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Wokingham District Local Plan
Sites WK05, WK06, WK27, WK28, WK29,
Dowles Green Farm, Wokingham, Berkshire.

Agricultural Land Classification
ALC Map and Report
February 1996

Resource Planning Team
Guildford Statutory Group
ADAS Reading

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AGRICULTURAL LAND CLASSIFICATION REPORT

WOKINGHAM DISTRICT LOCAL PLAN SITES WK05, WK06, WK27, WK28, WK29 - DOWLES GREEN FARM, DOWLESGREEN, WOKINGHAM, BERKSHIRE

Introduction

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 13.6 hectares of land to the north east of Dowlesgreen, a suburb of Wokingham in Berkshire. The survey was carried out during February 1996.
2. The survey was commissioned by the Ministry of Agriculture, Fisheries and Food (MAFF) from its Land Use Planning Unit in Reading in connection with the Wokingham District Local Plan. The results of this survey supersede any previous ALC information for this land.
3. The work was conducted by members of the Resource Planning Team in the Guildford Statutory Group of ADAS. The land has been graded in accordance with the published MAFF ALC guidelines and criteria (MAFF, 1988). A description of the ALC grades and subgrades is given in Appendix I.
4. At the time of survey, agricultural land uses included permanent grass and arable crops. The areas shown as 'Other Land' include areas of housing to the south, the buildings of Dowles Green Farm, some scrubby woodland to the east and an unmetalled track to the north west of the site.

Summary

5. The findings of the survey are shown on the enclosed ALC map. The map has been drawn at a scale of 1:10,000. It is accurate at this scale, but any enlargement would be misleading.
6. The area and proportions of the ALC grades and subgrades on the surveyed land are summarised in Table 1 overleaf.
7. The fieldwork was conducted at an average density of approximately 1 boring per hectare of agricultural land surveyed. A total of 10 borings and two soil pits were described.
8. The agricultural land at this site has been classified as Grade 2 (very good quality) to Grade 4 (poor quality), including substantial proportions of Subgrade 3a (good quality) and Subgrade 3b (moderate quality) land. Principal limitations to land quality include soil wetness, soil droughtiness and soil variability in a disturbed area.
9. A large proportion of the agricultural area at this site is restricted by soil droughtiness. The soils in these areas commonly comprised either slightly stony light loams over deep gleyed and slowly permeable clays, or slightly stony light loamy topsoils and upper subsoils overlying stoneless to slightly stony medium sandy lower subsoils. The combination of light textures

and stones cause available water to be reduced, leading to plant growth and yield being restricted to the level where Grade 2 and Subgrade 3a is appropriate, given the local climate.

10. Soil wetness is the principal limitation towards the west and east of the site where Subgrades 3a and 3b are mapped. In this area medium loamy topsoils and upper subsoils overlie slowly permeable clays at shallow and moderate depths in the profile. Slowly permeable horizons cause drainage to be impeded so that land utilisation is restricted. The depth at which these horizons occur determines the severity of the soil wetness restrictions and therefore the ALC grade.

11. The area of Grade 4 mapped to the north west is the site of a pond which has been filled with inert building waste and covered with a shallow layer of topsoil. The observations in this area were highly variable. Occasionally clays were encountered beneath the medium loamy topsoil, these being impenetrable at moderate depths over concrete waste. Other observations were impenetrable due to building waste directly beneath the topsoil. This area was characterised by being slightly higher than the surrounding land and having very poor quality grass cover. These factors in combination lead to Grade 4 being appropriate.

Table 1: Area of grades and other land

Grade/Other Land	Area (hectares)	% Surveyed Area	% Agricultural Land
2	0.9	6.6	14.3
3a	3.1	22.8	49.2
3b	2.1	15.4	33.3
4	0.2	1.5	3.2
Other Land	7.3	53.7	N/A
Total Agricultural Area	6.3		100.0
Total Site Area	13.6	100.0	

Climate

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

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

Table 2: Climatic and altitude data

Factor	Units	Values
Grid reference	N/A	SU 822 697
Altitude	m, AOD	60
Accumulated Temperature	day°C	1454
Average Annual Rainfall	mm	661
Field Capacity Days	days	138
Moisture Deficit, Wheat	mm	113
Moisture Deficit, Potatoes	mm	107

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

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

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

Site

17. The agricultural land at this site lies at an altitude in the range of 60-70m AOD. The majority of the site, to the north, is relatively flat. To the south east, the land rises slightly. Nowhere on the site does gradient or microrelief affect the land quality.

Geology and soils

18. The published geological information for the site (BGS, 1971), shows the majority of the site to be underlain by London Clay. Towards the south east of the site, Bagshot Beds are mapped.

19. The most detailed published soils information for the site (SSEW, 1983 and 1984) shows the site to comprise soils of the Wickham 4 and Fyfield 4 associations. Wickham 4 soils are described as, 'slowly permeable seasonally waterlogged fine loamy over clayey and fine silty over clayey soils associated with similar clayey soils, often with brown subsoils.' (SSEW, 1983). Soils of this broad type were found across the majority of the site to the west and east. Fyfield 4 soils are described as, 'Deep well drained often stoneless coarse loamy and sandy soils. Some fine loamy soils with slowly permeable subsoils and slight seasonal waterlogging and some slowly permeable seasonally waterlogged fine loamy over clayey soils. Risk of water erosion.' (SSEW, 1983). Soils of this broad type were found across the north of the site.

Agricultural Land Classification

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

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

Grade 2

22. Land of very good quality has been mapped towards the north of the site in a single mapping unit. Principal limitations include soil droughtiness and soil wetness, both of which limit the land to Grade 2.

23. Soils in this area commonly comprise a very slightly stony (up to 5% v/v total flints) medium sandy loam topsoil, which was occasionally gleyed. This passes to a similar upper subsoil which was characteristically gleyed. The lower subsoil horizons comprise a very slightly stony (5% v/v total flints), gleyed, medium sandy loam, which either extends to depth (120cm) or passes to a stoneless, gleyed and slowly permeable clay from approximately 75 cm which then extends to depth, (see Pit 2).

24. This combination of textures and stone contents throughout the profile leads to a slight soil droughtiness limitation in the local climate. Soil droughtiness can affect plant growth and yield especially in drier years. In addition, the shallow depth to gleying and the deep slowly permeable horizons also cause a slight soil wetness limitation. Soil wetness slightly restricts the land utilisation, in so far as during the wetter months it may not be possible to carry out machinery operations or have animals grazing on the land without affecting the soil structure, which would lead to compaction and greater drainage problems in subsequent years.

Subgrade 3a

25. Land of good quality has been mapped in a single unit across the north and west of the agricultural area of the site. Principal limitations include soil wetness and soil droughtiness.

26. The soils in this area limited by soil wetness are concentrated to the west of the site and commonly comprise a very slightly stony (up to 5% v/v total flints), gleyed, medium clay loam topsoil. This passes to a similarly stony, gleyed, medium clay loam or sandy clay loam upper subsoil, overlying a very slightly stony (up to approximately 5% v/v total flints), gleyed and slowly permeable clay horizon to depth. The slowly permeable horizons have the effect of restricting water flow through the soil profile causing drainage to be impeded. The depth at which these horizons occur, in combination with the local climate, places these soils in Wetness Class III and, subsequently the land can be graded no higher than Subgrade 3a, given the workability of the topsoil textures encountered. Soil wetness affects plant growth and yield as well as restricting land utilisation in terms of the number of days when machinery cultivations and grazing by livestock can occur without causing structural damage to the soil.

27. The profiles in the Subgrade 3a mapping unit which are principally limited by soil droughtiness are concentrated to the east of this mapping unit. Soils in this area are

characterised by the pit observation, 1p. They commonly comprise a slightly stony (up to 8% v/v total flints) medium sandy loam, passing to a similarly textured and stony upper subsoil with signs of gleying. This then passes to a slightly stony (up to 10% v/v total flints), gleyed, loamy medium sand horizon. The lower subsoils comprise either a stoneless, gleyed medium sand to depth, or slightly stony (approximately 8% v/v total flints), gleyed, medium sand and loamy medium sand horizons to depth. The combination of the light, freely draining soils and the stone contents leads to a reduction in plant available water to the extent that, in the local climate, Subgrade 3a is appropriate. Soil droughtiness affects plant growth and yield, especially in drier years.

Subgrade 3b

28. Land of moderate quality has been mapped in a single unit towards the east of the site. The principal limitation to land quality is soil wetness.

29. Soils in this area comprise a stoneless, gleyed, medium clay loam topsoil. This passes to a thin stoneless, gleyed, medium clay loam upper subsoil which overlies a gleyed and slowly permeable clay lower subsoil horizon which extends to depth. The slowly permeable horizons restrict the flow of water through the soil profile, causing drainage to be impeded to the extent that the soils are placed in Wetness Class IV. This degree of wetness in the soil profile, in combination with the topsoil textures, restricts this land to Subgrade 3b. Soil wetness affects plant growth and yield as well as restricting land utilisation in terms of the number of days when machinery cultivations and grazing by livestock can occur without causing structural damage to the soil.

Grade 4

30. Land of poor quality has been mapped in a single unit towards the north west of the site. This area used to comprise a pond which has been filled in using inert building waste and covered by a thin topsoil horizon. The principal limitation to land quality is soil depth and variability in the subsoil.

31. Soils in this area all comprise a slightly stony (approximately 10% v/v total flints), gleyed, medium clay loam. This overlies a highly variable substrate. Occasionally, a moderately stony (approximately 25% v/v total flints), disturbed clay was encountered to approximately 60 cm depth, at which point the profile was impenetrable (to the soil auger) over a concrete-like material. At other sample location points, the topsoil gave way immediately to building waste, before again becoming impenetrable from approximately 35 cm. This combination of factors, coupled with the poor nature of the grass crop in this area, leads to a classification of no better than Grade 4 being most appropriate here. The disturbed area could be readily mapped as it was raised slightly from the surrounding natural topography.

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February 1996

SOURCES OF REFERENCE

British Geological Survey (1971) *Sheet 268, Reading. Drift Edition.*
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 of South East England.*
SSEW: Harpenden.

Soil Survey of England and Wales (1984) *Soils of South East England. Bulletin No. 15.*
SSEW: Harpenden.

APPENDIX I

DESCRIPTIONS OF THE GRADES AND SUBGRADES

Grade 1: Excellent Quality Agricultural Land

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

Grade 2: Very Good Quality Agricultural Land

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

Grade 3: Good to Moderate Quality Land

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

Subgrade 3a: Good Quality Agricultural Land

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

Subgrade 3b: Moderate Quality Agricultural Land

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

Grade 4: Poor Quality Agricultural Land

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

Grade 5: Very Poor Quality Agricultural Land

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

APPENDIX II

SOIL WETNESS CLASSIFICATION

Definitions of Soil Wetness Classes

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

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

Assessment of Wetness Class

Soils have been allocated to wetness classes by the interpretation of soil profile characteristics and climatic factors using the methodology described in *Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land* (MAFF, 1988).

¹ The number of days is not necessarily a continuous period.

² 'In most years' is defined as more than 10 out of 20 years.

APPENDIX III

SOIL DATA

Contents:

Sample location map

Soil abbreviations - Explanatory Note

Soil Pit Descriptions

Soil boring descriptions (boring and horizon levels)

Database Printout - Horizon Level Information

SOIL PROFILE DESCRIPTIONS: EXPLANATORY NOTE

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

Boring Header Information

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

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

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

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

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

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

Soil Pits and Auger Borings

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

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

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

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

The clay loam and silty clay loam classes will be sub-divided according to the clay content: **M:** Medium (<27% clay) **H:** Heavy (27-35% clay)

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

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

4. **MOTTLE CONT:** Mottle contrast

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

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

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

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

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

degree of development **WK**: weakly developed **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

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

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

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

SOIL PIT DESCRIPTION

Site Name : WOKINGHAM DLP WK05 ETC Pit Number : 1P

Grid Reference: SUB2306971 Average Annual Rainfall : 661 mm
 Accumulated Temperature : 1454 degree days
 Field Capacity Level : 138 days
 Land Use : Arable
 Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 30	MSL	10YR31 00	0	3	HR					
30- 45	MSL	10YR53 00	0	5	HR	C	MDCSAB	FR	M	
45- 58	LMS	10YR53 63	0	10	HR	M	MDCSAB	FR	M	
58-120	MS	25Y 62 00	0	0		M	WKCSAB	VF	M	

Wetness Grade : 1 Wetness Class : II
 Gleying : 30 cm
 SPL : cm

Drought Grade : 3A APW : 103mm MBW : -10 mm
 APP : 86 mm MBP : -21 mm

FINAL ALC GRADE : 3A
 MAIN LIMITATION : Droughtiness

SOIL PIT DESCRIPTION

Site Name : WOKINGHAM DLP WK05 ETC Pit Number : 2P

Grid Reference: SUB2306980 Average Annual Rainfall : 661 mm
 Accumulated Temperature : 1454 degree days
 Field Capacity Level : 138 days
 Land Use : Arable
 Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 30	MSL	10YR31 00	1	5	HR					
30- 58	MSL	10YR53 42	0	5	HR	C	MDCSAB	FR	M	
58- 65	MSL	10YR53 00	0	5	HR	M	MDCSAB	FR	M	
65-120	C	25Y 62 00	0	0		M	WKCSAB	FM	P	

Wetness Grade : 2 Wetness Class : III
 Gleying : 30 cm
 SPL : 65 cm

Drought Grade : 2 APW : 131mm MBW : 18 mm
 APP : 105mm MBP : -2 mm

FINAL ALC GRADE : 2
 MAIN LIMITATION : Soil Wetness/Droughtiness

SAMPLE NO.	GRID REF	ASPECT USE	--WETNESS--				-WHEAT-		-POTS-		M.REL		EROSN	FROST	CHEM	ALC	COMMENTS
			GRDNT	GLEY	SPL	CLASS	GRADE	AP	MB	AP	MB	DRT	FLOOD	EXP	DIST	LIMIT	
1	SU82196977	PGR		0	30	4	3B		0	0				Y	DS	4	IMP 60
1P	SU82306971	ARA		30		2	1	103	-10	86	-21	3A			DR	3A	PIT 90 AUG 120
2	SU82306980	ARA		30	60	3	2	110	-3	109	2	3A			WD	2	SEE 2P
2P	SU82306980	ARA		30	65	3	2	131	18	105	-2	2			WD	2	WATER FROM 70
3	SU82406980	ARA		28		2	1	114	1	99	-8	3A			DR	3A	
4	SU82106970	PGR		0	55	3	3A		0	0					WE	3A	
5	SU82206970	PGR		0	60	3	3A	128	15	105	-2	2			WE	3A	
6	SU82306971	ARA		28		2	1	115	2	102	-5	3A			DR	3A	
7	SU82306972	ARA		0	55	3	3A	136	23	113	6	2			WE	3A	HEAVY CORNER
8	SU82506970	RGR N	2	0	35	4	3B		0	0					WE	3B	
9	SU82266982	PGR		0		2	1	151	38	106	-1	2			DR	2	NEAR DIST AREA
12	SU82506960	RGR N	1	0	035	4	3B		0	0					WE	3B	

SAMPLE	DEPTH	TEXTURE	COLOUR	---MOTTLES---			PED	---STONES---			STRUCT/	SUBS	SPL	CALC	
				COL	ABUN	CONT	COL.	GLE	>2	>6					LITH
1	0-30	mc1	10YR21 00	10YR46	36	C		Y	0	0	HR	10		DISTURBED GROUND	
	30-60	c	05Y 41 00	10YR58	00	M	00M00	00	Y	0	0	HR	25	P	IMP 60 - LARGE STON
1P	0-30	ms1	10YR31 00						0	0	HR	3			
	30-45	ms1	10YR53 00	10YR56	00	C		Y	0	0	HR	5	MDCSAB	FR M	
	45-58	lms	10YR53 63	10YR58	00	M	00M00	00	Y	0	0	HR	10	MDCSAB	FR M
	58-120	ms	25Y 62 00	10YR58	00	M		Y	0	0		0	WKCSAB	VF M	
2	0-30	ms1	10YR41 00						0	0	HR	3		SEE 2P	
	30-60	mc1	10YR53 00	10YR58	00	C		Y	0	0	HR	3		M	
	60-90	c	25Y 53 63	75YR58	68	M		Y	0	0	HR	5		P	Y
2P	0-30	ms1	10YR31 00						1	0	HR	5			
	30-58	ms1	10YR53 42	10YR58	00	C		Y	0	0	HR	5	MDCSAB	FR M	
	58-65	ms1	10YR53 00	10YR68	00	M		Y	0	0	HR	5	MDCSAB	FR M	
	65-120	c	25Y 62 00	75YR58	68	M		Y	0	0		0	WKCSAB	FM P	Y
3	0-28	ms1	10YR32 00						1	0	HR	8			
	28-65	ms1	10YR53 64	10YR58	00	C		Y	0	0	HR	8		M	WET FROM 50
	65-80	lms	10YR64 00	10YR58	00	M		Y	0	0	HR	8		M	
	80-90	ms	10YR64 00	10YR58	00	M		Y	0	0	HR	8		M	
	90-120	lms	10YR64 00	10YR58	00	M		Y	0	0	HR	8		M	
4	0-30	mc1	10YR41 00	10YR46	00	C		Y	0	0	HR	3			
	30-55	mc1	25Y 53 00	10YR58	00	C		Y	0	0	HR	5		M	
	55-90	c	25Y 61 62	75YR58	00	M		Y	0	0	HR	5		P	Y
5	0-23	mc1	10YR41 00	10YR46	00	C		Y	0	0	HR	5			
	23-60	sc1	10YR53 00	10YR58	00	M		Y	0	0	HR	5		M	VERY WET
	60-120	c	25Y 62 00	75YR58	00	M		Y	0	0	HR	5		P	Y
6	0-28	ms1	10YR41 00						0	0	HR	3		SEE 1P	
	28-65	ms1	10YR63 00	10YR56	00	C	00M00	00	Y	0	0	HR	5		M
	65-120	ms	25Y 62 00	10YR58	00	M		Y	0	0		0		M	
7	0-25	mc1	10YR31 00	75YR46	00	C		Y	0	0		0		NEAR HEAVY GROUND	
	25-55	mc1	10YR64 00	10YR58	00	M		Y	0	0		0		M	
	55-120	c	25Y 51 00	75YR68	00	M		Y	0	0		0		P	Y
8	0-25	mc1	10YR41 00	10YR56	00	M		Y	0	0		0		NEAR STANDING WATER	
	25-35	mc1	10YR63 00	10YR58	00	M		Y	0	0		0		M	HEAVILY TRAFFICKED
	35-70	c	25Y 51 00	10YR58	68	M		Y	0	0		0		P	Y
9	0-25	ms1	10YR42 00	10YR46	00	C		Y	0	0	HR	3		NEAR DISTURBED	
	25-40	ms1	10YR52 00	10YR56	00	C		Y	0	0	HR	3		M	GROUND
	40-120	ms1	10YR53 63	10YR56	00	M		Y	0	0	HR	5		M	
12	0-20	mc1	10YR41 42	10YR56	00	C		Y	0	0		0			
	20-35	mc1	10YR63 00	10YR58	00	M		Y	0	0		0		M	
	35-70	c	05Y 61 71	75YR46	68	M		Y	0	0		0		P	Y