

CONTENTS

18 SUI	MMARY & CONCLUSIONS	
18.1	Introduction	
18.2	Scope and methodology	
18.3	Site and scheme description	
18.4	Planning policy context	
18.5	Community consultation and consideration of alternatives	
18.6	Air Quality	
18.7	Noise	
18.8	Landscape and Visual Impact	
18.9	Waste	
18.10	Water Resources	
18.11	Geology & Soils	
18.12	Ecology & Biodiversity	
18.13	Access & Transport	
18.14	Vulnerability to Major Accidents and Disasters	
18.15	Climate Change	
18.16	Archaeology & Cultural Heritage	
18.17	Cumulative Effects	
18.18	Summary	

TABLE

Table 18.1	Air quality summary assessment matrix
Table 18.2	Noise summary assessment matrix
Table 18.3	Landscape and visual impact summary assessment matrix
Table 18.4	Waste summary assessment matrix
Table 18.5	Water Resources summary assessment matrix
Table 18.6	Geology and soils summary assessment matrix
Table 18.7	Ecology and biodiversity summary assessment matrix
Table 18.8	Access and transport summary assessment matrix
Table 18.9	Vulnerability to major accidents and disaster summary assessment matrix
Table 18.10	Climate change summary assessment matrix

FIGURES

N/A



APPENDICES

N/A



18 SUMMARY & CONCLUSIONS

18.1 Introduction

- 18.1.1 This chapter of the Environmental Statement (ES) summarises the conclusions of the previous technical chapters in respect of the potential effects of the development of the IAMP ONE Phase Two site (i.e. the 'site') on the environment and people of the local area. Where possible, non-technical information and language is used. Summary tables are provided at the rear of this chapter.
- 18.1.2 The site and the proposed development are described in detail within Chapters 1 and 3 of this ES. The site is circa 25 ha in size and is comprised of a triangle of land located within the south-western corner of the overall IAMP ONE area, but also includes land within the IAMP ONE site boundary (see Figure 3.1) in order to ensure that the proposed development can be delivered without any constraints in terms of access, landscape and flexibility of future development.
- 18.1.3 Access into the land proposed for development would be via the existing, consented access road; drainage for the site, including the south-western triangle, has already been incorporated into the wider IAMP ONE area.
- 18.1.4 This ES sets-out the detail of the context for the project and the project characteristics within Chapters 1 and 3. Effects on the environment of the project area; on planning and development; and on the people of the area have been considered. Cumulative effects for the individual environmental aspects, as well as on the natural environment and the people and property of the local area, have also been considered.
- 18.1.5 Assessments have been undertaken in accordance with best practice and approved methodologies; this information is set out within the technical chapter of this ES (i.e. Chapter 6 to 16). Consultations with the relevant statutory organisations and others are referenced, where these have occurred. Supporting information is included in Appendices to this ES, with plans and figures illustrating the findings of the assessments also provided.

18.2 Scope and methodology

Informal consultation

18.2.1 Informal consultation with Sunderland City Council (SCC) was undertaken between June and November 2019 and between April and June 2020 and has informed the scope (content) and preparation of this ES.



Methodology

- 18.2.2 The assessment of effects on the environment (i.e. the environmental impact assessment (EIA)) for each technical discipline typically considers the following:
 - Site activities and / or sources of potential impact for that particular topic.
 - Potential Effects occurring as a result of the construction and the operation of the proposed development, including cumulative effects.
 - Mitigation measures, which may be embedded within the design of the proposed development or provided as additional measures
 - Residual Effects, which are those that remain once mitigation measures are assumed to be in place.
 - Whether any monitoring or follow-up is necessary to ensure that mitigation remains effective and appropriate.
 - Cumulative Impacts, which may occur in association with other aspects of the project or with other development projects that have been consented but not constructed or are awaiting determination.
 - Any limitations to the assessment.
- 18.2.3 Assessment methodologies have followed those used for the 2018 IAMP ONE EIA, are in accordance with current industry best practice and standards, and have been undertaken by experienced, qualified professionals. Assessments typically consider the sensitivity (possibly the value) of a receptor, the likely magnitude of change (i.e. the impact) anticipated as a result of the proposed development and the resulting level of effect, and whether this would be considered to be 'Significant' or 'Not Significant' (in EIA terms).

18.3 Site and scheme description

The site

- 18.3.1 The site forms part of the overall IAMP area, as identified in the Area Action Plan (AAP) for IAMP, being the second phase of the consented (and under construction, in part) IAMP ONE development. IAMP TWO is to be delivered and determined under the Nationally Significant Infrastructure Project (NSIP) route.
- 18.3.2 The triangular piece of land north and west of West Moor Farm was not included in the 2018 IAMP ONE planning application due to issues relating to the availability of



up-to-date ecological survey information and the then occupancy of the West Moor Farm property.

- 18.3.3 The site comprises a triangular area of agricultural land (primarily arable) and hard standing associated with West Moor Farm (now vacated and to be demolished) located in the south-eastern corner of the triangular site and land within the wider IAMP ONE site associated with Plots 1 and 2 and the adjacent section of access road. An area to the east of West Moor Farm is in use as a construction compound and Plots 3, 4, 5/6 are nearing completion.
- 18.3.4 The overall area within the redline boundary for the site extends to formed Phase Two of IAMP ONE is 6.5 ha (see Plate 3.1 within Chapter 3 of this ES). There are no watercourses or waterbodies present within the site area. The agricultural land within the site has been classed as Grade 3b, which is not best and most versatile (BMV) land. Existing field and roadside hedgerow boundaries, including occasional trees (ash, birch, sycamore, hawthorn) are present on the eastern edge of the triangular site and the southern edge of the wider site. A walkover survey of the site confirmed that the hedgerows within the site are species-poor.
- 18.3.5 The land is largely level, with only minor variations in elevation. The wider area comprises very gently undulating topography, dropping gradually to the River Don (690 m-700 m to the north). Further to the south, south of the River Wear, the land rises to a high point of 136 m at the Penshaw Monument.
- 18.3.6 There is an existing access to the A1290 from the West Moor Farm property, which is 300 m to the east of the junction into the Nissan site from the A1290. The site also incorporates an access track linking northwards to North Moor Farm. With the implementation of the proposed development, both of these accesses would be closed to vehicular use.

The proposed development

18.3.7 The 2020 planning application (ref. no. 20/00556/OU4) sought outline planning permission for: '...the erection of industrial units (up to 98,937.2 m²) (gross internal area) for light industrial, general industrial and storage and distribution uses (Class B1(c), B2 and B8) with ancillary office and research and development floorspace (Class B1(a) and B1(b)) with internal accesses, parking, service yards, electricity sub-stations, attenuation basins and associated infrastructure, earthworks and landscaping, as well as the demolition of the existing buildings at West Moor Farm.' All matters were



reserved for determination at a later stage. Access was reserved for future approval as the precise location of access routes into / within the site were unknown at the time of writing and submission. Access to the site was to be from the A1290 via International Drive.

- 18.3.8 Within the 2020 ES, Figure 3.1B Indicative Masterplan Option B illustrated the development of the site with one industrial unit (orientated south-west to north-east), and the 2020 application was granted planning consent in June 2020.
- 18.3.9 Subsequent to receiving planning consent, amendments to the scheme design have been proposed; thereby necessitating the submission of a new planning application comprising:
 - Small changes to the redline boundary (e.g. along the southern perimeter, and changes to accommodate the access road junction) resulting in a small reduction of the Site area.
 - A change to the position and orientation of the industrial unit.
 - A change of use (still within Class B2) to operations associated with an electrode and battery manufacturing facility, including the storage and use of hazardous substances.
- 18.3.10 The proposed development consists of an industrial unit (orientated west to east) and is illustrated by Drawing 101 Proposed Site Plan. The maximum height of the roof line remains at 30 m in accordance with the previously approved parameter plan, although there are now proposed to be solar PV panels on the roof, perimeter safety barriers, and information about the stacks is now available and so this is included on the elevations (see Drawing 105 Proposed Factory Elevations).
- 18.3.11 The proposed development consists of a single, three-storey industrial unit that is to house an electrode and battery manufacturing facility with a maximum capacity of up to 9 GWh / annum, split across two battery manufacturing plants separated by a central spine of offices. Included within the unit will be an integral electrode manufacturing plant. The plant will manufacture battery modules for Nissan, which Nissan will assemble into a final pack assembly ready for installation into vehicles.
- 18.3.12 Whilst the proposed development will result in a very small increase (of 9,678 m²) in GIA; thereby raising it to 108,615 m², the additional area would not be accessible to staff. It would be used solely for the purpose of housing plant with high levels of automation and staff would be excluded on the grounds of health and safety.



- 18.3.13 The facility will employ circa 1,000 staff consisting of circa 850 shift-based staff and circa 150 day-based (office) staff. Access to the site will be from the A1290 via International Drive and an 800-space staff carpark will be created to the immediate north of the unit that will include 40 7 kWh electric vehicle charging bays.
- 18.3.14 The proposed facility will manufacture lithium-ion battery pouch cells and modules for electric vehicle (and other applications) via four production areas comprising of: electrode manufacture; cell production; formation and testing; and module assembly.
- 18.3.15 Flues associated with onsite processes (e.g. steam boilers, low temperature hot water boilers and the lab, etc.) will be situated along both the northern and southern aspects of the facility, as well as along the centre of the facility (see Drawing 105 Proposed Factory Elevations). Whilst these will be higher than the eves, they will not be higher than the central ridgeline of the roof. The roof is also to be designed to allow the installation of photovoltaic solar panels (laid flat to the roof) at a future date.
- 18.3.16 Owing to the use of inhalable nickel powder in quantities exceeding 1 tonne per annum within the manufacturing process, the site will be classified as an 'lower tier' COMAH site. For further details on the onsite processes, please refer to Appendix 3.2 at the rear of this ES.
- 18.3.17 In accordance with Policy S2 (Land Uses) of the IAMP AAP, the principal uses onsite will remain as production, supply chain and distribution activities directly related to the Automotive and Advanced Manufacturing sectors and related supporting uses. The IAMP AAP recognises that an element of office space for business services and research and development space will be required to support the principal uses onsite.
- 18.3.18 A series of plans have been prepared to support the detailed planning application and define the proposed form of the IAMP ONE Phase Two development¹. These were used to inform the assessments reported in the technical chapters of this ES. A full list of development plans is set out in the Planning Statement. Appendix 3.1 of this ES includes a selection of these plans, including the Masterplan.
- 18.3.19 A draft Design Code was submitted with the 2018 IAMP ONE ES to provide the overarching design principles for the IAMP and to set out pragmatic, flexible guidance for the individual plots or buildings within the IAMP. The Design Code is to be read in conjunction with the AAP (policies D1, D2, T1-T4, IN1, IN2 and EN1-EN4), which set

¹ These include those submitted as part of the 2020 application as well as this application.



out the key agreed parameters and a series of strategic policies, design guidelines and masterplan principles. The design of building and plot within this site will comply with this Design Code. The accompanying Planning Statement prepared by Lichfields outlines how this scheme complies with AAP policy. A DAS is provided as part of the detailed planning application for the site, reinforcing this requirement.

- 18.3.20 The landscaping of the site (see Drawing 103 Proposed Landscape Plan) will also follow the same principles as have been applied to the IAMP ONE Phase One development area, with perimeter screen planting, planting to individual plots, low topsoil bunding, retention and reinforcement of existing perimeter hedging and tree planting. Planting to the north-western boundary will have regard for the presence of the overhead electricity transmission line and will comprise relatively lower-growing species. National Grid clearance requirements will be adhered to. An additional planting buffer will be developed within the south-western triangular corner of the site, using native woodland tree and scrub species, to provide enhanced visual screening of the development in views from the A1290 (eastbound). The objective of this is to provide biodiversity net gain, in-line with the requirements of Sunderland City Council's recently adopted Core Strategy & Development Plan (CSDP).
- 18.3.21 A Landscape Management and Maintenance Plan and a Habitat Management Plan have been prepared for the IAMP ONE Phase One site. A planning condition of IAMP ONE requires the preparation of a Landscape and Ecological Management Plan for the development plots and public realm areas within the development area prior to the commencement of any planting within these areas. This will include details of how the landscaping scheme will be managed and maintained in the future. It is likely that this requirement will extend into the area of the site.
- 18.3.22 The IAMP development extents include 110 ha of land allocated as Ecological and Landscape Mitigation Area (ELMA) within the IAMP AAP (see ES Figure 1.2). This land will be used to implement some of the mitigation and/or compensation for impacts of the IAMP development on the habitats and species of the area.
- 18.3.23 A detailed surface water design strategy has been prepared for the development plot, designed by RPS Consulting and Systra utilising such measures as underground storage tanks, porous paving for parking areas, and filter drains for internal roads. A detailed surface water design strategy has also been developed for the infrastructure drainage, which will manage run-off from the main access roads, and will provide connection points for surface water from the development plot(s).



18.3.24 The IAMP ONE Phase Two site development has been allowed for within all of the drainage design work undertaken in respect of the IAMP ONE Phase One site. No additional works are, therefore, required other than to manage the surface and foul drainage associated with plot developments within the site boundary.

Construction methodology and phasing

- 18.3.25 Subject to planning permission, construction of the proposed development is anticipated as commencing in March 2022 and last for a duration of circa 18 months / 72 weeks. The first phase of work will comprise the removal of topsoil from the areas proposed for built development (including roads and parking areas) and construction of the access road(s) into the site. Where possible, topsoil removed from within the development area will be retained for use onsite within bunding / landscaped areas.
- 18.3.26 In advance of construction work commencing at the site, it is anticipated that a precommencement ecological survey / walkover and report will require to be completed, to ensure that there is no disturbance to any ecology (i.e. fauna and flora) as a result of construction operations.
- 18.3.27 The first phase of work will comprise the removal of topsoil from the areas proposed for built development (including roads and parking areas) and construction of the access road(s) into the individual development plots. Where possible, topsoil removed from within the development areas will be retained for use on site in bunding and landscaped areas.
- 18.3.28 The hours (excluding deliveries) during which construction is anticipated as occurring onsite are:
 - Mondays to Fridays (07:00 18:00 hours).
 - Saturdays (08:00 17:00 hours).
 - No working on Sundays and Bank or Public Holidays.
- 18.3.29 Construction access to the site and contractor compound (located at the western edge of the site) will be from the A1290 to the north, adjacent to West Moor Farm. Access for construction vehicles may also be from International Drive. Construction access to the site and contractor compound will be from the A1290 and from International Drive. A Construction Traffic Management Plan (CTMP) will be prepared, setting out the routes to be followed by construction traffic to avoid sensitive areas and areas of notable congestion, and the times when construction deliveries to the site will be



permitted (typically 08:00 – 14:30 hours, Mondays to Saturdays). These will ensure there is no potential conflict with times when shift changes take place within the adjacent Nissan factory.

- 18.3.30 West Moor Farm was acquired by IAMP LLP in 2017 and is now vacated. The demolition of the buildings was approved by SCC as part of the 2020 outline IAMP ONE Phase Two planning permission and, following planning approval in June 2020, a separate detailed application for the demolition of West Moor Farm was submitted in June 2021 (ref. 21/01330/FUL) to allow the timing of the demolition to be brought forward. The demolition of the West Moor Farm buildings will be carried out in accordance with the approved Construction Demolition Management Plan (CDMP) that will identify the types and volumes of waste arisings anticipated from the demolition and the means of re-using, recycling, recovering or otherwise disposing of these in a sustainable manner.
- 18.3.31 The compound area (located at the western edge of the site) was subject to an archaeological evaluation by AD Archaeology Ltd. in early 2021, the results of which found no significant archaeological features and no further archaeological works are required (see Appendix 3.3).
- 18.3.32 A Construction Environmental Management Plan (CEMP) will be prepared prior to the commencement of works onsite, including mitigation identified within this ES relating to construction activities. The CEMP will include a Site Waste Management Plan (SWMP) and Dust Management Plan (DMP), setting out the measures by which construction can take place with minimal impact on the local environment.

18.4 Planning policy context

- 18.4.1 The following plans and guidance are primary material policy considerations relevant to this detailed planning application:
 - The National Planning Policy Framework (July 2021).
 - Planning Practice Guidance (March 2014).
 - The Adopted Development Plan, comprising:
 - Sunderland Core Strategy and Development Plan (CSDP) 2015-2033, adopted January 2020.
 - International Advanced Manufacturing Park (IAMP), Area Action Plan (AAP) 2017-2032, adopted November 2017.



Planning history

- 18.4.2 In order to bring forward and meet the demand for early development on part of the IAMP site, an area known as IAMP ONE was made subject to consent by means of a planning application. Part of that IAMP ONE area (i.e. the Phase Two area) was not included within the 2018 planning application due to the need for updated ecology surveys and West Moor Farm was still occupied at that time.
- 18.4.3 The IAMP ONE Phase Two outline planning application that was submitted in March 2020 formed part of the wider planning base for the delivery of IAMP and was submitted to ensure that the whole of the IAMP ONE area could benefit from a planning consent and, thereby, deliver the benefits anticipated at the outset of the process. The IAMP One Phase 2 outline planning application (ref. no. 20/00556/OU4) was consented in June 2020.
- 18.4.4 Subsequent to receiving planning consent, an amendment to the position and orientation of the light industrial unit, a change of use and a slight reduction in the redline was proposed; thereby necessitating the submission of a new application. This ES supports the detailed planning application for the proposed development of the site for the creation of an electrode and battery manufacturing facility with a maximum 9 GWh / annum capacity (see Chapter 3).

18.5 Community consultation and consideration of alternatives

Community consultation

- 18.5.1 Consultation with the local community was undertaken following discussions with SCC on the type of consultation considered to be appropriate. This was agreed as a leaflet drop targeting specific residential and commercial areas within the vicinity of the site and immediate surroundings, plus organisations and businesses with connections to the IAMP site. The leaflet drop was carried out in July 2021 and entailed approximately 2,800 leaflets being issued. Of these, a total of 33 responses were received.
- 18.5.2 A total of 79% (of 33 responses received) respondents either strongly agreed or agreed that the proposed battery plant is a welcome continuation of the IAMP development for advanced manufacturing and automotive uses. A total of 3% of respondents answered neutrally and 18% respondents either disagreed or strongly disagreed.



18.5.3 Of the 33 reposes, 15 included general comments, 6 of which were positive, 2 were neutral and 7 were negative. Whilst the positive comments supported proposals and the investment in the economy, the concerns raised related to the principle of the development, the loss of green space, increased traffic on the A1290, increased noise and disturbance, the impact on biodiversity and the implications on climate change. A response addressing each of the concerns raised has been included within the Statement of Community Involvement, which has been submitted separately to accompany the application.

Alternatives

- 18.5.4 Consideration of the reasonable alternatives studied by the developer and a description of these is a requirement of the Town & Country (EIA) Planning Regulations (2017). Typically, consideration of alternatives includes aspects such as a 'Do Nothing' option, potential alternative sites, designs, site accesses or alternative technologies.
- 18.5.5 In the case of the proposed development of the IAMP ONE Phase Two site, however, the planning application is required to complete the suite of consents necessary to deliver the IAMP development as a whole, in accordance with the adopted IAMP AAP. Alternative sites and accesses and a 'do Nothing' option are, therefore, not relevant. It is, therefore, considered that, given the work previously completed in this regard, there is no requirement for any further consideration of reasonable alternatives as part of this submission.

18.6 Air Quality

- 18.6.1 The construction phase risk assessment that has been undertaken concluded that there is a risk of potential disamenity dust and fine particulate matter releases associated with the earthworks, construction and trackout activities during construction of the development. For earthworks and construction, there are one and to ten residential receptors located within 350 m of where these activities may occur. For trackout, there are no sensitive receptors located within 50 m of where trackout may occur for a distance of up to 500 m from the site entrance.
- 18.6.2 The assessment of operation phase vehicle generation for the IAMP ONE submission predicted air quality pollutant concentrations at various sensitive receptor locations and for a proposed 2020 future operational year, but predicted negligible air quality changes and pollutant concentrations would be below the air quality objectives and



limit values in all scenarios considered. The operation of the proposed development will not introduce any new vehicle flows and the additional extent of development land included as part of this submission is not expected to result in significant effects or any changes to the conclusions predicted previously.

Process emissions

- 18.6.3 Process emissions include NOx² and CO (from the operation of the steam-generating boilers and LTHW boilers) and NMP and Ethyl Carbonate (from the operation of the electrode manufacturing and electrolyte coating processes) have been modelled at a number of existing sensitive receptors / receptor points, where applicable. The background concentrations of NO₂, CO and C₆H₆, were used to determine the predicted environmental concentration.
- 18.6.4 The maximum modelled process contributions and predicted environmental concentrations do not exceed the relevant air quality objectives for any of the existing sensitive human receptors considered in the assessment. Taking into account the process contributions and, for long-term emissions, the predicted environmental concentration, the overall air quality effect is classed as a Negligible to Slight Adverse, and **Not Significant**.
- 18.6.5 In terms of the short and long-term process contributions at the existing sensitive ecological receptor points, the maximum modelled results do not exceed 100% of the critical levels for the protection of vegetation within both the nearby Local Nature Reserves and the nearby Local Wildlife Sites. Additionally, the results confirm that the maximum modelled process contributions do not exceed 10% of the short-term nor 1% of the long-term critical levels for the protection of vegetation within the Northumbria Coast Ramsar and Special Protected Area. As such, NO₂ emissions are considered to be **Not Significant** at the designated habitat sites considered.
- 18.6.6 In terms of nutrient nitrogen and acid deposition, the maximum modelled process contributions do not exceed 100% of the long-term critical loads for the protection of vegetation within the nearby Local Nature Reserves. Additionally, the results confirm that the maximum modelled process contributions do not exceed 10% of the short-term nor 1% of the long-term critical levels for the protection of vegetation within the Northumbria Coast Ramsar and Special Protected Area.

² NOx concentrations were converted to NO2 concentrations as per Environment Agency recommendations.



18.6.7 As such, NO₂ emissions are considered to be Not Significant at the designated habitat sites considered.

Mitigation measures

- 18.6.8 During the construction phase, the implementation of effective site-specific mitigation measures will substantially reduce the potential for nuisance dust and fine particulate matter to be generated. This will include the use of best practice dust control measures that will be detailed with in a Dust Management Plan (DMP) prepared as part of the CEMP. Such measures include, but not limited to, the following:
 - Provision of training to the onsite personnel on dust mitigation.
 - Speed restrictions on vehicles within the site.
 - Laden lorries covered before leaving the site.
 - Regular grading and maintenance of haul roads (if used within the site).
 - Minimising of stockpiling heights; thereby reducing wind whipping and lofting.
 - Provision of water bowsers to spray haul roads and stockpiles with water to suppress dust emissions, as necessary.
- 18.6.9 In terms of road traffic emissions during operation, no additional mitigation measures above those required for IAMP ONE Phase One is deemed necessary. The mitigation measures required for IAMP ONE comprise a number of transport-related measures, including junction upgrades, traffic management improvements and a Travel Plan.
- 18.6.10 In terms of process emissions during operation, it is considered that there will be sufficient dispersion of all pollutants considered. As such, further mitigation will not be required. It should also be noted that the proposed development will operate under an Environmental Permit that will be regulated by either the Local Authority or the Environment Agency.
- 18.6.11 Residual effects are those effects of the development that remain after mitigation measures have been implemented. With the implementation of the measures set out in the DMP, residual effects are expected to be Negligible (Not Significant) for construction and operation.
- 18.6.12 In terms of cumulative effects, no significant intra-cumulative or inter-cumulative effects have been identified during either the construction or operational phases of the proposed development.



18.7 Noise

- 18.7.1 A noise and vibration assessment has been undertaken for the construction and operational phases of the proposed development to assess potential impacts upon the nearest existing sensitive receptor (i.e. North Moor Farm), which situated circa 160 m to the north of the site boundary.
- 18.7.2 A noise survey was undertaken for the wider IAMP ONE application, the data from which has been used for this assessment. At North Moor Farm, distant road traffic on the surrounding road network (including on the A1290, A19 and A184) were the dominant noise sources. Noise from the Nissan plant was also audible and included a constant, low-level, low-frequency droning noise and reverse alarms. The baseline data was used to establish thresholds for construction and operational noise.
- 18.7.3 Owing to the distance between North Moor Farm and the site, potential impacts as a result of noise and / or vibration due to activities associated with construction are assessed as Negligible and **Not Significant**. The use of current best practice working methodologies will also be adopted during construction phase to ensure that any potential impacts that may occur are reduced as far as practicably possible.
- 18.7.4 During the operational phase of the proposed development, the character of the residual sound (which will contain broadband noise from road traffic and industrial noise from the Nissan Plant to the south) and the character of the specific sound of the proposed development will be very similar. The proposed development is, therefore, considered to be in keeping with the immediate area.
- 18.7.5 Embedded mitigation in the form of acoustic fencing (min. 1 m high and 15 kg / m² density) situated along the northern boundary of the site will be designed-in to the design proposals. With this in place, the potential impacts upon North More Farm as a result of noise and / or vibration due to activities associated with the operation of the proposed development are assessed as Negligible and Not Significant.
- 18.7.6 In terms of cumulative effects, no significant inter-cumulative and no significant intercumulative effects have been identified.

18.8 Landscape and Visual Impact

Landscape character and landscape resource during construction

Effects on designated areas



18.8.1 During construction, the effect of the proposed development upon the adjacent Green Belt due to the presence of onsite plant / machinery would be indirect, slight to moderate adverse for the short-term and Not Significant.

Effects on site elements and perceptual aspects

- 18.8.2 Onsite works will result in the loss of existing vegetation within the site. The change to the landscape resource would have a local effect on landscape character, but this will be mitigated for in the long-term by the proposed landscape strategy. The adverse effect would be **Not Significant**.
- 18.8.3 Some onsite construction lighting is anticipated during the winter months and may be required for reasons of security, but this would be short-term and temporary. The adverse effect would be **Not Significant**.

Effects on landscape character

- 18.8.4 Activities associated with construction would result in a direct, short-term, temporary effect on the landscape character of the Coalfield Lowland Terraces (Usworth Lowland) Landscape Character Type (LCT) / Landscape Character Area (LCA) and its immediate surroundings. The adverse effect would be Not Significant.
- 18.8.5 The effect on the landscape character of the wider area of the Usworth Lowland LCA and the Urban Fringe, Boldon Fell LCT would be indirect and limited to changes associated with the noise of construction plant and perception of construction operations, and would lessen with distance from the site. The adverse effect would be **Not Significant**.

Landscape character and landscape resource during operation

Effects on designated areas

18.8.6 The adjacent area of Green Belt land would be occupied by the Ecological Landscape Management Area (ELMA) and management operations are proposed to ensure that there are long-term beneficial effects on the ecological interests of the local area and the character of the landscape. Perimeter landscaping to the IAMP site would provide separation between the two areas and form a new, defensible boundary on the edge of the Green Belt. As the planting establishes over time, the effectiveness of this would increase. The adverse effect on the Green Belt would be indirect and permanent adverse, but **Not Significant**.



Effects on site elements and perceptual aspects

- 18.8.7 There would be a permanent change to the scale of the site due to its development as a part of the wider IAMP ONE site. The medium scale of the existing landscape within a (wider area of medium to large scale) is likely to increase to large scale with the development of a large building. The scale of the wider landscape is, itself, influenced by the presence of the existing and under-construction large and medium size buildings within IAMP ONE Phase One. The adverse effect would be **Significant**.
- 18.8.8 Enclosure within the area will alter as a result of vegetation clearance, the reinforcement of existing retained hedgerows, new perimeter planting and new internal soft landscaping associated with the proposed development. Additional enclosure will be provided by the development of the proposed industrial building. The adverse effect would be permanent, but **Not Significant**.
- 18.8.9 Lighting will form part of the site development. This will accord with principles of the Design Code for IAMP ONE and, as such, would maintain a consistency of appearance and effect on the character of this landscape. Additionally, it is intended that the south-western corner of the site (including any building facades facing towards this end of the site) will be kept as dark as practicable so as to minimise adverse effects on species and habitats. The adverse effect would be permanent, but **Not Significant**.

Effects on Landscape character

- 18.8.10 The development of the site would result in a permanent, direct effect on this part of the Coalfield Lowland Terraces (Usworth Lowland) LCT / LCA. The adverse effect would be Significant.
- 18.8.11 The effect on the landscape character of the wider area of the Usworth Lowland LCA and the Urban Fringe, Boldon Fell LCT would be indirect and limited to changes to the skyline, associated with the presence of a tall, large-scale building on the horizon. The adverse effect would be Not Significant.

Cumulative effects

18.8.12 Cumulative effects on landscape were assessed in relation to the combination of the proposed development of the site together with anticipated developments in the nearby area, as set out within Table 2.5 of Chapter 2 and illustrated by Figure 2.1 of this ES. The cumulative assessment was limited to the operational stage of the



proposed development, as any effects of construction would be short-term and temporary and, therefore, **Not Significant**.

Cumulative effects on the landscape character during operation

18.8.13 Overall, no significant cumulative effects are predicted in relation to the landscape resource of the local area. This is also considered to be the case when considering the total effects of all the proposed developments in combination with the site.

Cumulative effects on the landscape character during operation

18.8.14 Overall, **no significant cumulative effects** are predicted in relation to the landscape character of the local area as a result of the proposed development of the site. This is also considered to be the case when considering the total effects of all the proposed developments in combination with the site.

Effects on visual receptors during construction

- 18.8.15 The Zone of Theoretical Visibility (ZTV) is based on theoretical visibility using LiDAR data (that including buildings, trees and other above ground features) and assumes an eye height of 2 m for a proposed maximum building height of 30 m.
- 18.8.16 Given the presence of extensive areas of built development within the areas surrounding the site, the ZTV extents cut-off at the edges of the settlements and industrial zones enclosing the site. Views from areas beyond these edges can expect to be constrained by the existing built development. The ZTV indicates that the main areas within the 2 km study area from which there would be views of the proposed building, are located to the immediate west, north and east of the site, with more limited visibility to the south and south-west. More distant views are possible from the areas of higher ground further to the south, including from Penshaw Monument.
- 18.8.17 Owing to the nature of the site and the limited presence of near-distance receptors, any adverse effects on visual amenity for receptors in the area of the site as a result of activities associated with construction would be short-term, temporary and Not Significant.

Effects on visual receptors during operation

Residential receptors (settlements, groups of properties, individual properties

18.8.18 Residential receptors with scope for views of the site include properties on the northeastern settlement edge of Washington (over 1 km to the west of the site) and properties on the southern section of Sulgrave Road. Views from the properties in



Washington would be relatively distant and partially screened by existing tree cover on the edges of the disused railway line. From the properties on Sulgrave Road, views of the IAMP ONE Phase One site would be blocked by the proposed development. Any adverse effect upon visual amenity is assessed as **Not Significant**.

- 18.8.19 North Moor Farm is a single storey property that is situated to the immediate north of the site (within the ELMA area) and faces south-south-east towards the site. The property, which already experiences views of the development within the existing IAMP ONE Phase One site, would also experience direct views of the proposed development within the site. The adverse effect upon visual amenity is assessed as Significant.
- 18.8.20 The properties at Hylton Bridge Farm experience limited visibility towards the site. Views from the bungalow at Hylton Bridge Farm are screened by a row of trees along the southern boundary of the garden and the two-storey property at Hylton Bridge Farm has no main windows facing to the south-west. Views of the site from within the general area of these properties are across existing farmland and include the buildings currently under construction within the consented areas of the IAMP ONE Phase One site. The proposed development, although 500 m distant would be a noticeable difference within this general view due to its overall extent. The adverse effect upon visual amenity is assessed as **Significant**.
- 18.8.21 Views from the two, two-storey properties on the roadside at Hylton Grove Farm are restricted by roadside hedging and intermittent trees, and buildings associated with Hylton Bridge Farm. Within the wider view, roadside trees and hedging, and field boundary hedging and hedgerow trees interrupt views to the south-south-west. Views towards the site would be marginally more distant than those of Hylton Bridge Farm, with a slightly greater extent of intervening farmland. The proposed development would be visible above and beyond the intervening vegetation. The adverse effect upon visual amenity is assessed as **Significant**.
- 18.8.22 Views from the properties of East House and Strother House Farm, which are located >1.35 km from the site, would be partially screened by intervening trees and field boundary hedging. The proposed development would be seen in front of the existing Nissan buildings and the completed and under construction extents of the IAMP ONE Phase One site. The adverse effect upon visual amenity is assessed as **Not Significant**.



18.8.23 Views of the proposed development from the Down Hill Farm area would form part of the wider view of the consented IAMP ONE site, located beyond. The adverse effect upon visual amenity is assessed as **Not Significant**.

Users of transport routes and rights of way

- 18.8.24 From the immediately adjacent sections of the A1290, as it approaches and passes the site, there would be near-distance views of the completed development. These would be of short duration, transient and varying from more distant, direct views to near-distance and oblique views of the site; seen in the context of the consented IAMP ONE Phase One development which, for westbound road users, would initially screen views of the proposed building within the site. For eastbound road users within the 1.6 km section of road east of the IAMP ONE access road, the proposed building within the site would be the first element of the development to be seen, occupying part of the forward view, albeit intermittently screened by roadside trees but increasing in prominence as the road user gets closer to the site. The adverse effect on visual amenity for users is assessed as **Not Significant**.
- 18.8.25 There would be **no views** of the proposed development from the A19(T).
- 18.8.26 Views of the proposed development from both the overbridge at the Downhill Lane junction with the A19(T) and the elevated sections of Downhill Lane to the north-east of the site, would be difficult to discern beyond the built development within the consented IAMP ONE Phase One site. The adverse effect on visual amenity for users is assessed as **Not Significant**.
- 18.8.27 Views from sections of Follingsby Lane (to the north-north-west of the site) would be more distant and oblique, and interrupted in places by roadside hedging and tree cover. The site would be seen in conjunction with the wider, under development IAMP ONE Phase One site and the existing Nissan development area. The adverse effect on visual amenity for users is assessed as **Not Significant**.
- 18.8.28 From the BOAT³ between Follingsby Lane and East House, there is scope for distant views of the proposed development, seen in closer proximity than, and in conjunction with the wider IAMP ONE Phase One site. The proposed building within the site would break the skyline to a noticeably greater extent than the existing buildings within IAMP

³ Byway open to all traffic.



ONE Phase One. The adverse effect on visual amenity for users is assessed as **Not Significant**.

- 18.8.29 Distant views towards the proposed development from the footpath to the east and north-east of Strother House Farm would be interrupted by intervening trees and hedgerows. The proposed building within the site would break the skyline, sitting in front of the existing Nissan buildings. The adverse effect on visual amenity for users is assessed as **Not Significant**.
- 18.8.30 Views of the proposed development from the dismantled railway line (if it were to be brought back into service) to the east of Sulgrave and Usworth Hall would be transient and oblique views, and seen in the context of the wider IAMP ONE Phase One and the Nissan buildings. The adverse effect on visual amenity for users is assessed as Not Significant.
- 18.8.31 For other roads and rights of way within the study area, any views of the proposed development would typically be distant and interrupted by intervening tree cover and the adverse effect on visual amenity is assessed as **Not Significant**.

Users of formal and informal open space and recreation areas

- 18.8.32 There would be distant views northwards of the proposed development for visitors to the Penshaw Monument, seen in the context of the wider industrial development areas (including IAMP ONE Phase One and IAMP TWO, and Follingsby Park). The adverse effect on visual amenity is assessed as **Not Significant**.
- 18.8.33 Views towards the site from the North East Aircraft Museum are well screened by intervening tree cover, as well as the buildings being constructed within the consented IAMP ONE Phase One site. As such, there would be **no effect** on visual amenity for visitors at the museum.

Assessment of key views

- 18.8.34 The following six viewpoints were selected to represent locations from where the site is most visible for the greatest numbers of visual receptors:
 - Viewpoint 1 views from the A1290 at the new entrance road.
 - Viewpoint 13 views from the Penshaw Monument.
 - Viewpoint 16 views from the A1290 to the west of the site.
 - Viewpoint A views from Follingsby Lane to the north of the site.



- Viewpoint B views from Follingsby Lane to the north of the site.
- Viewpoint C: view from Follingsby Lane to the north of the site.
- 18.8.35 The magnitude of impact upon visual amenity varies between negligible-low and high and the sensitivity of receptors varies between low and medium-high. With the establishment of perimeter and internal planting and the assimilation of the proposed development into the general area, the adverse effect upon visual amenity for all views was assessed as **Not Significant** in the long-term.

Cumulative effects

- 18.8.36 In terms of cumulative effects, where cumulative effects upon visual amenity were identified, the magnitude of impact ranged between low and high and the sensitivity of receptors ranged between low and medium-high. With the establishment of perimeter and internal planting and the assimilation of the proposed development into the general area, the adverse effect upon visual amenity for all but one of the views was assessed as **Not Significant** in the long-term.
- 18.8.37 For the residents of North Moor Farm there would be near and middle-distance views (seen in successive fields of view) of the site in combination with areas within IAMP ONE Phase One and IAMP TWO. In this instance, the magnitude of impact upon visual amenity is high and the sensitivity of the receptor is medium-high. As such, the adverse cumulative effect upon visual amenity is assessed as Significant in the short to mid-term. In the longer-term, the effect would reduce to **Not Significant** with the assimilation of the development into the general area.

Summary

18.8.38 Overall, With the identified mitigation measures (see Chapter 8) in place, the longterm effects of the proposed development on the landscape character and visual amenity of the local area would be **Not Significant**. With the identified mitigation in place, it is anticipated that the effects, including cumulative effects, on visual amenity for the occupants of North Moor Farm, the properties at Hylton Bridge Farm and the two roadside properties at Hylton Grove Farm would be Significant in the short to medium-term. In the longer-term, however, the effects on landscape character and visual amenity would reduce to **Not Significant** and would make a positive contribution to the landscape character and visual amenity of the local area.



18.9 Waste

- 18.9.1 An assessment has been undertaken for potential significant effects of the development of the IAMP ONE Phase Two site (during construction and operation) on waste management, with both hazardous and non-hazardous wastes assessed.
- 18.9.2 The proposed development will require levelling and grading of the existing site (including the excavation of an estimated 300 mm depth of topsoil from areas of agricultural land), construction of the new building (i.e. the two battery manufacturing plants separated by a central spine of offices), construction of infrastructure and landscaping. This assessment has focused on the likely quantities and waste types arising from these activities and how they can best be managed.
- 18.9.3 It is expected that the majority of waste arisings will be sent for disposal to local landfill sites or to suitable offsite locations for re-use. The anticipated waste volumes form a small fraction of regional waste generation and capacity. Any hazardous waste arisings would be dealt with by a specialist hazardous waste operator. No significant environmental effects have been identified as a result of waste arisings and management practices in relation to the proposed IAMP ONE Phase Two development.
- 18.9.4 In terms of cumulative effects, no significant inter-cumulative and no significant intercumulative effects have been identified.

18.10 Water Resources

- 18.10.1 The site is located on the watershed of two surface water catchments. To the north of the watershed, water drains to the River Don. To the south of the watershed, water drains to watercourses / drains that are not located within a WFD surface water catchment. The site is located within the Tyne Carboniferous Limestone and Coal Measures groundwater catchment.
- 18.10.2 Superficial deposits that underlie the site are comprised of the Pelaw Clay Member. According to the Environment Agency, these deposits are classified as Unproductive Strata (aquifer). There are limited isolated pockets of groundwater within permeable horizons; however, these are likely to be small and hydraulically isolated from each other. Groundwater was also encountered at the base of the formation overlying weathered bedrock. In these areas it is likely that the basal superficial deposits are in continuity with the underlying weathered bedrock and, therefore, are under confining pressure from the above clay deposits.



- 18.10.3 The bedrock underlying the site belongs to the Pennine Middle Coal Measures Formation, which is formed of sequences of sandstones, siltstones, mudstones and associated coal seams. The Pennine Middle Coal Measures Formation is a Secondary A Aquifer. The bedrock aquifer is entirely confined by the Pelaw Clay Member onsite. Owing to the low permeability of the Pelaw Clay Member and the upward head gradient within the bedrock aquifer, there is no pathway between the site and the bedrock; therefore, affording the aquifer protection from any potential contamination associated with the works onsite.
- 18.10.4 There are no surface water or groundwater private water supplies within 2 km of the site and there are no groundwater abstractions within 2 km of the site.
- 18.10.5 The assessment found that, with appropriate embedded mitigation in place, the scale of potential effect from the proposed development upon the water environment was no greater than Negligible and **Not Significant**.
- 18.10.6 The FRA & Drainage Strategy records that the majority of the site is located within Flood Zone 1 (less than 0.1% chance of flooding every year) from fluvial flooding. Whilst climate change impacts are estimated to have potential medium to high flood risk within the northern corners of the site (associated with fluvial flooding), this is mitigated by the introduction of a set development platform and the risk is considered to be very low. There are small areas of the site located within areas of medium to high risk of surface water flooding, but the majority of the site is at a low risk of surface water flooding. With the mitigation measures in place, the risk has been assessed as low. There is very low flood risk from groundwater or sewer flooding and no risk from artificial sources.
- 18.10.7 Additionally, an assessment of potential cumulative impacts as a result of the wider IAMP development and additional nearby developments has concluded that any cumulative impacts on the water environment would be no greater than Negligible and Not Significant.

18.11 Geology & Soils

18.11.1 The proposed development is located on 24.23 ha of arable agricultural land and 0.85 ha of non-agricultural land (i.e. West Moor Farm). The loss of 18.74 ha of the agricultural land has already been consented by the granting of planning permission for IAMP ONE Phase One in 2018 and the loss of 5.49 ha of agricultural land has been consented by the granting of planning permission for IAMP ONE Phase Two in 2020.



- 18.11.2 Two detailed soil and ALC surveys have been conducted within the site, both showing the soils to be slowly permeable clay loams over clays, the wetness of which limits the agricultural quality of the land to ALC Subgrade 3b (moderate quality and non-BMV). Whilst all land within the site would be permanently removed from agricultural use due to the proposed development, the land is non-BMV and the loss is considered to be **Not Significant**.
- 18.11.3 The application of standard good practice soil management measures would reduce levels of soil loss and disturbance to Negligible and **Not Significant**. Additionally, 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.
- 18.11.4 In terms of cumulative effects, the proposed development in combination with the other developments 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. As the 5.83 ha of BMV land is below the 20 ha threshold, the inter-cumulative effect upon agricultural land is considered to be **Not Significant**.
- 18.11.5 In terms of the soil resource, impacts are site specific and, with the exception of IAMP ONE Phase One, none of the boundaries of the 'other developments' 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 intercumulative effects to occur. Whilst the IAMP ONE Phase Two boundary and the IAMP ONE Phase One boundary overlap, no development within the IAMP ONE Phase Two boundary is proposed as part of the IAMP ONE Phase One works and the soils in the Site are not expected to be subject to inter-cumulative effects.

18.12 Ecology & Biodiversity

18.12.1 The site is not situated within nor adjacent to any designated areas of ecological interest. Land within the site is comprised of former agricultural land and consists of a mix of arable, improved grassland and poor semi-improved grassland. The site also includes land affected by the ongoing development works within the wider IAMP ONE Phase One site, which consists of bare ground and ephemeral vegetation. The habitats present are common within the wider landscape and readily replicated and considered to be of local value.



- 18.12.2 The site supports limited bat activity (with only two common pipistrelle day roosts recorded within buildings at West Moor Farm) and is considered to be of local value to bats. The site also supports barn owl and little owl (with pellets from both species recorded within buildings at West Moor Farm) and is considered to be of local value for these species.
- 18.12.3 The habitats onsite support a number of over-wintering bird species, ten of which are Birds of Conservation Concern (BoCC) Red List species and one of which is listed under Schedule 1 of the Wildlife & Countryside Act (1981). The habitats onsite also support a number of breeding bird species, seven of which are BoCC Red List species and four of which are BoCC Amber List species. Overall, the site is considered to be of local value for both the overwintering and the breeding assemblage.
- 18.12.4 The development proposals will result in the loss of all existing habitats within the site, including the demolition of the buildings associated with West Moor Farm⁴, which will result in the local displacement of the fauna species present. With the proposed mitigation measures identified within Chapter 12 of this ES in place, the magnitude of impact will be Minor Adverse upon habitats and species of Local Value, resulting in a Minor-Negligible Adverse Effect (**Not Significant**) during the construction phase. As an enhancement, a series of boxes for swifts will be installed on the new structure.
- 18.12.5 During the operational phase, the proposed development will have a Minor Adverse Impact upon bats and farmland birds of Local Value due to disturbance as a result of daily operations. This will result in a Minor-Negligible Adverse Effect (Not Significant).
- 18.12.6 In relation to the potential impact upon designated sites of ecological importance within the wider area, the results of the air quality assessment confirm that the maximum modelled Process Contributions for both nutrient nitrogen and acid deposition do not exceed 100% of the long-term critical loads (for the protection of vegetation) for any of the modelled receptor points within the nearby Local Nature Reserves and Local Wildlife Sites. The results also confirm that the maximum modelled Process Contributions do not exceed 10% of the short-term or 1% of the long-term critical levels (for the protection of vegetation) for any of the modelled not exceed 10% of the short-term or 1% of the long-term critical levels (for the protection of vegetation) for any of the modelled not exceed 10% of the short-term or 1% of the long-term critical levels (for the protection of vegetation) for any of the modelled neceptor points within the Northumbria Coast Ramsar site and Special Protected Area.

⁴ The demolition of West Moor Farm is subject to a separate detailed application and the mitigation measures pertaining to barn owl and bats are included within this ES for context, only.



Based upon the results of the assessment, nitrogen dioxide (NO2) emissions are considered to be Not Significant at the designated sites.

- 18.12.7 Overall, it is expected that the landscape strategy that has been developed for the site will deliver a 3.17 % net gain in biodiversity at the site.
- 18.12.8 **No significant inter-cumulative effects** are anticipated during the construction and / or operational phase of the proposed development.
- 18.12.9 The IAMP site includes 110 ha of land allocated as Ecological and Landscape Mitigation Area (ELMA) that will be used to implement a comprehensive habitat enhancement scheme. Of the 110 ha of ELMA, 43.6 ha is associated with IAMP ONE and 66.4 ha relates to IAMP TWO.

18.13 Access & Transport

- 18.13.1 Consideration has been given to the potential access and transport impacts of the proposed development during construction and operation in relation to severance, driver stress and delay, pedestrian and cyclist amenity, pedestrian and cyclist delay, fear and intimidation, and highway safety.
- 18.13.2 Mitigation measures have been identified as part of this assessment, plus the mitigation measures identified for 2018 IAMP ONE Phase One and 2020 IAMP ONE Phase Two (i.e. the provision of facilities for cyclists, pedestrians and bus travel, other sustainable transport measures, compliance with the HOMP and the development of a CTMP, *etcetera*) remain equally applicable for this proposed development.
- 18.13.3 During construction, the maximum residual impact is Minor Adverse (**Not Significant** effect). During operation, the maximum residual impacts have been assessed as:
 - Minor Adverse (Not Significant effect) for driver stress and delay (for all links).
 - Minor Adverse (Not Significant effect) for highways safety (for all links).
 - Moderate Adverse (may be a **Significant** effect) for pedestrian and cyclist amenity (for Link 17, only).
 - Moderate Adverse (may be a **Significant** effect) for pedestrian and cyclist delay (for Link 16, only).
 - Moderate Adverse (may be a **Significant** effect) for severance (for Links 14, 16 and 17).
 - Major Adverse (Significant effect) for fear and intimidation (for Links 15 and 17).



- 18.13.4 It should be noted, however, these impacts are not new to the proposed development, but are carried through from the 2018 ES for IAMP ONE, which presented an assessment of the environmental impacts of a full build out. Whereas, the proposed development presents a single plot development with fewer staff numbers than previously forecast and, in turn, less vehicle trip generation potential. As such, the previously reported significance of the residual effect (especially in terms of fear and intimidation upon Links 15 and 17) is considered to be an untrue reflection of the proposed development. With the mitigation measures proposed as part of IAMP ONE Phase One and IAMP ONE Phase Two in place, and using professional judgement, the effects are expected to reduce to **Not Significant**.
- 18.13.5 Overall, the mitigation measures for IAMP ONE Phase One and IAMP ONE Phase Two (i.e. the provision of facilities for cyclists, pedestrians and bus travel, other sustainable transport measures, compliance with the HOMP and the development of a CTMP) have the potential to enable the proposed development to be built in a positive way. The Travel Plan, managed by the Travel Plan Coordinator, will also increase community participation in further meeting the travel demands of the development, once operational. Indeed, the Travel Plan is one of the primary mitigation measures.
- 18.13.6 In terms of inter-cumulative effects, the proposed development in combination with other local developments (detailed within Table 2.5) would result in a Negligible to Low impact (Not Significant effect).

18.14 Vulnerability to Major Accidents and Disasters

18.14.1 An assessment has been carried out for the vulnerability of the proposed development to major accidents and disasters. This has considered the scope for the proposed development to be vulnerable to any existing, albeit low-likelihood, environmental hazards that would introduce (or increase) the risk of adverse effects on sensitive receptors (people and the environment). Construction and operational effects have been considered separately; cumulative effects (with IAMP ONE and IAMP TWO, and the other proposed developments) have also been assessed. The assessment has considered natural and man-made / industrial hazards and mitigation measures are identified (where required). The assessment concluded that, with the appropriate measures to control such aspects as dust dispersion, fire suppression, uninterrupted power supply and flood risk *etcetera*, the vulnerability of the proposed developments, is considered to be very Low to Negligible and **Not Significant**.



18.15 Climate Change

- 18.15.1 The proposed development's absolute emissions (with embedded mitigation) were modelled to be 0.63 % below the baseline emissions in 'Scenario A With Gas Boilers', which is deemed to have a Negligible impact and is Not Significant in the long-term. There would also still be a reliance on the combustion of fossil fuel to meet the majority of the required energy demand. The proposed development's absolute emissions (with embedded mitigation) were modelled to be 68 % below the baseline emissions in 'Scenario B With Electric Heating', which is deemed to have a Major Beneficial impact and is Significant in the long-term. The shift to all electric to meet the energy demands for the proposed development will also benefit from the decarbonisation of the national grid.
- 18.15.2 The Applicant is considering measures to exceed the minimum standards required by Building Regulations as well as meeting the Future Buildings Standard. The proposed development has set a target to be zero carbon by 2050 and, therefore, Scenario B (i.e. where the plant is entirely electric) is the preferred option to be implemented if technically and financially viable. There is also potential for additional onsite renewables to be added to the energy supply, and Air Source Heat Pumps (ASHP) are being considered as these would provide a considerable saving in CO₂e emissions.
- 18.15.3 Whilst this should not be interpreted as the proposed development having no impact on climate change through greenhouse gas (GHG) emissions, it signifies that it includes measures to improve the overall impact above a development of the same size and with comparable facilities, constructed to Building Regulations. It should also be noted that the production of EV batteries will enable emission savings of around 117,211 tCO₂e each year through the removal of the equivalent number of fossil fuel powered vehicles from the roads.
- 18.15.4 The overall significance of future climate change on the proposed development is deemed to be **Not Significant**. This is based upon the assumption that the proposed development will meet the minimum standards required by Building Regulations in place at the time of construction and will implement mitigation measures to reduce GHG emissions and build-in resilience to future changes in climate. It will not be possible to eliminate every risk associated with climate change, but through intelligent design, preparation and responsible construction, these risks will be minimised. It is assumed that, with the mitigation measures suggested within each of the technical



chapters within this ES in place, there will **not be a significant impact** on the development as a result of climate change in the long-term.

18.16 Archaeology & Cultural Heritage

- 18.16.1 The Heritage Impact Assessment concludes that the proposed development would have a Negligible Adverse impact (Not Significant) on the significance of Penshaw Monument (Grade I Listed), which is situated, approximately, 4 km to the south of the site, as a result of changes within its setting and loss of glimpsed views of the monument. The proposed development will, however, be seen from the monument in the context of a highly industrialised setting to the north.
- 18.16.2 The Heritage Impact Assessment also concludes that the proposed development would have a Negligible Adverse impact (Not Significant) on the setting of the Grade II listed buildings at Downhill Farm, which is situated, approximately 2.5 km to the north-east, as the site is a distant feature of the setting and is seen in the context of surrounding development. There would be no impact upon their architectural and historic significance.
- 18.16.3 In addition, no significant archaeological features were recorded during the evaluation trenching and, as such, no further archaeological works are required at the site. Archaeology and cultural heritage should, therefore, not preclude development.

18.17 Cumulative Effects

- 18.17.1 An assessment of the potential for the proposed development to result in cumulative effects, from the combination of environmental aspects associated with the proposed development itself (i.e. intra-cumulative effects) and from the combination of the proposed development and other developments within the local area (i.e. inter-cumulative effects), including the wider areas of IAMP ONE Phase One and IAMP TWO.
- 18.17.2 The proposed development is considered to have very limited scope for significant cumulative effects (either intra-cumulative or inter-cumulative effects) in relation to the natural environment, and people and property of the area. In the short to medium-term, there would be a significant cumulative effect upon visual amenity for the occupants of North Moor Farm, only. In the longer-term, however, the effect would reduce to Not Significant via the assimilation of the development into the general area and the softening effect of the proposed perimeter planting would make a positive contribution to the landscape character and visual amenity of the local area.



18.17.3 No additional mitigation measures are, therefore, considered necessary in respect of cumulative effects.

18.18 Summary

- 18.18.1 The proposed development of the IAMP ONE Phase Two site has been assessed for its potential effects on the environment of the local area, with only a limited number of significant effects pertaining to Landscape and Access & Transport have been identified.
- 18.18.2 **Significant** effects on visual amenity have been identified for the occupants of North Moor Farm, the properties at Hylton Bridge Farm and the two roadside properties at Hylton Grove Farm. A **Significant** cumulative effect upon visual amenity has also been identified for the occupants of North Moor Farm from the operational presence of the proposed IAMP ONE Phase Two development, including inter-cumulative effects in relation to the combination of the proposed development and the wider areas of IAMP ONE Phase One and IAMP TWO. In the longer-term, however, with the assimilation of the development into the general area, and the establishment of the perimeter and internal landscaping the effects on landscape character and visual amenity would reduce to **Not Significant**. In the long term, there is scope for the landscaping to make a positive contribution to the landscape character and visual amenity of the local area.
- 18.18.3 Whilst some significant adverse effects have been identified in relation to Access & Transport, it should be noted that the impacts identified are not new impacts resulting from the proposed development and that the 2018 ES for IAMP ONE presented an assessment of the environmental impacts for a 'full build out'. The proposed development presents a single plot development, with fewer staff numbers than previously forecast and, in turn, less vehicle trip generation potential. With the mitigation measures proposed as part of IAMP ONE Phase One in place, the effects are expected to reduce to **Not Significant**. Additionally, with regards to the previously reported significance of the residual effect upon Links 15 and 17 (in terms of fear and intimidation), it is considered that this is not a true reflection of the proposed development. Using professional judgement, the impact on these links as a result of the proposed development is deemed to be **Not Significant**
- 18.18.4 With the implementation of the mitigation measures proposed within this ES, no other significant residual effects (including cumulative effects) on the natural



environment or on the people and property of the area have been identified. There would be a 3.17 % net gain in biodiversity as a result of the proposed development landscape strategy. Overall, it is considered that the effects of the proposed development can be suitably mitigated such that there would be no unacceptable level of harm to the environment of the local area.



Table 18.1: Air quality summary assessment matrix										
Issue	Description of Impact	e S	Geog Sign	grap nifica	hica ance	al e	Impact	Nature	Mitigation Measures	Significance
		Ι	Ν	R	D	L				
	Potential impact upon residential receptors (including North Moor Farm and the former Usworth Cottage) as a result of dust and fine particulate matter release by earthwork activities.					٧	Adverse	R St		Not Significant
	Potential impact upon ecological and landscape mitigation area (ELMA) as a result of dust and fine particulate matter release by earthwork activities.					٧	Adverse	R St		Not Significant
Construction - dust and fine particulate	Potential impact upon residential receptors (including North Moor Farm and the former Usworth Cottage) as a result of dust and fine particulate matter release by construction activities.					٧	Adverse	R St	Preparation and adoption of a site- specific Dust Management Plan (DMP),	Not Significant
matter (PM_{10} and $PM_{2.5}$)	Potential impact upon ecological and landscape mitigation area (ELMA) as a result of dust and fine particulate matter release by construction activities.					v	Adverse	R St	Environmental Management Plan (CEMP) for the site.	Not Significant
	Potential impact upon residential receptors (including North Moor Farm and the former Usworth Cottage) as a result of dust and fine particulate matter release by trackout.					٧	Adverse	R St		Not Significant
	Potential impact upon ecological and landscape mitigation area (ELMA) as a result of dust and fine particulate matter release by trackout.					٧	Adverse	R St		Not Significant
Operation - Road Traffic Emissions	Potential impact upon human and ecological receptors as a result of changes to air quality due to emissions from vehicles associated with the operation of the proposed development. NB – The proposed development will not result in more vehicles than the previously consented 2020 IAMP ONE Phase Two development.					v	Adverse	R Lt	Transport-related measures (including junction upgrades, traffic management improvements and a travel plan) required for IAMP ONE.	Not Significant
Operation - Process Emissions	Potential impact upon human receptors as a result of changes to air quality due to volatile organic compound emissions from operational processes (i.e. electrode manufacture, electrolyte coating, steam and low temperature hot water boiler use) associated with the proposed development.					٧	Adverse	R Lt	Operational design will ensure sufficient dispersion of all pollutants considered such that further mitigation is not required. Plus, the proposed development will operate under a regulated Environmental Permit.	Not Significant
	Potential impact upon ecological receptors as a result of nitrogen and acid deposition due to nitrogen dioxide emissions from operational processes (i.e. electrode manufacture and, electrolyte coating, plus steam and low temperature hot water boilers) associated with the				٧		Adverse	R Lt	Operational design will ensure sufficient dispersion of all pollutants considered such that further mitigation is not required. Plus, the proposed	Not Significant



	Table 18.1: Air quality s	um	nm	ary	as	ses	sment m	atrix		
Issue	Description of Impact	e S	Geo <u>(</u> Sigr	grap nifica	hica ance	al e	Impact	Nature	Mitigation Measures	Significance
		Ι	Ν	R	D	L				
	proposed development.								development will operate under a regulated Environmental Permit.	
	There are no anticipated intra-cumulative or inter-cumulative impacts for the construction of the proposed development.	-	-	-	-	-	N/A	N/A	N/A	N/A
Cumulativo Impacto	There are no intra-cumulative impacts anticipated for the operation of the proposed development.	-	-	-	-	-	N/A	N/A	N/A	N/A
cumulative impacts	Potential inter-cumulative impacts related to road traffic emissions during operation.					٧	Adverse	R Lt	N/A	Not Significant
	There are no inter-cumulative impacts anticipated in relation to process emissions during operation.	-	-	-	-	-	N/A	N/A	N/A	N/A
Кеу:										
Geographical Significa	Geographical Significance: I = International N = National R = Regional D = District L = Local									
Nature:	St = Short term Mt = Medium Term Lt = Long term R = Reversible	e lr :	= Irr	reve	rsib	le				

	Table 18.2: Noise sur	nma	ary	/ as	se	ssn	nent mat	rix		
lssue	Description of Impact	G	ieog Sign N	grap ifica R	hica ance D	al e L	Impact	Nature	Mitigation Measures	Significance
Construction	Potential noise and / or vibration impacts upon North Moor Farm (ESR 1) as a result of activities associated with the construction of the proposed development.					v	Negligible Adverse	St R	Whilst mitigation measures are not required due to the distance of North Moor Farm from the site and the negligible impact, current best practice working will be adopted during construction to ensure that any adverse impacts are reduced as much as practicably possible.	Not Significant
Operation	Potential noise and / or vibration impacts upon North Moor Farm as a result of activities associated with the daily operation of the proposed development.					v	Negligible Adverse	Lt R	Embedded mitigation in the form of acoustic fencing (minimum 1 m high and 15 kg / m^2 density) will be designed-in to the design proposals and installed along the northern boundary of the site.	Not Significant



	Table 18.2: Noise summary assessment matrix											
Issue	Description of Impact				ohic anc	al e	Impact	Nature	Mitigation Measures	Significance		
					D	L						
	There are no significant intra-cumulative or inter-cumulative impacts											
Cumulative Impacts	as a result of noise and / or vibration during either the construction	-	-	-	-	-	N/A	N/A	N/A	N/A		
	or the operation of the proposed development anticipated.											
Key:												
Geographical Significa	ance: I = International N = National R = Regional D = District L = Local											
Nature:	Jature: St = Short term Mt = Medium Term Lt = Long term R = Reversible Ir = Irreversible											

Table 18.3: Landscape and visual impact assessment summary matrix										
Issue	Description of Impact	Ċ	Geog Sigr	graj nific	phica cance	al e	Nature	Mitigation Measures	Significance	
		Ι	Ν	R	R D L					
Construction impacts on landscape resource and character – designated areas	Construction works would take place in close proximity to areas of Green Belt west and north of the site. Indirect impacts resulting from the presence of plant and machinery, and associated noise and activity resulting from works onsite.					٧	St, R	Standard construction management measures as described in a CEMP	Not Significant	
Construction impacts on landscape resource and character – site elements and perceptual aspects	Loss of existing internal trees and internal field boundary hedgerows. Barely perceptible changes to landform resulting from earthworks. Construction lighting, during winter months.					٧	St, R		Not Significant	
Construction impacts on landscape character – Coalfield Lowland Terraces (Usworth Lowland) LCT / LCA	Direct, temporary impacts on landscape character resulting from construction activity.					٧	St, R	Standard construction management measures as described in a CEMP	Not Significant	
Construction impacts on landscape character – wider Usworth Lowland LCA / Urban Fringe, Boldon Fell LCT	Indirect, temporary impacts on landscape character resulting from construction activity.				٧		St, R		Not Significant	
Operational impacts on landscape resource and character – designated areas	Indirect impact on character of Green Belt due to presence of operational plant and associated infrastructure.					v	Lt, Ir	Perimeter landscaping to the IAMP site would provide some separation between the two areas as well as forming a new defensible boundary on the edge of the Green Belt	Not Significant	



Table 18.3: Landscape and visual impact assessment summary matrix									
		G	Geog	grap	hica	ıl			_
Issue	Description of Impact		Sign	ifica R	nce		Nature	Mitigation Measures	Significance
	Scale: Generally medium scale of the existing landscape (within a wider area of medium to large scale) is likely to increase to large scale with the development of a large building,			IX.	0	V		Sensitive site design including elements such as building colour, height, etc. Compensatory planting across the site and wider area	Not Significant
Operational impacts on landscape resource and	Enclosure: Alteration in sense of enclosure through amendments to vegetation pattern and introduction of new buildings					٧	Lt, R	Sensitive site design including elements such as building colour, height, etc. Compensatory planting across the site and wider area	Not Significant
perceptual aspects	Lighting: The site will be lit in accordance with the principles established in the Design Code for IAMP ONE					٧		The south-western corner of the site, including any building facades facing in this direction, be kept as dark as practicable.	Not Significant
	Vegetation: Loss of existing internal trees and internal field boundary hedgerows.					٧		Compensatory planting of native trees and	Not Significant
	Overall impacts taking into account the above.					٧		scrub, and hedgerows / hedgerow trees	Not Significant
Operational impacts on landscape character – Coalfield Lowland Terraces (Usworth Lowland) LCT / LCA	Direct impacts on landscape character resulting from introduction of new buildings and associated infrastructure.					٧	Lt, R	Sensitive site design including elements such as building colour, height, etc. Compensatory planting across the site and wider area	Not Significant
Operational impacts on landscape character – wider Usworth Lowland LCA / Urban Fringe, Boldon Fell LCT	Indirect impacts on landscape character resulting from introduction of new buildings and associated infrastructure into views of the surrounding landscape.				٧		Lt, R	Sensitive site design including elements such as building colour, height, etc. Compensatory planting across the site and wider area	Not Significant
	North-eastern settlement edge of Washington: distant views of site mostly from upper storey windows.					٧			Not Significant
Operational impacts on visual receptors (residential)	North Moor Farm: direct, close range views of the operational development within the site.					٧	Lt, R	sensitive site design including elements such as building colour, height, etc. Compensatory planting across the site and	Not Significant
	Hylton Bridge Farm: limited visibility of operational development in mid-range views.					٧			Not Significant



	Table 18.3: Landscape and visual impa	act	ass	ses	sme	ent	summar	y matrix	
		C	Geo	grap	phica	I			_
Issue	Description of Impact	-	Sigr	nific	ance	1	Nature	Mitigation Measures	Significance
	Hylton Grove Farm: visibility of operational development above intervening vegetation in mid-range views.					٧			Not Significant
	East House and Strother House Farm: limited visibility of the operational development which would be partially screened by intervening vegetation.					٧			Not Significant
	Down Hill Farm area: visibility of proposed development as part of wider view of consented IAMP ONE site.					٧			Not Significant
	A1290: Views of site vary from close range to more distant, typically seen intermittently.					٧		Sensitive site design including elements such as building colour, height, etc. Compensatory planting across the site and wider area	Not Significant
	A19(T)					-		n/a	n/a
	Downhill Lane Junction (overbridge) on A19(T): limited, distant views towards proposed development seen beyond consented IAMP Phase One site					٧			Not Significant
Operational impacts on visual receptors (transportation	Follingsby Lane: distant and oblique views, interrupted in places by roadside hedging and tree cover. Seen in conjunction with the wider IAMP ONE Phase One site and the existing Nissan development area					٧	Lt, R		Not Significant
routes, rights of way)	BOAT between Follingsby Lane and East House: distant views of the completed development					٧		Sensitive site design including elements such as building colour, height, etc.	Not Significant
	Footpath east and north-east of Strother House Farm: distant views of the completed development interrupted by intervening trees and hedgerows.					٧		Compensatory planting across the site and wider area	Not Significant
	Dismantled railway line to the east of Sulgrave and Usworth Hall: there would be transient and oblique views of the completed development, seen in the context of the wider IAMP ONE Phase One site and the Nissan buildings					٧			Not Significant
	Other roads and rights of way within the study area					٧			Not Significant



	Table 18.3: Landscape and visual impa	ict a	ass	ess	me	ent	summar	y matrix	
lssue	Description of Impact		Geog Sign N	grapl ifica R	hica nce D	al e L	Nature	Mitigation Measures	Significance
Operational impacts on visual receptors (recreational)	Visitors to Penshaw Monument: distant views of the completed development, seen in the context of the wider industrial development areas					v	Lt, R	Sensitive site design including elements such as building colour, height, etc. Compensatory planting across the site and wider area	Not Significant
	Visitors to North East Aircraft Museum: views towards the site are well screened by intervening tree cover					-		n/a	n/a
Cumulative imports	There is no potential for significant intra-cumulative impacts identified during construction and / or operation of the proposed development.					٧	Lt, R	Sensitive site design including elements such as building colour, height, etc. Compensatory planting across the site and wider area	Not Significant
Cumulative impacts	There are very limited significant inter-cumulative impacts anticipated during construction and / or operation of the proposed development.					v	Lt, R	Sensitive site design including elements such as building colour, height, etc. Compensatory planting across the site and wider area	Not Significant
Key:	International N - National D - Decimal D - District I - I								
Nature: St :	= Short term Mt = Medium Term Lt = Long term R = Reversible Ir = Irr	ever	sibl	e					

	Table 18.4: W	as	te s	un	nma	ary	assessme	nt matr	ix												
lssue	Description of Impact		Geographical Significance		Geographical Significance			Geographical Significance		Geographical Significance		Geographical Significance		Geographical Significance N R D L		graphical hificance R D L		Impact	Nature	Mitigation Measures	Significance
Construction -	Potential impact from the removal of 86,000 m3 of topsoil for disposal at inert landfill (worst case scenario).					v	Moderate adverse	St	A Site Waste Management Plan will be produced (SWMP) as part pf the CEMP for the site. Some or all topsoil will be re-used as part of the landscaping (i.e. as a growing medium for all landscaped and vegetated areas).	Not Significant											
Construction waste.	Potential impact from the removal of all (i.e. 8,145 tonnes per annum) of the general construction waste for disposal at inert landfill (worst case scenario).					v	Moderate adverse	St	A SWMP will be produced. Some materials will be suitable for re-use and other materials will be suitable for recycling. Only that which cannot be re-used or recycled (or which is hazardous) will be sent for appropriate disposal at secure sites by	Not Significant											



	Table 18.4: W	aste	e si	um	ma	nry	assessme	nt matr	ix	
Issue	Description of Impact	G	ieog Sign	grap nifica	ohica ance	al e	Impact	Nature	Mitigation Measures	Significance
		Ι	Ν	R	D	L	-			_
									licensed operators.	
Operation- Commercial waste	Potential impact from the generation of 116 tonned per annum of commercial waste (e.g. light bulbs, food and beverage, containers, general office waste, batteries and packaging) during operation.					٧	Negligible -Minor adverse	Lt	A SWMP will be produced. Waste storage facilities will be available at all locations waste is generated. Waste will be collected regularly and stored in centrally located storage units. A 'segregation at source' policy will be adopted to separate waste streams at generation: thereby	Not Significant
Operation- Industrial waste	Potential impact from the generation of 22,922 tonnes per annum of industrial waste (e.g. waste anode, waste cathode, waste dry cell, waste laminate, off-cuts, label waste, waste oils, hydraulic fluids and hoses, fluorescent tubes and paint cans) during operation.					v	Negligible -Minor adverse	Lt	facilitating high recycling and recovery rates. As far as is practicable, waste streams such as packaging and containers will be returned to suppliers for re-use.	Not Significant
	Potential inter-cumulative impact as a result of other developments (in combination with the proposed development) increasing the significance of the environmental burden in terms of generated construction waste.						Minor- moderate adverse	Lt	It is anticipated that there will be the consistent implementation of the mitigation measures (as	Not Significant
Cumulative Impacts	Potential inter-cumulative impacts as a result of other developments (in combination with the proposed development) increasing the significance of the environmental burden in terms of generated commercial and industrial waste.						Negligible -Minor adverse	Lt	similar mitigation measures for the other developments (where applicable)	Not Significant
	There are no intra-cumulative impacts anticipated for the construction and / or operation of the proposed development.	-	-	-	-	-	N/A	N/A	N/A	N/A
Кеу:										
Geographical Significa	ance: I = International N = National R = Regional D = District	L = L	oca							
Nature:	St = Short term Mt = Medium Term Lt = Long term R =	Reve	ersi	ble	Ir =	Irre	/ersible			



	Table 18.5: - Water resources su	mn	nary	y as	sses	sr	nent ma	trix		
		G	Geog	rapl	hical					_
Issue	Description of Impact		Signi	fica	nce		Impact	Nature	Mitigation Measures	Significance
Construction - Earthworks including excavation	Excavation and removal of the topsoil and superficial deposits has the potential to reduce the pathway to the underlying bedrock aquifers and, therefore, may increase the vulnerability of the aquifer to potential contamination / oil spills during construction. Mobilisation of sediment, which could enter watercourses and waterbodies causing increased erosion altering deposition. This may also result in harm to aquatic flora and fauna.			ĸ	<u> </u>	V	Adverse	R St		Not Significant
Construction - Soil	Soil stripping reduces soil moisture storage capacity, may increase runoff, and may lead to flooding.				`	v	Adverse	R St		Not Significant
stripping and vegetation removal	Removal of vegetation reduces interception and evapotranspiration rates, increases runoff, and may lead to flooding and increased suspended solids entrained in runoff.				,	v	Adverse	R St	Embedded mitigation will be	Not Significant
Construction - Use of machinery and storage onsite	Accidental spills or leakage of fuel and oil from machinery and storage onsite during the construction phase could affect the underlying groundwater and enter surface water watercourses and waterbodies and lead to a degradation of water quality.				,	v	Adverse	R St	adopted. These, include, but are not limited to, the preparation and application of a CEMP for the site, all construction activities	Not Significant
Construction - Soil compaction	Compaction due to use of heavy machinery reduces infiltration, increases runoff, and shortens the rainfall–runoff response and may lead to flooding.				Ņ	v	Adverse	R St	accepted good practice and	Not Significant
Construction - Creation of impermeable surfaces such as roads / pavements	Reduction in recharge to the underlying soils therefore potentially reducing groundwater levels. This will also increase runoff to surface water drains/ponds and may lead to flooding.				,	v	Adverse	lr Lt	reapplication of the embedded mitigation identified for IAMP ONE.	Not Significant
Construction - Construction of subsurface infrastructure such as foundations	Impediment of shallow groundwater which can cause groundwater mounding on the upgradient side and reduce groundwater levels on the downgradient side. Potentially coming into contact with confined groundwater leading to dewatering requirements.				,	v	Adverse	lr Lt		Not Significant
Construction - Laying foundations	Release of sediment and silt laden water from the discharge of water removed from excavations to watercourse and/or ground, which could cause a degradation in water quality.				,	v	Adverse	R St		Not Significant
Operation - Use of Motorised Vehicles.	Pollution from leaks or spills, which may cause a degradation in water quality.				,	v	Adverse	R St	A site-specific surface water drainage scheme has been designed that takes into account	Not Significant



	Table 18.5: - Water resources su	mr	nar	ry a	asse	ess	ment ma	ıtrix		
lacus	Description of lower th	(Geo	gra	phic	al	lue use et	Notions	Mitigation Manager	Cionificanos
Issue	Description of impact	1	N	R		L	impact	Nature	iviitigation ivieasures	Significance
Operation - Contaminants associated with Lithium-Ion Battery pouch cells production.	Substances including Nickel Oxide, Lithium Hexafluorophosphate and NMP are used in battery production. Other substances including heavy metals used during welding, degreasers, oils and diesels for manufacturing, servicing, and machinery.					v	Adverse	R St	climate change and reapplies the embedded mitigation of the 2018 IAMP ONE ES, including the incorporation of freeboard to design flood levels, finished floor levels set 600 mm above design flood levels, ground raising /	Not Significant
Operation - Impermeable surfaces, such as roads / pavements.	Reduction in infiltration and recharge to the underlying soils water. This would also increase runoff to surface water drains/ponds and may lead to flooding.					٧	Adverse	Ir Lt	compensation area, development catchments to mimic baseline catchments, attenuate run-off to greenfield run-off rate using	Not Significant
Operation - Subsurface infrastructure such as foundations.	Impediment of shallow groundwater flow which can cause groundwater mounding on the upgradient side and reducing groundwater levels on the downgradient side.					v	Adverse	Ir Lt	sustainable drainage, provision of pollution hazard reduction by sustainable drainage, sediment settlement prior to drainage discharge, pollution incident response plans, and sediment	Not Significant
Operation - Creation of new drainage regime in developed areas of the Site.	The creation of a new drainage regime may alter the amount of runoff within the surface water catchments, thereby altering the flow rates and volumes within the watercourses in these catchments. An increase in flow rates may lead to a corresponding increase in flood risk.					v	Adverse	lr Lt	measures include storing all polluting substances within suitably bunded containers and placed upon impermeable surfaces, all chemical activities to take place on impermeable surfaces with bunding and separates to inhibit escape, integral drip trave for machinery	Not Significant
Operation - De-icing of roads, walkways, and parking areas.	The use of de-icing salts may cause the release of sodium chloride and anti- caking agents into the water environment and may cause changes to water chemistry such as salination.					v	Adverse	R St	and plant, and appointment of an operation and maintenance management team to ensure all drainage systems are fully maintained.	Not Significant



	Table 18.5: - Water resources su	mr	nai	ry	asse	essi	ment ma	atrix		
Issue	Description of Impact	(Geo Sigr	gra nifi R	phica cance	al e L	Impact	Nature	Mitigation Measures	Significance
	Potential for inter-cumulative impacts as a result of other developments (in combination with the proposed development) causing a deterioration in water quality as a result of pollutants entering waterbodies during construction					v	Adverse	R St	The developments will need to prepare a CEMP (or similar) to be adopted during construction. The developments will also need to	Not Significant
Cumulative Impacts	Potential inter-cumulative impacts as a result of other developments (in combination with the proposed development) causing alterations to the hydrological regime from inappropriate drainage design resulting in increased flood risk downstream of the developments.					v	Adverse	ir Lt	demonstrate appropriate drainage design and pollution prevention measures for both construction and operation in accordance with strict planning guidance and regulation of the water environment. Plus, any permitted activities would be subject to control and regulation by the issuing authority	Not Significant
	There are no potential intra-cumulative impacts anticipated for the construction or operation of the proposed development.	-	-	-	-	-	N/A	N/A	N/A	N/A
Key: Geographical Significar Nature:	nce: I = International N = National R = Regional D = District L = Local St = Short term Mt = Medium Term Lt = Long term R = Reversible Ir = Iri	reve	rsib	le						

	Table 18.6: - Geolog	gy	and	d so	oils	s su	mmary a	ssessme	nt matrix	
lssue	Description of Impact	C .	Geog Sign	grap lifica	ohica ance	al e	Impact	Nature	Mitigation Measures	Significance
		Ι	Ν	R	D	L				
Construction – Loss of agricultural land.	The proposed development will result in the loss of 18.74 ha of subgrade 3b non-BMV agricultural land previously consented by the 2018 IAMP ONE application and 5.49 ha of subgrade 3b non-BMV agricultural land previously consented by the 2020 IAMP ONE Phase Two application.					٧	Adverse	lr Lt	The permanent loss of subgrade 3b non-BMV 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.	Not Significant



	Table 18.6: - Geolo	gy	an	d s	oils	s su	mmary a	ssessme	nt matrix	
Issue	Description of Impact	(Geo Sigr	grap nific	ohica ance	al e	Impact	Nature	Mitigation Measures	Significance
		Ι	Ν	R	D	L				
Construction – damage to soil structure and reduced quality.	Construction activities associated with the proposed development have the potential to result in damage to the soil structure and reduced soil quality.					٧	Major Adverse	Ir Lt	The soil resource will be protected against damage during stripping, handling and storage by adoption of standard good practice measures.	Not Significant
Construction – Loss of soil resource.	Construction activities associated with the proposed development have the potential to result in the permanent loss of >75% of the soil resources onsite (due to incorrect handling and soil mixing rendering the soil unsuitable for re-use elsewhere).					v	Major Adverse	lr Lt	Site-won soils will be reused on site and any excess soils will be exported to an alternative receptor or transfer site for beneficial reuse elsewhere (wherever possible). As the soil would be reused, the export to a receptor or transfer site is not considered to be a loss of soil resources.	Not Significant
Operation - Agricultural land.	There is no potential for impacts upon agricultural land during operation.	-	-	-	-	-	N/A	N/A	N/A	N/A
Operation – Soil resource.	There is no potential for impacts upon soil resources during operation.						N/A	N/A	N/A	N/A
	There are no potential intra-cumulative impacts anticipated for either agricultural land or soil resources during the construction and operation of the proposed development.						N/A	N/A	N/A	N/A
Cumulative effects	There is the potential for inter-cumulative impacts as a result of other developments (in combination with the proposed development) to cause the permanent loss of 109.92 ha of land from agricultural use. Of this, 104.09 ha is subgrade 3b non-BMV land and 5.83 ha is BMV land.					٧	Adverse	lr Lt	The permanent loss of agricultural land is unlikely to be mitigated as it is not possible to reinstate land to agricultural use as part of the developments and it is difficult to create additional agricultural land elsewhere.	Not Significant
	Owing to the overlap of site boundaries, there is the potential for inter-cumulative impacts as a result of IAMP ONE Phase One in combination with the proposed development to cause the permanent loss of soil resources.					V	Major Adverse	lr Lt	Site-won soils will be reused on site and any excess soils will be exported to an alternative receptor or transfer site for beneficial reuse elsewhere (wherever possible). As the soil would be reused, the export to a receptor or transfer site is not considered to be a loss of soil resources.	Not Significant
Key: Geographical Significa Nature:	ance: I = International N = National R = Regional D = Distri St = Short term Mt = Medium Term Lt = Long term F	ct L t = R	= Lo eve	cal rsib	le Ir	= Irr	eversible			



	Table 18.7: - Ecology and b	iod	iv	ersi	ty	sun	nmary as	sessme	nt matrix	
Issue	Description of Impact	6	Geo Sig	ograp nifica	ohica ance	al e	Impact	Nature	Mitigation Measures	Significance
Construction - Loss of habitat	Construction of the proposed development will result in the loss of all existing habitat within the site. This is considered to be of local value and is comprised of 3.6 ha of arable land, 0.6 ha of improved grassland, 0.06 ha of dense scrub, 12.4 ha of poor semi-improved grassland, 5.6 ha of ephemeral vegetation, 420 m of intact species-poor hedgerow and 860 m of defunct species-poor hedgerow, plus a single ash tree, an area of ephemeral water and the buildings associated with West Moor Farm.		N	I R	D	V	Minor Adverse	lr St	The loss of habitat will be mitigated for via comprehensive habitat enhancement scheme within the 110 ha ELMA. Overall, the ELMA will deliver significant biodiversity enhancements and result in a 3.17 % biodiversity net gain.	Not Significant
Construction -	Construction of the proposed development will result in the loss of two common pipistrelle day roosts and habitat known to support limited bat activity at the site (considered to be of local value), and the displacement of the bat species present into the local area.					V	Minor Adverse	lr St	Prior to demolition, three bat boxes and one hibernation box will be installed within the woodland immediately south of West Moor Farm. Demolition of buildings 2 and 5 at West Moor Farm will only occur outside the core bat hibernation period, once a Natural England EPS Licence has been obtained and after a detailed inspection of the structures has been completed. All other structures at West Moor Farm will be demolished under via precautionary working methods.	Not Significant
Disturbance and displacement of fauna species.	Construction of the proposed development will result in the demolition of buildings and loss habitat known to support barn owl and little owl (considered to be of local value) and the displacement of these species into the local area.					v	Minor Adverse	lr St	Thirty days prior to demolition, replacement barn owl boxes will be erected at Hylton Bridge Farm and a tree within the ELMA. Demolition will only occur following confirmation by a suitably qualified and experienced ornithologist that no active nests are present.	Not Significant
	Construction of the proposed development will result in the loss of habitat known to support over-wintering bird species (considered to be of local value) and the displacement of these species into the local area.					v	Minor Adverse	lr St	Vegetation clearance will occur outside the bird nesting season or following confirmation by a suitably qualified and experienced ornithologist that no active	Not Significant
	Construction of the proposed development will result in the loss of habitat known to support breeding bird species					٧	Minor Adverse	lr St	nests are present within areas to be cleared. Habitat creation within the site and wider	Not Significant



	Table 18.7: - Ecology and b	iod	live	ersit	:y s	sun	nmary as	sessme	nt matrix	
Issue	Description of Impact	(Geo <u>ş</u> Sigr	grapl nifica	hica nce	nl :	Impact	Nature	Mitigation Measures	Significance
		Ι	Ν	R	D	L				
	(considered to be of local value) and the displacement of these species into the local area.								ELMA area will support a range of bird species and the design of the ELMA is	
	Construction of the proposed development will result in the loss of habitat with the potential to support hedgehog and result in the displacement of this species into the local area.					٧	Minor Adverse	lr St	intended to promote overall enhancement for local bird assemblages. As an enhancement, a series of boxes for swifts will be installed on the new structure.	Not Significant
	Activities associated with the daily operation of the proposed development have the potential to result in the disturbance of bat species within the immediate surrounding areas of the site.					v	Minor Adverse	R Lt	As per above, the habitat creation within the site and wider ELMA area will support a range of bird species and the design of the ELMA is intended to promote overall enhancement for local bird assemblages.	Not Significant
Operation - Disturbance of fauna species.	Activities associated with the daily operation of the proposed development have the potential to result in the disturbance of farmland bird species within the immediate surrounding areas of the site.					v	Minor Adverse	R Lt	Ground cover habitats suitable for hedgehog will be cleared outside of the winter hibernation period (where possible). Native species of known ecological value will be planted to provide foraging / commuting opportunities and the site boundaries will incorporate hedgehog gateways to allow for continued access and dispersal.	Not Significant
Operation - nutrient nitrogen and acid deposition.	Activities associated with onsite processes have the potential to result in nutrient nitrogen and acid deposition at designated sites within the surrounding area (i.e. the Northumbria Coast Ramsar SPA, Barmston Pond LRN and Hylton Dene LRN).				v		Adverse	R Lt	The design proposals allow sufficient dispersion of emissions such that the maximum modelled process contributions for nutrient nitrogen and acid deposition do not exceed 100% of the long-term critical loads (for the protection of vegetation) at the two LNRs. Nor do they exceed 10% of the short-term or 1% of the long-term critical levels (for the protection of vegetation) at the Northumbria Coast Ramsar SPA.	Not Significant
Cumulative Impacts	There is no potential for significant intra-cumulative impacts identified during construction and / or operation of the proposed development.	-	-	-	-	-	N/A	N/A	N/A	N/A
	There are no significant inter-cumulative impacts anticipated	-	-	-	-	-	N/A	N/A	N/A	N/A



	Table 18.7: - Ecology and b	iod	live	ersi	ity	sur	nmary as	sessmei	nt matrix	
Issue	Description of Impact	0	Geog Sign	gra lific	phic anc	al e	Impact	Nature	Mitigation Measures	Significance
		Ι	Ν	R	D	L				
	during construction and / or operation of the proposed									
	development.									
Key:										
Geographical Significa	ance: I = International N = National R = Regional D = District L = I	Loca	l –							
Nature:	St = Short term Mt = Medium Term Lt = Long term R = Rev	/ersi	ble I	lr =	Irre	vers	ible			

	Table 18.8: - Access and transport	rt s	um	ma	ary	ass	sessment	matrix		
Issue	Description of Impact	(Geo; Sigr	grap nific	ohica ance	al e	Impact	Nature	Mitigation Measures	Significance
Construction - traffic flow disruption	Potential disruption to the operations of neighbouring properties and public, including disruption during Nissan shift change times and school start/finish times.		N	R	D	v	Negligible - Minor Adverse	R St	A detailed Construction Traffic Management Plan (CTMP) will be agreed with Sunderland City Council to ensure the smooth flow of deliveries and collections to site, and no disruption to the operations of neighbouring properties and public.	Not Significant
	The proposed development will result in a sense of severance at link 14.					٧	Moderate Adverse	lr Lt	A Travel Plan will be prepared to	May be Significant
	The proposed development will result in a sense of severance at link 15.					٧	Minor Adverse	lr Lt	reduce the number of employees commuting by single-occupancy	Not Significant
Operation - Severance	The proposed development will result in a sense of severance at link 16.					٧	Minor Adverse	lr Lt	car. This includes measures encouraging walking, cycling and	May be Significant
	The proposed development will result in a sense of severance at link 17.					٧	Minor Adverse	lr Lt	public transport, greener car travel, smart business travel and	May be Significant
	The proposed development will result in a sense of severance at link 18.					٧	Negligible Adverse	lr Lt	sourcing locally.	Not Significant
Operation - Driver stress and delay	The proposed development has the potential to result in increased delay and driver stress at junctions upon the local highway network.					٧	Minor Adverse	lr Lt	A Service and Delivery Strategy	Not Significant
Operation -	The proposed development will result in reduced pedestrian and cyclist					٧	Minor	lr Lt	will be developed to ensure freight movements are carefully	Not



	Table 18.8: - Access and transpo	rt s	um	nma	ary	ass	sessment	matrix		
			Geo	grap	ohica	al				
Issue	Description of Impact		Sigr	nific	ance	5	Impact	Nature	Mitigation Measures	Significance
			N	R	D	L				
Pedestrian and	amenity at link 14.						Adverse		managed. This includes measures	Significant
cyclist amenity	The proposed development will result in reduced pedestrian and cyclist						Minor		sustainable freight sourcing	Not
	amenity at link 15.					v	Adverse	Ir Lt	products and services locally, and	Significant
	The proposed development will result in reduced pedestrian and cyclist					1	Minor	lr l t	restricting delivery times during	Not
	amenity at link 16.					v	Adverse		shift changeover periods.	Significant
	The proposed development will result in reduced pedestrian and cyclist					v	Moderate	lr Lt		May be
	amenity at link 17.						Adverse		-	Significant
	The proposed development will result in reduced pedestrian and cyclist					٧	Minor	Ir Lt	As per the Highways Operational	Not
	amenity at link 18.		-				Adverse		Management Plan (HOMP),	Significant
	and cyclict amenity at link 14					٧	Adverse	Ir Lt	patterns will be implemented	NOL Significant
	The proposed development will result in increased delay for pedestrian		-				Minor		Until improvement works to the	Not
	and cyclist amenity at link 15.					٧	Adverse	Ir Lt	A19 at Testo's and Downhill Lane	Significant
Operation -	The proposed development will result in increased delay for pedestrian					,	Moderate		are completed, end users of IAMP	May be
Pedestrian and	and cyclist amenity at link 16.					ν	Adverse	Ir Lt	ONE will operate a shift pattern	Significant
cyclist delay	The proposed development will result in increased delay for pedestrian						Minor	le l +	that is offset from those used at	Not
	and cyclist amenity at link 17.					v	Adverse		Nissan.	Significant
	The proposed development will result in increased delay for pedestrian					v	Minor	lr l t		Not
	and cyclist amenity at link 18.					v	Adverse			Significant
	The proposed development will result in increased an increased sense of					٧	Minor	lr Lt		Not
	fear and intimidation at link 14.		-				Adverse		-	Significant
	The proposed development will result in increased an increased sense of					٧	Moderate	Ir Lt		Significant*
Operation Fear	Teal and inclinication at link 15.						Adverse		-	Not
and intimidation	fear and intimidation at link 16					٧	Adverse	Ir Lt		Significant
	The proposed development will result in increased an increased sense of		-				Moderate		-	Jighineant
	fear and intimidation at link 17.					٧	Adverse	Ir Lt		Significant
	The proposed development will result in increased an increased sense of						Minor	11.4	1	Not
	fear and intimidation at link 18.					v	Adverse			Significant
Operation -	The proposed development has the potential to reduce highway safety					v /	Minor	lr I +		Not
Highway safety	upon the local highway network.				1	v	Adverse			Significant



	Table 18.8: - Access and transpor	rt s	um	ma	ary	ass	essment i	matrix		
Issue	Description of Impact	(Geo Sign	grap ifica	ohica ance	al e	Impact	Nature	Mitigation Measures	Significance
		Ι	Ν	R	D	L				
	There are no potential intra-cumulative impacts anticipated during construction and / or operation of the proposed development.	-	-	-	-	-	N/A	N/A	N/A	N/A
Cumulative Impacts	Potential inter-cumulative impacts as a result of the proposed development in combination with other developments are considered as part of the traffic model used to assess potential impacts during construction and operation of the proposed development.					٧	Negligible -Low Adverse	lr Lt		Not Significant
* The proposed devel reported in this table.	opment will generate less traffic than previously assessed for the full build The previously identified 'Significant' effects (in terms of fear and intimidat	out o	of IA for L	MP .ink:	ON 5 15	E an and	d it is, therefo 17) are consi	ore, consid dered to be	ered to result in a reduced level of ir e 'Not Significant '.	npact to those
Key: Geographical Significa Nature:	ance: I = International N = National R = Regional D = District L = Local St = Short term Mt = Medium Term Lt = Long term R = Reversible Ir	= Irr	reve	rsib	le					

	Table 18.9: - Vulnerability to major accider	nts a	and	h t	isa	ste	rs summ	ary asses	sment matrix	
Issue	Description of Impact	G S	ieogi Signi N	rap fica R	hica nce D		Impact	Nature	Mitigation Measures	Significance
Construction – Potential onsite hazards	There is the potential for activities associated with construction to be vulnerable to potential hazards that might result in major accident or disaster.					v	Adverse	R St	A CEMP will be prepared and adopted that will include measures to identify and control potential hazards.	Not Significant
Construction - Potential onsite unexploded ordinance	There is the potential for unexploded ordinance (UXO) at the site that may be disturbed by activities associated with construction and result in major accident or disaster.					V	Adverse	lr Lt	The potential for UXO and the requisite onsite working practices will be reflected within the CEMP for the site.	Not Significant
Operation - Presence of hazardous substances	The manufacture of lithium-ion battery pouch cells and modules will utilise nickel powder, N-Methyl-2 pyrrolidone (NMP) and hexafluorophosphate (LiPF6), which are flammable / toxic.					v	Adverse	lr Lt	The site will be classified as an upper tier Control of Major Accident Hazards (COMAH) site and will be permitted and regulated, accordingly. A risk-based approach will be adopted to ensure safe working practices to protect staff	Not Significant



Table 18.9: - Vulnerability to major accidents and disasters summary assessment matrix										
Issue	Description of Impact	()	Geog Sign	grap nifica	ohic anc	al e	Impact	Nature	Mitigation Measures	Significance
		1	N	N					and environment during daily operations and any emergency situations.	
Operation - Natural hazard	There is the potential for geophysical (e.g sink holes resulting from underground mine collapse) hazards resulting in major accident or disaster during operation.					٧	Adverse	R St	 Where possible, the risk of natural hazards will be managed through building design and site layout. The risk of natural hazards will also be managed by the preparation and adoption of the following primary controls: CEMP. SWMP. Surface Water Management Strategies. Where required, the following secondary controls will also be prepared and adopted (in addition to the primary controls, above) to manage the risk of natural hazards: Operational Management Plan. Emergency Response and Preparedness Plan(s). As a COMAH site, the site will be permitted and regulated, accordingly, with the use of Best Available Techniques (BAT) adopted. 	Not Significant
	There is the potential for flooding occurring that may result in major accident or disaster during operation.					٧	Adverse	R St		Not Significant
	There is the potential extremes of weather damaging infrastructure and buildings, and resulting in major accident or disaster during operation.					٧	Adverse	R St		Not Significant
	There is the potential fires from lightning strikes damaging infrastructure and buildings, and resulting in major accident or disaster during operation.					٧	Adverse	R St		Not Significant
	Structural or mechanical failure from vehicle / plant collision or other human error					٧	Adverse	R St		Not Significant
	Failure of storage tanks / bunds					٧	Adverse	R St		Not Significant
	Leaks or spillage of fuel (e.g. diesel) from vehicles					٧	Adverse	R St		Not Significant
Operation - Industrial bazard	Leakage of hazardous substances					٧	Adverse	R St		Not Significant
Indzard	Fire resulting in damage to infrastructure and buildings, plus any secondary effects on air quality and human health from emissions to air					٧	Adverse	R St		Not Significant
	Catastrophic failure of plant or machinery resulting in damage to infrastructure or buildings					٧	Adverse	R St		Not Significant
Cumulativo Impacto	There are no potential intra-cumulative impacts anticipated during construction and / or operation of the proposed development.	-	-	-	-	-	N/A	N/A	N/A	N/A
Cumulative Impacts	There is the potential for inter-cumulative impacts during construction and operation for proposed development in						Adverse	R St	The mitigation measures outlined above for the proposed	Not Significant



Table 18.9: - Vulnerability to major accidents and disasters summary assessment matrix													
Issue	Description of Impact	Geographical Significance		Geographical Significance		Geographical Significance		Geographical Significance		Impact	Nature	Mitigation Measures	Significance
		Ι	Ν	R	D	L							
	combination with both IAMP ONE Phase One and IAMP TWO.								development will be applied (as necessary) across the wider IAMP site.				
	There are no potential inter-cumulative impacts anticipated during construction and / or operation in relation to the proposed development in combination with the other developments identified.	-	-	-	-	-	N/A	N/A	N/A	N/A			
Key: Geographical Significan	ce: I = International N = National R = Regional D = District L = Local												
Nature:	Nature: St = Short term Mt = Medium Term Lt = Long term R = Reversible Ir = Irreversible												

Table 18.10: - Climate change summary assessment matrix																	
Issue	Description of Impact	G S	Geographical Significance				Geographical Significance			Geographical Significance			al 9 L	Impact	Nature	Mitigation Measures	Significance
Construction - carbon dioxide equivalent emissions	The total carbon dioxide equivalent emissions arising (tCO_2e) from the deconstruction and construction processes have been estimated at 54,115 tCO ₂ e					v	Moderate Adverse	st	Embedded mitigation (e.g. disassembly of components to recover the maximum amount of reusable and recyclable materials in a safe, environmentally responsible and cost-effective manner).	Not Significant							
Construction - Air Quality	Potential for dust and particulate matter to be generated by activities associated with construction.					v	Moderate Adverse	lr Lt	Adoption and adherence to best practice working methodology during construction, including the preparation of a site-specific DMP, prepared as part of the CEMP for the site.	Not Significant							
Operation - tCO ₂ e	Projected total energy use and CO ₂ e emissions for the development's 60-year operational lifespan has been modelled to produce 3,894,398 tCO ₂ e for Scenario A.					٧	Negligible Beneficial	Lt	Adopting and implementing good design.	Not Significant							



Table 18.10: - Climate change summary assessment matrix										
Issue	ue Description of Impact		Geo; Sigr	grap nific	ohica ance	al e	Impact	Nature	Mitigation Measures	Significance
		Ι	Ν	R	D	L				
	Projected total energy use and CO ₂ e emissions for the development's 60-year operational lifespan has been modelled to produce 942,242 tCO ₂ e for Scenario B.						Major Beneficial	lt		Significant
	Potential impact upon the proposed development as a result of future climate change leading to soil drying.					٧	Minor Adverse	lr Lt	Adherence to control mechanisms and mitigation measures implemented through the Building Regulation and ensuring good design to meet the standards required.	Not Significant
	Potential impact upon the proposed development as a result of future climate change leading to changes in temperature.					٧	Moderate Adverse	Ir Lt		Significant
	Potential impact upon the proposed development as a result of future climate change leading changes in relative humidity.					٧	Moderate Adverse	lr Lt		Significant
	Potential impact upon the proposed development as a result of future climate change leading changes in precipitation.					٧	Moderate Adverse	lr Lt	Design will aim to reduce GHG emissions and build-in resilience	Significant
	Potential impact upon the proposed development as a result of future climate change leading to changes in snow and ice.					٧	Minor Adverse	lr Lt	to future changes in climate (e.g. aim to reduce heat loss	Not Significant
	Potential impact upon the proposed development as a result of future climate change leading to gales, storms, extreme weather.					٧	Moderate Adverse	lr Lt	during winter, reduce solar gain during summer and maximise effectiveness of natural ventilation).	Significant
	Potential impact upon the proposed development as a result of future climate change leading to solar radiation.					٧	Moderate Adverse	lr Lt		Significant
	Potential impact upon the proposed development as a result of future climate change leading changes in cloud cover.					٧	Minor Adverse	lr Lt	A provision of EV charging points is also to be provided.	Not Significant
Cumulativo Efforto	It is not possible to assess potential intra-cumulative impacts (during construction and / or operation) as a result of the proposed development.	-	-	-	-	-	N/A	N/A	N/A	N/A
	It is not possible to assess potential inter-cumulative impacts (during construction and / or operation) as a result of the proposed development in combination with other developments.	-	-	-	-	-	N/A	N/A	N/A	N/A
Key: Geographical Significa	Key:									
Nature: St = Short term Mt = Medium Term Lt = Long term R = Reversible Ir = Irreversible										



Table 18.10: - Archaeology and cultural heritage summary assessment matrix										
Issue	Description of Impact			grap nifica	ohica ance	al e	Impact	Nature	Mitigation Measures	Significance
		Ι	Ν	R	D	L				
Operation - changes to setting	The proposed development will result in changes to the setting (and loss of glimpsed views) of the Grade I Listed Penshaw Monument.					٧	Negligible Adverse	lr Lt	Appropriate building design and layout, and landscaping strategy.	Not Significant
	The proposed development will result in changes to the setting (and loss of glimpsed views) of the Grade II listed buildings at Downhill Farm.					٧	Negligible Adverse	lr Lt		Not Significant
Key: Geographical Significa Nature:	ance: I = International N = National R = Regional D = District L = Local St = Short term Mt = Medium Term Lt = Long term R = Reversibl	e Ir :	= Irr	eve	rsib	le				