

12.0 Agriculture

12.1 Introduction

This chapter of the ES assesses the likely significant effects of the proposed development on agricultural land and soils.

This chapter has been prepared by Reading Agricultural Consultants Ltd who have more than 50 years' experience of providing advice on agricultural, environmental and countryside issues and assessing the impacts of developments on agricultural land and soils.

The chapter is accompanied by the following Appendix (which includes figures of Provisional and Likely Agricultural Land Classification).

Appendices	Title
Appendix 12.1	Agricultural Land Quality

12.2 Scoping, Consultation and Overview of Potential Effects

As stated in *Chapters 1 and 2* of this ES, a formal Scoping Request has not been submitted to Havant Borough Council. The scope of the agricultural land assessment is based on an appraisal of the agricultural land quality of the site and experience of the likely significant environmental effects on agricultural land and soil arising from this type of development.

This ES Chapter includes an assessment of the following potential effects:

- The permanent loss of agricultural land, particularly best and most versatile (BMV) land; and
- The temporary and permanent effects on soil resources, particularly their continued ability to fulfil various ecosystem functions.

12.3 Assessment Methodology

12.3.1 Relevant Policy, Guidance and Best Practice

Paragraph 187 of the National Planning Policy Framework (NPPF) identifies the protection and enhancement of soils as a priority in the conservation and enhancement of the natural and local environment.

Paragraph 187 goes on to advise that planning policies and decisions should recognise the wider benefits from natural capital and ecosystem services, including the economic and other benefits of BMV agricultural land.

Paragraph 188 indicates that plans should allocate land with the least environmental or amenity value, where consistent with other policies in the NPPF. In respect of agricultural land, this means that where significant development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality.

Policy CS11 (Protecting and Enhancing the Special Environment and Heritage of Havant Borough) of the Havant Borough Core Strategy (2011) states that planning permission will be granted for development that (amongst other matters) protects the BMV agricultural land that has the greatest potential for local food security, with supporting text in paragraph 7.20 indicating that, although most of the Borough is urban in character, agriculture remains important in the non-urban areas and the Council will balance the need to allocate land for new development with the protection of the BMV land.

There are no direct policies for development involving agricultural land in the draft Local Plan (Building a Better Future Plan).

The Planning Practice Guidance (PPG) explains how planning can take account of the quality of agricultural land and safeguard soils. Reference is made to the ALC system which assesses the quality of farmland to enable informed choices to be made about its future use within the planning system. Planning policies and decisions should take account of the economic and other benefits of the BMV agricultural land. The guidance also confirms that Natural England has a statutory role in advising local planning authorities about agricultural land quality issues.

The PPG also highlights that soil is an essential natural capital asset that provides important ecosystem services such as a growing medium for food, timber and other crops, a store for carbon and water, a reservoir of biodiversity and a buffer against pollution. Reference is made to Defra's Construction Code of Practice which provides advice on the use and protection of soil in construction projects, including the movement and management of soil resources at all stages of the construction process. The sustainable use and management of soil resources during construction can help with the re-establishment of soil functions following their storage or movement, including food production, habitat provision and support, and natural cycling of elements such as carbon and nitrogen.

Relevant guidance includes Defra's Soil Strategy for England which seeks to encourage the sustainable management of soil resources. The Strategy sets out Defra's vision that by 2030 all of England's soils will be managed sustainably and degradation threats will be tackled successfully in order to improve soil quality and safeguard the ability to provide essential services for future generations. The Strategy sets out priorities for the better protection of agricultural soils; enhancing stores of soil carbon; building the resilience of soils to a changing climate; preventing soil pollution; protecting soils during construction and development; and dealing with the legacy of contaminated land.

Defra's Code of Construction Practice for the Sustainable Use of Soils on Construction Sites is a practical guide to assist the construction industry to protect the soil resources with which it works and achieve good soil management at all stages of the construction process. It advises that the protection, use and movement of soils should be considered from the outset of a development project's planning, through its design and construction phases and on into future maintenance and operation. The sustainable use and management of soil resources during construction can help with the re-establishment of soil functions following their storage or movement, including food production, habitat provision and support, and natural cycling of elements such as carbon and nitrogen.

The assessment has also had regard to IEMA guidance on assessing land and soil in EIAs, particularly in respect of recognising and assessing the various ecosystem services performed by soils.

12.3.2 Sensitivity of Receptors

Appendix 12.1 provides a statement of the quantity and quality of agricultural land on the site. Agricultural land in England and Wales is graded between 1 and 5, depending on the extent to which physical or chemical characteristics impose long-term limitations on agricultural use.

Grade 1 land is excellent quality agricultural land with very minor or no limitations to its use.

Grade 2 land is very good quality agricultural land, with minor limitations which affect crop yield, cultivations or harvesting.

Grade 3 land has moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield, and is subdivided into Subgrade 3a (good quality land) and Subgrade 3b (moderate quality land).

Grade 4 land is poor quality agricultural land with severe limitations which significantly restrict the range of crops and/or level of yields.

Grade 5 is very poor quality land, with very severe limitations which restrict use to permanent pasture or rough grazing.

BMV agricultural land comprises Grades 1, 2 and 3a.

The sensitivity of agricultural land is assessed according to its grade within the ALC, as set out in *Table 12.1*.

The impact on the soil resource is assessed according to the degree to which disturbed soil resources are re-used in a manner that enables the resource to fulfil one or more of the primary soil functions of:

- the production of food and biomass, and the provision of raw materials;
- the storage, filtration and cycling of water, carbon and nitrogen in the biosphere;
- the support of ecological habitats and biodiversity;
- support for the landscape;
- the protection of cultural heritage; and
- the provision of a platform for human activities, such as construction and recreation.

The sensitivity of the soil resource reflects its textural characteristics and its susceptibility to the effects of handling during construction and the re-instatement of land as shown in *Table 12.1*.

Table 12.1 Sensitivity of Agricultural Land and Soil Resources		
Sensitivity	Agricultural Land	Soil Resources
High	Grade 1	Peat soils and soils with high clay and silt fractions (clays, silty clays, sandy clays, heavy silty clay loams and heavy clay loams)
Medium	Grade 2 and Subgrade 3a	Silty loams, medium silty clay loams, medium clay loams and sandy clay loams

Low	Subgrade 3b and Grade 4	Soils with a high sand fraction (sands, loamy sands, sandy loams and sandy silt loams)
Negligible	Grade 5	N/A

12.3.3 Magnitude of Effect

The magnitude of effect on agricultural land is assessed according to the criteria set out in *Table 12.2*. The thresholds for determining the magnitude of effect have been derived taking into account the statutory consultation procedures with Natural England for development involving agricultural land.

The magnitude of effect on soil resources considers the continued ability of soils to fulfil their primary functions as set out in *Table 12.2*.

Table 12.2 - Magnitude of Effect on Agricultural Land and Soil Resources		
Magnitude	Agricultural Land	Soil Resources
High	Development would directly lead to the loss of over 50ha of agricultural land	The soil displaced from development is unable to fulfil one or more of the primary soil functions.
Medium	Development would directly lead to the loss of between 20ha and 50ha of agricultural land	The soil displaced from development mostly fulfils the primary soil functions off-site or has a reduced capacity to fulfil the primary functions on-site
Low	Development would directly lead to the loss of between 5ha and 20ha of agricultural land	The soil displaced from development mostly fulfils the primary soil functions on-site.
Negligible	Development would directly lead to the loss of less than 5ha of agricultural land	The soil retains its existing functions on-site.

12.3.4 Determining significance

The significance of effect is determined by combining the magnitude of effect with the sensitivity of the receptor, as shown in *Table 12.3*.

Table 12.3 - Significance Matrix for Agricultural Land and Soil Resources

		Receptor (Sensitivity / Value / Importance)			
		High	Medium	Low	Negligible
Nature of Effect	High	Substantial	Substantial	Moderate	Negligible
	Medium	Substantial	Moderate	Minor	Negligible
	Low	Moderate	Minor	Minor	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

Effects are described as:

- beneficial (positive) or adverse (negative);
- short, medium or long term;
- permanent (irreversible) or temporary (reversible);
- direct or indirect.

12.3.5 Assumptions and limitations

The assessment is based on a desk appraisal of agricultural land quality which has concluded that the majority of the site is BMV agricultural land. This assessment is therefore based on a reasonable worst case assumption.

12.4 Baseline Conditions

The bedrock geology is the London Clay Formation which mainly includes slightly calcareous blue-grey or grey-brown silty clay and sometimes silt, with some layers of sandy clay.

Superficial river terrace deposits of sand and gravel cover most of the site. Head deposits comprised of angular rock debris and other clayey material are mapped in the very north, in a band cutting across the middle of the grassland parcel and also to the south of Southleigh Road, running eastward. A small area in the north of the site has no mapped superficial deposits.

The Soil Survey of England and Wales soil association mapping shows the Park Gate association across most of the site. The main Park Gate soils include silty clay loam textures throughout. The soils are moderately permeable but are affected by high winter water tables, however with appropriate drainage they are only occasionally waterlogged (Wetness Class (WC) II).

The Wickham 3 association is mapped across the north of the site. The main series includes silty clay loam or clay loam textures over clay but locally where developed in coarser drift, the profiles include sandy silt loam textures over clay. The profiles are slowly permeable in the subsoil and mainly poorly drained in WC IV.

Provisional ALC mapping shows the site as Grade 1 in the west, Grade 2 in the south and Grade 3 in the north and north-east.

Detailed ALC survey data in the vicinity of the site has not identified any Grade 1 land as provisionally mapped. Available detailed soil data in areas mapped as having river terrace deposits and head deposits, and in areas mapped as both Park Gate and Wickham 3 soils over those deposits, has been consistently classified as Grade 2. The flatter land in the south is limited by soil wetness and the gently sloping land in the east is limited by soil droughtiness. It is assumed that this pattern continues across the site.

Survey data to the west of the site has identified land of Subgrade 3b quality associated with Wickham 3 soils where there is no superficial drift geology mapped, i.e. the soil is developed directly over the London Clay Formation bedrock.

From south of Southleigh Park House, in a band across the mid-slopes roughly between Brookvale in the west and Spencer Road in the east, the mapped data is the same and the land is likely to be Subgrade 3b.

Based on the available data and the relationships between the topography, geology and mapped soil types, it is estimated that approximately 64 ha of agricultural land on the site is classified as Grade 2 and 35 ha as Subgrade 3b, with the remainder of the site classified as non-agricultural land.

12.5 Embedded and Standard Mitigation Measures

12.5.1 Embedded Mitigation Measures

There are no measures available to mitigate the permanent loss of agricultural land to development. The use of BMV land for development needs to be considered in the context of the need for the development and the quality of agricultural land in the locality.

12.5.2 Standard Mitigation Measures

The primary measures to mitigate the impacts on soil resources would be set out in a Soil Resource Management Plan (SRMP), as set out in the Framework Construction Environmental Management Plan (CEMP), which is *Appendix 4.1* to the ES. The Framework CEMP sets out the mitigation measures proposed within the ES that will be developed within the detailed CEMP which will be secured by planning condition and delivered during the construction process.

The SRMP will confirm the different soil types (based on the soil surveys to be undertaken); the most appropriate re-use for the different types of soils; and the proposed methods for handling, storing and replacing soils on-site.

The aim of the SRMP will be to re-use as much of the surplus soil resources on-site in the detailed design of open spaces and green infrastructure. Any surplus soils will be disposed of in a sustainable manner (i.e. as close to the site as possible and to an after-use appropriate to the quality of soils) in accordance with Defra's Code of Practice for the Sustainable Use of Soils.

The quality of soils retained on-site and exported off-site (if required) would be maintained by following good practice guidance on soils handling and storage, particularly to avoid compaction and biodegradation of soils that are to be retained on-site in storage.

With the adoption of appropriate mitigation for the handling and restoration of soils, most soils will be able to continue their various ecosystem functions on- or off-site, principally as a medium for producing food and biomass; for storage and cycling of water and carbon; and for supporting habitats, biodiversity and landscape planting.

12.6 Assessment of Environmental Impacts

12.6.1 Construction Phase

Construction effects on agriculture relate primarily to the permanent loss of the agricultural land resource within the site. The proposed development would result in the loss of approximately 64 ha of Grade 2 (BMV) land and 35 ha of Subgrade 3b (non-BMV) land.

BMV quality agricultural land on the site is a resource of medium sensitivity from *Table 12.1*. The magnitude of effect on BMV land is assessed as high from *Table 12.2*. Therefore, in line with *Table 12.3*, the proposed development would result in a direct, permanent, **substantial adverse** effect on BMV agricultural land.

As soil is a finite resource that fulfils many important functions and services for society in addition to the production of food and fibre, it is important that soil resources are protected and used sustainably. During the construction phase of the development, damage to, and loss of, topsoil could occur if other dissimilar materials such as subsoil or other materials were stockpiled directly on it without a separating layer or possibly by poor work causing mixing of topsoil subsoil and other materials during stockpile placement or removal.

There is also a risk of long-term damage to soil structure, and the loss of potentially valuable soil, if there is uncontrolled trafficking of land and soil by heavy machinery, especially wheeled machinery. Biodegradation of topsoil would occur if it is compacted in storage, stockpiled when wet, if stockpiled in the medium to long-term, or covered by soil stores for significant periods.

Such risks would be mitigated by the standard mitigation measures set out above which follow good practice in the handling and re-use of soil resources. These measures will enable displaced soil to be re-used such that it can fulfil its primary functions and services on-site, leading to a low magnitude of effect from *Table 12.2*.

The soils on the site are predominantly moderately well drained silty clay loam topsoils which are assessed as being of medium sensitivity. The proposed development would therefore result in a direct, temporary, **minor adverse** effect on soil resources.

Table 12.4 - Summary of Impact Assessment – Construction Phase						
Receptor	Sensitivity/ Importance/ Value	Description of Impact	Inherent & Standard Mitigation Measures	Nature of Effect	Type of Effect	Significance of Effect
BMV agricultural land	Medium	Permanent loss	None available	High Adverse	Permanent Long-term Direct	Substantial Adverse
Soil resources	Medium	Displacement and re-use of resource	Soil Resource Management Plan	Low Adverse	Temporary Medium-term Direct	Minor Adverse

12.6.2 Occupation Phase

As the permanent removal of land from agriculture and the re-use of the soil resource would occur during the construction phase of the proposed development, there are no further effects to consider following the completion of construction.

12.7 Additional Mitigation Measures

No additional mitigation measures are proposed.

12.8 Residual Impact Assessment

As additional mitigation has not been proposed, residual effects will be as set out in *Section 12.6*.

12.9 Cumulative Impact Assessment

The additional land within the allocation but outside the application boundary is considered in the cumulative assessment, along with five other developments in the locality. The additional land within the allocation is likely to include an additional 22 ha of Grade 2 land, and land west of Coldharbour Farm and land east of St Georges Avenue are also likely to involve the loss of approximately 8 ha of Grade 2 land. The magnitude of effect of the proposed development with the wider allocation and other neighbouring developments would be high on a receptor of medium sensitivity, giving rise to a cumulative direct, permanent, **substantial adverse** effect on BMV agricultural land.

12.10 Summary

This chapter considers the effects of the proposed development on agricultural land and soils.

The data used to inform this assessment was taken from a desk appraisal of soil and agricultural land quality. This appraisal found that the soils comprise mostly Park Gate soils with Wickham 3 soils to the north. The Park Gate soils are moderately well drained silty clay loams and likely to be classified as mostly Grade 2, whereas the Wickham 3 soils in the north are silty clay loam or clay loam over slowly permeable clay and likely to be Subgrade 3b.

Approximately 64 ha in the site is likely to be BMV land in Grade 2, with 35 ha classified as Subgrade 3b and the remainder as non-agricultural land.

The Grade 2 BMV land is a receptor of medium sensitivity. The magnitude of effect on BMV land is assessed as high and therefore the proposed development would result in a direct, permanent, long-term, **substantial adverse** effect on agricultural land.

Following best practice guidance on soil handling and storage and reusing the soils in an appropriate manner as part of the standard mitigation measures will enable the displaced soil to fulfil its primary functions and services on-site, leading to a low magnitude of effect and a direct, temporary, **minor adverse** effect on soil resources.