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WEST SUSSEX MINERALS PLAN
SITE 10 EARTHAM
AGRICULTURAL LAND CLASSIFICATION
ALC MAP & REPORT
SEPTEMBER 1993

**WEST SUSSEX MINERALS PLAN
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AGRICULTURAL LAND CLASSIFICATION REPORT**

1 0 Summary

1 1 ADAS was commissioned by MAFF's Land Use Planning Unit to provide information on land quality on a number of sites in West Sussex. The work forms part of MAFF's statutory input to the preparation of the West Sussex Minerals Plan.

1 2 Approximately 49 hectares of land relating to Site 10 south of Eartham near Slindon was surveyed during September 1993. The survey was undertaken at a detailed level of approximately one boring per hectare. A total of 45 soil auger borings and 4 soil inspection pits were assessed in accordance with MAFF's revised guidelines and criteria for grading the quality of agricultural land. These guidelines provide a framework for classifying land according to the extent to which its physical or chemical characteristics impose long-term limitations on its use for agriculture.

1 3 The work was conducted by members of the Resource planning Team in the Guildford Statutory Group of ADAS.

1 4 At the time of the survey the land on the site had been recently ploughed, some having been drilled with grass seed.

1 5 The distribution of grades and subgrades is shown on the attached ALC map and the areas are given in the table below. The map has been drawn at a scale of 1:5,000. It is accurate at this scale, but any enlargement would be misleading. This map supersedes any previous survey information.

Table 1 - Distribution of Grades and Subgrades

<u>Grade</u>	<u>Area (ha)</u>	<u>% of Site</u>	<u>% of Agricultural Area</u>
2	18.4	37.2	42.7
3B	24.7	49.9	57.3
Urban	1.5	3.0	<u>100.0</u> (43.1 ha)
Woodland	4.9	<u>9.9</u>	
Total	49.5	<u>100.0</u>	

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

1 7 The site has been classified as Grades 2 and Subgrade 3B with soil droughtiness as the key limitation. The area shown as Grade 2 experiences a slight droughtiness limitation; there is insufficient available water in the profile to qualify for a higher grade given the textures and structures that occur in the subsoils. Soils typically comprise medium clay loam topsoils which become heavier with depth. The area shown as Subgrade 3B is more severely limited due to the presence of stony subsoils. The high stone volumes significantly restrict profile available water for plant growth and reduce the range of crops that can tolerate such conditions.

2 0 Climate

2 1 The climatic criteria are considered first when classifying land as climate can be overriding in the sense that severe limitations will restrict land to low grades irrespective of favourable site or soil conditions

2 2 The main parameters used in the assessment of the overall climatic limitation are annual average rainfall as a measure of overall wetness and accumulated temperature as a measure of the relative warmth of a locality

2 3 A detailed assessment of the prevailing climate was made by interpolation from a 5km gridpoint dataset (Met Office 1989) The details are given in the table below and these show that there is no overall climatic limitation affecting the site

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

Table 2 - Climatic Interpolations

Grid Reference	SU 945 079
Altitude (m)	40
Accumulated Temperature (days)	1501
Average Annual Rainfall (mm)	829
Field Capacity (days)	172
Moisture Deficit Wheat (mm)	111
Moisture Deficit Potatoes (mm)	105
Overall Climatic Grade	1

3 0 Relief

3 1 The site is slightly undulating lying at an altitude in a range between 35 and 45 metres On no part of the site does relief pose any limitation to agricultural use

4 0 Geology and Soil

4 1 The relevant geological sheet for the site shows the underlying geology to be Valley Gravel

4 2 The published soils information for the area shows the soils on the site to be of the Charity 1 series These are described as well drained fine silty and fine silty over clayey soils locally very flinty some shallow over flint gravel Detailed field examination confirms this particularly the locally shallow and flinty nature of the soils on some parts of the site

5 0 Agricultural Land Classification

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

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

5 3 Grade 2 Approximately 18 hectares of land on the site has been classified as Grade 2 very good quality agricultural land. The soils in this mapping unit show a slight droughtiness limitation. In the northern area of the site the soil profiles typically comprise medium silty clay loam topsoils which graduate into heavy clay loam and clay subsoils at depth. A number of the soil augerings in this map unit proved to be impenetrable at depths of between 60 and 80 cm. A subsequent soil inspection pit (Pit 1) dug to determine the nature of the lower subsoil showed the existence of a clay layer with 20% flints which became compact at approximately 80 cm. Yet this horizon does not pose any restrictions on rooting depth and shows no evidence of impeded drainage. The Grade 2 land in the south and east of the site has a similar topsoil texture to that in the north but with the presence of a stony upper subsoil medium clay loam with 20% flints as demonstrated by Pit 3. This stony layer rendered some of the auger samples in this map unit impenetrable below the topsoil. On inspection by means of digging a soil pit it was evident that this layer only extended to a depth of 41cm. Below this there is a lower subsoil of medium sandy loam texture which extends to 120cm. This type of sandy subsoil was not detected in any other part of the site. This suggests that there may be a vein of sandy subsoils locally restricted to this particular area of the site but not of a significant nature to be mapped as a separate soil type. Pit 3 was actually graded as Subgrade 3A good quality agricultural land due to a topsoil stoniness limitation. Subsequent topsoil stone measurements in the immediate vicinity of the pit proved that this was not a widespread limiting factor. Both of the soil inspection pits in this map unit showed the soils to be well drained. Wetness Class I however they are limited by a slight droughtiness imperfection due to the combination of soil textures and structures with the local climatic regime.

5 4 Subgrade 3B The remainder of the agricultural land has been classified as Subgrade 3B moderate quality agricultural land. The soils in this mapping unit show a significant droughtiness limitation. The majority of soil inspections in this unit proved to be impenetrable below the topsoil. Two soil inspection pits were dug in the east and west of this map unit (pits 2 and 4 respectively) which showed the presence of a very stony subsoil. The pit in the east was impenetrable to digging at 75cm. Above this the topsoil consists of a medium silty clay loam with 17% flints. A stony subsoil commences at 29cm and is a medium silty clay loam texture containing 35% flints. At 40 cm there is a heavy clay loam horizon containing 50% flints. Pit 4 was similar to this in many respects but with stonier subsoils and was impenetrable to digging at 70cm. The upper subsoil contained 50% flints and the lower subsoil contained 60% flints. The impenetrable nature of these soils meant that assumptions regarding stoniness below this level and rooting depths had to be made. The nature of the underlying geology has made it possible to assume that profiles will not become any less stony below this level. It has been assumed that roots can penetrate at least a further 10 cm into the stony subsoil meaning that there is sufficient available water in the profile to qualify for Subgrade 3B at least.

5 5 The areas marked as Urban include roadways and a house in the north of the site.

5 6 The areas marked as Non agricultural include woodland on the edges of the site.

ADAS REFERENCE 4203/121/93
MAFF REFERENCE EL42/00228

Resource Planning Team
Guildford Statutory Group
ADAS Reading

APPENDIX I

DESCRIPTION OF THE GRADES AND SUB-GRADES

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 on the 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.

Grade 3 Good To Moderate Quality Agricultural Land

Land with moderate limitations which affect the choice of crops, 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.

Sub-grade 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.

Sub-grade 3B Moderate Quality Agricultural Land

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

Grade 4 Poor Quality Agricultural Land

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

Grade 5 Very Poor Quality Agricultural Land

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

Urban

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

Non-agricultural

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

Woodland

Includes commercial and non commercial woodland

Agricultural Buildings

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

Open Water

Includes lakes ponds and rivers as map scale permits

Land Not Surveyed

Agricultural land which has not been surveyed

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

APPENDIX II

REFERENCES

- * MAFF (1988) Agricultural Land Classification of England And Wales revised guidelines and criteria for grading the quality of agricultural land
- * Meteorological Office (1989) Climatological Data for Agricultural Land Classification
- * British Geological Survey (1957) Sheet No 317 Chichester 1 50 000
- * Soil Survey of England and Wales (1982) Sheet No 6 Soils of South East England 1 250 000 and accompanying legend

APPENDIX III

DEFINITION OF SOIL WETNESS CLASSES

Wetness Class I

The soil profile is not wet within 70cm depth for more than 30 days in most years

Wetness Class II

The soil profile is wet within 70cm depth for 31-90 days in most years or if there is no slowly permeable layer within 80cm depth it is wet within 70cm for more than 90 days but not wet within 40cm depth for more than 30 days in most years

Wetness Class III

The soil profile is wet within 70cm depth for 91-180 days in most years or if there is no slowly permeable layer within 80cm depth it is wet within 70cm for more than 180 days but only wet within 40cm depth for 31-90 days in most years

Wetness Class IV

The soil profile is wet within 70cm depth for more than 180 days but not wet within 40cm depth for more than 210 days in most years or if there is no slowly permeable layer within 80cm depth it is wet within 40cm depth for 91-210 days in most years

Wetness Class V

The soil profile is wet within 40cm depth for 211-335 days in most years

Wetness Class VI

The soil profile is wet within 40cm depth for more than 335 days in most years

(The number of days is not necessarily a continuous period 'In most years' is defined as more than 10 out of 20 years)

SOIL PROFILE DESCRIPTIONS EXPLANATORY NOTE

Soil pit and auger boring information collected during ALC fieldwork is held on a database. This has commonly used notations and abbreviations as set out below.

Boring Header Information

1 GRID REF national 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
FKT Soft and Top Fruit HRT Horticultural Crops PGR Permanent Pasture LEY Ley Grass RGR Rough Grazing
SCR Scrub CFW Coniferous Woodland DCW Deciduous Woodland HTH Heathland BOG Bog or Marsh
FLW Fallow PLO Ploughed SAS Set aside OTH Other

3 GRDNT Gradient as measured by a hand held optical clinometer

4 GLEY/SPL Depth in cm to gleying or slowly permeable layers

5 AP (WHEAT/POTS) Crop-adjusted available water capacity

6 MB (WHEAT/POTS) Moisture Balance

7 DRT Best grade according to soil droughtiness

8 If any of the following factors are considered significant an entry of Y will be entered in the relevant column

MREL Microrelief limitation FLOOD Flood risk EROSN Soil erosion risk EXP Exposure limitation FROST Frost
DIST Disturbed land CHEM Chemical limitation

9 LIMIT The main limitation to land quality. The following abbreviations are used

OC Overall Climate AE Aspect EX Exposure FR Frost Risk GR Gradient MR Microrelief
FL Flood Risk TX Topsoil Texture DP Soil Depth CH Chemical WE Wetness WK Workability
DR Drought ER Soil Erosion Risk WD Combined Soil Wetness/Droughtiness ST Topsoil Stoniness

Soil Pits and Auger Borings

1 TEXTURE soil texture classes are denoted by the following abbreviations

S Sand LS Loamy Sand SL Sandy Loam SZL Sandy Silt Loam CL Clay Loam ZCL Silty Clay Loam
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 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

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

6 STONE LITH One of the following is used

HR all hard rocks and stones MSST soft medium or coarse grained sandstone
SI soft weathered igneous or metamorphic SLST soft oolitic or dolomitic limestone
FSST soft fine grained sandstone ZR soft argillaceous or silty rocks CH chalk
GH gravel with non porous (hard) stones GS gravel with porous (soft) stones

Stone contents (>2cm >6cm and total) are given in percentages (by volume)

7 STRUCT the degree of development size and shape of soil peds are described using the following notation

degree of development WK weakly developed MD moderately developed ST strongly developed

ped size F fine M medium C coarse VC very coarse

ped shape S single grain M massive GR granular AB angular blocky SAB sub-angular blocky PR prismatic
PL platy

8 CONSIST Soil consistence is described using the following notation

L loose VF very friable FR friable FM firm VM very firm EM extremely firm EH extremely hard

9 SUBS STR Subsoil structural condition recorded for the purpose of calculating profile droughtiness

G good M moderate P poor

10 POR Soil porosity If a soil horizon has less than 0.5% biopores >0.5 mm a Y will appear in this column

11 IMP If the profile is impenetrable a Y will appear in this column at the appropriate horizon

12 SPL Slowly permeable layer If the soil horizon is slowly permeable a Y will appear in this column

13 CALC If the soil horizon is calcareous a Y will appear in this column

14 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 W SSX SITE 10 EARTHAM Pit Number 1P

Grid Reference SU94750830 Average Annual Rainfall 829 mm
 Accumulated Temperature 1501 degree days
 Field Capacity Level 172 days
 Land Use Arable
 Slope and Aspect degrees

HORIZON	TEXTURE	COLOUR	STONES	2	TOT STONE	MOTTLES	STRUCTURE
0- 30	MZCL	10YR42 00	5		6		MDCSAB
30- 56	MCL	10YR44 00	0		1	F	WDCSAB
56-120	C	10YR56 00	0		20	F	

Wetness Grade 1 Wetness Class I
 Gleying 000 cm
 SPL No SPL

Drought Grade 2 APW 133mm MBW 22 mm
 APP 113mm MBP 8 mm

FINAL ALC GRADE 2
 MAIN LIMITATION Droughtiness

SOIL PIT DESCRIPTION

Site Name W SSX SITE 10 EARTHAM Pit Number 2P

Grid Reference SU94690778 Average Annual Rainfall 829 mm
 Accumulated Temperature 1501 degree days
 Field Capacity Level 172 days
 Land Use Arable
 Slope and Aspect degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	MOTTLES	STRUCTURE
0- 29	MZCL	10YR42 00	9	17		WDCSAB
29- 40	MZCL	10YR56 00	0	35		
40- 85	HZCL	10YR56 00	0	50		

Wetness Grade 1 Wetness Class I
 Gleying 000 cm
 SPL No SPL

Drought Grade 3B APW 86 mm MBW -25 mm
 APP 86 mm MBP -19 mm

FINAL ALC GRADE 3B
 MAIN LIMITATION Droughtiness

SOIL PIT DESCRIPTION

Site Name W SSX SITE 10 EARTHAM Pit Number 3P

Grid Reference SU94180778 Average Annual Rainfall 829 mm
 Accumulated Temperature 1501 degree days
 Field Capacity Level 172 days
 Land Use Arable
 Slope and Aspect degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	MOTTLES	STRUCTURE
0- 28	MZCL	10YR42 00	11	16		WDCSAB
28- 41	MCL	10YR56 00	0	20		
41-120	MSL	75YR46 00	0	0	F	MDCPL

Wetness Grade 1 Wetness Class I
 Gleying 000 cm
 SPL No SPL

Drought Grade 2 APW 153mm MBW 42 mm
 APP 106mm MBP 1 mm

FINAL ALC GRADE 3A
 MAIN LIMITATION Topsoil Stoniness

SOIL PIT DESCRIPTION

Site Name W SSX SITE 10 EARTHAM Pit Number 4P

Grid Reference SU94370883 Average Annual Rainfall 829 mm
 Accumulated Temperature 1501 degree days
 Field Capacity Level 172 days
 Land Use Arable
 Slope and Aspect degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	MOTTLES	STRUCTURE
0- 25	MZCL	10YR42 00	10	15		WCSAB
25- 60	MZCL	10YR56 00	0	50		
60- 80	MCL	10YR56 00	0	60		

Wetness Grade 1 Wetness Class I
 Gleying 000 cm
 SPL No SPL

Drought Grade 3B APW 77 mm MBW 34 mm
 APP 79 mm MBP 26 mm

FINAL ALC GRADE 3B
 MAIN LIMITATION Droughtiness

SAMPLE NO	GRID REF	ASPECT USE	--WETNESS --		-WHEAT		POTS-		M REL		EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS	
			GRDNT	GLEY	SPL	CLASS	GRADE	AP	MB	AP						MB
1	SU94400820	PLO		000	1	1	96	15	102	-3	3A			DR	3A	SEE1P
1P	SU94750830	ARA		000	1	1	133	22	113	8	2			DR		2
2	SU94500820	PLO		000	1	1	111	0	117	12	3A			DR	3A	SEE1P
2P	SU94690778	ARA		000	1	1	86	25	86	-19	3B			DR		3B
3	SU94600820	ARA		000	1	2	95	16	101	-4	3A			DR	3A	IMPEN 60 SEE1P
3P	SU94180778	ARA		000	1	1	153	42	106	1	2			ST	3A	TOPSOIL STONES
4	SU94700820	ARA		000	1	2	97	14	108	3	3A			DR	3A	IMPEN 65 SEE1P
4P	SU94370883	ARA		000	1	1	77	-34	79	-26	3B			DR		3B
5	SU94800820	ARA		000	1	2	53	-58	53	-52	4			DR	4	IMPEN 30 SEE1P
6	SU94200810	STB		000	1	1	109	-2	117	12	3A			DR	3A	IMPEN 80 SEE1P
7	SU94300810	PLO		000	1	1	52	-59	52	-53	4			DR	3B	IMPEN 30 SEE4P
8	SU94400810	PLO		000	1	1	66	-45	66	39	3B			DR	3B	IMPEN 40 SEE4P
9	SU94500810	PLO		000	1	1	104	-7	119	14	3A			DR	3A	IMPEN 70 SEE1P
11	SU94700810	ARA		000	1	2	112	1	116	11	3A			DR	3A	IMPEN 80 SEE1P
12	SU94800810	ARA		000	1	2	94	-17	101	4	3A			DR	3A	IMPEN 60 SEE1P
13	SU94200800	STB		000	1	1	47	-64	47	58	4			DR	4	IMPEN 28 SEE3P
14	SU94300800	STB		000	1	1	67	-44	67	38	3B			DR	3B	IMPEN 40 SEE4P
15	SU94400800	PLO		000	1	1	43	-68	43	62	4			DR	3B	IMPEN 25 SEE4P
16	SU94500800	PLO		000	1	1	87	-24	91	14	3B			DR	3B	IMPEN 50 SEE3P
17	SU94600800	ARA		000	1	2	76	-35	76	29	3B			DR	3B	IMPEN 45 SEE2P
18	SU94700800	ARA		000	1	2	61	-50	61	44	3B			DR	4	IMPEN 35 SEE2P
19	SU94800800	ARA		000	1	2	53	-58	53	52	4			DR	4	IMPEN 30 SEE2P
20	SU94100790	STB		000	1	1	39	-72	39	66	4			DR	4	IMPEN 25 SEE3P
21	SU94200790	STB		055	1	2	118	7	95	10	2			DR	2	SEE 1P
22	SU94300790	STB		000	1	1	56	-55	56	49	4			DR	4	IMPEN 30 SEE4P
23	SU94400790	STB		000	1	1	60	-51	60	45	4			DR	4	IMPEN 35 SEE4P
24	SU94500790	PLO		000	1	1	67	-44	67	38	3B			DR	3B	IMPEN 40 SEE4P
25	SU94600790	ARA		000	1	2	45	-66	45	60	4			DR	4	IMPEN 25 SEE2P
26	SU94700790	ARA		000	1	2	66	-45	66	39	3B			DR	3B	IMPEN 40 SEE2P
27	SU94800790	ARA		000	1	2	35	-76	35	70	4			DR	4	IMPEN 20 SEE2P
28	SU94100780	STB		000	1	2	47	-64	47	58	4			DR	4	IMPEN 30 SEE4P
29	SU94200780	STB		000	1	1	48	-63	48	57	4			DR	4	IMPEN 30 SEE3P
30	SU94300780	STB		000	1	1	55	-56	55	50	4			DR	4	IMPEN 30 SEE4P
31	SU94400780	STB		000	1	1	61	-50	61	44	3B			DR	3B	IMPEN 35 SEE4P
32	SU94500780	STB		000	1	1	67	-44	67	38	3B			DR	3B	IMPEN 40 SEE4P
33	SU94600780	ARA		000	1	2	112	1	115	10	3A			DR	3A	IN HOLLOW
34	SU94700780	ARA		000	1	2	43	-68	43	62	4			DR	4	IMPEN 25 SEE2P
35	SU94800780	ARA		000	1	2	89	-22	92	13	3B			DR	3B	IMPEN 55 SEE2P
38	SU94100770	STB		000	1	1	86	-25	91	14	3B			DR	3B	IMPEN 60 SEE3P
39	SU94200770	STB		000	1	1	46	-65	46	59	4			DR	3B	IMPEN 30 SEE3P
40	SU94300770	STB		000	1	1	111	0	117	12	3A			DR	3A	IMPEN 80 SEE3P
41	SU94400770	STB		000	1	1	116	5	118	13	2			DR	3A	IMPEN 85 SEE1P

SAMPLE NO	GRID REF	ASPECT USE	- WETNESS--		WHEAT-		-POTS-		M REL		EROSN	FROST	CHEM	ALC	COMMENTS
			GRDNT	GLEYSPL	CLASS	GRADE	AP	MB	AP	MB	DRT	FLOOD	EXP	DIST	
43	SU94700770	ARA	000		1	2	35	-76	35	70	4			DR 4	IMPEN 20 SEE2P
44	SU94800770	ARA	000		1	2	33	-78	33	72	4			DR 4	IMPEN 20 SEE2P
45	SU94900770	PLO	000			1	45	-66	45	60	4			DR 4	IMPEN 25 SEE2P
47	SU94800760	ARA	000		1	2	35	-76	35	70	4			DR 4	IMPEN 20 SEE2P
48	SU94900760	PLO	000		1	1	44	-67	44	61	4			DR 4	IMPEN 25 SEE2P
49	SU95000760	PLO	000		1	1	61	-50	61	44	3B			DR 4	IMPEN 35 SEE2P
50	SU94250815	PLO	000		1	1	98	-13	109	4	3A			DR 3A	IMPEN 65 SEE1P

SAMPLE	DEPTH	TEXTURE	COLOUR	---MOTTLES---			PED COL	----STONES		LITH	TOT	STRUCT/ CONSIST	SUBS					
				COL	ABUN	CONT		GLEY	>2				>6	STR	POR	IMP	SPL	CALC
1	0-30	mzc1	10YR42 00					0	0	HR	4							
	30-55	mzc1	10YR56 00					0	0	HR	3			M				
	55-60	mzc1	10YR58 00					0	0	HR	35			M				
1P	0-30	mzc1	10YR42 00					5	0	HR	6	MDCSAB	FR					
	30-56	mc1	10YR44 00	00MN00 00 F			75YR44 00	0	0	HR	1	WDCSAB	FM M	Y				
	56-120	c	10YR56 00	00MN00 00 F			75YR44 00	0	0	HR	20		FM M	Y				
2	0-30	mzc1	10YR43 00					4	0	HR	6							
	30-50	mzc1	10YR56 00					0	0	HR	4			M				
	50-75	hc1	10YR56 00					0	0	HR	4			M				
2P	0-29	mzc1	10YR42 00					9	0	HR	17	WDCSAB	FR	Y				
	29-40	mzc1	10YR56 00					0	0	HR	35			M				
	40-85	hzc1	10YR56 00					0	0	HR	50			M				
3	0-30	mzc1	10YR53 00					0	0		0							
	30-60	hc1	75YR54 00					0	0	HR	9			M				
3P	0-28	mzc1	10YR42 00					11	0	HR	16	WDCSAB	FR	Y				
	28-41	mc1	10YR56 00					0	0	HR	20			M	Y			
	41-120	ms1	75YR46 00	10YR64 00 F				0	0		0	MDCPL	FR M	Y				
4	0-35	mzc1	10YR43 00					0	0	HR	6							
	35-55	hc1	10YR54 00					0	0	HR	6			M				
	55-65	c	75YR54 00					0	0	HR	8			M				
4P	0-25	mzc1	10YR42 00					10	0	HR	15	WCSAB	FR	Y				
	25-60	mzc1	10YR56 00					0	0	HR	50			M				
	60-80	mc1	10YR56 00					0	0	HR	60			M				
5	0-30	mzc1	10YR53 00					0	0	HR	8							
6	0-25	mzc1	25Y 42 00					0	0	HR	4							
	25-40	hzc1	10YR44 00					0	0	HR	4			M	Y			
	40-70	c	75YR46 00					0	0	HR	3			M				
	70-80	c	75YR46 00					0	0	HR	8			M				
7	0-28	mzc1	10YR42 00					4	0	HR	8							
	28-30	mc1	10YR56 00					0	0	HR	25			M				
8	0-30	mzc1	10YR42 00					0	0	HR	4							
	30-40	mzc1	10YR56 00					0	0	HR	35			M				
9	0-25	mzc1	10YR43 00					0	0	HR	6							
	25-55	hzc1	10YR56 00					0	0		0			M				
	55-70	c	10YR58 00	00MN00 00 F				0	0	HR	4			M				

SAMPLE	DEPTH	TEXTURE	COLOUR	---MOTTLES---			PED COL	----STONES---			STRUCT/ CONSIST	SUBS					
				COL	ABUN	CONT		GLEY	>2	>6		LITH	TOT	STR	POR	IMP	SPL
11	0-30	mzc1	10YR53 00					0	0	HR	8						
	30-80	hzc1	10YR56 00					0	0	HR	8					M	
12	0-30	mzc1	10YR53 00					0	0		0						
	30 60	c	75YR56 00					0	0	HR	8					M	
13	0 25	mzc1	25Y 42 00					1	0	HR	9						
	25 28	mzc1	10YR56 42					0	0	HR	25					M	
14	0-35	mzc1	10YR42 00					2	0	HR	10						
	35 40	mzc1	10YR56 00					0	0	HR	25					M	
15	0-25	mzc1	10YR42 00					6	0	HR	11						
16	0-25	mzc1	10YR42 00					6	0	HR	8						
	25-55	mzc1	10YR56 00					0	0	HR	9					M	
17	0-30	mzc1	10YR53 00					0	0	HR	8						
	30-45	mzc1	10YR56 53					0	0	HR	8					M	
18	0-30	mzc1	10YR52 00					0	0	HR	8						
	30-35	mzc1	10YR54 00					0	0	HR	8					M	
19	0-30	mzc1	10YR53 00					0	0	HR	8						
20	0-25	mzc1	10YR42 00					4	0	HR	20						
21	0-22	mzc1	25 Y42 00					4	0	HR	20						
	22-55	mc1	10YR54 00					0	0	HR	22					M	
	55-80	c	10YR58 00	00MN00	00	M		Y	0	0	0				P	Y	Y
	80-120	c	10YR58 00	00MN00	00	M		Y	0	0	HR	5				P	Y
22	0-30	mzc1	25Y 42 00					0	0	HR	1						
23	0-28	mzc1	25Y 42 00					1	0	HR	4						
	28 35	hzc1	10YR56 42					0	0	HR	25					M	
24	0 30	mzc1	10YR43 00					6	0	HR	8						
	30 40	mzc1	10YR56 00					0	0	HR	15					M	
25	0 25	mzc1	10YR53 00					0	0	HR	6						
26	0 30	mzc1	10YR53 00					0	0	HR	8						
	30 40	mzc1	75YR56 00					0	0	HR	20					M	
27	0 20	mzc1	10YR43 00					0	0	HR	9						
28	0 30	hzc1	10YR42 00					3	0	HR	18						

SAMPLE	DEPTH	TEXTURE	COLOUR	- MOTTLES			PED		STONES		STRUCT/ CONSIST	SUBS						
				COL	ABUN	CONT	COL	GLE	>2	>6		LITH	TOT	STR	POR	IMP	SPL	CALC
29	0-30	mzc1	10YR42 00						6	0	HR	16						
30	0-30	mzc1	10YR42 00						0	0	HR	4						
31	0-30	mzc1	25Y 42 00						1	0	HR	4						
	30-35	hzc1	10YR56 42						0	0	HR	25						M
32	0-28	mzc1	25Y 42 00						1	0	HR	4						
	28-40	hzc1	10YR56 42						0	0	HR	25						M
33	0-20	mzc1	10YR53 00						0	0	HR	4						
	20-65	hzc1	10YR54 00						0	0	HR	8						M
	65-85	c	75YR56 00						0	0	HR	8						M
34	0-25	mzc1	10YR43 00						0	0	HR	10						
35	0-30	mzc1	10YR52 00						0	0	HR	8						
	30-45	mzc1	10YR56 00						0	0	HR	8						M
	45-55	hzc1	75YR56 00						0	0	HR	8						M
38	0-28	mzc1	25Y 42 00						3	0	HR	18						
	28-55	mc1	10YR54 00						0	0	HR	5						M
	55-60	c	10YR58 00						0	0	HR	25						M
39	0-25	mzc1	10YR42 00						5	0	HR	15						
	25-30	mzc1	10YR56 00						0	0	HR	35						M
40	0-25	mzc1	10YR42 00						1	0	HR	5						
	25-65	mzc1	10YR56 00						0	0	HR	5						M
	65-80	mzc1	10YR56 00						0	0	HR	25						M
41	0-25	mzc1	10YR42 00						0	0	HR	6						
	25-70	hzc1	10YR56 00						0	0	HR	5						M
	70-85	hzc1	10YR56 00						0	0	HR	25						M
43	0-20	mzc1	10YR43 00						0	0	HR	9						
44	0-20	mzc1	10YR43 00						0	0	HR	15						
45	0-25	mzc1	10YR43 00						0	0	HR	6						
47	0-20	mzc1	10YR43 00						0	0	HR	8						
48	0-25	mzc1	10YR43 00						0	0	HR	8						
49	0-35	mzc1	10YR43 00						0	0	HR	9						
50	0-28	mzc1	10YR42 00						2	0	HR	4						
	28-50	hc1	10YR56 00						0	0	HR	8						M
	50-65	hzc1	10YR58 00						0	0	HR	2						M