

**SHROPSHIRE STRUCTURE PLAN
WHITCHURCH
LAND NORTH OF CHESTER ROAD**

**Agricultural Land Classification
ALC Map and Report**

July 1999

**Resource Planning Team
Northern Region
FRCA Wolverhampton**

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RPT Job No.: 082/98
MAFF Reference: EL 35/11859**

**AGRICULTURAL LAND CLASSIFICATION REPORT
SHROPSHIRE STRUCTURE PLAN
WHITCHURCH, LAND NORTH OF CHESTER ROAD**

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 33.6 ha of land on the north western edge of Whitchurch, Shropshire. The survey was carried out during June 1999.
2. The survey was undertaken by the Farming and Rural Conservation Agency (FRCA)¹ on behalf of the Ministry of Agriculture, Fisheries and Food (MAFF). The survey was carried out in connection with MAFF's statutory input to the Shropshire Structure Plan. This survey supersedes any previous ALC information for this land.
3. The work was conducted by members of the Resource Planning Team in the Northern Region of FRCA. The land has been graded in accordance with the published MAFF ALC guidelines and criteria (MAFF, 1988). A description of the ALC grades and subgrades is given in Appendix I.
4. At the time of survey the land use on the survey area was under permanent grassland and cereals. The areas mapped as 'Other land' include urban land, tracks, ditches and a pond.

SUMMARY

5. The findings of the survey are shown on the enclosed ALC map. The map has been drawn at a scale of 1:10,000. It is accurate at this scale but any enlargement would be misleading.
6. The area and proportions of the ALC grades and subgrades on the surveyed land are summarised in Table 1.

Table 1: Area of grades and other land

| Grade/Other land | Area (hectares) | % surveyed area | % site area |
|--------------------------------|-----------------|-----------------|-------------|
| 1 | - | - | - |
| 2 | 13.2 | 40 | 39 |
| 3a | 18.1 | 56 | 54 |
| 3b | 1.2 | 4 | 4 |
| 4 | - | - | - |
| 5 | - | - | - |
| Agricultural land not surveyed | - | N/A | - |
| Other land | 1.1 | N/A | 3 |
| Total agricultural land area | 32.5 | 100 | - |
| Total survey area | 33.6 | - | 100 |

7. The fieldwork was conducted at an average density of 1 boring per hectare of agricultural land. In total 35 borings and 3 soil pits were described.

¹ FRCA is an executive agency of MAFF and the Welsh Office

8. Grade 2 (very good quality) land occurs in the north and west of the survey area. Soil droughtiness and soil wetness are the main limitations to the agricultural use of this land.
9. Subgrade 3a (good quality) land occurs in the centre and towards the south east of the survey area. Soil droughtiness and soil wetness are the main limitations to the agricultural use of this land.
10. Subgrade 3b (moderate quality) land occurs in the north west corner of the survey area. Soil wetness is the main limitation to the agricultural use of this land.

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).

Table 2: Climatic and altitude data

| Factor | Units | Values |
|----------------------------|------------------|------------|
| Grid reference | N/A | SJ 532 425 |
| Altitude | m, AOD | 105 |
| Accumulated Temperature | day°C (Jan-June) | 1356 |
| Average Annual Rainfall | mm | 741 |
| Field Capacity Days | days | 170 |
| Moisture Deficit, Wheat | mm | 90 |
| Moisture Deficit, Potatoes | mm | 77 |
| Overall climatic grade | N/A | Grade 1 |

13. The climatic criteria are considered first when classifying land. Climate can be overriding in the sense that severe limitations will restrict land to low grades, irrespective of favourable site or soil conditions.
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 (AT0, January to June), as a measure of the relative warmth of a locality.
15. The combination of rainfall and temperature at this site mean that climate does not pose a limitation to the agricultural use of the land. The survey area is climatically Grade 1.

Site

16. The topography of the survey area is strongly undulating in nature, rising towards the south east of the survey area.
17. Gradient, microrelief and flooding do not pose any limitation to the agricultural use of the land.

Geology and soils

18. The solid geology of the survey area is composed entirely of Upper Keuper Saliferous Beds - British Geological Survey (1967). The drift geology is composed of Glacial Sand and Gravel in the north of the area and Boulder Clay in the south - British Geological Survey (1967).
19. The soils that have developed at the survey area are shown by the Soil Survey of England and Wales (1983) to be Salop and Wick Series. Soils of the Salop Series have a clay loam topsoil overlying clay loam and clay subsoils. Salop Series soils are slowly permeable and seasonally waterlogged (Wetness Class IV). Soils of the Wick Series have either sandy loam or sandy silt loam topsoils, over loamy sand and sand subsoils. These soils are permeable and well drained (Wetness Class I).

AGRICULTURAL LAND CLASSIFICATION

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

Grade 2

21. Land of very good quality occupies 13.2 ha (40 %) of the surveyed area and occurs in the north and west of the survey area. Two types of profile can be found within this area. The first profile type occurs predominantly along the northern edge of the survey area. The profile typically comprises either a sandy clay loam or medium sandy loam topsoil overlying a medium sandy loam upper subsoil. This passes to loamy medium sand and medium sand lower subsoils. There are few stones within the profile. The depths to gleying and the slowly permeable layer place these soils in Wetness Class I. The moisture balances places these soils in Grade 2. The main limitation to the agricultural use of this land is soil droughtiness.
22. The second profile type occurs in the western and more southerly part of this Grade. The profile typically comprises a sandy clay loam topsoil, overlying a sandy clay loam or medium sandy loam upper subsoil. The lower subsoil consists of bands of alternately heavier and lighter soil textures, with few stones. The depths to gleying and the slowly permeable layer place these soils in Wetness Class II. With 170 field capacity days and a sandy clay loam topsoil, these profiles are Grade 2. In some cases the moisture balances also places these soils in Grade 2. The main limitations to the agricultural use of this land are soil wetness and soil droughtiness.

Subgrade 3a

23. Land of good quality occupies 18.1 ha (56 %) of the surveyed area and occurs in the centre and towards the south east of the survey area. A variety of soil types occur within this area, often changing within a short distance. Some isolated profiles were found to be Grade 2 and some of Subgrade 3b, but these areas were too small to show separately at the scale of mapping. Overall, Subgrade 3a is most appropriate. The soil profiles broadly fall into two types.
24. In the first type, the profile commonly comprises either a medium clay loam or sandy clay loam topsoil, overlying a sandy clay loam upper subsoil. This passes to heavy clay loam and clay lower subsoils that occasionally have sand lenses within them. The depths to gleying and the slowly permeable layer place these soils in Wetness Class III and with 170 field capacity days and either a medium clay loam or a sandy clay loam topsoil, these profiles are Subgrade 3a. The main limitation to the agricultural use of this land is soil wetness.
25. In the second profile type, the soils commonly comprises either a sandy clay loam or medium sandy loam topsoil, overlying either a sandy clay loam, medium sandy loam or loamy medium sand upper subsoil. This passes to loamy medium sand and medium sand lower subsoils, with few to common stones within the profile. Occasional thin bands of heavier textured soil may occur within the subsoil. The depths to gleying and the slowly permeable layer place these soils in Wetness Class I or II. The moisture balances places these soils in Subgrade 3a. The main limitation to the agricultural use of this land is soil droughtiness.

Subgrade 3b

26. Land of moderate quality occupies 1.2 ha (4 %) of the surveyed area and occurs in the north west corner of the survey area. The profile typically comprises a medium clay loam topsoil overlying a slowly permeable subsoil of heavy clay loam and clay. The depths to gleying and the slowly permeable layer place these soils in Wetness Class IV. With 170 field capacity days and medium clay loam topsoils, these profiles are Subgrade 3b. The combination of clay loam topsoils and slowly permeable subsoils located relatively close to the surface will adversely affect plant growth or impose restrictions on cultivations or grazing by livestock

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SOURCES OF REFERENCE

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BGS: London.

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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) *Soils and their Use in Midland and Western 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.

| SAMPLE NO. | GRID REF | ASPECT | | ---WETNESS--- | | | | -WHEAT- | | -POTS- | | M.REL | | EROSN | FROST | CHEM | ALC | COMMENTS | |
|------------|------------|--------|-------|---------------|-----|-------|-------|---------|-----|--------|-----|-------|-------|-------|-------|-------|-----|----------|-----------------|
| | | USE | GRDNT | GLEY | SPL | CLASS | GRADE | AP | MB | AP | MB | DRT | FLOOD | EXP | DIST | LIMIT | | | |
| 1 | SJ53104270 | PGR | W | 02 | 000 | | 1 | 1 | 110 | 20 | 096 | 19 | 2 | | | | DR | 2 | |
| 1P | SJ53104270 | PGR | W | 02 | 000 | | 1 | 1 | 104 | 14 | 088 | 11 | 2 | | | | DR | 2 | |
| 2 | SJ53204270 | PGR | W | 02 | 075 | | 1 | 1 | 138 | 48 | 109 | 32 | 1 | | | | | 1 | |
| 2P | SJ52924254 | PGR | N | 03 | 022 | 035 | 4 | 3B | 114 | 24 | 101 | 24 | 2 | | | | WE | 3B | |
| 3 | SJ53304270 | CER | W | 02 | 000 | | 1 | 1 | 097 | 7 | 078 | 1 | 2 | | | | DR | 2 | |
| 3P | SJ53004250 | PGR | N | 02 | 036 | 089 | 2 | 2 | 112 | 22 | 099 | 22 | 2 | | | | WE | 2 | |
| 4 | SJ53404270 | CER | | | 000 | | 1 | 1 | 112 | 22 | 097 | 20 | 2 | | | | DR | 2 | |
| 5 | SJ53004260 | PGR | W | 06 | 033 | | 2 | 2 | 152 | 62 | 110 | 33 | 1 | | | | WE | 2 | |
| 6 | SJ53104260 | PGR | NW | 05 | 000 | | 1 | 1 | 122 | 32 | 109 | 32 | 1 | | | | | 1 | |
| 7 | SJ53204260 | PGR | NW | 05 | 045 | 045 | 3 | 3A | 105 | 15 | 094 | 17 | 2 | | | | WE | 3A | SANDLENS |
| 7A | SJ53234263 | PGR | N | 01 | 047 | | 1 | 1 | 130 | 40 | 098 | 21 | 1 | | | | | 1 | |
| 8 | SJ53304260 | CER | W | 03 | 027 | | 2 | 2 | 134 | 44 | 115 | 38 | 1 | | | | WE | 2 | |
| 9 | SJ53404260 | CER | W | 03 | 055 | | 1 | 1 | 122 | 32 | 110 | 33 | 1 | | | | | 1 | HR6-10ST |
| 10 | SJ53504260 | CER | E | | 028 | | 1 | 1 | 112 | 22 | 097 | 20 | 2 | | | | DR | 2 | |
| 11 | SJ53604260 | CER | SW | 02 | 000 | | 1 | 1 | 089 | -1 | 072 | -5 | 3A | | | | DR | 3A | |
| 12 | SJ52924254 | PGR | NW | 02 | 000 | 035 | 4 | 3B | 121 | 31 | 112 | 35 | 1 | | | | WE | 3B | |
| 13 | SJ53004250 | PGR | NW | 02 | 025 | | 2 | 2 | 120 | 30 | 104 | 27 | 2 | | | | WD | 2 | |
| 14 | SJ53104250 | PGR | NW | 03 | 025 | | 2 | 2 | 129 | 39 | 111 | 34 | 1 | | | | WE | 2 | |
| 15 | SJ53204250 | PGR | NW | 03 | 025 | 045 | 4 | 3B | 118 | 28 | 110 | 33 | 2 | | | | WE | 3B | |
| 16 | SJ53304250 | CER | E | | 029 | 055 | 3 | 3A | 138 | 48 | 107 | 30 | 1 | | | | WE | 3A | |
| 17 | SJ53404250 | CER | E | 03 | 030 | 055 | 3 | 3A | 118 | 28 | 115 | 38 | 2 | | | | WE | 3A | |
| 18 | SJ53504250 | CER | SW | 01 | 000 | | 1 | 1 | 129 | 39 | 107 | 30 | 1 | | | | | 1 | |
| 19 | SJ53604250 | CER | E | 06 | 047 | | 1 | 1 | 133 | 43 | 106 | 29 | 1 | | | | | 1 | |
| 20 | SJ53104240 | PGR | E | 04 | 028 | 055 | 3 | 2 | 105 | 15 | 105 | 28 | 2 | | | | WE | 2 | |
| 21 | SJ53204240 | CER | NE | 05 | 030 | | 1 | 1 | 067 | -23 | 063 | -14 | 3B | | | | WE | 3B | DA-90 |
| 21A | SJ53204240 | CER | NE | 05 | 000 | | 1 | 1 | 081 | -9 | 065 | -12 | 3A | | | | DR | 3A | BR 21 TO 120 CM |
| 22 | SJ53304240 | CER | NW | 02 | 028 | | 2 | 1 | 145 | 55 | 110 | 33 | 1 | | | | | 1 | |
| 23 | SJ53404240 | CER | E | 02 | 026 | | 1 | 1 | 080 | -10 | 067 | -10 | 3A | | | | DR | 3A | |
| 24 | SJ53504240 | CER | E | 03 | 036 | | 2 | 2 | 136 | 46 | 114 | 37 | 1 | | | | WE | 2 | |
| 25 | SJ53204230 | PGR | N | 06 | 029 | 065 | 3 | 3A | 120 | 30 | 110 | 33 | 2 | | | | WE | 3A | |
| 26 | SJ53304230 | CER | SE | | 065 | | 1 | | 104 | 14 | 106 | 29 | 2 | | | | DR | 2 | DA-80-ST |
| 27 | SJ53404230 | CER | SE | 03 | 028 | 035 | 4 | 3B | 094 | 4 | 099 | 22 | 3A | | | | WE | 3B | |

| SAMPLE NO. | GRID REF | USE | ASPECT | GRDNT | GLEYS | --WETNESS-- | | -WHEAT- | | -POTS- | | M.REL | | EROSN | FROST | CHEM | ALC | COMMENTS |
|------------|------------|-----|--------|-------|---------|-------------|-------|---------|-----|--------|-----|-------|-------|-------|-------|------|-----|----------|
| | | | | | | CLASS | GRADE | AP | MB | AP | MB | DRT | FLOOD | | | | | |
| 28 | SJ53504230 | CER | E | | 000 | 1 | 1 | 000 | 0 | 000 | 0 | | | | | DR | 2 | DA-40 |
| 29 | SJ53204220 | PGR | NE | 01 | 085 | 1 | 1 | 111 | 21 | 096 | 19 | 2 | | | | DR | 2 | DA-100 |
| 30 | SJ53304220 | PGR | N | 04 | 000 | 1 | 1 | 069 | -21 | 058 | -19 | 3B | | | | DR | 3B | |
| 31 | SJ53404220 | PGR | S | 04 | 045 | 1 | 1 | 140 | 50 | 110 | 33 | 1 | | | | | 1 | |
| 32 | SJ53504220 | CER | W | 02 | 022 035 | 4 | 3B | 120 | 30 | 104 | 27 | 2 | | | | WE | 3B | |
| 34 | SJ53404210 | PGR | NE | 02 | 028 | 1 | 1 | 135 | 45 | 107 | 30 | 1 | | | | | 1 | |
| 35 | SJ53504210 | CER | NW | 02 | 025 073 | 3 | 3A | 134 | 44 | 115 | 38 | 1 | | | | WE | 3A | |

PSD
= MSL

| SAMPLE | DEPTH | TEXTURE | COLOUR | ---MOTTLES--- | | | PED COL. | ---STONES--- | | | STRUCT/ CONSIST | SUBS | | | | | |
|-------------|---------|---------|-----------|---------------|------|------|----------|--------------|----|----|-----------------|--------|--------|-----|-----|-----|-----|
| | | | | COL | ABUN | CONT | | GLY | >2 | >6 | | LITH | TOT | STR | POR | IMP | SPL |
| 1 | 0-33 | sc1 | 10YR33 00 | | | | | 1 | 0 | HR | 3 | | | | | | |
| | 33-45 | sc1 | 10YR34 00 | | | | | 0 | 0 | HR | 3 | | | M | | | |
| | 45-55 | ms1 | 75YR44 00 | | | | | 0 | 0 | HR | 3 | | | M | | | |
| | 55-60 | lms | 75YR44 46 | | | | | 0 | 0 | HR | 3 | | | M | | | |
| | 60-120 | ms | 75YR46 56 | | | | | 0 | 0 | HR | 3 | | | M | | | |
| 1P = MSL | 0-30 | ms1 | 10YR33 00 | | | | | 0 | 0 | HR | 3 | | | | | | |
| | 30-45 | ms1 | 10YR34 00 | | | | | 0 | 0 | HR | 10 | MDSCB | FR | M | | | |
| | 45-55 | lms | 10YR44 00 | | | | | 0 | 0 | HR | 2 | MDMSB | VF | G | | | |
| | 55-120 | ms | 10YR44 54 | | | | | 0 | 0 | HR | 1 | WKCSB | VF | M | | | |
| 2 | 0-35 | sc1 | 10YR33 00 | | | | | 2 | 0 | HR | 3 | | | | | | |
| | 35-55 | sc1 | 10YR43 00 | | | | | 0 | 0 | HR | 3 | | | M | | | |
| | 55-75 | sc1 | 10YR43 00 | | | | | 0 | 0 | HR | 3 | | | M | | | |
| | 75-100 | sc1 | 10YR53 00 | 10YR58 00 | C | | Y | 0 | 0 | HR | 3 | | | M | | | |
| | 100-120 | lms | 10YR53 00 | 10YR58 00 | C | | Y | 0 | 0 | HR | 3 | | | M | | | |
| 2P | 0-22 | mc1 | 10YR41 00 | | | | | 3 | 0 | HR | 3 | | | | | | |
| | 22-35 | mc1 | 75YR42 00 | 75YR56 00 | C | | Y | 0 | 0 | HR | 3 | WKCSB | FR | M | | | |
| | 35-48 | hc1 | 10YR53 00 | 10YR56 00 | C | | Y | 0 | 0 | HR | 10 | WKCP | FM | P | Y | Y | |
| | 48-70 | c | 05YR53 00 | 00MNO0 00 | M | | Y | 0 | 0 | | 0 | MASSIV | FM | P | | Y | |
| | 70-95 | sc1 | 05YR53 00 | | | | | Y | 0 | 0 | | | | M | | Y | |
| 3 | 0-30 | ms1 | 10YR33 00 | | | | | 1 | 0 | HR | 3 | | | | | | |
| | 30-60 | lms | 75YR64 54 | | | | | 0 | 0 | HR | 1 | | | M | | | |
| | 60-120 | lms | 75YR44 00 | | | | | 0 | 0 | HR | 1 | | | M | | | |
| 3P | 0-36 | mc1 | 10YR32 33 | | | | | 0 | 0 | HR | 3 | | | | | | |
| | 36-42 | sc1 | 10YR52 00 | 10YR56 00 | M | | Y | 0 | 0 | HR | 1 | MDCPR | FR | M | | | |
| | 42-71 | lms | 75YR54 00 | | | | | Y | 0 | 0 | HR | 1 | MDCAB | FR | G | | |
| | 71-89 | lms | 05YR44 00 | | | | | Y | 0 | 0 | HR | 1 | MDCPL | FR | M | | |
| | 89-102 | c | 75YR44 00 | | | | | Y | 0 | 0 | | 0 | MASSIV | FM | P | Y | Y |
| 4 | 0-33 | sc1 | 10YR33 00 | | | | | 1 | 0 | HR | 3 | | | | | | |
| | 33-55 | ms1 | 10YR44 00 | | | | | 0 | 0 | HR | 1 | | | M | | | |
| | 55-65 | lms | 10YR44 00 | | | | | 0 | 0 | HR | 1 | | | M | | | |
| | 65-70 | ms | 10YR44 00 | | | | | 0 | 0 | HR | 1 | | | M | | | |
| | 70-120 | ms | 10YR52 53 | | | | | 0 | 0 | HR | 1 | | | M | | | |

| SAMPLE | DEPTH | TEXTURE | COLOUR | ---MOTTLES--- | | | PED COL. | ---STONES--- | | | STRUCT/ CONSIST | SUBS | | | | | |
|--------|---------|---------|-----------|---------------|------|------|-------------|--------------|----|----|--------------------|------|-----|-----|-----|-----|-----|
| | | | | COL | ABUN | CONT | | GLE | >2 | >6 | | LITH | TOT | STR | POR | IMP | SPL |
| 5 | 0-33 | sc1 | 10YR32 42 | 10YR46 | 00 | F | | 0 | 0 | HR | 2 | | | | | | |
| | 33-52 | sc1 | 10YR42 00 | 10YR46 | 00 | C | | Y | 0 | 0 | HR | 2 | | M | | | |
| | 52-90 | sc1 | 10YR62 00 | 10YR58 | 00 | M | | Y | 0 | 0 | HR | 2 | | M | | | |
| | 90-120 | ms1 | 10YR62 00 | 10YR58 | 00 | C | | Y | 0 | 0 | HR | 2 | | M | | | |
| 6 | 0-35 | sc1 | 10YR33 00 | | | | | 1 | 0 | HR | 3 | | | | | | |
| | 35-55 | sc1 | 75YR34 00 | | | | | 0 | 0 | HR | 3 | | M | | | | |
| | 55-70 | sc1 | 10YR44 00 | | | | | 0 | 0 | HR | 3 | | M | | | | |
| | 70-85 | ms1 | 10YR44 46 | | | | | 0 | 0 | HR | 3 | | M | | | | |
| | 85-100 | lms | 75YR56 00 | | | | | 0 | 0 | HR | 3 | | M | | | | |
| 7 | 0-27 | sc1 | 10YR33 00 | | | | | 0 | 0 | HR | 3 | | | | | | |
| | 27-45 | ms | 10YR52 53 | 10YR58 | 00 | F | | 0 | 0 | HR | 1 | | M | | | | |
| | 45-75 | hc1 | 75YR53 00 | 75YR58 | 00 | M | | Y | 0 | 0 | HR | 1 | | M | | | Y |
| | 75-100 | c | 75YR42 00 | 75YR58 | 00 | M | | Y | 0 | 0 | HR | 1 | | P | | | Y |
| 7A | 0-30 | sc1 | 10YR43 00 | | | | | 0 | 0 | HR | 2 | | | | | | |
| | 30-47 | sc1 | 10YR53 00 | | | | | 0 | 0 | HR | 1 | | M | | | | |
| | 47-55 | ms1 | 75YR46 00 | 75YR58 | 00 | M | 00MNO0 | 00 | Y | 0 | 0 | HR | 1 | M | | | |
| | 55-70 | lms | 10YR53 44 | 00MNO0 | 00 | C | | Y | 0 | 0 | HR | 1 | | M | | | |
| | 70-90 | ms | 75YR54 00 | | | | | Y | 0 | 0 | HR | 1 | | M | | | |
| | 90-120 | sc1 | 75YR53 00 | 75YR58 | 00 | C | | Y | 0 | 0 | HR | 1 | | M | | | |
| 8 | 0-27 | sc1 | 10YR43 00 | | | | | 1 | 0 | HR | 3 | | | | | | |
| | 27-50 | fs1 | 10YR64 00 | 10YR58 | 00 | C | | Y | 0 | 0 | HR | 2 | | M | | | |
| | 50-80 | sc1 | 05YR44 00 | 75YR46 | 00 | C | | Y | 0 | 0 | HR | 2 | | M | | | |
| | 80-100 | ms1 | 25YR34 00 | 00MNO0 | 00 | M | | Y | 0 | 0 | HR | 2 | | M | | | |
| 9 | 0-33 | ms1 | 10YR43 00 | | | | | 1 | 0 | HR | 2 | | | | | | |
| | 33-55 | ms1 | 10YR44 00 | | | | | 0 | 0 | HR | 2 | | M | | | | |
| | 55-75 | ms1 | 10YR53 00 | 10YR58 | 00 | C | | Y | 0 | 0 | HR | 2 | | M | | | |
| | 75-85 | lms | 10YR52 00 | 10YR58 | 00 | C | | Y | 0 | 0 | HR | 2 | | M | | | |
| | 85-100 | ms | 10YR62 00 | 10YR58 | 00 | F | | Y | 0 | 0 | HR | 2 | | M | | | |
| | 100-110 | lms | 10YR52 00 | | | | | Y | 0 | 0 | HR | 2 | | M | | | |

| SAMPLE | DEPTH | TEXTURE | COLOUR | ---MOTTLES--- | | | PED COL. | ---STONES--- | | | STRUCT/ CONSIST | SUBS | | | | | | |
|--------|---------|---------|-----------|---------------|------|------|-------------|--------------|----|----|--------------------|------|-----|-----|-----|-----|-----|------|
| | | | | COL | ABUN | CONT | | GLE | >2 | >6 | | LITH | TOT | STR | POR | IMP | SPL | CALC |
| 10 | 0-28 | mc1 | 10YR33 00 | | | | | 0 | 0 | HR | 5 | | | | | | | |
| | 28-55 | sc1 | 10YR53 00 | 10YR46 | 00 | C | | Y | 0 | 0 | HR | 3 | | M | | | | |
| | 55-65 | lms | 75YR52 53 | 75YR46 | 00 | C | | Y | 0 | 0 | HR | 1 | | M | | | | |
| | 65-120 | ms | 10YR46 00 | 10YR46 | 00 | M | | Y | 0 | 0 | HR | 1 | | M | | | | |
| 11 | 0-29 | ms1 | 10YR33 00 | | | | | 0 | 0 | HR | 3 | | | | | | | |
| | 29-38 | lms | 10YR43 00 | | | | | 0 | 0 | HR | 1 | | M | | | | | |
| | 38-80 | ms | 10YR44 46 | | | | | 0 | 0 | HR | 1 | | M | | | | | |
| | 80-120 | ms | 75YR56 00 | | | | | 0 | 0 | HR | 1 | | M | | | | | |
| 12 | 0-25 | mc1 | 10YR42 00 | 10YR46 | 00 | C | | Y | 0 | 0 | HR | 3 | | | | | | |
| | 25-35 | mc1 | 10YR53 00 | 10YR46 | 58 | C | | Y | 0 | 0 | HR | 1 | | M | | | | |
| | 35-60 | hc1 | 10YR53 00 | 10YR58 | 00 | M | | Y | 0 | 0 | HR | 1 | | M | | | Y | |
| | 60-100 | c | 75YR53 00 | 75YR58 | 00 | M | | Y | 0 | 0 | HR | 1 | | P | | | Y | |
| 13 | 0-25 | sc1 | 10YR33 00 | | | | | 0 | 0 | HR | 3 | | | | | | | |
| | 25-50 | sc1 | 10YR53 00 | 10YR58 | 00 | C | | Y | 0 | 0 | HR | 1 | | M | | | | |
| | 50-65 | ms1 | 10YR44 53 | 10YR58 | 00 | F | | Y | 0 | 0 | HR | 1 | | M | | | | |
| | 65-70 | lms | 10YR43 00 | 00MNO0 | 00 | C | | Y | 0 | 0 | HR | 1 | | M | | | | |
| | 70-95 | ms | 75YR43 00 | 00MNO0 | 00 | F | | Y | 0 | 0 | HR | 1 | | M | | | | |
| | 95-100 | sc1 | 75YR53 00 | 10YR58 | 00 | C | | Y | 0 | 0 | HR | 1 | | M | | | | |
| | 100-120 | ms | 75YR43 00 | 00MNO0 | 00 | C | | Y | 0 | 0 | HR | 1 | | M | | | | |
| 14 | 0-25 | mc1 | 10YR43 00 | | | | | 0 | 0 | HR | 1 | | | | | | | |
| | 25-68 | sc1 | 10YR52 53 | 10YR58 | 00 | M | | Y | 0 | 0 | HR | 1 | | M | | | | |
| | 68-75 | c | 75YR53 00 | 75YR58 | 00 | M | 00MNO0 | 00 | Y | 0 | 0 | HR | 1 | | P | | | |
| | 75-100 | sc1 | 05YR44 00 | 75YR58 | 00 | C | 00MNO0 | 00 | Y | 0 | 0 | HR | 1 | | M | | | |
| 15 | 0-25 | sc1 | 10YR43 00 | | | | | 0 | 0 | HR | 2 | | | | | | | |
| | 25-45 | sc1 | 10YR52 53 | 10YR58 | 00 | C | | Y | 0 | 0 | HR | 1 | | M | | | | |
| | 45-65 | hc1 | 10YR53 00 | 10YR56 | 58 | M | | Y | 0 | 0 | HR | 1 | | M | | | Y | |
| | 65-100 | c | 75YR42 00 | 75YR61 | 00 | C | 00MNO0 | 00 | Y | 0 | 0 | HR | 1 | | P | | | Y |
| 16 | 0-29 | sc1 | 10YR33 00 | | | | | 0 | 0 | HR | 5 | | | | | | | |
| | 29-55 | sc1 | 10YR52 00 | 10YR46 | 00 | C | | Y | 0 | 0 | HR | 5 | | M | | | | |
| | 55-70 | hc1 | 75YR53 00 | 75YR46 | 58 | M | | Y | 0 | 0 | HR | 5 | | M | | | Y | |
| | 70-85 | sc1 | 10YR53 00 | 10YR56 | 00 | C | | Y | 0 | 0 | HR | 2 | | M | | | | |
| | 85-105 | ms1 | 10YR53 00 | 10YR56 | 00 | C | | Y | 0 | 0 | HR | 3 | | M | | | | |
| | 105-120 | ms | 10YR52 00 | 10YR58 | 00 | C | | Y | 0 | 0 | HR | 2 | | M | | | | |

| SAMPLE | DEPTH | TEXTURE | COLOUR | ---MOTTLES--- | | | PED COL. | ---STONES--- | | | STRUCT/ CONSIST | SUBS | | | | | |
|--------|--------|---------|-----------|---------------|------|------|-------------|--------------|----|----|--------------------|------|-----|-----|-----|--------------|-----|
| | | | | COL | ABUN | CONT | | GLE | >2 | >6 | | LITH | TOT | STR | POR | IMP | SPL |
| 17 | 0-30 | mc1 | 10YR33 00 | | | | | 0 | 0 | HR | 5 | | | | | | |
| | 30-55 | mc1 | 10YR42 00 | 10YR46 | 00 | C | | Y | 0 | 0 | HR | 1 | | M | | | |
| | 55-85 | hc1 | 10YR53 00 | 10YR46 | 58 | C | | Y | 0 | 0 | HR | 1 | | M | | Y | |
| 18 | 0-29 | sc1 | 10YR33 00 | | | | | 0 | 0 | HR | 5 | | | | | | |
| | 29-55 | sc1 | 10YR43 00 | | | | | 0 | 0 | HR | 3 | | M | | | | |
| | 55-75 | ms1 | 10YR43 00 | | | | | 0 | 0 | HR | 3 | | M | | | | |
| | 75-90 | hc1 | 05YR44 00 | | | | | 0 | 0 | HR | 2 | | M | | | | |
| | 90-100 | ms1 | 05YR44 00 | | | | | 0 | 0 | HR | 1 | | M | | | | |
| 19 | 0-25 | ms1 | 10YR33 00 | | | | | 0 | 0 | HR | 5 | | | | | | |
| | 25-47 | sc1 | 75YR43 00 | | | | | 0 | 0 | HR | 3 | | M | | | | |
| | 47-67 | sc1 | 75YR53 00 | 75YR46 | 58 | C | 00M00 | 00 | Y | 0 | 0 | HR | 2 | M | | | |
| | 67-90 | ms1 | 75YR53 00 | 75YR58 | 00 | C | | | Y | 0 | 0 | HR | 1 | M | | | |
| | 90-120 | lms | 75YR53 00 | 75YR58 | 00 | C | | | Y | 0 | 0 | HR | 1 | M | | | |
| 20 | 0-28 | ms1 | 10YR42 00 | | | | | 0 | 0 | HR | 2 | | | | | | |
| | 28-38 | ms1 | 10YR53 00 | 75YR58 | 00 | C | | Y | 0 | 0 | HR | 5 | | M | | | |
| | 38-55 | sc1 | 10YR53 00 | 10YR58 | 00 | M | | Y | 0 | 0 | | 0 | | M | | | |
| | 55-70 | hc1 | 75YR53 00 | 75YR58 | 00 | M | 00M00 | 00 | Y | 0 | 0 | | 0 | P | | Y | |
| | 70-90 | lms | 10YR72 00 | 75YR58 | 00 | C | | | Y | 0 | 0 | | 0 | M | | X | |
| | 90-91 | lms | 10YR72 00 | 75YR58 | 00 | C | | | Y | 0 | 0 | | 0 | M | | X | |
| 21 | 0-22 | ms1 | 10YR42 00 | | | | | 0 | 0 | HR | 2 | | | | | | |
| | 22-30 | lms | 10YR43 54 | | | | | 0 | 0 | HR | 5 | | M | | | | |
| | 30-45 | ms | 10YR53 00 | 10YR58 | 00 | C | | Y | 0 | 0 | HR | 5 | | M | | | |
| | 45-55 | ms | 10YR56 00 | | | | | Y | 0 | 0 | HR | 10 | | M | | | |
| | 55-90 | ms | 05YR53 00 | | | | | Y | 0 | 0 | HR | 15 | | M | | | |
| 21A | 0-22 | ms1 | 10YR42 00 | | | | | 0 | 0 | HR | 2 | | | | | | |
| | 22-30 | lms | 10YR43 54 | | | | | 0 | 0 | HR | 5 | | M | | | | |
| | 30-120 | ms | 10YR53 00 | | | | | 0 | 0 | | 0 | | M | | | | |
| 22 | 0-28 | ms1 | 10YR42 00 | 10YR42 | 00 | C | | Y | 0 | 0 | HR | 2 | | | | | |
| | 28-36 | ms1 | 10YR53 00 | 10YR58 | 00 | C | | Y | 0 | 0 | | 0 | | M | | | |
| | 36-57 | sc1 | 10YR53 00 | 10YR68 | 00 | M | 00M00 | 00 | Y | 0 | 0 | | 0 | M | | | |
| | 57-110 | ms1 | 75YR53 00 | 75YR58 | 00 | C | | Y | 0 | 0 | | 0 | | M | | | |

| SAMPLE | DEPTH | TEXTURE | COLOUR | ---MOTTLES--- | | | PED COL. | ---STONES--- | | | STRUCT/ CONSIST | SUBS | | | | | | |
|--------|--------|---------|-----------|---------------|------|------|-------------|--------------|----|----|--------------------|------|-----|-----|-----|-----|-----|------|
| | | | | COL | ABUN | CONT | | GLE | >2 | >6 | | LITH | TOT | STR | POR | IMP | SPL | CALC |
| 23 | 0-26 | ms1 | 10YR42 00 | | | | | | 0 | 0 | HR | 2 | | | | | | |
| | 26-42 | ms | 10YR72 00 | 10YR78 | 00 | C | | Y | 0 | 0 | | 0 | | | M | | | |
| | 42-55 | ms | 10YR41 00 | | | | | Y | 0 | 0 | | 0 | | | M | | | |
| | 55-68 | ms | 75YR34 00 | | | | | Y | 0 | 0 | HR | 20 | | | M | | | |
| | 68-110 | ms | 75YR44 00 | | | | | Y | 0 | 0 | | 0 | | | M | | | |
| 24 | 0-28 | mc1 | 10YR42 00 | | | | | | 0 | 0 | HR | 2 | | | | | | |
| | 28-36 | mc1 | 10YR43 00 | 10YR58 | 00 | F | | | 0 | 0 | HR | 2 | | | M | | | |
| | 36-45 | mc1 | 10YR63 00 | 10YR78 | 00 | C | | Y | 0 | 0 | | 0 | | | M | | | |
| | 45-65 | sc1 | 10YR63 00 | 10YR78 | 00 | C | | Y | 0 | 0 | | 0 | | | M | | | |
| | 65-88 | ms1 | 75YR63 00 | 10YR68 | 00 | C | | Y | 0 | 0 | | 0 | | | M | | | |
| | 88-93 | mc1 | 75YR63 00 | 75YR68 | 00 | C | | Y | 0 | 0 | | 0 | | | M | | | |
| | 93-110 | ms | 75YR63 00 | 10YR68 | 00 | C | | Y | 0 | 0 | | 0 | | | M | | | |
| 25 | 0-29 | mc1 | 10YR33 00 | | | | | | 0 | 0 | HR | 3 | | | | | | |
| | 29-55 | sc1 | 10YR52 53 | 75YR46 | 00 | C | | Y | 0 | 0 | HR | 3 | | | M | | | |
| | 55-65 | sc1 | 10YR52 00 | 10YR56 | 58 | M | | Y | 0 | 0 | HR | 3 | | | M | | | |
| | 65-80 | c | 75YR42 00 | 75YR46 | 58 | M | | Y | 0 | 0 | HR | 2 | | | P | | | Y |
| | 80-100 | c | 05YR44 00 | 75YR58 | 00 | M | 00M00 | 00 | Y | 0 | 0 | HR | 2 | | P | | | Y |
| 26 | 0-29 | ms1 | 10YR33 00 | | | | | | 0 | 0 | HR | 5 | | | | | | |
| | 29-65 | sc1 | 10YR43 00 | | | | | | 0 | 0 | HR | 5 | | | M | | | |
| | 65-75 | ms1 | 10YR52 00 | 10YR46 | 00 | C | | Y | 0 | 0 | HR | 5 | | | M | | | |
| | 75-80 | lms | 75YR44 46 | 05YR46 | 00 | C | | Y | 0 | 0 | HR | 10 | | | M | | | |
| 27 | 0-28 | sc1 | 10YR33 32 | | | | | | 0 | 0 | HR | 5 | | | | | | |
| | 28-35 | sc1 | 10YR53 00 | 10YR58 | 00 | M | | Y | 0 | 0 | HR | 5 | | | M | | | |
| | 35-44 | hc1 | 10YR58 00 | 10YR56 | 58 | M | | Y | 0 | 0 | HR | 3 | | | M | | | Y |
| | 44-65 | c | 75YR42 00 | 75YR58 | 00 | M | | Y | 0 | 0 | HR | 3 | | | P | | | Y |
| | 65-80 | lms | 75YR53 00 | | | | | Y | 0 | 0 | HR | 3 | | | M | | | Y |
| 28 | 0-29 | ms1 | 10YR33 00 | | | | | | 0 | 0 | HR | 5 | | | | | | |
| | 29-40 | ms1 | 10YR43 44 | | | | | | 0 | 0 | HR | 8 | | | M | | | |
| 29 | 0-29 | ms1 | 10YR33 00 | | | | | | 0 | 0 | HR | 3 | | | | | | |
| | 29-55 | ms1 | 10YR43 44 | | | | | | 0 | 0 | HR | 3 | | | M | | | |
| | 55-85 | lms | 75YR43 44 | | | | | | 0 | 0 | HR | 3 | | | M | | | |
| | 85-95 | sc1 | 05YR44 00 | 00M00 | 00 | C | | Y | 0 | 0 | HR | 1 | | | M | | | |
| | 95-100 | c | 75YR42 00 | 75YR58 | 00 | M | | Y | 0 | 0 | | 0 | | | P | | | |

| SAMPLE | DEPTH | TEXTURE | COLOUR | ---MOTTLES--- | | | PED COL. | ---STONES--- | | | STRUCT/ CONSIST | SUBS | | | | | |
|--------|---------|---------|-----------------------|---------------|------|------|-------------|--------------|----|----|--------------------|------|-----|-----|-----|-----|-----|
| | | | | COL | ABUN | CONT | | GLE | >2 | >6 | | LITH | TOT | STR | POR | IMP | SPL |
| 30 | 0-15 | ms1 | 75YR42 00 | | | | | 0 | 0 | 0 | | | | | | | |
| | 15-38 | 1ms | 75YR43 00 | | | | | 0 | 0 | HR | 5 | | M | | | | |
| | 38-45 | ms | 75YR43 00 | | | | | 0 | 0 | HR | 5 | | M | | | | |
| | 45-55 | ms | 75YR56 00 | | | | | 0 | 0 | HR | 10 | | M | | | | |
| | 55-110 | ms | 75YR54 00 | | | | | 0 | 0 | HR | 10 | | M | | | | |
| 31 | 0-25 | ms1 | 10YR42 00 | | | | | 0 | 0 | 0 | | | | | | | |
| | 25-45 | ms1 | 10YR43 00 | | | | | 0 | 0 | 0 | | | M | | | | |
| | 45-65 | sc1 | 10YR53 00 10YR58 00 C | | | | | Y | 0 | 0 | 0 | | M | | | | |
| | 65-75 | sc1 | 10YR72 00 10YR58 00 C | | | | | Y | 0 | 0 | 0 | | M | | | | |
| | 75-110 | sc1 | 10YR51 00 10YR58 00 C | | | | | Y | 0 | 0 | 0 | | M | | | | |
| 32 | 0-22 | mc1 | 10YR42 00 | | | | | 0 | 0 | 0 | | | | | | | |
| | 22-35 | mc1 | 10YR53 00 10YR56 00 C | | | | | Y | 0 | 0 | 0 | | M | | | | |
| | 35-45 | c | 75YR53 00 75YR58 00 C | | | | | Y | 0 | 0 | 0 | | P | | | Y | |
| | 45-55 | hc1 | 75YR53 00 75YR58 00 M | | | | 00MN00 00 | Y | 0 | 0 | 0 | | P | | | Y | |
| | 55-110 | c | 05YR43 00 10YR61 00 M | | | | | Y | 0 | 0 | HR | 5 | | P | | | Y |
| 34 | 0-10 | ms1 | 10YR42 00 | | | | | 0 | 0 | 0 | | | | | | | |
| | 10-28 | ms1 | 10YR43 00 | | | | | 0 | 0 | 0 | | | M | | | | |
| | 28-60 | ms1 | 10YR53 00 10YR58 00 C | | | | | Y | 0 | 0 | 0 | | M | | | | |
| | 60-85 | ms1 | 10YR63 00 10YR58 00 C | | | | | Y | 0 | 0 | 0 | | M | | | | |
| | 85-97 | ms | 10YR63 00 10YR58 00 C | | | | | Y | 0 | 0 | 0 | | M | | | | |
| | 97-110 | ms1 | 75YR44 00 | | | | | Y | 0 | 0 | 0 | | M | | | | |
| 35 | 0-25 | mc1 | 10YR42 00 | | | | | 0 | 0 | 0 | | | | | | | |
| | 25-47 | mc1 | 10YR53 00 75YR58 00 C | | | | | Y | 0 | 0 | 0 | | M | | | | |
| | 47-73 | sc1 | 10YR53 00 75YR58 00 M | | | | | Y | 0 | 0 | 0 | | M | | | | |
| | 73-100 | hc1 | 75YR53 00 75YR58 00 M | | | | | Y | 0 | 0 | 0 | | P | | | Y | |
| | 100-110 | c | 75YR53 00 75YR58 00 M | | | | | Y | 0 | 0 | 0 | | P | | | Y | |