8.0 Soils & Agriculture

8.1 Introduction

This chapter has been prepared by Reading Agricultural Consultants (RAC) and identifies and quantifies the effects of the proposed development on agriculture and soils. The quality of the agricultural land and a description of the soil resources that would be affected are reported, along with a description of the use made of the agricultural land. The proposed development occupies a site of 114 ha of which 84 ha are agricultural land.

The chapter is accompanied by the following figure and appendix.

Figures	**Title**
Figure 8.1	Agricultural Land Quality
Appendices	**Title**
Appendix H1	Soil Resources (Reading Agricultural Consultants Report March 2015)

8.2 Scoping and Consultation

The Scoping Report (*Appendix B1*) stated that the predicted impacts of the proposed development on soil resources, agricultural land quality and agricultural circumstances would be addressed in the environmental assessment.

Natural England has been consulted by West Berkshire Council on the scope (see *Appendix B2*) and in its response has stated that consideration should be given to national policy for the protection of best and most versatile (BMV) agricultural land (i.e. land within Grades 1 and 2 and Subgrade 3a of the national Agricultural Land Classification[1]). It also recommended that consideration be given to the sustainable use of land, and to the ecosystem services provided by soils as a natural resource.

This chapter considers the receptors of soil resources from the perspective of their physical characteristics and the environmental functions performed by them, and of agricultural land, particularly that of BMV quality and prevailing land use circumstances. The potential effects of the proposed development to be considered are primarily those relating to the degree to which soil resources and agricultural land will be disturbed or lost either temporarily or permanently, and the extent to which adverse effects can be minimised with reference to prevailing best practice relevant to the handling of soil resources in construction projects.

The assessment of the effects of the development proposals has had regard to three principal sources of baseline information; namely a Soil Survey of England and Wales (SSEW) 1:250,000 scale national map of soil associations[2] and an associated regional technical

[1] Natural England (2012) Technical Information Note TIN 49 Agricultural Land Classification: protecting the best and most versatile land.

[2] Cranfield University (2001) The National Soil Map of England and Wales 1:250,000. Cranfield University: National Soil Resources Institute

bulletin[3], detailed surveys and mapping of agricultural land quality on the Sandleford Park site and other sites in the Newbury area provided by the Ministry of Agriculture, Fisheries and Food (MAFF) (1994)[4], and direct interviewing of the party responsible for the agricultural management of the site. The approach adopted for the assessment has been that widely followed by practitioners in the field and which has been generally tested and accepted in planning decisions.

Further to the preparation of the Scoping Report it was established that the agricultural land affected by the proposed development is not part of an on-going farm business but is managed under contract pending the development of the site. A conventional assessment of farm impact is, therefore, unnecessary and is not pursued in the Chapter, except by means of general reference to prevailing land management circumstances.

8.3 Assessment Methodology

8.3.1 Policy Context

The general approach adopted in the assessment has been derived from the current planning advice from central and local Government on the treatment of development proposals affecting agricultural land.

These provide qualitative guidance to enable weight to be attached to them in differing circumstances. In respect of both receptors, the considerations to be addressed in assessing the effects of development proposals are the quantities and qualities of the receptors involved either temporarily or permanently.

The land use planning context is provided primarily by paras 118 and 170 of the *National Planning Policy Framework* (NPPF[5]). This requires new development proposals to have regard to the opportunities to utilise previously developed land, to the multifunctional capabilities of undeveloped land, and to the qualities of agricultural land and soils.

The inherent quality of soil, as distinct to its agricultural value, is recognised in the Government's policy document *'Safeguarding our Soils: A Strategy for England'* (2009[6]) which sought to encourage the more sustainable management of soil resources. This was emphasised in the White Paper *'The Natural Choice: securing the value of nature'* (CM8082 2011[7]). There is a general imperative which seeks to ensure the proper consideration of soil implications during the planning and development process, and to reduce the effects of the construction and development sectors on the long-term functioning of soils. In the specific context of construction effects, the Government issued a *'Construction Code of Practice for the Sustainable Use of Soils on Construction Sites'* (2009[8]). This encourages the

[3] Soil Survey of England and Wales (1984) Soils and their use in South East England. Bulletin No 15

[4] Ministry of Agriculture, Fisheries and Food (1994) Newbury District Local Plan. Site 54: Sandleford park. Agricultural Land Classification. Summary Report

[5] Department for Communities and Local Government (2019) National Planning Policy Framework

[6] Department for Environment, Food and Rural Affairs (2009) Safeguarding our Soils: A Strategy for England

[7] Department for Environment, Food and Rural Affairs (2011) The Natural Choice: securing the value of nature. CM 8082

[8] Department for Environment, Food and Rural Affairs (2009) Construction Code of Practice for the Sustainable Use of Soils on Construction Sites

consideration of the protection, use and movement of soils throughout the planning, design, construction and maintenance phases of development projects.

This background is reflected in the NPPF (paragraph 170) which promotes the view that the planning system should contribute to and enhance the natural environment by protecting and enhancing, among other factors, soils. The emphasis is on safeguarding the ability of soils to deliver a range of ecosystem services and functions, including food production, carbon storage, water filtration, flood management and support for biodiversity and wildlife.

With regard to food production, particular reference is made to the value of land of best and most versatile agricultural quality and to the preference for the use of poorer quality land where significant development of agricultural land is demonstrated to be necessary.

The relevant development plan is the '*West Berkshire Core Strategy'* (2012[9]). This contains no policies specific to the agricultural and soils topic. However, against the general context of the NPPF, the Core Strategy has specifically identified the site as being located within a Strategic Site Allocation (Policy CS3). The plan recognises that the allocation is subject to a number of important environmental constraints to development, and the main environmental resources are identified for retention or expansion within an extensive Country Parkland. There is no proposal for the retention of land within the allocation for agricultural purposes.

Detailed information on the soil resources and agricultural land quality affected by the development was available to the local planning authority at the time of the assessment of the suitability of the location for substantial development. These issues were not specifically part of the assessment criteria used for site selection, or in the strategic environmental assessment of the allocation option; other than in a very general sense. In terms of soil quality, the impact assessment was neutral.

8.3.2 Fieldwork

A detailed Agricultural Land Classification (ALC) survey was undertaken at the site by the former Ministry of Agriculture, Fisheries and Food (MAFF) in 1994.

RAC undertook a sample site survey to verify the findings of the MAFF survey in respect of soil types, physical limitations to capability and the conclusions in relation to agricultural land quality. The results of this survey are shown in *Appendix H1*.

8.3.2 Assumptions and Limitations

The key assumptions made in undertaking the assessment of the effects of the proposed development on agricultural and soils issues are that the permanent loss of soil resources will be minimised, and their functional capabilities retained as far as possible consistent with the requirements of the development. Furthermore, soil resources disturbed either temporarily or permanently by the development will be handled and utilised in a manner which conserves their capabilities. There are no critical information gaps which constrain the assessment.

[9] West Berkshire Council (2012) Core Strategy

8.3.3 Assessment Criteria

The criteria developed to assess the effects of the proposed development relate to two receptors; soil resources in general and agricultural land in particular. Both receptors are sensitive to changes associated with development, but the sensitivity varies in relation to their particular value relative to the functions they perform. Those may be of international, national or local importance and the following categorisation has been adopted:

Table 8.1 - Sensitivity of receptors

Receptor importance	Sensitivity
Receptor of international/national importance present at the application site	High
Receptor of regional/county importance present at the application site	Medium
Receptor of local importance present at the application site	Low
Receptor of very local / no international importance present at the application site	Negligible

In reaching a judgement as to where to place soil resources and agricultural land within this categorisation there is little guidance. All soils perform some useful functions and land use policy makes no distinction between soils of varying types. The importance attaching to particular soils will, therefore, relate to the significance of their attached functions, their physical characteristics, and location.

In relation to agricultural land, national land use policy places an emphasis on agricultural land of Best and Most Versatile (BMV) quality to which, in principle, some significance must therefore attach. As the policy objective is always to direct development to the lowest possible quality of land, there is, therefore, a sensitivity distinction. Land of Subgrade 3b and Grades 4 and 5 must be of low or negligible sensitivity, while within the BMV category, the very best land (Grade 1) must have a higher sensitivity than that of Grade 2 and Subgrade 3a land, and accordingly be separated by High and Medium sensitivity ratings.

In terms of the impacts of the proposed development on the two receptors, these are primarily concerned with the quantities of the resources required either temporarily or permanently in its implementation, or the extent to which the functional capabilities or value of the resources are impaired. The agricultural capabilities of soils are captured within the Agricultural Land Classification and assessed in this context. The assessment of soil functions is concerned with more general environmental capabilities, particularly their role in water management and support for biodiversity.

For soil resources, the criteria for assessing the magnitude of changes introduced by the proposed development are as follows:

Table 8.2 - Magnitude of Change (Soils)	
Soil Resources	**Magnitude**
The proposed development would directly lead to the loss of all soil functions	High
The proposed development would directly lead to the loss of some, but not all, soil functions	Medium
The proposed development would reduce but not remove soil functions	Low
The proposed development would have no permanent effect on soil functions	Negligible

Although there is no specific guidance on the magnitude of losses of agricultural land which might be deemed significant, some assistance is provided by the *Town and Country Planning (General Development Procedure) Order* (2015[10]) which requires local planning authorities to consult the Department for Environment, Food and Rural Affairs (DEFRA) about any planning application that is not in accordance with the local development plan, and would involve the loss of 20 ha or more of best and most versatile quality farmland. In this context, the criteria for assessing the magnitude of the changes introduced by the proposed development are as follows:

Table 8.3 - Magnitude of Change (Agricultural Land)	
Soil Resources	**Magnitude**
The proposed development would directly lead to the loss of over 50 ha of BMV land	High
The proposed development would directly lead to the loss of between 20 and 50 ha of BMV land	Medium
The proposed development would directly lead to the loss of less than 20 ha of BMV land	Low
The proposed development would have no permanent effect on BMV land	Negligible

The above considerations of sensitivity and magnitude of change are assessed in respect of the degree to which their combination produces a degree of effect which is significant. The matrix in the following table indicates how the two considerations are combined:

[10] Town and Country Planning, England 2015 No 595. Town and Country Planning (General Development Procedure) Order (2015)

Table 8.4 - Significance matrix

		Receptor Sensitivity			
		High	**Medium**	**Low**	**Negligible**
Magnitude of Impact	**High**	Substantial	Substantial	Moderate	Negligible
	Medium	Substantial	Moderate	Minor	Negligible
	Low	Moderate	Minor	Minor	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

8.4 Baseline Conditions

The relevant baseline factors are those of the topographic, drainage, climatic and soil resource characteristics of the site. The interaction of these is the basis of the classification of the capability of the land as an agricultural resource.

The site extends to around 114 ha, predominantly comprising agricultural land. Much of the land is in arable use with some small areas of permanent grassland. Several large pockets of woodland are dispersed throughout the application site, through which a valley also curves from north-west to south-east, containing a river tributary. Flanking the river, the land is boggy forming a functional floodplain. A subordinate valley system also originates in the north-east connecting with the main tributary in the approximate centre of the site. This drainage network discharges into the River Enborne on the southern boundary of the site.

8.4.1 Topography

Topography is complex. In the north and west, much of the land is largely level, siting at around 120 m above Ordnance Datum (AOD). Generally convex slopes fall from the north to the major and minor river tributaries at 110 AOD, although there are microtopographic patterns including concave areas of slope, particularly at the sources of the tributaries. From the west, a concave slope falls fairly uniformly to the river in the south-east from 120 m AOD to 90 m AOD.

8.4.2 Published Data

The principal underlying geology mapped by the British Geological Survey[11] is that of the London Clay Formation, comprising poorly laminated, slightly calcareous silty clay, clayey silt or sometimes silt, with some layers of sandy clay. At the highest elevations across the flatter land, the London Clay is overlain by superficial deposits of the Silchester Gravel member, comprising variable clayey or sandy gravel. To the south, in conjunction with the River Enborne, superficial alluvium is mapped and may include clay, silt, sand and gravel.

[11] British Geological Survey. Geology of Britain viewer. http://bgs/ac.uk/data/mapViewer/home.htm

The Soil Survey of England and Wales soil association mapping shows the Sonning 1 Association to be present to the north of the site. Sonning soils are described as being characterised by flinty, coarse loamy and gravelly profiles. The soils are well drained and of wetness Class (WC) 1.

In the south of the site, the Wickham 3 association is mapped. Wickham soils develop in fine loamy or fine silty drift over clay. Profiles are described as poorly permeable and seasonally waterlogged, commonly WC IV.

8.4.3 Soil Characteristics and Agricultural Land Classification

Soils present across the arable land in the site mostly comprise sandy loam or medium clay loam topsoil of 29 cms average thickness. Colour varies from very dark brown to dark greyish brown. Few roots and few pores are present in the topsoil which has a moderately well-developed medium to coarse subangular blocky structure. The most notable feature of the topsoil is stoniness, which is commonly between 20 to 30% by volume.

Subsoil was not regularly able to be observed with the auger due to increasing stone content at depth. A pit excavated in a characteristically stony area showed that from around 60 cms depth, the profile comprises around 60% gravel within a medium clay loam matrix. Where auger observation of the subsoil was obstructed by stones, it has been assumed that a similar gravelly layer is present at depth.

Where subsoil could be observed with an auger, it was found to comprise medium clay loam. The subsoil contains ochreous mottles, typically fine and faint in character, but which indicate intermittent periods of soil wetness. Although sometimes gleyed, depending on the soil colour, the clay loam subsoil is permeable. These profiles are well drained of WC 1,and are predominantly limited in their agricultural capability by stoniness and droughtiness, in agreement with the finding of the MAFF ALC survey of 1994.

The second soil variant is similar in many characteristics with the first, the primary differences being stone content and drainage. Topsoil comprises sandy loam and medium clay loam, which is dark greyish brown or very dark grey, but is only slightly stony or stoneless (up to 5% by volume). Coarse subangular blocky peds are also formed.

The topsoil has an earthy, organic aroma and indeed the organic matter content is fairly high, at 8 to 8.9%, which is also reflected in low pH (5.4 to 5.8). These topsoils are considered organic mineral soils.

Subsoil is medium clay loam, or clay where distinguishable as a lower subsoil horizon, which is mostly brown (10YR5/3) with light olive brown also present (2.5Y5/3). Ochreous mottles are more common and more prominent in this soil variant and the profiles of WC II, or III to IV, depending on whether clay is absent or present respectively.

The profiles of WC II, although theoretically better drained, are located in low lying areas characterised by wetland flora. The topsoil is strongly malodorous due to prolonged waterlogging causing the soil to become anaerobic.

The quality of the agricultural land in the site has been assessed in accordance with a methodology prescribed by MAFF[12] in 1988,and endorsed by Natural England in *Technical Information Note TIN 49*. The ALC system considers the interactive effects of soil. Land and climate as placing long term physical limitations on the productive capabilities of land for agricultural purposes.

The agricultural land within the site was assessed by MAFF as falling within Grades 2 to 4 of the ALC. The limitations affecting the grading of the land included soil wetness, soil droughtiness, topsoil stoniness and gradient. RAC undertook a sample site survey to verify the findings of the MAFF survey in respect of soil types, physical limitations to capability and the conclusions in relation to agricultural land quality. The results of this survey are included at *Appendix H1* and support the MAFF survey findings which are adopted.

The majority of the agricultural land within the site is classified as Subgrade 3a (good quality land) and Subgrade 3b (moderate quality land). The main limitation to their quality of the land in these grades is soil droughtiness due to varying stone contents in the soil profile which limit water availability for crops. Occasionally, stone content in the topsoil is sufficient on its own to limit land to Subgrade 3b. There are also some limitations due to soil wetness where slowly permeable clay horizons in the soil profile impede drainage.

The shallow valley through the centre of the site comprises land of Grade 4 quality (poor quality) due to a soil wetness limitation reflecting high groundwater levels and seepage.

Two small areas of Grade 2 (very good quality land) land have been identified. In these areas were very slight limitations of either soil wetness (associated with slowly permeable clay horizons in the soil profile) or droughtiness (due to stone content restricting profile water availability). RAC's soil survey was unable to replicate MAFF's soil observations for these areas, but this is not considered to conclusively demonstrate an absence of Grade 2 quality land.

Land of BMV agricultural quality extends to approximately 28ha, with poorer quality (Subgrade 3b and 4) agricultural land and non-agricultural land predominating (some 75% of the total application site. The distribution of the grades of agricultural land within the site is shown on *Figure 8.1* and set out in *Table 8.5*.

[12] 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

Table 8.5 - Distribution of agricultural land quality in the site			
Grade	**Description**	**Area (ha**	**% of Agricultural land**
Grade 2	Very good quality	3.6	4.3
Subgrade 3a	Good quality	24.6	29.2
Subgrade 3b	Moderate quality	48.2	57.2
Grade 4	Poor quality	7.8	9.3
Total agricultural		84.2	100
Best and most versatile	Grades 2 and 3a	28.2	
Non-agricultural	Woodland	29.8	
Total area		114.0	

Where BMV agricultural land is involved in land use decisions, the NPPF requires that account is taken of the economic and other benefits deriving from it. The economic value of the better-quality land is limited by its relatively small extent and the dispersed nature of its distribution. No single field unit is wholly comprised of BMV quality land. Consequently, agricultural land use in the site is determined by the capabilities of the moderate and poorer quality land, rather than the high value and more demanding cropping associated with the inherent capabilities of BMV land. Given the long history of development proposals affecting the locality, the land interests have already largely adjusted their future affairs in anticipation of development. The majority of the site is contract farmed on their behalf. There are, therefore, no particular current or prospective economic benefits deriving from the presence of the relatively small quantity of BMV land, and a specific assessment of the implication of the proposed development on the affected land interests is considered to be unnecessary.

Since national policy makes a distinction between BMV quality land and agricultural land of lower quality, it is implicit that BMV agricultural land is a sensitive receptor. However, in the circumstances of the site, its fragmented distribution and limited extent reduces its significance to one of no greater than County relevance.

The non-agricultural capabilities of the soil resources of the site relate primarily to their functions with land drainage and biodiversity.

A central stream system drains southwards through the site to the River Enborne. This is fed by surface water flows from the surrounding agricultural land and localised springs. The Wickham association soils have slowly permeable, clayey subsoils leading to poor water infiltration and rapid runoff and excess rainwater or seasonal water logging. The clayey nature of the soils renders them highly susceptible to structural damage from compaction and smearing by inappropriate or poorly timed mechanical disturbance, which further reduce their restricted water holding capabilities.

As the majority of the site comprises agricultural land subject to varying degrees of intensity of use, the current biodiversity value of the associated soils is likely to be similarly varied. Wickham association soils in the region are typically associated with mixed deciduous woodland, acid grassland, wet and humid heathland and small valley mires. Elements of these habitats are present on the site and the soil resources play a support role in maintaining the biodiversity of these areas. These issues are discussed in detail in *Chapter 6*. The soil resources form an important component of these areas and their interconnections making them a sensitive receptor of at least County importance in this respect.

8.5 Mitigation Measures

8.5.1 Inherent Mitigation Measures

The main elements of the proposed development are the creation of areas of hard development (primarily residential areas and associated infrastructure), and of soft development associated with the Green Infrastructure (primarily the Country Park).

Both elements exclude agricultural land use, the hard development permanently, and the soft development permanently other than in extreme changes of circumstances. In terms of the soil resources affected by the proposed development, the design process seeks to minimise the disturbance to, and loss of, those resources either by in situ retention or by conservation and appropriate re-use.

Within the hard development areas, soil resources will be disturbed and/or displaced. Those resources will be conserved and utilised in the green infrastructure of gardens, green spaces and areas associated with highways and other supporting infrastructure. As such, those resources will continue to perform some of their existing land drainage and biodiversity functions. It is assumed that affected resources will be absorbed within the detailed design of the development such that there is no necessity to dispose of soil material off the site.

8.5.2 Standard Mitigation Measures

Standard mitigation measures relate almost solely to the handling and conservation of soil resources, with the objective of minimising the disturbance to, and loss of, soil functions. Soil disturbance will be managed in accordance with best practice as set out in the Code of Practice for the Sustainable Use of Soils on Construction Sites.

The Code of Practice requires that, where it is necessary to disturb soils either permanently or temporarily, this is done using appropriate handling equipment during favourable weather and ground conditions. Provision will be necessary within construction areas for the temporary storage of displaced soils, which will subsequently be allocated to their final destinations, again using appropriate equipment and during favourable conditions. The primary objective will be to minimise structural damage to the soils and to maximise the retention of their inherent characteristics, particularly their water holding capabilities to enable their continued contribution to the attenuation of surface water movements within the site.

The use of best practice in soil handling is particularly relevant to the soil resources naturally present on the hard development areas. These are predominantly clay textured soils, some with impeded drainage characteristics. Soils of these textures are sensitive to damage from unprotected construction activity and/or poor handling. They are readily damaged by compaction and smearing which require lengthy remedial intervention to remedy.

The principles of best practice will be incorporated into a Construction Environmental Management Plan (CEMP) for the proposed development, a draft version of which is included in *Appendix D1*.

Subject to appropriate handling of soil resources during the construction phase, further mitigation at the occupation phase should be unnecessary.

8.5.3 Actionable Mitigation Measures

Subject to the measures for the safeguarding of soil resources set out in the Government's Code of Practice being incorporated in the CEMP, there should be no requirement for further mitigation measures.

8.6 Assessment of Environmental Impacts

8.6.1 Impact Assessment

This section sets out the assessment of effects of the proposed development on soil resources and agricultural land if inherent and standard mitigation measures referred in the previous section to are implemented. Effects are described with reference to the construction phase of the development and to circumstances post-completion.

Construction Phase

The phased introduction of the hard development proposed for the site will cause the progressive disturbance and loss of soil resources and agricultural land. This development is concentrated in two areas in the north of the site separated by the valley feature crossing it and the main areas of woodland. The area of separation is that proposed as a country park. Although agricultural uses will be removed from the parkland area, the soil resources and their inherent agricultural capabilities will be largely retained. Permanent effects will, therefore, be restricted primarily to the two core development areas.

During construction, the majority of the soil resources on the areas of hard development will experience disturbance as a consequence of ground remodelling and building and engineering works. As such they will cease to perform their current agricultural, land drainage and other environmental functions. The construction process will, however, retain soil resources on the development areas where they will be incorporated into the urban design. The construction phase will, therefore, involve the temporary effects associated with the movement, storage and reinstatement of soil resources. Reinstatement within garden areas, curtilages of public facilities and infrastructure, and open spaces will retain some of the current land drainage and environmental functions performed by soils.

The primary effect of the construction phase will be the permanent removal of land from agricultural use. This is predominantly concerned with land of moderate agricultural capability (Subgrade 3b),but will also affect a small area of BMV quality land as shown in *Table 8.6*.

Table 8.6 – Land affected by hard development		
Grade	**Description**	**Area (ha)**
Grade 2	Very good quality	3.6
Subgrade 3a	Good quality	5.3
Subgrade 3b	Moderate quality	20.6
Grade 4	Poor quality	0
Total agricultural		29.5
Total BMV	Grade 2 and 3a	8.9
Non-agricultural		0.2
Total area		29.7

The BMV quality land affected is not regarded as being of national importance and the magnitude of loss is low. Although loss of BMV quality agricultural land is implicitly significant in terms of national land use policy, the effect is, in the current circumstances, **minor adverse** and permanent.

The temporary disturbance of the soil resources directly affected by construction areas is an effect of secondary importance, since the effect is mitigated by the reinstatement and re-use of the majority of the soils within the design of the development. Soils within Crook's Copse, an area of ancient woodland encompassed within an area of urban development, will be undisturbed with the retention of their biodiversity value. However, as there will be widespread disturbance to soils during construction with adverse effects on their natural functions, this will temporarily be a moderate to high magnitude of change, which will reduce to a low magnitude permanently as some functions return to reinstated soils.

The cumulative direct and temporary disturbance of soil resources through the construction phase will represent a change of high magnitude. However, by the completion of the construction phase, a very large proportion of the directly affected soils will have been conserved and re-used. Additionally, some of the most important resources from a biodiversity perspective will have been safeguarded from disturbance. Soil functions will, therefore, have been reduced but not entirely removed. The assessment of the effect is **minor adverse**.

Within the proposed country parkland area, there will be the exclusion of the current agricultural activity, but the soil resources and inherent agricultural capability will be largely retained. The removal of agricultural land uses will not affect the agricultural quality of the land but, since the proposed non-agricultural uses of the parkland are intended to be of a permanent nature under foreseeable circumstances, the change is assessed as a loss of agricultural land. The extent of BMV land (19.6 ha) sterilised by the parkland proposal is assessed as an effect of **minor adverse** significance.

The soil resources of the parkland area are largely undisturbed by the proposed uses and will continue to perform their existing environmental functions, except for those of agricultural capability. Adverse effects during the construction phase will, therefore, be negligible.

However, the change of use from agriculture to parkland envisages a very substantial enhancement of the landscape and conservation values of the area. Over time there will, therefore, be an increase in the biodiversity contributions supported by the soil resources. These are discussed in the Ecology Chapter. This will be an effect of a **minor beneficial** significance and will, therefore, counterbalance the effect of the removal of access to the agricultural capabilities of the soils.

Table 8.7 - Summary of Impact Assessment – Construction Phase						
Receptor	**Sensitivity**	**Description of Impact**	**Inherent & Standard Mitigation Measures**	**Impact Magnitude**	**Type of Effect**	**Significance of Effect**
Soil	Medium	Reinstatement and re-use of resource within urban design of hard development areas	Application of appropriate soil handling methods	Low Adverse	Permanent	Minor Adverse
Soil	Medium	Small scale disturbance with Country parkland area	Control of construction activity to minimise disturbance, application of appropriate soil handling methods, and change of land use to promote support to landscape and biodiversity objectives	Low Beneficial	Permanent	Minor Beneficial
Agricultural land	Medium	Universal loss of BMV agricultural land within hard development areas	Minimise scale of loss in planning and design process	Low Adverse	Permanent	Minor Adverse
Agricultural land	Medium	Universal loss of access to agricultural capability within Country parkland area	Inherent agricultural capability retained within soil resources	Low adverse	Permanent	Minor Adverse

Occupation Phase

In terms of the operational activities associated with the proposed land uses, there will be no residual agricultural land within the site to be affected by indirect considerations, notably interference with farming operations arising from the new residential population.

Similarly, the majority of the undisturbed soil resources will be retained within managed green environments which will safeguard their functional capabilities for the long term.

8.6.2 Residual Impact Assessment

As no actionable mitigate measures are proposed, the residual effects are as set out in the previous section.

8.7 Cumulative Impact Assessment

8.7.1 Sandleford Park West Impact Assessment

Development at Sandleford Park Westwould not introduce new significant effects. The soil resources have a similar function character to those within the site and no additional land of BMV agricultural quality is affected.

8.7.2 Cumulative Impact Assessment

On a wider basis, the Newbury area presents a variety of geological conditions comprising a mix of bedrock and overlying superficial deposits, mainly sands and gravels. These form the parent materials of the soil resources and conditions are variable over relatively short distances. This variability is reflected in the value and capabilities of the soil and agricultural land resources.

Insofar as there may be particular environmental functions performed by the soil resources on land around Newbury which are consistent with those present within the Sandleford Park SSA, there is no comprehensive information available. It is, however, a reasonable assumption that soils will contribute in a general sense to issues of land drainage and biodiversity.

In terms of the agricultural capabilities of the soil resources, the agricultural land adjoining the edges of Newbury and neighbouring urban areas is predominantly moderate quality (Subgrade 3b) land. This is interspersed with small areas of higher quality (Grade 2 and Subgrade 3a) land[13].

Most of the relevant proposals for inclusion in the cumulative impact assessment are within the urban fabric of Newbury, and even where they are comparable land, theyare in non-agricultural uses. The main areas of agricultural land affected by development proposals are to the west and north of the built-up area at Speen, Donnington and Shaw. These sites are all predominantly of moderate quality (Subgrade 3b), but at Speen some 2.5 ha of Subgrade 3a land is affected, and at Donnington some 13.5 ha of Grade 2 and Subgrade 3a land. The

[13] Multi-Agency Geographical Information for the Countryside (MAGIC). Post 1988 Agricultural Land Classification data for the Newbury area. www.magic.gov.uk

cumulative loss of BMV land in the proposals identified represents an effect of **minor adverse** significance. Insofar as development is proposed to the immediate west of the Sandleford Park site, the agricultural land in this locality is universally of poorer quality Sub-grade 3b and Grade 4 land and does not add to the effects on BMV land.

The urban development elements of Sandleford Park and those of the whole allocation have the following cumulative effects when considered with other development in the Newbury locality:

Biodiversity – this issue is addressed in the Ecology Chapter, where it is concluded that soil is not a primary determinant of the habitats identified at Sandleford Park, and that insofar as they are present at other development locations it is concluded that there was no or insignificant impact relevant to the assessment of cumulative impact.

Agricultural land quality – the overall losses of agricultural land of BMV quality are **moderate adverse**. This effect has, however, to be viewed in the context that by far the largest proportion of the total area of farmland affected by development is of poorer (Subgrade 3b) quality, and substantial use is proposed for non-agricultural land.

Given the general distribution of agricultural land quality around Newbury, it would be difficult to find large development opportunities which wholly avoided occurrences of small areas of higher quality land. The predominant use of poorer quality land where green field options are necessary is, therefore, consistent with the objective of national land use policy.

8.8 Summary

The proposed development occupies a site of approximately 114 ha of which 84 ha is agricultural land. The main receptors of effects arising from the proposed development are the soil resources present on the site and the agricultural land capability they support.

The proposed development seeks to minimise the adverse effects of construction and changes of land use on the soil and agricultural land resources by the prudent use of land in the planning and design process, and by the adoption of recognised best practice in the handling of soils and construction methods generally.

Within those areas identified for hard development, there will be widespread disturbance of the soil resources. However, the resources will be conserved and largely redeployed in the design of those areas, where some of their environmental functions will be retained. The residual adverse effect will, therefore, be **minor adverse**.

Of their existing in-situ functions, that appertaining to productive agricultural capability will be universally and permanently lost. A small proportion of the affected land is of best and most versatile agricultural quality. Although this is a significant receptor, the scale of loss is low, and the residual effect is **minor adverse**.

Outside the hard development areas, a Country Park is proposed within which there will be only limited disturbance to the natural soil resources which will continue to perform their existing non-agricultural environmental functions. Although agricultural uses will be displaced from the parkland area, the inherent productive capabilities will be largely retained against potential future requirement. The immediate loss of access to that capability again involves a small area of land of best and most versatile quality, but the loss is one of **minor adverse** significance. This effect is counter balanced by the increased ability of the soils to sustain and enhance biodiversity interests within the parkland which is a **minor beneficial** effect.