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WYCOMBE DISTRICT LOCAL PLAN
Land at Gomm Valley,
High Wycombe, Buckinghamshire

Agricultural Land Classification
ALC Map and Summary Report

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Resource Planning Team
Eastern Region
FRCA Reading

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AGRICULTURAL LAND CLASSIFICATION REPORT

WYCOMBE DISTRICT LOCAL PLAN. LAND AT GOMM VALLEY, HIGH WYCOMBE, BUCKINGHAMSHIRE

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 78.8 hectares of land in the Gomm Valley, to the east of Micklefield, a suburb of High Wycombe in Buckinghamshire. The survey was carried out during April and May 1997.
2. The survey was undertaken by the Farming and Rural Conservation Agency (FRCA) on behalf of the Ministry of Agriculture, Fisheries and Food (MAFF), in connection with the Wycombe District Local Plan. This survey supersedes any previous ALC information for this land.
3. The work was conducted by members of the Resource Planning Team in the Eastern Region of FRCA. The land has been graded in accordance with the published MAFF ALC guidelines and criteria (MAFF, 1988). A description of the ALC grades and subgrades is given in Appendix I.
4. At the time of survey, the agricultural land on this site was under winter cereals and permanent grass. The areas mapped as 'Other Land' comprise woodland and scrub, with some residential dwellings towards the east of the site.

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)	% surveyed area	% site area
2	3.1	5.4	3.9
3a	30.0	52.3	38.1
3b	23.3	40.7	29.6
4	0.9	1.6	1.1
Other land	21.5	N/A	27.3
Total surveyed area	57.3	100	72.7
Total site area	78.8	-	100

7. The fieldwork was conducted at an average density of slightly less than 1 boring per hectare of agricultural land. A total of 42 borings and 4 soil pits were described.

8. The agricultural land at this site has been classified as Grade 2 (very good quality), Subgrade 3a (good quality), Subgrade 3b (moderate quality) and Grade 4 (poor quality). Principal limitations include soil droughtiness, soil wetness, topsoil stoniness and slope.

9. Land of Grade 2 quality has been mapped on the lowest lying land towards the south of the site. The principal limitation is soil droughtiness with topsoil stoniness equally limiting on a number of occasions. The soils in this area comprise variably stony medium silts, occasionally overlying medium loams at depth. The interaction of the local climate with these soil properties slightly restricts the versatility of this land as the stones in the profile restrict water availability to plants and therefore the potential yield of a crop, especially in drier years.

10. Land of Subgrade 3a quality has been mapped over the majority of the site. Land in these areas is principally limited by either soil droughtiness, soil wetness or topsoil stoniness. The soils in this area are of two separate types. The most common are those which comprise a medium silt topsoil and upper subsoil overlying weathered or pure chalk at shallow depth. The principal limitation in this area is soil droughtiness due to the relatively low availability of soil moisture caused by restricted rooting into the chalk. The second soil type principally occurs towards the north of the site and comprises medium silts overlying clays. At this site the clays cause drainage to be impeded such that this area is restricted by soil wetness to the extent that, given the local climate Subgrade 3a is appropriate. Throughout the Subgrade 3a units some areas are also limited by topsoil stoniness, ie up to 15% flints greater than 2cm diameter in the topsoil. These cause an increase in crop production costs through wear and tear on machinery as well as adversely affecting crop establishment and growth, commonly resulting in a reduction in crop quality.

11. The majority of the areas mapped as Subgrade 3b and all the Grade 4 is principally limited by gradient, although soil wetness and topsoil stoniness are also significant in some areas mapped as Subgrade 3b. Slopes were measured in the range 7-18° towards the north west, centre and south of the site. This has an impact on the safe and efficient use of farm machinery to the extent that Subgrade 3b and Grade 4 are appropriate. Towards the north of the site, soil wetness prevails as the principal limiting factor. Soils in this area comprise medium loam topsoils directly over clay. The drainage impedance caused by the clay at this site causes this area to be downgraded to Subgrade 3b. In a small area to the west of the site mapped as Subgrade 3b, the principal limitation is topsoil stoniness where up to 22% flints greater than 2cm diameter were measured in the topsoil. These cause an increase in crop production costs through wear and tear on machinery as well as adversely affecting crop establishment and growth, commonly resulting in a reduction in crop quality.

FACTORS INFLUENCING ALC GRADE

Climate

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

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

Table 2: Climatic and altitude data

Factor	Units	Values		
		SU 894 919	SU 895 924	SU 900 935
Grid reference	N/A	SU 894 919	SU 895 924	SU 900 935
Altitude	m, AOD	70	120	170
Accumulated Temperature	day°C (Jan-June)	1431	1374	1316
Average Annual Rainfall	mm	705	728	752
Field Capacity Days	days	151	155	160
Moisture Deficit, Wheat	mm	101	95	90
Moisture Deficit, Potatoes	mm	92	84	77
Overall climatic grade	N/A	Grade 1	Grade 1	Grade 1

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

15. The main parameters used in the assessment of an overall climatic limitation are average annual rainfall (AAR), as a measure of overall wetness, and accumulated temperature (AT0, January to June), as a measure of the relative warmth of a locality.

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

Site

17. The site lies at altitudes between approximately 70 and 170m AOD. The site forms a dry valley, the base of which is towards the south of the site. The valley is on a north east - south west axis. Towards the north, west and east of the site, the land rises. In significant areas gradients are steep enough to adversely affect agricultural land quality, restricting some land to Subgrade 3b and Grade 4 on this basis alone.

Geology and soils

18. The published geological information for the site (BGS, 1949) shows the majority of the site to be underlain by Cretaceous Upper Chalk. Towards the central southern part of the site, on the lowest lying land, this gives way to Chalk rock and Middle Chalk. Towards the north of the site, clay-with-flints is shown as a drift deposit overlying the Chalk.

19. The most detailed published soils information for the site (SSEW, 1983 and 1984) shows this site as containing soils from the Andover 1 association. These are described as, 'Shallow well drained calcareous silty soils over chalk on slopes and crests. Deep calcareous and non-calcareous fine silty soils in valley bottoms. Striped patterns locally,' (SSEW, 1983).

Soils of this general description were found over the majority of the site. Towards the north of the site, clayey soils associated with the clay-with-flints deposit were encountered.

AGRICULTURAL LAND CLASSIFICATION

20. The details of the classification of the site are shown on the attached ALC map and the area statistics of each grade are given in Table 1.

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

Grade 2

22. Land of very good quality has been mapped in a single unit towards the south of the site on the lowest lying land at the base of the dry valley feature. The principal limitation in this area is soil droughtiness. Soils in this area are characterised by the soil pit 4P (see Appendix II), although this had stonier topsoils than elsewhere in the unit and consequently qualifies for Subgrade 3a.

23. Soils in this area commonly comprise a calcareous medium silty clay loam topsoil. These are slightly stony including up to 10% in a combination of chalk and flints by volume, of which up to 8% greater than 2cm diameter. This passes to similar textures to depth (120cm). These profiles become progressively more stony with depth, to a maximum of 35% flints by volume as observed in the pit. Many of the observations in this map unit were impenetrable to the soil auger at around 60cm where, in the pit, stone content increased to 35% by volume. Given the local climate, these well drained (Wetness Class I) profiles are slightly restricted by soil droughtiness primarily due to the stone content reducing the potential water holding capacity. Soil droughtiness may lead to a reduced yield potential, especially in drier years.

Subgrade 3a

24. Land of good quality has been mapped over the majority of the agricultural land at this site, predominantly on the areas of higher altitude towards the north. In these areas the principal limitations are soil droughtiness, soil wetness and topsoil stoniness. The soils are characterised by the soil pits 1P and 2P (see Appendix II).

25. In this mapping unit, the soils were found to be of two distinct types. Towards the south of the site, the soils commonly comprise a slightly to moderately stony (up to 20% flints by volume, including up to 14% >2cm diameter) and slightly chalky (up to 15% chalk fragments by volume), calcareous medium silty clay loam, occasionally heavy clay loam topsoil. This commonly passes to a weathered chalk horizon containing up to 20% soil material overlying pure hard chalk containing approximately 5% flints by volume. In the pit observations, 1P and 2P rooting was observed to penetrate to between 54 and 58cm into the chalk. This rooting restriction causes the potential water availability to plants to be reduced to the extent that, given the local climate, Subgrade 3a is appropriate. In a number of cases a moderately stony (up to approximately 20% flints by volume) and slightly to very chalky (up to 40% chalk fragments by volume), calcareous medium or heavy silty clay loam, occasionally heavy clay loam upper subsoil was observed. This was commonly impenetrable to the soil

auger between 30 and 65cm, due either to the flints in the horizon, or solid chalk underlying the soil material. The reduction in water holding capacity caused by the stones in the profile cause these observations also to be limited by soil droughtiness, given the local climatic parameters.

26. In addition, many of these observations contained between 10 and 15% flints greater than 2cm diameter in the top 25cm. This volume and size of stones causes an appreciable increase in production costs in terms of increased wear and tear on tyres and cultivation implements, as well as affecting crop establishment and potential yield, to the extent that Subgrade 3a is the best grade possible.

27. The second principal soil type occurs towards the north and east of the site on the highest land. The soils in this area are derived from the clay-with-flints drift deposit overlying the chalk and are principally limited by soil wetness. The soils are characterised by the soil pit observation 3P (see Appendix II).

28. Soils in this area commonly comprise a non-calcareous, slightly to moderately stony (up to 20% flints by volume, including up to 14% >2cm) medium clay loam or medium silty clay loam topsoil. This overlies either a similarly stony heavy clay loam horizon over clay, or passes directly to a gleyed or slightly gleyed and slightly stony (up to 10% flints by volume) poorly structured and slowly permeable clay. The depth to the slowly permeable horizon is such, given the local climate, to place these profiles in Wetness Class III, which equates with Subgrade 3a given the workability status of the topsoil. Soil wetness has the effect of restricting access to the land for cultivations and/or grazing, if structural damage to the soil is to be avoided. It also affects crop growth and development.

Subgrade 3b

29. Land of moderate quality has been mapped in five separate units across the site. Principal limitations to land quality include soil wetness, topsoil stoniness and gradient. Soils affected by soil wetness are characterised by the pit observation 4P (see Appendix II).

30. Towards the central north of the site, a small area is principally limited by soil wetness. In this area, soils are essentially similar to those described above (para. 28), except that there is no upper subsoil horizon and the slowly permeable clay is gleyed rather than slightly gleyed. This indicates more severe soil wetness which equates with Wetness Class IV. Subgrade 3b is appropriate when the topsoil workability is taken into account. A severe soil wetness limitation results which means that access to the land for cultivations and/or grazing is likely to be significantly restricted.

31. The majority of the areas mapped as Subgrade 3b are subject to a gradient limitation. Slopes in these areas were measured between 7 and 11°. This causes the operation of certain farm machinery to be compromised in terms of safety and efficiency to the extent that Subgrade 3b is the best possible grade.

32. Towards the west of the site, a small area, mapped as Subgrade 3b, has a significant topsoil stone limitation. In this area, the volume of stones greater than 2cm diameter was measured as 18 to 22%. This volume of large flints causes an impediment to cultivation,

harvesting and crop growth. It also causes production costs to increase by causing extra wear and tear on implements and tyres to the extent that Subgrade 3b is the appropriate grade.

Grade 4

33. Land of poor quality has been mapped towards the centre of the site, to the immediate south of Little Gomm's Wood. The principal limitation is slope. In this part of the site slopes were measured between 11 and 18°. This causes the operation of the majority of farm machinery to be compromised in terms of safety and efficiency, to the extent that Grade 4 is the most appropriate grade.

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SOURCES OF REFERENCE

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APPENDIX I

DESCRIPTIONS OF THE GRADES AND SUBGRADES

Grade 1: Excellent Quality Agricultural Land

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

Grade 2: Very Good Quality Agricultural Land

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

Grade 3: Good to Moderate Quality Land

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

Subgrade 3a: Good Quality Agricultural Land

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

Subgrade 3b: Moderate Quality Agricultural Land

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

Grade 4: Poor Quality Agricultural Land

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

Grade 5: Very Poor Quality Agricultural Land

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

APPENDIX II

SOIL DATA

Contents:

Sample location map

Soil abbreviations - explanatory note

Soil pit descriptions

Soil boring descriptions (boring and horizon levels)

SOIL PROFILE DESCRIPTIONS: EXPLANATORY NOTE

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

Boring Header Information

1. **GRID REF:** national 100 km grid square and 8 figure grid reference.
2. **USE:** Land use at the time of survey. The following abbreviations are used:

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

3. **GRDNT:** Gradient as estimated or measured by a hand-held optical clinometer.
4. **GLEYS/SPL:** Depth in centimetres (cm) to gleying and/or slowly permeable layers.
5. **AP (WHEAT/POTS):** Crop-adjusted available water capacity.
6. **MB (WHEAT/POTS):** Moisture Balance. (Crop adjusted AP - crop adjusted MD)
7. **DRT:** Best grade according to soil droughtiness.
8. If any of the following factors are considered significant, 'Y' will be entered in the relevant column:

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

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

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

Soil Pits and Auger Borings

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

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

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

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

The clay loam and silty clay loam classes will be sub-divided according to the clay content:

M: Medium (<27% clay) **H:** Heavy (27-35% clay)

2. **MOTTLE COL:** Mottle colour using Munsell notation.
3. **MOTTLE ABUN:** Mottle abundance, expressed as a percentage of the matrix or surface described:

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

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

5. **PED. COL:** Ped face colour using Munsell notation.
6. **GLEY:** If the soil horizon is gleyed a 'Y' will appear in this column. If slightly gleyed, an 'S' will appear.
7. **STONE LITH:** Stone Lithology - one of the following is used:

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

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

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

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

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

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

10. **SUBS STR:** Subsoil structural condition recorded for the purpose of calculating profile droughtiness: **G:** good **M:** moderate **P:** poor
11. **POR:** Soil porosity. If a soil horizon has less than 0.5% biopores >0.5 mm, a 'Y' will appear in this column.
12. **IMP:** If the profile is impenetrable to rooting a 'Y' will appear in this column at the appropriate horizon.
13. **SPL:** Slowly permeable layer. If the soil horizon is slowly permeable a 'Y' will appear in this column.
14. **CALC:** If the soil horizon is calcareous, a 'Y' will appear in this column.
15. Other notations:
- | | |
|-------------|--|
| APW: | available water capacity (in mm) adjusted for wheat |
| APP: | available water capacity (in mm) adjusted for potatoes |
| MBW: | moisture balance, wheat |
| MBP: | moisture balance, potatoes |

SOIL PIT DESCRIPTION

Site Name : WYCOMBE DLP GOMM VALLEY Pit Number : 1P

Grid Reference: SU89709310 Average Annual Rainfall : 711 mm
 Accumulated Temperature : 1420 degree days
 Field Capacity Level : 152 days
 Land Use : Cereals
 Slope and Aspect : 3 degrees W

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 30	MZCL	10YR43 53	5	15	HR					Y
30- 45	CH	10YR81 64	0	5	HR				P	Y
45- 88	CH	10YR81 00	0	3	HR				P	Y

Wetness Grade : 1 Wetness Class : I
 Gleying : cm
 SPL : cm

Drought Grade : 3A APW : 094mm MBW : 2 mm
 APP : 088mm MBP : 8 mm

FINAL ALC GRADE : 3A
 MAIN LIMITATION : Droughtiness

SOIL PIT DESCRIPTION

Site Name : WYCOMBE DLP GOMM VALLEY Pit Number : 2P

Grid Reference: SU89529256 Average Annual Rainfall : 711 mm
 Accumulated Temperature : 1420 degree days
 Field Capacity Level : 152 days
 Land Use : Cereals
 Slope and Aspect : 6 degrees E

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 28	MZCL	10YR43 53	11	15	HR					Y
28- 47	CH	10YR81 54	0	3	HR				P	Y
47- 82	CH	10YR81 00	0	10	HR				P	Y

Wetness Grade : 1 Wetness Class : I
 Gleying : cm
 SPL : cm

Drought Grade : 3A APW : 085mm MBW : -9 mm
 APP : 083mm MBP : 1 mm

FINAL ALC GRADE : 3A
 MAIN LIMITATION : Droughtiness

SOIL PIT DESCRIPTION

Site Name : WYCOMBE DLP GOMM VALLEY Pit Number : 3P

Grid Reference: SU89909300 Average Annual Rainfall : 711 mm
 Accumulated Temperature : 1420 degree days
 Field Capacity Level : 152 days
 Land Use : Cereals
 Slope and Aspect : 3 degrees S

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 25	MCL	10YR43 53	14	20	HR					
25- 40	C	10YR68 00	0	10	HR	C	MDCAB	FM	M	
40- 80	C	75YR56 00	0	5	HR	C	MDCAB	FM	M	

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

Drought Grade : 3A APW : 096mm MBW : 4 mm
 APP : 104mm MBP : 25 mm

FINAL ALC GRADE : 3A
 MAIN LIMITATION : Soil Wetness/Droughtiness

SOIL PIT DESCRIPTION

Site Name : WYCOMBE DLP GOMM VALLEY Pit Number : 4P

Grid Reference: SU89669240 Average Annual Rainfall : 711 mm
 Accumulated Temperature : 1420 degree days
 Field Capacity Level : 152 days
 Land Use : Barley
 Slope and Aspect : 5 degrees W

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 24	MZCL	10YR43 53	12	17	HR					Y
24- 42	MZCL	10YR44 00	9	15	HR		MDCSAB	FR	M	Y
42- 60	MZCL	10YR54 00	7	15	HR		MDCSAB	FR	M	Y
60-120	MZCL	10YR54 64	25	35	HR				M	Y

Wetness Grade : 1 Wetness Class : I
 Gleying : cm
 SPL : cm

Drought Grade : 2 APW : 124mm MBW : 26 mm
 APP : 102mm MBP : 15 mm

FINAL ALC GRADE : 3A
 MAIN LIMITATION : Topsoil Stoniness

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	DRT					
1	SU90009347	PGR W	2	78	35	3	3A	097	-7	102	-25	3A		DR	3A	IMP80 SLGLEY35	
1P	SU89709310	CER W	3			1	1	094	2	088	8	3A		DR	3A	PIT95 RTDPTH88	
2	SU89909340	PGR W	6			1	1	086	-5	083	1	3A		DR	3A	IMP CHALK 44	
2P	SU89529256	CER E	6			1	1	085	-9	083	1	3A		DR	3A	PIT IMP 82	
3	SU90009336	PGR W	1			1	1	080	-10	083	6	3A		DR	3A	IMP FLINTS 55	
3P	SU89909300	CER S	3		25	3	3A	096	4	104	25	3A		WD	3A	P55 A80 3ATSST	
4	SU90109340	PGR W	1	5		2	2	077	-14	080	2	3A		DR	3A	IMP 55 SLGL 25	
4P	SU89669240	BAR W	5			1	1	124	26	102	15	2		TS	3A	PIT 80 AUG 120	
5	SU89809330	PGR W	6			1	1	085	-6	083	4	3A		DR	3A	IMP CHALK 45	
6	SU89909330	PGR W	2			1	1	066	-25	667	-12	3B		DR	3A	IMP FLINTS 45	
7	SU90009326	PGR W	1	60	45	3	3A	118	28	099	22	2		TS	3A	IMP 100 SLGL45	
8	SU89709320	CER W	3			1	1	090	-2	085	5	3A		DR	3A		
9	SU89809320	CER W	2	32	32	4	3B	093	2	098	20	3A		WE	3B	3A TSST	
10	SU89909320	CER S		25		1	1	069	-21	069	-9	3B		DR	3B	IMP FL/CH 50	
11	SU89709310	CER W	3			1	1	089	-3	084	4	3A		DR	3A	IMP CHALK 60	
12	SU89809310	CER SE	3	30	30	4	3B	075	-17	080	1	3A		WE	3B	IMP FLINTS 60	
13	SU89909310	CER S	2			1	1	060	-32	060	-19	3B		DR	3A	IMP 40 SLGL 30	
14	SU89609300	CER W	3			1	1	085	-8	082	1	3A		DR	3A	IMP CHALK 60	
15	SU89709300	CER W	1			1	1	081	-11	083	3	3A		DR	3A	IMP FLINT 55	
16	SU89809300	CER S	3			1	1	055	-38	055	-26	3B		DR	3A	IMP FLINTS 40	
17	SU89909300	CER W	4	30	45	3	3A	091	-1	094	15	3A		WE	3A	3A TSST	
18	SU89609290	CER W	2			1	2	075	-18	077	-4	3A		DR	3A	IMP FLINT 55	
19	SU89709290	CER E	6			1	1	083	-10	080	-1	3A		DR	3A	IMP CHALK 50	
20	SU89809290	CER W	6			1	1	088	-5	084	3	3A		DR	3A	CH NOT IMP 60+	
21	SU89589281	CER E	3			1	2	080	-13	077	-4	3A		TS	3B	IMP CH/FL 50	
22	SU89709280	CER W	2			1	1	087	-7	952	13	3A		DR	3A	IMP 65 3A TSST	
23	SU89809280	CER W	4			1	1	075	-17	078	-3	3A		DR	3A	IMP FLINTS 55	
24	SU89509270	CER E	3			1	1	061	-32	061	-20	3B		DR	3A	IMP FLINTS 40	
25	SU89579270	CER E	6	30	30	3	3B	072	-22	080	-3	3B		TS	3B	IMP 70 3B WE	
26	SU89739270	CER W	6			1	1	091	-3	086	3	3A		DR	3A	IMP CHALK 45	
27	SU89809270	CER W	4			1	1	091	-2	086	5	3A		DR	3A	IMP CHALK 45	
28	SU89549260	CER SE	6			1	1	098	4	087	5	3A		DR	3A	IMP CHALK 70	
29	SU89809260	CER W	4			1	1	096	2	089	6	3A		DR	3A	IMP 35 3A TSST	
30	SU89509250	CER SE	6			1	1	101	7	090	7	2		DR	2	IMP CHALK 65	
31	SU89509240	CER SE	5			1	1	060	-35	060	-23	3B		DT	3A	IMP 40 3ATSST	
32	SU89669240	CER W	2			1	1	064	-34	064	-23	3B		DT	3A	IMP FLINTS 40	
33	SU89309230	CER SE	3			1	1	059	-36	059	-25	3B		DR	3A	IMP FLINTS 45	
34	SU89509230	CER SE	9			1	1	097	0	091	4	3A		GR	3B	3A DR 3B GR	
35	SU89609230	CER SE	4			1	1	092	-6	089	2	3A		DR	3A	IMP CHALK 35	
36	SU89679232	CER SW	3			1	1	088	-10	094	6	3A		DR	3A	IMP FLINTS 60	
37	SU89309220	CER SE	7			1	1	050	-46	050	-36	3B		DR	3A	IMP FLINTS 35	
38	SU89609220	CER S	2			1	1	088	-11	089	-1	3A		DR	2	IMP 53 SEE 4P	

SAMPLE NO.	GRID REF	ASPECT USE	GRDNT	--WETNESS--		-WHEAT-		-POTS-		M.REL		EROSN		FROST		CHEM LIMIT	ALC	COMMENTS
				SPL	CLASS	GRADE	AP	MB	AP	MB	DRT	FLOOD	EXP	DIST				
39	SU89249201	SAS S	6	1	1	047	-52	047	-43	4						DR 3A	IMP FLINTS 30	
40	SU89509210	SAS S	2	1	1	098	-2	106	16	3A						DR 2	IMP 65 SEE 4P	
41	SU89709200	CER S	5	1	2	094	-1	087	3	3A						DR 3A	IMP CHALK 33	
42	SU89609190	CER S	5	1	2	088	-8	085	0	3A						DR 3A	IMP CHALK 33	

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES-----			PED COL.	----STONES----			STRUCT/ CONSIST	SUBS				CALC		
				COL	ABUN	CONT		>2	>6	LITH		TOT	STR	POR	IMP		SPL	
1	0-35	mzc1	10YR43 00					9	0	HR	15						170M 2 TSST	3P
	35-78	c	10YR66 00	75YR58 00	C	00M00 00	S	0	0	HR	1		P		Y		SLIGHTLY GLEYED	
	78-80	c	25Y 64 00	75YR58 00	M	00M00 00	Y	0	0	HR	10		P		Y		IMP FLINTS 80	
1P	0-30	mzc1	10YR43 53					5	3	HR	15					Y	150M +10% CHALK	
	30-45	ch	10YR81 64					0	0	HR	5		P		Y		10% SOIL	
	45-88	ch	10YR81 00					0	0	HR	3		P		Y		5% SOIL FEW ROOTS	
2	0-28	mzc1	10YR53 00					14	0	HR	20					Y	160M 3A TSST	1P
	28-83	ch	10YR81 00					0	0	HR	5		P		Y		IMP CHALK 55	
2P	0-28	mzc1	10YR43 53					11	7	HR	15					Y	135M 3A TSST +10%CH	
	28-47	ch	10YR81 54					0	0	HR	3		P		Y		25% SOIL	
	47-82	ch	10YR81 00					0	0	HR	10		P		Y		10% SOIL IMP FLS 82	
3	0-30	mzc1	10YR43 00					14	0	HR	20					Y	170M +2% CHALK	
	30-45	hzc1	10YR44 54					0	0	HR	10		M		Y		+2% CHALK	
	45-55	hzc1	10YR54 64					0	0	HR	15		M		Y		IMP FLINTS 55 +5%CH	
3P	0-25	mc1	10YR43 53					14	8	HR	20						155M 3A TSST	
	25-40	c	10YR68 00	75YR58 00	C	00M00 00	S	0	0	HR	10	MDCAB	FM	M	Y	Y	SL SANDY SL GLEYED	
	40-80	c	75YR56 00	75YR58 00	C	75YR54 00	S	0	0	HR	5	MDCAB	FM	M	Y	Y	SLIGHTLY GLEYED	
4	0-25	mc1	10YR53 00					9	0	HR	12						170M 2 TSST	
	25-35	mc1	10YR54 64	10YR58 00	C		S	0	0	HR	15		M				SLIGHTLY GLEYED	
	35-55	hc1	10YR64 00	10YR58 00	C	00M00 00	Y	0	0	HR	20		M				IMP FLINTS 55	
4P	0-24	mzc1	10YR43 53					12	3	HR	17					Y	100M 3A TSST	
	24-42	mzc1	10YR44 00					9	1	HR	15	MDCSAB	FR	M		Y		
	42-60	mzc1	10YR54 00					7	1	HR	15	MDCSAB	FR	M		Y		
	60-120	mzc1	10YR54 64					25	18	HR	35		M		Y		+5% CHALK	
5	0-28	mzc1	10YR53 00					11	0	HR	15					Y	155M +10% CHALK	1P
	28-83	ch	10YR81 00					0	0	HR	5		M		Y		IMP CH 45 20% SOIL	
6	0-34	mzc1	10YR53 00					14	5	HR	20						165M 3A TSST	
	34-45	hzc1	10YR44 00					0	0	HR	25		M		Y		IMP FLINTS 45 +10%CH	
7	0-28	mc1	10YR43 00					12	0	HR	18						170M 3A TSST	3P
	28-45	hc1	10YR44 00					0	0	HR	10		M					
	45-60	c	10YR66 00	75YR58 00	C	00M00 00	S	0	0	HR	10		P		Y		SLIGHTLY GLEYED	
	60-100	sc1	10YR58 00	10YR58 00	C		Y	0	0	CH	10		M		Y	Y	IMP FLINTS/CHALK 100	
8	0-30	mzc1	10YR43 00					10	7	HR	18					Y	150M 3A TSST	1P
	30-85	ch	10YR81 74					0	0	HR	5		P		Y		<10% SOIL	
9	0-32	mzc1	10YR43 00					11	8	HR	18					Y	160M 3A TSST	3P
	32-80	c	25Y 52 00	75YR68 00	C	00M00 00	Y	0	0	HR	5		P		Y			

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----			PED	----STONES----			STRUCT/ CONSIST	SUBS			CALC				
				COL	ABUN	CONT		COL.	GLE	>2		>6	LITH	TOT		STR	POR	IMP	SPL
10	0-25	mc1	10YR43 00						6	1	HR	10					165M 2TSST	3P	
	25-48	c	10YR66 00	75YR58 00	C			Y	0	0	HR	15		P					
	48-50	hzc1	10YR66 00	75YR66 00	C			S	0	0	CH	20		M		Y	+10%HR IMP50FL/CH		
11	0-30	mzc1	10YR43 53						5	3	HR	15					Y	150M +10% CHALK	1P
	30-85	ch	10YR81 00						0	0	HR	5		P		Y	IMP CHALK 60		
12	0-30	mc1	10YR43 00						7	3	HR	15						155M 2 TSST	3P
	30-60	c	25Y 52 00	75YR58 00	M		00M00 00	Y	0	0	HR	15		P		Y	IMPFLINTS60 SLSANDY		
13	0-30	mc1	10YR53 00						12	4	HR	15						155M 3A TSST	3P
	30-40	hc1	10YR56 00	75YR58 00	C			S	0	0	HR	15		M				IMP FLINTS 40 SLGLD	
14	0-28	mzc1	10YR43 00						8	3	HR	20				Y		145M +5%CH 2TSST	1P
	28-55	ch	10YR81 68						0	0	HR	5		P		Y	+10% SOIL		
	55-83	ch	10YR81 00						0	0	HR	5		P		Y	IMP CHALK 60		
15	0-30	mc1	10YR42 43						3	2	HR	10				Y		150M	
	30-55	sc1	75YR58 00	00M00 00	F				0	0	HR	10		M		Y	IMP FLINT 55		
16	0-30	mc1	10YR53 00						14	5	HR	20				Y		145M 3A TSST	
	30-40	hc1	10YR53 00						0	0	HR	30		M		Y	IMP FLINTS 40		
17	0-30	mc1	10YR53 00						14	8	HR	20						155M 3A TSST	3P
	30-45	c	10YR68 00	75YR58 00	M			Y	0	0	HR	10		M					
	45-80	zc	10YR68 00	75YR58 00	M		00M00 00	Y	0	0	HR	5		P		Y			
18	0-28	hzc1	10YR43 00						7	4	HR	15				Y		145M 2 TSST	3P
	28-55	zc	10YR58 81						0	0	CH	40		M		Y	+10% HR IMPFLINT	55	
19	0-28	mzc1	10YR43 53						11	7	HR	18				Y		140M3ATSST+15%CH	1P
	28-83	ch	10YR81 64						0	0	HR	5		P		Y	10% SOIL IMPCH	50	
20	0-30	mzc1	10YR53 00						14	5	HR	18				Y		140M3ATSST +5%CH	1P
	30-85	ch	10YR81 00						0	0	HR	5		P		Y	NOT IMP	60	
21	0-28	hzc1	10YR43 00						18	10	HR	25				Y		140M 3B TSST	1P/2P
	28-83	ch	10YR81 68						0	0	HR	15		P		Y	IMP CH 50	20% SOIL	
22	0-25	mzc1	10YR53 00						14	4	HR	18				Y		135M3ATSST +1%CH	4P
	25-35	mzc1	10YR54 00						0	0	CH	20		M		Y	+10% FLINTS		
	35-65	hzc1	10YR54 00						0	0	CH	20		M		Y	+10%FLINTS IMPFLS65		
23	0-25	mzc1	10YR53 00						11	2	HR	15				Y		140M3ATSST +1%CH	4P
	25-35	mzc1	10YR54 00						0	0	CH	20		M		Y	+10% FLINTS		
	35-55	hzc1	10YR54 00						0	0	CH	40		M		Y	+15%FLINTS IMPFLS55		
24	0-30	mzc1	10YR43 00						7	3	HR	15				Y		140M 2 TSST	
	30-40	hzc1	10YR46 56						0	0	HR	30		M		Y	IMP FLINTS	40	

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----		PED COL. GLEY	----STONES----		STRUCT/ CONSIST	SUBS STR POR	IMP	SPL	CALC
				COL	ABUN		CONT	>2					
25	0-30	hzc1	10YR43 53				22	15	HR	30			140M 3B TSST 3P
	30-70	zc	75YR54 56	75YR58 00 C		00M00 00 S	0	0	HR	20	P	Y	IMP FLINT 70 SL GLY
26	0-32	mzc1	10YR32 00				11	3	HR	15			Y 130M3ATSST+10%CH 2P
	32-87	ch	10YR81 00				0	0	HR	5	P	Y	CHALK NOT IMP
27	0-32	mzc1	10YR53 00				9	4	HR	15			Y 140M +10% CH 2P
	32-87	ch	10YR81 63				0	0	HR	5	P	Y	IMPCH 45 20% SOIL
28	0-30	mc1	10YR43 00				9	0	HR	18			Y 135M +3% CH 2P
	30-40	mzc1	10YR54 64				0	0	CH	50	M	Y	+2% FLINTS
	40-95	ch	10YR81 00				0	0	HR	2	P	Y	IMP CHALK 70
29	0-28	mzc1	10YR42 43				11	7	HR	15			Y 130M 3A TSST 2P
	28-35	hzc1	10YR54 00				0	0	HR	15	M	Y	+10% CHALK
	35-90	ch	10YR81 00				0	0	HR	5	P	Y	IMP CHALK 40
30	0-30	mzc1	10YR43 00				7	3	HR	15			Y 130M +2% CH 2P
	30-40	mzc1	10YR54 00				0	0	CH	60	M	Y	
	40-95	ch	10YR81 00				0	0	HR	2	P	Y	IMP CHALK 65
31	0-28	mzc1	10YR42 00				11	3	HR	20			Y 125M 3A TSST 2P
	28-40	mzc1	10YR44 00				0	0	HR	20	M	Y	IMP FLINTS 40
32	0-35	mzc1	10YR43 00				12	0	HR	15			Y 100M 3A TSST 4P
	35-40	mzc1	10YR53 00				0	0	HR	15	M	Y	IMP FLINTS 40
33	0-27	mzc1	10YR42 00				13	6	HR	25			120M 3A TSST 3P
	27-45	c	75YR46 00	10YR53 00 F		00M00 00	0	0	HR	35	M		IMP FLINTS 45
34	0-32	mzc1	10YR53 00				5	0	HR	10			Y 105M +5% CHALK 2P
	32-87	ch	10YR81 00				0	0	HR	2	P	Y	10% SOIL TO 40
35	0-28	mzc1	10YR62 63				2	0	CH	15			Y 100M +1% FLINTS 2P
	28-83	ch	10YR81 00				0	0		0	P	Y	IMP CHALK 35
36	0-35	mzc1	10YR52 00				8	4	HR	13			Y 95M 2 TSST 4P
	35-60	mzc1	10YR63 00				0	0	HR	13	M	Y	+10% CH IMPFLINTS60
37	0-28	hzc1	10YR42 00				7	5	HR	20			110M 2 TSST
	28-35	c	75YR46 00			00M00 00	0	0	HR	40	M		IMP FLINTS 35
38	0-35	mzc1	10YR52 53				1	0	CH	10			Y 85M +2% FLINTS 4P
	35-53	mzc1	10YR54 00				0	0	CH	15	M	Y	IMP FLINTS 53 +5%CH
39	0-28	mzc1	10YR43 00				4	2	HR	15			Y 85M +5% CHALK 2P
	28-30	mzc1	10YR44 00				0	0	HR	20	M	Y	IMPFLINTS 30 +20%CH

SAMPLE	DEPTH	TEXTURE	COLOUR	-----MOTTLES-----			PED COL.	-----STONES-----			STRUCT/ CONSIST	SUBS				
				COL	ABUN	CONT		GLEY	>2	>6		LITH	TOT	STR	POR	IMP
40	0-30	mzc1	10YR43 00					3	0	HR	6			Y	80M	2P
	30-45	mzc1	10YR54 00					0	0	HR	6	M		Y	+5% CHALK	
	45-65	hc1	75YR54 00					0	0	HR	10	M		Y	IMP FLINTS 65 +1%CH	
41	0-28	hc1	10YR43 00					7	0	HR	10			Y	120M 2 TSST	2P
	28-33	hc1	10YR64 00					0	0	CH	50	M		Y		
	33-88	ch	10YR81 00					0	0		0	P		Y	IMP CHALK 35	
42	0-28	hc1	10YR43 00					8	0	HR	11			Y	110M 2 TSST	2P
	28-83	ch	10YR81 00					0	0	HR	2	P		Y	IMP CHALK 30	