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Maidstone Borough Local Plan
Site 10 Boughton Mount, Maidstone
Agricultural Land Classification
ALC Map and Report
August 1994

AGRICULTURAL LAND CLASSIFICATION REPORT

MAIDSTONE BOROUGH LOCAL PLAN
SITE 10 BOUGHTON MOUNT, MAIDSTONE

1 Summary

1 1 ADAS was commissioned by MAFF's Land Use Planning Unit to provide information on land quality for a number of sites in the borough of Maidstone in Kent The work forms part of MAFF s statutory input to the preparation of the Maidstone Borough Local Plan

1 2 Site 10 comprises approximately 68 hectares of land around Boughton Mount Farm Maidstone south of Maidstone An Agricultural Land Classification (ALC) survey was carried out during August 1994 The survey was undertaken at a detailed level of approximately one boring per hectare A total of 62 borings and four soil inspection pits were described in accordance with MAFF's revised guidelines and criteria for grading the quality of agricultural land (MAFF 1988) These guidelines provide a framework for classifying land according to the extent to which its physical or chemical characteristics impose a long term limitation on its use for agriculture In addition information from a previous detailed survey carried out in 1988 was used in the grading of this site

1 3 The work was carried out by members of the Resource Planning Team in the Guildford Statutory Group of ADAS

1 4 At the time of the survey the agricultural land on the site comprised apple and pear orchards with an area of rough grassland in the south Areas on the site mapped as non agricultural include scrub in the west and un metalled tracks Private dwellings tarmac roads and the Boughton Mount building have been mapped as urban The farm buildings comprise a packing plant at Boughton Mount Farm

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 10 000 It is accurate at this scale but any enlargement would be misleading

Table 1 Distribution of Grades and Subgrades

Grade	Area (ha)	% of Site	% of Agricultural Land
2	10 4	15 1	17 7
3a	48 2	70 3	82 3
Non agricultural	2 3	3 4	100% (58 6 ha)
Urban	6 4	9 3	
Woodland	0 3	0 4	
Farm buildings	1 0	1 5	
Total area of site	68 6	100%	

1 6 Appendix I gives a general description of the grades 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 majority of the agricultural land on the site has been classified as Subgrade 3a good quality land with soil wetness and droughtiness as the main limitations The majority of the borings within this mapping unit proved to be impenetrable below a medium silty clay loam or medium clay loam topsoil Two subsequent soil inspection pits showed the existence of a slowly permeable clay subsoil which slightly restricts drainage Such drainage characteristics equate to Wetness Class III with a resultant classification of Subgrade 3a Poorly drained soils can inhibit plant and root development and may be more susceptible to structural damage through trafficking by machinery or poaching by grazing livestock The remainder of the agricultural land on the site is classified as Grade 2 very good quality land with soil wetness and droughtiness as the main limitations Towards the south west of the site profiles show similar characteristics to the Subgrade 3a land yet the slowly permeable clay is deeper in the profile Therefore restrictions upon drainage are lessened such that a classification of Grade 2 is more appropriate Towards the north of the site the lower subsoil tends to be of a lighter medium silty clay loam texture and profiles are well drained However stone contents tend to be comparatively higher such that droughtiness is the principal limitation This arises due to a slight restriction on profile available water caused by a combination of soil textures structures and stone contents interacting with the local climate which can affect crop yields

2 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 an overall climatic limitation are average annual rainfall as a measure of overall wetness and accumulated temperature (degree days Jan-June) 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 However climatic factors do interact with soil factors to influence soil wetness and droughtiness limitations The field capacity days are relatively low in a regional context due to the cool dry climate which prevails Therefore the likelihood of any soil wetness problems may be decreased

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

Table 2 Climatic Interpolations

Grid Reference	TQ 774520	TQ 771525
Altitude (m)	100	95
Accumulated Temperature (degree days Jan June)	1394	1400
Average Annual Rainfall (mm)	707	708
Field Capacity (days)	144	144
Moisture Deficit Wheat (mm)	111	111
Moisture Deficit Potatoes (mm)	105	105
Overall Climatic Grade	1	1

3 Relief

3 1 The site is generally flat lying at an altitude in the range of 90-100 m AOD The land is gently sloping towards the southern edge of the site yet gradients are not sufficiently great to pose any limitation upon agricultural use

4 Geology and Soil

4 1 The relevant geological sheet (BGS 1976) shows the entire site to be underlain by Hythe Beds

4 2 The published Soil Survey map (SSEW 1983) shows the soils on the site to comprise those of the Malling association These soils are described as well drained non calcareous fine loamy soils over limestone at variable depths Some fine loamy soils with slowly permeable subsoils with slight seasonal waterlogging (SSEW 1983)

4 3 Detailed field examination found the soils over much of the site to be impenetrable (to the soil auger) at shallow depths with a slowly permeable clay subsoil interbedded with hard flaggy sandstone being evident from the description of the soil pits

5 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 are shown on the attached sample point map

Grade 2

5 3 Land of this quality has been mapped towards the south west and north east of the site The principal limitations upon agricultural use within this mapping unit are minor soil wetness and droughtiness A small number of soil observations within this mapping unit proved impenetrable below the topsoil yet the majority were impenetrable at depths of between 50 90cm

5 4 Where soil observations have proved impenetrable information gained from soil inspection pits and soil data from a previous survey (ADAS Ref 2007/44/88) has been used for grading purposes

5 5 Soil profiles in the north eastern mapping unit tend to comprise very slightly (2 5% total sandstone) or slightly stony (5-8% total sandstone) medium silty clay loam or medium clay loam topsoils Where soils did not prove impenetrable to the auger below the topsoil subsoils were found to become heavier and moderately stony (8 10% total sandstone) with depth A subsequent soil inspection pit (Pit no 3) was dug in this area of the site to assess the nature of the subsoils The soil profile was found to comprise a slightly stony (5% total sandstone) medium clay loam topsoil resting upon a moderately stony (30% total sandstone) clay upper subsoil which extends to a depth of 47cm Below this depth the profile becomes lighter in texture consisting of a moderately stony (20% total sandstone) slightly gleyed medium silty clay loam which extends to depth The profile is well drained and is assigned to Wetness Class I The combination of soil textures moderate substructural conditions stone contents and the local climatic regime means that there is a slight restriction on the amount of profile available water for plant growth This will have an effect upon the level and consistency of crop yields such that a classification of Grade 2 is appropriate

5 6 In the south western Grade 2 mapping unit the majority of soil observations proved impenetrable to the auger at deeper depths than elsewhere on the site A soil inspection pit (Pit no 4) showed the soil profile to comprise a slightly stony (8% total sandstone) medium silty clay loam topsoil a similarly textured upper subsoil containing 10% total sandstone extends to a depth of 42cm The lower subsoil consists of clay and silty clay horizons A slightly stony (12% total sandstone) clay extends to 69cm the depth at which a very slightly stony (5% total sandstone) silty clay horizon commences The lower subsoils are slightly gleyed being poorly structured and slowly permeable from a depth of 56cm Such drainage characteristics equate these soils to Wetness Class II with a resultant classification of Grade 2 The slight drainage impedance means that these soils may suffer from slight wetness problems such as poaching by grazing livestock or structural damage caused by agricultural machinery Furthermore these soils are also affected by a slight droughtiness limitation similar to land in the other Grade 2 mapping unit

Subgrade 3a

5 7 Land of this quality comprises the largest proportion of land on the site As elsewhere on the site the principal limitations upon agricultural use are soil wetness and to a lesser extent droughtiness The majority of soil observations within this mapping unit proved impenetrable to the auger at depths of between 20 60cm impenetrable horizons directly below the topsoil are widespread

5 8 Where soil observations have proved impenetrable information gained from soil inspection pits and soil data from a previous survey (ADAS Ref 2007/44/88) has been used for grading purposes

5 9 Topsoil textures vary across the site the majority comprising medium silty clay loams and medium clay loams although heavy clay loams and silt loam topsoils do occur in isolated patches on the site The impenetrable nature of these soils meant that it was necessary to dig two soil inspection pits to investigate the nature of the subsoils It is evident from both pits that a compact and slightly stony (containing 10% total sandstone of a hard nature) upper subsoil is responsible for the impenetrability of many of the profiles Pit no 1 showed the soil profile to comprise a very slightly stony (4% total sandstone) medium clay loam topsoil overlying a slightly stony (10% total sandstone) medium silty clay loam upper subsoil extending to 36cm This in turn rests upon a very slightly stony (3% total sandstone) clay lower subsoil Profiles show some signs of wetness in the form of slight gleying from below the topsoil The structures of the clay lower subsoil are poor and of a slowly permeable nature causing a drainage impedance The soil profile in Pit no 2 shows similarities to Pit no 1 the main differences being topsoil and upper subsoil textures At this location on the site a very slightly stony (4% total sandstone) medium silty clay loam topsoil rests upon a slightly stony (10% total sandstone) silt loam upper subsoil with a stoneless and slightly gleyed clay lower subsoil commencing at 47cm Once again the clay lower subsoil proves to be poorly structured and slowly permeable The drainage characteristics exhibited by both of the soil inspection pits allows the profiles to be assigned to Wetness Class III When considered along with the topsoil textures and the field capacity days for the site this gives a resultant classification of Subgrade 3a The moderate drainage imperfection exhibited by these soil profiles means that plant and root development may be restricted and the soils may be more susceptible to structural damage through trafficking by agricultural machinery or poaching by grazing livestock It has been assumed that a slowly permeable clay subsoil similar to that observed in the soil inspection pits exists elsewhere within this mapping unit where profiles proved impenetrable Therefore the majority of agricultural land on the site has been classified as Subgrade 3a with soil wetness as the main limitation

SOURCES OF REFERENCE

British Geological Survey (1976) Sheet No 288 Maidstone 1 50 000 Series (solid and drift edition)

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

Soil Survey of England and Wales (1983) Sheet 6 Soils of South East England 1 250 000 and accompanying legend

APPENDIX I

DESCRIPTION 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 (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 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 including 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 Also active mineral workings and refuse tips where restoration conditions to 'soft' after uses may apply

Woodland

Includes commercial and non commercial woodland A distinction may be made as necessary between farm and non-farm 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

FIELD ASSESSMENT OF SOIL WETNESS CLASS

SOIL WETNESS CLASSIFICATION

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

Definition of Soil Wetness Classes

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

Soils can be allocated to a wetness class on the basis of quantitative data recorded over a period of many years or by the interpretation of soil profile characteristics site and climatic factors Adequate quantitative data will rarely be available for ALC surveys and therefore the interpretative method of field assessment is used to identify soil wetness class in the field The method adopted here is common to ADAS and the SSLRC

[1] The number of days specified is not necessarily a continuous period

[2] In most years is defined as more than 10 out of 20 years

APPENDIX III

SOIL PIT AND SOIL BORING DESCRIPTIONS

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	**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	

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 appropiate 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 LP SITE 10 Pit Number 1P

Grid Reference TQ77465208 Average Annual Rainfall 707 mm
Accumulated Temperature 1394 degree days
Field Capacity Level 144 days
Land Use
Slope and Aspect degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 28	MCL	10YR43 00	2	4	HR					
28 36	MZCL	10YR44 00	0	10	HR	C	MDCSAB	FR	M	
36- 54	C	05YR54 00	0	3	HR	C	MDMPR	FM	P	
54- 67	C	05YR54 00	0	3	HR	C	MDCAB	FM	P	
67 120	C	05YR54 00	0	3	HR	C	WKCSAB	FM	P	

Wetness Grade 3A Wetness Class III
Gleying S28 cm
SPL 036 cm

Drought Grade 2 APW 126mm MBW 15 mm
APP 104mm MBP -1 mm

FINAL ALC GRADE 3A
MAIN LIMITATION Wetness

SOIL PIT DESCRIPTION

Site Name MAIDSTONE LP SITE 10 Pit Number 2P

Grid Reference TQ77585198 Average Annual Rainfall 707 mm
Accumulated Temperature 1394 degree days
Field Capacity Level 144 days
Land Use
Slope and Aspect degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 28	MZCL	10YR43 00	2	4	HR					
28- 47	ZL	10YR54 00	0	10	HR	C	MDCSAB	FR	M	
47 70	C	05YR54 00	0	0		C	STCAB	FM	P	

Wetness Grade 3A Wetness Class III
Gleying 547 cm
SPL 047 cm

Drought Grade 3A APW 107mm MBW -4 mm
APP 119mm MBP 14 mm

FINAL ALC GRADE 3A
MAIN LIMITATION Wetness

SOIL PIT DESCRIPTION

Site Name MAIDSTONE LP SITE 10 Pit Number 3P

Grid Reference TQ77305280 Average Annual Rainfall 707 mm
Accumulated Temperature 1394 degree days
Field Capacity Level 144 days
Land Use
Slope and Aspect degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0 27	MCL	10YR43 00	2	5	HR					
27- 47	C	05YR54 00	0	30	HR		MDCSAB	FM	M	
47 120	MZCL	75YR54 00	0	20	HR	C	MDCSAB	FR	M	

Wetness Grade 1 Wetness Class I
Gleying S47 cm
SPL No SPL

Drought Grade 2 APW 130mm MBW 19 mm
APP 101mm MBP 4 mm

FINAL ALC GRADE 2
MAIN LIMITATION Droughtiness

SOIL PIT DESCRIPTION

Site Name MAIDSTONE LP SITE 10 Pit Number 4P

Grid Reference TQ77145198 Average Annual Rainfall 707 mm
Accumulated Temperature 1394 degree days
Field Capacity Level 144 days
Land Use
Slope and Aspect degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 23	MZCL	10YR43 00	2	8	HR					
23 42	MZCL	10YR54 00	0	10	HR		MDCSAB	FR	M	
42- 56	C	75YR54 00	0	12	HR	C	MDCSAB	FM	M	
56- 69	C	75YR54 00	0	12	HR	C	WKCAB	FM	P	
69 120	ZC	10YR54 00	0	5	HR	C	MDCAB	FM	P	

Wetness Grade 2 Wetness Class II
Gleying S42 cm
SPL 056 cm

Drought Grade 2 APW 127mm MBW 16 mm
APP 106mm MBP 1 mm

FINAL ALC GRADE 2
MAIN LIMITATION Wetness

SAMPLE NO	GRID REF	USE	ASPECT GRDNT	GLEY SPL	WETNESS CLASS	WHEAT GRADE	POTS AP	POTS MB	M REL AP	M REL MB	DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1	TQ77105280	ORC		S50 050	3	3A	109	2	114	9	3A				WE	3A	
1P	TQ77465208	ORC		S28 036	3	3A	126	15	104	-1	2				WE	3A	P90A120
2	TQ77205280	ORC		S22 043	3	3A	105	6	110	5	3A				WE	3A	
2P	TQ77585198	ORC		S47 047	3	3A	107	-4	119	14	3A				WE	3A	PIT 70
3	TQ77105270	ORC			1	1	85	26	85	-20	3B				DR	3A	I45 SEE 2P
3P	TQ77305280	ORC		S47	1	1	130	19	101	-4	2				DR	2	
4	TQ77205270	ORC		S65 070	2	2	128	17	120	15	2				WE	2	
4P	TQ77145198	ORC		S42 056	2	2	127	16	106	1	2				WD	2	
5	TQ77305270	ORC		0	2	2	81	30	81	24	3B				WE	3A	I45 SEE1P/2P
6	TQ77105260	ORC			1	1	92	19	94	11	3A				DR	2	I55 SEE 3P
7	TQ77205260	ORC			1	1	80	31	80	-25	3B				DR	3A	I40 SEE 2P
8	TQ77305260	ORC		S35 035	3	3A	89	22	99	6	3B				WE	3A	I70 SEE1P/2P
9	TQ77105250	ORC			1	1	85	26	87	18	3B				DR	3A	I55 SEE 2P
10	TQ77205250	ORC			1	1	53	58	53	-52	4				WE	3A	I30 SEE1P/2P
11	TQ77305250	ORC			1	1	62	49	62	43	3B				DR	2	SEE 3P
12	TQ774052 0	ORC		S25	1	1	104	7	117	12	3A				DR	2	I70 SEE3P
13	TQ77005240	ORC			1	1	56	55	56	49	4				WE	3A	I30 SEE1P/2P
14	TQ77105240	ORC			1	1	47	64	47	58	4				WE	3A	I25 SEE1P/2P
15	TQ77205240	ORC		S35 055	2	2	110	1	109	4	3A				WE	2	I90 SEE3P
16	TQ77305240	ORC			1	1	59	52	59	46	4				WE	3A	I35 SEE1P/2P
17	TQ77405240	ORC			1	1	69	42	69	36	3B				WE	3A	I40 SEE1P/2P
19	TQ77025232	ORC		0	2	3A	50	61	50	-55	4				WE	3A	I30 SEE1P/2P
20	TQ77105230	ORC			1	2	44	67	44	61	4				WE	3A	I28 SEE1P/2P
21	TQ77205230	ORC			1	1	53	58	53	52	4				WE	3A	I32 SEE1P/2P
22	TQ77305230	ORC			1	1	40	71	40	-65	4				WE	3A	I25 SEE1P/2P
23	TQ77405230	ORC		S45 045	3	3A	138	27	116	11	2				WE	3A	
24	TQ77505230	ORC			1	1	44	67	44	61	4				WE	3A	I25 SEE1P/2P
27	TQ77105220	ORC			1	1	81	30	81	24	3B				DR	2	I50 SEE4P
28	TQ77205222	ORC		S80	1	2	136	25	112	7	2				WD	2	SGLEY80
29	TQ77305220	ORC		0	1	2	62	49	62	43	3B				WE	3A	I40 SEE1P/2P
30	TQ77405220	ORC			1	1	66	45	66	-39	3B				WE	3A	I40 SEE1P/2P
31	TQ77505220	ORC			1	1	34	77	34	71	4				WE	3A	I20 SEE1P/2P
32	TQ77605220	ORC			1	1	57	54	57	48	4				WE	3A	I35 SEE1P
34	TQ77005208	ORC			1	1	63	48	63	-42	3B				DR	2	I35 SEE4P
35	TQ77105210	ORC			1	1	91	20	94	11	3A				DR	2	I55 SEE4P
36	TQ77205210	ORC		045 055	1	3A	101	10	105	0	3A				WE	3A	
38	TQ77405210	ORC		S60 060	2	2	145	34	119	14	1				WE	2	
39	TQ77505210	ORC		S35 035	3	3A	102	9	104	-1	3A				WE	3A	I85 SEE1P
40	TQ77605210	ORC			1	1	43	68	43	62	4				WE	3A	I28 SEE1P
41	TQ77705210	ORC			1	1	46	-65	46	59	4				WE	3A	SEE 1P
42	TQ77005200	ORC			1	1	47	64	47	58	4				WE	3A	I25 SEE1P
43	TQ77105200	ORC			1	1	85	26	85	20	3B				WD	2	I50 SEE4P

SAMPLE NO	GRID REF	USE	ASPECT	CRONT	GLEY SPL	WETNESS CLASS	WETNESS GRADE	WHEAT AP	WHEAT MB	POTS AP	POTS MB	M REL DRT	EROSN FLOOD	FROST EXP	CHEM DIST	ALC LIMIT		COMMENTS
44	TQ77205200	ORC			S60 060	2	2	109	2	107	2	3A				WD	2	I90 SEE4P
45	TQ77305200	ORC				1	1	44	67	44	61	4				WE	3A	I25 SEE1P/2P
46	TQ77405200	ORC			S25 043	3	3A	130	19	107	2	2				WE	3A	SEE 2P
47	TQ77505200	ORC				1	1	35	76	35	70	4				WE	3A	I20 SEE2P
48	TQ77605200	ORC				1	1	29	82	29	-76	4				WE	3A	I20 SEE2P
49	TQ77705200	ORC				1	1	54	57	54	51	4				WE	3A	I35 SEE2P
50	TQ77805200	ORC				1	2	60	51	60	45	4				WE	3A	I37 SEE2P
51	TQ77005190	RGR	S	02		1	1	52	-59	52	53	4				WE	3A	I30 SEE1P/2P
52	TQ77105190	RCR	S	02		1	1	54	57	54	51	4				WE	3A	I30 SEE1P/2P
53	TQ77205190	RCR	S	02	S47 047	3	3A	136	25	99	-6	2				WE	3A	SL GLEY 47
54	TQ77305190	ORC				1	1	52	59	52	53	4				WE	3A	I30 SEE1P/2P
55	TQ77405190	ORC			S39 039	3	3A	79	32	79	26	3B				WE	3A	
56	TQ77505190	ORC				1	1	55	56	55	50	4				WE	3A	I35 SEE1P/2P
57	TQ77605190	ORC				1	1	54	57	54	51	4				WE	3A	I35 SEE2P
58	TQ77705190	ORC				1	1	33	78	33	-72	4				WE	3A	I20 SEE2P
59	TQ77805190	ORC			S42 042	3	3A	119	8	97	8	2				WE	3A	
60	TQ77905190	ORC				1	1	102	9	108	3	3A				WE	3A	I75 SEE2P
61	TQ77205180	RGR	S	02		1	1	62	49	62	43	3B				WE	3A	I30 SEE2P
62	TQ77305180	RGR	S	02		1	1	62	-49	62	43	3B				WE	3A	I30 SEE2P
63	TQ77405180	RGR			S25 025	3	3A	58	-53	58	47	4				WE	3A	I30 SEE2P
64	TQ77505180	ORC	S	03		1	1	31	80	31	74	4				WE	3A	I20 SEE2P
65	TQ77605180	ORC	S	03		1	2	85	26	92	13	3B				WE	3A	I60 SEE2P
66	TQ77705180	ORC	S	03		1	1	31	80	31	74	4				WE	3A	I20 SEE2P
67	TQ77805180	ORC				1	1	37	74	37	68	4				WE	3A	I25 SEE2P

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL	PED GLEY	STONES 2	STONES 6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC	
1	0 25	mcl	10YR43 00						0	0	HR	5							
	25 40	hcl	10YR42 43	00MN00	00	F			0	0	HR	2		M					
	40 50	zl	10YR54 00	00MN00	00	F			0	0	HR	2		M					
	50 80	c	75YR54 00	75YR56	72	C	00MN00	00 S	0	0		0		P			Y		
1P	0 28	mcl	10YR43 00						2	0	HR	4							
	28-36	mzcl	10YR44 00	75YR58	00	C	00MN00	00 S	0	0	HR	10	MDCSAB	FR M	Y				
	36 54	c	05YR54 00	05YR58	00	C		S	0	0	HR	3	MDMPR	FM P	Y		Y		
	54 67	c	05YR54 00	05YR58	00	C		S	0	0	HR	3	MDCAB	FM P	Y		Y		
	67 120	c	05YR54 00	05YR58	00	C		S	0	0	HR	3	WKCSAB	FM P	Y		Y		
2	0-22	mzcl	10YR43 00						2	0	HR	4							
	22 43	hzcl	10YR54 00	10YR58	00	C	00MN00	00 S	0	0	HR	2		M					
	43 80	c	75YR54 00	05YR56	66	C	00MN00	00 S	0	0	HR	2		P			Y		
2P	0 28	mzcl	10YR43 00						2	0	HR	4							
	28 47	zl	10YR54 00	00MN00	00	C			0	0	HR	10	MDCSAB	FR M	Y				
	47 70	c	05YR54 00	05YR58	00	C	05YR54	00 S	0	0		0	STCAB	FM P	Y		Y		
3	0-22	mzcl	10YR44 43						0	0	HR	2							
	22 40	zl	10YR54 00						0	0	HR	5		M					
	40 45	mcl	10YR56 00						0	0	HR	20		M					IMP HARD SANDSTONE
3P	0 27	mcl	10YR43 00						2	0	HR	5							
	27-47	c	05YR54 00						0	0	HR	30	MDCSAB	FM M	Y				
	47 120	mzcl	75YR54 00	75YR58	00	C	00MN00	00 S	0	0	HR	20	MDCSAB	FR M	Y				
4	0 25	mzcl	10YR44 42						0	0	HR	2							
	25 50	mzcl	10YR54 00						0	0	HR	2		M					
	50 65	hzcl	10YR54 00						0	0	HR	8		M					
	65 70	hzcl	10YR54 00	10YR58	00	C	00MN00	00 S	0	0	HR	5		M					
	70 100	c	75YR46 00	75YR58	00	C	00MN00	00 S	0	0	HR	2		P			Y		
4P	0 23	mzcl	10YR43 00						2	0	HR	8							
	23-42	mzcl	10YR54 00						0	0	HR	10	MDCSAB	FR M					
	42 56	c	75YR54 00	75YR58	00	C	00MN00	00 S	0	0	HR	12	MDCSAB	FM M					
	56 69	c	75YR54 00	75YR58	00	C	00MN00	00 S	0	0	HR	12	WKCAB	FM P	Y		Y		
	69 120	zc	10YR54 00	75YR58	00	C	10YR68	00 S	0	0	HR	5	MDCAB	FM P	Y		Y		
5	0 25	mzcl	10YR42 00	10YR58	00	C	00MN00	00 Y	0	0	HR	2							
	25 45	hzcl	10YR43 53	10YR58	00	C	00MN00	00 Y	0	0		0		M					IMP HARD SANDSTONE
6	0-29	mzcl	10YR43 44						2	0	HR	4							
	29 40	zl	10YR56 00						0	0	HR	10		M					
	40-55	mcl	10YR56 58						0	0	HR	20		M					IMP HARD SANDSTONE
7	0-25	zl	10YR54 00						2	0	HR	4							
	25 40	mzcl	10YR54 56						0	0	HR	5		M					IMP HARD SANDSTONE

SAMPLE	DEPTH	TEXTURE	COLOUR	-- MOTTLES COL	ABUN	CONT	PED COL	GLEY	STONES >2	>6	LITH	- STRUCT/ TOT	CONSIST	SUBS STR	POR	IMP	SPL	CALC	
8	0 20	mcl	10YR43 00						2	0	HR	4							
	20-35	hcl	10YR44 00						0	0	HR	2		M					
	35 70	c	75YR54 00	75YR58 00	C		00MN00 00	S	0	0	HR	10		P			Y		IMP HARD SANDSTONE
9	0 28	mcl	10YR43 44						0	0	HR	2							
	28 35	mcl	10YR44 00						0	0	HR	5		M					
	35 55	scl	10YR56 00						0	0	HR	5		M					IMP HARD SANDSTONE
10	0 30	mzcl	10YR43 00						5	0	HR	8							IMP HARD SANDSTONE
11	0 25	mzcl	10YR43 00						2	0	HR	4							
	25 35	mzcl	10YR56 00	00MN00 00	F				0	0	HR	3		M					IMP HARD SANDSTONE
12	0 25	mcl	10YR43 00						2	0	HR	4							
	25 55	mzcl	75YR53 00	75YR56 00	C		00MN00 00	S	0	0	HR	2		M					
	55 70	hzcl	75YR54 00	75YR58 00	C		00MN00 00	S	0	0	HR	8		M					IMP HARD SANDSTONE
13	0-30	mzcl	10YR43 44						0	0	HR	2							IMP HARD SANDSTONE
14	0-25	mzcl	10YR43 00						0	0	HR	2							IMP HARD SANDSTONE
15	0-20	mzcl	10YR43 42						5	0	HR	8							
	20 35	hzcl	10YR53 54	00MN00 00	F				0	0	HR	2		M					
	35 55	hzcl	75YR54 52	75YR58 00	C		00MN00 00	S	0	0	HR	5		M					
	55 90	c	75YR56 00	75YR58 00	C		00MN00 00	S	0	0	HR	5		P			Y		IMP HARD SANDSTONE
16	0 25	mzcl	10YR43 00						4	0	HR	8							
	25 35	mzcl	10YR44 00						0	0	HR	8		M					IMP HARD SANDSTONE
17	0 25	mzcl	10YR43 00						2	0	HR	4							
	25 40	mzcl	10YR43 44						0	0	HR	6		M					IMP HARD SANDSTONE
19	0 25	hcl	10YR31 00	75YR46 00	C		00MN00 00	Y	1	0	HR	5							
	25 30	hcl	10YR44 32	10YR56 00	C			S	0	0	HR	5		M					IMP HARD SANDSTONE
20	0 20	hcl	10YR43 00						1	0	HR	5							
	20 28	hcl	75YR68 43						0	0	HR	8		M					IMP HARD SANDSTONE
21	0 25	mcl	10YR43 00						1	0	HR	5							
	25 32	mcl	10YR44 00						0	0	HR	10		M					IMP HARD SANDSTONE
22	0 22	mzcl	10YR43 00						1	0	HR	4							IMP HARD SANDSTONE
23	0 25	mzcl	10YR43 00						1	0	HR	4							
	25 45	hcl	10YR46 00	00MN00 00	C				0	0	HR	5		M					
	45 95	c	75YR56 00	10YR63 58	M			S	0	0		0		P			Y		
	95-120	c	75YR56 00	75YR63 58	M			S	0	0	HR	10		P			Y		

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	ABUN	CONT	PED COL	GLEY	-STONES >2	6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
24	0 25	mzcl	10YR43 00						2	0	HR	8							IMP HARD SANDSTONE
27	0-30	mcl	10YR42 00						5	0	HR	8							
	30 40	hcl	10YR53 00						0	0	HR	3		M					
	40 50	hcl	10YR54 00	00MN00	00	F			0	0	HR	3		M					IMP HARD SANDSTONE
28	0-25	hcl	10YR43 00						1	0	HR	3							
	25 50	hcl	10YR54 00						0	0	HR	8		M					
	50 80	c	75YR56 00						0	0	HR	1		M					
	80 120	c	75YR56 00	10YR56	58	C		S	0	0	HR	1		M					
29	0 18	hcl	10YR42 00	10YR56	00	C	00MN00	00 Y	1	0	HR	5							
	18 25	c	75YR56 00	10YR68	00	C			0	0	HR	10		M					
	25-40	hcl	10YR44 54						0	0	HR	15		M					IMP HARD SANDSTONE
30	0 25	mzcl	10YR54 00						1	0	HR	3							
	25 40	hcl	10YR54 00						0	0	HR	20		M					IMP HARD SANDSTONE
31	0-20	mzcl	10YR43 00						3	0	HR	8							IMP HARD SANDSTONE
32	0 28	mzcl	10YR43 00						3	0	HR	12							
	28 35	mzcl	10YR54 68						0	0	HR	15		M					IMP HARD SANDSTONE
34	0 25	mzcl	10YR43 00						0	0	HR	2							
	25 35	mzcl	10YR43 54						0	0	HR	5		M					IMP HARD SANDSTONE
35	0-20	mzcl	10YR43 44						0	0	HR	2							
	20 30	hzcl	10YR54 00						0	0	HR	2		M					
	30 55	mzcl	10YR56 00						0	0	HR	5		M					IMP HARD SANDSTONE
36	0-20	hcl	10YR42 00						2	0	HR	4							
	20 45	hcl	10YR43 00	10YR58	00	F			0	0	HR	2		M					
	45 55	hcl	10YR53 42	10YR58	00	C	00MN00	00 Y	0	0	HR	10		M					
	55 80	c	75YR56 00	10YR58	00	C		S	0	0	HR	10		P		Y			IMP HARD SANDSTONE
38	0-25	mzcl	10YR42 43						0	0	HR	3							
	25-60	hzcl	10YR46 42						0	0	HR	5		M					
	60 75	hzcl	75YR56 00	10YR56	00	C		S	0	0	HR	5		M		Y			
	75 120	c	75YR56 00	10YR56	00	C		S	0	0	HR	5		P		Y			
39	0 25	mzcl	10YR43 00						1	0	HR	4							
	25 35	mcl	10YR44 54						0	0	HR	5		M					
	35 85	c	75YR56 00	10YR68	63	C		S	0	0	HR	5		P		Y			IMP HARD SANDSTONE
40	0 21	mcl	10YR42 00						3	0	HR	12							
	21-28	hcl	10YR54 00						0	0	HR	15		M					IMP HARD SANDSTONE
41	0 30	mcl	10YR43 53						7	0	HR	15							IMP HARD SANDSTONE

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES-- COL	ABUN	CONT	PED COL	GLEY	STONES--- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
42	0 25	mzcl	10YR42 00						0	0	HR	2							IMP HARD SANDSTONE
43	0 30	mzcl	10YR43 00						2	0	HR	4							
	30-50	hcl	10YR54 00						0	0	HR	5		M					IMP HARD SANDSTONE
44	0 22	mcl	10YR42 00						4	0	HR	8							
	22 60	hcl	10YR54 00						0	0	HR	5		M					
	60 90	c	75YR54 00	75YR58 00	C			S	0	0	HR	5		P		Y			IMP HARD SANDSTONE
45	0 25	mzcl	10YR43 00						4	0	HR	8							IMP HARD SANDSTONE
46	0-25	mzcl	10YR43 00				/		1	0	HR	4							
	25 43	hcl	10YR54 00	10YR56 00	C		00MN00 00	S	0	0	HR	5		M					
	43 60	c	75YR56 00	10YR56 00	C			S	0	0	HR	5		P		Y			
	60 88	c	75YR56 00	10YR56 63	C			S	0	0	HR	2		P		Y			
	88 120	c	75YR56 00	10YR68 00	C			S	0	0		0		P		Y			
47	0 20	mzcl	10YR43 00						2	0	HR	8							IMP HARD SANDSTONE
48	0 20	mzcl	10YR43 00						8	0	HR	25							IMP HARD SANDSTONE
49	0 25	mcl	10YR43 00						6	0	HR	12							
	25 35	hcl	10YR54 00						0	0	HR	8		M					IMP HARD SANDSTONE
50	0 25	hcl	10YR42 00						0	0	HR	5							
	25 37	hcl	10YR56 00						0	0	HR	10		M					IMP HARD SANDSTONE
51	0 30	mzcl	10YR43 00						0	0	HR	6							IMP HARD SANDSTONE
52	0-30	mzcl	10YR43 00						0	0	HR	5							IMP HARD SANDSTONE
53	0-25	mcl	10YR43 00						0	0	HR	10							
	25-35	c	75YR56 00						0	0	HR	10		M					
	35 47	c	75YR56 00						0	0	HR	20		M					
	47-70	c	05YR56 58	75YR68 00	C			S	0	0	HR	5		P		Y			
	70 120	hcl	05YR56 00	75YR58 00	C			S	0	0	HR	5		M					
54	0 22	mzcl	10YR42 43						4	0	HR	8							
	22-30	mzcl	10YR44 00						0	0	HR	5		M					IMP HARD SANDSTONE
55	0 25	mcl	10YR43 00						1	0	HR	4							
	25 39	hcl	10YR54 00						0	0	HR	10		M					
	39 70	c	75YR56 54	75YR58 00	C				0	0	HR	12		P		Y			
56	0 18	mcl	10YR43 00						1	0	HR	4							
	18 35	hcl	10YR54 00						0	0	HR	8		M					IMP HARD SANDSTONE
57	0 22	mcl	10YR43 00						2	0	HR	10							
	22 35	mcl	10YR54 00	00MN00 00	F				0	0	HR	10		M					IMP HARD SANDSTONE

				- MOTTLES			PED		- --STONES				STRUCT/	SUBS				
SAMPLE	DEPTH	TEXTURE	COLOUR	COL	ABUN	CONT	COL	GLEY	>2	>6	LITH	TOT	CONSIST	STR	POR	IMP	SPL	CALC
58	0 20	mcl	10YR43 00						6	0	HR	10						IMP HARD SANDSTONE
59	0 27	mcl	10YR43 00						7	0	HR	15						
	27-42	c	10YR54 56			C	00MN00	00	0	0	HR	15		M				
	42 120	c	05YR56 00	10YR66	00	C	05YR58	00 S	0	0	HR	5		P		Y		
60	0-25	mcl	10YR41 00						0	0	HR	5						
	25 75	hcl	10YR54 56			C	00MN00	00	0	0	HR	5		M				IMP HARD SANDSTONE
61	0 30	zl	10YR42 00						0	0	HR	8						IMP HARD SANDSTONE
62	0 30	zl	10YR42 00						0	0	HR	8						IMP HARD SANDSTONE
63	0 25	mcl	10YR43 00						0	0	HR	10						
	25 40	c	75YR56 00	05YR56	00	C	10YR66	00 S	0	0	HR	10		P		Y		IMP HARD SANDSTONE
64	0 20	mzcl	10YR43 00						3	0	HR	20						IMP HARD SANDSTONE
65	0 30	hcl	10YR43 00						2	0	HR	10						
	30 60	c	10YR56 44	10YR63	00	F			0	0	HR	10		M				IMP HARD SANDSTONE
66	0 20	mzcl	10YR43 00						6	0	HR	15						IMP HARD SANDSTONE
67	0 25	mcl	10YR43 00						8	0	HR	15						IMP HARD SANDSTONE