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Basingstoke and Deane Borough Local Plan
Sites 13 and 14: Land east of Basingstoke
Reconnaissance survey

Agricultural Land Classification
June 1996

Resource Planning Team
Guildford Statutory Group
ADAS Reading

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AGRICULTURAL LAND CLASSIFICATION REPORT
RECONNAISSANCE SURVEY

BASINGSTOKE AND DEANE BOROUGH LOCAL PLAN
SITES 13 AND 14: LAND EAST OF BASINGSTOKE

Introduction

1. This report presents the findings of a reconnaissance Agricultural Land Classification (ALC) survey of 338.6 hectares of land to the east of Pyotts Hill and to the north of the railway line at Old Basing, east of Basingstoke in Hampshire. The survey was carried out during April 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 Basingstoke and Deane 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 much of the agricultural land was in pasture or cereals. A smaller area around Golds Farm was growing beans. The areas shown as 'Other Land' comprise woodland, farm buildings, residential dwellings and tracks. The areas to the west of the site shown as 'Not Surveyed' were not completed due to difficulties gaining access.

Summary

5. The findings of the survey are shown on the enclosed ALC map. The map has been drawn at a scale of 1:15,000. It is accurate at this scale, but any enlargement would be misleading.

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

7. The fieldwork was conducted at an average density of approximately one boring per four hectares of agricultural land. A total of 88 borings and six soil pits were described.

8. The majority of agricultural land at this site has been classified as Subgrade 3a (good quality) and Subgrade 3b (moderate quality). Smaller areas to the west and east of the site have been classified as Grade 2 (very good quality) and Grade 4 (poor quality). Land classified as Grade 2 or Subgrades 3a and 3b is subject to soil wetness or soil droughtiness limitations, which sometimes occur in conjunction. Land limited to Grade 2 and Subgrade 3a by soil wetness comprises medium textured topsoils. These overlie permeable upper subsoils and slowly permeable heavier textured lower subsoils. The lower subsoils act to cause imperfect drainage. The interaction between these drainage characteristics and topsoil

textures with the prevailing climate result in some restrictions to the flexibility of cropping, stocking and cultivations. Where the land is classified as Subgrade 3b the absence of a permeable upper subsoil means that these restrictions are consequently more severe.

9. Where soil droughtiness limitations occur most of the land is classified as Subgrade 3a or occasionally Grade 2. These soils comprise loamy or silty textured soils which tend to be slightly or moderately stony, though occasionally becoming very stony at depth. Land classified as Subgrade 3b arises where pure gravel deposits occur at relatively shallow depths within the soil profile. In addition, some of this land is also subject to topsoil stoniness limitations which will affect the flexibility of the land by restricting the range of crops which can be grown.

10. Land classified as Grade 4 is limited by severe soil wetness and workability limitations. This land is flat and low-lying and is consequently difficult to drain. The predominance of hydrophilic vegetation, along with the peaty nature of the soils indicates that this land is wet for much of the year, and as such is best suited to seasonal grazing.

Table 1: Area of grades and other land

Grade/Other land	Area (hectares)	% Total site area	% Surveyed Area
2	14.0	4.1	4.7
3a	121.9	36.0	41.0
3b	145.1	42.9	48.8
4	16.5	4.9	5.5
Other Land	27.2	8.0	-
Not Surveyed	13.9	4.1	-
Total Surveyed Area	297.5	-	100.0
Total Site Area	338.6	100.0	-

Factors Influencing ALC Grade

Climate

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

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

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

Table 2: Climatic and altitude data

Factor	Units	Values	Values
Grid reference	N/A	SU 672 544	SU 686 550
Altitude	m, AOD	70	60
Accumulated Temperature	day°C (Jan-June)	1453	1463
Average Annual Rainfall	mm	733	705
Field Capacity Days	days	157	151
Moisture Deficit, Wheat	mm	107	108
Moisture Deficit, Potatoes	mm	99	102

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

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

Site

16. The land on this site is either flat, or is very gently sloping. Where sloping the land generally falls through gradients of 1-3°, occasionally 4 , and usually has a northerly or north-easterly aspect. The land on this site lies at approximately 60 to 75 m AOD. Nowhere on the site does gradient or micro-relief affect agricultural land quality.

Geology and soils

17. The published geological information (BGS, 1981) shows the entire site to be underlain by a solid geology of London Clay. Drift deposits of alluvium flank the River Loddon. Land to the north of Blackland's Farm is overlain by low-level terrace deposits.

18. The published soils information (SSEW, 1983) shows two soil types across the site. The majority of the site comprises soils of the Wickham 4 Association. These soils, which are mapped over the London Clay and terrace deposits, are described as 'slowly permeable seasonally waterlogged fine loamy over clayey and fine silty over clayey soils associated with similar clayey soils, often with brown subsoils.' (SSEW, 1983). Soils of the Adventurer's 3 Association are mapped in conjunction with the alluvial deposits. These soils are described as 'deep peat soils with associated extremely calcareous mineral soils. Some deep stoneless silty and clayey soils with a humose surface horizon in places. High groundwater levels.' (SSEW, 1983).

Agricultural Land Classification

19. The details of the classification of the site are shown on the attached ALC map and the area statistics of each grade are given in Table 1, page 2.

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

Grade 2

21. A small area of land in the west of the site has been classified as Grade 2, very good quality. This land is limited by slight soil wetness. Topsoils comprise non-calcareous fine sandy silt loams. These overlie permeable medium and heavy textured (medium/heavy clay loam and medium/heavy silty clay loam) upper subsoils which are moderately structured. At approximately 65 cm depth these pass into clay lower subsoils. Topsoils are slightly stony, containing 2-5% total stones by volume. Subsoils are marginally stonier, containing 2-15% total stones by volume. The clay lower subsoils are poorly structured and slowly permeable, resulting in mottling at relatively shallow depths within the soil profile. Given the local climate, these profiles are assessed as imperfectly drained (Wetness Class III, see Appendix II). However, this drainage impedance is partially offset by the light textured topsoils, such that Grade 2 is appropriate. This land may be subject to minor restrictions on the flexibility of cropping, stocking and cultivations.

Subgrade 3a

22. Approximately two-fifths of the agricultural land surveyed has been classified as Subgrade 3a, good quality. This land is limited either by soil droughtiness or soil wetness. Where soil wetness is limiting, soil profiles overlie slowly permeable subsoils at moderate depths. Topsoils are non-calcareous and medium textured, typically comprising medium silty clay loams and, to a lesser extent, silt loams and medium clay loams. Upper subsoils are also medium textured and permeable. Occasionally, the upper subsoils comprise heavy clay loams. However, their friable consistence (see Pit 5) means that these upper subsoils are also permeable. At approximately 45 to 65 cm depth, these profiles pass into clay, heavy clay loam and heavy silty clay loam lower subsoils. These lower subsoils are all of firm consistence, and observations from Pits 1 and 5 found these lower horizons to be slowly permeable. Given the local climate, these profiles are assessed as imperfectly drained (Wetness Class III, see Appendix II). In comparison to the land classifed as Grade 2 the slightly heavier topsoils means that this land is classified as Subgrade 3a. This land will be subject to some restraints on the flexibility of cropping, stocking and cultivations.

23. Where soil droughtiness is the key limitation profiles typically comprise loamy, sometimes silty, soils which become stonier with depth. Topsoils comprise medium clay loams and medium silty clay loams. These pass to similarly textured or heavy clay loam and heavy silty clay loam upper subsoils. Topsoils tend to be slightly stony (0-7% of flints > 2 cm and 2-15% total flints by volume). Upper subsoils tend to be similarly stony and then become moderately stony (20-30% total flints by volume). At approximately 40 to 65 cm depth these profiles proved impenetrable to a soil auger because of underlying gravelly deposits. Consequently, soil inspection pits (Pits 2 and 4) were dug to assess the soil conditions of horizons below these depths. From these pits it could be seen that lower

subsoils typically comprise heavy clay loams and heavy silty clay loams which are very stony (45-60% total flints by volume). The high stone content of these horizons means that it was not possible to assess subsoil structure. However, the friable consistence means that moderate structure and good permeability have been assumed. The interaction between the soil characteristics (texture, stone content and subsoil structure) with the local climatic regime 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

24. All of the land classified as Subgrade 3b, moderate quality, is subject to significant soil wetness/workability limitations, sometimes in conjunction with soil droughtiness or a topsoil stone content limitation.

25. Most of the Subgrade 3b land is derived from the underlying London Clay. Topsoils are non-calcareous and medium textured (medium clay loams, medium silty clay loams, silt loams). The majority of profiles pass directly into slowly permeable subsoils; these typically comprise clay, together with heavy clay loams and heavy silty clay loams of firm consistence. In some of the profiles there is a shallow (to a maximum depth of 40 cm) permeable medium textured upper subsoil. Profiles tend to be very slightly stony, containing 0-5% total flints by volume. These profiles are poorly drained, as indicated by gleying within the subsoils, and often within the topsoils. Given the prevailing climate these profiles are assigned to Wetness Class IV. The interaction between the topsoil textures and drainage characteristics with the local climatic regime means that this land is most appropriately classified as Subgrade 3b. This land will be subject to significant restrictions on the flexibility of cropping, stocking and cultivations.

26. Land to the east of the River Loddon is subject to both soil wetness/workability and soil droughtiness limitations and occurs over an area approximate with that underlain by alluvial deposits. These profiles are shallow over gravel. Topsoils are non-calcareous, tend to be variable in texture and are occasionally organic. Textures include medium clay loams, medium silty clay loams, silt loams and heavy clay loams. Upper subsoils are similarly textured. Topsoils are very slightly or slightly stony (1-7% > 2 cm and 4-15% total flints by volume). Upper subsoils tend to be slightly stonier (20% total stones by volume). These profiles proved impenetrable to a soil auger between 30 and 43 cm depth. Consequently Pit 3 was dug to assess lower subsoil conditions.

27. From Pit 3 it could be seen that profiles overlie pure gravel immediately below the upper subsoil. At the time of survey (late April 1996) the water table was at 58 cm depth, and roots were observed to a depth of 55 cm depth. Roots are not able to tolerate waterlogged conditions and the lack of roots below 55 cm indicates that the water table is likely to be relatively high for much of the year. This land is flat, low-lying and thus difficult to drain. Based upon these findings Wetness Class IV is considered to be the most appropriate soil wetness assessment. The interaction between these soil conditions and the local climate means that this land is subject to significant restrictions on cultivations, trafficking by machinery or grazing by livestock. The low-lying nature of this land and the proximity to the River Loddon means that this land is also likely to be subject to flooding. In addition, this land is limited by soil droughtiness. In comparison to soil, gravel retains very little water

available for uptake by crop roots. The interaction between the soil properties (soil textures, gravel at shallow depths and restricted rooting) with the 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. Organic topsoils retain adequate amounts of water for uptake by crop roots. Consequently, profiles with organic topsoils overlying gravel deposits (e.g. Pit 3) are limited by soil wetness/workability only.

28. A narrow strip of land adjacent to the River Loddon is also subject to a topsoil stone content limitation. This arises from the high percentage of flints larger than 2 and 6 cm within the top 25 cm of the soil (17-18% > 2 cm and 6-11% of flints > 6 cm). Such flints act to significantly impede cultivation, harvesting and crop growth plus increase implement and tyre wear.

Grade 4

29. Grade 4, poor quality land, occurs in the east of the site and also occurs over the alluvial deposits. Organic and peaty loam topsoils overlie peaty textured subsoils, namely peaty loam, loamy peat and peat. From Pit 6, which typifies such soils, it was observed that water seepage was occurring at 47 cm and that the water table was present at 80 cm. This land is flat, low-lying and therefore difficult to successfully drain. The predominance of hydrophilic vegetation such as rushes and sedges across this land is indicative of long periods of waterlogging. Consequently it is considered that these drainage characteristics are appropriate with Wetness Class V, Grade 4. This land will present severe difficulties in terms of cropping and cultivations and will be best suited to seasonal grazing.

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SOURCES OF REFERENCE

British Geological Survey (1981) *Sheet No. 284, Basingstoke.*
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.*
SSEW: Harpenden.

Soil Survey of England and Wales (1984) *Soils and their Use in South East England*
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 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 : B'STOKE BLP,PRIORITY C Pit Number : 1P

Grid Reference: SU68205440 Average Annual Rainfall : 705 mm
Accumulated Temperature : 1463 degree days
Field Capacity Level : 155 days
Land Use : Ley
Slope and Aspect : 02 degrees W

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 30	ZL	10YR42 00	0	2	HR					
30- 54	MZCL	10YR54 00	0	2	HR	F	MDCSAB	FR	M	
54- 64	HCL	10YR63 00	0	2	HR	C	MDCPR	FR	M	
64-120	C	10YR63 00	0	2	HR	M	MDCPR	FM	P	

Wetness Grade : 3A Wetness Class : III
Gleying :054 cm
SPL :054 cm

Drought Grade : APW : mm MBW : 0 mm
APP : mm MBP : 0 mm

FINAL ALC GRADE : 3A
MAIN LIMITATION : Wetness

SOIL PIT DESCRIPTION

Site Name : B'STOKE BLP,PRIORITY C Pit Number : 2P

Grid Reference: SU67005400
Average Annual Rainfall : 705 mm
Accumulated Temperature : 1463 degree days
Field Capacity Level : 155 days
Land Use : Cereals
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 28	MCL	10YR42 00	6	12	HR					
28- 40	MCL	10YR52 00	0	15	HR	C	MDCSAB	FR	M	
40- 55	HCL	10YR52 00	0	50	HR	M			M	
55- 70	HCL	10YR52 00	0	55	HR	M			M	
70-120	HCL	10YR52 00	0	60	HR	M			M	

Wetness Grade : 2
Wetness Class : II
Gleying :028 cm
SPL : No SPL

Drought Grade : 3A
APW : 101mm MBW : -7 mm
APP : 86 mm MBP : -16 mm

FINAL ALC GRADE : 3A
MAIN LIMITATION : Droughtiness

SOIL PIT DESCRIPTION

Site Name : B'STOKE BLP,PRIORITY C Pit Number : 3P

Grid Reference: SU67405448 Average Annual Rainfall : 705 mm
Accumulated Temperature : 1463 degree days
Field Capacity Level : 155 days
Land Use : Cereals
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 30	OHCL	10YR21 00	1	4	HR					
30- 43	C	10YR52 00	0	7	HR	C	MDCPR	FM	P	
43- 58	GH	10YR52 00	0	0		C			P	

Wetness Grade : 3B Wetness Class : IV
Gleying : 0 cm
SPL : No SPL

Drought Grade : APW : mm MBW : -10 mm
APP : mm MBP : -3 mm

FINAL ALC GRADE : 3B
MAIN LIMITATION : Wetness

SOIL PIT DESCRIPTION

Site Name : B'STOKE BLP,PRIORITY C Pit Number : 4P

Grid Reference: SU68225500
Average Annual Rainfall : 705 mm
Accumulated Temperature : 1463 degree days
Field Capacity Level : 155 days
Land Use : Cereals
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 30	MZCL	10YR52 00	7	15	HR					
30- 40	HZCL	10YR32 00	0	25	HR		WKCSAB	FR	M	
40- 50	HZCL	10YR32 00	0	45	HR		WKCSAB	FR	M	
50- 60	HZCL	10YR32 00	0	55	HR		WKCSAB	FR	M	
60- 85	MZCL	10YR72 00	0	25	HR	M	WKCSAB	FR	M	Y
85-120	HZCL	10YR72 00	0	10	HR	M	WKCAB	FM	P	Y

Wetness Grade : 1
Wetness Class : I
Gleying :060 cm
SPL :085 cm

Drought Grade : 2
APW : 115mm MBW : 7 mm
APP : 93 mm MBP : -9 mm

FINAL ALC GRADE : 3A
MAIN LIMITATION : Droughtiness

SOIL PIT DESCRIPTION

Site Name : B'STOKE BLP,PRIORITY C Pit Number : SP

Grid Reference: SU68805380 Average Annual Rainfall : 705 mm
Accumulated Temperature : 1463 degree days
Field Capacity Level : 155 days
Land Use : Field Beans
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 25	MZCL	10YR53 00	0	2	HR					
25- 44	MZCL	10YR62 63	0	0		C	MDCSAB	FR	M	
44- 65	HZCL	10YR62 00	0	0		C	MDCSAB	FR	M	
65- 85	HZCL	25Y 62 00	0	0		M	MDCAB	FM	P	
85-110	HZCL	25Y 62 00	0	5	HR	M	MDCAB	FM	P	
110-120	SCL	25Y 62 00	0	25	HR	M	MDCAB	FM	P	

Wetness Grade : 3A Wetness Class : III
Gleying :025 cm
SPL :065 cm

Drought Grade : APW : mm MBW : 0 mm
APP : mm MBP : 0 mm

FINAL ALC GRADE : 3A
MAIN LIMITATION : Wetness

SOIL PIT DESCRIPTION

Site Name : B'STOKE BLP,PRIORITY C Pit Number : 6P

Grid Reference: SU68605460
Average Annual Rainfall : 705 mm
Accumulated Temperature : 1463 degree days
Field Capacity Level : 155 days
Land Use : Permanent Grass
Slope and Aspect : 02 degrees E

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 25	PL	10YR22 21	0	0						
25- 47	LP	10YR21 00	0	0					M	
47- 80	HP	10YR21 00	0	0					M	

Wetness Grade : 4
Wetness Class :
Gleying : 0 cm
SPL : No SPL

Drought Grade :
APW : mm MBW : 0 mm
APP : mm MBP : 0 mm

FINAL ALC GRADE : 4
MAIN LIMITATION : Wetness

SAMPLE NO.	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	--WETNESS-- CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	M.REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1	SU67805520	PGR			030		2	2	88	-20	90	-12	3A				DR	3A	I53flinty Q3a
1P	SU68205440	LEY	W	02	054	054	3	3A		0		0					WE	3A	
2	SU68005520	PGR					1	1	58	-50	58	-44	3B	Y			WD	3B	Imp35 see 3P
2P	SU67005400	CER			028		2	2	101	-7	86	-16	3A				DR	3A	Q gravel 80
3	SU68205520	CER			0		4	3B		0		0					WE	3B	Q WC V Grade4
3P	SU67405448	CER			0		4	3B		-10		-3		Y			WE	3B	Gravel 43
4	SU68405520	CER					1	1	59	-49	59	-43	3B				DR	3B	Imp35 see 4P
4P	SU68225500	CER			060	085	1	1	115	7	93	-9	2				DR	3A	Near asp 11
5	SU68605520	CER					1	1	63	-45	63	-39	3B				DR	3B	Imp40 see4P
5P	SU68805380	BEN			025	065	3	3A		0		0					WE	3A	At asp 78a
6	SU67205500	CER			028	028	4	3B		0		0					WE	3B	Augd to 70
6P	SU68605460	PGR	E	02	0		5	4		0		0					WE	4	G'water;rushs
7	SU67405500	CER			025	048	3	3A		0		0					WE	3A	Augd to 70
8	SU67605500	CER	E	01	028		2	2	98	-10	104	2	3A				DR	3A	Imp60 flinty
9	SU67825506	PGR			0		4	3B	84	-24	84	-18	3B	Y			WE	3B	Imp32 see 3P
10	SU68005500	LEY					1	1	079	-29	079	-23	3B				WE	3B	Imp30 see 3P
11	SU68205500	CER					1	1	60	-48	60	-42	3B				DR	3A	Imp38 see 4P
12	SU68405500	CER			030		2	2	64	-44	64	-38	3B				WD	3B	Q spl 30
13	SU68605500	PGR			040	040	4	3B		0		0					WE	3B	Q gleyed 0
14	SU68805500	PGR			040	040	4	3B		0		0					WE	3B	Border 3a we
15	SU68955495	PGR			0		4	3B		0		0					WE	3B	G'water
16	SU67205480	CER	N	02	030	040	4	3B		0		0					WE	3B	Augd to 70
17	SU67405480	CER	E	01	030	030	4	3B		0		0					WE	3B	Augd to 70
18	SU67605480	CER					1	1	52	-56	52	-50	4	Y			WD	3B	Imp30 see 3P
19	SU67805480	CER					1	1	115	7	127	25	2				DR	2	
20	SU67985480	CER			030		2	2	77	-31	77	-25	3B				DR	3A	Imp50 see 4P
21	SU68205475	PGR					1	1	84	-24	84	-18	3B				DR	3A	Imp50 see 4P
22	SU68405480	PGR			0		2	2	103	-5	113	11	3A				DR	3A	Imp60 flinty
23	SU68605480	PGR			0		5	4		0		0					WE	4	G'water;rushs
24	SU68805480	PGR			0		4	3B		0		0					WE	3B	G'water
25	SU69005480	CER	NE	02	028		2	2	55	-53	55	-47	4				DR	3A	I35 see 2P& 4P
25A	SU69075474	CER	N	01	025		2	2	66	-42	66	-36	3B				DR	3A	I45 see 2P& 4P
26	SU67005460	CER	NE	03	025	025	4	3B		0		0					WE	3B	Imp60 flinty
27	SU67205460	CER	N	02	030	040	4	3B		0		0					WE	3B	
28	SU67405460	CER			035		2	2	117	9	117	15	2				WD	2	
28A	SU67445450	CER			025		2	2	65	-43	65	-37	3B	Y			DR	3B	Imp45 see 3P
29	SU67605460	CER			030		2	2	83	-25	83	-19	3B				DR	3B	Imp50 see 3P
30	SU67805460	PGR			038	060	3	2	155	47	124	22	1				WE	2	Q spl at 50
31	SU68005460	PGR			0	050	3	3A	99	-9	111	9	3A				WE	3A	
32	SU68155460	PGR			070	070	2	2	134	26	118	16	2				WD	2	
33	SU68375460	PGR			065		1	1	156	48	122	20	1					1	Higher land
34	SU68605460	PGR			0		5	4		0		0					WE	4	G'water;rushs

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
35	SU68805460	CER	NW	04	015	015	4	3B		0		0					WE	3B	Plastic at 15
38	SU66805440	PGR	SE	02	015	040	4	3B		0		0					WE	3B	Augd to 90
39	SU67005440	CER	SE	03	035	055	3	3A		0		0					WE	3A	Augd to 80
40	SU67175442	CER	SW	02	0	020	4	3B		0		0					WE	3B	Plastic 20
41	SU67405440	CER			025	025	4	3B	082	-26	082	-20	3B	Y			WE	3B	Imp45 see 3P
42	SU67605440	PGR			030	040	4	3A	106	-2	115	13	3A				WE	3A	Imp68 flinty
43	SU67805440	PGR			030	045	3	3A		0		0					WE	3A	Imp95 flinty
44	SU67975440	PGR			0	050	3	3A		0		0					WE	3A	Augd to 90
45	SU68205440	PGR	N	03	0	050	3	3A		0		0					WE	3A	Augd to 75
46	SU68405440	PGR	NE	02	028	065	3	3A		0		0					WE	3A	
47	SU68605440	PGR			0	015	4	3B		0		0					WE	3B	Near rushes
48	SU68805440	CER	NW	02	025	035	4	3B		0		0					WE	3B	Augd to 70
49	SU69005440	CER					1	1	82	-26	84	-18	3B				DR	3A	Imp55 flinty
51	SU66605420	CER	SE	02	040	065	3	2	138	30	130	28	1				WE	2	Q spl at 40
52	SU66805420	PGR	SE	01	030	075	2	1	152	44	127	25	1					1	
53	SU67035417	CER					1	1	077	-31	077	-25	3B	Y			ST	3B	Imp35 flinty
54	*SU67205420*	*CER*			*030*		*2*	*2*	*58*	*-50*	*58*	*-44*	*3B*	*Y*			*ST*	*3B*	*Imp45 flinty*
55	SU67405420	LEY			0	040	4	3B		0		0					WE	3B	Augd to 70
56	SU67605422	PGR			0	050	3	3A		0		0					WE	3A	Augd to 80
57	SU67805420	LEY	N	02	0		2	2	70	-38	70	-32	3B				DR	3A	Imp45 flinty
58	SU67985418	LEY	N	03	030	030	4	3B		0		0					WE	3B	Imp55 flinty
59	SU68205420	CER	NE	01	0	040	4	3B		0		0					WE	3B	Augd to 70
60	SU68405420	PGR	NE	03	0	030	4	3B		0		0					WE	3B	Augd to 70
61	SU68605420	PGR	NE	01	0	048	3	3A		0		0					WE	3A	Imp75 flinty
61A	SU68735414	PGR			020	020	4	3B		0		0					WE	3B	Imp50 Q grave
62	SU68805420	CER			040	060	2	2	105	-3	112	10	3A				WD	2	Imp78 flinty
63	SU69005420	CER			055	055	2	2	133	25	115	13	1				WE	2	
64	SU69205420	CER			020	045	3	3A		0		0					WE	3A	Augd to 70
65	SU66605400	CER			040	065	3	2	139	31	114	12	1				WE	2	Augd to depth
66	SU66775403	PGR			048	068	2	1		0		0						1	
67	SU67005400	CER			030		2	2	65	-43	65	-37	3B				DR	3A	Imp40 see 2P
68	SU67205400	LEY			048	058	2	1	128	20	120	18	2				DR	2	Imp100 flinty
69	SU67405400	LEY	N	02	060	060	2	2	108	0	114	0	3A				WD	2	Imp78 flinty
70	SU67605400	LEY	N	04	0	020	4	3B		0		0					WE	3B	Augd to 85
71	SU68405400	LEY	E	03	030	038	4	3B		0		0					WE	3B	Augd to 75
72	SU68605400	PGR			0	050	3	3A		0		0					WE	3A	Q 3b we
73	SU68775402	BEN			030	030	4	3B		0		0					WE	3B	Imp62 flinty
74	SU69005400	CER			0	035	4	3B		0		0					WE	3B	Augd to 80
75	SU69165395	CER			035	060	3	3A		0		0					WE	3A	Augd to 80
76	SU69425407	CER			0	025	4	3B		0		0					WE	3B	Augd to 60
78	SU67025392	PGR			048		1	1	87	-21	92	-10	3B				DR	3A	Imp60 flinty
78A	SU68805380	BEN			0	068	3	3A		0		0					WE	3A	See 5P

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
79	SU69005380	CER			030	030	4	3B		0		0					WE	3B	
80	SU69205380	CER			035	050	3	3A		0		0					WE	3A	see 5P
81	SU69405380	CER	E	02	025	050	3	3A		0		0					WE	3A	see 5P
82	SU68805360	CER	N	01	028		2	2	93	-15	96	-6	3A				DR	3A	Imp55 flinty
83	SU69005360	CER			030	030	4	3B		0		0					WE	3B	Imp55 flinty
84	SU69205360	CER					1	1	64	-44	64	-38	3B				DR	3A	I40 see 2P& 4P
85	SU69405360	CER	S	01	0		2	2	69	-39	69	-33	3B				DR	3A	I42 see 2P& 4P
86	SU68905343	CER	NE	02	025		2	2	48	-60	48	-54	4				DR	3A	I30 see 2P& 4P
87	SU69255350	CER			028		2	2	73	-35	75	-27	3B				DR	3A	I55 see 2P& 4P
88	SU69545355	SAS			0	018	4	3B		0		0					WE	3B	flat;low lying

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	0-30	mzcl	10YR31 00						0	0	HR	2							
	30-45	mzcl	10YR32 00	75YR56 00	C			Y	0	0	HR	20		M					
	45-53	hzcl	10YR32 00	75YR56 00	C			Y	0	0	HR	5		M					Impen 53 flinty
1P	0-30	zl	10YR42 00						0	0	HR	2							PSD=fszl/zl
	30-54	mzcl	10YR54 00	10YR66 00	F		10YR64 00		0	0	HR	2	MDCSAB	FR M					PSDmzcl/zl/mcl/fszl
	54-64	hcl	10YR63 00	10YR58 00	C		10YR53 00	Y	0	0	HR	2	MDCPR	FR M	Y		Y		thin trans'n zone
	64-120	c	10YR63 00	75YR58 00	M		10YR62 00	Y	0	0	HR	2	MDCPR	FM P	Y		Y		
2	0-30	mzcl	10YR31 00						4	0	HR	10							
	30-35	mzcl	10YR32 00						0	0	HR	25		M					Impen 35 Q gravel
2P	0-28	mcl	10YR42 00						6	4	HR	12							PSD=mcl hand=mcl
	28-40	mcl	10YR52 00	75YR46 00	C		10YR51 00	Y	0	0	HR	15	MDCSAB	FR M					
	40-55	hcl	10YR52 00	10YR36 00	M			Y	0	0	HR	50		M					
	55-70	hcl	10YR52 00	10YR36 00	M			Y	0	0	HR	55		M					
	70-120	hcl	10YR52 00	10YR36 00	M			Y	0	0	HR	60		M					Q gravel 80
3	0-25	mzcl	10YR42 00	10YR58 00	C			Y	0	0		0							
	25-35	hzcl	10YR41 00	10YR58 51	C			Y	0	0		0		M					
	35-48	c	10YR41 31	10YR58 00	C			Y	0	0		0		P					not spl-too shallow
	48-60	pl	10YR21 00					Y	0	0	HR	1		M					wet
	60-90	lp	10YR21 00					Y	0	0	HR	1		M					v. wet
	90-120	pl	10YR21 51					Y	0	0	HR	1		M					saturated
3P	0-30	ohcl	10YR21 00					Y	1	0	HR	4							hand textd pl
	30-43	c	10YR52 00	10YR46 00	C			Y	0	0	HR	7	MDCPR	FM P					
	43-58	gh	10YR52 00	10YR46 00	C			Y	0	0		0		P					w table58 roots55
4	0-35	mzcl	10YR42 00						8	0	HR	12							Impen 35 flinty
4P	0-30	mzcl	10YR52 00						7	0	HR	15							
	30-40	hzcl	10YR32 00						0	0	HR	25	WKCSAB	FR M					
	40-50	hzcl	10YR32 00						0	0	HR	45	WKCSAB	FR M					
	50-60	hzcl	10YR32 00						0	0	HR	55	WKCSAB	FR M					
	60-85	mzcl	10YR72 00	10YR46 58	M			Y	0	0	HR	25	WKCSAB	FR M				Y	
	85-120	hzcl	10YR72 00	10YR68 00	M			Y	0	0	HR	10	WKCAB	FM P	Y		Y	Y	
5	0-30	mzcl	10YR42 00						8	0	HR	15							
	30-40	mzcl	10YR42 00						0	0	HR	20		M				Y	Impen 40 flinty
5P	0-25	mzcl	10YR53 00						0	0	HR	2							
	25-44	mzcl	10YR62 63	75YR58 00	C			Y	0	0		0	MDCSAB	FR M					
	44-65	hzcl	10YR62 00	10YR58 00	C			Y	0	0		0	MDCSAB	FR M					
	65-85	hzcl	25Y 62 00	75YR58 00	M		10YR61 00	Y	0	0		0	MDCAB	FM P	Y		Y		
	85-110	hzcl	25Y 62 00	75YR58 00	M		10YR61 00	Y	0	0	HR	5	MDCAB	FM P	Y		Y		
	110-120	scl	25Y 62 00	75YR58 00	M		10YR61 00	Y	0	0	HR	25	MDCAB	FM P	Y		Y		

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC	
6	0-28	zl	10YR42 00						0	0	HR	5							
	28-55	c	10YR62 00	10YR56 00	M			Y	0	0	HR	5		P			Y		
	55-70	c	10YR62 00	10YR56 00	M		00MN00 00	Y	0	0	HR	5		P			Y		Augd to 70
6P	0-25	pl	10YR22 21					Y	0	0		0							
	25-47	lp	10YR21 00					Y	0	0		0		M					Seepage 47
	47-80	hp	10YR21 00					Y	0	0		0		M					Water table 80
7	0-25	zl	10YR43 00						0	0	HR	5							
	25-48	mzcl	10YR53 00	10YR56 00	C			Y	0	0	HR	5		M					
	48-70	c	10YR62 63	10YR68 61	M			Y	0	0	HR	5		P			Y		Augd to 70
8	0-28	mzcl	10YR42 00						0	0	HR	2							
	28-50	mzcl	10YR53 00	75YR58 00	C		10YR62 00	Y	0	0	HR	2		M					
	50-60	mzcl	10YR53 00	75YR58 00	C		10YR62 00	Y	0	0	HR	10		M				Y	Impen 60 flinty
9	0-28	pl	10YR21 00					Y	0	0		0							
	28-32	pl	10YR21 00					Y	0	0	HR	25		M					Impen 32 Q gravel
10	0-30	omzcl	10YR32 00						2	0	HR	6						Y	Impen 30 Q gravel
11	0-30	mzcl	10YR32 00						7	0	HR	15						Y	
	30-38	hzcl	10YR32 00						0	0	HR	20		M					Impen 38 flinty
12	0-30	mzcl	10YR32 00						4	0	HR	10							
	30-42	c	10YR52 00	10YR58 00	C			Y	0	0	HR	20		P					Prob spl;Imp42
13	0-30	omzcl	10YR22 00						0	0	HR	2							
	30-40	ohzcl	10YR21 00						0	0		0		M					
	40-55	oc	10YR21 00	10YR46 00	C			Y	0	0		0		P			Y		
	55-80	c	10YR52 00	10YR46 00	C			Y	0	0		0		P			Y		
14	0-28	mcl	10YR43 00						0	0	HR	2							
	28-40	mcl	10YR54 00						0	0	HR	5		M					
	40-70	c	10YR53 61	10YR68 00	M			Y	0	0	HR	2		P			Y		Augd to 70
15	0-35	omzcl	10YR41 00	75YR46 00	C			Y	0	0		0							
	35-75	lp	10YR21 00					Y	0	0		0		M					
	75-90	hp	75YR22 00					Y	0	0		0		M					Moist at 45
16	0-30	zl	10YR42 00						0	0	HR	5							
	30-40	mzcl	10YR53 00	10YR56 00	C			Y	0	0	HR	5		M					
	40-70	c	10YR63 62	10YR68 61	M		00MN00 00	Y	0	0	HR	5		P			Y		Augd to 70
17	0-30	mzcl	10YR42 00						0	0	HR	2							
	30-70	c	10YR41 51	10YR46 00	C		10YR61 00	Y	0	0	HR	2		P			Y		Augd to 70
18	0-30	mzcl	10YR31 00						3	0	HR	10							Impen 30 Q gravel

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC	
19	0-30	fszl	10YR32 00						3	0	HR	3							
	30-60	mzcl	10YR42 00						0	0	HR	5		M					
	60-70	mcl	10YR63 00						0	0	CH	30		M			Y		Imp70 chlky gravel
20	0-30	mzcl	10YR32 00						7	1	HR	15							
	30-40	mcl	10YR52 00	10YR58 00	C			Y	0	0	HR	2		M					
	40-50	hcl	10YR52 00	25 Y66 00	C			Y	0	0	HR	25		M					Impen 50 see 4P
21	0-30	mzcl	10YR32 42						4	0	HR	10					Y		
	30-40	hzcl	10YR42 00						0	0	HR	2		M			Y		
	40-50	hzcl	10YR42 00						0	0	HR	10		M			Y		Impen 50 flinty
22	0-25	mzcl	10YR42 00	10YR58 00	C			Y	1	0	HR	3					Y		
	25-35	mzcl	10YR53 00	75YR58 00	C			Y	0	0	HR	2		M			Y		
	35-65	mzcl	10YR32 00	75YR58 00	C			Y	0	0	CH	5		M			Y		Impen 65 flinty
23	0-25	omzcl	10YR32 00	10YR58 00	C			Y	0	0		0							
	25-80	lp	10YR21 00					Y	0	0		0		M					Moist at 25
24	0-20	omzcl	10YR41 00	75YR46 00	C			Y	0	0		0							
	20-25	zc	25Y 51 00	10YR56 00	M			Y	0	0		0		P					
	25-80	lp	10YR21 00					Y	0	0		0		M					Water table 25
25	0-28	mcl	10YR43 00						3	0	HR	10							
	28-35	mcl	10YR53 00	10YR68 61	C			Y	0	0	HR	15		M					Impen 35 flinty
25A	0-25	mcl	10YR43 00						2	0	HR	5							
	25-40	c	10YR53 62	10YR68 61	M	00MN00 00		Y	0	0	HR	5		P					
	40-45	c	10YR53 62	10YR68 61	M	00MN00 00		Y	0	0	HR	30		P					Impen 45 flinty
26	0-25	mzcl	10YR42 00						0	0	HR	5							
	25-60	c	10YR61 63	10YR68 00	M			Y	0	0	HR	25		P		Y			bullet like; I60
27	0-25	mzcl	10YR43 00						0	0	HR	5							
	25-30	mzcl	10YR54 00						0	0	HR	5		M					
	30-40	mzcl	10YR53 62	10YR56 00	M			Y	0	0	HR	2		M					
	40-70	c	10YR62 52	10YR68 00	M			Y	0	0	HR	2		P		Y			Augd to 70
28	0-35	mzcl	10YR32 00						3	0	HR	3							
	35-45	mcl	10YR53 00	10YR58 00	C			Y	0	0	HR	12		M					
	45-55	hcl	10YR63 00	10YR58 00	M			Y	0	0	HR	3		M					
	55-75	hcl	10YR63 00	10YR66 00	M			Y	0	0	HR	6		M			Y		chalky-prob not spl
	75-85	hcl	10YR63 00	10YR66 00	C			Y	0	0	HR	40		M			Y		chalky; Impen 85
28A	0-25	mzcl	10YR41 00						2	0	HR	10							
	25-45	hcl	10YR41 00	75YR46 00	C			Y	0	0	HR	35		M					Imp45 Q gravel (3P)
29	0-30	mzcl	10YR42 00						3	0	HR	3							
	30-40	mzcl	10YR62 00	10YR36 00	M			Y	0	0	HR	7		M					
	40-50	mzcl	10YR62 00	10YR36 00	M			Y	0	0	HR	35		M					Imp50 Q gravel (3P)

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC	
30	0-25	fszl	10YR42 00						0	0		0							
	25-38	mcl	10YR52 00						0	0		0		M					
	38-50	mcl	10YR53 00	75YR58 00	C			Y	0	0		0		M					
	50-60	hcl	10YR53 00	75YR58 00	C			Y	0	0		0		M					Q spl
	60-85	c	10YR63 00	75YR58 00	C		10YR62 00	Y	0	0		0		P		Y			
	85-95	hcl	10YR63 00	75YR58 00	C		10YR62 00	Y	0	0		0		P		Y			
	95-120	mcl	75YR58 00	00MN00 00	M			S	0	0		0		M					Query gleyed
31	0-25	mzcl	10YR52 00	10YR58 00	M			Y	0	0	HR	5							
	25-50	mzcl	10YR53 00	10YR56 00	M			Y	0	0	HR	5		M					
	50-70	c	10YR63 00	10YR68 00	M			Y	0	0	HR	5		P		Y			Augd to 70
32	0-30	mzcl	10YR42 00						0	0	HR	5							
	30-60	mzcl	10YR53 00	10YR58 00	F				0	0	HR	5		M					
	60-70	hzcl	10YR53 00	10YR58 00	F				0	0	HR	10		M					
	70-120	hzcl	10YR63 62	10YR68 00	C			Y	0	0	HR	5		P		Y			
33	0-35	mzcl	10YR42 00						0	0	HR	2						Y	
	35-50	mzcl	10YR54 00						0	0	HR	5		M				Y	
	50-65	mzcl	10YR43 44						0	0	HR	5		M				Y	
	65-120	mzcl	10YR53 00	10YR46 00	C		10YR52 00	Y	0	0	HR	5		M				Y	
34	0-25	pl	10YR22 00					Y	0	0		0							
	25-35	lp	10YR21 00					Y	0	0		0		M					Moist at 25
	35-80	lp	10YR21 00					Y	0	0		0		M					Augd to 80
35	0-15	mcl	10YR43 00						2	0	HR	10							
	15-55	c	25Y 51 00	10YR58 00	M		00MN00 00	Y	0	0		0		P		Y			Plastic;augd 55
38	0-15	mzcl	10YR32 00						0	0		0							
	15-25	mzcl	10YR53 00	10YR58 00	C			Y	0	0		0		M					
	25-40	mcl	10YR63 00	10YR68 00	C			Y	0	0		0		M					
	40-90	c	10YR64 00	10YR58 00	M			Y	0	0		0		P		Y			Augd to 90
39	0-25	mzcl	10YR43 00						0	0	HR	5							
	25-35	mzcl	10YR54 00	10YR58 00	F				0	0	HR	5		M					
	35-55	mzcl	10YR53 00	10YR68 62	C			Y	0	0	HR	15		M					
	55-80	c	10YR52 00	10YR68 00	M			Y	0	0	HR	5		P		Y			Augd to 80
40	0-20	mzcl	10YR42 00	10YR56 00	C			Y	0	0	HR	2							
	20-60	zc	10YR61 53	10YR68 00	M			Y	0	0		0		P		Y			Plastic;augd 60
41	0-25	ohcl	05Y 21 00					Y	2	0	HR	10							hand textd pl
	25-40	c	25Y 42 00	10YR56 00	C			Y	0	0	HR	15		P		Y			
	40-45	c	25Y 42 00	10YR56 00	C			Y	0	0	HR	40		P		Y			Imp45 see 3P
42	0-30	fszl	10YR42 00						0	0		0							
	30-40	hcl	10YR53 00	75YR58 00	C			Y	0	0	HR	2		M					
	40-55	c	10YR52 00	75YR58 00	M			Y	0	0	HR	2		P		Y			
	55-68	c	10YR52 00	75YR58 00	M			Y	0	0	HR	15		P		Y			Impen 68 flinty

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	CALC
43	0-30	mcl	10YR42 00						0	0		0						
	30-45	hcl	10YR52 53	75YR58 00	C			Y	0	0		0		M				
	45-80	c	10YR52 00	75YR58 00	M		00MN00 00	Y	0	0		0		P			Y	
	80-95	c	10YR52 00	75YR58 00	M		00MN00 00	Y	0	0	HR	10		P			Y	Impen 95 flinty
44	0-30	mcl	10YR41 00	75YR56 00	C			Y	0	0		0						PSDmcl/mzcl/fszl/zl
	30-45	mzcl	10YR53 00	75YR58 00	C		10YR61 00	Y	0	0		0		M				
	45-50	hcl	10YR52 00	75YR58 00	C		10YR61 00	Y	0	0		0		M				
	50-90	c	10YR52 00	75YR58 00	C		10YR61 00	Y	0	0		0		P			Y	Augd to 90
45	0-25	mzcl	10YR42 00	10YR56 00	C			Y	0	0	HR	5						
	25-50	mzcl	10YR53 00	10YR56 00	M			Y	0	0	HR	5		M				
	50-55	hcl	10YR63 00	10YR68 52	M			Y	0	0	HR	5		P			Y	Firm consistence
	55-75	c	10YR63 00	10YR68 52	M			Y	0	0	HR	5		P			Y	Augd to 75
46	0-28	mzcl	10YR43 00						0	0	HR	2						
	28-65	mzcl	10YR53 54	10YR56 00	M			Y	0	0	HR	2		M				Feint mottles
	65-85	c	10YR53 63	10YR68 51	M			Y	0	0	HR	2		P			Y	Augd to 85
47	0-15	hzcl	10YR32 00	10YR46 00	C			Y	0	0		0						
	15-25	hzcl	10YR52 00	75YR46 00	M			Y	0	0		0		P			Y	Firm consistence
	25-60	zc	10YR61 00	75YR46 00	M			Y	0	0		0		P			Y	Augd to 60
48	0-25	mcl	10YR43 00						0	0		0						
	25-35	mcl	10YR53 00	10YR56 00	C			Y	0	0	HR	2		M				
	35-70	c	10YR52 62	10YR58 00	M		00MN00 00	Y	0	0		0		P			Y	Augd to 70
49	0-25	mcl	10YR43 00						3	0	HR	10						
	25-40	mcl	10YR54 00						0	0	HR	10		M				
	40-55	hcl	10YR54 00	10YR56 00	F				0	0	HR	10		M				Impen 55 flinty
51	0-30	fszl	10YR52 00	10YR56 00	F				2	0	HR	2						
	30-40	mzcl	10YR53 00	10YR56 00	F				0	0		0		M				
	40-60	hzcl	10YR53 00	10YR58 00	M			Y	0	0		0		M				Q spl
	60-65	hzcl	10YR53 00	10YR58 00	M			Y	0	0	HR	15		M				Q spl
	65-100	c	10YR63 00	10YR58 61	M			Y	0	0		0		P			Y	Augd to 100
52	0-30	fszl	10YR52 00						2	0	HR	5						
	30-40	mzcl	10YR53 00	10YR56 00	C			Y	0	0	HR	5		M				
	40-75	hcl	10YR63 00	10YR58 00	C			Y	0	0		0		M				Q spl
	75-120	c	10YR63 00	10YR58 00	M			Y	0	0		0		P			Y	
53	0-30	omcl	10YR32 00						18	11	HR	30						Overall 3b ts
	30-35	mcl	10YR33 00						0	0	HR	25		M				Impen 35 flinty
54	0-30	mzcl	10YR41 00						17	6	HR	30						
	30-45	mzcl	10YR42 00	10YR58 00	C			Y	0	0	HR	35		M				Impen 45 flinty

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	CALC
55	0-25	zl	10YR53 00	10YR56 00	C			Y	0	0	HR	2						
	25-40	mcl	10YR64 00	10YR56 00	C			Y	0	0		0		M				
	40-70	c	10YR64 00	10YR58 62	M		00MN00 00	Y	0	0		0		P		Y		Augd to 70
56	0-30	mzcl	10YR41 00	75YR56 00	C			Y	0	0		0						
	30-50	hcl	10YR52 00	75YR58 00	C			Y	0	0		0		M				
	50-80	c	10YR52 00	75YR58 00	M			Y	0	0		0		M		Y		Augd to 80
57	0-30	mcl	10YR42 00	10YR46 00	C			Y	3	0	HR	10						
	30-45	hcl	10YR64 00	10YR56 00	M			Y	0	0	HR	15		M				Impen 45 flinty
58	0-30	mcl	10YR52 00						3	0	HR	10						
	30-40	hcl	10YR64 00	10YR56 62	C			Y	0	0	HR	10		M		Y		
	40-55	c	10YR63 00	10YR56 00	M		00MN00 00	Y	0	0	HR	10		P		Y		Impen 55 flinty
59	0-30	mcl	10YR52 00	10YR56 00	C			Y	1	0	HR	5						
	30-40	mcl	10YR63 00	10YR56 00	C			Y	0	0	HR	5		M				
	40-50	hcl	25Y 63 00	25Y 58 00	M			Y	0	0	HR	2		M		Y		
	50-70	c	25Y 63 00	75YR58 00	M		00MN00 00	Y	0	0	HR	2		P		Y		Augd to 70
60	0-30	mzcl	10YR53 00	10YR56 00	C			Y	0	0	HR	2						
	30-70	c	10YR62 63	10YR68 00	M			Y	0	0		0		P		Y		Augd to 70
61	0-30	mzcl	10YR53 00	10YR56 00	C			Y	0	0	HR	2						
	30-48	mzcl	10YR53 00	10YR56 00	M			Y	0	0	HR	10		M				
	48-75	c	10YR53 63	10YR58 52	M		00MN00 00	Y	0	0	HR	20		P		Y		Impen 75 flinty
61A	0-20	hcl	10YR42 43						0	0		0						
	20-40	c	25Y 61 00	10YR68 00	M			Y	0	0		0		P		Y		
	40-50	zc	25Y 61 00	10YR56 00	M			Y	0	0		0		P		Y		Q gravel 50
62	0-25	mcl	10YR53 00						0	0	HR	1						
	25-40	mcl	10YR54 00						0	0	HR	1		M				
	40-60	mzcl	25Y 63 00	10YR66 00	C			Y	0	0	CH	10		M				
	60-78	hzcl	10YR62 00	75YR58 00	C			Y	0	0	HR	5		P		Y		Impen 78 flinty
63	0-25	mzcl	10YR53 00						0	0	HR	1						
	25-55	mzcl	10YR54 00						0	0	HR	1		M				
	55-120	hzcl	10YR63 00	75YR58 00	C			Y	0	0	HR	1		P		Y		Firm consistence
64	0-20	mcl	10YR43 00						2	0	HR	5						
	20-45	mcl	10YR53 00	10YR56 00	C			Y	0	0		0		M				
	45-70	c	10YR53 61	10YR58 00	M			Y	0	0		0		P		Y		Augd to 70
65	0-30	fszl	10YR52 00						3	0	HR	3						
	30-40	mcl	10YR53 00						0	0	HR	2		M				
	40-60	hcl	10YR53 00	10YR68 00	C			Y	0	0	HR	25		M				
	60-75	c	10YR53 00	10YR68 00	C			Y	0	0	HR	25		P		Y		
	75-120	c	10YR63 00	10YR68 00	M			Y	0	0		0		P		Y		

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC
66	0-30	fszl	10YR53 00						1	0	HR	1						
	30-48	fszl	10YR54 00						0	0	HR	1		M				
	48-68	mcl	10YR53 00	10YR68 00	C			Y	0	0	HR	1		M				
	68-120	hcl	10YR63 00	10YR56 00	M			Y	0	0	HR	5		P		Y		
67	0-30	mcl	10YR42 00						2	0	HR	6						
	30-40	hcl	10YR62 63	10YR58 00	C			Y	0	0	HR	15		M				Impen 40 see 2P
68	0-25	fszl	10YR52 00						1	0	HR	3						PSD=fszl/mcl
	25-48	mcl	10YR53 00	10YR58 00	F				0	0	HR	3		M				
	48-58	hcl	10YR64 00	10YR58 00	C		00MN00 00	Y	0	0	HR	1		M				
	58-100	c	10YR53 00	10YR68 00	C		00MN00 00	Y	0	0	HR	5		P		Y		Impen 100 flinty
69	0-25	mzcl	10YR42 00						0	0	HR	2						
	25-60	mzcl	10YR54 00	10YR58 00	F				0	0	HR	5		M				
	60-78	hcl	10YR53 00	10YR58 62	M			Y	0	0	HR	10		P		Y		Impen 78 flinty
70	0-20	mcl	10YR52 00	10YR46 00	C			Y	3	0	HR	10						
	20-30	hcl	10YR63 00	10YR56 00	C			Y	0	0	HR	5		M		Y		
	30-85	c	10YR62 00	10YR66 00	C			Y	0	0	HR	2		P		Y		Augd to 85
71	0-30	mzcl	10YR52 00						1	0	HR	2						
	30-38	mcl	10YR53 00	10YR56 00	C			Y	0	0	HR	2		M				
	38-60	hcl	10YR63 00	75YR56 00	M		00MN00 00	Y	0	0	HR	5		M		Y		
	60-75	c	10YR63 00	75YR56 00	M		00MN00 00	Y	0	0	HR	5		P		Y		Augd to 75
72	0-30	mzcl	10YR41 00	10YR58 00	C			Y	0	0	HR	2						
	30-50	mzcl	10YR63 62	10YR68 00	M			Y	0	0		0		M				Q spl - v. pale
	50-70	hzcl	10YR62 63	10YR68 72	M			Y	0	0		0		P		Y		Q massive struc
	70-90	c	10YR63 00	10YR58 00	M		00MN00 00	Y	0	0		0		P		Y		Augd to 90
73	0-30	mcl	10YR42 00						0	0	HR	2						
	30-55	hzcl	10YR62 63	75YR58 00	C			Y	0	0	HR	2		M		Y		
	55-62	hcl	25Y 62 00	10YR66 00	C			Y	0	0	HR	10		P		Y		Impen 62 flinty
74	0-25	mcl	10YR52 00	10YR58 00	C		00MN00 00	Y	0	0	HR	2						
	25-35	mcl	10YR53 00	10YR58 00	C			Y	0	0	HR	2		M				
	35-60	hcl	10YR63 62	75YR58 00	C		00MN00 00	Y	0	0	HR	1		M		Y		Firm consistence
	60-80	hzcl	10YR63 62	75YR58 00	C		00MN00 00	Y	0	0	HR	1		P		Y		Augd to 80;firm
75	0-25	mzcl	10YR43 00						1	0	HR	5						
	25-35	mzcl	10YR44 54						0	0	HR	2		M				
	35-60	mcl	10YR53 00	10YR58 00	C			Y	0	0		0		M				
	60-80	c	10YR53 00	75YR58 52	M		00MN00 00	Y	0	0		0		P		Y		Augd to 80
76	0-25	mcl	10YR42 00	10YR56 00	C			Y	2	0	HR	5						
	25-35	hcl	10YR53 00	10YR56 00	M			Y	0	0	HR	2		M		Y		
	35-60	c	10YR53 61	75YR58 00	M		00MN00 00	Y	0	0		0		P		Y		Augd to 60

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	IMP	SPL	CALC	
78	0-20	mcl	10YR42 00						0	0	HR	5							
	20-48	mcl	10YR53 00						0	0	HR	10		M					
	48-60	hcl	10YR64 00	10YR58 00	C			Y	0	0	HR	10		M					Impen 60 flinty
78A	0-30	mzcl	10YR53 00	10YR58 00	C			Y	0	0	HR	2							
	30-50	mcl	10YR64 00						0	0	HR	2		M					Q no mottles
	50-68	hzcl	10YR62 63	75YR68 00	C			Y	0	0	HR	1		M					Not spl-too soft
	68-85	hzcl	10YR62 00	75YR58 00	C	00MN00	00	Y	0	0	HR	1		P		Y			Augd to 85
79	0-30	mcl	10YR52 00						0	0	HR	1							
	30-55	hzcl	25Y 62 00	10YR66 00	C			Y	0	0	HR	1		M		Y			Firm
	55-90	mzcl	10YR62 63	75YR68 00	M			Y	0	0	HR	2		M					
	90-120	hzcl	10YR62 63	75YR68 00	M			Y	0	0	HR	2		M					Not spl-too soft
80	0-25	mzcl	10YR43 00						1	0	HR	3							
	25-35	mcl	10YR44 00						0	0	HR	2		M					
	35-50	mcl	10YR53 54	10YR56 00	C			Y	0	0		0		M					
	50-80	c	10YR53 00	75YR58 51	M	00MN00	00	Y	0	0		0		P		Y			Augd to 80
81	0-25	mcl	10YR43 00						1	0	HR	3							
	25-50	mcl	10YR53 00	10YR58 00	C			Y	0	0	HR	2		M					
	50-120	hcl	10YR53 00	10YR58 51	M	00MN00	00	Y	0	0		0		P		Y			Borderline clay
82	0-28	mzcl	10YR53 00						1	0	HR	2							
	28-55	mzcl	10YR62 63	75YR68 00	C			Y	0	0	HR	5		M					Impen 55 flinty
83	0-30	mcl	10YR42 00						2	0		0							
	30-55	hcl	10YR62 00	10YR58 00	C			Y	0	0	HR	10		M		Y			Impen 55 flinty
84	0-25	mcl	10YR42 00						3	0	HR	8							
	25-40	mcl	10YR53 00						0	0	HR	8		M					Impen 40 flinty
85	0-25	mcl	10YR42 00	75YR58 00	C			Y	1	0	HR	5							
	25-42	hcl	10YR62 63	10YR58 00	C			Y	0	0	HR	5		M					Impen 42 flinty
86	0-25	mcl	10YR43 00						3	0	HR	10							
	25-30	mcl	10YR53 00	10YR58 00	C			Y	0	0	HR	10		M					Impen 30 flinty
87	0-28	mcl	10YR32 00						3	0	HR	10							
	28-55	mcl	10YR53 00	10YR56 00	C			Y	0	0	HR	35		M					Impen55 Q gravel
88	0-18	hzcl	10YR42 00	10YR56 00	C			Y	0	0		0							
	18-45	zc	25Y 51 00	10YR58 00	M			Y	0	0		0		P		Y			
	45-60	zc	25Y 32 00	10YR58 00	M			Y	0	0		0		P		Y			Augd to 60