A1

Test Valley Local Plan Review
Sites 97 100 Romsey
Agricultural Land Classification
Semi Detailed Survey
ALC Map and Report

January 1997

Resource Planning Team
Eastern Region
FRCA Reading

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AGRICULTURAL LAND CLASSIFICATION REPORT

TEST VALLEY LOCAL PLAN REVIEW
SITES 97 100,
ROMSEY HAMPSHIRE
SEMI DETAILED SURVEY

Introduction

1 This report presents the findings of a semi detailed Agricultural Land Classification (ALC) survey of approximately 84 hectares of land to the south east of North Baddesley Hampshire The survey was carried out during January 1997

2 The survey was commissioned by the Ministry of Agriculture Fisheries and Food (MAFF) from its Land Use Planning Unit in Reading in connection with the Test Valley Local Plan Review The results of this survey supersede any previous ALC information for this land

3 Prior to the 1st April 1997 the work was conducted by members of the Resource Planning Team in the Guildford Statutory Group of ADAS After this date the work was completed by the same team as part of the Farming and Rural Conservation Agency (FRCA) Reading The land has been graded in accordance with the published MAFF ALC guidelines and criteria (MAFF 1988) A description of the ALC grades and subgrades is given in Appendix I

4 At the time of survey the agricultural land on this site was mostly in permanent grassland partly being grazed by horses The western most half of the site comprised a well established golf course and driving range and has therefore been mapped as Other Land

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)	% Total survey area	% Total site area
2	29 4	65 0	35 0
3a	12 2	27 0	14 5
3b	3 6	8 0	4 3
Other land	38 9		46 2
Total survey area	45 2	100 0	
Total site area	84 1		100

7 The fieldwork was conducted at an average density of 1 boring every 1 5 hectares of agricultural land A total of 29 borings and 3 soil pits were described

8 The land at this site has been classified as Grade 2 (very good quality) Subgrade 3a (good quality) and Subgrade 3b (moderate quality) Soil wetness and soil droughtiness are the principal limitations throughout The soils on the site are derived from interbedded deposits of the Bracklesham Group and as such were found to be very variable both spatially and vertically through the profiles

9 A number of the soil profiles suffer from wetness problems to varying degrees The topsoils comprise fine or coarse loamy textures These often overlie similar upper subsoils which pass to poorly structured clays The depth to these poorly structured horizons will determine the final ALC grade Where these poorly structured horizons are shallow the drainage will be severely restricted and land is classified as Subgrade 3b whereas when they occur deeper within the profile the resultant ALC grade will be Grade 2 or Subgrade 3a These clayey soils cause drainage to be impeded so that land utilisation is restricted

10 Where soil wetness is less significant the soil profiles are better drained and are often sandier throughout and/or more stony at depth This applies to much of the central part of the site assessed as Grade 2 Soil droughtiness may be equally or more restricting in these cases The combination of soil properties and the prevailing climate results in soil droughtiness which will restrict the amount of profile available water for crops Crop growth and yields will therefore be adversely affected to different degrees depending on the severity of the droughtiness limitation Grades 2 and 3a have been mapped as a result

11 Within the Grade 2 mapping unit a number of observations were found to be better quality having no or very minor limitations to agricultural use These were not delineated as a separate mapping unit due to their sporadic distribution

Factors Influencing ALC Grade

Climate

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

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

Table 2 Climatic and altitude data

Factor	Units	Values	Values
Grid reference	N/A	SU 402 195	SU 406 189
Altitude	m, AOD	45	70
Accumulated Temperature	day°C (Jan June)	1503	1474
Average Annual Rainfall	mm	820	819
Field Capacity Days	days	174	173
Moisture Deficit Wheat	mm	107	104
Moisture Deficit Potatoes	mm	101	97

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

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

16 The combination of rainfall and temperature at this site mean that there is no overall climatic limitation (Climatic Grade 1) However climatic factors do interact with soil properties to influence soil wetness and droughtiness The climate at this locality is warm and moist in regional terms thereby enhancing the likelihood of soil wetness/workability restrictions

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

Site

18 The land on this site ranges from 45 70m AOD The highest land is found along the south eastern site boundary with the land falling gently through gradients of 1-4° in a north westerly direction towards the north of the site Micro relief and gradient do not affect agricultural land quality across the site

19 Flooding does not appear to be limiting on this site

Geology and soils

20 The published geological sheet for the area (BGS 1978) shows the northern most part of the site to be underlain by deposits of the Bracklesham Group (interbedded sands and clays) specifically deposits of the Wittering Formation Much of the rest of the site is mapped as London Clay with Whitecliff Sand along the south western part of the agricultural land surveyed

21 The most recently published soils information for this area (SSEW 1983) maps the Wickham 3 soil association across the site These soils are described as Slowly permeable seasonally waterlogged fine loamy over clayey and coarse loamy over clayey and clayey soils (SSEW 1983)

22 Detailed field examination of the soils on the site broadly confirms the presence of poorly drained clayey soils across parts of the site notably the south and east interspersed with deeper sandy soils particularly towards the north and south western parts of the land surveyed

Agricultural Land Classification

23 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

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

Grade 2

25 The majority of the agricultural land surveyed has been classified as very good quality on the basis of soil wetness soil droughtiness and very occasionally workability restrictions Soils are variable both spatially and within profiles

26 Those profiles affected by soil droughtiness are associated with the more sandy parts of the site i e towards the north and south west of the site Soil pit 1 (see Appendix III) is typical of such areas Profiles comprise non calcareous medium sandy loam topsoils containing up to 2% total flints by volume These overlie similar upper subsoils and generally pass to loamy sand lower subsoils although occasional horizons of clay loam sandy clay loam and sand were encountered All these soils are well drained wetness class I (see Appendix II) However the interaction between soil properties particularly the sandy textures and the prevailing climate results in slightly reduced reserves of available water Soil moisture balance calculations indicate that available water may not be sufficient to meet the demands of a growing crop throughout the season Grade 2 is therefore appropriate on the basis of a minor soil droughtiness restriction, which may affect the level and consistency of yield

27 Elsewhere on the site slight soil wetness restrictions result in Grade 2 land Soil pit 2 (see Appendix III) is representative of these areas Non calcareous fine sandy silt loam, medium sandy loam or medium clay loam topsoils overlie similar upper subsoils but pass to heavier textures of heavy clay loam or clay in the lower subsoil which cause drainage to be impeded Gleying from 0 60cm depth is suggestive of seasonal waterlogging, arising from the slow permeability of lower subsoil horizons Wetness class II or III (see Appendix II) are

appropriate which combine with the prevailing climate and the topsoil textures to give rise to a land classification of Grade 2 Soil wetness will adversely affect crop growth and development and restrict the opportunities for landwork and/or grazing

28 Within the Grade 2 mapping unit are a number of areas of better quality where soil conditions are such that neither soil wetness nor soil droughtiness are a problem Soil pit 3 is typical of these soils These areas are potentially of Grade 1 excellent quality The number and distribution of these profiles is however of a sporadic nature preventing the delineation of a separate mapping unit Occasional profiles which are not droughty or wet are however limited to Grade 2 because heavy topsoil textures give rise to workability restrictions which may affect the opportunities for landwork and/or grazing

Subgrade 3a

29 Two units of good quality land have been mapped on this site The northern most unit is associated with land primarily affected by soil droughtiness restrictions whilst that to the east of the site is classified on the basis of soil wetness

30 Where soil droughtiness is the principal limitation soils comprise medium sandy loam or loamy medium sand topsoils containing only 2% total flints by volume These overlie similar or lighter textures (i e medium sand) in the subsoil with up to 25% total flints These well drained soils (wetness class I see Appendix II) have insufficient reserves of soil moisture due to the combination of coarse textures stone contents and the prevailing climate The resulting droughtiness restriction will be more pronounced than land classified as Grade 2

31 Subgrade 3a land affected by soil wetness comprises non calcareous medium clay loam topsoils which overlie similar or heavy clay loam upper subsoils and pass to poorly structured clay in the lower subsoil below about 42cm Gleying indicative of impeded drainage and seasonal waterlogging is evident from below the topsoil Wetness class III is therefore assigned and Subgrade 3a results when this drainage status is considered alongside the climate and the topsoil textures

Subgrade 3b

32 Moderate quality land has been assigned to the south eastern part of the site on the basis of soil wetness restrictions Soils across this area generally comprise non calcareous topsoils of medium clay loam texture containing 0 5% total flints by volume These sometimes overlie a thin upper subsoil of medium or heavy clay loam which is gleyed or they may pass directly to gleyed and slowly permeable clay horizons which significantly impede drainage The shallow depth to gleyed and slowly permeable horizons gives rise to a wetness class of IV (see Appendix II) The combination of soil drainage status prevailing climatic conditions (relatively moist in a regional context) and medium topsoil textures results in a land classification of Subgrade 3b on the basis of soil wetness This will adversely affect yield potential and the opportunities for cultivations and/or grazing

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SOURCES OF REFERENCE

British Geological Survey (1978) *Sheet No 315 Southampton* BGS London

Ministry of Agriculture Fisheries And Food (1988) *Agricultural Land Classification of England and Wales Revised guidelines and criteria for grading the quality of agricultural land* MAFF London

Meteorological Office (1989) *Climatological Data for Agricultural Land Classification* Meteorological Office Bracknell

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

Soil Survey of England and Wales (1984) *Soils and their Use in South East England Bulletin No 15* SSEW Harpenden

APPENDIX I

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 WETNESS CLASSIFICATION

Definitions of Soil Wetness Classes

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

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

Assessment of Wetness Class

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

[1] The number of days is not necessarily a continuous period
[2] In most years is defined as more than 10 out of 20 years

APPENDIX III

SOIL DATA

Contents

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	**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

SOIL PIT DESCRIPTION

Site Name TEST VALLEY SITE 97 100 Pit Numbe 1P

G id Reference SU40151902 Average A nual Rai fall 819 mm
Accumulated Tempe ature 1497 degree d ys
Field Capacity Level 174 days
Land Use Permanent Grass
Slope and Aspect 03 degrees SW

HORIZON	TEXTURE	COLOUR	STONES	2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0 30	MSL	10YR42-00	0		4	HR					
30 37	MSL	10YR43-00	0		8	HR		MDCOAB	FR	M	
37 80	MSL	10YR44 00	0		0			MDCSAB	FR	M	
80 120	MS	10YR54 64	0		0			MDCOAB	VF	G	

Wetness G ade 1 Wetness Class I
Gleying cm
SPL No SPL

Drought Grade 2 APW 127mm MBW 21 mm
APP 108mm MBP 8 mm

FINAL ALC GRADE 2
MAIN LIMITATION Droughtiness

SOIL PIT DESCRIPTION

Site Name TEST VALLEY SITE 97 100 Pit Number 2P

Grid Reference SU40501930

Average Annual Rainf ll	819 mm
Accumulated Tempe ature	1497 degree days
Field Capacity Level	174 d ys
Land Use	Permanent Grass
Slope and Aspect	02 degrees NE

HORIZON	TEXTURE	COLOUR	STONES 2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0 28	MCL	10YR43 00	1	2	HR					
28 50	MCL	10YR44 00	0	5	HR	F	MDCOAB	FR	M	
50 68	MCL	10YR53 00	0	0		C	MDCSAB	FR	M	
68-100	C	10YR62 00	0	0		M	WVCSAB	FM	P	

Wetness Grade 2

Wetness Class	II
Gleying	050 cm
SPL	068 cm

Drought G ade 2

APW	123mm	MBW	17 mm
APP	114mm	MBP	14 mm

FINAL ALC GRADE 2
MAIN LIMITATION Wetness

SOIL PIT DESCRIPTION

Site Name TEST VALLEY SITE 97 100 Pit Number 3P

G id Reference SU40251915 Average Annual Rainfall 819 mm
Accumulated Tempe ature 1497 degree days
Field Capacity Level 174 days
Land Use Permanent Grass
Slope and Aspect degrees

HORIZON	TEXTURE	COLOUR	STONES 2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0 25	MSL	10YR43 00	0	2	HR					
25- 48	MSL	10YR43 00	0	0			MCSAB	FR	M	
48- 75	HCL	10YR54 00	0	0			MCSAB	FM	M	
75-120	SC	10YR53 00	0	0		M	MDCOPL	FR	P	

Wetness G ade 1 Wetness Class II
Gleying 075 cm
SPL 075 cm

Drought Grade 1 APW 140mm MBW 34 mm
APP 111mm MBP 11 mm

FINAL ALC GRADE 1
MAIN LIMITATION

SAMPLE	DEPTH	TEXTURE	COLOUR	-MOTTLES- COL	ABUN	CONT	PED COL	GLEY	STONES- 2	6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
1	0-45	lms	10YR46 56						0	0		0		M					
	45-80	ms	10YR56 00						0	0		0		G					
	80 120	ms	10YR74 00	10YR58 00	C			Y	0	0		0		G					
1P	0 30	msl	10YR42 00						0	0	HR	4							
	30 37	msl	10YR43-00						0	0	HR	8	MDCOAB	FR M					
	37-80	msl	10YR44 00						0	0		0	MDCSAB	FR M				PSD	lms
	80-120	ms	10YR54 64						0	0		0	MDCOAB	VF G				PSD	ms
2	0-30	msl	10YR43 00						0	0	HR	2							
	30 50	msl	10YR43 00	10YR46 00	F				0	0	HR	10		M					
	50-65	lms	10YR53 00	10YR58 00	C			Y	0	0	HR	25		G				Imp	stony
2P	0 28	mcl	10YR43 00						1	0	HR	2						PSD	f zl
	28-50	mcl	10YR44 00	10YR46 00	F		00MN00 00		0	0	HR	5	MDCOAB	FR M					
	50 68	mcl	10YR53 00	10YR58 00	C		00MN00 00	Y	0	0		0	MDCSAB	FR M				Border	hcl
	68-100	c	10YR62 00	75YR68 00	M			Y	0	0		0	WVCSAB	FM P	Y		Y		
3	0 35	msl	10YR36 00						0	0	HR	2							
	35-45	msl	10YR46 00						0	0	HR	2		M					
	45-65	mcl	10YR46 00						0	0		0		M					
	65-70	hcl	10YR46 00						0	0		0		M					
	70 120	ms	25 Y66 00						0	0	HR	5		G					
3P	0 25	msl	10YR43 00						0	0	HR	2							
	25 48	msl	10YR43 00						0	0		0	MCSAB	FR M					
	48 75	hcl	10YR54 00						0	0		0	MCSAB	FM M					
	75 120	sc	10YR53 00	10YR56 00	M			Y	0	0		0	MDCOPL	FR P	Y		Y		
4	0 32	lms	10YR44 00						0	0		0							
	32 40	lms	10YR58 00						0	0		0		G					
	40 85	ms	10YR68 00						0	0		0		G					
	85-120	scl	10YR68 00	75YR56 00	C			S	0	0		0		M					
5	0 35	msl	10YR43 00						0	0	HR	2							
	35-40	msl	10YR44 00						0	0		0		M					
	40 50	mcl	10YR63 00	10YR46 00	C			Y	0	0		0		M					
	50 55	hcl	10YR63 00	75YR68 00	C			Y	0	0		0		M					
	55-80	c	10YR63 00	75YR68 00	M			Y	0	0		0		P		Y			
	80 90	c	10YR63 00	75YR68 00	M			Y	0	0	HR	10		P		Y		Imp	flints
6	0 28	msl	10YR43 00						0	0		0							
	28-52	msl	10YR44 00						0	0		0		M					
	52 80	lms	75YR46 00						0	0	HR	1		G					
	80 120	msl	75YR58 00						0	0	HR	1		M					
7	0 36	mcl	10YR43 00						0	0	HR	2							
	36 42	hcl	10YR54 56	10YR58 00	C			S	0	0		0		M					
	42 80	c	10YR53 00	75YR58 00	M		10YR61 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
8	0 30	mcl	10YR43 00						0	0		0						
	30 40	mcl	10YR53 00	75YR56 00	C			Y	0	0		0		M				
	40 58	hcl	10YR53 00	75YR56 00	C			Y	0	0		0		M				
	58-100	c	10YR62 63	75YR68 00	M			Y	0	0		0		P			Y	
9	0 30	mcl	10YR43 00						0	0	HR	1						
	30 63	hcl	10YR54 00						0	0		0		M				
	63 120	scl	10YR56 00	000C00 00	C			S	0	0		0		M				
10	0 28	mcl	10YR43 00						0	0	HR	1						
	28-55	mcl	10YR53 00	000C00 00	F				0	0	HR	5		M				
	55-78	mcl	25Y 63 00	000C00 00	C			Y	0	0	HR	5		M				
	78 120	sc	10YR63 64	000C00 00	C			Y	0	0	HR	2		P			Y	
11	0 35	msl	10YR43 00						0	0		0						
	35-45	hcl	10YR56 00						0	0	HR	2		M				
	45-55	c	10YR56 00						0	0		0		M				
	55-75	hcl	10YR56 00	10YR58 00	F		00MN00 00		0	0		0		M				
	75-120	scl	10YR56 00	10YR58 00	F		00MN00 00		0	0		0		M				
12	0 32	mcl	10YR43 00						0	0		0						
	32 40	hcl	10YR62 00	75YR58 00	C			Y	0	0		0		M				
	40 80	c	10YR71 00	75YR68 00	M			Y	0	0		0		P			Y	
13	0 30	msl	10YR43 00						0	0		0						
	30 40	msl	10YR43 00						0	0		0		M				
	40 78	lms	75YR43 00						0	0		0		G				
	78 90	lms	10YR56 00						0	0		0		G				
	90 120	ms	10YR64 00						0	0		0		G				
14	0 28	msl	10YR43 00						0	0	HR	2						
	28 50	msl	10YR44 00						0	0	HR	2		M				
	50 70	c	10YR54 00	000C00 00	M			Y	0	0		0		P			Y	
15	0 28	fsl	10YR43 00						0	0	HR	1						
	28 55	fsl	10YR53 00						0	0	HR	2		M				
	55-65	c	10YR64 00						0	0		0		M				
	65-120	c	10YR64 00	000C00 00	C			Y	0	0		0		P			Y	
16	0 25	mcl	10YR43 00						0	0	HR	2						
	25-58	mcl	10YR44 00						0	0	HR	2		M				
	58-75	hcl	10YR54 00	75YR58 00	C			Y	0	0		0		M				
	75-120	hcl	10YR64 00	75YR68 00	M			Y	0	0		0		M			Y	
17	0 35	mcl	10YR43 00						0	0	HR	2						
	35 58	mcl	10YR64 00	10YR58 00	C		00MN00 00	Y	0	0	HR	2		M				
	58 100	c	10YR64 63	75YR64 63	M		00MN00 00	Y	0	0	HR	2		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
18	0-30	msl	10YR43 00						0	0	HR	1						
	30-82	msl	10YR54 00						0	0	HR	1		M				
	82 120	lms	10YR64 00						0	0		0		G				
19	0 28	mcl	10YR53 00						0	0		0						
	28 60	hcl	10YR54 00						0	0	HR	1		M				
	60-80	c	10YR54 00						0	0		0		M				
	80-120	hcl	10YR64 00	000C00 00	F				0	0		0		M				
20	0-35	mcl	10YR43 00						0	0	HR	2						
	35-60	mcl	10YR54 00						0	0	HR	5		M				
	60-80	mcl	10YR64 00						0	0	HR	2		M				
	80 120	hcl	10YR64 00	75YR68 00	M			Y	0	0		0		M			Y	
21	0 35	msl	10YR43 00						0	0	HR	1						
	35-50	msl	10YR54 00						0	0		0		M				
	50 120	lms	10YR54 00						0	0		0		G				
22	0 30	msl	10YR42 00						0	0	HR	2						
	30 80	msl	10YR54 00						0	0		0		M				
	80 120	lms	10YR64 00						0	0		0		G				
23	0 28	mcl	10YR42 00						0	0	HR	1						
	28 60	mcl	10YR42 00						0	0		0		M				
	60 78	c	10YR53 00	000C00 00	C			Y	0	0		0		M				
	78-100	c	10YR53 00	000C00 00	M			Y	0	0		0		P			Y	
24	0 25	mcl	10YR43 00						0	0		0						
	25-45	hcl	10YR54 00						0	0	HR	1		M				
	45-70	c	10YR54 00	000C00 00	C			S	0	0		0		P			Y	
25	0 30	mcl	10YR43 00						0	0	HR	2						
	30 45	hcl	10YR63 00	75YR58 00	M			Y	0	0		0		M				
	45-80	c	10YR64 00	75YR58 00	M			Y	0	0		0		P			Y	
26	0 28	msl	10YR43 00						0	0	HR	2						
	28-55	msl	10YR43 00						0	0	HR	2		M				
	55-65	msl	10YR54 00						0	0		0		M				
	65-120	hcl	10YR54 00	000C00 00	C			S	0	0		0		M				
27	0 25	mcl	10YR42 00						0	0	HR	2						
	25-35	hcl	10YR42 00						0	0	HR	2		M				
	35-60	c	10YR53 00	000C00 00	C			Y	0	0	HR	2		P			Y	
28	0 28	mcl	10YR42 00						0	0	HR	1						
	28 60	c	10YR53 00	000C00 00	C			Y	0	0		0		P			Y	
29	0 30	mcl	10YR41 00	000C00 00	C			Y	0	0	HR	2						
	30 60	mcl	10YR53 00	000C00 00	M			Y	0	0	HR	5		M				
	60-80	hcl	10YR52 00	000C00 00	M			Y	0	0	HR	2		M				

SAMPLE NO	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	WETNESS CLASS	WHEAT GRADE	WHEAT AP	WHEAT MB	POTS- AP	POTS- MB	M REL DRT	EROSN FLOOD	FROST EXP	CHEM DIST	LIMIT	ALC	COMMENTS
1	SU40101950	PGR			080		1	1	89	17	73	27	3A				DR	3A	
1P	SU40151902	PGR	SW	03			1	1	127	21	108	8	2				DR	2	ALMOST 3A
2	SU40301950	PGR			050		1	1	85	21	88	12	3B				DR	3B	POSS 3A IMP
2P	SU40501930	PGR	NE	02	050	068	2	2	123	17	114	14	2				WE	2	
3	SU40201940	PGR	NE	01			1	1	120	14	113	13	2				DR	2	
3P	SU40251915	PGR			075	075	2	1	140	34	111	11	1					1	
4	SU40401940	PGR	NE	02			1	1	104	2	66	34	3B				DR	3B	SL GLEY 85
5	SU40601940	PGR			040	055	3	2	111	5	109	9	2				WD	2	
6	SU40051930	PGR					1	1	146	40	101	1	2				DR	2	
7	SU40301930	PGR	N	02	042	042	3	3A	105	1	110	10	3A				WE	3A	SL GLEY 36
8	SU40501930	PGR	NE	02	030	058	3	3A	123	17	114	14	2				WE	3A	
9	SU40001920	PGR					1	1	155	49	117	17	1					1	SL GLEY 63
10	SU40161920	PGR			055	078	1	2	143	37	114	14	1				WK	2	
11	SU40401920	PGR	NE	02			1	1	152	46	115	15	1					1	
12	SU40601920	PGR	NE	02	032	040	4	3B	104	2	109	9	3A				WE	3B	
13	SU40101910	PGR					1	1	116	10	95	5	2				DR	2	
14	SU40201915	PGR			050	050	3	2	93	13	105	5	3A				WE	2	
15	SU40251910	PGR			065	065	2	1	142	36	120	20	1					1	TO 120CM
16	SU40501910	PGR	E	02	058	075	2	2	153	47	115	15	1				WE	2	
17	SU40701910	PGR	E	02	035	058	3	3A	122	16	113	13	2				WE	3A	
18	SU40151900	PGR					1	1	142	36	110	10	1					1	BORDER 2 DR
19	SU40351900	PGR	NE	04			1	1	151	45	117	17	1					1	
20	SU40601900	PGR	NE	02	080	080	1	1	154	48	116	16	1					1	
21	SU40101890	PGR					1	1	132	26	101	1	2				DR	2	
22	SU40201890	PGR	SW	03			1	1	142	36	110	10	1					1	BORDER 2 DR
23	SU40301890	PGR			060	078	2	2	125	19	117	17	2				WE	2	
24	SU40451890	PGR	NE	02		045	3	3A	97	9	109	9	3A				WE	3A	SL GLEY 45
25	SU40701890	PGR	E	01	030	045	4	3B	104	2	109	9	3A				WE	3B	
26	SU40101880	PGR					1	1	150	44	109	9	2				DR	2	SL GLEY 65
27	SU40351880	PGR			035	035	4	3B	86	20	92	-8	3A				WE	3B	
28	SU40551880	PGR			028	028	4	3B	86	20	92	-8	3A				WE	3B	
29	SU40101870	LEY			0		2	2	113	7	114	14	2				WE	2	