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BASINGSTOKE & DEANE BOROUGH
LOCAL PLAN.
SITE 3: LAND EAST OF A340,
SHERBORNE ST JOHN
AGRICULTURAL LAND CLASSIFICATION
ALC MAP & REPORT
AUGUST 1993

BASINGSTOKE & DEANE BOROUGH LOCAL PLAN
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AGRICULTURAL LAND CLASSIFICATION REPORT

## 1.0 Summary

1.1 In August 1993, a detailed Agricultural Land Classification (ALC) survey was carried out on 6 hectares of land east of the A340 at Sherborne St John. ADAS was commissioned by MAFF's Land Use Planning Unit to determine the quality of 22 sites around Basingstoke in Hampshire. The work forms part of MAFF's statutory input into the Basingstoke and Deane Borough Local Plan (2nd round).

1.2 The survey was conducted by members of the Resource Planning Team in the Guildford Statutory Group at an observation density of approximately two borings per hectare. A total of 11 borings and 2 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 longterm limitations on its use for agriculture.

At the time of survey, the land was under cereal stubble.

1.3 The distribution of the grades and subgrades is shown on the attached ALC map and the areas and extents are given in the table below. The map has been drawn at a scale of 1:5000. It is accurate at this scale, but any enlargement may be misleading.

Table 1 : Distribution of Grades and Sub-grades

| Grade | Area (ha) | % of Agricultural Area |
|---|---|---|
| 2 | 0.6 | 10 |
| 3a | 4.8 | 80 |
| 3b | 0.6 | 10 |
| Total area of site | 6.0 | 100% |

1.4 A general description of the grades, subgrades and landuse categories identified in the survey is provided as an appendix. 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.

1.5 The site has been classified as grades 2, 3a and 3b. The land shown as grade 2, to the north, is limited by soil workability due to the heavy nature of the topsoil, and to the south by slight soil droughtiness due to profile stone volumes restricting available water for plant growth. The area shown as subgrade 3a is limited by moderate soil droughtiness due to the presence of chalk in the upper and lower subsoil. Pit observations found shallow rooting into the chalk further restricting available water. Land shown as subgrade 3b is limited by significant soil droughtiness due to the presence of chalk below the topsoil. Available water is more severely restricted with shallow soils over shallow rooted chalk.

## 2.0 Climate

2.1 The climatic criteria are considered first when classifying land as climate can be overriding in the sense that severe limitations will restrict land to low grades

irrespective of favourable site or soil conditions.

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

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

2.4 No local climatic factors such as exposure or frost risk affect the site. However, climatic factors do interact with soil factors to increase the risk of soil wetness and moreover soil droughtiness problems.

Table 2 : Climatic Interpolation

| | |
|---|---|
| Grid Reference : | SU 619 555 |
| Altitude (m) : | 90 |
| Accumulated Temperature (days) : | 1430 |
| Average Annual Rainfall (mm) : | 756 |
| Field Capacity (days) : | 162 |
| Moisture Deficit, Wheat (mm) : | 102 |
| Moisture Deficit, Potatoes (mm) : | 93 |
| Overall Climatic Grade : | 1 |

**3.0 Relief**

3.1 The site lies at an altitude of approximately 85-95 metres with land sloping gently north east to the point of lowest altitude. Nowhere on the site does relief affect agricultural land quality.

**4.0 Geology and Soil**

4.1 The relevant geological sheet for the site, Sheet 284 (Basingstoke) BGS, 1981, shows the underlying geology for the site to be Cretaceous Upper Chalk.

4.2 Published soils information for the area, Sheet 6 "Soils of South East England", SSEW, 1983 shows the site to comprise soils of the Andover 1 Association -"Shallow well drained calcareous silty soils over chalk on slopes and crests. Deep calcareous and non calcareous fine silty soils in valley bottoms" (SSEW, 1983). A detailed inspection of soils on the site revealed the presence of fine loamy over clayey soils often passing to chalk in the lower subsoil.

**5.0 Agricultural Land Classification**

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

5.2 The location of the soil observation points are shown on the attached sample point map.

**Grade 2**

5.3 Very good quality land is mapped to the north and the south of the site and consists of two soil types. The key limitations are soil workability and droughtiness. To the north profiles are

non calcareous, comprising topsoils of heavy clay loam containing 2% total flints by volume over upper subsoils of similar texture and stone content. Lower subsoils consist of clay with 0-5% total flints. Soils are well drained suffering from neither a wetness or a droughtiness limitation. However due to a heavy topsoil texture interacting with climatic factors, land here can be classified no higher than Grade 2 due to slight workability limitation. Clayey topsoil textures retain water for longer periods than other textures and decrease the time land is in a suitable condition for cultivation, trafficking by machinery or grazing by livestock.

5.4 To the south profiles comprise topsoils of medium silty clay loam containing 2-8% total flints by volume (with 0-4% > 2cm) over upper subsoils of the same texture containing 6-10% total flints. Lower subsoils consist of medium silty clay loam containing 20% weathered chalk. Profiles are well drained but suffer from slight droughtiness. Observations from soil pit 1, which was typical of these soils, revealed the presence of a compact lower subsoil that proved impenetrable to dig beyond 90 cm depth. Effective rooting was evident to this depth but in view of the compact nature of the lower subsoil it was felt that rooting would not continue to 120 cm where a grade of 1 would result. Therefore a grade of 2 is appropriate with soils experiencing a slight droughtiness limitation.

**Subgrade 3a**

5.5 The majority of the site is classifed as Subgrade 3a. Profiles typically comprise topsoils of heavy clay loam containing 4-6% total flints by volume over upper subsoils of the same texture containing 5-35% total weathered chalk. Below this pure chalk was encountered from a depth of 45-60 cm in the profile. Soils are well drained but suffer from moderate droughtiness. Soil pit 2, typical of these soils revealed an effective rooting depth of 15 cm into the chalk. With this restricted rooting depth soils experience a reduction in available water for plant growth in the profile and also a restriction in the range of crops that can tolerate such conditions. Within this map unit profiles of better quality were encountered but not mapped separately due to their limited number and distribution.

**Subgrade 3b**

5.6 Land to west of the site has been classified as Subgrade 3b. Profiles typically comprise topsoils of heavy clay loam containing 4-6% total flints by volume over thin upper subsoils of heavy silty clay loam or clay containing 5-10% total flints and weathered chalk. Below this pure chalk was encountered at a depth of 35 cm in the profile. With an effective rooting depth of 15 cm into the chalk (see Pit 1) soils experience significant droughtiness. This is due to the presence of chalk at a shallow depth and the restricted rooting in the profile, consequently available water is restricted to a greater extent than that of Subgrade 3a land. Also the range of crops that can tolerate such conditions is further limited such that a grade of 3b is appropriate.

APPENDIX I

DESCRIPTION OF THE GRADES AND SUB-GRADES

**Grade 1 : Excellent Quality Agricultural Land**

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

**Grade 2 : Very Good Quality Agricultural Land**

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

**Grade 3 : Good To Moderate Quality Agricultural Land**

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

**Sub-grade 3A : Good Quality Agricultural Land**

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

**Sub-grade 3B : Moderate Quality Agricultural Land**

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

**Grade 4 : Poor Quality Agricultural Land**

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

**Grade 5 : Very Poor Quality Agricultural Land**

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

**Urban**

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

**Non-agricultural**

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

**Woodland**

Includes commercial and non-commercial woodland.

**Agricultural Buildings**

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

**Open Water**

Includes lakes, ponds and rivers as map scale permits.

**Land Not Surveyed**

Agricultural land which has not been surveyed.

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

APPENDIX II

REFERENCES

* BRITISH GEOLOGICAL SURVEY (1981), Sheet No.284, Basingstoke, 1:50,000 scale.

* 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 No.6, "Soils of South East England", 1:250,000 scale and accompanying legend.

APPENDIX III

# DEFINITION OF SOIL WETNESS CLASSES

**Wetness Class I**

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

**Wetness Class II**

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

**Wetness Class III**

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

**Wetness Class IV**

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

**Wetness Class V**

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

**Wetness Class VI**

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

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

APPENDIX IV

# 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 database. This has commonly used notations and abbreviations as set out below.

## Boring Header Information

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

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

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

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

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

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

6. **MB (WHEAT/POTS)** : Moisture Balance.

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

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

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

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

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

## Soil Pits and Auger Borings

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

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

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

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

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

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

2. **MOTTLE COL** : Mottle colour

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

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

4. **MOTTLE CONT** : Mottle contrast

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

5. **PED. COL** : Ped face colour

6. **STONE LITH** : One of the following is used.

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

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

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

- degree of development **WK** : weakly developed **MD** : moderately developed **ST** : strongly developed

- ped size **F** : fine **M** : medium **C** : coarse **VC** : very coarse

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

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

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

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

**G** : good **M** : moderate **P** : poor

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

11. **IMP** : If the profile is impenetrable a 'Y' will appear in this column at the appropiate horizon.

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

13. **CALC** : If the soil horizon is calcareous, a 'Y' will appear in this column.

14. Other notations

**APW** : available water capacity (in mm) adjusted for wheat
**APP** : available water capacity (in mm) adjusted for potatoes
**MBW** : moisture balance, wheat
**MBP** : moisture balance, potatoes

SOIL PIT DESCRIPTION

Site Name : BSTOKE LP (2) SITE 3 Pit Number : 1P

Grid Reference: SU61865544 Average Annual Rainfall : 756 mm
Accumulated Temperature : 1430 degree days
Field Capacity Level : 162 days
Land Use :
Slope and Aspect : degrees N

| HORIZON | TEXTURE | COLOUR | STONES >2 | TOT.STONE | MOTTLES | STRUCTURE |
|---|---|---|---|---|---|---|
| 0- 32 | HCL | 10YR42 00 | 0 | 4 | | |
| 32- 45 | HCL | 10YR54 00 | 0 | 35 | | |
| 45- 60 | CH | 00CH00 00 | 0 | 0 | | |

Wetness Grade : 2 Wetness Class : I
Gleying : cm
SPL : No SPL

Drought Grade : 3A APW : 85 mm MBW : -17 mm
APP : 88 mm MBP : -5 mm

FINAL ALC GRADE : 3A
MAIN LIMITATION : Droughtiness

SOIL PIT DESCRIPTION

Site Name : BSTOKE LP (2) SITE 3 Pit Number : 2P

Grid Reference: SU61805525 Average Annual Rainfall : 756 mm
Accumulated Temperature : 1430 degree days
Field Capacity Level : 162 days
Land Use :
Slope and Aspect : 02 degrees N

| HORIZON | TEXTURE | COLOUR | STONES >2 | TOT.STONE | MOTTLES | STRUCTURE |
|---|---|---|---|---|---|---|
| 0- 30 | MZCL | 10YR43 00 | 4 | 8 | | |
| 30- 55 | MZCL | 10YR44 00 | 0 | 6 | | MDCSAB |
| 55- 90 | MZCL | 10YR64 00 | 0 | 20 | | |

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

Drought Grade : 2 APW : 122mm MBW : 20 mm
APP : 116mm MBP : 23 mm

FINAL ALC GRADE : 2
MAIN LIMITATION : Droughtiness

| SAMPLE NO. | GRID REF | USE | ASPECT | GRDNT | GLEY | SPL | --WETNESS-- CLASS | GRADE | -WHEAT- AP | MB | -POTS- AP | MB | M.REL DRT | FLOOD | EROSN EXP | FROST DIST | CHEM LIMIT | | ALC | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | SU61905560 | CER | N | 01 | | | 1 | 2 | 78 | -24 | 79 | -14 | 3B | | | | DR | | 3B | ROOT AS 1P |
| 1P | SU61865544 | STU | N | | | | 1 | 2 | 85 | -17 | 88 | -5 | 3A | | | | DR | | 3A | ROOT 60 |
| 2 | SU61905550 | CER | | | | | 1 | 1 | 108 | 6 | 105 | 12 | 2 | | | | DR | | 2 | IMP 90 |
| 2P | SU61805525 | STU | N | 02 | | | 1 | 1 | 122 | 20 | 116 | 23 | 2 | | | | DR | | 2 | PIT TO 90 |
| 3 | SU61805540 | BAR | | | | | 1 | 1 | 93 | -9 | 98 | 5 | 3A | | | | DR | | 3A | ROOT AS 1P |
| 4 | SU61905540 | BAR | | | | | 1 | 1 | 88 | -14 | 91 | -2 | 3A | | | | DR | | 3A | ROOT AS 1P |
| 5 | SU61805530 | BAR | | | | | 1 | 1 | 102 | 0 | 107 | 14 | 3A | | | | DR | | 3A | ROOT AS 1P |
| 6 | SU61835524 | STU | N | 02 | | | 1 | 1 | 103 | 1 | 113 | 20 | 3A | | | | DR | | 3A | IMP Q2DR |
| 7 | SU61865544 | CER | | | | | 1 | 1 | 107 | 5 | 106 | 13 | 2 | | | | DR | | 2 | ROOT AS 1P |
| 8 | SU61905566 | CER | | | | | 1 | 2 | 139 | 37 | 114 | 21 | 1 | | | | WE | | 2 | |
| 9 | SU61955563 | STU | | | 040 | 040 | 3 | 3B | 96 | -6 | 108 | 15 | 3A | | | | WE | | 3B | |
| 10 | SU61855555 | STU | | | | | 1 | 2 | 65 | -37 | 65 | -28 | 3B | | | | DR | | 3B | IMP 40 Q3A |
| 11 | SU61825546 | STU | | | | | 1 | 2 | 75 | -27 | 75 | -18 | 3B | | | | DR | | 3B | ROOT AS 1P |

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0-29 | hcl | 10YR32 00 | | | | | | 0 | 0 | HR | 5 | | | | | | |
| | 29-40 | c | 75YR44 00 | | | | | | 0 | 0 | HR | 20 | | M | | | | |
| | 40-55 | ch | 10YR82 00 | | | | | | 0 | 0 | | 0 | | P | | | | |
| 1P | 0-32 | hcl | 10YR42 00 | | | | | | 0 | 0 | HR | 4 | | | | | | |
| | 32-45 | hcl | 10YR54 00 | | | | | | 0 | 0 | CH | 35 | | M | | | Y | |
| | 45-60 | ch | 00CH00 00 | | | | | | 0 | 0 | | 0 | | P | | | Y | |
| 2 | 0-25 | mzcl | 10YR42 00 | | | | | | 0 | 0 | HR | 2 | | | | | | |
| | 25-85 | c | 75YR44 00 | | | | | | 0 | 0 | HR | 1 | | P | | | | |
| | 85-90 | hcl | 10YR64 00 | | | | | | 0 | 0 | CH | 20 | | M | | | | |
| 2P | 0-30 | mzcl | 10YR43 00 | | | | | | 4 | 0 | HR | 8 | | | | | | |
| | 30-55 | mzcl | 10YR44 00 | | | | | | 0 | 0 | HR | 6 | MDCSAB FM | M | Y | | | |
| | 55-90 | mzcl | 10YR64 00 | | | | | | 0 | 0 | CH | 20 | | M | | | | |
| 3 | 0-30 | hcl | 10YR43 00 | | | | | | 0 | 0 | HR | 5 | | | | | | |
| | 30-40 | hcl | 10YR44 00 | | | | | | 0 | 0 | | 0 | | M | | | | |
| | 40-50 | hcl | 10YR44 00 | | | | | | 0 | 0 | CH | 15 | | M | | | | |
| | 50-65 | ch | 10YR81 00 | | | | | | 0 | 0 | | 0 | | P | | | | |
| 4 | 0-30 | hcl | 10YR43 00 | | | | | | 0 | 0 | HR | 4 | | | | | | |
| | 30-45 | hcl | 10YR44 00 | | | | | | 0 | 0 | CH | 5 | | M | | | | |
| | 45-60 | ch | 10YR81 00 | | | | | | 0 | 0 | | 0 | | P | | | | |
| 5 | 0-30 | hcl | 10YR43 00 | | | | | | 0 | 0 | HR | 6 | | | | | | |
| | 30-40 | hcl | 10YR44 00 | | | | | | 0 | 0 | | 0 | | M | | | | |
| | 40-60 | hcl | 10YR54 00 | | | | | | 0 | 0 | CH | 15 | | M | | | | |
| | 60-75 | ch | 10YR81 00 | | | | | | 0 | 0 | | 0 | | P | | | | |
| 6 | 0-38 | mzcl | 10YR42 00 | | | | | | 0 | 0 | HR | 2 | | | | | | |
| | 38-50 | mzcl | 10YR44 00 | | | | | | 0 | 0 | HR | 10 | | M | | | | |
| | 50-65 | mzcl | 10YR66 00 | | | | | | 0 | 0 | CH | 20 | | M | | | Y | |
| 7 | 0-28 | hcl | 10YR42 00 | | | | | | 0 | 0 | HR | 3 | | | | | | |
| | 28-50 | c | 75YR44 00 | | | | | | 0 | 0 | HR | 15 | | M | | | | |
| | 50-65 | hcl | 10YR54 00 | | | | | | 0 | 0 | CH | 40 | | M | | | | |
| | 65-70 | hcl | 10YR54 00 | | | | | | 0 | 0 | CH | 60 | | M | | | | |
| | 70-85 | ch | 00ZZ00 00 | | | | | | 0 | 0 | | 0 | | P | | | | |
| 8 | 0-25 | hcl | 10YR42 00 | | | | | | 0 | 0 | HR | 2 | | | | | | |
| | 25-40 | hcl | 10YR44 00 | | | | | | 0 | 0 | HR | 2 | | M | | | | |
| | 40-60 | c | 75YR46 00 | | | | | | 0 | 0 | HR | 5 | | M | | | | |
| | 60-120 | c | 75YR46 00 | | | | | | 0 | 0 | | 0 | | M | | | | |
| 9 | 0-35 | hcl | 10YR42 00 | | | | | | 0 | 0 | HR | 2 | | | | | | |
| | 35-40 | hcl | 10YR54 00 | | | | | | 0 | 0 | HR | 10 | | M | | | | |
| | 40-70 | c | 10YR53 00 | 75YR58 00 | M | | 00MN00 00 | Y | 0 | 0 | | 0 | | P | Y | | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 0-30 | hcl | 10YR42 00 | | | | | | 0 | 0 | HR | 6 | | | | | | |
| | 30-40 | c | 10YR44 00 | | | | | | 0 | 0 | HR | 10 | | M | | | | |
| 11 | 0-29 | hcl | 10YR42 00 | | | | | | 0 | 0 | HR | 4 | | | | | | |
| | 29-35 | hzcl | 10YR64 00 | | | | | | 0 | 0 | CH | 5 | | M | | | | Y |
| | 35-50 | ch | 00CH00 00 | | | | | | 0 | 0 | | 0 | | P | | | | Y |