planning Unit to provide information on land quality for a number of sites in the Thanet district of Kent The work forms part of MAFF s statutory input to the preparation of the Isle of Thanet Local Plan

1 2 Site 4 comprises 26 5 hectares of land to the north and south of the B2050 and to the east of Haine Road in Ramsgate Kent This site was the subject of a previous survey carried out in April 1988 (ADAS Ref 2012/004B/88) to assess agricultural land quality This survey was however carried out prior to the revision of MAFF's guidelines and criteria for grading the quality of agricultural land (MAFF 1988) which came into effect on 1 January 1989 Consequently the land was re-evaluated using the revised guidelines during December 1994 when 26 borings and two soil inspection pits were described in accordance with the revised guidelines These guidelines provide a framework for classifying land according to the extent to which its physical or chemical characteristics impose a long term limitation on its use for agriculture

1 3 The work was carried out by members of the Resource Planning Team in the Guildford Statutory Group of ADAS

1 4 At the time of the survey the land use to the north of the B2050 was permanent pasture to the south was winter cereals Areas in the north and east of the site were not surveyed since permission to enter onto the land was not sought The areas marked as urban and non agricultural comprise a metalled road and overgrown gardens respectively

1 5 The distribution of grades and subgrades is shown on the attached ALC map and the areas are given in the table below These results supersede the earlier 1988 survey The map has been drawn at a scale of 1 10 000 It is accurate at this scale but any enlargement would be misleading

Table 1 Distribution of Grades and Subgrades

Grade	Area (ha)	% of Site	% of Agricultural Land
2	12 2	46 1	52 4
3a	9 7	36 6	41 6
3b	1 4	5 3	6 0
Urban	0 3	1 1	100 0 (23 3 ha)
Non-Agricultural	0 3	1 1	
Not surveyed	2 6	9 8	
Total area of site	26 5	100 0	

1 6 Appendix I gives a general description of the grades subgrades and land use categories identified in the survey The main classes are described in terms of the type of limitation that can occur the typical cropping range and the expected level and consistency of yield

1 7 The previous survey classified the site as predominantly Grade 2 land very good quality with areas of Grade 1 land excellent quality in the east of the site and Subgrade 3b moderate quality in the north west of the site At that time land classified as Grade 2 was restricted by slight soil wetness or droughtiness limitations with profiles comprising either moderately well drained silty or loamy soils or well drained silty soils over chalk at various depths Where no chalk was observed this land was classified as Grade 1 Land previously classified as Subgrade 3b was found to comprise poorly drained heavy textured soils

1 8 The recent (December 1994) survey confirmed similar soils to those described above However applying the revised ALC criteria which have more refined droughtiness and wetness criteria compared with the earlier guidelines the site has been classified as Grade 2 and Subgrades 3a and 3b Land classified as Grade 2 is primarily restricted by minor soil droughtiness limitations Profiles typically comprise deep well drained silty or loamy soils which often become heavier with depth However because the local climate at this site is particularly dry in a national context the interaction between the soils and climatic regime acts to cause a minor soil droughtiness limitation In the south of the site land classified as Subgrades 3a and 3b is also restricted by soil droughtiness limitations These profiles overlie chalk which acts to restrict profile available water Consequently depending on the depth to chalk the land has been classified as either good or moderate quality In the north of the site the land is equally restricted by moderate soil wetness/workability and droughtiness limitations Profiles typically comprise calcareous clay topsoils which are directly underlain by poorly structured clay subsoils In comparison to land classified as Grade 2 the heavy textures and poor subsoil structures means that there is less soil water available for uptake by crop roots In addition the interaction between the heavy topsoil textures and imperfect soil drainage conditions means that this land is also subject to moderate soil wetness and workability limitations

2 Climate

2 1 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

2 2 The main parameters used in the assessment of an overall climatic limitation are average annual rainfall as a measure of overall wetness and accumulated temperature (degree days Jan June) as a measure of the relative warmth of a locality

2 3 A detailed assessment of the prevailing climate was made by interpolation from a 5km gridpoint dataset (Met Office 1989) The details are given in Table 2 and

these show that there is no overall climatic limitation affecting the site However climatic factors do interact with soil factors to influence soil wetness and droughtiness limitations The crop adjusted soil moisture deficits at this locality are very high in a national context due to the warm dry climatic regime which prevails High soil moisture deficits increase the likelihood of soil droughtiness limitations

2 4 No local climatic factors such as exposure or frost risk are believed to affect the site

Table 2 Climatic Interpolations

Grid Reference	TR359660	TR358655
Altitude (m)	55	45
Accumulated Temperature (degree days Jan June)	1426	1438
Average Annual Rainfall (mm)	616	617
Field Capacity (days)	124	125
Moisture Deficit Wheat (mm)	123	124
Moisture Deficit Potatoes (mm)	121	122
Overall Climatic Grade	1	1

3 Relief

3 1 Most of the site is relatively flat and lies at an altitude of approximately 45 m AOD In the north west of the site the land rises through gradients of about 2° to 6° as measured using an optical reading clinometer to approximately 55 m AOD Nowhere on the site does gradient or relief impose any limitation to the agricultural land quality

4 Geology and Soil

4 1 British Geological Survey (1980) Sheet 274 shows the site to be predominantly underlain by Upper Chalk with an area of Thanet Beds shown on the higher land Part of the area underlain by Upper Chalk is shown to be covered by drift deposits of older and younger head brickearth

4 2 The published Soil Survey map (SSEW 1980) shows most of the site to comprise argillic brown earths These soils are described as silty soils in brickearth associated with loamy soils in Thanet and Woolwich Beds free drainage locally with slight impedance (SSEW 1980) A small area in the south-west corner of the site is shown as brown calcareous earths These soils are described as variably chalky and flinty soils in head associated with shallow chalky soils over chalk free drainage (SSEW 1980)

4 3 Detailed field examination found two broad soil types imperfectly drained heavy-textured soils on the higher lying land and well drained silty and loamy soils overlying chalk at varying depths elsewhere

5 Agricultural Land Classification

5 1 Table 1 provides the details of the area measurements for each grade and the distribution of each grade is shown on the attached ALC map

5 2 The location of the soil observation points are shown on the attached sample point map

Grade 2

5 3 Land classified as very good quality generally occurs over the parts of the site underlain by the drift deposits of head brickearth This land is restricted by a minor soil droughtiness limitation though land in the north of the site is also subject to slight soil workability limitations Where the land is limited by soil droughtiness profiles typically comprise non calcareous medium silty clay loam or medium clay loam topsoils These overlie medium/heavy silty clay loam or medium/heavy clay loam and occasionally clay subsoils These soils are generally very slightly stony containing approximately 0 4% total flints and/or chalk fragments by volume Profiles are well drained (Wetness Class I) with slightly gleyed horizons occasionally occurring at about 50 to 95 cm depth The interaction between these soil properties and the dry climatic regime (i e high soil moisture deficits) gives rise to land which is slightly droughty Moisture balance figures indicate that there is likely to be a slight restriction in soil water available throughout the growing season Consequently crops may suffer slight drought stress The level and consistency of crop yields may be affected as a result

5 4 In the north of the site the land is also restricted by minor soil workability limitations Heavier topsoil textures of heavy clay loam act to impose slight restrictions on the flexibility of cropping stocking and cultivations

Subgrade 3a

5 5 In the north of the site land classified as good quality is restricted by moderate soil wetness/workability and droughtiness limitations caused by heavy textured soils On this higher lying land profiles comprise calcareous clay topsoils which overlie poorly structured clay subsoils Pit 1 typifies such soils The subsoils are slowly permeable and act to cause imperfect soil drainage conditions (Wetness Class III) as indicated by gleying within these horizons The interaction between the topsoil textures and poor soil drainage is partially offset by the very dry local climate to cause only moderate soil wetness and workability limitations This may affect the flexibility of cropping, stocking and cultivations

5 6 In the south of the site the land is restricted by moderate soil droughtiness limitations associated with profiles overlying chalk Calcareous medium silty clay loam and medium clay loam topsoils are underlain by well drained (Wetness Class I) similarly textured or heavy clay loam or clay subsoils which overlie chalk at about 70 to 75 cm depth Topsoils and upper subsoils are very slightly stony

SOURCES OF REFERENCE

British Geological Survey (1980) Sheet No 274 Ramsgate 1 50 000 Series (solid and drift edition)

MAFF (1988) Agricultural Land Classification of England and Wales Revised guidelines and criteria for grading the quality of agricultural land

Meteorological Office (1989) Climatological Data for Agricultural Land Classification

Soil Survey of England and Wales (1980) Bulletin No 9 Soils of Kent and accompanying maps at 1 250 000

containing 0 3% total flints and/or chalk fragments by volume lower subsoils becoming moderately stony containing 15-30% total chalk fragments by volume at about 55 to 60 cm depth Pit 2 represents profiles which overlie chalk From this pit it could be seen that due to the very hard and compact nature of the chalk penetration by crop roots into the chalk was restricted to about 5 cm The interaction between this severely restricted rooting and chalky lower subsoils with the very dry prevailing local climate gives rise to land which is moderately droughty Moisture balance figures indicate that there is a moderate restriction in soil available water throughout the growing season such that crops may suffer from drought stress The level and consistency of crop yields may be moderately affected as a result

Subgrade 3b

5 7 Land classified as moderate quality is restricted by significant soil droughtiness limitations Soil profiles are similar to those described in paragraph 5 6 except that the chalk occurs at shallower depths of approximately 50 to 65 cm depth Consequently this land is likely to be prone to more significant soil droughtiness than that assigned to Subgrade 3a Moisture balance figures indicate that crops are likely to suffer from significant levels of drought stress The level and consistency of crop yields may be significantly affected as a result

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Resource Planning Team
Guildford Statutory Group
ADAS Reading

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 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 (eg 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

Urban

Built up or 'hard uses with relatively little potential for a return to agriculture including housing industry commerce education transport religous buildings cemetries Also hard surfaced sports facilities permanent caravan sites and vacant land all types of derelict land including mineral workings which are only likely to be reclaimed using derelict land grants

Non-agricultural

'Soft' uses where most of the land could be returned relatively easily to agriculture including private parkland public open spaces sports fields allotments and soft surfaced areas on airports Also active mineral workings and refuse tips where restoration conditions to soft' after-uses may apply

Woodland

Includes commercial and non-commercial woodland A distinction may be made as necessary between farm and non-farm woodland

Agricultural Buildings

Includes the normal range of agricultural buildings as well as other relatively permanent structures such as glasshouses Temporary structures (eg polythene tunnels erected for lambing) may be ignored

Open Water

Includes lakes ponds and rivers as map scale permits

Land Not Surveyed

Agricultural land which has not been surveyed

Where the land use includes more than one of the above eg buildings in large grounds and where map scale permits the cover types may be shown separately Otherwise the most extensive cover type will be shown

APPENDIX II

FIELD ASSESSMENT OF SOIL WETNESS CLASS

SOIL WETNESS CLASSIFICATION

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

Definition of Soil Wetness Classes

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

Soils can be allocated to a wetness class on the basis of quantitative data recorded over a period of many years or by the interpretation of soil profile characteristics site and climatic factors Adequate quantitative data will rarely be available for ALC surveys and therefore the interpretative method of field assessment is used to identify soil wetness class in the field The method adopted here is common to ADAS and the SSLRC

[1]The number of days specified is not necessarily a continuous period

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

APPENDIX III

SOIL PIT AND SOIL BORING DESCRIPTIONS

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	**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 **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	**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 **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	**SLST**	soft oolitic or dolimitic 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)

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	**VC** very 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 appropiate 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 ISLE OF THANET LP SITE 4 Pit Number 1P

Grid Reference TR35806590

Average Annual Rainfall	617 mm
Accumulated Temperature	1438 degree days
Field Capacity Level	125 days
Land Use	Cereals
Slope and Aspect	02 degrees S

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 28	HCL	25Y 42 00	0	1	HR	F				Y
28-120	C	05Y 63 00	0	0		M	MDCAB	FM	P	Y

Wetness Grade 3A

Wetness Class	III
Gleying	028 cm
SPL	028 cm

Drought Grade 3A

APW	128mm	MBW	4 mm
APP	105mm	MBP	-17 mm

FINAL ALC GRADE 3A

MAIN LIMITATION Soil Wetness/Droughtiness

SOIL PIT DESCRIPTION

Site Name ISLE OF THANET LP SITE 4 Pit Number 2P

Grid Reference TR35826590 Average Annual Rainfall 617 mm
Accumulated Temperature 1438 degree days
Field Capacity Level 125 days
Land Use Cereals
Slope and Aspect degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 28	MCL	10YR33 00	0	1	CH					Y
28- 47	HZCL	10YR44 00	0	1	CH		MDCSAB	FR	M	Y
47- 53	HZCL	10YR44 00	0	35	CH		WKCSAB	FR	M	Y
53- 58	CH	10YR71 00	0	0					P	Y

Wetness Grade 1 Wetness Class I
Gleying cm
SPL No SPL

Drought Grade 3B APW 93 mm MBW -31 mm
APP 96 mm MBP 26 mm

FINAL ALC GRADE 3B
MAIN LIMITATION Droughtiness

SAMPLE NO	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	WETNESS CLASS	WETNESS GRADE	-WHEAT- AP	-WHEAT- MB	-POTS- AP	-POTS- MB	M REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1	TR35806610	PGR	NW	02	030	030	3	3A	125	1	102	-20	3A				WD	3A	calc topsoil
1P	TR35806590	CER	S	02	028	028	3	3A	128	4	105	-17	3A				WD	3A	calc topsoil
2	TR35906607	PGR	E	01	027	027	3	3A	126	2	103	-19	3A				WD	3A	calc topsoil
2P	TR35826590	CER					1	1	93	-31	96	-26	3B				DR	3B	chalk 53
3	TR35806600	PGR	W	02	030	030	3	3A	126	2	103	-19	3A				WD	3A	calc topsoil
4	TR35906600	PGR	E	01	025	025	3	3A	122	-2	100	-22	3A				WD	3A	calc topsoil
5	TR36006600	PGR	E	01			1	2	156	32	120	-2	2				WD	2	sl gley 50
6	TR35806590	CER	S	02	030	030	3	3A	126	2	103	-19	3A				WD	3A	calc topsoil
7	TR35906590	PGR	E	01	032	032	3	3A	125	1	103	-19	3A				WD	3A	calc topsoil
8	TR36006590	PGR	E	01			1	2	156	32	119	-3	2				WD	2	
9	TR35806580	CER	S	01	025	025	3	3A	126	2	103	-19	3A				WD	3A	sl calc
10	TR35906580	CER	E	01	045	045	2	2	131	7	108	-14	3A				DR	3A	sl gley 30
11	TR36006580	CER	SE	01	025	085	2	2	143	19	116	-6	2				WD	2	deep profile
12	TR35806570	CER	S	01			1	1	148	24	123	1	2				DR	2	sl gley 95
14	TR36006570	CER					1	1	160	36	125	3	2				DR	2	deep profile
16	TR35756560	CER	S	01			1	1	111	-13	118	-4	3A				DR	3A	chalk 75
17	TR35856560	CER	S	01			1	1	153	29	120	-2	2				DR	2	chalky 80
18	TR35976557	CER	S	01			1	1	151	27	125	3	2				DR	2	deep profile
20	TR35606550	CER	S	01			1	1	153	29	124	2	2				DR	2	deep profile
21	TR35706550	CER	S	01			1	1	144	20	120	-2	2				DR	2	sl gley 50
22	TR35806550	CER					1	1	91	-33	92	-30	3B				DR	3B	chalk 50
23	TR35906550	CER					1	1	94	-30	95	-27	3B				DR	3B	chalk 50
24	TR35606540	CER					1	1	103	-21	114	-8	3B				DR	3B	chalk 65
25	TR35706540	CER					1	1	156	32	118	-4	2				DR	2	deep profile
26	TR35806540	CER					1	1	113	-11	117	-5	3A				DR	3A	chalk 75
27	TR35906540	CER	SW	02			1	1	110	-14	120	-2	3A				DR	3A	chalk 70
28	TR35606530	CER	S	02			1	1	73	-51	73	49	4				DR	4	chalk 40
29	TR35706530	CER	E	02			1	1	155	31	117	-5	2				DR	2	deep profile

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	CALC	
1	0-30	c	25Y 42 00						0	0	CH	3					Y		
	30-120	c	10YR62 00	10YR58 56	M			Y	0	0	CH	1		P		Y	Y		
1P	0-28	hcl	25Y 42 00	10YR56 00	F				0	0	HR	1					Y		
	28-120	c	05Y 63 00	10YR68 00	M			Y	0	0		0	MDCAB FM	P	Y		Y	Y	
2	0-27	hcl	25Y 43 00						0	0		0					Y		
	27-120	c	10YR62 00	75YR68 00	M		10YR71 00	Y	0	0	HR	2		P		Y	Y		
2P	0-28	mcl	10YR33 00						0	0	CH	1					Y		
	28-47	hzcl	10YR44 00						0	0	CH	1	MDCSAB FR	M			Y		
	47-53	hzcl	10YR44 00						0	0	CH	35	WKCSAB FR	M			Y		
	53-58	ch	10YR71 00						0	0		0		P			Y		
3	0-30	c	25Y 42 00						0	0	CH	2					Y		
	30 50	c	25Y 63 61	10YR58 00	M			Y	0	0		0		P		Y	Y		
	50-120	c	25Y 61 00	75YR58 00	M			Y	0	0		0		P		Y		non-calc	
4	0-25	c	25Y 42 00						0	0		0					Y		
	25-120	c	25Y 62 00	75YR68 00	M		10YR61 00	Y	0	0	HR	2		P		Y	Y		
5	0-30	hcl	25Y 42 00						0	0		0					Y		
	30-50	hcl	10YR53 54						0	0		0		M			Y		
	50-120	hzcl	10YR54 00	75YR58 00	C		00MN00 00	S	0	0		0		M					
6	0-30	c	25Y 42 00						0	0	CH	2					Y		
	30-120	c	25Y 63 61	10YR56 58	M			Y	0	0		0		P		Y	Y		
7	0-32	c	25Y 42 00						0	0		0					Y		
	32-120	c	25Y 62 72	10YR58 56	C			Y	0	0	HR	2		P		Y	Y		
8	0-29	hcl	10YR42 00						0	0		0					Y		
	29 55	hcl	10YR54 00						0	0		0		M			Y		
	55 80	hzcl	10YR54 00						0	0		0		M				non-calc	
	80 120	mzcl	10YR54 00						0	0		0		M				non-calc	
9	0-25	hcl	10YR42 00						0	0	HR	1					Y		
	25-120	c	25Y 53 00	75YR56 00	M			Y	0	0		0		P		Y		non-calc	
10	0-30	hcl	10YR42 00						0	0	HR	2					Y		
	30-45	c	10YR54 00	10YR58 00	C		10YR61 00	S	0	0	HR	2		M			Y		
	45-120	c	10YR63 00	75YR58 00	C		10YR61 00	Y	0	0	HR	2		P		Y		non-calc	
11	0-25	mcl	10YR42 00						0	0	CH	5					Y		
	25-50	hcl	10YR53 52	75YR56 00	C			Y	0	0	CH	1		M			Y		
	50-85	hcl	10YR53 00	10YR56 00	M			Y	0	0	CH	1		M			Y		
	85-120	c	10YR53 00	10YR56 00	M			Y	0	0	CH	1		P		Y	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	CALC
12	0-34	mzcl	10YR42 00						0	0	CH	3					Y	
	34-60	hzcl	10YR54 00						0	0	HR	1		M			Y	
	60-95	c	10YR54 00						0	0	HR	1		M			Y	
	95-120	c	10YR54 00	05Y 44 00	C			S	0	0		0		M			Y	
14	0-30	mzcl	10YR43 00						0	0		0					Y	
	30-65	mzcl	10YR54 00						0	0		0		M			Y	
	65-85	hzcl	10YR54 00						0	0		0		M				non-calc
	85-120	hzcl	10YR54 00						0	0	HR	2		M				non-calc
16	0 30	mzcl	10YR43 00						0	0	HR	1					Y	
	30-55	c	10YR53 00						0	0		0		M			Y	
	55-60	c	10YR56 00						0	0	CH	15		M			Y	
	60-75	c	10YR56 00						0	0	CH	30		M			Y	
	75-80	ch	10YR81 00						0	0		0		P			Y	
17	0-30	mzcl	10YR43 00						0	0		0					Y	
	30-55	mcl	10YR53 00						0	0	CH	2		M			Y	
	55-70	hcl	10YR54 56						0	0	HR	2		M			Y	
	70-80	c	10YR56 00						0	0	HR	2		M			Y	
	80-120	hcl	25Y 73 00						0	0	CH	30		M			Y	
18	0-30	mzcl	10YR43 00						0	0		0						non calc
	30-70	mzcl	10YR54 00						0	0		0		M				non-calc
	70-80	hcl	10YR56 00						0	0	HR	2		M				non-calc
	80-120	c	10YR56 00						0	0	HR	5		M				non calc
20	0-30	mzcl	10YR43 00						0	0	HR	1					Y	
	30-75	mzcl	10YR54 00						0	0		0		M			Y	sl calc
	75-85	hcl	75YR54 00						0	0		0		M				non calc
	85-120	c	75YR54 00	00MN00	00	F			0	0		0		M				non calc
21	0-30	mzcl	10YR43 00						0	0	HR	2					Y	sl calc
	30-50	hcl	10YR54 00						0	0		0		M			Y	sl calc
	50-120	c	10YR56 00	75YR58 00	C		10YR61 00	S	0	0		0		M				non calc
22	0-30	mcl	10YR33 00						0	0	CH	2					Y	
	30-50	hzcl	10YR44 00						0	0	CH	3		M			Y	
	50-55	ch	10YR71 00						0	0		0		P			Y	
23	0-30	mzcl	10YR33 00						0	0	CH	2					Y	
	30-50	hzcl	10YR44 00						0	0	CH	3		M			Y	
	50-55	ch	10YR71 00						0	0		0		P			Y	
24	0-30	mcl	10YR33 00						0	0	CH	3					Y	
	30-65	mzcl	10YR54 00						0	0	CH	15		M			Y	
	65-70	ch	10YR71 00						0	0		0		P			Y	

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES			PED		-- STONES----				STRUCT/	SUBS			
				COL	ABUN	CONT	COL	GLEY	>2	6	LITH	TOT	CONSIST	STR	POR	IMP	SPL	CALC
25	0 30	mcl	10YR33 00						0	0	CH	2						Y
	30-70	hcl	10YR44 00						0	0		0		M				
	70-120	mcl	10YR44 00						0	0		0		M				
26	0-30	mcl	10YR33 00						0	0	CH	3						Y
	30-60	hcl	10YR44 00						0	0	CH	3		M				Y
	60-75	mzcl	10YR54 00						0	0	CH	15		M				Y
	75-80	ch	10YR71 00						0	0		0		P				Y
27	0-30	mcl	10YR33 00						0	0	CH	2						Y
	30-60	mzcl	10YR44 00						0	0	CH	2		M				Y
	60-70	mzcl	10YR54 00						0	0	CH	20		M				Y
	70-75	ch	10YR71 00						0	0		0		P				Y
28	0-30	mcl	10YR33 00						0	0	CH	5						Y
	30-40	mcl	10YR54 00						0	0	CH	10		M				Y
	40-45	ch	10YR71 00						0	0		0		P				Y
29	0 35	mcl	10YR33 00						0	0	CH	3						Y
	35 70	hcl	10YR44 00						0	0	CH	5		M				Y
	70-120	mcl	10YR44 00						0	0	CH	5		M				Y