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Hart District Replacement Local Plan
Site 1011: Hitches Lane
Hampshire
Agricultural Land Classification Report
October 1996

Ministry of Agriculture Fisheries And Food

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Resource Planning Team
Guildford Statutory Group
ADAS Reading

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AGRICULTURAL LAND CLASSIFICATION REPORT

HART DISTRICT REPLACEMENT LOCAL PLAN
SITE 1011: HITCHES LANE.

INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of approximately 41 hectares of land to the west of Fleet, in the Hart District of Hampshire. The survey was carried out during October 1996.

2. The work was commissioned by the Ministry of Agriculture, Fisheries and Food (MAFF) from its Land Use Planning Unit in Reading, in connection with MAFF's statutory input to the Hart District Replacement Local Plan. This survey supersedes any previous ALC information for this land including the 1981 survey (ADAS Ref: 1506/16/81) which was carried out prior to MAFF's revision of the ALC guidelines.

3. The current 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, the agricultural land on this site was mainly under set-aside with some arable cropping in the south. Land shown as Other Land comprises the Railroad and Culver Copse along the eastern boundary and a motorcross course in the north west corner.

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 below.

Table 1: Area of grades and other land

Grade/Other land	Area (hectares)	% Total site area	% Surveyed Area
2	7.3	17.8	27.0
3a	11.3	27.5	41.8
3b	7.9	19.2	29.3
4	0.5	1.2	1.9
Other land	14.1	34.3	-
Total surveyed area	27.0	65.7	100.0
Total site area	41.1	100.0	-

7. The fieldwork was conducted at an average density of 1 boring per hectare. A total of 31 borings and 2 soil pits were described.

8. The agricultural land on this site ranges from Grade 2 (very good quality) land in the north and south of the site to Grade 4 (poor quality) land in the north east. The soils are mainly developed on variably sandy and clayey Bracklesham Beds with a small area of alluvial drift deposits adjacent to the River Hart. The alluvial soils are generally poorly drained, comprising medium or heavy clay loam topsoils over slowly permeable heavy silt clay loam and clay subsoils which impede drainage. The resultant waterlogging will thus restrict seed germination and growth as well as limit the timing of cultivations. Wet soils such as these are also susceptible to structural damage through trafficking by agricultural machinery and grazing livestock. The land has therefore been classified as Subgrade 3b.

9. The majority of the site consists of distinctly lighter textured profiles. These generally comprise very slightly flinty, fine sandy loam or loamy fine sand topsoils over a combination of well structured sandy loam, loamy sand and sand, or moderately structured sandy clay loam and heavy clay loam subsoils which contain both medium and fine grained sand. The subsoils range from being stone free to moderately flinty, but occasional profiles become very stony at depth. The profiles are gleyed from the upper subsoil suggesting that, at best, they are only moderately well drained. In this local climatic regime, the combination of light textured soils and slight to moderate stone content acts to limit the amount of profile available water for crops. This generally results in a slight soil droughtiness limitation, consistent with Grade 2. The middle of the site is, however, more variable comprising borings of both higher and lower quality according to either soil wetness or droughtiness restrictions. As a result this land has been classified as Subgrade 3a.

10. Two areas of the site are believed to have been disturbed. A limited area adjacent to Culver Copse comprises light textured, organic soils which have been severely rutted and compacted by trafficking during wet soil conditions. As a result, the soils are regularly waterlogged and frequently have standing water. This degree of wetness will restrict seed germination and growth as well as limit the timing of cultivations. The extreme south of the site is thought to have previously been used as a landfill site. In places, the topsoil is very thin, with some subsoil evident on the surface, and contains large amounts of foreign material such as house bricks and concrete slabs. The upper subsoils are generally very compacted and become impenetrable to the soil auger at very shallow depths. This combination of shallow, compacted, stony soils will lead to a significant reduction in the amount of profile available water for crops. The large slabs of foreign material in the topsoil will also cause increased wear to tyres and damage to farm machinery during cultivation. As a result both of the disturbed areas can be graded no higher than Subgrade 3b and, if examined in greater detail, might be found to be of even poorer quality.

11. In the north, next to Railroad Copse, hydrophilic vegetation such as Juncus Spp. occurs suggesting that the land is waterlogged for prolonged periods. This area is therefore restricted to Grade 4 due to a significant soil wetness limitation.

FACTORS INFLUENCING ALC GRADE

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 the standard interpolation procedures (Met. Office, 1989).

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.

Table 2: Climatic and altitude data

Factor	Units	Values	Values
Grid reference	N/A	SU 793 546	SU 787 548
Altitude	m, AOD	65	70
Accumulated Temperature	day°C (Jan-June)	1456	1450
Average Annual Rainfall	mm	676	681
Field Capacity Days	days	145	146
Moisture Deficit, Wheat	mm	110	109
Moisture Deficit, Potatoes	mm	104	103

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 (ATO, 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 . However, climatic factors can interact with soil properties to influence soil wetness and droughtiness. At this locality the crop adjusted soil moisture deficits are relatively high thus increasing the likelihood of soil droughtiness restrictions.

17. Local climatic factors such as frost risk and exposure are unlikely to adversely affect agricultural land use on this site. The site is climatically Grade 1.

Site

18. The highest land on this site is situated in the north west corner, however, this is not currently in agricultural use. The majority of the site is flat and low lying (63m AOD) though it gently rises again (65m AOD) towards the southern and eastern boundaries.

19. There is a chance that flooding may affect some parts of the site, due to the flat , low lying nature of the land and its proximity to the River Hart. However, the areas which are most likely to be affected by flooding are already limited to Subgrade 3b on the basis of soil

wetness restrictions. It is unlikely, therefore, that the land will be more severely limited. Other site factors such as gradient and microrelief do not affect land quality.

Geology and soils

20. The relevant geological sheet (BGS, 1978) maps the Bracklesham Beds across the site with alluvial drift deposits covering approximately half of it.

21. The most recently published soils information for this area (SSEW, 1983) maps the Wickham 3 soil association in the north, the Fladbury 3 association across the alluvial deposits in the west, and the Bursledon soil association in the south east. The Wickham 3 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. Some deep coarse loamy soils affected by groundwater. Landslips with irregular terrain locally."(SSEW, 1983), and the Fladbury 3 are said to be "Stoneless clayey soils, in places calcareous, variably affected by groundwater. Flat land. Risk of flooding."(SSEW, 1983). The Bursledon soil association, on the other hand, are described as "Deep fine loamy soils with slowly permeable subsoils and slight seasonal waterlogging associated with deep coarse loamy soils variably affected by groundwater. Some slowly permeable seasonally waterlogged loamy over clayey soils. Landslips and associated irregular terrain locally."(SSEW, 1983).

22. Detailed field examination revealed similar soils to those described above.

AGRICULTURAL LAND CLASSIFICATION

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

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

Grade 2

25. Two areas to the north and south of the site have been classified as very good quality agricultural land. The soil profiles comprise fine or medium textured, sandy loam and loamy sand topsoils over similar upper subsoils. In some profiles, moderately well structured sandy clay loam and poorly structured heavy clay loams and clay subsoils occur between 40-120cm, while in others, moderately well structured medium sandy loams or well structured loamy medium sands and medium sands were found. Occasionally, lighter textured horizons appear at approximately 70cm depth, below some of the heavier textured subsoils. Most profiles are deep and virtually stoneless (0-2% flint) throughout. However, occasional borings were found to be impenetrable to the soil auger at 50-65cm depth, due to an increase in stone content. Gleying is evident from shallow depths (0-30cm) mainly due to the slowly permeable subsoils which impede drainage from 40-85cm depth. In this local climatic regime, the resultant waterlogging will slightly inhibit seed germination and crop growth as well as restrict the timing and flexibility of cultivations. This is considered to be consistent with Wetness Class II or III (Appendix II), though the light topsoil textures help to alleviate some of the affects of soil wetness. The combined affects of soil textures, structures and stone content

also slightly reduce the amount of profile available water for crops. This land is therefore limited to Grade 2 by either soil droughtiness or soil wetness restrictions.

Subgrade 3a

26. The centre of the site has been classified as good quality land. The profiles here are quite variable. Soil inspection Pit 2 is representative of most of the profiles within this mapping unit where a fine sandy loam topsoil overlies a well structured, fine sand upper subsoil. In the lower subsoil the sand fraction becomes coarser with either a well structured medium sandy loam or medium sand to depth. The stone content ranges from very little flint in the pit to 40% flint in some subsoils which then tend to become impenetrable at between 60-100cm depth. Mottling from the topsoil and surface ponding in some hollows indicate a slight to moderate soil wetness limitation which suggests that this land should be classified no higher than Wetness Class II (appendix II). However, in this local climatic regime, the combination of soil textures, structures, and stone contents acts to reduce the amount of profile available water for crops thus causing a moderate soil droughtiness limitation consistent with Subgrade 3a.

27. The remaining profiles are similar to those described above as Grade 2. However, these comprise a medium clay loam or fine sandy loam topsoil over shallow (30-55cm), slowly permeable, heavy clay loam or silty clay loam horizons. These profiles are therefore consistent with Wetness Class III or IV, and are classified as Subgrade 3a due to the light topsoil textures. Occasional profiles of either slightly higher or lower quality are also included in this mapping unit as they are too limited in number or extent to map separately.

Subgrade 3b

28. There are three discrete areas of moderate quality land. The largest unit occurs to the west of the site on the river flood plain, where the land is limited by soil wetness. Soil inspection Pit 1 is representative of these profiles, which generally comprise heavy silty clay loam or clay topsoils over gleyed, poorly structured, slowly permeable upper subsoils of similar texture. Drainage through the profile is therefore significantly restricted resulting in prolonged seasonal waterlogging. In this local climatic regime, wet soils such as these will adversely affect seed development and crop growth, and trafficking by agricultural machinery or grazing livestock may also lead to structural damage. This land has therefore been classified as Wetness Class IV (Appendix II), Subgrade 3b.

29. A small area to the west of Culver Copse, has also been classified as Subgrade 3b as it is believed to have been disturbed. The soil profiles here comprise a mixture of well structured, fine sandy loams and sandy silt loams; moderately well structured medium clay loams, peaty loams or heavy silty clay loams; and poorly structured, heavy clay loams or silty clay loams. The profiles are generally organic in nature and gleyed from the topsoil. The stone content is only slight ranging from 0-10% total flint. This area is deeply rutted and highly compacted, probably due to over-trafficking during wet conditions. The compacted subsoils act to restrict drainage through the profile. As a result the waterlogged, anaerobic conditions which restrict seed germination and growth.

30. The extreme south east corner of the site is also believed to have been disturbed and used for landfill in the past. It comprises shallow (30-45cm) soil profiles which are

impenetrable due to large amounts of foreign material. The topsoils comprise medium clay loams, sandy clay loams or medium sandy loams with 5-15% total flint and numerous large slabs of bricks and concrete which could severely damage agricultural machinery. The topsoils are also very thin in places, containing a lot of upper subsoil material (medium sandy loams or sandy silt loams and loamy medium sands). The upper subsoils contain a higher stone content (20-25%) and are hard and compacted so restricting the free passage of water through the profile. As a result, seed and crop development will be restricted while the shallow soil depth, stone content and local climatic factors act to reduce the amount of profile available water for crops. No soil pit was dug in this small area to investigate the degree of disturbance fully, but there is sufficient 'surface' evidence to mean that this land should not be graded any higher than Subgrade 3b.

Grade 4

31. A very small area to the west of Railroad Copse has been classified as poor quality, as the profusion of hydrophilic vegetation, such as Juncus Spp., and the uneven ground surface suggests that this land is waterlogged for much of the year (though the exact Wetness Class of the land was not determined in detail). The period of time when cultivations may safely be undertaken and the range of crops that can survive such conditions are thus restricted. This land is therefore limited by a severe soil wetness limitation.

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SOURCES OF REFERENCE

British Geological Survey (1978) *Sheet No. 284, Basingstoke*. 1:50,000 Series. Solid & Drift. BGS: London.

Ministry of Agriculture, Fisheries and Food (1988) *Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land.*
MAFF: London.

Met. Office (1989) *Climatological Data for Agricultural Land Classification.*
Met. Office: Bracknell.

Soil Survey of England and Wales (1983) *Sheet 6, Soils of South East England.*
SSEW: Harpenden.

Soil Survey of England and Wales (1984) *Soils and their Use in South East England*
SSEW: Harpenden

DESCRIPTIONS OF THE GRADES AND SUBGRADES

Grade 1: Excellent Quality Agricultural Land

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

Grade 2: Very Good Quality Agricultural Land

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

Grade 3: Good to Moderate Quality Land

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

Subgrade 3a: Good Quality Agricultural Land

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

Subgrade 3b: Moderate Quality Agricultural Land

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

Grade 4: Poor Quality Agricultural Land

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

Grade 5: Very Poor Quality Agricultural Land

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

APPENDIX II

SOIL WETNESS CLASSIFICATION

Definitions of Soil Wetness Classes

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

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

Assessment of Wetness Class

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

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

APPENDIX III

SOIL DATA

Contents:

SOIL PROFILE DESCRIPTIONS: EXPLANATORY NOTE

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

Boring Header Information

1. **GRID REF**: national 100 km grid square and 8 figure grid reference.

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

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

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

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

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

6. **MB (WHEAT/POTS)**: Moisture Balance. (Crop adjusted AP - crop adjusted MD)

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

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

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

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

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

Soil Pits and Auger Borings

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

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

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

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

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

2. **MOTTLE COL**: Mottle colour using Munsell notation.

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

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

4. **MOTTLE CONT:** Mottle contrast

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

5. **PED. COL**: Ped face colour using Munsell notation.

6. **GLEY:** If the soil horizon is gleyed a 'Y' will appear in this column. If slightly gleyed, an 'S' will appear.

7. **STONE LITH**: Stone Lithology - One of the following is used.

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

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

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

degree of development	**WK**: weakly developed **ST**: strongly developed	**MD**: moderately developed
ped size	**F**: fine **C**: coarse	**M**: medium **VC**: very coarse
ped shape	**S** : single grain **GR**: granular **SAB**: sub-angular blocky **PL**: platy	**M**: massive **AB**: angular blocky **PR**: prismatic

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

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

10. **SUBS STR**: Subsoil structural condition recorded for the purpose of calculating profile droughtiness: **G**: good **M**: moderate **P**: poor

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

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

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

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

15. Other notations
    APW: available water capacity (in mm) adjusted for wheat
    APP: available water capacity (in mm) adjusted for potatoes
    MBW: moisture balance, wheat
    MBP: moisture balance, potatoes

SOIL PIT DESCRIPTION

Site Name : HART DLP SITE 1011 Pit Number : 1P

Grid Reference: SU79005460 Average Annual Rainfall : 676 mm
Accumulated Temperature : 1456 degree days
Field Capacity Level : 145 days
Land Use : Set-aside
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 25	C	10YR32 00	0	2	HR					
25- 55	HZCL	10YR41 00	0	0		M	MDCPR	FM	P	
55- 80	C	10YR31 00	0	0		M	MDCPR	FM	P	
80-110	C	10YR31 00	0	45	HR	M	MDCPR	FM	P	

Wetness Grade : 3B Wetness Class : IV
Gleying :025 cm
SPL :025 cm

Drought Grade : 3A APW : 109mm MBW : -1 mm
APP : 102mm MBP : -2 mm

FINAL ALC GRADE : 3B
MAIN LIMITATION : Wetness

SOIL PIT DESCRIPTION

Site Name : HART DLP SITE 1011 Pit Number : 2P

Grid Reference: SU79205460 Average Annual Rainfall : 676 mm
Accumulated Temperature : 1456 degree days
Field Capacity Level : 145 days
Land Use : Set-aside
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 30	FSL	10YR31 00	0	0						
30- 40	FS	10YR63 00	0	0		C	MDCAB	FR	G	
40- 60	MS	10YR72 00	0	0		M	MDCAB	FR	G	
60-100	LMS	10YR62 00	0	0		M	MDCSAB	FR	G	
100-120	MS	10YR51 00	0	0			MDCSAB	FR	G	

Wetness Grade : 1 Wetness Class : II
Gleying :030 cm
SPL : No SPL

Drought Grade : 3A APW : 114mm MBW : 4 mm
APP : 089mm MBP : -15 mm

FINAL ALC GRADE : 3A
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
1P	SU79005460	SAS			025	025	4	3B	109	-1	102	-2	3A				WE	3B	At boring 23
2P	SU79205460	SAS			030		2	1	114	4	089	-15	3A				DR	3A	At boring 25
7	SU78925480	SAS			030	070	2	1	138	28	115	11	2				DR	2	
8	SU79005480	SAS			030	085	2	1	140	30	110	6	2				DR	2	
9	SU79105480	SAS			0		2	1	134	24	090	-14	3A				DR	3A	Pots Limit
10	SU79205480	SAS			030	040	3	2	137	27	118	14	2				WD	2	
13	SU78755466	SAS			025	025	4	3B		0		0					WE	3B	
14	SU78805470	SAS			0	020	4	3B		0		0					WE	3B	
15	SU78905470	SAS			025	025	4	3B		0		0					WE	3B	
16	SU79005470	SAS			0		2	1	062	-48	062	-42	3B				DR	3B	I50 QDR 2/3A
17	SU79105470	SAS			030	050	3	2	153	43	110	6	2				WD	2	
18	SU79205470	SAS			045		2	1	154	44	128	24	1					1	
19	SU79305470	SAS			050		2	1	172	62	144	40	1				TX	2	LFS Topsoil
21	SU78805460	SAS			0	020	4	3B		0		0					WE	3B	
22	SU78905460	SAS			0	020	4	3B		0		0					WE	3B	
23	SU79005460	SAS			0	020	4	3B		0		0					WE	3B	See 1P
24	SU79105460	SAS			025		2	1	171	61	112	8	2				DR	2	
24A	SU79155455	SAS			0	070	2	2	151	41	112	8	2				WD	2	
25	SU79205460	SAS					2	1	105	-5	082	-22	3A				DR	3A	See 2P
26	SU79305460	SAS			040		2	1	144	34	116	12	1				TX	2	LFS Topsoil
28	SU79005450	SAS			030		2	2	152	42	112	8	2				WD	2	
29	SU79105450	SAS			0		2	1	089	-21	091	-13	3B				DR	3B	I60 Border 3A
30	SU79205450	SAS			0	020	4	3B		0		0					WE	3B	
31	SU79285450	SAS			0		2	1	205	95	125	21	1				DB	3B	+ High WT
33	SU79105440	SAS			0	055	3	2	116	6	126	22	2				WD	2	I75 Flinty
34	SU79205440	SAS			0	030	4	3A		0		0	2				WE	3A	I100 Flinty
35	SU79305440	SAS			0	030	4	3B		0		0	1				WE	3B	+ Disturbed
35A	SU79305435	ARA	E	01	095		2	1	135	25	104	0	2				DR	2	
37	SU79205430	ARA	S	01	050	075	2	1	138	28	116	12	2				DR	2	Higher Land
38	SU79305430	ARA	N	02			2	1	105	-5	108	4	3A				DR	3A	I65 QDR 2
39	SU79405430	ARA			0		2	2	046	-64	046	-58	4				DB	3B	I30 Bricks
40	SU79305420	ARA			0		2	2	054	-56	054	-50	4				DB	3B	I40 Bricks
41	SU79405420	ARA			020		2	2	063	-47	063	-41	3B			Y	DB	3B	I45 Bricks

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	
1P	0-25	c	10YR32 00						0	0	HR	2							
	25-55	hzcl	10YR41 00	75YR56 00	M			Y	0	0		0	MDCPR	FM P	Y		Y		
	55-80	c	10YR31 00	75YR58 68	M			Y	0	0		0	MDCPR	FM P	Y		Y		
	80-110	c	10YR31 00	75YR58 68	M			Y	0	0	HR	45	MDCPR	FM P					Imp Flinty
2P	0-30	fsl	10YR31 00						0	0		0							
	30-40	fs	10YR63 00	10YR68 00	C			Y	0	0		0	MDCAB	FR G					
	40-60	ms	10YR72 00	10YR68 00	M			Y	0	0		0	MDCAB	FR G					
	60-100	lms	10YR62 00	10YR78 00	M			Y	0	0		0	MDCSAB	FR G	Y				
	100-120	ms	10YR51 00						0	0		0	MDCSAB	FR G	Y				V. Wet
7	0-30	fsl	10YR32 00						0	0	HR	1							
	30-45	msl	10YR74 00	75YR58 00	M			Y	0	0	HR	5		M					
	45-70	hcl	10YR63 52	75YR58 00	M			Y	0	0	HR	1		M				Y	Sandy
	70-120	hcl	05Y 72 00	10YR58 00	M			Y	0	0		0		P		Y			Sl. sandy
8	0-30	msl	10YR42 00						0	0	HR	2							
	30-45	msl	10YR62 00	75YR58 00	C			Y	0	0	HR	2		M					
	45-55	msl	25Y 73 00	10YR58 00	M			Y	0	0		0		M					
	55-85	scl	25Y 52 00	75YR58 00	M			Y	0	0		0		M					Clay/Sand lenses
	85-120	c	05Y 62 00	75YR58 00	M			Y	0	0		0		P		Y			
9	0-30	lfs	10YR32 00	10YR58 00	F			Y	0	0	HR	1							
	30-45	lfs	10YR32 00	10YR58 00	C			Y	0	0		0		G					
	45-90	ms	25Y 63 00	75YR58 00	M			Y	0	0		0		G					
	90-120	lms	25Y 73 00	75YR58 00	M			Y	0	0		0		G					
10	0-30	lfs	10YR32 00						0	0	HR	1							
	30-40	fsl	10YR32 53	10YR58 00	C			Y	0	0	HR	1		M					
	40-70	hcl	25Y 62 00	10YR58 00	M			Y	0	0	HR	2		P		Y			V. Firm
	70-85	msl	05Y 72 00	10YR58 00	M			Y	0	0		0		M					
	85-120	ms	25Y 72 00	75YR58 00	M			Y	0	0		0		G					
13	0-25	hzcl	10YR43 00						0	0	HR	1							
	25-75	c	10YR52 51	75YR58 00	M			Y	0	0	HR	1		P		Y			
	75-120	zc	10YR61 00	10YR58 00	M			Y	0	0		0		P		Y			
14	0-20	mcl	10YR32 42	10YR58 00	C			Y	0	0	HR	1							
	20-55	c	10YR51 00	75YR58 00	M	00MN00	00	Y	0	0		0		P		Y			
	55-70	zc	10YR61 00	10YR58 00	M	00MN00	00	Y	0	0		0		P		Y			
15	0-25	hcl	10YR62 00						0	0	HR	1							
	25-75	c	10YR51 00	75YR58 00	M	00MN00	00	Y	0	0	HR	1		P		Y			
	75-90	scl	25Y 72 00	10YR58 00	M	00MN00	00	Y	0	0		0		M					Soft/Moist
16	0-20	msl	10YR42 00	75YR58 00	C			Y	0	0	HR	2							
	20-50	lms	10YR62 52	10YR58 00	M			Y	0	0	HR	2		G					Imp Flinty

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
17	0-30	fsl	10YR32 00						0	0	HR	2							
	30-40	msl	25Y 42 00	75YR58 00	C			Y	0	0	HR	2		M					
	40-50	hcl	25Y 42 00	75YR58 00	M			Y	0	0		0		M					
	50-70	c	25Y 32 00	75YR58 00	M			Y	0	0		0		P			Y		
	70-120	msl	25Y 61 00	75YR68 00	C			Y	0	0		0		M					
18	0-30	fszl	10YR31 00						0	0		0							Few Wet Patches
	30-45	lfs	10YR31 00						0	0		0		G					
	45-55	lfs	10YR42 00	10YR68 00	C			Y	0	0		0		G					
	55-70	hcl	10YR31 00	10YR78 00	C			Y	0	0		0		M					
	70-120	lms	10YR63 00	10YR58 00	C			Y	0	0		0		M					
19	0-30	olfs	10YR32 00						0	0	HR	1							
	30-50	ofsl	10YR32 00						0	0		0		G					
	50-70	msl	25Y 62 00	10YR58 00	C			Y	0	0		0		M					
	70-120	lms	05Y 72 00	10YR58 00	C			Y	0	0		0		G					
21	0-20	hzcl	10YR52 00	75YR58 00	M			Y	0	0	HR	1							
	20-70	c	10YR51 00	75YR58 00	M		00MN00 00	Y	0	0		0		P			Y		
22	0-20	hzcl	10YR42 00	10YR56 00	C			Y	0	0	HR	1							
	20-70	c	10YR51 00	10YR56 00	M		00MN00 00	Y	0	0		0		P			Y		
	70-80	c	10YR64 00	10YR58 51	M			Y	0	0		0		P			Y		
23	0-20	hzcl	10YR52 00	75YR58 00	M			Y	0	0	HR	1							
	20-70	c	10YR51 00	75YR58 00	M		00MN00 00	Y	0	0		0		P			Y		
	70-80	zc	10YR61 00	10YR58 00	M			Y	0	0		0		P			Y		
24	0-25	fsl	10YR32 00						0	0	HR	2							
	25-45	msl	10YR42 00	75YR58 00	C				0	0	HR	2		M					
	45-60	hcl	25Y 52 00	75YR58 00	M				0	0		0		M					
	60-80	scl	25Y 52 00	75YR58 00	M				0	0		0		M					
	80-120	msl	25Y 61 00	75YR58 00	C				0	0		0		M					
24A	0-22	mcl	10YR42 00	75YR46 00	C			Y	0	0	HR	2							Sl. organic
	22-32	hcl	10YR52 00	75YR46 00	M			Y	0	0		0		P					
	32-70	hcl	25Y 62 72	75YR58 00	M			Y	0	0		0		M					Sandy/friable
	70-90	hcl	05Y 71 00	75YR58 00	M			Y	0	0		0		P			Y		
	90-120	msl	05Y 63 00	10YR58 00	C			Y	0	0	HR	5		M					Moist
25	0-25	fsl	10YR33 00						0	0		0							
	25-30	msl	10YR42 41	10YR58 00	C			Y	0	0		0		M					
	30-45	lms	10YR52 00	10YR68 00	C			Y	0	0		0		G					
	45-65	ms	10YR73 00	10YR78 00	C			Y	0	0		0		G					
	65-90	lms	05Y 63 00	10YR58 00	C			Y	0	0		0		G					
	90-120	ms	05Y 62 00	10YR58 00	M			Y	0	0		0		G					
26	0-40	lfs	10YR32 00						0	0	HR	1							
	40-50	lfs	10YR72 00	10YR58 00	C			Y	0	0		0		G					
	50-100	scl	05Y 62 00	10YR58 00	M			Y	0	0		0		M					Friable
	100-120	ms	05Y 62 00	10YR58 00	M			Y	0	0		0		G					V.Wet

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	POR	IMP	SPL	CALC	
28	0-30	mcl	10YR41 00	10YR46 00	F				0	0	HR	2							
	30-40	mcl	10YR42 00	10YR58 00	C			Y	0	0	HR	2		M					
	40-65	fs	10YR71 00	10YR68 00	C			Y	0	0		0		G					
	65-100	mzcl	10YR71 00	10YR58 00	M			Y	0	0		0		M					
	100-120	mzcl	10YR71 00	10YR58 00	M			Y	0	0	HR	20		M					
29	0-30	fsl	75YR52 00	05Y 46 00	M			Y	0	0	HR	2							
	30-50	msl	75YR52 00	75YR58 00	C			Y	0	0	HR	2		M					
	50-60	lms	75YR72 00	10YR58 00	C			Y	0	0	HR	10		G					Imp Flinty
30	0-20	ohcl	10YR31 00	75YR46 00	C			Y	0	0		0							Wet patches
	20-60	c	10YR42 00	75YR58 00	C			Y	0	0	HR	1		P		Y			
	60-90	scl	05Y 62 00	75YR58 00	C			Y	0	0	HR	20		M		Y			
31	0-30	msl	10YR42 00	10YR58 00	C			Y	0	0	HR	4							Rutted, Compacted
	30-48	lms	10YR42 00	10YR58 00	C			Y	0	0	HR	2		G					
	48-80	pl	10YR21 00						0	0		0		M					Wet
	80-120	ohzcl	10YR31 00	75YR46 00	C			Y	0	0		0		M					V. Wet
33	0-28	fszl	10YR31 00	10YR46 00	C			Y	0	0		0							Wet Patches
	28-55	fsl	10YR71 00	10YR58 68	C			Y	0	0	HR	5		M					
	55-70	hzcl	25Y 41 00	75YR58 00	M			Y	0	0		0		P		Y			
	70-75	lcs	25Y 61 00	10YR68 00	M			Y	0	0	HR	40		M					Imp Flinty
34	0-30	fszl	10YR31 00	10YR46 00	C			Y	0	0		0							Wet Patches
	30-65	hzcl	25Y 41 00	10YR46 58	C			Y	0	0		0		P		Y			
	65-80	fszl	05Y 73 00	10YR68 00	M			Y	0	0	HR	20		M					
	80-100	msl	05Y 63 00	75YR58 00	M			Y	0	0	HR	40		M					Imp Flinty
35	0-30	ohcl	10YR21 31	10YR46 00	C			Y	0	0		0							
	30-75	ohzcl	05Y 41 00	10YR46 00	C			Y	0	0		0		P		Y			
	75-120	mcl	05GY51 00						0	0	HR	10		P		Y			
35A	0-20	fsl	10YR32 00						1	0	HR	2							
	20-45	fsl	10YR42 00						0	0	HR	1		M					
	45-95	lms	10YR54 00						0	0		0		G					
	95-120	lms	25Y 62 00	10YR58 00	C			Y	0	0		0		G					
37	0-30	msl	10YR31 41						0	0	HR	2							
	30-50	lfs	10YR42 00	10YR46 00	F				0	0		0		G					
	50-75	fsl	10YR74 00	10YR66 00	C		00MN00 00	Y	0	0		0		M					
	75-100	hcl	05Y 63 00	10YR58 68	M			Y	0	0		0		P		Y			Firm
	100-120	ms	05Y 73 00	10YR68 00	C			Y	0	0		0		G					
38	0-25	fsl	10YR31 00						0	0	HR	2							
	25-45	fsl	10YR42 00						0	0	HR	2		M					
	45-65	lfs	10YR64 66						0	0	HR	5		G					Imp Large Flint

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
39	0-30	mcl	10YR43 53						8	3	HR	15							Bricks/concrete
40	0-30	msl	10YR33 43						2	0	HR	5							Bricks
	30-40	lms	10YR43 00						0	0	HR	25		M					Imp Flints
41	0-20	scl	10YR43 53						2	0	HR	6							Bricks/TS mixing
	20-40	msl	10YR53 00	10YR68 00	C		00MN00 00	Y	0	0	HR	20		M					
	40-45	mszl	10YR53 00	10YR58 00	C		00MN00 00	Y	0	0	HR	25		M					Imp Flints