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MAFF Ministry of Agriculture Fisheries and Food

A1
Maidstone Borough Local Plan
Site 94: Land between Dean Street and Stockett Lane, Coxheath

Agricultural Land Classification
March 1996

Resource Planning Team
Guildford Statutory Group
ADAS Reading

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AGRICULTURAL LAND CLASSIFICATION REPORT

MAIDSTONE BOROUGH LOCAL PLAN
SITE 94: LAND BETWEEN DEAN STREET AND STOCKETT LANE, COXHEATH

Introduction

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of approximately 21 hectares of land between Dean Street and Stockett Lane at Coxheath in Kent. The survey was carried out during March 1996.

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

3. The work was conducted by members of the Resource Planning Team in the Guildford Statutory Group of ADAS. 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 most of the agricultural land was in orchard, with small areas growing Christmas trees and soft fruit. A significant amount of the site was 'Not surveyed' due to insufficient access details. The areas shown as 'Other Land' comprise residential dwellings, tracks and a scrubby embankment.

Summary

5. The findings of the survey are shown on the enclosed ALC map. The map has been drawn at a scale of 1:10,000. It is accurate at this scale, but any enlargement would be misleading.

6. The area and proportions of the ALC grades and subgrades on the surveyed land are summarised in Table 1 below.

Table 1: Area of grades and other land

Grade/Other Land	Area (hectares)	% Total Site Area	% Surveyed Area
2	0.7	3.4	5.5
3a	2.2	10.5	17.5
3b	9.7	46.4	77.0
Not surveyed	7.3	34.9	-
Other Land	1.0	4.8	-
Total Surveyed Area	12.6	-	100.0
Total Site Area	20.9	100.0	-

7. The fieldwork was conducted at an average density of approximately one boring per hectare of agricultural land surveyed. A total of 18 borings and two soil pits were described.

8. A narrow strip of land in the valley bottom has been classified as Grade 2 (very good quality). Better quality land, Subgrade 3a (good quality) also occurs across a slightly more extensive area in the east of the site. All of this land is limited by soil droughtiness. Most of the agricultural land surveyed has been classified as Subgrade 3b (moderate quality). This land is limited by significant soil droughtiness, sometimes in conjunction with a slope or topsoil stone limitation.

9. Land classified as Grade 2 comprises deep silty textured soils which are slightly stony. This land is flexible and capable of growing a range of crops with generally high yields. Land classified as Subgrade 3a comprises sandy silt loam topsoils and upper subsoils which pass into clay loam and clay lower subsoils. These profiles contain significant amounts of hard sandstone, such that this land retains less available water for uptake by crop roots. Land classified as Subgrade 3b comprises medium clay loam topsoils and upper subsoils, which also pass into clay lower subsoils. The clay loam textures, compared to the sandy silt loams, means that this land is slightly more droughty than the land classified as Subgrade 3a. To the north of Homelands Farm and to the south of Linden Farm, significant amounts of hard sandstone in the top 25 cm act to impede cultivation and increase wear and tear to tyres and implements. Consequently this land is also classified as Subgrade 3b because of a topsoil stone limitation. Along the valley sides, gradients within the range of 7-11° act to impose a limitation on the safe and efficient use of agricultural machinery. This land has therefore been classified as Subgrade 3b also.

Factors Influencing ALC Grade

Climate

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

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

12. 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.

13. 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.

Table 2: Climatic and altitude data

Factor	Units	Values
Grid reference	N/A	TQ 742 518
Altitude	m, AOD	103
Accumulated Temperature	day°C	1392
Average Annual Rainfall	mm	701
Field Capacity Days	days	141
Moisture Deficit, Wheat	mm	111
Moisture Deficit, Potatoes	mm	105

14. The combination of rainfall and accumulated temperature at this site mean that there is no overall climatic limitation at this site. However, climatic factors do interact with soil properties to influence soil wetness and droughtiness limitations. The crop-adjusted soil moisture deficits at this locality are very slightly above the average for the south-east of England. This increases the likelihood of soil droughtiness limitations. No local climatic factors, such as exposure and frost risk, are believed to adversely affect the land quality on the site. This site is climatically Grade 1.

Site

15. The eastern block of the site occupies gently sloping land of both northerly and easterly aspect. The land falls from 105 to 100 m AOD through gradients of 1-4°. The western block of the site occupies both relatively flat and steeply sloping land. The former occurs in the immediate vicinity of Homelands Farm and along the eastern boundary, where the land lies at approximately 100 m AOD. This land is dissected by a steeply sloping valley, the bottom of which is flatter and lies at approximately 95 m AOD. The sides of this valley occupy gradients of 4-11°. Where slopes of 7-11° occur the land is subject to gradient restrictions (see para. 23).

Geology and soils

16. The published geological information (BGS, 1974) shows the entire site to be underlain by Hythe Beds (sandy limestone and calcareous sand). Drift deposits of head are shown to overlie the Beds in the south and south-west of the site.

17. The published soils information (SSEW, 1983) shows most of the site to comprise soils of the Malling Association. The legend accompanying the map describes these soils as 'Well drained non-calcareous fine loamy soils over limestone at variable depths. Some deep well drained coarse loamy soils and similar fine loamy over clayey soils. Some fine loamy soils with slowly permeable subsoils and slight seasonal waterlogging. Occasional shallower calcareous soils over limestone. Landslips and associated irregular terrain locally.' (SSEW, 1983). Soils of the Marlow Association are mapped in conjunction with the drift deposits of head. These soils are described as 'Well drained fine loamy over clayey soils. Some coarse and fine loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging.' (SSEW, 1983).

Agricultural Land Classification

18. 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.

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

Grade 2

20. The valley bottom dissecting the western block of the land surveyed has been mapped as Grade 2, very good quality. This land is subject to slight soil droughtiness limitations and occurs in conjunction with the drift deposits of head. Profiles typically comprise deep, permeable, non-calcareous medium silty clay loams, which sometimes have medium sandy silt loam lower subsoils. Some profiles are gleyed from 80 cm depth; others exhibit no gleying. As such, these profiles are well drained (Wetness Class I, see Appendix II). Topsoils are slightly to very slightly stony, containing 1-4% of hard sandstone (> 2 cm) and 5-10% total hard sandstone by volume. The interaction between these soil characteristics and the relatively dry prevailing climate slightly reduces the amount of profile available water for plants. This is likely to have the effect of restricting the level and consistency of crop yields to the extent that Grade 2 is appropriate.

Subgrade 3a

21. A relatively small area of land in the east of the site has been classified as Subgrade 3a, good quality. This land is limited by soil droughtiness and also, in parts, by topsoil stoniness. Topsoils and upper subsoils comprise non-calcareous medium sandy silt loams. These pass into heavier, medium clay loam and clay, lower subsoils at approximately 35 to 50 cm depth. Topsoils are moderately stony, containing 9-12% of stone > 2 cm and 3-4% of stone > 6 cm and 25% total hard sandstone by volume. Where the top 25 cm contains more than 10% of hard sandstone larger than 2 cm, this land is subject to a topsoil stone limitation. This acts to impede cultivation, and increase wear and tear to tyres and implements. The subsoils have similar stone contents to the topsoils, containing 30% total hard sandstone by volume. At approximately 65 to 70 cm depth, these profiles proved impenetrable to a soil auger. Consequently, Pit 2 was dug to assess the soil conditions of horizons below 65 to 70 cm depth.

22. From Pit 2 it could be seen that the auger proved impenetrable because the underlying horizons are very stony. Lower subsoils were found to comprise medium clay loams which passed into clays at approximately 68 cm depth. The clay loam horizon was estimated to contain 60% total hard sandstone by volume; the clay horizons a total of 30-40%. At approximately 105 cm depth Pit 2 passed into dense sandstone. Roots may be able to penetrate very slightly below this depth. However, it is unlikely that crop roots could efficiently extract water from below this depth. From Pit 2 the lighter subsoils, medium sandy silt loam and medium clay loam, were assessed as permeable. Despite the relatively high sandstone content, the clay lower subsoils were found to be poorly structured, of low porosity and slowly permeable. This is indicated by gleying within these horizons and, occasionally, at shallower depths. Consequently, these profiles are moderately well drained (Wetness Class

II). However, the overriding limitation is that of soil droughtiness. The interaction between the soil characteristics (texture, stone contents, subsoil structures and restricted rooting) with the relatively dry prevailing climate acts to impart a moderate soil droughtiness limitation. This may result in the soil available water being insufficient to fully meet crop needs in some years. Consequently this land may suffer from reduced and less consistent crop yields.

Subgrade 3b

23. The majority of agricultural land has been classified as Subgrade 3b, moderate quality. This land is limited by soil droughtiness, sometimes in conjunction with topsoil stone or gradient limitations. The latter occur along the valley sides where gradients are in the range of 7-11°. Such slopes act to restrict the range of agricultural machinery that may be safely and efficiently used.

24. Profiles across this mapping unit comprise non-calcareous medium clay loams and, occasionally, medium sandy loams. These overlie similarly textured upper subsoils which sometimes pass into clay horizons at approximately 35 to 50 cm depth. Topsoils tend to be moderately stony, typically containing 11-22% of stone > 2 cm and 2-5% of stone > 6 cm and 25-35% total hard sandstone by volume. Where the top 25 cm contains more than 15% of hard sandstone larger than 2 cm this land is subject to a significant topsoil stone limitation. This acts to impede cultivation and crop growth, and increase wear and tear to tyres and implements. The subsoils are similarly stony to the topsoils, occasionally slightly stonier, containing 25-40% total hard sandstone by volume. At approximately 45 to 70 cm depth these profiles proved impenetrable to a soil auger. Consequently Pit 1 was dug to investigate the lower subsoil conditions.

25. From Pit 1 it could be seen that the auger proved impenetrable because the underlying horizons are very stony, namely clay with 50% total hard sandstone by volume. At approximately 80 cm depth this profile passed into dense sandstone. The extremely compact nature of the underlying sandstone made it impossible to dig beyond 80 cm depth. Consequently, it is considered unlikely that crop roots would be able to penetrate below this depth in order to extract water. Despite the relatively high sandstone content, the clay lower subsoils were found to be poorly structured, of low porosity and slowly permeable. This is indicated by gleying within and above these horizons. Where the clay occurs at relatively shallow depths (45 to 65 cm) within the soil profile these profiles are assessed as imperfectly drained (Wetness Class III); below this depth the profiles are moderately well drained (Wetness Class II). However, the overriding limitation is that of soil droughtiness. The interaction between the soil characteristics (texture, stone contents, subsoil structures and restricted rooting) with the relatively dry prevailing climate results in the amount of soil available water being inadequate to meet crop requirements in most years. The resultant soil droughtiness limitation means that this land will suffer from lower and less consistent yield potential.

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SOURCES OF REFERENCE

British Geological Survey (1974) *Sheet No. 288, Maidstone, 1:50,000.*
BGS: London.

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

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

Soil Survey of England and Wales (1983) *Sheet 6, Soils of South East England, 1:250,000 and accompanying legend.*
SSEW: Harpenden.

APPENDIX I

DESCRIPTIONS OF THE GRADES AND SUBGRADES

Grade 1: Excellent Quality Agricultural Land

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

Grade 2: Very Good Quality Agricultural Land

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

Grade 3: Good to Moderate Quality Land

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

Subgrade 3a: Good Quality Agricultural Land

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

Subgrade 3b: Moderate Quality Agricultural Land

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

Grade 4: Poor Quality Agricultural Land

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

Grade 5: Very Poor Quality Agricultural Land

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

APPENDIX II

SOIL WETNESS CLASSIFICATION

Definitions of Soil Wetness Classes

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

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

Assessment of Wetness Class

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

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

APPENDIX III

SOIL DATA

Contents:

SOIL PROFILE DESCRIPTIONS: EXPLANATORY NOTE

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

Boring Header Information

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

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

ARA:	Arable	**WHT:**	Wheat	**BAR**:	Barley
CER:	Cereals	**OAT**:	Oats	**MZE**:	Maize
OSR:	Oilseed rape	**BEN**:	Field Beans	**BRA**:	Brassicae
POT:	Potatoes	**SBT**:	Sugar Beet	**FCD**:	Fodder Crops
LIN:	*Linseed*	**FRT**:	*Soft and Top Fruit*	**FLW**:	*Fallow*
PGR:	Permanent Pasture	**LEY**:	Ley Grass	**RGR**:	Rough Grazing
SCR:		Scrub	**CFW**:		Coniferous Woodland
DCW: Deciduous Wood					
HTH:	Heathland	**BOG**:	Bog or Marsh	**FLW**:	Fallow
PLO:	Ploughed	**SAS**:	Set aside	**OTH**:	Other
HRT:	Horticultural Crops				

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

4. **GLEY/SPL**: Depth in centimetres (cm) to gleying and/or slowly permeable layers.

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

6. **MB (WHEAT/POTS)**: Moisture Balance. (Crop adjusted AP - crop adjusted MD)

7. **DRT**: Best grade according to soil droughtiness.

8. If any of the following factors are considered significant, 'Y' will be entered in the relevant column.

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

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

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

Soil Pits and Auger Borings

1. **TEXTURE**: soil texture classes are denoted by the following abbreviations.

S:	Sand	**LS**:	Loamy Sand	**SL**:	Sandy Loam
SZL:	Sandy Silt Loam	**CL**:	Clay Loam	**ZCL**:	Silty Clay Loam
ZL:	Silt Loam	**SCL**:	Sandy Clay Loam	**C**:	Clay
SC:	Sandy Clay	**ZC**:	Silty Clay	**OL**:	Organic Loam
P:	Peat	**SP**:	Sandy Peat	**LP**:	Loamy Peat
PL:	Peaty Loam	**PS**:	Peaty Sand	**MZ**:	Marine Light Silts

For the sand, loamy sand, sandy loam and sandy silt loam classes, the predominant size of sand fraction will be indicated by the use of the following prefixes:

F: Fine (more than 66% of the sand less than 0.2mm)
M: Medium (less than 66% fine sand and less than 33% coarse sand)
C: Coarse (more than 33% of the sand larger than 0.6mm)

The clay loam and silty clay loam classes will be sub-divided according to the clay content: **M:** Medium (<27% clay) **H**: Heavy (27-35% clay)

2. **MOTTLE COL**: Mottle colour using Munsell notation.

3. **MOTTLE ABUN**: Mottle abundance, expressed as a percentage of the matrix or surface described.

F: few <2% **C:** common 2-20% **M**: many 20-40% **VM**: very many 40% +

4. **MOTTLE CONT:** Mottle contrast

F: faint - indistinct mottles, evident only on close inspection
D: distinct - mottles are readily seen
P: prominent - mottling is conspicuous and one of the outstanding features of the horizon

5. **PED. COL**: Ped face colour using Munsell notation.

6. **GLEY:** If the soil horizon is gleyed a 'Y' will appear in this column. If slightly gleyed, an 'S' will appear.

7. **STONE LITH**: Stone Lithology - One of the following is used.

HR:	all hard rocks and stones	**SLST**:	soft oolitic or dolimitic limestone
CH:	chalk	**FSST**:	soft, fine grained sandstone
ZR:	soft, argillaceous, or silty rocks	**GH**:	gravel with non-porous (hard) stones
MSST:	soft, medium grained sandstone	**GS**:	gravel with porous (soft) stones
SI:	soft weathered igneous/metamorphic rock		

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

8. **STRUCT**: the degree of development, size and shape of soil peds are described using the following notation:

degree of development	**WK**: weakly developed **ST**: strongly developed	**MD**: moderately developed
ped size	**F**: fine **C**: coarse	**M**: medium **VC**: very coarse
ped shape	**S** : single grain **GR**: granular **SAB**: sub-angular blocky **PL**: platy	**M**: massive **AB**: angular blocky **PR**: prismatic

9. **CONSIST**: *Soil consistence is described using the following notation:*

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

10. **SUBS STR**: Subsoil structural condition recorded for the purpose of calculating profile droughtiness: **G**: good **M**: moderate **P**: poor

11. **POR**: Soil porosity. If a soil horizon has less than 0.5% biopores >0.5 mm, a 'Y' will appear in this column.

12. **IMP**: If the profile is impenetrable to rooting a 'Y' will appear in this column at the 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 : MAIDSTONE BLP SITE 94 Pit Number : 1P

Grid Reference: TQ74105190 Average Annual Rainfall : 701 mm
Accumulated Temperature : 1392 degree days
Field Capacity Level : 141 days
Land Use : Permanent Grass
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 19	MCL	10YR43 00	11	25	HR					
19- 40	MSL	10YR72 73	0	5	HR	M	MDCSAB	FR	M	
40- 80	C	25Y 64 00	0	50	HR	M	WKCSAB	FM	P	

Wetness Grade : 3A Wetness Class : III
Gleying :019 cm
SPL :040 cm

Drought Grade : 3B APW : 74 mm MBW : -37 mm
APP : 77 mm MBP : -28 mm

FINAL ALC GRADE : 3B
MAIN LIMITATION : Droughtiness

SOIL PIT DESCRIPTION

Site Name : MAIDSTONE BLP SITE 94 Pit Number : 2P

Grid Reference: TQ74205170 Average Annual Rainfall : 701 mm
Accumulated Temperature : 1392 degree days
Field Capacity Level : 141 days
Land Use :
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 27	MSZL	10YR32 00	11	20	HR					
27- 47	MSZL	10YR43 00	0	30	HR		MDCSAB	FR	M	
47- 68	MCL	10YR64 00	0	60	HR		WKCSAB	FR	M	
68- 83	C	25Y 64 00	0	40	HR	M	WKCSAB	FM	P	
83-105	C	25Y 62 00	0	30	HR	M	WKCSAB	FM	P	

Wetness Grade : 1 Wetness Class : II
Gleying :068 cm
SPL :068 cm

Drought Grade : 3A APW : 94 mm MBW : -17 mm
APP : 82 mm MBP : -23 mm

FINAL ALC GRADE : 3A
MAIN LIMITATION : Droughtiness

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	TQ73965197	HRT			025		2	2	46	-65	46	-59	4				ST	3B	Imp45 hard sst
1A	TQ74035197	PGR					1	1	150	39	112	7	2				DR	2	Valley bottom
1P	TQ74105190	PGR			019	040	3	3A	74	-37	77	-28	3B				DR	3B	Bedded sst 80
2	TQ74105200	PGR	NE	05	025		2	1	53	-58	53	-52	4				DR	3B	Imp45 hard sst
2P	TQ74205170	ORC			068	068	2	1	94	-17	82	-23	3A				DR	3A	Bedded sst 105
3	TQ73805188	PGR			025		2	2	53	-58	53	-52	4				DR	3B	Imp40 hard sst
4	TQ73905188	PGR	E	01	020		2	2	46	-65	46	-59	4				DR	3B	Imp40 hard sst
5	TQ74045189	PGR	W	03	020		2	2	59	-52	59	-46	4				DR	3B	Imp48 hard sst
6	TQ74105190	PGR			022		2	2	60	-51	62	-43	4				DR	3B	Imp55 hard sst
7	TQ73905180	FAL	E	04	080		1	1	155	44	121	16	1					1	Sl. gleyed 48
9	TQ74105180	ORC					1	1	56	-55	56	-49	4				DR	3B	Slgley30;Imp45
10	TQ74205180	ORC	N	04	030	040	3	3A	73	-38	82	-23	3B				DR	3B	Imp70 hard sst
11	TQ74305180	ORC	E	01	025	050	3	2	77	-34	86	-19	3B				DR	3A	Imp70 hard sst
12	TQ74405180	ORC	E	01	015		2	2	55	-56	55	-50	4				DR	3B	Imp45 hard sst
14	TQ74105172	ORC	NE	03	025		2	2	70	-41	74	-31	3B				DR	3B	Imp60 hard sst
15	TQ74205170	ORC					1	1	76	-35	83	-22	3B				DR	3A	Imp65 hard sst
16	TQ74325170	ORC	N	01	025		2	2	56	-55	56	-49	4				DR	3B	Imp45 hard sst
17	TQ74405170	ORC	E	03		040	3	3A	69	-42	76	-29	3B				DR	3B	Slgley15;Imp65
19	TQ74305160	FRT			030	040	3	3A	58	-53	58	-47	4				DR	3B	Imp50 hard sst
20	TQ74375157	ORC	W	01			1	1	71	-40	71	-34	3B				DR	3B	Sl gley0;Imp48

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	0-25	msl	10YR42 00					22 12 HR	35						
	25-45	msl	10YR64 00	75YR58 00 C			Y	0 0 HR	45		M				Imp45 hard sst
1A	0-25	mzcl	10YR43 00					4 0 HR	10						
	25-60	mzcl	10YR54 00					0 0 HR	10		M				
	60-120	mszl	10YR54 00					0 0 HR	10		M				
1P	0-19	mcl	10YR43 00					11 3 HR	25						
	19-40	msl	10YR72 73	75YR58 00 M			Y	0 0 HR	5	MDCSAB FR	M				
	40-80	c	25Y 64 00	05Y 46 00 M			Y	0 0 HR	50	WKCSAB FM	P		Y		Imp80 bedrock
2	0-25	msl	10YR43 00					13 4 HR	25						
	25-35	msl	10YR64 00	75YR58 00 C			Y	0 0 HR	35		M				
	35-45	msl	10YR54 00	05YR58 00 C			S	0 0 HR	35		M				Sl gley;Imp45
2P	0-27	mszl	10YR32 00					11 3 HR	20						
	27-47	mszl	10YR43 00					0 0 HR	30	MDCSAB FR	M				
	47-68	mcl	10YR64 00					0 0 HR	60	WKCSAB FR	M				
	68-83	c	25Y 64 00	75YR58 00 M			Y	0 0 HR	40	WKCSAB FM	P		Y		
	83-105	c	25Y 62 00	05Y 58 00 M			Y	0 0 HR	30	WKCSAB FM	P		Y		Imp105 bedrock
3	0-25	mszl	10YR43 00					14 5 HR	25						
	25-40	mzcl	10YR64 00	75YR58 00 M			Y	0 0 HR	35		M				Imp40 hard sst
4	0-20	msl	10YR42 00					13 4 HR	25						
	20-40	mcl	10YR64 00	75YR58 00 M			Y	0 0 HR	40		M				Imp40 hard sst
5	0-20	mcl	10YR43 00					12 2 HR	22						
	20-35	mcl	10YR63 73	75YR58 00 M			Y	0 0 HR	35		M				
	35-48	c	05YR58 00					0 0 HR	35		M				Imp48 hard sst
6	0-22	mcl	10YR43 00					11 3 HR	25						
	22-45	msl	10YR64 00	75YR58 00 M			Y	0 0 HR	35		M				
	45-55	c	75YR56 00	05YR58 00 M			S	0 0 HR	35		P				Sl gley; Imp55
7	0-25	mzcl	10YR43 00					1 0 HR	5						
	25-48	mzcl	10YR54 00					0 0 HR	1		M				
	48-80	mzcl	10YR54 00	10YR58 00 C		00MN00 00	S	0 0 HR	1		M				Slightly gleyed
	80-120	mzcl	10YR64 00	75YR58 00 C			Y	0 0 HR	5		M				
9	0-20	mcl	10YR43 00					13 3 HR	25						
	20-30	mcl	10YR64 00					0 0 HR	25		M				
	30-45	hcl	75YR56 00	05YR58 00 M		00MN00 00	S	0 0 HR	35		M				Sl gley; Imp45
10	0-30	mcl	10YR43 00					11 3 HR	25						
	30-40	mcl	10YR64 00	10YR58 00 C			Y	0 0 HR	25		M				
	40-70	c	10YR64 00	05Y 58 00 M		00MN00 00	Y	0 0 HR	30		P		Y		Imp70 hard sst

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
11	0-25	mszl	10YR43 00						9	3	HR	25							
	25-50	mszl	25Y 64 00	75YR58 00	C			Y	0	0	HR	30		M					
	50-70	c	10YR64 00	05Y 58 00	M		00MN00 00	Y	0	0	HR	30		P		Y			Imp70 hard sst
12	0-15	mcl	10YR43 00						12	4	HR	25							
	15-35	mcl	25Y 64 00	10YR56 00	C			Y	0	0	HR	25		M					
	35-45	mcl	25Y 64 00	75YR58 00	M			Y	0	0	HR	40		M					Imp45 hard sst
14	0-25	mcl	10YR43 00						9	3	HR	20							
	25-60	mcl	10YR64 00	75YR58 00	C			Y	0	0	HR	35		M					Imp60 hard sst
15	0-25	mszl	10YR32 00						12	4	HR	25							
	25-35	mszl	10YR54 00						0	0	HR	30		M					
	35-65	mcl	10YR54 00						0	0	HR	30		M					Imp65 hard sst
16	0-25	mcl	10YR43 00						13	4	HR	25							
	25-45	mcl	10YR53 00	75YR58 00	C			Y	0	0	HR	35		M					Imp45 hard sst
17	0-15	mcl	10YR42 00						9	3	HR	20							
	15-40	scl	25Y 54 00	75YR58 00	C			S	0	0	HR	25		M					Slightly gleyed
	40-65	c	25Y 54 53	75YR58 00	M			S	0	0	HR	25		P		Y			Sl gley; Imp65
19	0-30	mcl	10YR42 00						17	5	HR	30							
	30-40	mcl	10YR64 00	75YR58 00	C			Y	0	0	HR	35		M					
	40-50	c	25Y 64 00	05Y 58 00	M			Y	0	0	HR	40		P		Y			Imp50 hard sst
20	0-30	mcl	10YR43 00	75YR66 00	C			S	4	2	HR	15							
	30-40	mcl	75YR64 00	75YR58 00	C			Y	0	0	HR	5		M					
	40-48	mcl	75YR64 00	75YR58 00	C			S	0	0	HR	25		M					Imp48 hard sst