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# Hampshire Structure Plan Review
# Land to the west of Waterlooville
# Agricultural Land Classification
# Reconnaissance Survey
# ALC Map and Report
# January 1995

# AGRICULTURAL LAND CLASSIFICATION REPORT

## HAMPSHIRE STRUCTURE PLAN REVIEW
## LAND TO THE WEST OF WATERLOOVILLE
## RECONNAISSANCE SURVEY

### 1. Summary

1.1 ADAS was commissioned by MAFF's Land Use Planning Unit to provide information on land quality for a number of 'areas of search' in connection with MAFF's input to the Hampshire Structure Plan Review.

1.2 An 'area of search' to the west of Waterlooville comprises approximately 475 hectares of land bounded to the east by the urban areas of Waterlooville and Purbrook, to the north by Closewood Road and to the west largely by Sheepwash Lane and Newlands Lane. An Agricultural Land Classification (ALC) survey was carried out during December 1994 and January 1995. The survey was completed at a reconnaissance level of detail, on a 'free' survey basis, as it was undertaken primarily to update the 1:63,360 scale provisional ALC maps for the area of search. Consequently, the results are designed for strategic planning purposes only. For site specific proposals more detailed surveys may be required. A total of 28 borings and one soil inspection pit were assessed 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 long-term limitations on its use for agriculture. Information was also drawn from a detailed survey carried out within the area of search in connection with the Winchester District Local Plan (ADAS Reference 1513/112/94).

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

1.4 At the time of the survey most of the agricultural land was under permanent grass with areas of winter cereal and cereal stubble in the south of the site. Urban areas include residential dwellings, farm buildings and metalled roads. Areas of woodland, coppice, allotment gardens and a recreational area are shown as non-agricultural.

1.5 The distribution of grades and subgrades is shown on the attached ALC map and the areas are given in Table 1 overleaf. The map has been drawn at a scale of 1:50,000. It is accurate at this scale, but any enlargement would be misleading.

1.6 Appendix I gives a general description of the grades, subgrades and land use categories identified in the survey. The main classes are described in terms of the type of limitation that can occur, the typical cropping range and the expected level and consistency of yield.

**Table 1 : Distribution of Grades and Subgrades**

| Grade | Area (ha) | % of Site | % of Agricultural Land |
|---|---|---|---|
| 2 | 44.3 | 9.3 | 11.2 |
| 3a | 51.8 | 10.9 | 13.1 |
| 3b | 294.1 | 61.9 | 74.4 |
| 4 | 5.0 | 1.1 | 1.3 |
| Urban | 43.2 | 9.1 | 100.0 (395.2 ha) |
| Non-Agricultural | 36.6 | 7.7 | |
| Total area of Site | 475.0 | 100.0 | |

1.7 Three-quarters of the agricultural land surveyed in this area of search has been classified as moderate quality (Subgrade 3b). In the vicinity of Closewood House the land is restricted by significant soil droughtiness limitations, in association with underlying river and valley gravel deposits. A small area at Cooper Hill can be classified as no better than Subgrade 3b because of slope restrictions. Gradients of 7.5-8.5° act to impose restrictions on the range and efficiency of agricultural machinery that may be safely used. However, most of the land classified as moderate quality is restricted by significant soil wetness and workability limitations. These arise from the presence of slowly permeable clay subsoils either directly below the topsoil or at shallow depths within the soil profile. Such subsoils act to cause poor soil drainage characteristics which interact with the prevailing local climate to impose significant restraints on the flexibility of cropping, stocking and cultivations.

1.8 In the south of the site these clay subsoils tend to occur deeper within the soil profile. Consequently soil wetness restrictions are not as significant; this land is thus classified as good quality (Subgrade 3a). The higher land in the south of the site has been classified as good quality (Subgrade 3a) or very good quality (Grade 2). These soils are well drained and sandy textured; depending upon the depth to sand lower subsoils, profile available water is restricted such that the land is affected by either moderate or slight soil droughtiness limitations. Small areas of land have been classified as poor quality (Grade 4). This land is subject to high groundwater and seepage, as indicated by the predominance of hydrophilic vegetation. This land is likely to be permanently waterlogged for much of the year, restricting agricultural use to seasonal grazing, because of severe soil wetness problems.

## 2. Climate

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

2.2 The main parameters used in the assessment of an overall climatic limitation are average annual rainfall, as a measure of overall wetness, and accumulated temperature, 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 Table 2 and these show that there is no overall climatic limitation affecting the site. However, climatic factors do interact with soil properties to influence soil wetness and droughtiness limitations. The field capacity days are relatively high at this locality (in a regional context) arising from the proximity to the south coast. High field capacity days increase the likelihood of soil wetness limitations.

**Table 2 : Climatic Interpolations**

| Grid Reference | SU 669 106 | SU 667 090 | SU 651 075 |
|---|---|---|---|
| Altitude (m) | 40 | 50 | 30 |
| Accumulated Temperature (degree days, Jan-June) | 1506 | 1496 | 1519 |
| Average Annual Rainfall (mm) | 819 | 811 | 792 |
| Field Capacity (days) | 176 | 171 | 164 |
| Moisture Deficit, Wheat (mm) | 108 | 107 | 111 |
| Moisture Deficit, Potatoes (mm) | 101 | 101 | 105 |
| Overall Climatic Grade | 1 | 1 | 1 |

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

## 3. Relief

3.1 Most of the land within the 'area of search' is relatively flat and lies at approximately 30 to 40 m AOD. The land rises gently through gradients of 1-4° to the highest land on the site. This land, which occurs to the north of Southwick House and to the south-east of Plant Farm, lies at approximately 55 to 60 m AOD. A small area at Cooper Hill can be classified as no better than moderate quality (Subgrade 3b) because of significant slope restrictions. Such restrictions are caused by gradients within the range of 7.5-8.5°. All gradients were measured using an optical reading clinometer.

## 4. Geology and Soil

4.1 The published geological information (BGS, 1971) shows the flatter, lower lying land on the site to be underlain by London Clay, with drift deposits of alluvium mapped along the valley bottom south of Purbrook Heath. In the north of the site, drift deposits of river and valley gravel are mapped in the vicinity of the current watercourses. The higher land on the site is generally shown to be underlain by Bagshot Sands, with an area west of Southwick House shown as Bracklesham Beds.

4.2 The published Soil Survey map (SSEW, 1983) shows three soil types across this site. Most of the flatter, lower lying land is mapped as the Windsor Association. These soils are described as 'slowly permeable seasonally waterlogged clayey soils mostly with brown subsoils. Some fine loamy over clayey and fine silty over clayey soils and, locally on slopes, clayey soils with only slight seasonal

waterlogging' (SSEW, 1983). The higher land on the site is mapped as soils of the Bursledon Association, described as 'deep fine loamy soils with slowly permeable subsoils and slight seasonal waterlogging associated with deep coarse loamy soils variably affected by groundwater' (SSEW, 1983). In the north of the site, to the north-east of Closewood Farm, a relatively small area of Wickham 3 Association soils are mapped. These soils are described as 'slowly permeable seasonally waterlogged fine loamy over clayey and coarse loamy over clayey soils, and similar more permeable soils with slight waterlogging' (SSEW, 1983).

4.3 Detailed field examination found three broad soil types. The majority of the site comprises poorly drained heavy textured soils which on the gently sloping land, south of Newlands Farm and Plant Farm, tend to be slightly more permeable. The second is that of well drained sandy textured soils, typically derived from the Bagshot Sands. The third soil type, which is relatively limited in areal extent, comprises much stonier profiles associated with the river and valley gravel drift deposits.

## 5. Agricultural Land Classification

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

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

### Grade 2

5.3 Land of very good agricultural quality occurs on the higher-lying land on the site and is associated with soils developed in the Bagshot Sands and Bracklesham Beds. Topsoils typically comprise non-calcareous medium sandy loams and occasionally medium clay loams. These overlie variably textured upper subsoils, typically medium sandy loams, sandy clay loams or medium clay loams. These tend to pass into clay lower subsoils, at approximately 70-100 cm depth, which are poorly structured and gleyed. However, due to the depth at which this clay occurs such profiles are still considered to be well drained (Wetness Class I). Occasional profiles are sandy textured throughout. Such profiles comprise either deep medium sandy loams or pass into well structured loamy sands and sands at depth. All of these profiles are very slightly stony, containing 0-5% total flints by volume. The interaction between these soil textures, profile stone contents and subsoil structures with the prevailing local climate means that the amount of soil water for extraction by crop roots is slightly restricted. This may result in lowered crop yields because of a minor risk of drought stress.

### Subgrade 3a

5.4 The highest parts of this site, which are associated with the Bagshot Beds, have been classified as good quality because of a moderate soil droughtiness limitation. This land typically comprises sandy textured soils. Medium sandy loam topsoils overlie loamy medium sand upper subsoils which pass into medium sand lower

subsoils at approximately 70-80 cm depth. These profiles are well drained (Wetness Class I) and are very slightly stony throughout, containing 0-5% total flints by volume. From Pit 1, which represents such profiles, it could be seen that the loamy sand and sand subsoils are well structured. This acts to partially offset the sandy textures such that given the prevailing local climate there is only a moderate restriction in the amount of profile available water. This may result in lowered level and consistency of crop yields because of a moderate risk of drought stress.

5.5 Elsewhere, land of good quality is restricted by soil wetness limitations, arising from heavier textured soils. This land, which occurs on the mid-slopes of the site, is the result of a transition zone between the freely draining Bagshot Sands (on the higher land) and the poorly draining London Clay (on the lower land). These profiles are generally very slightly stony, containing 0-5% total flints by volume, though slightly stonier profiles also prevail. Topsoils comprise non-calcareous medium clay loams and, occasionally, medium silty clay loams. These overlie upper subsoils of varying texture, typically medium or heavy clay loams or sandy clay loams. These subsoils are permeable and are moderately structured. At approximately 55-60 cm depth these pass into poorly structured clay lower subsoils. The clay lower subsoils are slowly permeable and act to cause imperfect soil drainage conditions (Wetness Class III). This drainage impedance is indicated by gleying from the surface or at shallow depths within the soil profile. The interaction between the relatively light topsoil textures and the soil drainage status means that this land is subject to moderate restrictions on the flexibility of cropping, stocking and cultivations.

**Subgrade 3b**

5.6 The majority of land classified as moderate quality is restricted by significant soil wetness and workability limitations. Land of this quality is associated with the underlying London Clay. Topsoils comprise non-calcareous medium clay loams, and to a lesser extent heavy clay loams. These overlie similarly textured or clay upper subsoils and clay lower subsoils. Where the upper subsoils are of loamy texture they are moderately structured, permeable and extend to about 45 cm depth. The clay subsoils are poorly structured. Their slowly permeable characteristics result in poor drainage conditions, such that Wetness Class IV is appropriate. The detailed survey, carried out during July 1994, classified land within the vicinity of Old Park Farm as moderate quality (see Appendix III for details of soil observations). Non-calcareous medium and heavy silty clay loams were found to overlie heavy clay loam and heavy silty clay loam upper subsoils and clay lower subsoils. Pit 1, from the detailed survey of 1994, proved all of the subsoils to be slowly permeable, and thus these profiles are also assigned to Wetness Class IV. The interaction between the topsoil textures and poor soil drainage conditions with the prevailing local climate (which is relatively wet in a regional context) acts to impose significant restrictions on the flexibility of cultivations, cropping and stocking. Soil wetness will also adversely affect crop growth and development.

5.7 Land associated with the river and valley gravel drift deposits has also been classified as moderate quality. Topsoils typically comprise medium silty clay loams and medium clay loams. Topsoils are slightly to moderately stony, containing 2-9% flints >2cm and 15-20% total flints by volume. These overlie similarly textured or slightly heavier (heavy clay loam and heavy silty clay loam) upper subsoils. These upper subsoils are moderately stony, containing approximately 25-35% total flints by volume, and tend to be gleyed within 40 cm depth. Consequently, such profiles are assigned to Wetness Class II because of fluctuating groundwater levels. Due to underlying gravelly deposits such profiles proved impenetrable to a soil auger between 40-55 cm during the 1995 reconnaissance survey. However Pit 2, from the detailed survey of 1994, shows the lower subsoils (present from approximately 55 cm) to comprise very stony (approximately 50% total flints by volume) clay. In comparison to soil, flints retain less water available for uptake by crop roots. Consequently, the interaction between the soil textures, profile stone contents and subsoil structures with the prevailing local climate results in a significant reduction in the profile available water. This makes the soils particularly prone to drought stress and will reduce the yield potential of crops grown on this land.

**Grade 4**

5.8 Land classified as poor quality is restricted by severe soil wetness and workability limitations. The predominance of hydrophilic vegetation, such as rushes and sedges, across this land is indicative of long periods of waterlogging caused by the seepage of groundwater at the junction of two geological deposits. Given the extreme saturation of the land for much of the year such profiles are assigned to Wetness Class V. Such land is unlikely to benefit significantly from artificial drainage. As such it will present severe difficulties in terms of cropping and cultivations and will be best suited to seasonal grazing.

ADAS Reference: 1513/246/94
MAFF Reference: EL15/518

Resource Planning Team
Guildford Statutory Group
ADAS Reading

## SOURCES OF REFERENCE

British Geological Survey (1971), Sheet No. 316, Fareham, 1:63,360 (drift edition).

MAFF (1988), Agricultural Land Classification of England and Wales : Revised guidelines and criteria for grading the quality of agricultural land.

Meteorological Office (1989), Climatological Data for Agricultural Land Classification.

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

# APPENDIX I

## DESCRIPTION OF THE GRADES AND SUBGRADES

**Grade 1 : Excellent Quality Agricultural Land**

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

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

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

**Grade 3 : Good to Moderate Quality Land**

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

**Subgrade 3a : Good Quality Agricultural Land**

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

**Subgrade 3b : Moderate Quality Agricultural Land**

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

**Grade 4 : Poor Quality Agricultural Land**

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

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

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

**Urban**

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

**Non-agricultural**

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

**Woodland**

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

**Agricultural Buildings**

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

**Open Water**

Includes lakes, ponds and rivers as map scale permits.

**Land Not Surveyed**

Agricultural land which has not been surveyed.

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

# APPENDIX II

## FIELD ASSESSMENT OF SOIL WETNESS CLASS

### SOIL WETNESS CLASSIFICATION

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

**Definition of Soil Wetness Classes**

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

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

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

# APPENDIX III

## SOIL PIT AND SOIL BORING DESCRIPTIONS

**Contents :**

SOIL PIT DESCRIPTION

Site Name : HANTS SP,WATERLOOVILLE  Pit Number : 1P

Grid Reference: SU65150703
Average Annual Rainfall : 811 mm
Accumulated Temperature : 1496 degree days
Field Capacity Level : 171 days
Land Use : Permanent Grass
Slope and Aspect : 03 degrees SW

| HORIZON | TEXTURE | COLOUR | STONES >2 | TOT.STONE | LITH | MOTTLES | STRUCTURE | CONSIST | SUBSTRUCTURE | CALC |
|---|---|---|---|---|---|---|---|---|---|---|
| 0- 30 | MSL | 10YR43 00 | 0 | 3 | HR | | | | | |
| 30- 40 | LMS | 10YR44 56 | 0 | 0 | | | MDCSAB | FR | G | |
| 40- 62 | LMS | 10YR44 56 | 0 | 0 | | | MVCSAB | FR | G | |
| 62-120 | MS | 25Y 63 00 | 0 | 0 | | | MDCSAB | FR | G | |

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

Drought Grade : 3A
APW : 101mm MBW : -6 mm
APP : 085mm MBP : -16 mm

FINAL ALC GRADE : 3A
MAIN LIMITATION : Droughtiness

| SAMPLE NO. | GRID REF | USE | ASPECT | GRDNT | --WETNESS-- GLEY | SPL | CLASS | GRADE | -WHEAT- AP | MB | -POTS- AP | MB | M.REL DRT | FLOOD | EROSN EXP | FROST DIST | CHEM LIMIT | ALC | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | SU65501010 | PGR | W | 02 | 0 | | 2 | 2 | 076 | -31 | 078 | -23 | 3B | | | | DR | 3B | Imp 55 flints |
| 1P | SU65150703 | PGR | SW | 03 | | | 1 | 1 | 101 | -6 | 085 | -16 | 3A | | | | DR | 3A | Sandy |
| 2 | SU65981017 | PGR | | | | | 1 | 1 | 053 | -54 | 053 | -48 | 4 | | | | DR | 3B | Imp 40 flints |
| 3 | SU66700955 | PGR | | | 0 | 025 | 4 | 3B | | 0 | | 0 | | | | | WE | 3B | Spl 25 |
| 4 | SU67520952 | CER | | | 025 | 025 | 4 | 3B | | 0 | | 0 | | | | | WE | 3B | Spl 25 |
| 5 | SU67020930 | CER | N | 02 | 029 | 029 | 4 | 3B | | 0 | | 0 | | | | | WE | 3B | Spl 29 |
| 6 | SU66600907 | PGR | N | 02 | 0 | 040 | 4 | 3B | | 0 | | 0 | | | | | WE | 3B | Few rushes |
| 7 | SU66850900 | PGR | | | 025 | 044 | 4 | 3B | | 0 | | 0 | | | | | WE | 3B | Spl 44 |
| 8 | SU67350892 | CER | | | 030 | 055 | 3 | 3A | | 0 | | 0 | | | | | WE | 3A | Spl 55 |
| 9 | SU67650897 | PLO | N | 01 | 038 | 038 | 4 | 3B | | 0 | | 0 | | | | | WE | 3B | Spl 38 |
| 10 | SU67350880 | CER | | | 035 | 055 | 3 | 3A | | 0 | | 0 | | | | | WE | 3A | Spl 55 |
| 11 | SU66920870 | CER | | | 028 | 038 | 4 | 3B | | 0 | | 0 | | | | | WE | 3B | Spl 28 |
| 12 | SU67320870 | CER | NW | 02 | 100 | 100 | 1 | 1 | 143 | 36 | 109 | 8 | 2 | | | | DR | 2 | Sandy |
| 13 | SU66800955 | STB | W | 02 | 075 | 075 | 2 | 1 | 137 | 30 | 111 | 10 | 2 | | | | | 1 | Just 1 dr |
| 14 | SU66320857 | STB | W | 02 | | | 1 | 1 | 124 | 17 | 110 | 9 | 2 | | | | DR | 2 | Sandy |
| 15 | SU66650850 | STB | E | 01 | 0 | 055 | 3 | 3A | | 0 | | 0 | | | | | WE | 3A | Spl 55 |
| 16 | SU67020840 | STB | W | 01 | | | 1 | 1 | 137 | 30 | 087 | -14 | 3A | | | | DR | 3A | Sl gley 70 |
| 17 | SU66100830 | STB | S | 02 | 0 | 060 | 3 | 3A | | 0 | | 0 | | | | | WE | 3A | Spl 60 |
| 18 | SU66850807 | STB | SW | 01 | | | 1 | 1 | 117 | 10 | 099 | -2 | 2 | | | | DR | 2 | Sandy |
| 19 | SU66250807 | PGR | SW | 03 | 080 | | 1 | 1 | 150 | 43 | 111 | 10 | 1 | | | | | 1 | Just 1 dr |
| 20 | SU66020784 | PGR | SE | 03 | | | 1 | 1 | 101 | -6 | 083 | -18 | 3A | | | | DR | 3A | Sandy |
| 21 | SU66140788 | PGR | S | 02 | 0 | | 4 | 3B | | 0 | | 0 | | | | | WE | 3B | Seepage |
| 22 | SU66220787 | LEY | S | 02 | 045 | 070 | 2 | 2 | | 0 | | 0 | | | | | WE | 2 | Spl 70 |
| 23 | SU66820775 | PGR | | | 0 | 030 | 4 | 3B | | 0 | | 0 | | | | | WE | 3B | Waterlogged |
| 24 | SU66780750 | STB | N | 04 | | | 1 | 1 | 103 | -4 | 088 | -13 | 3A | | | | DR | 3A | Sandy |
| 25 | SU66970748 | CER | | | | | 1 | 1 | 133 | 26 | 107 | 6 | 2 | | | | DR | 2 | Sandy |
| 26 | SU66250705 | PGR | NN | 01 | 030 | 040 | 4 | 3B | | 0 | | 0 | | | | | WE | 3B | Spl 40 |
| 27 | SU66520733 | CER | SW | 02 | 030 | | 2 | 2 | 079 | -28 | 085 | -16 | 3B | | | | DR | 3A | Imp60 Q 3a dr |
| 28 | SU66700730 | CER | N | 02 | | | 1 | 1 | 153 | 46 | 115 | 14 | 1 | | | | | 1 | Sl gleyed 70 |

| 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 | 0-25 | mcl | 10YR52 00 | 75YR46 00 | C | | | Y | 2 | 0 | HR | 5 | | | | | | | |
| | 25-45 | hzcl | 10YR53 00 | 10YR58 00 | M | | | Y | 0 | 0 | HR | 25 | | M | | | | | |
| | 45-55 | c | 10YR53 00 | 75YR56 00 | M | | | Y | 0 | 0 | HR | 35 | | M | | | | | See 2P 1513/112/94 |
| 1P | 0-30 | msl | 10YR43 00 | | | | | | 0 | 0 | HR | 3 | | | | | | | |
| | 30-40 | lms | 10YR44 56 | | | | | | 0 | 0 | | 0 | MDCSAB FR G | | | | | | |
| | 40-62 | lms | 10YR44 56 | | | | | | 0 | 0 | | 0 | MVCSAB FR G | | | | | | |
| | 62-120 | ms | 25Y 63 00 | | | | | | 0 | 0 | | 0 | MDCSAB FR G | | | | | | |
| 2 | 0-25 | mcl | 10YR43 00 | | | | | | 9 | 0 | HR | 20 | | | | | | | |
| | 25-40 | mcl | 10YR53 00 | | | | | | 0 | 0 | HR | 35 | | M | | | | | See 2P 1513/112/94 |
| 3 | 0-25 | hcl | 10YR51 00 | 75YR58 00 | M | | | Y | 0 | 0 | | 0 | | | | | | | |
| | 25-60 | c | 25Y 52 00 | 75YR56 00 | M | | 00MN00 00 | Y | 0 | 0 | | 0 | | P | | Y | | | |
| 4 | 0-25 | mcl | 10YR42 00 | 10YR58 00 | F | | | | 1 | 0 | HR | 2 | | | | | | | |
| | 25-60 | c | 10YR62 00 | 75YR58 00 | M | | | Y | 0 | 0 | HR | 1 | | P | | Y | | | |
| 5 | 0-29 | mcl | 10YR42 00 | | | | | | 0 | 0 | | 0 | | | | | | | |
| | 29-70 | c | 10YR62 00 | 75YR58 00 | M | | | Y | 0 | 0 | | 0 | | P | | Y | | | |
| 6 | 0-28 | mcl | 10YR53 00 | 10YR56 00 | C | | | Y | 0 | 0 | | 0 | | | | | | | |
| | 28-40 | hcl | 10YR53 00 | 10YR56 00 | C | | | Y | 0 | 0 | | 0 | | M | | | | | |
| | 40-70 | c | 10YR51 00 | 75YR68 00 | M | | | Y | 0 | 0 | | 0 | | P | | Y | | | |
| 7 | 0-25 | mcl | 10YR43 53 | | | | | | 0 | 0 | HR | 1 | | | | | | | |
| | 25-44 | mcl | 10YR53 00 | 10YR56 00 | M | | | Y | 0 | 0 | | 0 | | M | | | | | |
| | 44-70 | c | 10YR53 00 | 10YR68 61 | M | | | Y | 0 | 0 | | 0 | | P | | Y | | | |
| 8 | 0-30 | mcl | 10YR42 00 | | | | | | 2 | 0 | HR | 5 | | | | | | | |
| | 30-55 | hcl | 10YR53 00 | 10YR68 00 | C | | | Y | 0 | 0 | HR | 5 | | M | | | | | |
| | 55-80 | c | 10YR63 00 | 75YR46 52 | M | | | Y | 0 | 0 | HR | 2 | | P | | Y | | | |
| 9 | 0-30 | mcl | 10YR42 00 | | | | | | 1 | 0 | HR | 2 | | | | | | | |
| | 30-38 | mcl | 10YR42 00 | | | | | | 0 | 0 | HR | 1 | | M | | | | | |
| | 38-60 | c | 10YR72 00 | 10YR58 52 | M | | | Y | 0 | 0 | HR | 1 | | P | | Y | | | |
| 10 | 0-20 | mzcl | 10YR42 00 | | | | | | 0 | 0 | HR | 2 | | | | | | | |
| | 20-35 | hcl | 10YR42 00 | 10YR56 52 | F | | | | 0 | 0 | HR | 2 | | M | | | | | |
| | 35-55 | hcl | 10YR63 00 | 10YR58 52 | C | | 00MN00 00 | Y | 0 | 0 | HR | 2 | | M | | | | | |
| | 55-80 | c | 10YR63 00 | 75YR46 00 | M | | 00MN00 00 | Y | 0 | 0 | | 0 | | P | | Y | | | |
| 11 | 0-28 | mcl | 10YR43 00 | 75YR46 00 | F | | | | 0 | 0 | | 0 | | | | | | | |
| | 28-38 | mcl | 10YR53 63 | 10YR58 00 | C | | | Y | 0 | 0 | | 0 | | M | | | | | |
| | 38-70 | c | 10YR62 00 | 75YR68 00 | M | | | Y | 0 | 0 | | 0 | | P | | Y | | | |
| 12 | 0-28 | msl | 10YR42 00 | | | | | | 1 | 0 | HR | 2 | | | | | | | |
| | 28-38 | msl | 10YR53 00 | | | | | | 0 | 0 | HR | 2 | | M | | | | | |
| | 38-100 | scl | 10YR58 00 | | | | | | 0 | 0 | | 0 | | M | | | | | |
| | 100-120 | c | 10YR71 00 | 75YR46 00 | C | | | Y | 0 | 0 | | 0 | | P | | 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 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | 0-30 | msl | 10YR43 00 | | | | | | 0 | 0 | HR | 1 | | | | | | | |
| | 30-55 | msl | 10YR43 00 | | | | | | 0 | 0 | HR | 2 | | M | | | | | |
| | 55-75 | mcl | 10YR43 00 | | | | | | 0 | 0 | HR | 1 | | M | | | | | |
| | 75-120 | c | 10YR53 00 | 10YR56 00 | M | | | Y | 0 | 0 | | 0 | | P | | | Y | | |
| 14 | 0-30 | msl | 10YR43 00 | | | | | | 0 | 0 | HR | 2 | | | | | | | |
| | 30-65 | msl | 10YR43 00 | | | | | | 0 | 0 | HR | 1 | | M | | | | | |
| | 65-90 | msl | 10YR54 43 | | | | | | 0 | 0 | | 0 | | M | | | | | |
| | 90-120 | msl | 10YR54 00 | | | | | | 0 | 0 | | 0 | | M | | | | | |
| 15 | 0-35 | mcl | 10YR42 00 | 75YR46 00 | C | | | Y | 0 | 0 | HR | 2 | | | | | | | |
| | 35-55 | scl | 10YR62 00 | 75YR46 52 | M | | | Y | 0 | 0 | HR | 2 | | M | | | | | |
| | 55-80 | c | 10YR72 00 | 75YR46 52 | M | | | Y | 0 | 0 | HR | 2 | | P | | | Y | | |
| 16 | 0-28 | msl | 10YR43 00 | | | | | | 0 | 0 | HR | 2 | | | | | | | |
| | 28-70 | lms | 10YR54 00 | 10YR68 00 | F | | | | 0 | 0 | | 0 | | G | | | | | |
| | 70-120 | msl | 10YR54 00 | 10YR68 00 | C | | | S | 0 | 0 | | 0 | | M | | | | | Sl. gleyed |
| 17 | 0-30 | mcl | 10YR42 00 | 75YR46 52 | C | | | Y | 2 | 0 | HR | 5 | | | | | | | |
| | 30-60 | mcl | 10YR42 00 | 75YR46 52 | C | | | Y | 0 | 0 | HR | 10 | | M | | | | | |
| | 60-80 | c | 10YR63 00 | 10YR46 52 | C | | | Y | 0 | 0 | HR | 15 | | P | | | Y | | |
| 18 | 0-38 | msl | 10YR43 00 | | | | | | 0 | 0 | HR | 2 | | | | | | | |
| | 38-48 | scl | 10YR44 00 | | | | | | 0 | 0 | HR | 2 | | M | | | | | |
| | 48-78 | lms | 10YR58 00 | | | | | | 0 | 0 | | 0 | | G | | | | | |
| | 78-120 | ms | 10YR58 00 | | | | | | 0 | 0 | | 0 | | G | | | | | |
| 19 | 0-30 | mcl | 10YR43 00 | | | | | | 0 | 0 | HR | 5 | | | | | | | |
| | 30-60 | scl | 10YR56 00 | | | | | | 0 | 0 | HR | 3 | | M | | | | | |
| | 60-80 | mcl | 10YR56 00 | | | | | | 0 | 0 | CH | 2 | | M | | | Y | | |
| | 80-120 | mcl | 10YR53 00 | 10YR56 00 | C | | | Y | 0 | 0 | | 0 | | M | | | | | |
| 20 | 0-25 | msl | 10YR43 00 | | | | | | 0 | 0 | HR | 5 | | | | | | | |
| | 25-50 | lms | 10YR44 00 | | | | | | 0 | 0 | HR | 5 | | G | | | | | |
| | 50-80 | lms | 10YR46 00 | | | | | | 0 | 0 | | 0 | | G | | | | | |
| | 80-120 | ms | 10YR46 00 | | | | | | 0 | 0 | | 0 | | G | | | | | |
| 21 | 0-30 | mcl | 10YR51 00 | 75YR58 00 | M | | | Y | 0 | 0 | HR | 2 | | | | | | | |
| | 30-50 | mcl | 10YR51 52 | 75YR58 00 | M | | | Y | 0 | 0 | HR | 2 | | M | | | | | Seepage |
| | 50-120 | mcl | 10YR53 00 | 75YR58 51 | M | | | Y | 0 | 0 | | 0 | | M | | | | | Seepage |
| 22 | 0-32 | msl | 10YR33 00 | | | | | | 3 | 0 | HR | 5 | | | | | | | |
| | 32-45 | mcl | 10YR53 00 | | | | | | 0 | 0 | HR | 5 | | M | | | | | |
| | 45-70 | hcl | 10YR53 00 | 75YR58 00 | C | | | Y | 0 | 0 | HR | 5 | | M | | | | | |
| | 70-100 | c | 10YR63 00 | 75YR58 00 | C | | | Y | 0 | 0 | HR | 2 | | P | | | Y | | |
| 23 | 0-30 | hcl | 10YR51 41 | 10YR58 00 | M | | | Y | 0 | 0 | | 0 | | | | | | | |
| | 30-60 | c | 25Y 51 00 | 10YR58 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 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 24 | 0-30 | msl | 10YR42 00 | | | | | | 0 | 0 | HR | 2 | | | | | | | |
| | 30-70 | lms | 10YR44 00 | | | | | | 0 | 0 | HR | 2 | | G | | | | | |
| | 70-120 | ms | 10YR54 56 | | | | | | 0 | 0 | | 0 | | G | | | | | |
| 25 | 0-25 | msl | 10YR43 00 | | | | | | 0 | 0 | HR | 4 | | | | | | | |
| | 25-70 | scl | 75YR56 52 | | | | | | 0 | 0 | HR | 2 | | M | | | | | |
| | 70-120 | lms | 75YR58 00 | | | | | | 0 | 0 | | 0 | | G | | | | | |
| 26 | 0-30 | mcl | 10YR42 00 | | | | | | 2 | 0 | HR | 2 | | | | | | | |
| | 30-40 | mcl | 10YR53 00 | 10YR56 00 | C | | 00MN00 00 | Y | 0 | 0 | HR | 2 | | M | | | | | |
| | 40-60 | c | 25Y 52 00 | 10YR58 00 | M | | | Y | 0 | 0 | | 0 | | P | | | Y | | |
| 27 | 0-30 | msl | 10YR43 00 | | | | | | 6 | 0 | HR | 10 | | | | | | | |
| | 30-48 | msl | 10YR52 00 | 10YR58 00 | C | | 10YR71 00 | Y | 0 | 0 | HR | 15 | | M | | | | | |
| | 48-55 | scl | 10YR52 00 | 10YR58 00 | C | | 10YR71 00 | Y | 0 | 0 | HR | 15 | | M | | | | | |
| | 55-60 | c | 10YR66 00 | 10YR71 00 | C | | | Y | 0 | 0 | HR | 25 | | M | | | | | Imp 60 flints |
| 28 | 0-25 | mcl | 10YR43 00 | | | | | | 0 | 0 | HR | 2 | | | | | | | |
| | 25-70 | mcl | 10YR46 00 | | | | | | 0 | 0 | HR | 2 | | M | | | | | |
| | 70-120 | mcl | 10YR46 00 | 10YR56 00 | C | | | S | 0 | 0 | | 0 | | M | | | | | Sl. gleyed |

SOIL PIT DESCRIPTION

Site Name : WINCHESTER LP,SITE 56 Pit Number : 1P

Grid Reference: SU66801040
Average Annual Rainfall : 819 mm
Accumulated Temperature : 1506 degree days
Field Capacity Level : 176 days
Land Use : Permanent Grass
Slope and Aspect : 01 degrees SW

| HORIZON | TEXTURE | COLOUR | STONES >2 | TOT.STONE | LITH | MOTTLES | STRUCTURE | CONSIST | SUBSTRUCTURE | CALC |
|---|---|---|---|---|---|---|---|---|---|---|
| 0- 23 | MZCL | 10YR53 00 | 0 | 1 | HR | M | | | | |
| 23- 34 | HZCL | 10YR62 00 | 0 | 0 | | M | WDVCAB | VM | P | |
| 34- 60 | C | 10YR61 00 | 0 | 0 | | M | MDVCAB | FM | P | |

Wetness Grade : 3B
Wetness Class : IV
Gleying : 0 cm
SPL :023 cm

Drought Grade :
APW : 000mm MBW : 0 mm
APP : 000mm MBP : 0 mm

FINAL ALC GRADE : 3B
MAIN LIMITATION : Wetness

SOIL PIT DESCRIPTION

Site Name : WINCHESTER LP,SITE 56 Pit Number : 2P

Grid Reference: SU66801010
Average Annual Rainfall : 819 mm
Accumulated Temperature : 1506 degree days
Field Capacity Level : 176 days
Land Use : Permanent Grass
Slope and Aspect : degrees

| HORIZON | TEXTURE | COLOUR | STONES >2 | TOT.STONE | LITH | MOTTLES | STRUCTURE | CONSIST | SUBSTRUCTURE | CALC |
|---|---|---|---|---|---|---|---|---|---|---|
| 0- 20 | MZCL | 10YR52 00 | 2 | 15 | HR | C | | | | |
| 20- 45 | HCL | 10YR53 00 | 0 | 25 | HR | C | | FM | M | |
| 45- 55 | C | 10YR53 00 | 0 | 50 | HR | M | | FM | P | |

Wetness Grade : 3A
Wetness Class : II
Gleying : 0 cm
SPL : No SPL

Drought Grade : 3B
APW : 069mm MBW : -40 mm
APP : 070mm MBP : -32 mm

FINAL ALC GRADE : 3B
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 | SU66901070 | PGR | NE | 01 | 0 | 025 | 4 | 3B | 101 | -8 | 106 | 4 | 3A | | | | WE | 3B | |
| 1P | SU66801040 | PGR | SW | 01 | 0 | 023 | 4 | 3B | 000 | 0 | 000 | 0 | | | | | WE | 3B | PIT 60 |
| 2 | SU67001070 | PGR | S | 01 | 0 | 025 | 4 | 4 | 101 | -8 | 106 | 4 | 3A | | | | WE | 4 | |
| 2P | SU66801010 | PGR | | | 0 | | 2 | 3A | 069 | -40 | 070 | -32 | 3B | | | | DR | 3B | IMP 55 |
| | SU66801060 | PGR | S | 01 | 025 | 025 | 4 | 3B | 109 | 0 | 117 | 15 | 3A | | | | WE | 3B | |
| 4 | SU66901060 | PGR | | | 0 | 025 | 4 | 3B | 000 | 0 | 000 | 0 | | | | | WE | 3B | HCL U-S |
| | SU67001060 | PGR | SE | 01 | 0 | 020 | 4 | 4 | 098 | -11 | 103 | 1 | 3A | | | | WE | 4 | |
| | SU66801050 | PGR | S | 01 | 010 | 010 | 4 | 3B | 100 | -9 | 103 | 1 | 3A | | | | WE | 3B | |
| 7 | SU66901050 | PGR | SW | 01 | 0 | 028 | 4 | 3B | 000 | 0 | 000 | 0 | | | | | WE | 3B | |
| 8 | SU66801040 | PGR | S | | 015 | 015 | 4 | 3B | 101 | -8 | 106 | 4 | 3A | | | | WE | 3B | |
| 9 | SU66901040 | PGR | SW | 01 | 0 | 025 | 4 | 3B | 000 | 0 | 000 | 0 | | | | | WE | 3B | HCL U-S |
| 10 | SU67001040 | PGR | SW | 01 | 0 | 023 | 4 | 3B | 000 | 0 | 000 | 0 | | | | | WE | 3B | HCL U-S |
| | SU66701030 | PGR | S | 01 | 0 | 045 | 4 | 4 | 000 | 0 | 000 | 0 | | | | | WE | 4 | SPL 45 |
| | SU66801030 | PGR | S | 01 | 010 | 030 | 4 | 3B | 114 | 5 | 105 | 3 | 2 | | | | WE | 3B | |
| 13 | SU66901030 | PGR | | | 0 | 026 | 4 | 3B | 000 | 0 | 000 | 0 | | | | | WE | 3B | |
| | SU67001030 | PGR | S | 01 | 0 | 020 | 4 | 3B | 098 | -11 | 103 | 1 | 3A | | | | WE | 3B | |
| 15 | SU67101030 | SET | S | 01 | 0 | 040 | 4 | 3B | 107 | -2 | 112 | 10 | 3A | | | | WE | 3B | |
| 16 | SU66701020 | PGR | S | 01 | 020 | 032 | 4 | 3B | 000 | 0 | 000 | 0 | | | | | WE | 3B | SPL 32 |
| | SU66801020 | PGR | S | 01 | 015 | 035 | 4 | 3B | 103 | -6 | 108 | 6 | 3A | | | | WE | 3B | |
| 18 | SU66901020 | PGR | | | 0 | 027 | 4 | 3B | 000 | 0 | 000 | 0 | | | | | WE | 3B | |
| | SU67001020 | PGR | S | 01 | 020 | 020 | 4 | 3B | 098 | -11 | 103 | 1 | 3A | | | | WE | 3B | |
| | SU67101020 | SET | S | 01 | 035 | 035 | 4 | 3B | 106 | -3 | 111 | 9 | 3A | | | | WE | 3B | |
| 21 | SU66701010 | PGR | S | 01 | 020 | | 2 | 3A | 052 | -57 | 052 | -50 | 4 | | | | DR | 3B | SEE 2P |
| | SU66801010 | PGR | | | | | 1 | 2 | 052 | -57 | 052 | -50 | 4 | | | | DR | 3B | SEE 2P |
| | SU66901010 | PGR | S | 01 | | | 1 | 2 | 034 | -75 | 034 | -68 | 4 | | | | DR | 3B | SEE 2P |
| 24 | SU67001010 | PGR | | | | | 1 | 2 | 034 | -75 | 034 | -68 | 4 | | | | DR | 3B | SEE 2P |
| | SU67101010 | SET | S | 01 | | | 1 | 2 | 034 | -75 | 034 | -68 | 4 | | | | DR | 3B | SEE 2P |
| 26 | SU66701000 | PGR | | | 0 | 023 | 4 | 4 | 000 | 0 | 000 | 0 | | | | | WE | 4 | QSPL23 |
| 27 | SU66801000 | PGR | | | | | 1 | 2 | 031 | -78 | 031 | -71 | 4 | | | | DR | 3B | SEE 2P |
| | SU66901000 | PGR | S | 01 | | | 1 | 2 | 034 | -75 | 034 | -68 | 4 | | | | DR | 3B | SEE 2P |
| 29 | SU66600990 | PGR | | | 0 | | 2 | 3A | 051 | -58 | 051 | -51 | 4 | | | | DR | 3B | SEE 2P |
| | SU66700990 | PGR | | | | | 1 | 2 | 031 | -78 | 031 | -71 | 4 | | | | DR | 3B | SEE 2P |
| | SU66800990 | PGR | | | | | 1 | 2 | 031 | -78 | 031 | -71 | 4 | | | | DR | 3B | SEE 2P |

| SAMPLE | DEPTH | TEXTURE | COLOUR | ----MOTTLES----- COL | ABUN | CONT | PED COL. | GLEY | >2 | >6 | LITH | STONES---- TOT | STRUCT/ CONSIST | SUBS STR | POR | IMP | SPL | CALC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0-25 | mzcl | 10YR53 62 | 10YR53 62 | M | | | Y | 0 | 0 | | 0 | | | | | | |
| | 25-60 | c | 10YR61 00 | 75YR68 00 | M | | | Y | 0 | 0 | | 0 | | P | | | Y | |
| | 60-80 | c | 10YR52 00 | 10YR56 00 | M | | | Y | 0 | 0 | | 0 | | P | | | Y | |
| 1P | 0-23 | mzcl | 10YR53 00 | 10YR58 00 | M | | | Y | 0 | 0 | HR | 1 | | | | | | |
| | 23-34 | hzcl | 10YR62 00 | 75YR56 00 | M | | | Y | 0 | 0 | | 0 | WDVCAB VM | P | Y | | Y | |
| | 34-60 | c | 10YR61 00 | 75YR68 00 | M | | | Y | 0 | 0 | | 0 | MDVCAB FM | P | Y | | Y | |
| 2 | 0-25 | hzcl | 10YR42 00 | 75YR56 00 | C | | | Y | 0 | 0 | | 0 | | | | | | |
| | 25-80 | c | 25Y 62 00 | 10YR68 00 | C | | | Y | 0 | 0 | | 0 | | P | | | Y | |
| 2P | 0-20 | mzcl | 10YR52 00 | 10YR58 00 | C | | | Y | 2 | 0 | HR | 15 | | | | | | |
| | 20-45 | hcl | 10YR53 00 | 75YR58 00 | C | | | Y | 0 | 0 | HR | 25 | FM | M | | | | |
| | 45-55 | c | 10YR53 00 | 75YR58 00 | M | 00MN00 | 00 | Y | 0 | 0 | HR | 50 | FM | P | | | | |
| 3 | 0-25 | mcl | 10YR54 00 | 75YR58 00 | F | | | | 0 | 0 | | 0 | | | | | | |
| | 25-40 | hcl | 10YR62 00 | 10YR68 00 | C | | | Y | 0 | 0 | | 0 | | P | | | Y | |
| | 40-80 | c | 25Y 62 00 | 75YR68 00 | C | | | Y | 0 | 0 | | 0 | | P | | | Y | |
| 4 | 0-25 | mzcl | 10YR53 62 | 75YR56 00 | M | | | Y | 0 | 0 | | 0 | | | | | | |
| | 25-38 | hcl | 10YR62 00 | 75YR56 00 | M | | | Y | 0 | 0 | | 0 | | P | | | Y | |
| | 38-60 | c | 10YR61 00 | 75YR68 00 | M | | | Y | 0 | 0 | | 0 | | P | | | Y | |
| 5 | 0-20 | hzcl | 10YR51 00 | 05YR58 00 | C | | | Y | 0 | 0 | | 0 | | | | | | |
| | 20-80 | c | 25Y 62 00 | 75YR56 00 | C | | | Y | 0 | 0 | | 0 | | P | | | Y | |
| 6 | 0-10 | mzcl | 10YR54 00 | 75YR68 00 | F | | | | 0 | 0 | HR | 2 | | | | | | |
| | 10-35 | hzcl | 10YR62 00 | 10YR68 00 | C | | | Y | 0 | 0 | | 0 | | P | | | | |
| | 35-80 | zc | 25Y 62 00 | 75YR68 00 | C | | | Y | 0 | 0 | | 0 | | P | | | Y | |
| 7 | 0-28 | mzcl | 10YR53 62 | 10YR58 00 | M | | | Y | 0 | 0 | | 0 | | | | | | |
| | 28-50 | c | 10YR62 61 | 75YR68 00 | M | | | Y | 0 | 0 | | 0 | | P | | | Y | |
| | 50-60 | c | 10YR61 00 | 75YR68 00 | M | | | Y | 0 | 0 | | 0 | | P | | | Y | |
| 8 | 0-15 | mzcl | 10YR54 00 | 75YR58 00 | F | | | | 0 | 0 | | 0 | | | | | | |
| | 15-30 | hzcl | 10YR62 00 | 10YR68 00 | C | | | Y | 0 | 0 | | 0 | | P | | | | |
| | 30-80 | c | 25Y 62 00 | 10YR58 00 | C | | | Y | 0 | 0 | | 0 | | P | | | Y | |
| 9 | 0-25 | mzcl | 10YR53 00 | 10YR58 00 | M | | | Y | 0 | 0 | HR | 1 | | | | | | |
| | 25-30 | hcl | 10YR62 00 | 75YR56 00 | M | | | Y | 0 | 0 | HR | 1 | | P | | | Y | |
| | 30-60 | c | 10YR61 00 | 75YR68 00 | M | | | Y | 0 | 0 | | 0 | | P | | | Y | |
| 10 | 0-23 | mzcl | 10YR53 00 | 10YR56 00 | M | | | Y | 0 | 0 | HR | 1 | | | | | | |
| | 23-30 | hcl | 10YR62 00 | 75YR56 00 | M | | | Y | 0 | 0 | | 0 | | P | | | Y | |
| | 30-60 | c | 10YR61 00 | 75YR68 00 | M | | | Y | 0 | 0 | | 0 | | P | | | Y | |
| 11 | 0-45 | zc | 10YR53 00 | 10YR58 62 | M | 00MN00 | 00 | Y | 0 | 0 | HR | 1 | | | | | Y | |
| | 45-60 | zc | 10YR52 00 | 10YR58 62 | C | 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 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 | 0-10 | mzcl | 10YR54 00 75YR58 00 | F | | | | | 0 | 0 | | 0 | | | | | | | |
| | 10-30 | hzcl | 10YR52 00 05YR58 00 | C | | | | Y | 0 | 0 | | 0 | | P | | | | | |
| | 30-100 | c | 25Y 62 00 10YR68 00 | C | | | | Y | 0 | 0 | | 0 | | P | | | Y | | |
| 13 | 0-26 | mzcl | 10YR53 00 10YR58 00 | M | | | | Y | 0 | 0 | HR | 1 | | | | | | | |
| | 26-50 | c | 10YR61 00 75YR68 00 | M | | | | Y | 0 | 0 | | 0 | | P | | | Y | | |
| | 50-60 | c | 10YR53 61 10YR58 00 | M | | | | Y | 0 | 0 | | 0 | | P | | | Y | | |
| 14 | 0-20 | mzcl | 10YR52 00 75YR56 00 | C | | | | Y | 0 | 0 | | 0 | | | | | | | |
| | 20-80 | c | 10YR62 00 10YR58 00 | C | | | | Y | 0 | 0 | | 0 | | P | | | Y | | |
| 15 | 0-25 | mzcl | 10YR42 00 75YR56 00 | F | | | | Y | 0 | 0 | | 0 | | | | | | | |
| | 25-40 | hzcl | 10YR52 00 10YR58 00 | C | | | | Y | 0 | 0 | | 0 | | M | | | | | |
| | 40-80 | c | 25Y 62 00 75YR56 00 | C | | | | Y | 0 | 0 | | 0 | | P | | | Y | | |
| 16 | 0-20 | mzcl | 10YR53 00 10YR58 62 | F | | | | | 0 | 0 | HR | 1 | | | | | | | |
| | 20-32 | mzcl | 10YR53 00 10YR58 62 | C | | | | Y | 0 | 0 | HR | 1 | | M | | | | | |
| | 32-55 | c | 10YR53 00 10YR58 62 | M | | | | Y | 0 | 0 | | 0 | | P | Y | | Y | | |
| 17 | 0-15 | mzcl | 10YR54 00 75YR58 00 | F | | | | | 0 | 0 | | 0 | | | | | | | |
| | 15-35 | hzcl | 10YR62 00 10YR58 00 | C | | | | Y | 0 | 0 | | 0 | | P | | | | | |
| | 35-80 | c | 10YR52 00 75YR58 00 | C | | | | Y | 0 | 0 | | 0 | | P | | | Y | | |
| 18 | 0-27 | mzcl | 10YR53 00 10YR58 00 | M | | | | Y | 0 | 0 | HR | 1 | | | | | | | |
| | 27-50 | c | 10YR61 00 75YR68 00 | M | | | | Y | 0 | 0 | | 0 | | P | | | Y | | |
| | 50-60 | c | 10YR52 62 10YR58 00 | M | | | | Y | 0 | 0 | | 0 | | P | | | Y | | |
| 19 | 0-20 | mzcl | 10YR54 00 | | | | | | 0 | 0 | | 0 | | | | | | | |
| | 20-80 | c | 25Y 62 00 75YR56 00 | C | | | | Y | 0 | 0 | | 0 | | P | | | Y | | |
| 20 | 0-35 | mzcl | 10YR54 00 75YR56 00 | F | | | | | 0 | 0 | HR | 2 | | | | | | | |
| | 35-80 | c | 25Y 62 00 75YR56 00 | C | | | | Y | 0 | 0 | | 0 | | P | | | Y | | |
| 21 | 0-20 | mzcl | 10YR53 00 10YR58 62 | F | | | | | 0 | 0 | HR | 5 | | | | | | | |
| | 20-30 | mzcl | 10YR53 00 10YR58 62 | C | | | | Y | 0 | 0 | HR | 5 | | M | | | | | IMP 30, STONES |
| 22 | 0-30 | mzcl | 10YR54 00 | | | | | | 0 | 0 | HR | 10 | | | | | | | IMP 30, STONES |
| 23 | 0-20 | mzcl | 10YR54 00 | | | | | | 0 | 0 | HR | 10 | | | | | | | IMP 20, STONES |
| 24 | 0-20 | mzcl | 10YR43 00 | | | | | | 0 | 0 | HR | 10 | | | | | | | IMP 20, STONES |
| 25 | 0-20 | mzcl | 10YR33 00 | | | | | | 0 | 0 | HR | 10 | | | | | | | IMP 20, STONES |
| 26 | 0-23 | hzcl | 25Y 52 00 75YR46 00 | M | | | 00MN00 00 | Y | 0 | 0 | HR | 3 | | | | | | | |
| | 23-30 | c | 25Y 52 00 75YR46 00 | M | | | 00MN00 00 | Y | 0 | 0 | HR | 10 | | P | Y | | Y | | |
| | 30-50 | c | 25Y 62 00 75YR58 00 | M | | | | Y | 0 | 0 | HR | 5 | | 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 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 27 | 0-20 | mzcl | 10YR54 00 | | | | | | 0 | 0 | HR | 20 | | | | | | | IMP 20, STONES |
| 28 | 0-20 | mzcl | 10YR54 00 | | | | | | 0 | 0 | HR | 10 | | | | | | | IMP 20, STONES |
| 29 | 0-27 | hzcl | 25Y 52 00 | 75YR46 00 | C | | | Y | 0 | 0 | HR | 5 | | | | | | | |
| | 27-29 | hzcl | 25Y 62 00 | 75YR46 00 | C | | | Y | 0 | 0 | HR | 5 | | P | | | | | IMP 29, STONES |
| 30 | 0-18 | mzcl | 10YR53 00 | | | | | | 0 | 0 | HR | 10 | | | | | | | IMP 18, STONES |
| 31 | 0-20 | mzcl | 10YR54 00 | | | | | | 0 | 0 | HR | 20 | | | | | | | IMP 20, STONES |