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N/A



11 GEOLOGY & SOILS

11.1 Introduction

- 11.1.1 Chapter 11 Geology & Soils of the 2020 IAMP ONE Phase 2 ES assessed the potential impacts on the geology and soils of the Site as a result of construction and operation associated with the proposed development. Owing to the limited differences between the parameters of current design proposals and the parameters detailed within the 2020 ES and lack of predicted significant effects, a reassessment of Geology & Soils has been scoped-out of the EIA undertaken to inform this ES. This chapter, therefore, includes a summary of the findings of the 2020 assessment, only. For completeness it does include information about the small change in site area and allows an updated review of cumulative effects. This is for ease of reference purposes and to inform Chapter 16 Summary & Conclusions of this ES. For full details of the 2020 Geology & Soils Assessment, reference should be made to the 2020 IAMP ONE Phase 2 ES.
- 11.1.2 It is noted that, following submission of the 2020 ES, the list of 'other developments' to be considered in the assessment of cumulative impacts has been updated (see Table 2.5 of Chapter 2: Scope & Methodology). The cumulative impacts have, therefore, been reassessed on this basis.
- 11.1.3 It should be noted that there is an overlap between the IAMP ONE Phase Two boundary and the IAMP ONE Phase One boundary. This overlap includes 18.74 ha of agricultural land. The permanent loss of this 18.74 ha of agricultural land to development, plus associated impacts to the soil resource, was approved by SCC via the granting of planning permission for IAMP ONE Phase One. As such, the 2020 IAMP ONE Phase Two development only required the loss of a further 5.49 ha of agricultural land and it was this loss that was considered within the 2020 Soils & Geology assessment. The permanent loss of 24.23 ha of agricultural land has, therefore, been approved through the 2020 IAMP ONE Phase 2 permission.

11.2 Consultation & Scope of Assessment

11.2.1 Informal consultation relating to the scope of the 2020 EIA was initially undertaken with SCC in August 2019. In relation to the topic of Geology, Soils and Groundwater, the consultation identified that (based upon the findings of the 2018 IAMP ONE ES Chapter J) the main aspect that was to be addressed was the topsoil present within



the Site. As the potential effects on geology and groundwater were considered unlikely to be significant adverse, the 2020 ES referenced the findings of the 2018 IAMP ONE ES in relation to these aspects. This approach was confirmed as acceptable by SCC in a meeting held on the 15th November 2019.

11.2.2 Informal consultation in relation to the scope of the 2021 reassessment was undertaken with SCC in April 2021. During this consultation, the scope of the 2021 reassessment was agreed, including the scoping-out a reassessment of the potential impacts upon geology and soils. This is based upon no change to the application redline and the parameters of the current design proposals not exceeding the parameters of the 2020 assessment. The 2020 assessment assessed assumed a total loss of agricultural land within the Site and assessed the worst-case scenario option that provided less greenspace and less opportunity for the reuse of site-won soils within the Site. As such, there are no anticipated changes to the findings of the 2020 assessment as a result of the current design proposal.

11.3 Methodology (Soils & Agricultural Land)

11.3.1 As no detailed assessment of geology and groundwater was included within the 2020
ES, information for the assessment methodology was limited to published sources in relation to agricultural land and soils (See Chapter 11 of the 2020 ES for more details).

11.4 Policy and guidance

11.4.1 The relevant legislation, policy and guidance are listed below (See Appendix 11.1 of the 2020 ES for more details).

Legislative Framework

11.4.2 The applicable legislative framework to the soils and agriculture assessment is the Town & Country Planning (Development Management Procedure) (England) Order 2015.

Planning Policy

- 11.4.3 The planning policy¹ applicable to the soils and agriculture assessment are as follows:
 - National Planning Policy Framework (NPPF) 2021.
 - The Sunderland Core Strategy and Development Plan (2015 to 2033).

¹ As the IAMP AAP does not include policy relating to the development of agricultural land or the protection of soil resources, it was not considered within the 2020 assessment.



Guidance

- 11.4.4 The applicable guidance are as follows:
 - MAFF (2000). Good Practice Guide for Handling Soils.
 - DEFRA (2009). Code of Practice for the Sustainable Use of Soils on Construction Sites.
 - Natural England (2012). Technical Information Note 049; Agricultural Land Classification: Protecting the Best and Most Versatile Agricultural Land.

11.5 Baseline Conditions

11.5.1 The following is a summary of the baseline conditions included in the 2020 Geology & Soils ES chapter. For full details, reference should be made to both Chapter 11 of the 2020 IAMP ONE Phase Two ES and Chapter J of the 2018 IAMP ONE Phase One ES.

Geology & Groundwater

- 11.5.2 The bedrock geology of the local area comprises the Pennine Middle Coal Measures formation, consisting of interbedded grey mudstone, siltstone, sandstone and, commonly, coal seams. The local geology of the Site is consistent with this, but coal seams were absent (only fragments detected within the mudstones). The superficial geology of the Site consists of the Pelaw Clay Member, glaciolacustrine and alluvium deposits, which are all types of silty clay (though the alluvium deposits may also comprise layers of silt, sand, peat and basal gravel).
- 11.5.3 The Pelaw Clay Member aquifer designation is 'unproductive strata' and the alluvium mapped along watercourses (outwith the boundaries of the Site) and underlying bedrock aquifer is classified as a 'Secondary A' aquifer (i.e. it has permeable layers capable of supporting water supplies at a local scale). Groundwater vulnerability across the area is designated as 'soils of low leaching potential' and pollutants are unlikely to penetrate the soil layer as water movement is predominantly horizontal.
- 11.5.4 There are no contamination issues at the Site. The Site comprises Grade 3b agricultural land, with the concentrations of contaminating substances within the soil all below the Generic Assessment Criteria (GAC) for commercial development of land. Organic substances (incl. phenol and Total Petroleum Hydrocarbon (TPH)) and asbestos were also absent from the soil.



Soils

11.5.5 The Soil Survey of England & Wales (1984) data indicates that the soil within the Site belongs to the Foggathorpe 1 Association, as summary of the key characteristics of which Association included within Table 11.1, below.

Table 11.1: Soil Associations Mapped within the Site						
Soil Association Soil Series Geology Soil Group Soil Characteristics Wetness Class		Erodibility*				
Foggathorpe 1 (712h)	Foggathorpe Hallsworth Dunkeswick	Glacio-lacustrine drift and till	Stagnogley	Slowly permeable seasonally waterlogged clayey and fine loamy over clayey soils, often stoneless.	Class IV (Due to the slow permeability, excess rain runs off rapidly or remains)	Very small risk of water erosion
*Knox et al., (2015). Research to Develop the Evidence Base on Soil Erosion and Water Use in Agriculture: Final						
l echnical Report.						

Land Use & Topography

11.5.6 With the exception of West Moor Farm and associated infrastructure, all land within the Site is agricultural and has been under arable rotation since at least 2001. The 1996 ADAS survey describes the Site as 'under cereal stubble, recently sown winter cereals and oilseed rape' and the 2018 survey describes the Site as 'in an arable crop'. OS Mapping shows the Site to be relatively flat and at a height of 35-40 m AOD. All slopes on the Site are <7°, resulting in no limitation to the use of standard farm machinery and no associated reduction in Agricultural Land Classification (ALC) grade.</p>

Soils & Agricultural Land Classification

11.5.7 The soils within the area of the Site that falls outside of the IAMP ONE Phase One overlap are area poorly drained medium or heavy clay loam topsoils overlying gleyed, slowly permeable, heavy clay loam or clay subsoils at a depth of between 25 cm and 35 cm. The combination of soil wetness and topsoil workability restricted the land within the Site to Subgrade 3b (moderate quality, non-Best and Move Versatile (BMV) agricultural land). The soils present within the area of Site that lies within the IAMP ONE Phase One overall area comprised one general soil type of clay loam over clay to depth and limited to Subgrade 3b (moderate quality, non-BMV, agricultural land) due



to soil wetness. All land within the Site is, therefore, Subgrade 3b and the soils are slowly permeable clay loams over clays; key soil characteristics are consistent with those of the Foggathorpe 1 soil association. For more details, see Appendix 11.2 and Appendix 11.3 of the 2020 IAMP ONE Phase Two ES.

11.6 Assessment of Impacts

- 11.6.1 The Site will undergo a permanent land use change from agriculture to non-agriculture during the construction phase. There would be no agricultural land present within the Site during operation and no potential for further loss of agricultural land to occur. As such, the effects of loss of agricultural land are limited to the construction phase, only.
- 11.6.2 During the operational phase, the soils remaining onsite would most likely experience very low levels of disturbance due to works in landscaped areas. The scale of this disturbance (cultivation) would be lower than current experienced as a result of onsite agricultural activities. As such, it is considered that there would be no operational effects on soils and this topic is not considered further.

Agricultural Land Loss

- 11.6.3 The loss of agricultural land was assessed by estimating the amount and quality of land that may be affected by the proposed development based upon a threshold of the permanent loss of 20 ha of BMV agricultural land². This relates to Schedule 4, Part (y) of The Town & Country Planning (Development Management Procedure) (England) Order 2015 (Statutory Instrument 2015/595), which states that this is the area of BMV loss that triggers a requirement to consult Natural England and, thereby, implies that this is also the point at which the loss is considered to be significant. A total permanent loss of BMV land >20 ha is, therefore, considered to be 'Significant' and any loss of non-BMV land or loss of BMV land that is temporary or <20 ha is considered to this receptor.
- 11.6.4 The impact of the proposed development on the soil resource was evaluated by an assessment of the sensitivity of each receptor and the magnitude of change the proposed development will have on each receptor. As there are no defined criteria or policy guidance on the assessment of the effects of development on soil resources, the assessment considered the identified soil resources; the sensitivity of these soil

² Agricultural land of ALC Grades 1, 2 and Subgrade 3a.



resources to damage in terms of susceptibility to erosion and / or presence of organic rich soils / peat; and the degree of loss of soil resource that could potentially occur due to the proposed development.

11.6.5 Soil erodibility is a measure of the susceptibility of soils to loss both *in situ* (as an undisturbed soil profile) and during soil stockpiling, due to wind or water erosion (natural erosion potential). Generally, heavy (clay-rich) soils are classified as low sensitivity (low soil erodibility), whilst fine sandy and silty soils are classified as high sensitivity (high soil erodibility). Soils of differing texture and structural development will, however, behave differently following reinstatement. For example, the incorrect handling / reinstatement of a heavy (clay-rich) soil whilst in a plastic state may result in a reinstated soil profile with poor natural drainage and a subsequent increased risk of soil loss (erosion) due to surface water runoff; whereas the permeable nature of sandy soils means that the permeability to water of the soils is more easily maintained upon reinstatement. Appropriate mitigation measures will mitigate against any potential adverse impacts during reinstatement regardless of the soil texture or prevailing structure and, as such, only soil erodibility is considered in the sensitivity criteria of the soil assessment.

Sensitivity of Soils

11.6.6 The sensitivity of the baseline environment is set out in Table 11.2. The criteria relate to areas of agricultural land quality and the associated soil resource.

Table 11.2: Sensitivity of Soils					
Soil type	Sensitivity	Justification			
Soils with high risk of erosion (e.g. silty and fine sandy soils) and organic soils (peat).	High	Development on those soils should be avoided. If this is n possible, they require careful consideration and site-speci planning of construction methods (e.g. use of tempora working surfaces, sensitive storage, protection from drying or to preserve their functions). Soils of high biodiversity valu High importance as a carbon store and active role in carbo sequestration, which have little capacity to tolerate chang Increased mitigation requirements beyond standard measur are required for organically managed land.			
Soils with moderate risk of Medium erosion.		Standard mitigation measures will provide appropriate protection to these soils. Damage is likely to occur if worked in less than ideal conditions (e.g. when above their plastic limit). The soils should be given appropriate consideration because of their importance for agricultural production.			



Table 11.2: Sensitivity of Soils				
Soil type	Sensitivity	Justification		
Soils with low risk of erosion and		These soils are generally more resistant to damage. Only		
resistant to damage (e.g. coarse	Low	standard mitigation manufactors are required		
sandy loam soils).		standard mitigation measures are required.		
Poor quality soils within an				
urban environment not	Nogligible	These soils are already highly disturbed and of poor quality.		
supporting biodiverse habitats,	Negligible	Only standard mitigation measures are required.		
no risk of erosion.				

Magnitude of Change

11.6.7 The magnitude of change used within the assessment are presented in Table 11.3 and has been assessed in terms of the degree of change from baseline conditions.

Table 11.3: Magnitude of change to soil resources					
Magnitude	Damage to soil resource	Loss of soil resources			
High	Permanent irreversible or long-term (> two years) reversible damage to soil quality through handling, and stockpiling.	< 25% of soil resources retained for reuse.			
Medium	Medium-term (six months to two years) reversible damage to soil quality for example through handling, stockpiling and machinery traffic.	25% - 49% of soil resources retained on site.			
Low	Short-term (<six damage="" months)="" quality<br="" reversible="" soil="" to="">for example through handling, stockpiling and heavy machinery traffic.</six>	50% - 94% of soil resources retained on site.			
Negligible	No damage or very small-scale surface damage equivalent to that done by a typical farm machinery traffic.	≥ 95% of soil resources retained on site.			

Significance Criteria

11.6.8 The level of effect to soil resources is determined in relation to the sensitivity of the receptor and the magnitude of change (from baseline conditions) using the matrix shown in Table 11.4. Only effects that are assessed as being Moderate or Major are considered to be Significant (in EIA terms).

Table 11.4: Level of Effect							
Sensitivity of	Magnitude of Change (i.e. Impact)						
Receptor	High Medium Low Negligible						
High	Major	Major	Moderate	Minor/Negligible			
Medium	Major	Moderate	Minor	Negligible			
Low	Moderate	Minor	Negligible	Negligible			
Negligible	Minor/Negligible	Negligible	Negligible	Negligible			



11.6.9 As per paragraph 11.6.3, any permanent BMV loss that exceeds 20 h a is considered to be Significant (in EIA terms) and any that is temporary or occupies less than 20 ha is assessed as Not Significant (in EIA Terms). As neither receptor sensitivity nor magnitude of change are assigned, Table 11.4 above does not apply.

11.7 Assessment of Impacts

11.7.1 The potential impacts are those impacts that could occur in the absence of appropriate mitigation measures or strategies.

Agricultural Land Quality

- 11.7.2 All 24.23 ha of Subgrade 3b, non-BMV agricultural land present within the Site boundary will be permanently lost due to the proposed development. The loss of 18.74 ha of this land has, however, already been approved by the granting of planning permission for IAMP ONE Phase One and the additional loss due to IAMP ONE Phase Two is only 5.49 ha and has also been approved.
- 11.7.3 To present a worst case, the overall loss of 24.23 ha of Subgrade 3b, non-BMV agricultural land due to the proposed development is also considered and, using the criteria described in paragraph 11.6.3, is assessed to be **Not Significant**.

Soil Resource

- 11.7.4 The soil at the Site are slowly permeable clay loams over clays, with characteristics indicative of the Foggathorpe 1 Association. These heavy textured soils are at very small risk of erosion and are, therefore, considered to be of Low sensitivity.
- 11.7.5 The incorrect handling and / or storage of soils, along with uncontrolled trafficking of vehicles / plant can cause damage to soil structure through compaction and smearing (referred to as deformation); loss of soil nutrients; loss of soil biota (e.g. bacteria, fungi, earthworms) and / or reduction of its activity; and the mixing of soil horizons (especially topsoil with subsoil). These impacts reduce the soils' potential for reuse and their future productivity and may result in the impairment of soil function (i.e. delivery of ecosystem services), quality and resilience.
- 11.7.6 The risk of compaction and smearing increases with soil moisture content, so it is greater during the autumn to spring period when the soil is most likely to be wet and plastic. Furthermore, incorrect handling, storage and trafficking can also lead to soil loss through erosion, excess trafficking on plant wheels, or unauthorised export. The loss of soil resource could result in the impairment of the remaining soils' function,



quality and resilience. This effect also comprises such changes as reduction of topsoil depth. The mixing of topsoil and subsoils and / or the contamination of soil with overburden also constitutes a loss of soil as these mixed or contaminated soils would no longer be of a quality suitable for reuse. Additionally, unregulated soil loss increases the potential for disease and pathogen transfer between different areas of agricultural land (a biosecurity risk). In the absence of appropriate construction mitigation measures, therefore, there is the potential for the permanent irreversible or long-term reversible damage to the soil structure and soil quality to occur (High magnitude of change). In the absence of mitigation, the potential effect is Major Adverse and **Significant**.

11.7.7 Similarly, in the absence of appropriate construction mitigation measures, there is the potential for the permanent loss of >75% of the soil resources onsite to occur, largely due to incorrect handling and soil mixing rendering the soil unsuitable for re-use elsewhere (High magnitude of change). In the absence of mitigation, the potential effect is Major Adverse and **Significant**.

11.8 Mitigation Measures

- 11.8.1 The permanent loss of the agricultural land within the Site cannot be mitigated as it is not possible to reinstate land to agricultural use as part of the proposed development or to create additional agricultural land elsewhere.
- 11.8.2 Soil resources will be protected against damage during stripping, handling and storage by adoption of standard good practice measures for soil management, such as those listed in Defra's Code of Practice for the Sustainable Use of Soils on Construction Sites or MAFF's Good Practice Guide for Handling Soils (See Appendix 11.4 of the 2020 IAMP ONE Phase 2 ES).
- 11.8.3 Site-won soils will be reused onsite (e.g. in landscaping areas, areas of green infrastructure and open spaces). The preferred option for any excess soils is he the export to an alternative receptor or transfer site for beneficial reuse elsewhere (subject to necessary permissions) and, as the soil would be reused, the export of soil to a receptor or transfer site is not considered to be a loss of soil resources. The onor offsite reuse of soils will be prioritised and it is, therefore, anticipated that the majority of soils would be treated in this manner. Disposal of excess soils to landfill would only be contemplated as a last resort and (unless the soils were to be used in landfill restoration) would be considered a loss of soil resources. Depending upon the



scale / volume of soil exported for disposal, the loss has the potential be Significant. It is considered, however, that implementation of the measures taken to minimise soil loss will ensure that a Significant effect does not occur.

11.9 Residual Effects

Agricultural Land Quality

- 11.9.1 The residual effects remain as previously assessed and Not Significant.
- 11.9.2 The Provisional ALC Mapping (Plate 11.1) shows all agricultural land within the administrative boundary of SCC to be Grade 3, with the remaining present land being either non-agricultural or urban. It should be noted, however, that the Provisional ALC Mapping is not accurate at the field scale as it does not map variations in ALC grade of less than *c*. 80 ha, nor does it provide a differentiation between Subgrade 3a (BMV) and Subgrade 3b (non-BMV) land. It does, however, provide a general indication of the most commonly occurring ALC grading across a wider area.



Plate 11.1: Provisional ALC Mapping Within Sunderland City Council administrative Boundary (reproduced from www.Magic.gov.uk; blue outline indicates approximate site location)

- 11.9.3 It is known from available detailed survey within the City region that there is a mix of Subgrade 3a and 3b present and some areas of Grade 2 (very good quality) land that are not represented on the Provisional ALC Mapping. It can, therefore, be concluded that delivery of a similar scheme elsewhere in the locality would result either in a similar loss of non-BMV land or would impact on BMV land.
- 11.9.4 To determine the current area of agricultural land in Sunderland City, the mapping was overlain on a current aerial image and any areas mapped as agricultural land but imaged as built development were reassigned. This resulted in a land use calculation



of Grade 3: 5,041 ha, Non-agricultural: 107 ha and Urban: 8,627 ha). As the loss of 18.74 ha (of the 24.23 ha present at the Site) non-BMV agricultural land has already been approved through the planning system, the loss of the remaining 5.49 ha non-BMV agricultural land accounts for only 0.11% of the available agricultural land within SCC's administrative boundary.

Soil Resource

11.9.5 The soil at the Site are slowly permeable clay loams over clays; with characteristics indicative of the Foggathorpe 1 Association. These heavy textured soils are at very small risk of erosion and are, therefore, considered to be of Low sensitivity. With the standard good practice measures and the embedded mitigation (by design), only minimal and temporary damage will occur. Loss of soil resources will be restricted to unavoidable small-scale (< 5%) losses arising from factors such as trackout of soils on construction vehicle wheels. The onsite and / or offsite reuse of soils will be prioritised (with disposal to landfill a last resort, only) and it is anticipated that the vast majority of soils would be reused, and the magnitude of change to soils would be Low. As such, the effect is anticipated to be Negligible and **Not Significant**.

11.10 Cumulative Impacts

11.10.1 Cumulative effects have been considered both in terms of cumulative effects of the proposed development in isolation (intra-cumulative) and the cumulative effects of the proposed development with other local developments (inter-cumulative). The list of other developments considered are listed within Table 2.5 of Chapter 2 of this ES.

Intra-Cumulative Effects

11.10.2 There are no intra-project cumulative effects on the permanent loss of BMV land (as the only source of impact is permanent development, including permanent land use change, on land that is non-BMV). There are no intra-project cumulative effects on the disturbance to, or loss of, soil resources (as the only sources of impact are construction activities).

Inter-Cumulative Effects

Agricultural Land

11.10.3 The permanent loss of 5.49 ha of Subgrade 3b (non-BMV) agricultural land due to the proposed development accounts for approximately 0.11% of the total available agricultural land in the administrative area of SCC and was assessed as Not Significant.



11.10.4 As there is the potential for the other considered developments to also permanently remove land from agricultural use, the scale of these losses is presented, below.

Table 11.5: Cumulative developments							
Application reference	Name of Development	Permanent Loss of Agricultural Land (ha)					
18/00092/HE4	IAMP ONE ^[1] Phase One, Washington.	42.26 ha (18.74 ha already considered in the loss of agricultural land due to IAMP ONE Phase Two) described as Grade 3b.					
18/02055/FUL	Unipres, Washington Road.	None					
18/01869/FUL 19/02161/VAR	Three Horseshoes, Washington Road.	None					
18/00459/FUL	Unipres UK Ltd, Cherry Blossom Way.	None					
TR010024	A19 Downhill Lane Junction Improvements.	5.83 ha (described as Grade 3/3b)					
18/01964/FUL	Elm Tree Nursery, Washington Road.	None					
21/00401/HE4		None (removed from agricultural use by					
21/00605/OU4	Hillthorn Farm.	None (removed from agricultural use by previous development)					
10/03039/EXT1	Turbine Business Park, Sunderland.	None					
DC/17/01117/OUT							
DC/18/00111/REM							
DC/18/00237/OUT	Follingsby International Enterprise Park.	37.6 ha (Grade 3h from WA survey)					
DC/18/00574/FUL	· · · · · · · · · · · · · · · · · · ·						
DC/18/00573/COU							
DC/20/00208/REM							
DC/18/00860/OUT	Follingsby Park, Gateshead.	None					
DC/19/01252/OUT	Land North of Follingsby Lane, Gateshead.	None					
19/01427/FU4	Hylton Skills Campus, North Hylton Road.	None					
DC/16/00698/OUT	Former Wardley Collieny, Gatesboad	None					
DC/19/00813/REM	Tormer Wardley Comery, Gateshead.	None					
17/02425/LP3	Northern Area Playing Fields Stephenson Road Stephenson Washington	None					
18/02226/FUL	Unit 1 Spire Road Glover Washington NE37 3ES	None					

11.10.5 The total loss of agricultural land due to the other developments listed in Table 11.5 is 85.69 ha and, from the available information, 79.86 ha of this is Subgrade 3b non-BMV land. From the available data for the A19 Downhill Lane Junction Improvements (which lists the land as Grade 3 / 3b), it is unclear how much land was surveyed as being Subgrade 3b and how much land was not surveyed and / or has the potential to be Subgrade 3a (BMV). As such, to present a worst case for this assessment, all 5.83



ha of land within the site is considered to be BMV quality (for the purpose of the assessment).

- 11.10.6 The other developments 'in combination' with the proposed development would result in the permanent loss of 109.92 ha of agricultural land, 104.09 ha of which is Subgrade 3b non-BMV land and 5.83 ha of which is BMV land. Using the criteria described in paragraph 11.6.3, this cumulative loss is considered to be **Not Significant** as the threshold of 20 ha of permanent loss of BMV land is not exceeded.
- 11.10.7 The loss of 109.92 ha of agricultural land accounts for 2.2 % of the total available agricultural land (5,041 ha) within the administrative boundary of SCC (it is acknowledged that the 'other developments' set out in Table 11.5 occur in the administrative boundaries of SCC and Gateshead Borough Council).

Soil Resources

- 11.10.8 The residual impacts for disturbance and loss of soil resources for the proposed development were assessed as **Not Significant.** Impacts to soil resources are site specific and, with the exception of IAMP ONE Phase One, none of the boundaries of the 'other developments' in Table 11.5 intersect with the boundary of the proposed development. In these cases, as none of the developments impact upon the soils within the Site, there is no potential for inter-cumulative effects to occur.
- 11.10.9 Although the IAMP ONE Phase Two boundary and the IAMP ONE Phase One boundary overlap by 18.74 ha, no development within the IAMP ONE Phase Two boundary is proposed as part of the IAMP ONE Phase One works and, therefore, the soils in the Site are not expected to be subject to inter-cumulative effects. However, should IAMP ONE Phase One works occur within the IAMP ONE Phase Two boundary, in order to conform with planning policy and good practice guidance, the works would be expected to apply similar standard soil management measures as described in Section 11.8 so as to ensure that the disturbance and loss of soil resources is reduced to a level where it was acceptable in planning terms. The impact, therefore, would be as assessed for the proposed development and **Not Significant**, with no significant inter-cumulative effects occurring.

11.11 Limitations of Study

11.11.1 There are no imitations to the study.



11.12 Summary & Conclusion

- 11.12.1 The proposed development is located on 24.23 ha of ALC Subgrade 3b (moderate quality, non-BMV) arable agricultural land and 0.85 ha of non-agricultural land. The loss of 18.74 ha of the agricultural land present within the Site has been consented by the granting of planning permission for IAMP ONE Phase One. The proposed development (IAMP ONE Phase Two) which would only involve a further loss of 5.49ha of arable agricultural land has also been approved. All land within the Site would be permanently removed from agricultural use due to the proposed development, but as the land is non-BMV, the loss is considered to be **Not Significant**.
- 11.12.2 The application of standard good practice soil management measures would reduce levels of soil loss and disturbance to Negligible and **Not Significant**. Also, where practicable, the reuse of soils within areas of landscaping and greenspace would be maximised, with excess soils transported from Site for beneficial reuse elsewhere.
- 11.12.3 There are no significant intra-cumulative and / or inter-cumulative effects to agricultural land or soil resources.