

August 2024

**Agricultural Land
Classification of
Longacres Nursery,
Eastergate Lane,
Walberton, BN18 0BA**

On Behalf of Messrs Pearce



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1. SUMMARY ALC FINDINGS

1.1 The provisional ALC map identifies the general area as of Grade 3 quality. Arun District Council require information regarding the likely ALC grade of the land as part of a planning assessment.

1.2 Our ALC survey results, undertaken in July 2024 revealed evidence of some limited soil variability across the site, consistent with the geological nature of site to be overlain by head and flint gravel which sits over the Upper Chalk; in places the chalk is less than 2m from the surface.

1.3 The soil texture and climatic data of the site and our findings indicate that there is some variability of soils across the site, but the soil type is consistent with the Binsted soil series (extremely flinty phase), as reported by the Soil Survey of England and Wales and detailed in **Appendix 1**. The soil profiles are extremely stony, containing >15% total flint by volume, leading droughtiness to be the main limitation, despite relatively high-water tables.

1.4 Having undertaken desk top research including studying the geological and soil maps and other published data, to ascertain soil characteristics locally. A soil survey was undertaken at site to investigate the soil quality. The ALC Grade of the site is **Grade 3b** in character on account of stoniness and drought.

1.5 The site is approximately 0.7 hectares and represents a very small amount of agricultural land and is not within the Best and Most Versatile category and is not therefore considered to be of more than local significance in terms of its potential loss. The land is part of a former horticultural nursery and grass pasture. The loss of 0.7 hectares will not affect the horticultural business's longer term viability as the unit has no long term future.

1.6 Arun authority area has a very high percentage of Best and Most Versatile land, particularly of Grades 1 and 2, representing around 40% of agricultural land in the Borough and Grade 3a a further nearly 30%. There is virtually no Grade 5 in the authority's jurisdiction and most of the Grade 3b and 4 is north of the A27, in the South Downs National Park area, where development is very restricted. Development outside of the existing built-up areas is therefore more than likely to contain land of at least medium through to excellent quality. Most of the Local Plan strategic allocations contain 50% or more BMV land.

1.7 It is considered that, as this land is Grade 3b and not BMV, its loss to a small development will be of negligible impact locally. In a recent appeal decision, the inspector found the following:-

Appeal Decision APP/C3810/W/22/3299514

Decision date: 3rd October 2023 Appeal Ref: APP/C3810/W/22/3299514 Land to the east of Yapton Lane, Walberton, West Sussex BN18 0LJ

48. The circumstances of the substantial need for housing in the district currently outweigh the need to protect the appeal site's BMVAL in the long term and so outweigh the modest harm identified from the conflict with Policy SO DM1. Nevertheless, the loss of agricultural land would be an adverse impact of the development.

2. INTRODUCTION

2.1 Douglas Briggs Partnership instructed Landscape Land and Property Ltd to confirm the Agricultural Land Classification of this site. We have assessed the field to which this application relates. The land as shown on soil maps, aerial photographs and from old provisional agricultural land classification maps and national data is identified as Grade 3.

2.2. Earlier survey work by MAFF and FRCA on nearby sites was studied and where similar soil types were found these have helped to corroborate findings on the site.

2.3 In addition there was a discussion undertaken with the owner and agent regarding the land use, history and agricultural practices undertaken at the site. The total area of the land is 0.7 hectares, with the site being part rough grassland and mainly a former horticultural nursery.

2.4 Agricultural land is classified into a range of categories according to the 1988 guidelines and more precisely detailed and set out in **Annex A**. Best and Most Versatile agricultural land is described as land in Grades 1, 2 and 3a of the Agricultural Land Classification in Technical Information Note 049. BMV land is the most flexible, productive and efficient in response to inputs and which can best deliver future crops for food and non-food uses.

2.5 An assessment was undertaken to confirm information on the soil resources, agricultural productivity, and land use of the site to help establish the ALC grade. It was considered necessary that a site survey be undertaken to provide information on the soil resources, agricultural and land use of the proposed site to determine the ALC grade.

2.6 The survey was conducted during July 2024 and consisted of hand auger borings to a depth of 1.2 metres, where possible to examine the soil profile using standard soil survey techniques to assess subsoil structure and soil profile data. This overall data was used to map the principal soil characteristics for determining the ALC.

3. METHODOLOGY

3.1 Having undertaken desktop research, we studied aerial photographs, old maps and soil and geological maps and other ALC reports locally, particularly where Binsted soil was identified. Auger core boring and soil was sampled using an Edelman (Dutch) Auger to a depth of 120 cm to examine the soil profile on the field, to enable a better understanding of the soils.

Baseline Conditions Description

General features, land, form and drainage

3.2 The site extends to approximately 0.7 hectares of former nursery and pasture land, as outlined in **Plan 1**. The site forms part of a wider land holding currently held and privately owned.

3.3 The site is very gently undulating with a fall towards the southern boundary. The local Ordnance Datum (AOD) height is 12m.

3.4 A full range of tests were undertaken at the site including:

- Soil horizon depth assessment
- Matrix colour assessment using a Munsell Chart
- Soil texture assessment
- Soil structure
- Mottling
- Gleying
- Evidence of semi-permeable layer
- Stone content and size
- Evidence of naturally occurring chalk or limestone in the top 25cm of soil.

3.5 Auger profiles were photographed and recorded at site and samples were collected and retained for further analysis.

3.6 Further assessments were undertaken utilising the site data to calculate such factors as:-

Climatic Limitations

- Flood Risk
- Droughtiness
- Wetness Class
- Average Annual Rainfall
- Accumulated Temperature (from January to June)

3.7 Utilising this standard data we were able to calculate the land Grade for the field.

Agro Climatic Conditions and Altitude data

3.8 Agro climatic data for the area have been interpolated from the meteorological office's standard 5km grid point data set at a representative altitude of 15 metres AOD. The data shown in **Table 1** is the local agro climatic factors affecting the site. The site is dry and moderately warm with a high soil moisture deficit. The number of field capacity days is typical for southern England and is considered relatively favourable for providing opportunities for agricultural field working.

3.9 There is high plant-water demand in this relatively low rainfall area and unirrigated land can suffer from drought. There is no available water on the site to fully sustain crop growth in the form of irrigation and therefore yield can be affected by summer drought.

3.10 Climatic criteria are set out in **Table 1**. These are considered first when classifying land as climate can be overriding issue, where severe limitations will restrict land to lower grades irrespective of favourable site or soil conditions. However, there are no significant climatic limitations to Grade 1 across this site.

Table 1

Grid Reference	SU 957 063
Altitude	15
Average annual rainfall	785
Accumulated temperature>0°C (Jan-June)	1531
Moisture deficit, wheat	116
Moisture deficit, potatoes	112
Field capacity period	161
Overall Climactic Grade	1

Soil parent material, geology and soil types.

3.11 The principal geology at the site at a scale of 1:50 000, the British Geological Survey mapped the area British Geological Survey (1975), Sheet 317&332 Chichester and Bognor, shows the entire site to be overlain by clayey 'head' gravel, which itself overlies the Upper Chalk.

3.12 The Soil Survey of England and Wales have mapped the soils in the Chichester/Bognor area on two occasions; in 1967 at 1:25,000 scale and in 1983, at a reconnaissance scale of 1:250,000.

3.13 The Soil Survey of England and Wales Soil Association Map 1:250,000 scale shows the primary soil association to be 841e Park Gate; deep stoneless silty soils variably affected by ground water, but the scale of the map is general.

3.14 The more detailed 1:25,000 scale soil map (Soil Survey, 1967), maps the site as of the Binsted soil, which are summarised as non-calcareous gley soils on flinty silty head, with silty clay, very flinty sub soils. **Appendix 1** shows detailed information taken from the book (Soils of The West Sussex Coastal Plain) that accompanies the map, which describes the soils in detail. A representative soil profile is described and included in **Appendix 1**.

Drainage and Flood Risk

3.15 The Environment Agency website confirms that the area of the site is not exposed to flood risk and therefore this is unlikely to affect the ALC grade.

4. AGRICULTURAL LAND CLASSIFICATION

4.1 The site was assessed by applying the survey details as outlined in Guidelines for Agricultural Land Classification (October 1988) by the Ministry of Agriculture, Fisheries and Food.

4.2 The current classification system was adopted in 1988 and is a refinement of previous systems. A series of Provisional ALC maps were produced at a scale of 1 inch to 1 mile between 1967 and 1974 based on the earlier classification system and were intended to be for guidance only for strategic planning purposes. A new series of soil maps at a scale of 1:250,000 based on the same information are available. The 1:250,000 map for the area shows the land to be Grade 3 as shown in **Appendix 2**. **Appendix 3** shows the soil types locally, the geology and a LIDAR plan, together with a flood risk map of the site.

4.3 The Agricultural Land Classification system provides a framework for classifying land according to the extent to which it's physical or chemical characteristics impose long-term limitations on agricultural use. The limitations can affect the range of crops that can be grown, the level of yield, the consistency of yield and the cost of obtaining it. The principal factors considered are **Climate, Site and Soil**. These factors, together with **Interactions** between them, form the basis for classifying land into one of five grades more particularly set out in Annex A:-

- Grade 1 is land of excellent quality.
- Grade 2 is very good quality agricultural land
- Grade 3 is medium to good quality and is divided into Sub-Grades 3a and 3b since this Grade covers about half of the agricultural land of England and Wales.
- Grade 4 is land of poor quality
- Grade 5 is very poor land

4.4 The Grade or Sub-Grade is determined by the most limiting factor present. On this site there is no limitation to Grade according to **Climate**.

4.5 The assessment of **Site** factors considers the way the topography affects agricultural machinery use and crop production. The site comprises flat land at 15m Above Sea Level (ASL) and the topography fundamentally offers no restrictions to agricultural use and cropping potential.

4.6 The main consideration in applying the ALC system on this site, therefore relates to **Soil** factors and **Interactive** limitations. The main **Soil** properties, which may affect cropping potential, are:-

- texture
- structure
- depth
- stoniness and
- chemical fertility

4.7 The level of stoniness does provide an overriding limitation causing droughtiness and limits the use of machinery. JM Hodgson describes the soil profile of Binsted Soils as 'extremely' flinty,

both in the topsoil and the subsoil. Technical Monograph 5, 'The Soil Survey Field Handbook' also by JM Hodgson, defines 'extremely' in terms of abundance as >70%. The samples of soil from the auger profiling were not quite as stoney, but levels of stone in the top 25cm of soil was at least 20%. The stones were a mixture of flint and gravel.

4.8 The 1988 Guidelines determine that where stoniness is greater than 15% the land cannot be Grade 3a or 'better'. The text explains the challenge of high stone content:-

A high stone content can increase production costs by causing extra wear and tear to implements and tyres. Crop quality may also be reduced in stony soil by causing, for example, the distortion of root crops or bruising of potatoes during harvesting. Stones can impair crop establishment by causing reduced plant populations in precision- drilled crops, and they reduce the nutrient capacity of the soil.

4.9 Whilst Table 5 sets the upper limit of percentages for stone content in terms of grading. Knowing that stone content can be greater than 70% in the Binsted Soils, the land cannot normally be better than sub Grade 3b.

4.10 Photographs of the soil samples taken show the level of stoniness in the soil and the shallow depth before the auger hit an impenetrable layer.

Table 5 Grade according to stoniness

Grade/ Subgrade	Limiting percentages (volume) of hard stones in the top 25cm of soil	
	<i>stones larger than 2 cm¹</i>	<i>Stones larger than 6 cm¹</i>
1	5	5
2	10	5
3a	15	10
3b	35	20
4	50	35
5	>50	>35

¹ Stones retained on a 2 cm or 6 cm square mesh sieve, as appropriate.

4.9 Wetness Class assessments have been considered for these soils and show that the soils have impeded drainage and would fall into Wetness Class III or IV and this also represents a limitation to Grade 3a/3b.

5. RESULTS

Main Soil Type

5.1 During this more detailed assessment, the soils within the site were found to typically comprise non-calcareous very stony, silty loam topsoils, which overlie a similar textured silty clay subsoil over clay at depth. The stones mostly comprise sub-angular flints and pebbles and are greater than 25% in the topsoil. The soils on the site are all broadly similar having a dark brown flinty silt loam topsoil. Topsoil stone content s was measured using a 2 cm diameter sieve and range from 15-35%, with 5-20% larger than 2 cm diameter. A strong brown silty clay loam upper subsoil is encountered with 30-50% subangular flints and only moderate structure. A reddish brown very stony clay was encountered at depth.

5.2 The main soil type identified on site corresponds to the mapped soil type and there is little variation across this small site reflecting the geological characteristics, such as depth to clay and stoniness. The combination of the soil texture and high stone content in this relatively warm and dry climatic regime reduces the amount of profile-available-water for crops while the poorly structured subsoils cause the water to be more difficult to extract.

5.3 Soil Moisture Deficit (SMD) represents the balance between rainfall and potential evapotranspiration occurring during the growing season. For ALC purposes the soil moisture deficits developing under a winter wheat and main crop potato cover are considered. These reference crops have been selected because they are widely grown, and in terms of their susceptibility to drought, are representative of a wide range of crops. Soil droughtiness calculations present limitations to Grade 3b and it is therefore concluded that the level and consistency of crop yields may be significantly restricted, so limiting the land to **Grade 3b**.

5.4 These profiles, however, also exhibit soil wetness with frequent ochreous mottles occurring at varying depths according to soil drainage. Soil inspection show that where present, the poorly structured clay is slowly permeable. These clay horizons generally occur at 50 cm depth, and therefore drainage impedance is significant, and Wetness Class III or IV is appropriate. The interaction between the drainage characteristics, the medium textured topsoils and stoniness also restricts the flexibility of cultivations, cropping, and stocking limits the land overall to **Grade 3b**.

6. CONCLUSIONS REGARDING THE AGRICULTURAL LAND CLASSIFICATION

6.1 Based on the available evidence, I am confident that the Agricultural Land Classification of this site is of the following grade (**Table 2**):

Table 2

ALC Grades across the Site

ALC Grade	Description	Area (%)	Area (Ha)
3b	Moderate	100	0.7
TOTAL		100	0.7

Binsted Type 1 Soils - Droughtiness limitation

6.2 The site is classified as moderate quality agricultural land restricted in places by slight soil wetness, by severe stoniness and a soil droughtiness limitation. Soils of this series are predominantly extremely stoney. They are mainly under permanent grass or woodland with very little arable. The combination of droughtiness and stoniness makes them generally unsuitable for cultivation and are not normally recommended for horticultural purposes. These soils are very droughty for deeper rooting crops such as wheat.

Land Quality

6.3 Land quality on this site is therefore **Grade 3b** throughout, due to the poor quality, very stoney soils with an overall droughtiness of the site. Furthermore, many of the soil profiles have very stony topsoils, with more than 15% of the stones larger than 2 cm diameter. Both these limitations will restrict the range of crops that can be grown satisfactorily and will also reduce yields.

Grade 1

6.4 No land of this grade has been mapped on site.

Grade 2

6.7 No land of this grade has been mapped on site.

Grade 3a

6.8 No land of this grade has been mapped on site.

Sub Grade 3b

6.9 This grade accounts for 100% of the site. Soils are restricted by a soil droughtiness limitation and very high stone content. The soil profiles generally comprise medium or heavy silty clay loam topsoils over very stoney silty clay, between 50-80 cm from the surface, and poorly structured clay or silty clay at depth. Whilst there is some variability in subsoil type across the site, the main characteristics are silty clay loam top soils and high stone content. Stoniness and Droughtiness are the overriding limitations preventing a higher land grade, but with a soil wetness limitation in part.

Grade 4

6.10 No land of this grade has been mapped on site.

Grade 5

6.11 No land of this grade has been mapped on site.

Landscape Land and Property Ltd
August 2024

Horizons:

- in.*
 21-30 Brown (7.5 YR 4/4) friable to firm, flinty silty clay loam, with silty clay in places; moderate fine and medium sub-angular blocky and prismatic structure; fine fibrous roots common; earthworm channels as above; ped faces coated with reddish brown (5 YR 4/4) clay; blackish manganiferous concretions and faint, fine mottles throughout; very slightly calcareous in places from added chalk; sharp irregular boundary.
 B1t(g)
 30-42+ Extremely flinty brown (8 YR 4/4) firm silty clay; flints packed tightly together; structure not observed; few roots; earthworm channels finish at top of this horizon; reddish brown (5 YR 4/4) clay coatings on the flints, manganiferous concretions and faint pale mottling; non-calcareous.
 IIB2t(g)

BINSTED SERIES

Non-calcareous gley soils developed in flinty silty Head (Coombe Deposits) constitute the Binsted series. Only an extremely flinty phase of this series has been delimited, but it includes a small proportion of less stony soils, some of which were separately mapped on the 6-in. field sheets. The parent material is thought to be similar to that of the better drained Charity and Strettington series, though in some sites, where the Eocene clays underlie the soil, the lower horizons of the profile may include some Eocene-derived material.

The series is mainly found at the southern edge of the Upper Coastal Plain along the line of the degraded cliff which marks the northern limit of the lower Pleistocene beach (Fig. 5, p. 15) where the drift overlies Eocene clay at no great depth and is affected by ground-water, and occasionally surface seepage. The series has also been mapped along the sides of some of the small valleys on the northern edge of the Lower Coastal Plain where the streams have cut through the Brickearth to the Coombe Deposit beneath. Soils in this position can be difficult to distinguish from the Racton series into which they pass locally. The Binsted soils, however, usually occupy the sloping sides of the valleys, and the more humose alluvial Racton soils, with their less flinty surface soil, are found on the distinctly flat floors of the narrow valleys. It is probable that, in places, the upper layers of the silty flinty gravel of Binsted series may have been re-worked by streams when the valleys were cut down.

The soil is mainly under woodland or permanent grass. A typical woodland profile has thin L and F layers with an equally thin A horizon, less than 2 in. thick, of dark greyish brown, flinty silt loam with a weak sub-angular blocky structure and humus-stained ped faces. The thick Ebg horizon beneath is a very prominently mottled, light brownish or greyish, extremely flinty, silt loam; manganiferous concretions are usually abundant and the structure is weak, sometimes almost absent. The subjacent Btg horizon, encountered between 12 and 24 in., is a prominently mottled, extremely flinty, silty clay or silty clay loam with numerous manganiferous stains and concretions. The flints are angular or sub-angular throughout the profile, and there is often an appreciable proportion of angular flint chips (about 2 mm.), particularly in subsoil horizons.

The profile described below shows many of the typical features, particularly the very fine flint chips in the Bt horizon which account for the high sand content shown in the mechanical analysis. As this was the only profile of the series analysed, the chemical data may not be entirely typical. The high percentage base saturation (Table 11, p. 140) in the lower horizons may be attributed to the

bases in the ground-water arising from the Chalk which crops out to the north. It is probable that Binsted soils elsewhere have a much lower percentage saturation. The tendency to mor formation is reflected in the high carbon/nitrogen ratio and the strongly acid reaction (pH 3.9) of the surface horizon.

Representative profile description

PROFILE NO.: TQ00/6158; Binsted series (analyses, pp. 134 and 140).

Location: The Rough, Angmering (grid ref. TQ061058).

Elevation: 49 ft. O.D. Slope and aspect: 1° south.

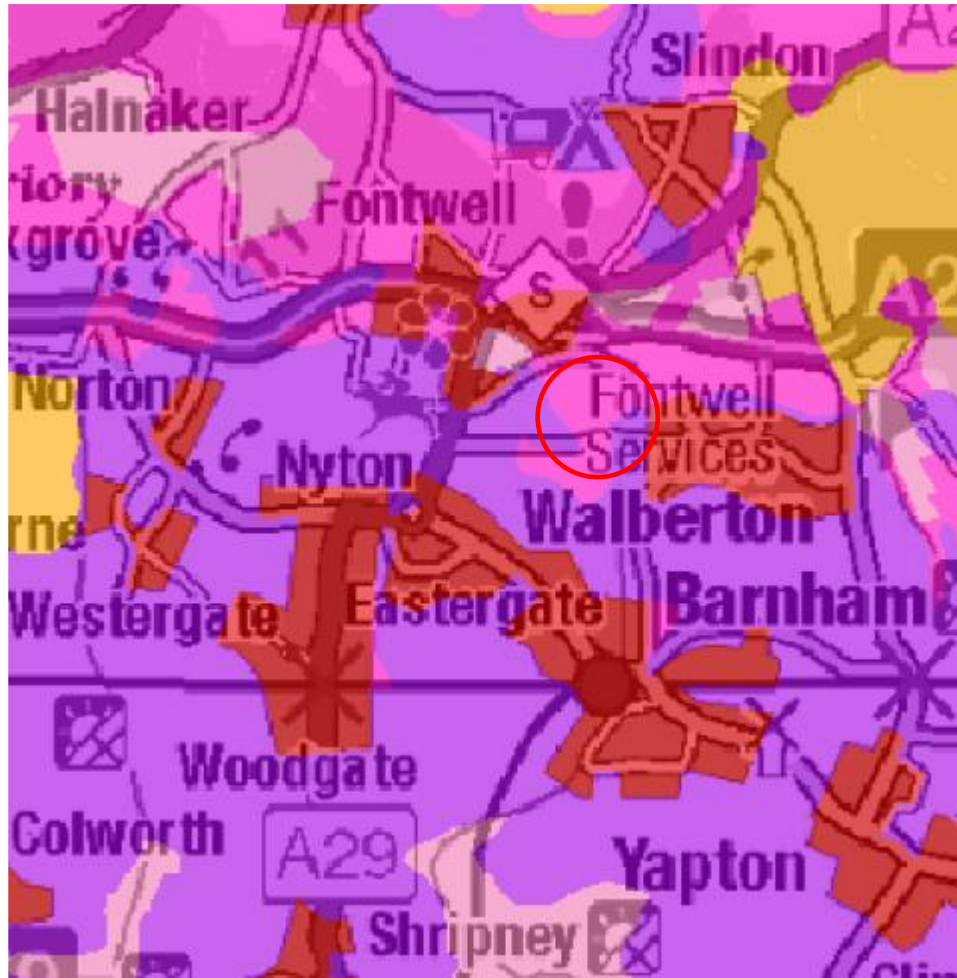
Land use and vegetation: woodland with large oak standards, hazel and hawthorn understorey, and a discontinuous ground layer of brambles, ivy and bluebells.

Horizons:

in.	
$\frac{1}{2}$ -0	Litter of oak leaves and twigs.
L	
0-1 $\frac{1}{2}$	Dark greyish brown (10 YR 4/2) friable, flinty, humose silt loam containing medium angular flints; weak medium sub-angular blocky structure; abundant fine fibrous roots with medium woody roots common; ped faces very dark brown (10 YR 2/2) due to humus staining; merging even boundary.
A	
1 $\frac{1}{2}$ -20	Mottled, light brownish grey (10 YR 6/2) and pale brown (10 YR 6/3), friable, extremely flinty silt loam, flints angular and sub-angular, mainly medium sized; weak medium and fine sub-angular blocky structure; roots as above but slightly less frequent; structure faces light grey (10 YR 7/2) or pale brown (10 YR 6/3) and unmottled; interior of peds prominently and coarsely mottled with light grey (10 YR 7/2) and brownish yellow (10 YR 6/8) with abundant manganiferous concretions and stains; infrequent worm channels with humose linings; merging even boundary.
Ebg	
20-42+	Mottled, light brownish grey (10 YR 6/2), sticky to firm, extremely flinty clay loam (gritty with fine flint fragments); angular and sub-angular flints mainly medium-sized, but with fine flints more in evidence than above; structure not observed because of extreme flintiness; few medium and fine woody roots; prominently and coarsely mottled with light grey (10 YR 7/2), yellowish brown (10 YR 5/8) and strong brown (7.5 YR 5/8), with abundant manganiferous concretions.
Btg	

Figure 1 below is the DEFRA Predictive Best and Most Versatile Land Map.

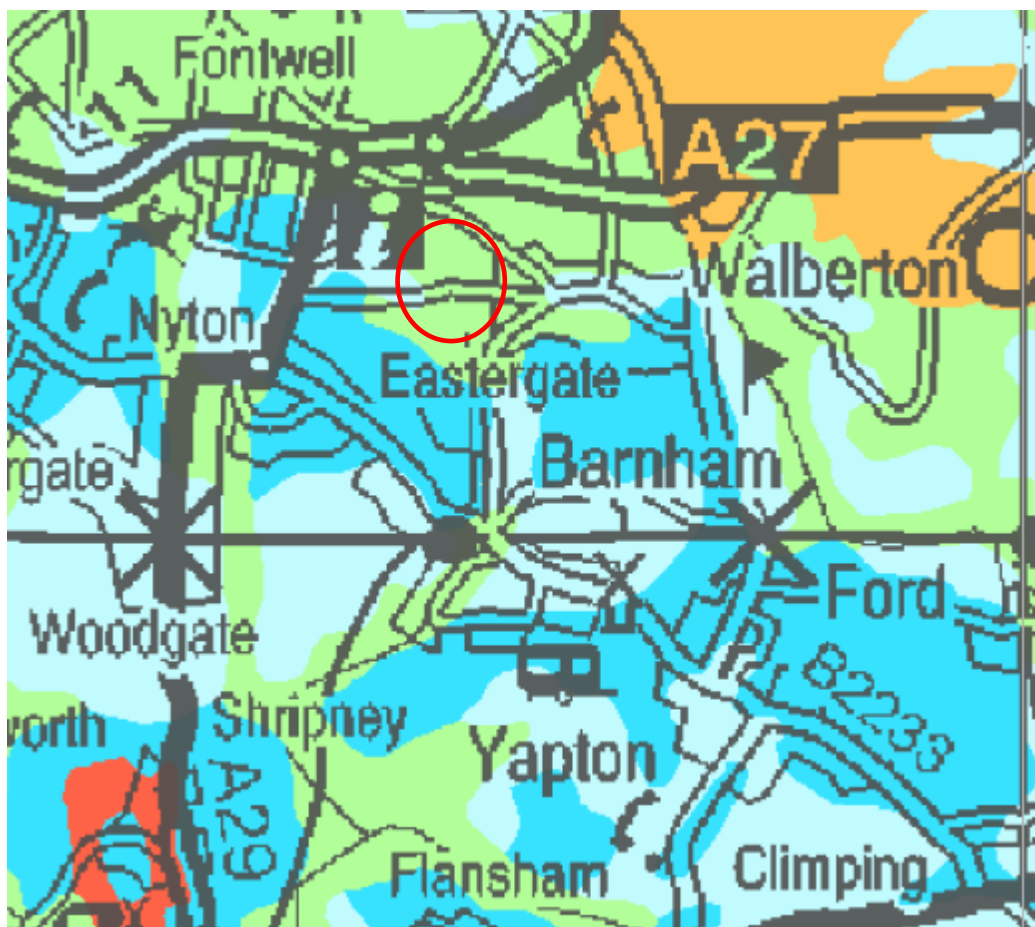
The map shows a Moderate likelihood of best and most versatile land for this area



Predictive BMV Land Assessment © Defra

- High likelihood of BMV land (>60% area bmv)
- Moderate likelihood of BMV land (20 - 60% area bmv)
- Low likelihood of BMV land (<= 20% area bmv)
- Non-agricultural use
- Urban / Industrial

Figure 2 below is the 1:250 000 scale map (East) which shows the area as Grade 3 quality.

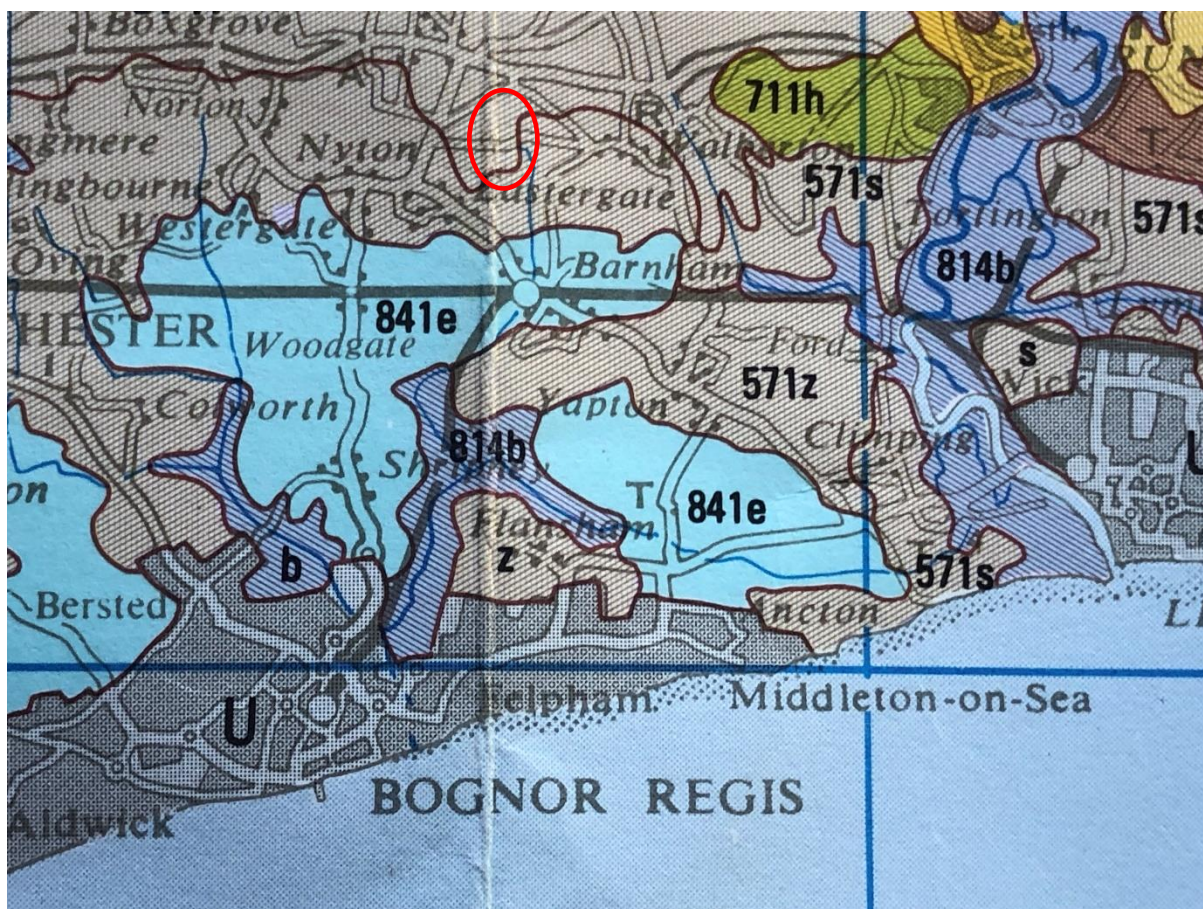


<u>Grade</u>	<u>Description</u>
1	Excellent
2	Very Good
3	Good to Moderate
4	Poor
5	Very Poor

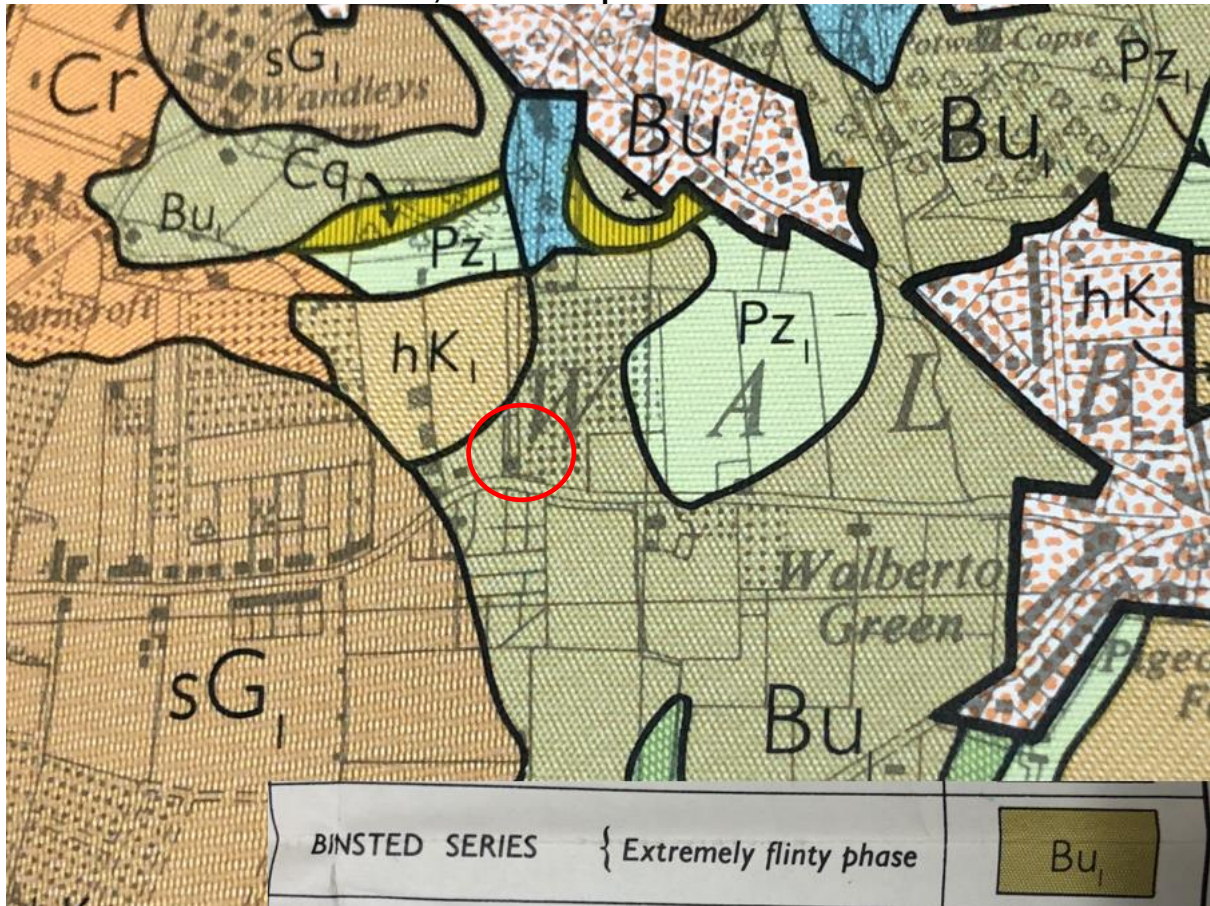
Non-Agricultural Land

- Other land primarily in non-agricultural use
- Land predominantly in urban use

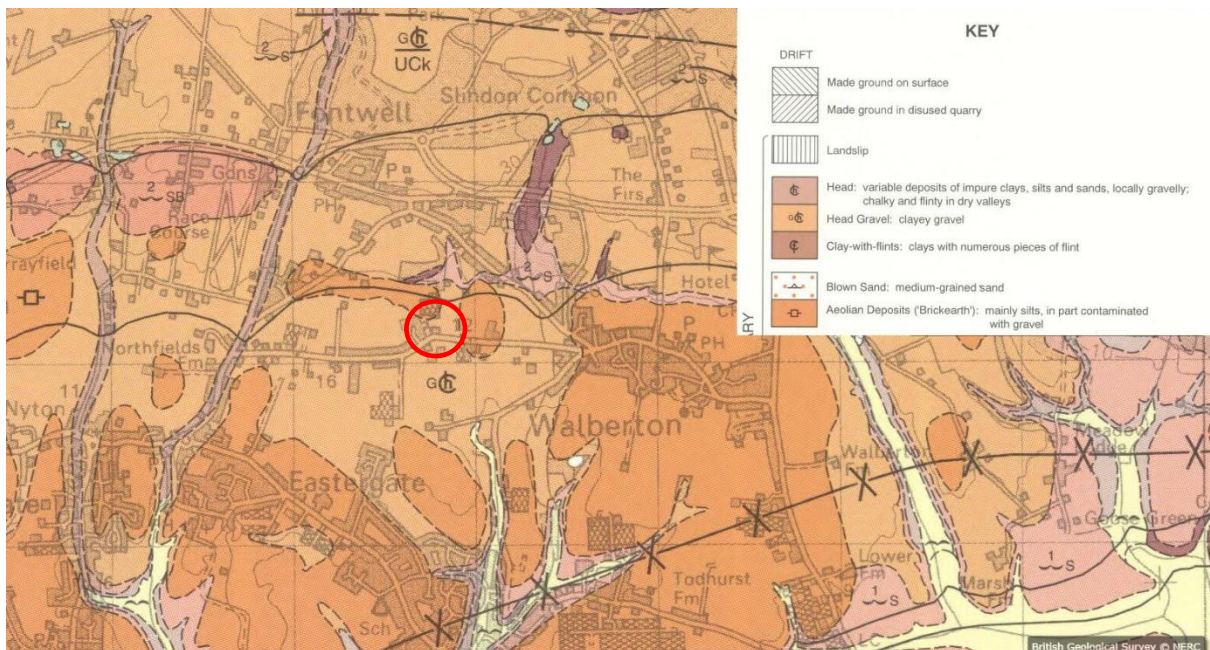
Soil Survey of England Map of Area showing the site



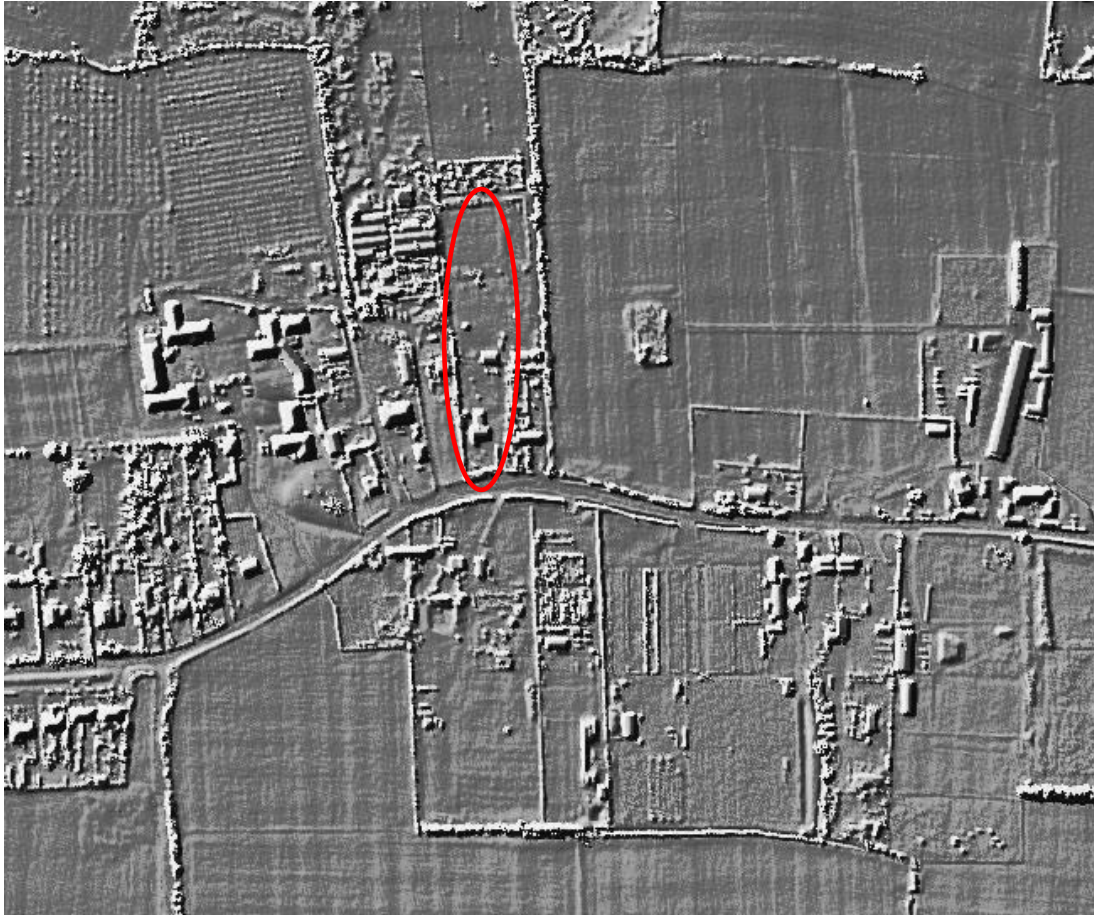
1:25,000 Soil Map of the Site/Area



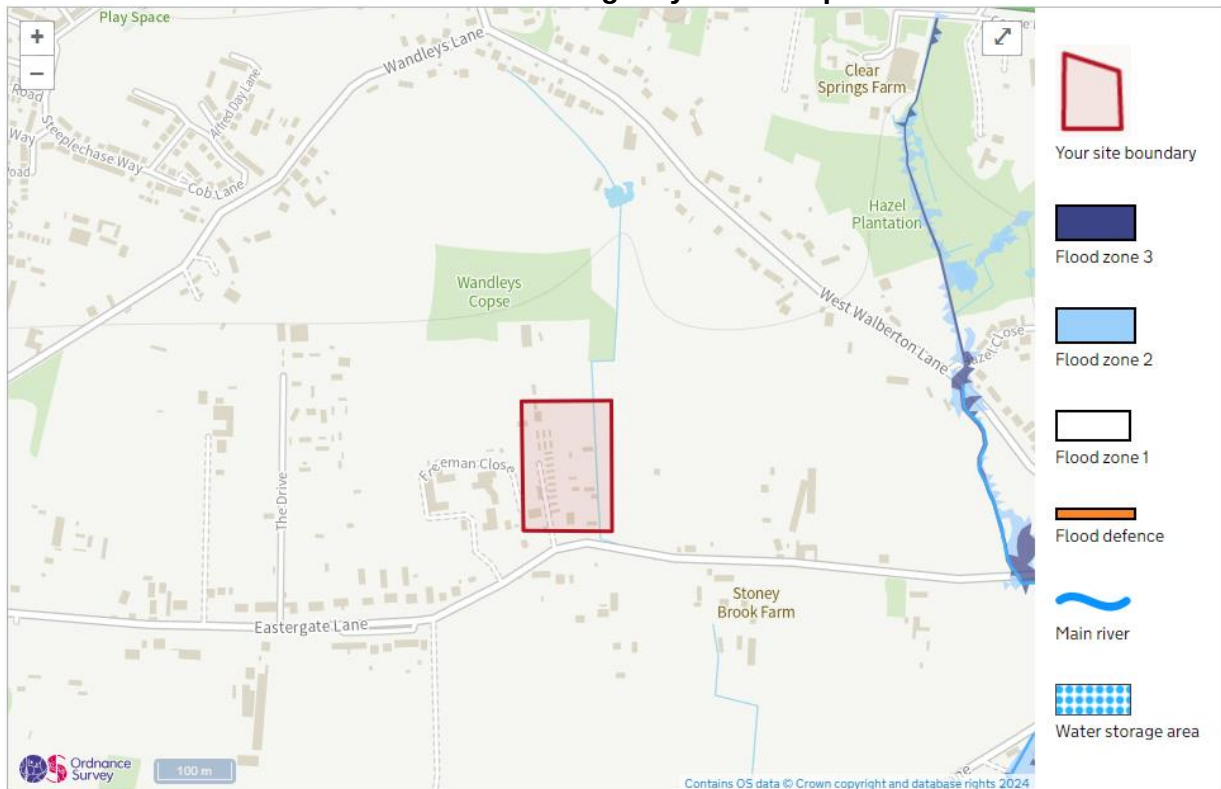
Geology Drift Map of the Area



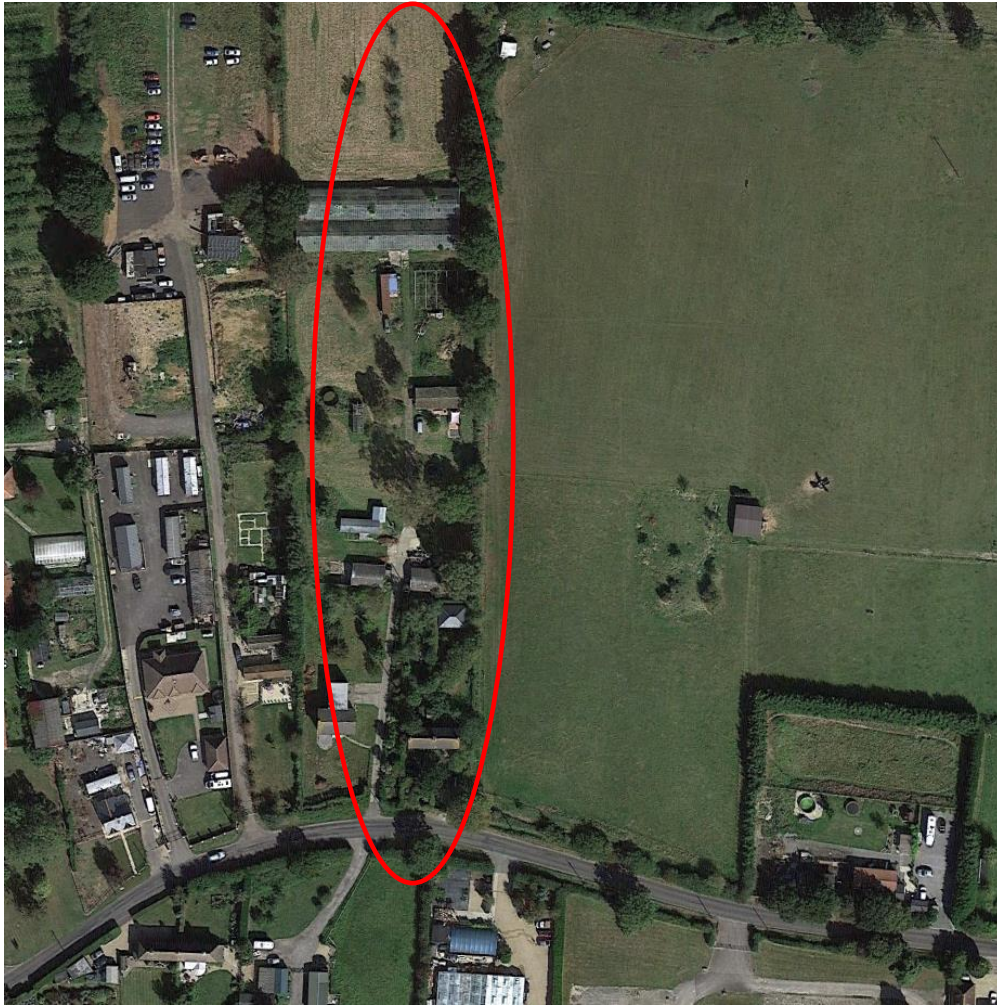
LIDAR Map of Site



Environment Agency Flood Map



Google Earth Aerial Photograph



Soil Colour Sample with Munsell Chart



Appendix 6

Land at Long Acres Nursery: Example Soil Auger Profiles and Site Photos



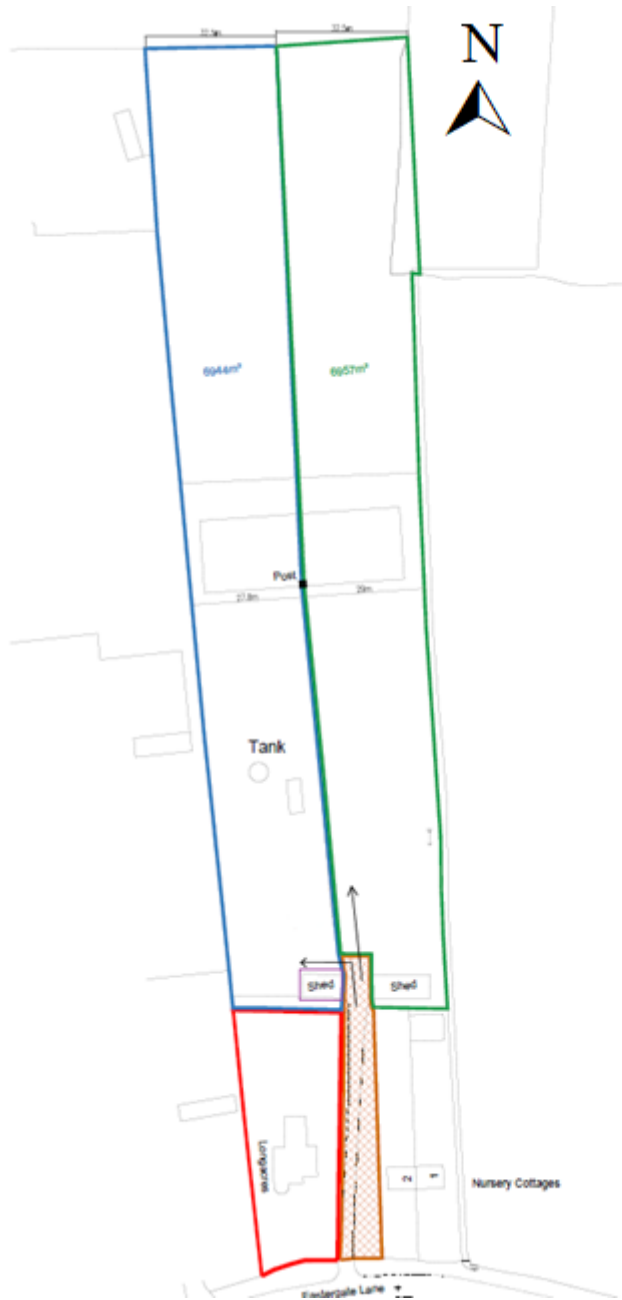
Desk Based Appraisal

Assessment of the existing geology, soils, land classification, climatic and topographic data from the following sources of information:-

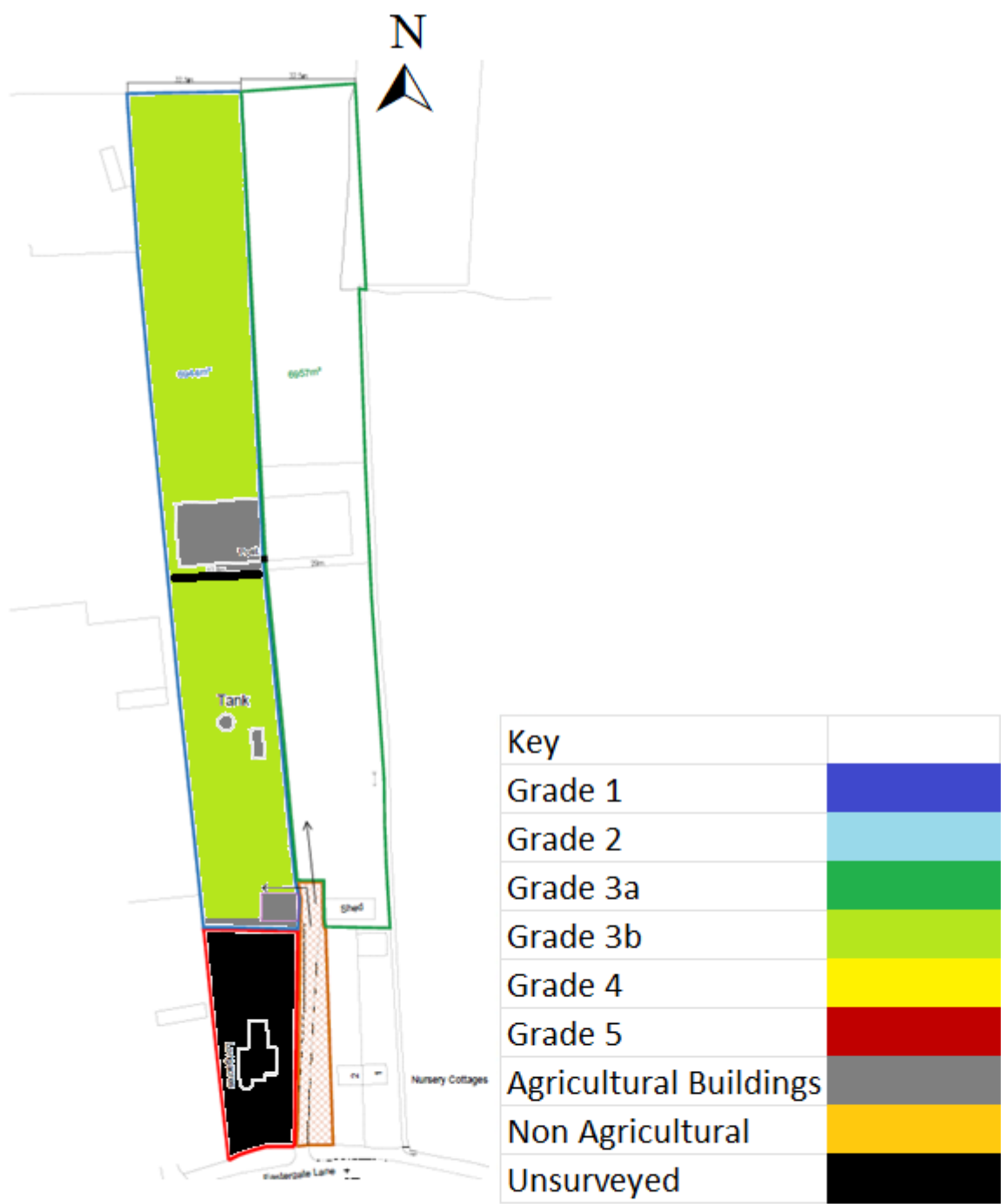
References

1. Ministry of Agriculture, Fisheries and Food (MAFF) 1988 Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land, London
2. Meteorological Office 1989 Climatological Data for Agricultural Land Classification, Bracknell
3. Ministry of Agriculture, Fisheries and Food (MAFF) 1973 Agricultural Land Classification Map (Provisional) Sheet Bognor 181
4. Soil Survey of England and Wales (1967) Soils of The West Sussex Coastal Plain, SSEW: Harpenden (JM Hodgson) Map and Book
5. Soil Survey of England and Wales (SSEW) 1983 Soils of England and Wales: Sheet 6, Soils of South East England (Map), 1984 Soils and their Use in South East England (Book)
6. Natural England (2012) Technical Information Note 049 (Agricultural Land Classification)
7. Geological Survey of Gt Britain (England and Wales), 1975. Sheet 317&332 Chichester and Bognor, Drift.
8. Soil Survey Field Handbook Describing and Sampling Soil Profiles: Soil Survey of England and Wales, Technical Monograph No. 5, 1997 (JM Hodgson).
9. Soil Classification for Soil Survey, Monographs on Soil Survey Butler, B E (1980) Clarendon Press, Oxford
10. Multi Agency Geographic Information for the Countryside (MAGIC).
11. LANDIS Soils Data Cranfield University National Soil Resources Institute Soils Report information
12. FRCA ALC Report and Map, Woodlands Farm, Slindon, Walberton Reference: EL 42/228C

Plan 1 Site Plan

[illegible]

Plan 2 ALC Grading



DEFINITION OF LAND CLASSIFICATION GRADES

Grade 1 - excellent quality agricultural land

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

Grade 2 - very good quality agricultural land

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

Grade 3 - good to moderate quality agricultural land

Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 or 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 cereal 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 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 high but there may be difficulties in utilisation. The grade also includes very droughty arable land.

Grade 5 - very poor quality agricultural land

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

Land in other categories

Urban

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

Non-agricultural

'Soft' uses where most of the land could be returned relatively easily to agriculture, including: golf courses, private parkland, public open spaces, sports fields, allotments and soft-surfaced

area on airports/airfields. Also active mineral workings and refuse tips where restoration conditions to 'soft' after-uses may apply.

Woodland

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

Agricultural Buildings

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

Open Water

Includes lakes, ponds and rivers as map scale permits.

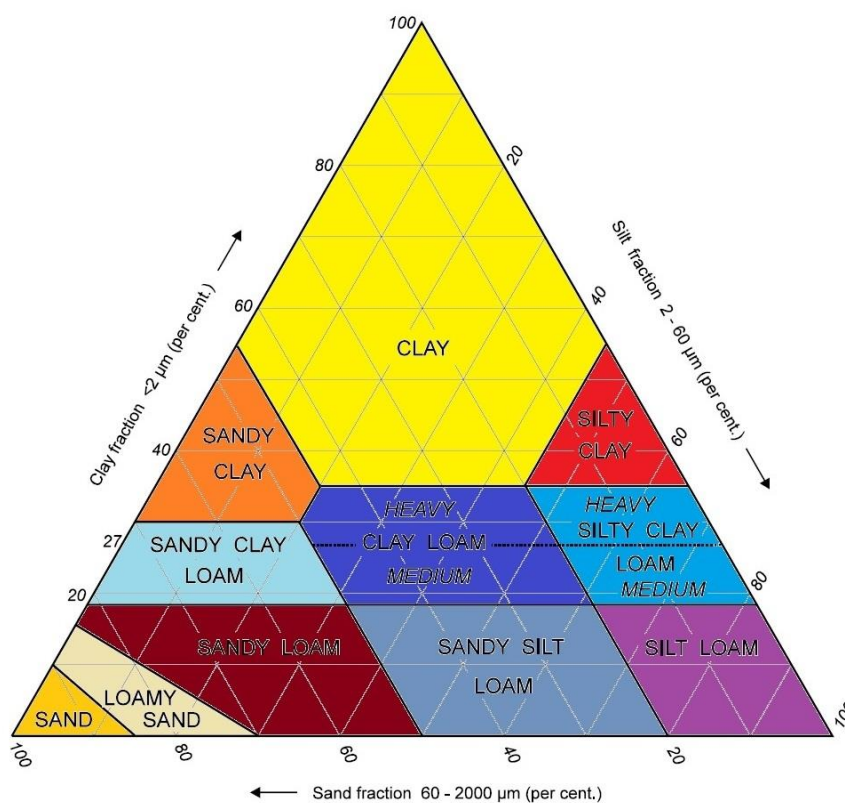
Land Not Surveyed

Agricultural land which has not been surveyed.

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

Soil Texture Triangle

MINERAL SOILS TEXTURE CLASSIFICATION



Texture abbreviations

C	clay	S	sand
HCL	heavy clay loam	LS	loamy sand
MCL	medium clay loam	SL	sandy loam
ZC	silty clay	SCL	sandy clay loam
HZCL	heavy silty clay loam	SC	sandy clay
MZCL	medium silty clay loam	SZL	sandy silt loam
ZL	silt loam		
f	fine grade	m	medium grade
c	coarse grade		
HP	humified peat	MP	mesic (semi-fibrous) peat
FP	fibrous peat		
calc	calcareous (containing >1% calcium carbonate)		

DEFINITION OF SOIL WETNESS CLASSES

Wetness Class	Duration of Waterlogging *
I	The soil profile is not wet within 70 cm depth for more than 30 days in most years.
II	The soil profile is wet within 70 cm depth for 31-90 days in most years <i>or</i> , if there is no slowly permeable layer within 80 cm depth, it is wet within 70 cm for more than 90 days, but not wet within 40 cm depth for more than 30 days in most years.
III	The soil profile is wet within 70 cm depth for 91-180 days most years <i>or</i> , if there is no slowly permeable layer 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 and 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 <i>or</i> , if there is no slowly permeable layer 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.

* the number of days specified is not necessarily a continuous period.

"in most years" is defined as more than 10 out of 20 years.

The calculation of Wetness Class assumes that the soils have an appropriate underdrainage system and that there are satisfactory outfalls. Additional land drainage measures would not improve the assessment.