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CHERWELL DISTRICT LOCAL PLAN REVIEW
Land North of Banbury Oxfordshire

Agricultural Land Classification
ALC Map and Report
Semi Detailed Survey

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Resource Planning Team
Eastern Region
FRCA Reading

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AGRICULTURAL LAND CLASSIFICATION REPORT

CHERWELL DISTRICT LOCAL PLAN REVIEW
LAND NORTH OF BANBURY OXFORDSHIRE
SEMI DETAILED SURVEY

INTRODUCTION

1 This report presents the findings of a semi detailed Agricultural Land Classification (ALC) survey of approximately 188 hectares of land north of Banbury in Oxfordshire The survey was carried out during September 1999

2 The survey was undertaken by the Farming and Rural Conservation Agency (FRCA)[1] on behalf of the Ministry of Agriculture Fisheries and Food (MAFF) The survey was carried out in connection with MAFF s statutory input to the Cherwell district Local Plan Review 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 agricultural land on the site was mostly in arable use with wheat oilseed rape and linseed being grown the remainder was in permanent grassland The areas mapped as Other land include farm buildings and residential dwellings road and trackways woodland a golf driving range spring lines a lake and crematorium

SUMMARY

5 The findings of the survey are shown on the enclosed ALC map The map has been drawn at a scale of 1 15 000 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	40 5	23 4	21 6
3a	88 4	51 0	47 1
3b	44 3	25 6	23 6
Other land	14 4	N/A	7 7
Total surveyed area	173 2	100	92 3
Total site area	187 6		100

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

7 The fieldwork was conducted at an average density of 1 boring per 1 8 hectares of agricultural land In total 96 borings and 12 soil pits are described

8 The agricultural land on this site has mainly been classified as Grade 2 (very good quality) and Subgrade 3a (good quality) with smaller areas of subgrade 3b (moderate quality) Soil droughtiness and soil wetness are the principal limitations to land quality with gradient and high topsoil stone contents restricting in places

9 A soil droughtiness limitation exists on soils derived from the Marlstone Rock Bed which are located in the central and western areas of the site The land is generally higher and flatter than elsewhere on the site These soils are well drained variably stony with fine loamy or fine silty textures over the brashy Marlstone Where these variably stony soils are deep the interaction of these soil properties with the local climate results in a minor reduction in the water available to a growing crop and Grade 2 land is appropriate An increase in stone content and/or decrease in depth to the Marlstone results in less water available to a growing crop therefore increasing the soil droughtiness limitation with Subgrades 3a and 3b being appropriate depending upon the severity of the limitation In certain areas often where there are breaks in slope the Marlstone is close to the surface resulting in a topsoil stoniness limitation which results in land assigned to Subgrade 3b The principal effect of a soil droughtiness limitation is to adversely affect the consistency and level of yields particularly in drier years Topsoil stoniness can increase production costs by causing extra wear and tear to implements and tyres

10 Soil wetness is associated with soils derived from the Middle and Lower Lias Clays which are found to the east of the site and on lower lying land The soils are typically fine loamy or fine silty over poorly draining clays at variable depths It is the depth to these less permeable clays which determines the severity of the soil wetness limitation In the absence of these clays or where they are found deeper in the soil profile the land is classified Grade 2 However where these clays are found at moderate and shallow depths respectively then Subgrade 3a and Subgrade 3b land is appropriate The principal effect of a soil wetness limitation may cause a reduction in crop yield and limit the flexibility of the land particularly in wetter years

11 In places in the extreme west and north of the survey area gradient limits land quality to Subgrade 3b Such slopes will restrict the safe and efficient use of farm machinery

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		
Grid reference	N/A	SP 433 428	SP 450 432	SP 447 430
		ZONE A	ZONE B	ZONE B
Altitude	m AOD	145	95	110
Accumulated Temperature	day°C (Jan June)	1334	1390	1373
Average Annual Rainfall	mm	704	687	692
Field Capacity Days	days	160	158	158
Moisture Deficit, Wheat	mm	98	104	102
Moisture Deficit, Potatoes	mm	86	94	92
Overall climatic grade	N/A	Grade 1	Grade 1	Grade 1

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 However due to the large area involved there are climatic variations particularly differences in moisture deficit values which can be accounted for by zoning the site (Zone A and Zone B) The isohyte at 125m AOD divides the two zones and is located over the central area of the site Zone A includes all land west of this and Zone B represents all land to the east of the 125m contour Local climatic factors such as exposure and frost risk do not affect land quality at this location The site is climatically Grade 1 However climatic factors do interact with soil properties to influence soil wetness and soil droughtiness At this locality the climate fairly typical of South East England

Site

17 The site lies at altitudes in the range 95–148m AOD There is a direct relationship with landform and underlying geology Approximately half of the site is underlain by the harder Marlstone Rock Beds which represent the higher and generally flatter ground which falls through gentle gradients east and westwards In the extreme west and the central to eastern half of the survey area the Marlstone Rock Beds give way to the softer Middle and Lower Lias deposits At these junctures gradients in the range between 7°–11° limit land quality to Subgrade 3b In the east a small valley stream bisects the land which represents the lowest lying ground The land then rises towards the M40 The small stream in the east and the Sor Brook in the west are liable to flooding however records kept by the Environment Agency indicate that flooding is not significant in these localities (EA, 1999 personal communication) Microrelief does not affect land quality

Geology and soils

18 The most recent published geological information for the area (BGS 1982) shows the site to comprise three different solid geological deposits Approximately half of the survey area is underlain by the Marlstone Rock Bed which gives way to the Middle and Lower Lias deposits in the extreme west and in the east of the survey area Additionally there is an area of alluvium mapped along the coarse of the two streams

19 The most recent published soils information (SSEW 1983) maps two soil associations Banbury (544) in the west and Wickham 2 (711f) in the east The Banbury soils are formed on Jurassic and Cretaceous ironstone and are described as Well drained brashy fine and coarse loamy ferruginous soils over ironstone Some deep fine loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging (SSEW 1983) Soils of the Banbury Association are well drained and fall into Wetness Class I (SSEW 1984) Soils of the Wickham 2 Association are developed in drift over Jurassic and Cretaceous clay or mudstone and are described as Slowly permeable seasonally waterlogged fine loamy over clayey fine silty over clayey and clayey soils Small areas of slowly permeable calcareous soils on steeper slopes (SSEW 1983) Soils of the Wickham 2 Association are seasonally waterlogged and therefore imperfectly or poorly drained Wetness Class III or IV (SSEW 1984) Detailed field observations found soils similar in characteristics to those described here

AGRICULTURAL LAND CLASSIFICATION

20 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

21 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

Grade 2

22 Very good quality agricultural land is mapped in a number of places and is coincident with two soil types

23 Grade 2 land suffers from a minor soil droughtiness limitation associated with soils derived from the underlying Marlstone Rock Beds particularly in the central to western areas of the site These soils are well drained (Wetness Class I) non calcareous and are typical of the soil profile represented by Pit 7 (see Appendix II) Pit 7 has a medium clay loam topsoil which may contain up to 14% total medium soft sandstone (MSST) This overlies a similarly textured upper subsoil which may contain up to 28% MSST and passes to a similarly textured lower subsoil which may contain up to 48% MSST Moisture balance calculations derived from the interaction of these soil properties with the local climate indicate a reduction in the water available to a growing crop The resulting minor drought stress may affect crop consistency and level of yield

24 Elsewhere a minor soil wetness limitation restricts land quality to Grade 2 These soils are non calcareous and typically comprise stony medium clay loam topsoils which may contain up to 15% MSST These pass to heavy clay loam upper subsoils some of which are gleyed from

25cm and may contain up to 35% MSST Where these upper subsoils are not gleyed they overlie poorly structured clays between 51–75cm These slowly permeable clays if derived from the Marlstone Rock Bed are typical of Pit 5 (see Appendix II) The gleyed upper subsoil is typical of Pit 2 3 and 11 (see Appendix II) Soil profiles which are permeable but gleyed within 40cm due to a fluctuating groundwater or have a slowly permeable layer between 40–70cm are assigned to Wetness Class II This combination of soil wetness class topsoil texture and the prevailing field capacity level (160–158 days) gives rise to a land classification of Grade 2 A minor soil wetness limitation may affect the level of yield and the range of crops which can be grown In addition soil wetness may affect the ease at which mechanised operations can be carried out or the advisability of grazing by livestock

Subgrade 3a

25 Good quality agricultural land has been mapped over half of the site Both soil droughtiness and soil wetness are the principal limitations to land quality with soil workability in places

27 Soil droughtiness is restricted to soils derived from the Marlstone Rock Bed These soils are typically well drained (Wetness Class I) and non calcareous with variable stone contents over the Marlstone at moderate depths These soils comprise medium clay loam topsoils which contain between 10–15% total MSST These overlie similarly textured occasionally heavy clay loam upper subsoils which contain 10–40% MSST From about 40 to 95cm these soil profiles are impenetrable to the soil auger due to the underlying Marlstone and the dry conditions Pits 4 6 and 8 (see Appendix II) were dug to investigate these variably stony soils and are typical of the soils which are impenetrable over the MSST between 50–90cm In all three pits topsoils were medium clay loams with 18–21% total MSST These passed to similarly textured upper subsoils with 36–52% total MSST In the case of Pits 4 6 and 8 brashy MSST was encountered at depths of 68 50 and 90cm respectively In the case of Pit 4 this changed to a medium clay loam from 101cm The brashy MSST proved to be rootable Moisture balance calculations derived from the interaction of these soil properties with the local climate resulted in a more severe reduction in the water available to a growing crop The resulting drought stress may affect crop consistency and level of yield particularly in drier years

28 On the lower lying land to the north and mid to lower slopes in the east soil wetness with soil workability restricts land quality to Subgrade 3a These soils are derived from the Middle and Lower Lias deposits which are generally clayey in texture Over the central area of the site these soils comprise non calcareous medium clay loam or medium or heavy silty clay loam textures which are generally stoneless These overlie heavy clay loam or heavy silty clay loam upper subsoils some of which are gleyed from 25–65cm These pass to slowly permeable clay lower subsoils from 46–65cm Pit 2 and 3 (see Appendix II) is typical of these soils and proved the clay to be slowly permeable but with a moderate structure Soil profiles which are gleyed within 40cm and have a slowly permeable layer between 44–71cm are assigned to Wetness Class III Where soil profiles are not gleyed within 40cm the slowly permeable layer is in the range 35–48cm This combination of soil wetness class topsoil texture and the prevailing field capacity level (160–158 days) gives rise to a land classification of Subgrade 3a In the extreme west and east Pit 5 and 10 (see Appendix II) also represent soils which are assigned to Wetness Class III with Subgrade 3a appropriate In the extreme north east of the survey area are soils which are typical of Pit 11 (see Appendix II) These soils comprise non

calcareous stoneless heavy clay loam or heavy silty clay loam topsoils These pass to similarly textured or medium clay loam or medium silty clay loam stoneless upper subsoils In Pit 11 both these horizons are gleyed and porous which result is an upper subsoil with moderate structural characteristic In some of these soil profiles a slowly permeable clay or silty clay horizon is encountered at depth These soils are assigned to Wetness Class II but with a heavy topsoil texture soil workability restricts land quality to Subgrade 3a Soil wetness and soil workability may affect the flexibility of the land to grow a range of crops and impose restrictions on cultivations or grazing by livestock

Subgrade 3b

29 Moderate quality agricultural land is found mostly in the central to eastern part of the survey area Soil wetness gradient and soil droughtiness are the principal limitations with topsoil stones to a lesser extent

30 A significant soil wetness limitation effects soils in the east of the survey area In the north east there are clayey soils associated with alluvial deposits Pit 12 (see Appendix II) is typical of these soils Soils comprise non calcareous stoneless medium or heavy clay loam topsoils These overlie a poorly structured clay from 25–27cm which continues down the soil profile in excess of 50cm The affect of this slowly permeable clay is to impeded the movement of water down the profile These poor drainage characteristics have also caused gleying in the topsoil of some of these profiles which indicate that there are significant periods of waterlogging Consequently these soils are assigned to Wetness Class IV and the interaction of the topsoil texture and the prevailing field capacity level (160–158 days) results in Subgrade 3b land In the extreme east on the higher land surrounding the cemetery there are also soils which have similar drainage characteristics Pit 9 (see Appendix II) is typical of these soils which are derived from the Middle Lias deposits These soils are non calcareous and comprise stoneless heavy or medium clay loam topsoils These pass directly to a poorly structured clay or pass through a thin heavy clay loam or heavy silty clay loam upper subsoil to the clay beneath The slowly permeable clay horizons are within 40cm of the surface which results in these soils being assigned to Wetness Class IV Subgrade 3b In the extreme west of the site there are areas of flatter land where excess water has difficulty draining resulting in a significant soil wetness problem Subgrade 3b is appropriate Excessive soil wetness adversely affects seed germination and survival partly by a reduction in soil temperature and partly because of anaerobism It also inhibits the development of a good root system all of which can affect the range of crops that can be grown and the level of yield Soil wetness also influences the sensitivity of the soil to structural damage and is therefore a major factor in determining the number of days when the soil is in a suitable condition for cultivation trafficking by machinery or grazing by livestock

31 In the central to western half of the site there are areas where there is a significant soil droughtiness limitation where the Marlstone Rock Beds are in close proximity to the surface Pit 1 (see Appendix II) is typical of these soils Soils in this unit are well drained (Wetness Class I) and non calcareous comprising medium clay loam topsoils with up to 16% total MSST These overlie a similarly textured upper subsoil which contains up to 35% MSST These high stone concentrations act to impeded the auger from 30–35cm However in Pit 1 the upper subsoil extends down to 55cm with 68% total MSST From 55cm solid brashy MSST is encountered with rooting extending to 75cm Drought calculations based on these soil characteristics result in a significant shortfall in water available to plants In the local

climate this results in Subgrade 3b land The severity of the limitation will affect the level and consistency of yield particularly in drier years

32 Topsoil stoniness is also a problem on this site between Drayton Lodge and the Warwick Road Sieve measurements recorded stone volumes in the range 16–18% greater than 2cm which restricts land quality to Subgrade 3b A high stone content can increase production costs by causing extra wear and tear to implements and tyres Crop quality and crop impairment can also be impaired

33 Gradients in the range 7°–11° were recorded using an optical clinometer This degree of limitation has the effect of restricting land quality to Subgrade 3b These slopes can affect the safe and efficient use of machinery since most mechanised farm operations perform best on level ground Most of the land restricted by gradient occurs in the extreme west of the site on slopes falling to the Sor Brook however they also occur in the central area of the site close to the juncture of the Marlstone Rock Beds with the underlying Middle Lias

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SOURCES OF REFERENCE

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APPENDIX I

DESCRIPTIONS OF THE GRADES AND SUBGRADES

Grade 1 Excellent Quality Agricultural Land

Land with no or very minor limitations to agricultural use A very wide range of agricultural and horticultural crops can be grown and commonly includes top fruit soft fruit salad crops and winter harvested vegetables Yields are high and less variable than on land of lower quality

Grade 2 Very Good Quality Agricultural Land

Land with minor limitations which affect crop yield cultivations or harvesting A wide range of agricultural or horticultural crops can usually be grown but on some land of this grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops The level of yield is generally high but may be lower or more variable than Grade 1 land

Grade 3 Good to Moderate Quality Land

Land with moderate limitations which affect the choice of crops the timing and type of cultivation harvesting or the level of yield When more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2

Subgrade 3a Good Quality Agricultural Land

Land capable of consistently producing moderate to high yields of a narrow range of arable crops especially cereals or moderate yields of a wide range of crops including cereals grass oilseed rape potatoes sugar beet and the less demanding horticultural crops

Subgrade 3b Moderate Quality Agricultural Land

Land capable of producing moderate yields of a narrow range of crops principally cereals and grass or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year

Grade 4 Poor Quality Agricultural Land

Land with severe limitations which significantly restrict the range of crops and/or the level of yields It is mainly suited to grass with occasional arable crops (e g cereals and forage crops) the yields of which are variable In moist climates yields of grass may be moderate to high but there may be difficulties in utilisation The grade also includes very droughty arable land

Grade 5 Very Poor Quality Agricultural Land

Land with severe limitations which restrict use to permanent pasture or rough grazing except for occasional pioneer forage crops

APPENDIX II

SOIL DATA

Contents

Sample location map

Soil abbreviations explanatory note

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

SOIL PROFILE DESCRIPTIONS EXPLANATORY NOTE

Soil pit and auger boring information collected during ALC fieldwork is held on a computer database This uses notations and abbreviations as set out below

Boring Header Information

1 **GRID REF** national 100 km grid square and 8 figure grid reference

2 **USE** Land use at the time of survey The following abbreviations are used

ARA	Arable	**WHT**	Wheat	**BAR**	Barley
CER	Cereals	**OAT**	Oats	**MZE**	Maize
OSR	Oilseed rape	**BEN**	Field beans	**BRA**	Brassicae
POT	Potatoes	**SBT**	Sugar beet	**FCD**	Fodder crops
LIN	Linseed	**FRT**	Soft and top fruit	**FLW**	Fallow
PGR	Permanent pasture	**LEY**	Ley grass	**RGR**	Rough grazing
SCR	Scrub	**CFW**	Coniferous woodland	**OTH**	Other
DCW	Deciduous woodland	**BOG**	Bog or marsh	**SAS**	Set Aside
HTH	Heathland	**HRT**	Horticultural crops	**PLO**	Ploughed

3 **GRDNT** Gradient as estimated or measured by a hand held optical clinometer

4 **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
EXP Exposure limitation
CHEM Chemical limitation
FLOOD Flood risk
FROST Frost prone
EROSN Soil erosion risk
DIST Disturbed land

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 /o 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 /o clay) **H** Heavy (27 35 /o 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

SAMPLE NO	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	-WETNESS- CLASS	GRADE	-WHEAT AP	MB	POTS- AP	MB	M REL DRT	EROSN FLOOD	FROST EXP	CHEM DIST	ALC LIMIT		COMMENTS
1	SP45204380	WHT			0	90	2	2	140	42	109	23	1				WK	3A	HCL T SOIL
5	SP45304370	OTH	W	6	27	27	4	3B	80	18	83	3	3A				WE	3B	SEE 9P
7	SP45104360	WHT			29		2	2	152	54	114	28	1				WE	2	HCL T SOIL
10	SP45404360	POT	W	1	29	70	3	3A	119	21	117	31	2				WE	3A	H3 SEE 9P
13	SP45204350	POT	W	3	28	63	3	3A	96	0	108	22	3A				WE	3A	H3 SEE 9P
16	SP45504350	PGR			45	75	2	2	117	19	111	25	2				WE	2	
17	SP45004340	WHT			20	20	4	3B	76	22	80	-6	3B				WE	3B	SEE 12P
18	SP45104340	OTH	W	1	25		2	3A	152	54	112	26	1				WE	3A	SEE 11P
20	SP45304340	OTH	W	6	29	29	4	3B	78	20	81	5	3A				WE	3B	SEE 9P
22	SP44304330	WHT			46	46	3	3A	127	29	102	16	1				WE	3A	SEE 12P
26	SP44704330	WHT			28	28	4	3B	86	12	92	6	3A				WE	3B	SEE 12P
32	SP43204320	OTH			51	51	2	2	83	15	94	8	3A				WD	2	SEE 7P
34	SP43404320	OTH					1	1	84	14	90	4	3A				DR	3A	I72CM SEE8P
35	SP43804320	WHT	N	1	28	55	3	3B	90	-8	98	12	3A				WE	3B	
39	SP44204320	WHT					1	1	102	4	92	6	3A				DR	2	I85 STONES?
42	SP44504320	WHT			25		2	2	95	3	98	12	3A				WD	2	I75 STONES?
43	SP44604320	OTH			48	48	3	3A	95	3	105	19	3A				WE	3A	H3 SEE 12P
44	SP44704320	OTH			25	25	4	3B	86	12	96	10	3A				WE	3B	SEE 12P
45	SP44804320	OTH			27	27	4	3B	104	6	97	11	2				WE	3B	SEE 12P
46	SP44904320	WHT			26	26	4	3B	131	33	98	12	1				WE	3B	SEE 12P
48	SP45104320	PGR	W	3	45	45	3	3A	85	13	89	3	3A				WE	3A	H3 SEE 12P
49	SP45204320	OTH	W	6	53	85	1	1	135	37	104	18	1					1	GR2 STONES
50	SP45304320	OTH	W	3	35	35	4	3B	81	17	85	1	3A				WE	3B	SEE 9P
53	SP42904310	OSR					1	1	114	16	87	1	2				DR	2	SEE 7P
59	SP43504310	OTH					1	1	71	27	71	15	3B				DR	3B	I48 SEE 8P
60	SP43604310	WHT					1	1	70	28	71	15	3A				DR	3B	I52 SEE 8P
62	SP43804310	WHT	E	6	18	18	4	3B	76	22	81	5	3B				WE	3B	IMP60CM
65	SP44104310	WHT					1	1	130	32	94	8	2					1	GR2 STONES
66	SP44204310	WHT	N	2	55	55	3	3A	137	35	115	23	1				WE	3A	Q TS TEX?
66A	SP44254310	WHT	N	2	26	26	4	3B	104	2	91	1	3A				WE	3B	SEE 2P
67	SP44304310	WHT	N	4	25	50	3	3B	111	9	107	15	2				WE	3B	SEE 2P
68	SP44404310	WHT	N	2			1	1	125	23	117	25	2				DR	2	POSS 1
69	SP44504310	WHT	N	2	25	25	4	3B	81	21	85	7	3B				WE	3B	H2 SPL
70	SP44604310	WHT			25	50	3	3B	146	44	113	21	1				WE	3B	SEE 3P
71	SP44704310	WHT			30	50	3	3A	111	9	105	13	2				WE	3A	SEE 2P
72	SP44804310	WHT			30	65	3	3A	146	46	112	20	1				WE	3A	SEE 3P
73	SP44904310	WHT			25	50	3	3A	122	20	112	20	2				WD	3A	SEE 3P
74	SP45004310	WHT			30	45	3	3B	110	8	106	14	2				WE	3B	H3 SPL 2P
75	SP45104310	PGR			70	70	2	2	141	39	111	19	1				WE	2	H3 SPL
76	SP45204310	PGR	W	3	50		1	1	150	48	110	18	1					1	
78	SP45404310	OTH	S	4	47	85	1	1	136	38	112	26	1					1	
79	SP45504310	OTH	S	5	38	38	4	3B	125	27	100	14	2				WE	3B	SEE 9P

SAMPLE NO	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	-WETNESS- CLASS	GRADE	WHEAT AP	WHEAT MB	POTS- AP	POTS- MB	M REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
80	SP42434300	STB	W	6			1	1	136	38	100	14	1					1	
81	SP42504300	WHT	W	4			1	1	49	-49	49	37	3B				DR	3B	IMP30CM
82	SP42604300	OSR	W	4			1	1	116	18	99	13	2				DR	2	IMP99CM
84	SP42904300	WHT					1	1	67	31	67	19	3B				DR	3B	I41 SEE 6P
87	SP43104300	WHT					1	1	111	13	100	14	2				DR	2	I97 SEE 7P
90	SP43404300	OTH					1	1	122	24	97	11	2				DR	2	
94	SP43904300	WHT					1	1	50	-48	50	36	3B				DR	3B	I35 SEE 1P
98	SP44204300	WHT	N	5			1	2	106	4	113	21	3A				WE	2	DR75 ALSO WK
99	SP44304300	WHT	NW	5			1	2	110	8	118	18	2				WE	2	DR80 ALSO WK
100	SP44404300	WHT	N	4			1	2	62	40	60	32	3B				DR	3B	I45 HR SEE 1P
101	SP44504300	WHT	N	4	50		1	1	150	48	110	18	1					1	SEE 2P NO SPL
102	SP44604300	WHT	N	4	45	60	2	2	106	4	110	18	3A				WE	2	DR I80 DRY
103	SP44704300	WHT	N	2	30	60	3	3A	120	18	109	17	2				WE	3A	SEE 2P
104	SP44804300	WHT	E	2	45		1	1	123	21	113	21	2				DR	2	I90 DRY
105	SP44904300	WHT	E	3	35	80	2	3A	123	21	115	23	2				WE	3A	H3 FRIABLE 2P
106	SP45004300	WTL			30		2	2	133	31	113	21	1				WE	2	POSS3A Q TEX
107	SP45104300	PGR			28	38	4	3B	97	5	100	9	3A				WE	3B	SEE 2P
108	SP45204300	PGR	W	3			1	1	130	28	110	18	2					1	DRY/FRIABLE
109	SP45304300	OTH	S	4	27	54	3	3A	98	0	105	19	3A				WE	3A	SEE 10P
10P	SP45304320	OTH			27	55	3	3A	101	3	105	19	3A				WE	3A	PIT AT AB77
110	SP45404300	OTH	S	4	26	95	2	2	141	43	104	18	1				WE	2	
113	SP43504290	OSR	W	3			1	1	70	28	70	16	3B				DR	3B	SEE 5P 3A WE
115	SP43704290	OSR	W	2			1	1	74	24	77	9	3B				DR	3B	I58 SEE 6P
117	SP42904290	OSR					1	1	70	28	70	16	3B				DR	3B	I50 SEE 6P
11P	SP45204380	OTH			32		2	2A	150	52	110	24	1				WK	3A	PIT AT AB4
121	SP43304290	OTH					1	1	80	18	84	2	3A				DR	3A	I60 SEE 8P
123	SP43504290	OTH					1	1	101	3	92	6	3A				DR	3A	IMP95 GR2?
125	SP43704290	OTH					1	1	81	17	82	4	3A				DR	3A	I52 SEE 8P
127	SP43904290	WHT	NE	3			1	1	130	32	103	17	1					1	STONES?
129	SP44104290	WHT	N	4			1	1	52	46	52	34	3B				DR	3B	I35 SEE 1P
12P	SP45004340	OTH			0	25	4	3B	72	26	70	6	3B				WE	3B	PIT AT AB17
130	SP44204290	WHT	N	4			1	1	54	-48	54	38	3B				DR	3B	IMP35 HR 1P
13	SP44304290	WHT	N	4	45	45	3	3A	103	1	117	25	3A				WE	3A	I70 DRY DR70
132	SP44404290	WHT					1	1	53	49	53	39	3B				DR	3B	I35 H2 GRITTY
133	SP44504290	WHT	N	2	75		1	1	156	54	118	26	1					1	POSS 2 TEX/SPL
134	SP44604290	WHT	N	3	28		2	2	121	19	113	21	2				WE	2	I90DRY QU 1DR
135	SP44704290	WHT	NE	2	50	70	2	2	121	19	108	16	2				WE	2	SEE 2P QU 1DR
136	SP44804290	WHT	E	3	27	27	4	3B	94	8	97	5	3A				WE	3B	H2 PLASTIC
137	SP44904290	WHT	E	3	30	30	4	3B	86	14	98	6	3A				WE	3B	H2 PLASTIC
141	SP42804280	WHT	W	1			1	1	128	30	100	14	1					1	GR2 SEE 7P
144	SP43104280	STB					1	1	130	32	98	12	1					1	BORDER 2 7P
149	SP43604280	OTH					1	1	74	24	77	9	3B				DR	3B	I57 SEE 8P

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
151	SP43804280	OTH					1	1	86	12	91	5	3A				DR	3A	I63 SEE 8P
153	SP44104280	WHT	N	2			1	1	79	19	83	3	3A				DR	3A	I58 SEE 1P
154	SP44204280	WHT	N	2	80		1	1	141	39	115	23	1					1	FRIABLE/DRY
155	SP44304280	WHT					1	2	85	17	88	-4	3A				DR	3A	I55 SEE 1P
156	SP42504270	STB			75	75	2	2	140	42	116	30	1				WE	2	
158	SP42704270	PLO	W	5			1	1	88	10	97	11	3A				DR	3A	I70 SEE 4P
162	SP43104270	OSR	S	1			1	1	121	23	97	11	2				DR	2	
164	SP43304270	OSR					1	1	98	0	91	5	3A				DR	3A	I72 SEE 8P
165	SP43404270	OTH	SW	2			1	1	74	24	77	9	3B				DR	3B	I57 SEE 8P
166	SP43504270	PGR					1	1	48	50	48	38	3B				DR	3B	IMP32CM
168	SP43704270	OTH	W	1			1	1	69	29	70	16	3B				DR	3B	I52 SEE 8P
169	SP44204270	WHT					1	2	82	20	85	7	3A				DR	3A	I55 SEE 1P
171	SP42704260	PLO	W	4			1	1	91	7	96	10	3A				DR	3A	I75 SEE 4P
173	SP42904260	WHT					1	1	72	26	72	14	3B				DR	3B	I47 SEE 4P
177	SP43304260	OSR	S	5					43	55	43	43	4				DR	3B	3B STONES
180	SP42804250	OSR	W	2			1	1	122	24	97	11	2				DR	2	
185	SP42704240	WHT	W	6			1	1	72	26	72	14	3B				DR	3B	I48 SEE 4P
187	SP42904240	WHT	NW	2			1	1	50	48	50	36	3B				DR	3B	IMP30CM
197	SP42804220	WHT	W	2	44	44	3	3B	92	6	98	12	3A				WE	3B	I60 H3 SPL
1P	SP44404290	WHT	N	2			1	1	63	39	65	27	3B				DR	3B	IMP75 HR
2P	SP44704300	WHT			30	62	3	3A	114	12	119	27	2				WE	3A	H3 SPL
3P	SP44804310	WHT			26	60	3	3A	119	17	117	25	2				WE	3A	H3 SPL
4P	SP42904270	STB					1	1	98	0	86	0	3A				DR	3A	PIT AT AB60
5P	SP42504290	OSR	W	3	47	47	3	3A	86	12	97	11	3A				WE	3A	PIT AT AB113
6P	SP42904290	OSR					1	1	79	19	71	15	3A				DR	3A	PIT AT AB117
7P	SP43204310	OTH					1	1	115	17	91	5	2				DR	2	PIT AT AB57
8P	SP43304290	OTH					1	1	90	8	79	7	3A				DR	3A	PIT AT AB121
9P	SP45504320	OTH	S	3	25	25	4	3B	78	20	78	8	3A				WE	3B	PIT AT AB52

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	0-26	HCL	10YR42	10YR46	C	D		Y	0	0		0						
	26-90	MCL	25Y 63	10YR46	M	D		Y	0	0		0		M				
	90-120	C	25Y 61	10YR56	M	D		Y	0	0		0		P				Y
5	0-27	HZCL	25Y 44						0	0		0						
	27-60	ZC	05Y 52 63	10YR56	M	D		Y	0	0		0		P				Y
7	0-29	HCL	10YR42						0	0		0						
	29-65	MZCL	25Y 63	10YR46	C	D		Y	0	0		0		M				
	65-120	MZCL	25Y 62	10YR46	C	D		Y	0	0		0		M				
10	0-29	MZCL	10YR42						0	0		0						
	29-70	MZCL	25Y 64	10YR66	C	D		Y	0	0		0		M				
	70-90	ZC	25Y 52 64	10YR66	M	D		Y	0	0		0		P				Y
13	0-28	MCL	10YR42	10YR46	F	D			0	0		0						
	28-63	HCL	25Y 63 53	10YR56	M	D		Y	0	0		0		M				
	63-70	C	25Y 52	10YR56	M	D		Y	0	0		0		P				Y
16	0 35	MCL	10YR43						0	0		0						
	35-45	HCL	10YR43						0	0		0		M				
	45-75	HCL	25Y 53	10YR56	C	D		Y	0	0		0		M				
	75-90	C	25Y 63 64	10YR66	M	D		Y	0	0		0		P				Y
17	0-20	HCL	10YR42	10YR56	C	D		Y	0	0		0						
	20-60	C	25Y 63	10YR56	M	D		Y	0	0		0		P				Y
18	0-25	HZCL	10YR43						0	0		0						
	25-70	MCL	25Y 63	10YR56	M	D		Y	0	0		0		M				
	70-80	MCL	25Y 63	10YR56	M	D		Y	0	0		0		M				
	80-120	MCL	25Y 62 63	10YR56	M	D		Y	0	0		0		M				
20	0-29	HCL	10YR43						0	0		0						
	29-60	ZC	05Y 61	10YR56	M	D		Y	0	0		0		P				Y
22	0-28	MCL	10YR43						0	0		0						
	28-46	MCL	10YR54						0	0		0		M				
	46-73	C	25Y 53	10YR68	M	D		Y	0	0		0		P				Y
	73-97	C	25Y 53	10YR58	M	D		Y	0	0		0		P				Y
	97 120	C	25Y 63	10YR58	C	D		Y	0	0		0		P				Y
26	0-28	MCL	10YR42	10YR56	C	F		Y	0	0	MSST	5						
	28-60	C	25Y 63 62	10YR58	M	D		Y	0	0		0		P				Y
32	0-30	MCL	75YR43						0	0	MSST	15						
	30-51	HCL	75YR44						0	0	MSST	35		M				
	51 70	C	25Y 63	10YR68	M	D		Y	0	0	MSST	10		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
34	0-30	MCL	75YR43						4	0	MSST	15						
	30-72	MCL	75YR44 56						0	0	MSST	40		M				
35	0-28	HZCL	75YR43						0	0	SLST	10						
	28-44	C	25Y 53	10YR68	C	D		Y	0	0	MSST	10		P			N	
	44-55	C	25Y 53	10YR68	M	D		Y	0	0	MSST	35		M				
	55-75	C	25Y 62	10YR68	M	D		Y	0	0		0		P			Y	
39	0-23	MCL	10YR43						0	0	MSST	5						
	23-45	MCL	10YR44						0	0	MSST	10		M				
	45-67	SCL	10YR54						0	0	MSST	35		M				
	67-85	MSL	10YR54 64						0	0	MSST	10		M				
42	0-25	MCL	10YR42						0	0	MSST	2						
	25-52	HCL	25Y 63	10YR58	C	D		Y	0	0	MSST	10		M				
	52 75	SCL	25Y 63 72	10YR56	M	D		Y	0	0	MSST	25		M				
43	0-27	MCL	10YR42						0	0		0						
	27 48	HZCL	10YR43 44						0	0		0		M				
	48-70	C	25Y 53	10YR66	C	D		Y	0	0		0		P			Y	
44	0 25	MCL	10YR42						0	0		0						
	25-70	C	25Y 53	10YR66	M	D		Y	0	0		0		P			Y	
45	0-27	MCL	10YR42	10YR56	C	D		Y	0	0		0						
	27 95	C	25Y 53	10YR66	M	D		Y	0	0		0		P			Y	
46	0 26	MCL	10YR42	10YR56	C	D		Y	0	0	MSST	2						
	26 56	C	25Y 61	10YR58	M	D		Y	0	0		0		P			Y	
	56 90	MSL	25Y 62	75YR46	M	D		Y	0	0		0		M				
	90-120	HZCL	25Y 63	10YR58	M	D		Y	0	0		0		P			Y	
48	0-27	MCL	10YR44						0	0		0						
	27-45	HCL	25Y 54	10YR46	C	F		S	0	0		0		M				
	45-60	C	05Y 62	10YR46	M	D		Y	0	0		0		P			Y	
49	0-26	MCL	10YR43						0	0	MSST	5						
	26-53	HCL	10YR44						0	0	MSST	5		M				
	53-85	SCL	10YR63	10YR56	C	D		Y	0	0		0		M				
	85-120	C	25Y 72 64	10YR66	C	D		Y	0	0		0		P			Y	
50	0-30	HCL	10YR43	10YR46	C	D		S	0	0		0						
	30-35	HCL	10YR43	10YR46	C	D		S	0	0	MSST	30		M				
	35-60	C	25Y 63 71	10YR58	M	D		Y	0	0		0		P			Y	
53	0-30	MCL	75YR44						0	0	MSST	15						
	30-60	MCL	75YR44 46						0	0	MSST	30		M				
	60-120	HZCL	75YR46 56						0	0	MSST	40		M				

SAMPLE	DEPTH	TEXTURE	COLOUR	-MOTTLES- COL	ABUN	CONT	PED COL	GLEY	STONES 2	6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
59	0-26	MCL	75YR43						0	0	MSST	5							
	26-48	MCL	75YR44						0	0	MSST	25		M					
60	0-26	MCL	75YR43						0	0	MSST	15							
	26-52	MCL	75YR44 46						0	0	MSST	35		M					
62	0-18	HCL	10YR44						0	0	MSST	15							
	18-44	C	05Y 61	10YR68	M	D		Y	0	0		0		P			Y		
	44-60	C	25Y53 63	10YR58	C	D		Y	0	0	MSST	10		P			Y		
65	0-36	MCL	10YR44						0	0	MSST	10							
	36-65	MCL	75YR46						0	0	MSST	30		M					
	65-120	MCL	75YR46 56						0	0	MSST	15		M					
66	0-35	MZCL	10YR53						0	0		0							Q HZCL
	35-55	HZCL	10YR53						0	0		0		M					
	55-65	C	10YR53	10YR68	C	D		Y	0	0		0		M			Y		SEE 3P
	65-90	C	25Y 51 61	10YR68	M	D		Y	0	0		0		M			Y		
	90-110	SCL	25Y 61	10YR68	M	D		Y	0	0		0		M					
66A	0 26	MCL	10YR54						0	0	HR	2							
	26 65	C	25Y 53 63	10YR58	C	D		Y	0	0		0		M			Y		
	65-100	C	25Y 51 61	75YR46	C	D		Y	0	0		0		M			Y		SEE 2P
67	0-25	HZCL	10YR43						0	0	HR	2							SEE 2P
	25-50	HZCL	10YR52	10YR68	C	D		Y	0	0		0		M					
	50-90	C	25Y 61 51	10YR68	C	D		Y	0	0		0		M			Y		
68	0-30	MZCL	10YR54						0	0		0							SEE 2P
	30-90	HZCL	10YR53						0	0		0		M					
69	0-25	HZCL	10YR43						0	0		0							
	25-60	C	25Y 61	10YR68	M	D		Y	0	0		0		M			Y		SEE 2P
70	0-25	HZCL	10YR43						0	0	HR	2							
	25-50	HZCL	10YR53	10YR68	C	D		Y	0	0		0		M					
	50-90	C	10YR53	10YR58	M	D		Y	0	0		0		M			Y		SEE 3P
	90-120	SCL	10YR53	10YR58	C	D		Y	0	0		0		M					
71	0-30	MZCL	10YR53						0	0		0							
	30-50	HCL	10YR53	10YR68	C	D		Y	0	0		0		M			Y		
	50-90	HCL	25Y 61 62	10YR68	C	D		Y	0	0		0		M			Y		
72	0-30	MCL	10YR53						0	0		0							
	30-65	HCL	10YR53	10YR58	C	D		Y	0	0		0		M			Y		
	65-90	C	10YR53	10YR68	C	D		Y	0	0		0		M			Y		SEE 3P
	90-120	SCL	10YR53	10YR68	C	D		Y	0	0		0		M					

SAMPLE	DEPTH	TEXTURE	COLOUR	-MOTTLES- COL	ABUN	CONT	PED COL	GLEY	STONES 2	6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
73	0-25	MZCL	10YR53						0	0		0							
	25-50	HCL	10YR53	10YR58	C	D		Y	0	0		0		M					
	50-90	C	10YR53	10YR58	C	D		Y	0	0		0		M					SEE 3P
74	0-30	HZCL	10YR53						0	0		0							
	30-45	HCL	10YR53	10YR58	C	D		Y	0	0		0		M					
	45-90	C	25Y 53	75YR46	C	D		Y	0	0		0		M			Y		SEE 2P
75	0-35	MCL	10YR53						0	0		0							
	35-70	HCL	10YR53 54						0	0		0		M					
	70-120	C	25Y 53 63	10YR58	C	D		Y	0	0		0		M			Y		SEE 2P
76	0-30	MCL	10YR53						0	0		0							
	30 50	HCL	10YR54						0	0		0		M					
	50-85	HCL	10YR54	10YR56	C	F		Y	0	0		0		M					
	85-120	HCL	25Y 53 63	10YR58	C	D		Y	0	0		0		M					
78	0-27	MCL	10YR43						0	0		0							
	27-47	MCL	10YR44	10YR56	C	D		S	0	0		0		M					
	47-85	MZCL	25Y 64	10YR56	C	D		Y	0	0		0		M					
	85-120	HZCL	05Y 62	10YR66	M	D		Y	0	0		0		P			Y		
79	0-26	MCL	10YR43	10YR46	C	D		S	0	0		0							
	26 38	HZCL	10YR54	10YR56	C	D		S	0	0	MSST	5		M					
	38-120	C	25Y 62 71	10YR58	M	D		Y	0	0		0		P			Y		
80	0-27	MCL	75YR44						0	0	MSST	5							
	27 50	MCL	75YR44						0	0	MSST	10		M					
	50-88	HCL	75YR44						0	0	MSST	15		M					
	88-120	HCL	25Y 53						0	0	MSST	15		M					
81	0-25	MCL	75YR43						1	0	MSST	10							
	25-30	MCL	25Y 53						0	0	MSST	10		M					
82	0-28	MCL	75YR43						0	0	MSST	15							
	28-45	MCL	75YR44						0	0	MSST	30		M					
	45-60	MCL	75YR46 44						0	0	MSST	20		M					
	60 99	MCL	75YR46 56						0	0	MSST	10		M					
84	0-35	MCL	75YR43						1	0	MSST	10							
	35-41	MCL	75YR43 46						0	0	MSST	10		M					
87	0-34	MCL	75YR43						2	0	MSST	10							
	34-77	MCL	75YR46						0	0	MSST	30		M					
	77 97	C	75YR46						0	0	MSST	5		M					
90	0-28	MCL	75YR44						0	0	MSST	10							
	28-70	HCL	75YR44						0	0	MSST	30		M					
	70-120	MCL	75YR44						0	0	MSST	40		M					

SAMPLE	DEPTH	TEXTURE	COLOUR	-MOTTLES- COL	ABUN	CONT	PED COL	GLEY	STONES- 2	6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC
94	0-23	MCL	10YR43						7	0	MSST	15						
	23-35	MCL	75YR44						0	0	MSST	35		M				
98	0-28	HCL	10YR54						0	0	HR	2						
	28-75	MZCL	10YR54						0	0		0		M				
99	0-30	HCL	10YR53						0	0		0						
	30-45	HCL	10YR53 54						0	0		0		M				
	45-80	MCL	10YR54						0	0		0		M				
100	0-30	HCL	10YR54 53						6	2	HR	15						
	30-45	HCL	10YR54						0	0	HR	12		M				
101	0-30	MCL	10YR53						0	0		0						
	30-50	HCL	10YR53						0	0		0		M				
	50-80	HCL	10YR43	10YR56	C	D		Y	0	0		0		M				
	80-120	HZCL	25Y 53 63	10YR56	C	D		Y	0	0		0		M				
102	0-30	MCL	10YR53						0	0		0						
	30-45	HCL	10YR53	10YR58	F	F			0	0		0		M				
	45-60	HCL	10YR53	10YR58	C	D		Y	0	0		0		M				
	60 80	C	25Y 53 63	10YR68	C	D		Y	0	0		0		M		Y		SEE 2P
103	0 30	MZCL	10YR53						0	0	HR	2						
	30-60	HCL	10YR53	10YR56	C	D		Y	0	0		0		M				
	60 100	C	25Y 53	10YR58	C	D		Y	0	0		0		M		Y		SEE 2P
104	0-30	MZCL	10YR53						0	0		0						
	30-45	MCL	10YR53						0	0		0		M				
	45-80	MCL	10YR53	10YR58	C	D		Y	0	0		0		M				
	80-90	HCL	10YR53	10YR58	C	D		Y	0	0		0		M				
105	0-35	HZCL	10YR53						0	0		0						
	35-45	HCL	10YR52 53	10YR68	C	D		Y	0	0		0		M				
	45-80	MCL	10YR53	10YR58	C	D		Y	0	0		0		M				
	80-90	C	25Y 51 61	10YR58	C	D		Y	0	0		0		M		Y		TOO DEEP
106	0-30	MZCL	10YR53						0	0		0						
	30-100	HCL	10YR53	10YR58	C	D		Y	0	0		0		M				
107	0-28	MCL	10YR43						0	0		0						
	28-38	C	25Y 63	10YR68	C	D		Y	0	0		0		M				
	38-80	C	25Y 53	10YR58	M	D		Y	0	0		0		M		Y		SEE 2P
108	0-30	MCL	10YR53						0	0		0						
	30-50	MCL	10YR54						0	0		0		M				
	50 100	HCL	10YR53	10YR56	F	F			0	0		0		M				

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
109	0-27	MCL	10YR42						0	0		0						
	27 56	MCL	10YR63 53	10YR46	C	D		Y	0	0		0		M				
	56-75	C	25Y 71 72	10YR58	M	D		Y	0	0		0		P			Y	
10P	0-27	MCL	10YR43						0	0		0						
	27 55	C	25Y 53 63	10YR58	M	D		Y	0	0		0	MDCSAB	FR M	N		N	
	55-80	C	05Y 52 62	10YR58	M	D		Y	0	0		0	MDCAB	FM P	Y		Y	
110	0-26	MCL	10YR43						0	0		0						
	26-55	HCL	25Y 74 63	10YR56	M	D		Y	0	0	MSST	10		M				
	55-95	SCL	25Y 83	10YR56	M	D		Y	0	0		0		M				
	95-120	SC	25Y 62	10YR58	M	D		Y	0	0		0		P			Y	
113	0 28	MCL	75YR44						0	0	MSST	15						
	28-48	MCL	75YR44 46						0	0	MSST	25		M				
115	0-30	MCL	75YR44						0	0	MSST	15						
	30-58	MCL	75YR44 46						0	0	MSST	40		M				
117	0-30	MCL	75YR43						0	0	MSST	15						
	30-50	MCL	75YR44 46						0	0	MSST	35		M				
11P	0 32	HCL	10YR43	10YR56	C	F		S	0	0		0						
	32 120	HCL	25Y 53	10YR56	M	D		Y	0	0		0	MDCSAB	FR M			N	
121	0 36	MCL	75YR44						4	0	MSST	15						
	36 50	MCL	75YR44 46						0	0	MSST	30		M				
	50 60	MCL	75YR56						0	0	MSST	40		M				
123	0 27	MCL	75YR44						3	0	MSST	15						
	27 50	MCL	75YR44 46						0	0	MSST	30		M				
	50-95	MCL	75YR56						0	0	MSST	40		M				
125	0 32	MCL	10YR44						0	0	MSST	5						+5% SLST
	32 52	HCL	75YR46						0	0	MSST	10		M				
127	0-26	HCL	10YR43						0	0	MSST	10						
	26-55	HCL	75YR44						0	0	MSST	10		M				
	55-80	C	75YR46 56						0	0	MSST	35		M				
	80-120	SC	10YR44						0	0	MSST	25		M				
129	0-26	MCL	10YR43						6	0	MSST	15						
	26-35	MZCL	75YR44						0	0	MSST	30		M				
12P	0-25	HCL	10YR42	10YR56	C	D		Y	0	0		0						
	25-50	C	25Y 52	10YR56	M	D		Y	0	0		0	MDCAB	FM P	Y		Y	
130	0-30	HCL	10YR53 54						5	1	HR	15						
	30 35	HCL	10YR53						0	0	HR	10		M				

SAMPLE	DEPTH	TEXTURE	COLOUR	-MOTTLES- COL	ABUN	CONT	PED COL	GLEY	STONES 2	6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC
131	0-26	MCL	10YR53						0	0	HR	5						
	26-45	HCL	10YR53	10YR58	F	F			0	0		0		M				
	45-70	C	25Y 53 63	10YR56	C	D		Y	0	0		0		M			Y	SEE 2P
132	0-25	MCL	10YR53						5	2	HR	15						
	25-35	MCL	10YR54						0	0	HR	12		M				
133	0-30	MCL	10YR54						0	0		0						
	30-45	HCL	10YR53						0	0		0		M				
	45-75	MCL	10YR54						0	0		0		M				
	75-120	HCL	25Y 53 63	10YR68	C	D		Y	0	0		0		M				
134	0-28	MCL	10YR54						0	0	HR	2						
	28-90	MZCL	10YR54	10YR68	C	D		Y	0	0		0		M				
135	0 25	MCL	10YR53						0	0	HR	2						
	25-50	HCL	10YR53 54						0	0		0		M				
	50-70	HCL	10YR53 54	10YR58	C	D		Y	0	0		0		M				
	70-95	C	05Y 61 51	10YR58	C	D		Y	0	0		0		M			Y	SEE 2P
	95-100	MCL	10YR54	10YR58	C	D		Y	0	0		0		M				
136	0 27	HCL	10YR42						0	0		0						
	27 80	C	25Y 53	10YR58	C	D		Y	0	0		0		M			Y	SEE 2P
137	0-30	HCL	10YR42 43						0	0		0						
	30-70	C	25Y 53 61	10YR58	M	D		Y	0	0		0		M			Y	SEE 2P
141	0-32	MCL	75YR43						1	0	MSST	10						
	32 52	MCL	75YR43 46						0	0	MSST	20		M				
	52 120	MCL	75YR46						0	0	MSST	35		M				
144	0-31	MCL	75YR43						0	0	MSST	10						
	31-45	MCL	75YR44 46						0	0	MSST	30		M				
	45-90	HCL	75YR44 46						0	0	MSST	30		M				
	90-120	MCL	75YR46						0	0	MSST	20		M				
149	0-27	MCL	75YR43						0	0	MSST	15						
	27 57	MCL	75YR44 46						0	0	MSST	35		M				
151	0-35	MCL	75YR44						0	0	MSST	10						
	35-48	HCL	75YR44 46						0	0	MSST	20		M				
	48-63	MCL	75YR56						0	0	MSST	40		M				
153	0-28	MCL	10YR43						0	0	MSST	10						
	28-40	MCL	75YR44						0	0	MSST	20		M				
	40-58	MCL	10YR44						0	0	MSST	35		M				
154	0-30	MCL	10YR54						3	0	HR	6						
	30-60	HCL	75YR43	10YR68	F	F			0	0		0		M				
	60-80	C	75YR43	10YR58	F	F			0	0		0		M				
	80-120	C	75YR43	10YR58 68	C	D		Y	0	0		0		M				

SAMPLE	DEPTH	TEXTURE	COLOUR	-MOTTLES- COL	ABUN	CONT	PED COL	GLEY	STONES- 2	6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC
155	0-30	HCL	10YR54						3	0	HR	8						
	30-55	HCL	10YR53						0	0	HR	5		M				
156	0-28	MCL	10YR44						0	0		0						
	28-52	MCL	10YR44 46						0	0		0		M				
	52 75	HCL	10YR46						0	0	HR	5		M				
	75-120	C	10YR46	10YR56	C	D		Y	0	0	HR	5		P			Y	
158	0-35	MCL	75YR43						0	0	MSST	15						
	35-70	HCL	75YR44 46						0	0	MSST	30		M				
162	0-27	MCL	75YR43						0	0	MSST	15						
	27 67	HCL	75YR44						0	0	MSST	25		M				
	67 120	MCL	75YR56 46						0	0	MSST	40		M				
164	0-30	MCL	75YR43						0	0	MSST	20						
	30-92	MCL	75YR44 46						0	0	MSST	35		M				
165	0 28	MCL	75YR43						0	0	MSST	15						
	28-57	HCL	75YR44 46						0	0	MSST	35		M				
166	0-27	MCL	75YR43						0	0	MSST	15						
	27 32	MCL	75YR44 46						0	0	MSST	40		M				
168	0 25	MCL	75YR43						0	0	MSST	15						
	25-52	MCL	75YR44 46						0	0	MSST	35		M				
169	0-28	HCL	10YR54						3	0	HR	6						
	28-55	HCL	10YR54	10YR58	F	F			0	0	HR	15		M				
171	0-30	MCL	75YR44						0	0	MSST	15						
	30-55	MCL	75YR44 46						0	0	MSST	25		M				
	55-75	MCL	75YR46						0	0	MSST	35		M				
173	0-28	MCL	75YR43						1	0	MSST	10						
	28-47	MCL	25Y 53						0	0	MSST	20		M				
177	0-30	MCL	75YR44						17	0	MSST	25						
180	0-35	MCL	75YR44						0	0	MSST	15						
	35-55	MCL	75YR46						0	0	MSST	25		M				
	55-120	MCL	75YR46 56						0	0	MSST	40		M				
185	0-26	MCL	75YR43						1	0	MSST	10						
	26-48	MCL	75YR44						0	0	MSST	20		M				
187	0-30	MCL	75YR43						3	0	MSST	10						

SAMPLE	DEPTH	TEXTURE	COLOUR	-MOTTLES- COL	ABUN	CONT	PED COL	GLEY	-STONES- 2	6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
197	0-27	HZCL	75YR44						0	0	MSST	2							
	27-44	C	75YR44 46						0	0		0		M					
	44 60	C	25Y 73 63	10YR68	M	D		Y	0	0		0		P			Y		
1P	0-26	MCL	10YR44						5	2	HR	16							BRASHY SURFACE
	26 55	HCL	10YR54 53						0	0	MSST	68	MDCSAB	FR	M				
	55-75	MSST							0	0		0		M					IMP 75 HR
2P	0-30	MZCL	10YR44						0	0		0							
	30-62	HCL	10YR53	10YR58	C	D		Y	0	0		0	MDCSAB	FR	M				
	62-80	C	25Y 53 52	10YR56	C	D		Y	0	0		0	WKCAB	FR	M	Y		Y	
3P	0 26	MCL	10YR43						0	0		0							
	26 60	MCL	10YR52 42	10YR56	C	D		Y	0	0		0	MDCSAB	FR	M				
	60 90	C	10YR53	10YR56 58	C	D		Y	0	0		0	MDCAB	FR	M	Y		Y	
4P	0 29	MCL	75YR43						2	0	MSST	21							WET SIEVE
	29 68	MCL	75YR44						0	0	MSST	39	MDCSAB	FM	M	N			WET SIEVE
	68 101	MSST							0	0	MSST	72			M				WET SIEVE
	101 120	MCL	75YR44 46						0	0	HR	17			M				WET SIEVE
5P	0 28	MCL	75YR43						1	0	MSST	14							WET SIEVE
	28-47	MCL	75YR44						0	0	MSST	24	MDCSAB	FR	M				WET SIEVE
	47 70	C	10YR52	10YR66	C	F		Y	0	0	MSST	10	MDCPR	FM	P	Y		Y	
6P	0 28	MCL	75YR43 44						4	0	MSST	21							WET SIEVE
	28-50	MCL	75YR44 46						0	0	MSST	36	MDCSAB	FR	M	N			WET SIEVE
	50 120	MSST							0	0	MSST	72			P				MSST
7P	0 25	MCL	75YR43 44						1	0	MSST	14							WET SIEVE
	25-55	MCL	75YR46						0	0	MSST	28	MDCSAB	FR	M	N			WET SIEVE
	55-120	MCL	75YR44 46						0	0	MSST	48			M	N			WET SIEVE
8P	0-25	MCL	75YR44						2	0	MSST	18							WET SIEVE
	25-50	MCL	75YR46 44						0	0	MSST	52	MDCSAB	FR	M	N			WET SIEVE
	50 90	MCL	75YR44						0	0	MSST	55			M	N			WET SIEVE
	90 120	MSST							0	0		0			P				
9P	0 25	HCL	10YR43	10YR66	C	D		S	0	0		0							
	25-50	C	05Y 62	10YR66	M	D		Y	0	0		0	MDCAB	FM	P	Y		Y	