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Milton Keynes Local Plan
Land between Bow Brickhill and Woburn Sands

Agricultural Land Classification
Semi-Detailed Survey
ALC Map and Report

July 1997

Resource Planning Team
Eastern Region
FRCA Reading

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AGRICULTURAL LAND CLASSIFICATION REPORT

MILTON KEYNES LOCAL PLAN, LAND BETWEEN BOW BRICKHILL AND WOBURN SANDS

SEMI-DETAILED SURVEY

INTRODUCTION

1. This report presents the findings of a semi-detailed Agricultural Land Classification (ALC) survey of 166.3 hectares of land south of the railway line between Bow Brickhill and Woburn Sands south east of Milton Keynes in Buckinghamshire. The survey was carried out in July 1997.

2. The survey was undertaken by the Farming and Rural Conservation Agency (FRCA) on behalf of the Ministry of Agriculture, Fisheries and Food (MAFF), in connection with its statutory input to the Milton Keynes Local Plan. The results of this survey supersede any previous ALC information for this land. A survey was carried out on adjacent land to the north, also in 1997 (FRCA Ref: 0304/091/97).

3. The work was conducted by members of the Resource Planning Team in the Eastern Region of the FRCA. The land has been graded in accordance with the published MAFF ALC guidelines and criteria (MAFF, 1988). A description of the ALC grades and subgrades is given in Appendix I.

4. At the time of survey, some of the site was in permanent grass either for hay production or was being grazed by horses or sheep. The remaining agricultural areas were in wheat. Areas of the site mapped as 'Other Land' comprise tracks, buildings associated with stables, dwellings with private gardens, glasshouses, a covered reservoir and pumping station, open lakes from previous clay extraction, some woodland and impenetrable scrub, and a public recreation field.

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.

7. The fieldwork was conducted at an average density of approximately 1 boring every 2 hectares of agricultural land. A total of 82 borings and 5 soil pits were described.

Table 1: Area of grades and other land

Grade/Other land	Area (hectares)	% surveyed area	% site area
2	40.1	28.0	24.1
3a	80.2	56.0	48.2
3b	22.8	16.0	13.7
Other land	23.2	N/A	14.0
Total surveyed area	143.1	100	86.0
Total site area	166.3	-	100

8. The agricultural land on this site has been assigned to a range of grades from Grade 2, very good quality, to Subgrade 3b, moderate quality, with the majority being Subgrade 3a (good quality). The soils are derived from an underlying geology which includes solid deposits of Oxford Clay and drift deposits of head overlying Oxford Clay.

9. The land on the site has been classified principally on the basis of soil wetness / workability restrictions. Land assigned to Grade 2 has only minor limitations. Soils are derived from head drift deposits overlying Oxford Clay and as such they are imperfectly drained due to the presence of clayey subsoil horizons. These soils may also be slightly droughty due to the interaction between the prevailing climate, which is relatively dry, and soil properties.

10. The remaining agricultural land has been classified as Subgrades 3a and 3b on the basis of soil wetness / workability. Clayey subsoil horizons, which impede soil drainage, occur at moderate and shallow depth in the profile. The relative depth determines the severity of the soil wetness problem. The interaction between soil drainage status and the nature of the topsoil (ie texture and calcareousness) determines the ALC grade. Most of the land is classified as Subgrade 3a on this basis. However, where a heavier, non-calcareous, topsoil occurs, there is a further restriction on land quality as the soils remain wet for a longer period each year to the extent that Subgrade 3b is appropriate. Soil wetness has the effect of reducing the versatility of the land in terms of access by machinery (eg for cultivations or harvesting) and for grazing if damage to the soil is to be avoided. It also has the effect of reducing the level and consistency of yields.

FACTORS INFLUENCING ALC GRADE

Climate

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

12. 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 902 351	SP 914 355	SP 911 353
Altitude	m, AOD	80	85	90
Accumulated Temperature	day°C (Jan-June)	1401	1394	1389
Average Annual Rainfall	mm	629	626	628
Field Capacity Days	days	132	130	131
Moisture Deficit, Wheat	mm	108	107	107
Moisture Deficit, Potatoes	mm	100	99	98
Overall climatic grade	N/A	Grade 1	Grade 1	Grade 1

13. 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.

14. 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 (AT0, January to June), as a measure of the relative warmth of a locality.

15. The combination of rainfall and temperature at this site mean that there is no overall climatic limitation. Other local climatic factors such as exposure and frost risk are also believed not to affect the site. The site is climatically Grade 1.

Site

16. The site lies at an altitude between approximately 80 and 95m AOD at the base of the Greensand ridge around Woburn. The highest land is located towards the south east of the site, the lowest along the north west boundary, sloping overall from south east to north west. The slope gradients within the site are slight and are not sufficient to adversely affect land quality. Other site factors such as microrelief and flooding are also not significant.

Geology and soils

17. The published geological information for the site (BGS, 1971) shows the site to be underlain by head drift deposits overlying Oxford Clay and Oxford Clay where the drift is thin or absent.

18. The most detailed published soils information for the site (SSEW, 1983 and 1984) shows it to comprise soils of the Oxpasture association. These are described as, 'Fine loamy over clayey and clayey soils with slowly permeable subsoils and slight seasonal waterlogging. Some slowly permeable seasonally waterlogged clayey soils.' (SSEW, 1983). Soils of this broad description were found throughout the site.

AGRICULTURAL LAND CLASSIFICATION

19. 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.

20. 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

21. Land of very good quality has been mapped towards the west of the site in a single map unit. Soil wetness and soil droughtiness are commonly equally limiting in these areas. The soils in this area are characterised by the soil pits, 3P and 4P (see Appendix II).

22. The soils in this area are of a single overall type. They comprise a very slightly stony to slightly stony medium sandy silt loam, medium sandy loam, sandy clay loam, or occasionally medium clay loam topsoil. This commonly passes to slightly stony upper subsoil horizons in the same textural range, which commonly show some evidence of seasonal waterlogging. This horizon was occasionally impenetrable to the soil auger, at the time of survey, due to the combination of dry soil conditions and the high iron content which combine to create a cemented layer. The lower subsoil horizons occur at variable depths (between 30 and 95cm) and comprise a stoneless, gleyed and slowly permeable clay which becomes calcareous at depth. On occasion, the upper subsoil horizon(s) was absent, the topsoil lying directly over the slowly permeable clay.

23. Given the local climate, these soil drainage characteristics equate to Wetness Classes II and III and appropriately Grades 1 and 2 on the basis of minor soil wetness. Soil wetness restricts the versatility of the land by limiting the opportunities for cultivation or grazing without damaging the soil, as well as restricting plant growth and the level and consistency of yields. The combination of soil characteristics and the relatively dry local climate also leads these areas to be slightly droughty to the extent that Grade 2 is appropriate. Soil droughtiness may affect plant growth and yield potential, as the supply of available water may be deficient, especially in drier years. Occasional observations of both slightly better and slightly worse quality have been included in this unit as at this scale of survey they were of too few a number and too scattered a distribution to map separately.

Subgrade 3a

24. Land of good quality has been mapped across the majority of the site. The principal limitation to land quality in these areas is soil wetness. Soils are characterised by the soil pits, 1P, 2P and 5P (see Appendix II).

25. The soils are of a single overall type. They comprise a very slightly stony, occasionally gleyed, non-calcareous medium clay loam, sandy clay loam or calcareous heavy clay loam to clay topsoil. The upper subsoil is either similar in terms of texture and stoniness or comprises a non-calcareous heavy clay loam. All the observed topsoils show some evidence of seasonal waterlogging. This horizon was occasionally impenetrable to the soil auger, especially towards the east of the site. This was due to a significant iron content in this horizon which caused a cemented layer to be present during the dry conditions at the time of the survey.

Below this, the lower subsoil comprises calcareous and non-calcareous, poorly structured, gleyed and slowly permeable clay horizons. Given the local climate and these imperfectly drained soils Wetness Class III is appropriate, which, when combined with the workability status of the topsoils leads to Subgrade 3a being assigned on the basis of a soil wetness limitation.

26. Occasional observations of both a slightly better and slightly worse quality have been included in this map unit as they were of too scattered a distribution to be mapped separately at this scale of survey.

Subgrade 3b

27. Land of moderate quality has been mapped in two separate units, located towards the north west and centre of the site. The principal limitation in these areas is soil wetness, with topsoil workability as an additional factor.

28. The soils in these parts of the site are of a single overall type. They comprise a stoneless to very slightly stony, non-calcareous, heavy clay loam or clay topsoil, which was occasionally gleyed. This passes to a similarly stony, gleyed, poorly structured and slowly permeable clay subsoil, which commonly became calcareous at depth. Given the relatively dry local climate, these soils are appropriately placed in Wetness Class III and Subgrade 3b, when the non-calcareous heavy textured topsoils are taken into account. The limitations caused by soil wetness are detailed above in para. 23. In these map units they are of a severe nature, principally because the topsoil is heavier and non-calcareous and therefore includes an additional workability component. These factors significantly restrict access to the land for cultivation and further reduce the flexibility of land use and the level and consistency of yields.

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SOURCES OF REFERENCE

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Met. Office (1989) *Climatological Data for Agricultural Land Classification.* Met. Office: Bracknell.

Soil Survey of England and Wales (1983) *Soils of South East England. 1:250 000 Scale.* SSEW: Harpenden.

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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:

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 : MILTON KEYNES BOW BRICK Pit Number : 1P

Grid Reference: SP91493555 Average Annual Rainfall : 626 mm
Accumulated Temperature : 1394 degree days
Field Capacity Level : 130 days
Land Use : Permanent Grass
Slope and Aspect : 1 degrees N

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 25	MCL	10YR42 43	0	2	HR					
25- 36	HCL	10YR53 00	0	2	HR	M	MDCSAB	FR	M	
36- 56	C	25Y 52 00	0	0		M	MDCAB	FM	P	Y
56- 70	C	25Y 51 00	0	0		M	MDCAB	VM	P	Y

Wetness Grade : 3A Wetness Class : III
Gleying : 25 cm
SPL : 36 cm

Drought Grade : 3A APW : 094mm MBW : -13 mm
APP : 106mm MBP : 7 mm

FINAL ALC GRADE : 3A
MAIN LIMITATION : Wetness

SOIL PIT DESCRIPTION

Site Name : MILTON KEYNES BOW BRICK Pit Number : 2P

Grid Reference: SP91733562 Average Annual Rainfall : 626 mm
Accumulated Temperature : 1394 degree days
Field Capacity Level : 130 days
Land Use : Permanent Grass
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 23	MCL	10YR43 42	0	5	HR					
23- 44	C	05Y 51 53	0	5	HR	M	MDCPR	VM	P	
44- 65	SCL	25Y 52 51	0	10	HR	M			M	
65- 80	C	25Y 61 00	0	0		M			P	Y

Wetness Grade : 3A Wetness Class : III
Gleying : 23 cm
SPL : 23 cm

Drought Grade : 3A APW : 098mm MBW : -9 mm
APP : 101mm MBP : 2 mm

FINAL ALC GRADE : 3A
MAIN LIMITATION : Wetness

SOIL PIT DESCRIPTION

Site Name : MILTON KEYNES BOW BRICK Pit Number : 3P

Grid Reference: SP90403490 Average Annual Rainfall : 626 mm
Accumulated Temperature : 1394 degree days
Field Capacity Level : 130 days
Land Use : Cereals
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 30	MSZL	10YR42 00	0	3	HR					
30- 63	SCL	10YR42 00	0	5	HR	C	MDCSAB	FM	M	
63- 95	SCL	10YR53 00	0	10	HR	M	MDCSAB	FM	M	
95-120	C	05Y 52 00	0	2	HR	M		FM	P	

Wetness Grade : 1 Wetness Class : II
Gleying : 30 cm
SPL : 95 cm

Drought Grade : 1 APW : 143mm MBW : 36 mm
APP : 112mm MBP : 13 mm

FINAL ALC GRADE : 1
MAIN LIMITATION :

SOIL PIT DESCRIPTION

Site Name : MILTON KEYNES BOW BRICK Pit Number : 4P

Grid Reference: SP90103503 Average Annual Rainfall : 626 mm
Accumulated Temperature : 1394 degree days
Field Capacity Level : 130 days
Land Use : Cereals
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 24	MSZL	10YR42 00	0	5	HR					
24- 41	C	05Y 62 63	0	0		M	MDCAB	FM	P	
41- 80	C	05Y 52 00	0	5	SLST	M	STCAB	FM	P	Y

Wetness Grade : 2 Wetness Class : III
Gleying : 24 cm
SPL : 24 cm

Drought Grade : 3A APW : 097mm MBW : -10 mm
APP : 102mm MBP : 3 mm

FINAL ALC GRADE : 2
MAIN LIMITATION : Soil Wetness/Droughtiness

SOIL PIT DESCRIPTION

Site Name : MILTON KEYNES BOW BRICK Pit Number : 5P

Grid Reference: SP91073556 Average Annual Rainfall : 626 mm
Accumulated Temperature : 1394 degree days
Field Capacity Level : 130 days
Land Use : Cereals
Slope and Aspect : 1 degrees N

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 21	SCL	10YR42 00	0	3	HR					
21- 43	SCL	25Y 42 52	0	10	HR	M	MDCSAB	FM	M	
43-120	C	05Y 52 00	0	5	HR	M	MDCAB	VM	P	

Wetness Grade : 3A Wetness Class : III
Gleying : 21 cm
SPL : 43 cm

Drought Grade : 3A APW : 104mm MBW : -3 mm
APP : 102mm MBP : 3 mm

FINAL ALC GRADE : 3A
MAIN LIMITATION : Wetness

SAMPLE NO.	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	--WETNESS-- CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	M.REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1	SP91903620	CER			48	81	1	1	147	40	114	15	1					1	
1P	SP91493555	PGR	N	1	25	36	3	3A	094	-13	106	7	3A				WE	3A	PIT 70 DR2-120
2	SP91603610	PGR			25	55	3	3A		0		0					WE	3A	
2P	SP91733562	PGR			23	23	3	3A	098	-9	101	2	3A				WE	3A	PIT 55 AUG 80
3	SP91813611	CER	SE	2	0	30	3	3A		0		0					WE	3A	
3P	SP90403490	CER			30	95	2	1	143	36	112	13	1					1	PIT 90 AUG 120
4	SP91853609	CER			0	25	3	3A		0		0					WE	3A	
4P	SP90103503	CER			24	24	3	2	097	-10	102	3	3A				WD	2	PIT 80 DR2-120
5	SP91503600	PGR			0	30	3	3B		0		0					WE	3B	HCL TS
5P	SP91073556	CER	N	1	21	43	3	3A	104	-3	102	3	3A				WE	3A	PIT 70 AUG 90
6	SP91703600	PGR			30	30	3	3B		0		0					WE	3B	C TS
7	SP91903600	CER			28	28	3	3B		0		0					WE	3B	HCL TS
8	SP92103600	CER	NW	1	25	25	3	3B		0		0					WE	3B	HCL TS
9	SP91203590	WHT			28	28	3	3B	114	7	105	6	2				WE	3B	HCL TS
10	SP91403590	PGR			28	28	3	3A		0		0					WE	3A	
11	SP91573599	LEY			38	38	3	3A		0		0					WE	3A	SL GLEY 25
12	SP92003590	CER			25	25	3	3A		0		0					WE	3A	IMP 75
13	SP92203590	CER			0		2	2	068	-39	068	-31	3B				WE	3A	IMP 40 SEE 2P
14	SP91103580	WHT	E	1	0		3	3B	061	-46	061	-38	3B				WE	3B	IMP 35 HCL TS
15	SP91203580	WHT			30	30	3	3B		0		0					WE	3B	IMP 70 HCL TS
16	SP91303580	PGR			30	30	3	3A	138	31	105	6	2				WE	3A	
17	SP91503580	PGR	N	1	25	25	3	3A		0		0					WE	3A	
18	SP91703580	PGR	NW	2	48	48	2	2	131	24	108	9	2				WD	2	SL GLEY 25
19	SP91903580	PGR	E	2	30	30	3	3B		0		0					WE	3B	HCL TS
20	SP92103580	CER	SW	2			1	1	077	-30	077	-22	3B				WE	3A	IMP45 SEE 2P
21	SP92303580	CER	S	2	20	20	3	3A		0		0					WE	3A	
22	SP91003570	WHT	E	1	35		2	3A		0		0					WE	3A	IMP 50 HCL TS
23	SP91103570	WHT	E	1	30	50	3	3A	091	-16	102	3	3A				WE	3A	IMP 70
24	SP91203570	WHT	E	1	25		2	3A	069	-38	069	-30	3B				WE	3B	IMP40 HCLTS 5P
25	SP91403570	PGR	N	1	30	45	3	3A		0		0					WE	3A	
26	SP91573568	PGR	N	1	30	30	3	3A		0		0					WE	3A	
27	SP91803570	PGR					1	1	053	-54	053	-46	4				WE	3A	IMP 30 SEE 2P
28	SP92003570	CER			0	30	3	3A		0		0					WE	3A	
29	SP92203570	CER	W	2	30	30	3	3B		0		0					WE	3B	HCL TS
30	SP90703560	WHT	SW	1	25		2	2	068	-39	068	-31	3B				WE	3B	IMP40 HCLTS 5P
31	SP90903560	WHT					1	2	053	-54	053	-46	4				WE	3B	IMP30 HCLTS 5P
32	SP91103560	WHT	E	1			1	2	054	-53	054	-45	4				WE	3B	IMP30 HCLTS 5P
33	SP91203560	PGR	NE	1	28	43	3	2	134	27	111	12	2				WD	2	
34	SP91313557	PGR			30		2	2	156	49	118	19	1				WE	2	
35	SP91493555	PGR	N	1	30	30	3	3A		0		0					WE	3A	1P LOCATION
36	SP91733562	PGR	SW	2	28		2	2	054	-53	054	-45	4				WE	3A	IMP 32 SEE 2P
37	SP91903560	PGR	S	2	21	21	3	3B		0		0					WE	3B	HCL TS

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
38	SP90603550	PGR			65	65	2	2	130	23	105	6	2				WD	2	SL GLEY 30
39	SP90803550	WHT	NW	1	28	50	3	3A	126	19	102	3	2				WE	3A	
40	SP91013547	PGR			33	55	3	3A		0		0					WE	3A	
41	SP91143553	PGR	NE	2	28	28	3	3A		0		0					WE	3A	
42	SP91203550	PGR	E	1	23	23	3	3B		0		0					WE	3B	HCL TS
43	SP91403550	PGR	N	1	33	33	3	3B		0		0					WE	3B	HCL TS
44	SP91623551	PGR	N	1	33	33	3	3A		0		0					WE	3A	
45	SP91753553	LEY	SW	2	0	20	3	3A		0		0					WE	3A	
46	SP90503540	CER			30	45	3	2	127	20	105	6	2				WD	2	
47	SP90703540	PGR					1	1	124	17	105	6	2				DR	2	IMP100 SLGL35
48	SP90913537	CER	NW	2	50	50	2	2		0		0					WE	2	SL GLEY 30
49	SP91103540	PGR			23	23	3	3B		0		0					WE	3B	HCL TS
50	SP91323539	PGR	W	1	30	30	3	3A		0		0					WE	3A	IMP 60
51	SP91503540	PGR	N	1	30	30	3	3A		0		0					WE	3A	
52	SP90403530	CER			28	28	3	2	107	0	112	13	3A				WD	2	DR 2 TO 120
53	SP90603530	PGR			33	55	3	3A	109	2	106	7	3A				WE	3A	DR TO 90
54	SP90803530	LEY			41	75	2	3A	146	39	113	14	1				WE	3A	SL GLEY 32
55	SP91003530	CER	NW	1	42	42	3	3A		0		0					WE	3A	SL GLEY 30
56	SP91413531	PGR	W	1	25	25	3	3A		0		0					WE	3A	IMP 70
57	SP90303520	CER			55		1	1	132	25	124	25	2				DR	2	IMP 90
58	SP90503520	CER			30		2	1	099	-8	102	3	3A				DR	2	IMP 55 SEE 3P
59	SP90703520	HAY	E	2	25	45	3	3A		0		0					WE	3A	
60	SP90903520	HAY	SW	2	20	45	3	3A	131	24	108	9	2				WE	3A	
61	SP91103520	CER			0	30	3	3A		0		0					WE	3A	
62	SP91263521	PGR			30	45	3	3A		0		0					WE	3A	
63	SP90203510	CER			60		1	1	114	7	123	24	2				DR	2	IMP 70
64	SP90403510	CER			30	40	3	3A		0		0					WE	3A	IMP 75
65	SP90603510	PGR			27	42	3	3A		0		0					WE	3A	
66	SP90803510	LEY			25	35	3	3A		0		0					WE	3A	IMP 75
67	SP90003500	PGR			30	50	3	2	132	25	109	10	2				WD	2	
68	SP90103503	CER			30	30	3	2	136	29	113	14	2				WD	2	SEE 4P
69	SP90303497	CER			60	60	2	1	115	8	123	24	2				DR	2	IMP 75
70	SP90503503	PGR			25	25	3	3A		0		0					WE	3A	
71	SP90703500	PGR			25	45	3	2		0		0					WE	2	IMP 80
72	SP89803490	PGR			0	80	2	2	127	20	100	1	3A				WE	3A	CALC C TS
73	SP89993492	PGR			0	50	3	3A	118	11	097	-2	2				WE	3A	CALC C TS
74	SP90203490	PGR			25	55	3	2	128	21	104	5	2				WD	2	
75	SP90403490	WHT			30		2	1	109	2	110	11	3A				DR	2	IMP 80 DR2-120
76	SP90603490	PGR	W	2	35	35	3	3A		0		0					WE	3A	
77	SP90803490	PGR	N	1	35	35	3	2	129	22	117	18	2				WE	2	DR TO 100
78	SP89703480	PGR			28	65	2	2	138	31	114	15	1				WE	2	
79	SP89903480	PGR			30	45	3	2	113	6	104	5	2				WD	2	

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
80	SP90103480	PGR			0	40	3	2		0		0					WE	2	
81	SP90303480	PGR			60	95	1	1	140	33	109	10	2				DR	2	
82	SP90593473	PGR	NW	2	30	30	3	3B		0		0					WE	3B	HCL TS

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	0-30	mcl	10YR42 00						0	0		0							SANDY
	30-48	mcl	10YR53 54				00MN00 FE		0	0	HR	5		M					SCL BORDER
	48-66	scl	25Y 63 64	10YR46 56	C		00MN00 00	Y	0	0		0		M					
	66-81	scl	25Y 53 00	10YR58 00	M		00MN00 00	Y	0	0		0		M					
	81-120	scl	25Y 71 61	10YR58 00	M		00MN00 00	Y	0	0		0		P			Y		SLIGHTLY SANDY
1P	0-25	mcl	10YR42 43						0	0	HR	2							
	25-36	hcl	10YR53 00	10YR58 00	M		00MN00 00	Y	0	0	HR	2	MDCSAB FR	M					SLIGHTLY SANDY
	36-56	c	25Y 52 00	25Y 66 00	M		00MN00 00	Y	0	0		0	MDCAB FM	P	Y		Y	Y	
	56-70	c	25Y 51 00	10YR68 00	M		00MN00 00	Y	0	0		0	MDCAB VM	P	Y		Y	Y	PIT 70
2	0-25	c	25Y 42 52	10YR66 00	F				0	0	SLST	3						Y	
	25-55	scl	25Y 52 00	75YR56 00	M		00FE00 00	Y	0	0	HR	5		M				Y	BORDER HCL
	55-80	c	25Y 61 00	10YR58 00	M			Y	0	0		0		P			Y	Y	
2P	0-23	mcl	10YR43 42						0	0	HR	5							IRONSTONE
	23-44	c	05Y 51 53	10YR58 00	M		00FE00 00	Y	0	0	HR	5	MDCPR VM	P	Y		Y		IRONSTONE
	44-65	scl	25Y 52 51	10YR58 00	M		00MN00 00	Y	0	0	HR	10		M					HARD FE PAN
	65-80	c	25Y 61 00	10YR58 00	M				0	0		0		P			Y	Y	PIT 55 AUG 80
3	0-30	hcl	10YR42 51	10YR56 00	C		00FE00 00	Y	0	0	HR	2						Y	BORDER C
	30-70	c	25Y 52 53	10YR56 00	C		00MN00 00	Y	0	0	HR	2		P			Y	Y	+2% SLST
3P	0-30	mszl	10YR42 00						0	0	HR	3							IRONSTONE & FLINT
	30-63	scl	10YR42 00	10YR46 56	C		00MN00 00	Y	0	0	HR	5	MDCSAB FM	M					IRONSTONE
	63-95	scl	10YR53 00	10YR58 68	M		00MN00 00	Y	0	0	HR	10	MDCSAB FM	M					IRONSTONE
	95-120	c	05Y 52 00	10YR58 00	M		00MN00 00	Y	0	0	HR	2	FM	P	Y		Y		SLIGHTLY SANDY
4	0-25	c	25Y 41 00	10YR56 00	C			Y	0	0	SLST	2						Y	
	25-70	c	25Y 61 51	10YR58 00	M		00MN00 FE	Y	0	0	SLST	2		P			Y	Y	
4P	0-24	mszl	10YR42 00						0	0	HR	5							IRONSTONE
	24-41	c	05Y 62 63	10YR56 58	M		00MN00 00	Y	0	0		0	MDCAB FM	P	Y		Y		
	41-80	c	05Y 52 00	10YR58 00	M			Y	0	0	SLST	5	STCAB FM	P	Y		Y	Y	PIT 80
5	0-30	hcl	10YR42 00	10YR46 00	C			Y	0	0	HR	2							
	30-50	c	25Y 53 52	10YR58 00	M		00MN00 00	Y	0	0		0		P			Y		
	50-70	c	25Y 61 00	10YR58 00	M			Y	0	0		0		P			Y	Y	
5P	0-21	scl	10YR42 00						0	0	HR	3							IRONSTONE & FLINTS
	21-43	scl	25Y 42 52	10YR58 00	M		00MN00 FE	Y	0	0	HR	10	MDCSAB FM	M					IRONSTONE
	43-120	c	05Y 52 00	75YR58 00	M		00FE00 00	Y	0	0	HR	5	MDCAB VM	P	Y		Y		FESTONE CALC 80+
6	0-30	c	10YR41 00	10YR56 00	F				0	0		0							
	30-70	c	25Y 51 00	75YR56 00	M		00MN00 00	Y	0	0		0		P			Y		
7	0-28	hcl	10YR42 51	10YR46 00	F				0	0	HR	2							
	28-55	c	05Y 41 52	10YR58 00	M		00MN00 00	Y	0	0	HR	2		P			Y		
	55-70	c	25Y 62 53	10YR58 00	M		00MN00 00	Y	0	0		0		P			Y		

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
8	0-25	hcl	25Y 42 00	10YR46 00	F				0	0	HR	2							
	25-70	c	25Y 51 53	10YR58 00	C		00MN00 00	Y	0	0	SLST	2		P			Y		+2% HR CALC 60+
9	0-28	hcl	10YR33 00						0	0		0							
	28-55	c	25Y 53 52	10YR58 00	C		00MN00 FE	Y	0	0		0		P			Y		
	55-100	c	25Y 44 00	75YR58 00	M		00MN00 00	Y	0	0		0		P			Y		
10	0-28	mcl	10YR33 43	10YR46 00	F				0	0	HR	2							SLIGHTLY SANDY
	28-45	c	10YR52 53	10YR56 00	C		00MN00 00	Y	0	0		0		P			Y		
	45-70	c	25Y 61 00	10YR58 00	M			Y	0	0	SLST	5		P			Y	Y	
11	0-25	mcl	10YR41 42						0	0	HR	2							
	25-38	hcl	25Y 54 00	10YR56 00	C		00MN00 FE	S	0	0		0		M					SL SANDY SL GLEYED
	38-70	c	25Y 51 53	10YR58 00	M			Y	0	0		0		P			Y	Y	
12	0-25	mcl	10YR42 00				00MN00 00		0	0	HR	2							
	25-40	c	25Y 52 64	10YR56 00	C		00MN00 00	Y	0	0	HR	5		P			Y		
	40-50	c	25Y 53 61	10YR58 00	M			Y	0	0	HR	5		P			Y	Y	
	50-60	hzcl	05Y 71 00	25Y 68 00	M			Y	0	0		0		P			Y	Y	
	60-75	c	05Y 51 61	10YR56 00	M		00MN00 00	Y	0	0	SLST	2		P			Y	Y	IMP STONES 75
13	0-30	mcl	10YR42 51	10YR56 00	C			Y	0	0	HR	2							
	30-40	c	25Y 52 53	10YR58 00	M		00FE00 00	Y	0	0	HR	5		M					IMP IRONSTONE 40
14	0-27	hcl	10YR43 53	10YR56 00	C			Y	0	0		0							SLIGHTLY SANDY
	27-35	c	25Y 53 52	10YR58 00	C		00MN00 00	Y	0	0		0		M					IMP IRONSTONE 35
15	0-30	hcl	10YR43 42						0	0	HR	2							
	30-70	c	25Y 42 52	10YR58 00	M		00MN00 FE	Y	0	0	HR	10		P			Y		IMP IRONSTONE 70
16	0-30	mcl	10YR32 42	10YR56 00	F		00MN00 00		0	0	HR	2							
	30-85	c	10YR53 00	10YR56 00	C		00MN00 00	Y	0	0		0		P			Y		
	85-120	scl	25Y 64 74	75YR58 00	C		00MN00 00	Y	0	0		0		M			Y		BORDER MSL
17	0-25	mcl	10YR42 00						0	0	HR	2							
	25-55	c	25Y 51 53	10YR58 00	C		00MN00 FE	Y	0	0	HR	10		P			Y		IRONSTONE
	55-80	c	25Y 61 00	10YR58 00	M			Y	0	0		0		P			Y	Y	
18	0-25	mcl	10YR42 00						0	0		0							
	25-48	hcl	25Y 54 00	25Y 68 00	C		00FE00 00	S	0	0	HR	5		M				Y	SL SANDY SL GLEYED
	48-120	c	25Y 61 53	10YR56 58	M		00MN00 00	Y	0	0	SLST	3		P			Y	Y	
19	0-30	hcl	10YR42 00	10YR46 00	F				0	0		0							
	30-50	c	25Y 51 53	10YR66 00	M		00FE00 00	Y	0	0	HR	2		P			Y		
	50-70	c	05Y 51 52	10YR58 00	M			Y	0	0	SLST	3		P			Y	Y	
20	0-30	mcl	10YR42 00						0	0		0							
	30-45	hcl	10YR43 44	10YR46 58	C		00FE00 00	S	0	0	HR	5		M					IMP IRONSTONE 50

				----MOTTLES-----			PED		----STONES----				STRUCT/	SUBS					
SAMPLE	DEPTH	TEXTURE	COLOUR	COL	ABUN	CONT	COL.	GLEY	>2	>6	LITH	TOT	CONSIST	STR	POR	IMP	SPL	CALC	
21	0-20	hcl	10YR41 42	10YR46 00	F				0	0	HR	2						Y	
	20-70	c	25Y 51 53	10YR58 00	M		00MN00 00	Y	0	0	SLST	2		P			Y	Y	
22	0-35	hcl	10YR33 34	10YR56 00	F				0	0		0							SLIGHTLY SANDY
	35-50	c	25Y 42 43	75YR56 00	C		00MN00 00	Y	0	0		0		M					IMP IRONSTONE 50
23	0-30	scl	10YR42 52						0	0	HR	2							IRONSTONE
	30-50	scl	10YR52 62	10YR68 00	C		00MN00 00	Y	0	0	HR	5		M					IRONSTONE
	50-70	c	25Y 52 00	75YR58 00	M			Y	0	0	HR	10		P			Y		IMP IRONSTONE 70
24	0-25	hcl	10YR44 00	10YR58 00	F		00FE00 00		0	0		0							
	25-40	hcl	25Y 53 00	10YR58 00	M		00MN00 FE	Y	0	0		0		M					IMP IRONSTONE 40
25	0-30	mcl	10YR32 42						0	0	HR	2							BORDER HCL
	30-45	hcl	25Y 42 43	10YR56 00	C		00MN00 00	Y	0	0	HR	5		M					IRONSTONE
	45-55	c	25Y 52 00	10YR58 00	M		00MN00 FE	Y	0	0	HR	5		P			Y		IRONSTONE
	55-80	c	25Y 61 62	10YR58 00	M			Y	0	0		0		P			Y	Y	
26	0-30	mcl	10YR41 42						0	0	HR	2							
	30-55	c	10YR53 00	10YR58 00	M		00MN00 00	Y	0	0	HR	5		P			Y		SLIGHTLY SANDY
	55-80	c	25Y 61 62	10YR58 00	M			Y	0	0		0		P			Y		
27	0-30	mcl	10YR43 00				00FE00 00		0	0	HR	5							IMP IRONSTONE 30
28	0-30	mcl	10YR42 00	10YR46 00	C			Y	0	0		0							
	30-70	c	05Y 52 53	10YR58 00	M			Y	0	0		0		P			Y		CALC FROM 60
29	0-30	hcl	10YR42 00	10YR46 00	F				0	0		0							
	30-60	c	25Y 53 41	10YR46 58	M		00FE00 00	Y	0	0	HR	5		P			Y		
	60-90	c	25Y 51 53	10YR46 58	M		00MN00 00	Y	0	0		0		P			Y		
30	0-25	mcl	10YR33 00						0	0	HR	2							SL SANDY
	25-40	c	25Y 53 00	75YR56 00	M		00FE00 00	Y	0	0	FSST	2		M					IMP IRONSTONE 40
31	0-30	hcl	10YR34 00						0	0	FSST	2							IMP IRONSTONE 30
32	0-30	hcl	10YR42 00	10YR58 00	F				0	0		0							IMP IRONSTONE 30
33	0-28	mszl	10YR42 00						0	0	HR	2							
	28-43	hcl	25Y 52 53	10YR56 58	C		00MN00 00	Y	0	0	HR	2		M					SLIGHTLY SANDY
	43-120	c	25Y 52 53	10YR58 00	M		00MN00 FE	Y	0	0		0		P			Y		SLIGHTLY SANDY
34	0-30	mcl	10YR42 00	00MN00 00	F				0	0		0							SLIGHTLY SANDY
	30-55	hcl	10YR53 00	10YR56 00	C		00MN00 00	Y	0	0		0		M					SLIGHTLY SANDY
	55-65	hcl	10YR53 52	10YR58 00	C		00MN00 00	Y	0	0		0		M					
	65-85	hcl	25Y 61 62	10YR58 00	M		00MN00 00	Y	0	0		0		M					BORDER C SPL?
	85-120	scl	25Y 61 62	75YR58 00	M		00MN00 00	Y	0	0		0		M					BORDER SC

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	POR	IMP	SPL	CALC	
35	0-30	hcl	10YR31 41						0	0	HR	2							
	30-60	c	25Y 52 53	10YR56 00	C		00MN00 00	Y	0	0		0		P			Y		SLIGHTLY SANDY
	60-80	c	25Y 61 00	10YR58 00	M			Y	0	0		0		P			Y	Y	
36	0-28	mcl	10YR43 00						0	0	HR	5							IRONSTONE
	28-32	c	25Y 51 53	10YR58 00	C		00FE00 00	Y	0	0	HR	10		M					IMP IRONSTONE 32
37	0-21	hcl	10YR42 52	10YR56 00	F		00MN00 FE		0	0		0							
	21-80	c	25Y 51 53	10YR58 00	M		00MN00 FE	Y	0	0	SLST	1		P			Y		CALC 60+
38	0-30	scl	10YR42 00						0	0	HR	5							
	30-65	scl	10YR54 00	10YR56 00	C		00MN00 00	S	0	0	HR	5		M					SL GLEYED FESTONE
	65-85	c	25Y 52 00	10YR58 00	M		00MN00 00	Y	0	0		0		P			Y		SLIGHTLY SANDY
	85-120	c	25Y 61 00	10YR58 00	M			Y	0	0		0		P			Y	Y	
39	0-28	scl	10YR42 00						1	0	HR	5							IRONSTONE
	28-50	scl	10YR53 54	75YR58 00	C		00MN00 FE	Y	0	0	HR	5		M					FESTONE BORDER HCL
	50-60	c	25Y 53 52	10YR56 58	M		00MN00 00	Y	0	0	HR	3		P			Y		SLIGHTLY SANDY
	60-75	c	25Y 51 00	10YR58 00	M			Y	0	0		0		P			Y		
	75-120	c	25Y 61 00	10YR58 00	M			Y	0	0		0		P			Y	Y	
40	0-33	mcl	10YR42 00						0	0	HR	3							IRONSTONE SL SANDY
	33-55	hcl	10YR53 43	10YR58 00	C		00MN00 00	Y	0	0	HR	5		M					BORDER SCL
	55-70	c	25Y 52 62	10YR58 00	M			Y	0	0		0		P			Y		SLIGHTLY SANDY
	70-90	c	25Y 61 00	10YR58 00	M			Y	0	0		0		P			Y	Y	
41	0-28	hcl	10YR42 00	10YR46 00	F		00MN00 00		0	0	SLST	3						Y	+2% FLINTS
	28-70	c	05Y 52 62	10YR56 58	M		00MN00 00	Y	0	0	SLST	4		P			Y	Y	
42	0-23	hcl	25Y 42 00						0	0	HR	2							BORDER CLAY
	23-40	c	25Y 53 54	10YR56 00	C		00MN00 00	Y	0	0		0		P			Y		
	40-80	c	25Y 61 00	10YR58 00	M			Y	0	0	SLST	5		P			Y	Y	
43	0-33	hcl	10YR31 41						0	0	HR	2							IRONSTONE
	33-48	c	25Y 53 54	10YR56 00	C		00MN00 00	Y	0	0	HR	5		P			Y		IRONSTONE
	48-70	c	25Y 61 00	10YR58 68	M			Y	0	0		0		P			Y	Y	
44	0-33	mcl	10YR42 43						0	0	HR	2							
	33-60	c	25Y 61 62	10YR58 00	M		00MN00 00	Y	0	0		0		P			Y		IMP IRONSTONE 60
45	0-20	hcl	10YR42 52	10YR56 00	C		00FE00 00	Y	0	0	HR	5						Y	
	20-70	c	25Y 51 53	10YR58 00	M		00MN00 FE	Y	0	0		0		P			Y	Y	
46	0-30	mszl	10YR42 00						0	0	HR	2							
	30-45	hcl	25Y 53 52	10YR58 00	M		00MN00 00	Y	0	0	HR	15		M					IRONSTONE, SL SANDY
	45-120	c	25Y 51 53	10YR58 00	M			Y	0	0	SLST	5		P			Y	Y	
47	0-27	mcl	10YR42 43						0	0	HR	2							SLIGHTLY SANDY
	27-35	mcl	10YR44 00	10YR56 00	F				0	0	HR	5		M					BORDER SCL
	35-75	scl	10YR44 54	75YR46 00	C		00MN00 FE	S	0	0	HR	15		M					SLIGHTLY GLEYED
	75-100	msl	10YR54 00	10YR58 00	M			S	0	0	HR	15		M					IMP FESTONE100 SLGL

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
48	0-30	mcl	10YR42 43						0	0	HR	2							SLIGHTLY SANDY
	30-50	hcl	10YR54 00	10YR56 00	C		00MN00 FE	S	0	0	HR	10		M					SLSNDY FESTONE SLG
	50-75	c	10YR51 53	10YR58 00	M		00MN00 00	Y	0	0	SLST	3		P			Y	Y	SLIGHTLY SANDY
49	0-23	hcl	25Y 42 00						0	0	HR	2							
	23-40	c	25Y 53 00	10YR56 00	C		00MN00 00	Y	0	0		0		P			Y		
	40-70	c	25Y 61 00	10YR58 00	M			Y	0	0		0		P			Y	Y	
50	0-30	mcl	10YR32 42						0	0	HR	2							
	30-55	c	25Y 53 00	10YR56 00	C			Y	0	0	HR	3		P			Y		
	55-60	c	25Y 53 52	10YR58 00	M		00MN00 00	Y	0	0	HR	10		P			Y		IMP IRONSTONE 60
51	0-30	mcl	10YR42 43						0	0	HR	8							SLIGHTLY SANDY
	30-55	c	25Y 51 52	10YR58 00	M		00MN00 00	Y	0	0	HR	10		P			Y		IRONSTONE
	55-75	c	25Y 51 52	10YR58 00	M		00MN00 00	Y	0	0	HR	15		P			Y	Y	IRONSTONE
	75-90	c	25Y 61 62	10YR58 00	M			Y	0	0		0		P			Y	Y	
52	0-28	fszl	10YR42 00						0	0	HR	2							
	28-48	c	25Y 53 00	10YR46 58	C		00MN00 FE	Y	0	0	HR	5		P			Y		FESTONE SL SANDY
	48-80	c	25Y 51 53	10YR58 00	M			Y	0	0	SLST	10		P			Y	Y	
53	0-33	scl	10YR42 43	10YR56 00	F				0	0	HR	2							
	33-55	hcl	10YR53 54	10YR58 00	C		00MN00 FE	Y	0	0	HR	10		M					IRONSTONE SL SANDY
	55-75	c	25Y 52 00	10YR58 00	M		00MN00 00	Y	0	0		0		P			Y		
	75-90	c	25Y 61 00	10YR58 00	M			Y	0	0		0		P			Y	Y	
54	0-32	hcl	10YR42 43						0	0	HR	5							IRONSTONE SL SANDY
	32-41	hcl	10YR54 00	10YR56 00	C		00MN00 FE	S	0	0	HR	5		M					FESTONE SLSNDY SLG
	41-75	hcl	25Y 53 00	10YR56 00	C			Y	0	0	HR	5		M					IRONSTONE
	75-90	c	25Y 62 00	10YR58 00	M		00MN00 00	Y	0	0	HR	5		P			Y		IRONSTONE
	90-120	scl	25Y 61 00	10YR58 00	M			Y	0	0	HR	2		M			Y		IRONSTONE
55	0-30	mcl	10YR42 00						0	0	HR	5							IRONSTONE
	30-42	hcl	10YR54 00	10YR58 00	C		00MN00 FE	S	0	0	HR	10		M					SL SANDY SL GLEYED
	42-70	c	25Y 51 53	10YR58 00	M		00MN00 00	Y	0	0	SLST	10		P			Y	Y	
56	0-25	mcl	10YR42 43						0	0	HR	2							
	25-55	c	25Y 53 00	10YR56 00	C		00MN00 00	Y	0	0	HR	10		P			Y		IRONSTONE
	55-70	c	25Y 52 00	10YR58 00	M		00MN00 00	Y	0	0	HR	10		P			Y		IMP IRONSTONE 70
57	0-32	fszl	10YR42 00						0	0	HR	5							IRONSTONE & FLINTS
	32-55	scl	10YR43 00	10YR46 00	F		00MN00 FE		0	0	HR	2		M					BORDER HCL
	55-90	hcl	25Y 54 53	10YR58 00	M		00MN00 FE	Y	0	0	HR	5		M					IMP IRONSTONE 90
58	0-30	fszl	10YR42 00						0	0	HR	3							
	30-55	hcl	25Y 62 53	10YR58 00	C			Y	0	0	HR	5		M					IMP IRONSTONE 55
59	0-25	mcl	10YR43 00						0	0		0							SLIGHTLY SANDY
	25-45	hcl	10YR53 54	10YR58 00	C			Y	0	0		0		M					SLIGHTLY SANDY
	45-80	c	25Y 62 00	75YR46 56	M		00MN00 00	Y	0	0		0		P			Y		SLIGHTLY SANDY

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
60	0-20	hcl	10YR43 00						0	0		0						Y	BORDER MCL
	20-45	hcl	10YR53 00	10YR68 00	M		00MN00 00	Y	0	0	HR	2		M				Y	IRONSTONE
	45-90	c	25Y 52 00	10YR68 00	M		00MN00 00	Y	0	0	HR	2		P			Y	Y	
	90-120	c	05Y 51 00	10YR68 00	M		00MN00 00	Y	0	0		0		P			Y	Y	
61	0-30	hcl	10YR42 00	10YR56 00	C			Y	0	0	SLST	4						Y	
	30-70	c	25Y 51 53	10YR58 00	M		00MN00 00	Y	0	0	SLST	5		P			Y	Y	
62	0-30	scl	10YR42 00						0	0	HR	5							
	30-45	hcl	10YR53 54	10YR56 00	C		00MN00 00	Y	0	0	HR	10		M					IRONSTONE SL SANDY
	45-70	c	25Y 52 62	10YR58 00	M		00MN00 00	Y	0	0	HR	10		P			Y		IRONSTONE SL SANDY
	70-90	c	25Y 61 62	10YR58 00	M			Y	0	0		0		P			Y	Y	
63	0-30	fszl	10YR42 00						0	0		0							
	30-60	scl	10YR43 00	10YR46 00	F		00MN00 00		0	0	HR	5		M					IRONSTONE
	60-70	hcl	25Y 53 00	10YR58 00	M		00MN00 00	Y	0	0	HR	10		M					IRONSTONE
64	0-30	mcl	10YR42 00						0	0	HR	2							
	30-40	hcl	25Y 52 53	10YR58 00	C			Y	0	0	HR	5		M					SLIGHTLY SANDY
	40-75	c	25Y 51 53	10YR58 00	M		00MN00 FE	Y	0	0	HR	5		P			Y		IMP IRONSTONE 75
65	0-27	mcl	10YR42 00						0	0	HR	5							SLIGHTLY SANDY
	27-42	hcl	10YR52 53	10YR46 56	C		00MN00 00	Y	0	0	HR	5		M					SLIGHTLY SANDY
	42-75	c	25Y 51 53	10YR58 00	M		00MN00 FE	Y	0	0	SLST	2		P			Y	Y	CALC 55+
66	0-25	mcl	10YR33 00						0	0		0							
	25-35	scl	10YR43 00	10YR56 00	C		00FE00 00	Y	0	0		0		M					
	35-75	sc	10YR53 00	10YR56 00	C		00FE00 00	Y	0	0		0		P			Y		IMP IRONSTONE 75
67	0-30	mszl	10YR42 00						0	0	HR	2							
	30-50	scl	25Y 42 00	10YR58 00	C		00MN00 00	Y	0	0	HR	10		M					IRONSTONE
	50-95	c	25Y 61 00	10YR58 68	M			Y	0	0		0		P			Y		
	95-120	c	25Y 61 00	75YR58 00	M			Y	0	0		0		P			Y		SLIGHTLY SANDY
68	0-30	fszl	10YR42 43						0	0	HR	5							SEE 4P IRONSTONES
	30-120	c	25Y 51 53	10YR58 00	M			Y	0	0	SLST	4		P			Y		CALC 60+
69	0-32	fszl	10YR42 00						0	0	HR	2							
	32-48	scl	10YR43 00						0	0	HR	5		M					IRONSTONE BORDER HC
	48-60	hcl	10YR44 00	10YR46 00	F		00MN00 00		0	0	HR	5		M					IRONSTONE
	60-75	c	25Y 53 51	10YR46 48	M		00MN00 00	Y	0	0	HR	5		P			Y		IMP IRONSTONE 75
70	0-25	mcl	10YR42 00						0	0		0							BORDER SCL
	25-70	c	25Y 51 53	10YR58 00	M		00MN00 00	Y	0	0	HR	2		P			Y		IRONSTONE
71	0-25	fszl	10YR32 00						0	0		0							
	25-45	scl	10YR43 00	10YR56 00	C			Y	0	0		0		M					
	45-55	c	25Y 52 00	10YR56 00	M		00MN00 00	Y	0	0		0		P			Y		SLIGHTLY SANDY
	55-80	c	25Y 61 00	10YR56 00	M		00MN00 00	Y	0	0	SLST	10		P			Y	Y	

				----MOTTLES-----			PED		----STONES----				STRUCT/	SUBS					
SAMPLE	DEPTH	TEXTURE	COLOUR	COL	ABUN	CONT	COL.	GLEY	>2	>6	LITH	TOT	CONSIST	STR	POR	IMP	SPL	CALC	
72	0-20	c	25Y 52 00	10YR58 00	C			Y	0	0	SLST	5						Y	
	20-40	c	25Y 61 00	10YR58 00	M			Y	0	0	SLST	5		P				Y	
	40-55	scl	10YR41 42	10YR58 00	C			Y	0	0	HR	5		M					IRONSTONE
	55-70	scl	10YR53 00	10YR58 00	M		00MN00 00	Y	0	0	HR	10		M					IRONSTONE
	70-80	scl	10YR53 63	75YR58 00	M		00MN00 00	Y	0	0	HR	10		M					IRONSTONE
	80-120	c	25Y 62 00	10YR58 00	M			Y	0	0		0		P			Y	Y	
73	0-15	c	10YR42 00	10YR58 00	C			Y	0	0	SLST	5						Y	
	15-40	c	25Y 61 00	10YR58 00	M			Y	0	0		0		P				Y	
	40-50	scl	10YR43 00					Y	0	0	HR	2		M					
	50-75	c	10YR53 00	75YR56 00	M			Y	0	0	HR	5		P			Y		SL SANDY FLINTS
	75-120	c	25Y 53 00	75YR68 00	M		00MN00 00	Y	0	0	HR	5		P			Y		IRONSTONE
74	0-25	msl	10YR33 43	00FE00 00	F				0	0	HR	2							
	25-55	scl	10YR53 00	10YR56 00	C		00MN00 00	Y	0	0	HR	5		M					IRONSTONE BORDER H
	55-85	c	25Y 51 00	10YR58 00	M			Y	0	0		0		P			Y		
	85-120	c	25Y 61 00	10YR58 00	M			Y	0	0		0		P			Y	Y	
75	0-30	mszl	10YR42 00						0	0	HR	2							SEE 3P
	30-60	scl	10YR53 54	10YR56 00	C		00MN00 00	Y	0	0	HR	3		M					IRONSTONE
	60-80	hcl	10YR53 00	10YR58 00	C		00MN00 00	Y	0	0	HR	5		M					IMP IRONSTONE 80
76	0-35	mcl	10YR42 00	10YR56 00	F				0	0	HR	2							
	35-75	c	25Y 51 53	10YR58 00	M		00MN00 00	Y	0	0	HR	5		P			Y		SLIGHTLY SANDY
77	0-25	scl	10YR33 00						0	0		0						Y	
	25-35	hcl	10YR33 00	10YR56 00	F				0	0		0		M				Y	
	35-80	sc	25Y 53 00	10YR56 00	M			Y	0	0		0		P			Y	Y	
	80-100	c	10YR51 00	10YR58 00	M			Y	0	0		0		P			Y		
78	0-28	mcl	10YR32 42						0	0	HR	2							RIDGE & FURROW
	28-45	mcl	10YR42 52	10YR46 56	C			Y	0	0		0		M					
	45-55	hcl	25Y 53 00	10YR56 00	C			Y	0	0		0		M					SLIGHTLY SANDY
	55-65	scl	25Y 63 00	10YR66 00	C			Y	0	0		0		M					
	65-85	c	25Y 52 62	10YR58 00	M			Y	0	0		0		P			Y		
	85-120	c	25Y 62 00	10YR58 68	M		00MN00 00	Y	0	0	HR	2		P			Y		FLINTS SLIGHTLY SA
79	0-30	msl	10YR43 00						0	0	HR	2							
	30-45	hcl	10YR53 00	10YR56 00	C			Y	0	0	HR	10		M					SLSANDY FESTONE/FL
	45-70	c	10YR53 00	10YR58 00	M			Y	0	0		0		P			Y		
	70-100	c	25Y 61 00	10YR58 00	M			Y	0	0	SLST	5		P			Y	Y	
80	0-25	mszl	10YR42 00	10YR46 56	C			Y	0	0	HR	2							
	25-40	scl	10YR53 00	10YR56 00	C			Y	0	0		0		M					
	40-65	c	25Y 52 00	10YR58 00	M			Y	0	0		0		P			Y		
	65-80	c	25Y 61 00	10YR68 00	M			Y	0	0		0		P			Y	Y	
81	0-30	msl	10YR43 44						0	0	HR	2							
	30-60	scl	10YR44 46	10YR58 00	F				0	0	HR	2		M					
	60-95	scl	10YR53 54	10YR58 00	C		00MN00 00	Y	0	0	HR	5		M					
	95-120	c	25Y 52 53	10YR58 00	M			Y	0	0		0		P			Y		SLIGHTLY SANDY

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	POR	IMP	SPL	CALC	
82	0-30	hcl	10YR41 00	10YR46 00	F		00MN00 00		0	0	HR	2							SLIGHTLY SANDY
	30-65	c	10YR41 51	10YR46 00	M		00MN00 FE	Y	0	0	HR	2		P			Y		SLIGHTLY SANDY
	65-120	c	25Y 51 53	10YR46 58	M			Y	0	0		0		P			Y	Y	