



GA2, Land north of Great Ashby Environmental Statement

Chapter 14: Soils and Agricultural Land

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Consultants Ltd on behalf of
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14. SOILS AND AGRICULTURAL LAND

Introduction

- 14.1 This chapter of the ES has been prepared by Kernon Countryside Consultants Ltd and presents an assessment of the likely significant effects of the Proposed Development with respect to agricultural land as a resource and, in particular, any loss or degradation of Best and Most Versatile (BMV) agricultural land, loss or damage of soils and local effects on farm businesses. Ground Conditions relating to land contamination are considered separately.
- 14.2 Mitigation measures are identified, where appropriate, to avoid, reduce or offset any significant adverse effects identified and/or enhance likely beneficial effects. Taking into account the mitigation measures, the nature and significance of the likely residual effects are reported.
- 14.3 This chapter is supported by the following technical appendices:
- **Appendix 14.1:** Agricultural Land Classification by Amet Property Ltd;
 - **Appendix 14.2:** Photographs;
 - **Appendix 14.3:** Soil Handling Guidance.

Competence

- 14.4 For a summary of the competency of the author of this chapter, please refer to **Appendix 1.6**.

Legislation and Policy Context

Legislation Context

- 14.5 There is no legislation governing the development of agricultural land for non-agricultural purposes. The Town and Country Planning (Development Management Procedure) (England) Order 2015ⁱ, as amended, Schedule 4 part (y) requires consultation with Natural England for any development which is not for agricultural purposes and involves the loss of not less than 20 ha of Grades 1, 2 or 3a agricultural land which is not in accordance with the development plan.

National Planning Policy

- 14.6 The National Planning Policy Frameworkⁱⁱ (2025) paragraph 187 requires that planning decisions recognise the economic and other benefits of the best and most versatile agricultural land. Such land is defined in Annex 2 of the NPPF as land in ALC Grades 1, 2 and 3a.

- 14.7 In respect of plan making, paragraph 188 sets out that plans should allocate land with the least environmental or amenity value. Footnote 65 states 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”.

Local Planning Policy

- 14.8 The North Hertfordshire Local Plan 2011 – 2031ⁱⁱⁱ (November 2022) Policy SP18 governs Site GA2 – Land off Mendip Way, Great Ashby. This allocation governs the majority of the Site.

- 14.9 There is no specific policy governing non-agricultural development of agricultural land.

Guidance

- 14.10 This chapter has drawn from the Institute of Sustainability and Environment Professionals (ISEP) Guide: A New Perspective on Land and Soil in Environmental Impact Assessment^{iv} (ISEP, February 2022), although adjusted as identified in some cases.

Assessment Methodology and Significance Criteria

- 14.11 This section presents the methodology used to assess the potential effects of the Proposed Development in relation to Soils and Agricultural Land.

Consultation

- 14.12 **Table 14.1** presents a summary of the comments raised in the EIA Scoping Opinion from North Hertfordshire District Council (NHDC) and Natural England.

Table 14.1 Summary of Comments Raised in the Scoping Opinion

Consultee	Comment	Response
Natural England	The following issues should be considered and, where appropriate, included as part of the Environmental Statement (ES): • the degree to which soils would be disturbed or damaged as part of the development; • the extent to which agricultural land would be disturbed or lost, including whether any best and most versatile (BMV) agricultural land would be impacted.	A detailed ALC survey has been carried out across the Site, the findings of which are summarised in this chapter, together with the effects on soils and agricultural land. Full details of ALC survey are presented in the ALC report accompanying the outline planning application.
NHDC	An assessment of the grade of land and how this loss might impact on overall provision locally would be appropriate.	The ALC has been completed and the impacts are addressed in the ES.

Study Area and Scope

Study Area

- 14.13 The Study Area for the assessment relates to the Site in respect of likely significant effects on agricultural land and soils. Agricultural land quality beyond the Site is not likely to be adversely affected, and therefore the Study Area is appropriately confined to the boundaries of the Site

Scope

- 14.14 The scope of the assessment of agricultural land and soils is limited to the construction works of the Proposed Development owing to loss and degradation of any BMV land and soils and local effects on agricultural businesses within this phase only. Once the Proposed Development is completed and operational there would no further loss of agricultural land and any disturbance of soils due to operation and maintenance activities are likely to be minimal and short lived. This chapter therefore focuses on the likely significant effects during the demolition and construction works.

Assessment Methodology

Impact Areas

- 14.15 Likely significant effects are assessed based on known facts and baseline conditions, professional judgement and reference to the significance criteria set out in this chapter.

Significance Criteria

- 14.16 The scale attributed to each effect identified was determined by the sensitivity of the receptor and magnitude of impact arising as a result of the Proposed Development. The thresholds and criteria for assessing the effects have drawn from the Institute of Sustainability and Environment Professionals (ISEP) Guide^v 'A New Perspective on Land and Soils in Environmental Impact

Assessment' in particular section 9 and tables 2, 3, 4 and 5, but the assessment has altered some of the parameters for the reasons specified in this chapter. The ISEP Guide does not include guidance for assessing the localised effects on farm businesses, so professional judgement has been used to set the criteria below. Therefore, in addition to the ISEP Guide, professional judgement and experience have been drawn upon to assess the significance of the effects.

Receptors and Receptor Sensitivity

- 14.17 The sensitivity of each receptor was evaluated as being high, medium, low or very low based on a review of the baseline position of each receptor. The definition of sensitivity of a receptor is based on a scale set out in **Table 14.2**. For land quality and soils these are based on the ISEP Guide, although varied so that “very high” and “high” sensitivity in the ISEP Guide are combined into one category to ensure continuity with other chapters of the ES for the effects on farm businesses, professional judgement has been used.

Table 14.2 Receptor Sensitivity Description

Value (Sensitivity)	Description		
	Agricultural Land Quality	Soils Sensitivity to Structural Damage	Effects on Farm Businesses
High	Land of ALC Grades 1, 2 and 3a	High clay soils where the Field Capacity Days ¹ (FCD) is >150, or medium textured soils where the FCD is >225.	
Medium	Land of ALC Subgrade 3b	High clay soils where the FCD is <150, or medium textured soils where the FCD is <225.	Full time farm businesses where the location of land is particularly important such as dairy farms. Farms affected outwith the Site boundary.
Low	Land of ALC Grades 4 and 5	Soils with a high sand fraction where the FCD is <225.	Farms with low sensitivity to change e.g. arable land, part-time farms or where land is held on short term arrangements.
Very Low	Indirect or unproven links to agricultural land		Agricultural land that is not farmed or does not form part of a farm business.

¹ This is the number of days per annum when the soils are saturated with water. The FCD is determined under the ALC climate data assessment.

Magnitude of Impact

- 14.18 The magnitude of impact to a receptor was determined by considering the estimated deviation from baseline conditions both before, and, if required, after mitigation. The scale used for determining the magnitude of an impact is set out in **Table 14.3** and is based on the principles of the ISEP Guide for land quality and soils, and on professional judgement for farm businesses. The thresholds for impacts have been set at 20ha for a medium magnitude impact, which equates with the threshold for consultation with Natural England where the loss of 20 ha of more of BMV land. For development not in accordance with the development plan is involved.

Table 14.3 Magnitude of Impact Description

Impact Magnitude	Description	
	Agricultural Land Quality and Soils	Farm Businesses
High	The Proposed Development would directly lead to the loss (including permanent sealing or land quality downgrading) of over 50ha of soil-related features; or potential for improvement in one or more soil functions over an area of more than 50ha.	Full-time agricultural business would be non-viable.
Medium	The Proposed Development would directly lead to the loss (including permanent sealing or land quality downgrading) over an area of between 20ha and 50ha of soil-related features; or potential improvement in one or more soil functions over an area of between 20ha and 50ha.	Significant changes in the day-to-day management of a full-time agricultural business, or closure of a part time agricultural business. Loss of buildings or impacts on drainage or water supplies affecting the potential for at least 5ha of adjacent land to be farmed fully.
Low	The Proposed Development would directly lead to the loss (including permanent sealing or land downgrading) of less than 20ha of soil-related functions; or potential for improvement in one of more soil functions over an area of less than 20 ha.	Minor changes in the day-to-day management/structure of a full-time agricultural business or land required would have a significant effect on a part time business. Minor effects, direct or indirect, on surrounding land beyond the boundaries of the Site.
Very Low	No discernible loss or reduction or improvement of soil functions or volumes.	Land required would require only negligible changes in the day-to-day management of a full-time agricultural business or land would require only minor changes to a part time farm business. Effects on non-farming land uses, eg horse grazing.

Assessing Significance

- 14.19 **Table 14.4** provides a matrix for determining the significance of an effect based on the sensitivity of the receptor and the magnitude of impact. The loss of 20ha or more of land of best and most versatile quality is a moderate adverse effect, which is significant. There is no planning policy constraint to using non-BMV land for non-agricultural land development. Nevertheless the loss of more than 50ha of land of subgrade 3b quality is considered to have an effect of moderate adverse significance, which is significant.

Table 14.4 Significance of Effect Matrix

Receptor Sensitivity	Magnitude of Impact			
	High	Medium	Low	Very Low
High	Major Beneficial / Adverse	Moderate Beneficial / Adverse	Minor Beneficial / Adverse	Minor Beneficial / Adverse
Medium	Moderate Beneficial / Adverse	Minor Beneficial / Adverse	Minor Beneficial / Adverse	Negligible
Low	Minor Beneficial / Adverse	Minor Beneficial / Adverse	Negligible	Negligible
Very Low	Minor Beneficial / Adverse	Negligible	Negligible	Negligible

- 14.20 Effects classified as major or moderate are considered 'significant' in EIA terms. Effects classified as minor or negligible are considered 'not significant' in EIA terms.

Limitations and Assumptions

- 14.21 There are no limitations to the collection of data and the assumptions for the assessment beyond those described in the methodology section above.

Baseline Conditions

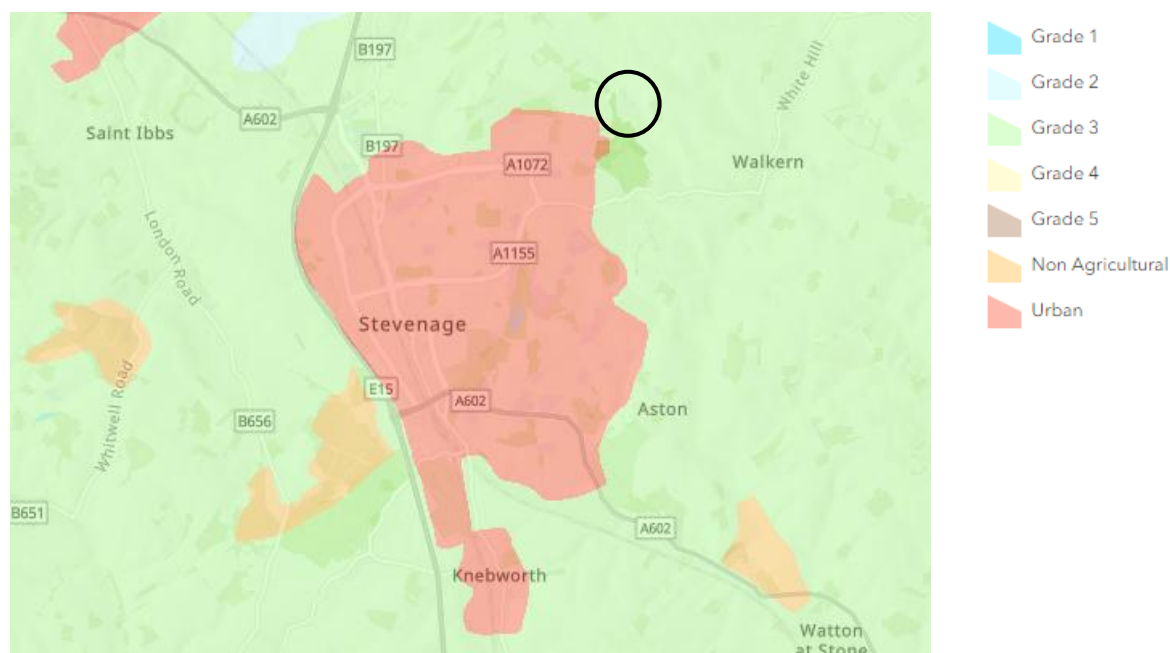
Existing Baseline Conditions

Agricultural Land Quality

- 14.22 Agricultural land quality in England is determined by a system of Agricultural Land Classification (ALC) devised by the Ministry of Agriculture, Fisheries and Food (MAFF), and last revised in 1988. The ALC sets out a methodology for grading land according to its inherent qualities, especially climatic, site (e.g. gradient) and soil characteristics, and the important interaction between these. The best quality land is Grade 1 "excellent" quality and the poorest is Grade 5 "very poor" quality. Grade 3 is subdivided into two subgrades. Land of ALC grades 1, 2 and 3a comprise the "best and most versatile" (BMV) quality, and accounts for an estimated 42% of agricultural land in England^{vi}.

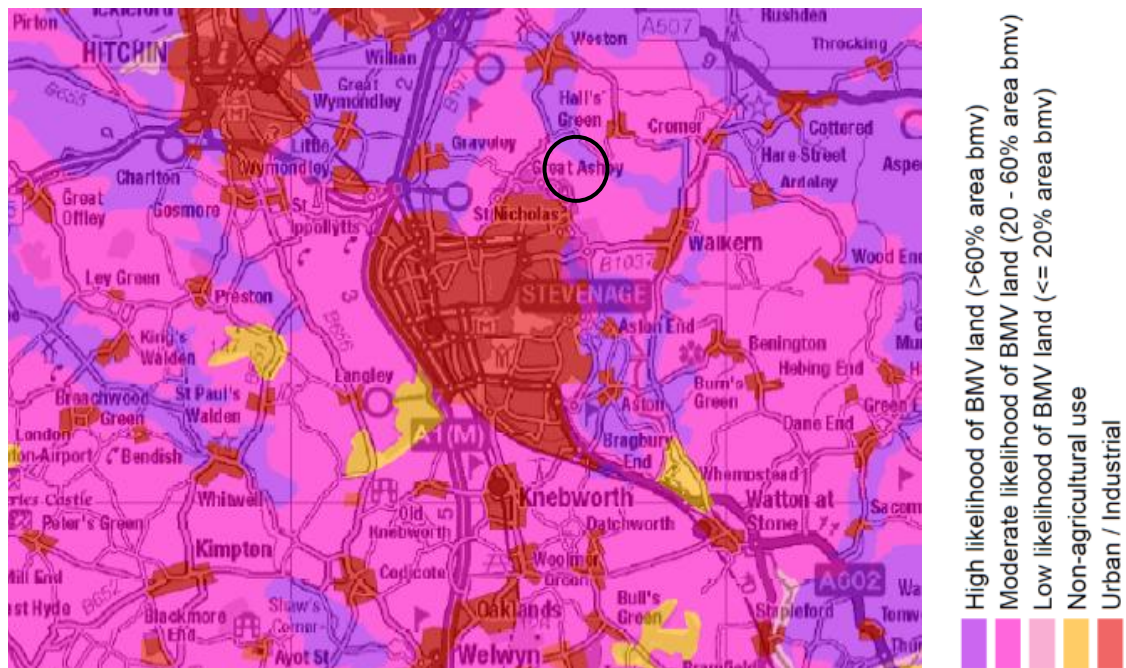
- 14.23 The Site is shown on the “provisional” ALC maps produced in the 1970s as undifferentiated Grade 3, as shown in **Figure 14.1**. This provisional grade, which does not differentiate between the subgrades of Grade 3, covers most of the Site and wider area. As set out in Natural England’s Technical Information Note 049 (2012), these maps are for strategic use and are not suitable for site-specific analysis. The Figure below is from the digitised version and you can see development on the base plan in areas still shown as agricultural land, given the historic origins of the ALC mapping.

Figure 14.1: Provisional ALC Maps (Site circled approximately)



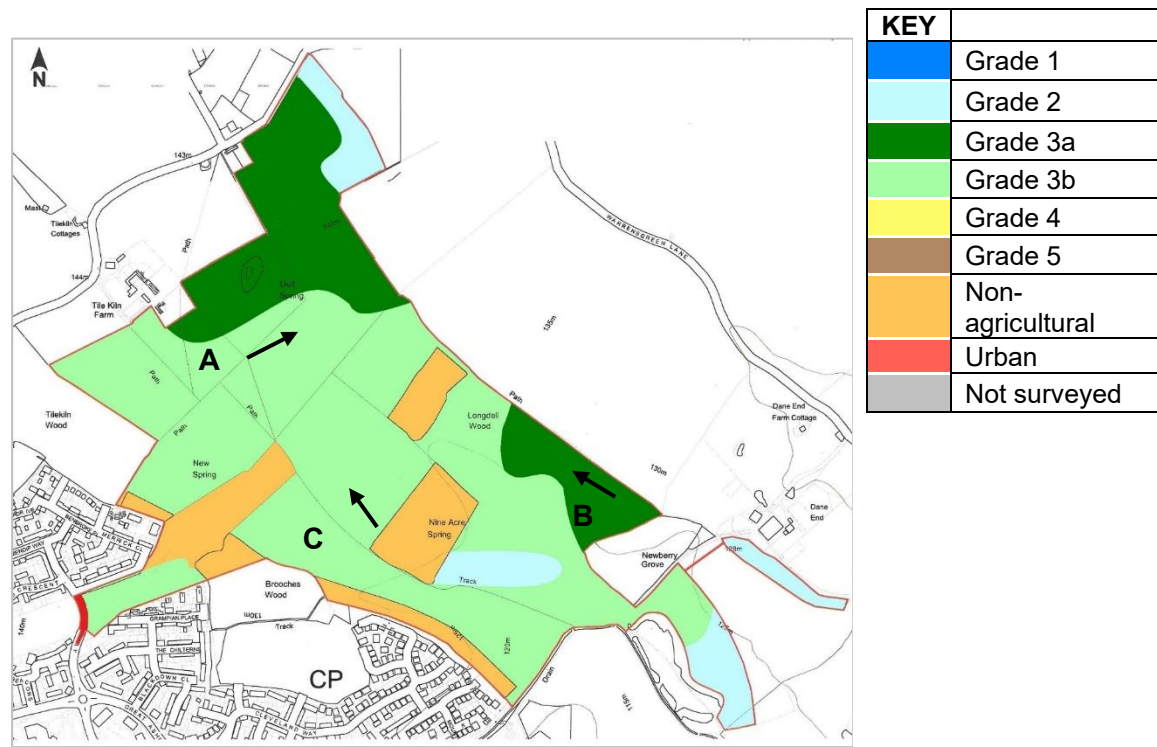
- 14.24 In 2017 Natural England published a series of maps, also at 1:250,000 scale, setting out a "Likelihood of Predictive Best and Most Versatile (BMV) Agricultural Land". BMV agricultural land relates to Grades 1, 2 and 3a of the ALC, as defined in Annex 2 of the NPPF (2024). These maps show the Site to lie in the "moderate likelihood of BMV (20 - 60% area BMV)", as shown in **Figure 14.2**.

Figure 14.2: Predictive BMV Likelihood (Site circled approximately)



- 14.25 A detailed ALC survey has been completed for the Site and some surrounding land. The report is provided, with plans, as **Appendix 14.1**. The ALC survey involved examining the soils on a regular 100m grid, in accordance with the ALC methodology. The results are set out in a separate report accompanying the outline planning application. The ALC survey has identified that the Site comprises a generally consistent clay or heavy clay loam. In places the clay is naturally calcareous, which influences the ALC grade.
- 14.26 The subsoils vary across the Site, with clay subsoils in places, and chalky or flinty subsoils in other places. Subsoil permeability is variable, as described in the ALC report.
- 14.27 Overall the ALC grading is as shown below. Photographs that follow are taken from the locations identified below, with a full set of photographs set out in **Appendix 14.2**.

Figure 14.3: Results of Detailed ALC



14.28 The characteristics of the agricultural land are illustrated in the following three views.

Figure 14.4: Photo A. This looks over subgrade 3b land towards land of Grade 3a



Figure 14.5: Photo B. This looks over subgrade 3a land (to the left of the footpath)



Figure 14.6: Photo C. This looks over subgrade 3b land



- 14.29 As set out in the ALC report, the most limiting factors for ALC is soil wetness and, in localised areas, soil droughtiness. These limit the ALC grade to Subgrade 3b across most of the soils within the Site. The results of the ALC survey are set out in **Table 14.5** below and shown in **Figure 14.3**.

Table 14.5: Results of the ALC Survey

ALC Grade	Description	Area (ha) (rounded up to nearest 0.1 hectare)	Area (%)
2	Very good	5.5	8.7
3a	Good	11.0	17.5
3b	Moderate	37.3	59.3
NA	Non-agricultural	9.0	14.3
U	Urban	0.1	0.2
Total		62.9	100

- 14.30 Accordingly, the ALC survey has identified land of high and medium sensitivity under **Table 14.2**.

Soils

- 14.31 The ALC report describes the soils on the Site in detail. The soils are consistent across the Site, being dark greyish-brown stoneless clay or silty clay topsoils over subsoil that is grey, greyish-brown or brown clay. These are therefore high-clay soils in an area where the period when soils are saturated is less than 150 days per year, which makes them of medium sensitivity (medium resilience to structural damage) under **Table 14.2**.

Local Agricultural Businesses

- 14.32 The land is farmed as part of a much larger holding. The land is used for arable cropping, principally cereals with combineable break crops, and for agri-environmental cover crops. The farm buildings are not within the Site. The enterprise is of low sensitivity in **Table 14.2**.

Receptors

- 14.33 A summary of existing and future receptors is included in **Table 14.6**.

Table 14.6 Existing and Future Sensitive Receptors

Receptor	Sensitivity
Existing and Future Receptors	
Agricultural land quality (ALC Grades 2, 3a and 3b)	High and Medium
Soils susceptible to damage	Medium
Farm businesses (full-time arable)	Low

Future Baseline

- 14.34 It is assumed that the future baseline conditions would remain the same as the existing baseline conditions described above. Cropping choices may change, influenced by multiple external factors, such as climate, but the land is expected to remain farmed for arable crops

Assessment of Effects (Construction and Operational)

Environmental Design and Management

- 14.35 The development of agricultural land for non-agricultural purposes is a permanent impact that will result in the land being irreversibly downgraded or sealed over. In terms of agricultural land as a resource for biomass production, the impact is adverse. However, in terms of soil as a resource, there is the potential to preserve the resource for use within the Site.
- 14.36 The handling of the soil in a way that preserves the resource with as little damage to soil structure as possible can be achieved through good operational management, set out in a Soil Management Plan that can be controlled by planning condition. It is assumed that soil handling mitigation will be embedded in the construction process.

Effects During Construction

14.37 The impacts and effects are considered in terms of:

- agricultural land quality;
- soils;
- local agricultural businesses.

Agricultural Land Quality

14.38 The land quality across the site is variable, with a mixture of land of Grade 2, 3a and 3b quality.

14.39 The majority of the Site is Subgrade 3b “moderate” quality agricultural land. The land is generally a clayey soil with a gleyed horizon at less than 40cm and a slowly permeable layer within 60cm, resulting in a Subgrade 3b limitation. The majority of the residential development is proposed for these areas. The magnitude of Subgrade 3b land involved, 37.3 ha, results in an adverse impact of medium magnitude (20 – 50 ha, **Table 14.3**), on a receptor of medium sensitivity (Subgrade 3b, **Table 14.2**), which results in an effect of minor adverse significance (**Table 14.4**), which is **not significant**.

14.40 The BMV land with the Site mostly lies to the north, with some on the eastern and south-eastern extremities. The BMV land in the northern part of the Site is shown below.

Figure 14.7: Photo D – Looking North over Grade 2 and 3a Land



Figure 14.8: Photo E – Looking East over Subgrade 3a Land in the Northern Part of the Site



- 14.41 The Illustrative Masterplan shows the BMV area in the north mostly proposed for habitat creation, Biodiversity Net Gain areas, or reserved for educational purposes. In terms of agricultural land use, these areas are considered as irreversibly developed, as return to agricultural use is not likely.
- 14.42 The area of Grade 2 in the far southeast part of the Site is proposed for tree planting or for drainage works. Similarly, whilst the impact on the soil resource (particularly in respect of tree planting) is minimal, these areas are, for the purposes of this ES, considered as irreversibly developed.
- 14.43 Correctively the BMV (Grade 2 and subgrade 3a) amounts to 16.5 ha. This is a low magnitude impact (<20 ha, **Table 14.3**) on a resource of high sensitivity (Grades 1, 2 and 3a, **Table 14.2**) resulting in an adverse effect of minor adverse significance (**Table 14.4**), which is **not significant**.
- 14.44 The magnitude of lower quality land is medium (20-50 ha) (**Table 14.3**). Subgrade 3b land is of medium sensitivity (**Table 14.2**). The loss of a medium magnitude of a medium sensitivity receptor is minor adverse effect (**Table 14.4**), which is **not significant**.
- 14.45 In response to the Scoping, NHDC requested analysis of how the results might impact on the provision of agricultural land locally. This is assessed below, based on the 1:250,000 provisional ALC figures, as these provide the only data available. Therefore the results enable a strategic assessment, but must be used with caution. The approximate proportion of Grade 3 that is Subgrade 3a nationally is 40% and that is used to compare the District to the national position.

Table 14.7 Proportion of Land by ALC Grade

Grade	Description	England (%)	N Herts (%)
1	Excellent	3.1	0
2	Very good	16.2	28.6
3	Good to moderate	55.0	70.7
4	Poor	16.1	0.7
5	Very poor	9.6	0
T	Total	100.0	100.0
BMV	(1, 2 and 40% of 3)	41.3	56.9

- 14.46 Locally, therefore, of the order of 57% of agricultural land is likely to be BMV, which is above the national average. The Site, with a low proportion of BMV (26.2%), will not have a significant impact on this resource locally.

Soils

- 14.47 The BMV soils will not generally be disturbed. The BMV land is mostly proposed for BNG and open space areas, with little or no physical disturbance to the soil. Therefore these areas will not be affected.
- 14.48 Soils in the areas proposed for non-agricultural development for housing, infrastructure, services etc will likely mostly be moved or trafficked as part of the construction process. These soils are clays or clay loams. The climate in this area is dry, with annual average rainfall identified in the ALC as 620mm per annum, and a Field Capacity Days duration for ALC purposes of 120 days per year.
- 14.49 Under the ISEP Guide, clay and heavy clay loam soils in an area with under 150 FDC are of medium sensitivity (ie they have a medium resilience to structure damage). The Site exceeds 50 ha and accordingly the magnitude of impact is major (>50 ha, **Table 14.3**). The soils are of medium sensitivity, leading to an adverse effect without mitigation of moderate adverse significance, which is **significant**.
- 14.50 Embedded mitigation will include a Soil Management Plan. Clay and heavy clay loam soils are not resilient to structural damage only when they are in a wet (or plastic) state. This is illustrated in **Appendix 14.3**, which sets out the basics of good soil management. With suitable good practice, the magnitude of the impact can be significantly reduced, into the medium or potentially into the low magnitude categories (**Table 14.3**), which would result in a moderate or minor adverse significance effect, which is **not significant**.

Agricultural Businesses

- 14.51 All of the agricultural land within the Site is in an arable, or arable agri-environmental, land use. The arable fields are mostly bordered by wide margins, heavily walked. Arable enterprises are generally resilient to change and are considered to be of low sensitivity (**Table 14.2**).
- 14.52 The Proposed Development will involve a significant part of this arable farm. The land is however farmed as part of a much larger enterprise and the impacts on agricultural businesses in the area will be limited. In terms of the significance of the effects, the impact will be an adverse impact of medium magnitude (**Table 14.3**) on a receptor of low sensitivity (**Table 14.2**), resulting in an adverse effect of minor adverse significance (**Table 14.4**) which is **not significant**.

Effects Once the Proposed Development is Operational

- 14.53 The effects identified during construction are permanent impacts. They will, therefore, have taken place at construction. There will be no additional impacts during the operational phase.

Mitigation Measures

Mitigation During Construction

Agricultural Land Quality

- 14.54 There is no mitigation possible for the likely effects on agricultural land quality.

Soils

- 14.55 The sustainable use of the soil resource would be undertaken in line with the Construction Code of Practice for the Sustainable Use of Soil on Construction Sites^{vii}. The effect on soils can be partially mitigated by a Soil Management Plan, which would set out when conditions are appropriate (optimum timing) for moving and excavating soils, together with how they should be handled, stored and reinstated/placed. The Soil Management Plan should be based on the findings of the ALC report. It is expected that a Soil Management Plan would form part of a Material Management Plan that could be secured through planning condition. This will provide the opportunity to reduce effects on soils that would be retained within the Proposed Development.
- 14.56 Stockpiling of material would be local to proposed features or taken directly to where it will be required, away from watercourses and main rivers. This should be set out in the Construction Environmental Management Plan.

Local Agricultural Businesses

- 14.57 There is no mitigation possible for the likely effects on the farm business affected, although the impact will be gradual and phased.

Mitigation Once the Proposed Development is Operational

- 14.58 There is no further mitigation possible or proposed for the operational phase.

Residual Effects and Monitoring

- 14.59 With the above mitigation measures, the likely residual effects arising from the Proposed Development are summarised in **Table 14.8**.

Table 14.8 Summary of Residual Effects

Effect	Receptor (Sensitivity)	Nature of Effect and Geographic Scale	Magnitude of Impact*	Classification of Effect (Statement of Significance BEFORE mitigation)	Mitigation and Monitoring	Residual Effect
Construction Effects						
Loss of BMV agricultural land	High	Permanent, adverse, national	Low	Minor adverse	None	Minor adverse (not significant)
Loss of subgrade 3b land	Medium	Permanent, adverse, local	Medium	Minor adverse	None	Minor adverse (not significant)
Loss of soils	High clay soils (medium sensitivity)	Permanent Local	High	Moderate adverse	Soil Management Plan which could be conditioned. Careful handling and storage for reuse	Minor adverse (not significant)
Effect on local agricultural business	Arable farming (low sensitivity)	Permanent Local	Low	Minor adverse	None required	Minor adverse (not significant)
Operational Effects						
There are no further effects at operational stage.						

Notes: * incorporating environmental design and management, ** incorporating mitigation and monitoring measures

Likely Significant Environmental Effects

- 14.60 There are **no significant residual effects** on agricultural land quality, soils, farm or non-farm businesses or land uses.

Summary and Conclusions

- 14.61 The Site comprises mostly of Subgrade 3b “moderate” quality agricultural land. There are areas of higher quality Grades 2 and 3a land, but these are mostly proposed for BNG and open space uses. Overall the effect on agricultural land, given the inclusion of BMV land, is of minor adverse significance, which is not significant.
- 14.62 In context, the proportion of land within the district likely to be BMV is above the national average and the overall impact on the availability of this resource locally and nationally is limited.

References

- ⁱ UK Government, The Town and Country Planning (Development Management Procedure) (England) Order (2015)
- ⁱⁱ UK Government, National Planning Policy Framework (2025)
- ⁱⁱⁱ North Hertfordshire District Council, The North Hertfordshire Local Plan 2011-2031 (November 2022)
- ^{iv}
- ^v ISEP, A New Perspective on Land and Soil in Environmental Impact Assessment (February 2022)
- ^{vi} Technical Advice Note 049 "Agricultural Land Classification: protecting the best and most versatile agricultural land, Natural England (December 2012).
- ^{vii} Department for Environment, Food and Rural Affairs, Construction Code of Practice for the Sustainable Use of Soils on Construction Sites, Defra (2009)