Redevelopment of land associated with Ingol Village Golf Course, Preston

Hybrid planning application:
- full permission for public open space;
- outline permission (access only) for a first team training facility for Preston North End Football Club and residential development (up to 450 dwellings).

ENVIRONMENTAL STATEMENT
VOLUME 2 – MAIN TEXT

December 2016

PWA_16-237_ES01
FOREWORD

INSPECTION OF THE PLANNING APPLICATION,
ENVIRONMENTAL STATEMENT AND
SUPPORTING DOCUMENTS

Copies of the ES documentation are available for viewing at Preston City Council during their normal office hours. Copies of the Non-Technical Summary (NTS) are also freely available from PWA Planning, Paley Road, Preston, PR1 8LT.

Hard copies of the ES may be purchased from the above PWA Planning address at a cost of up to £500 for the entire documentation (lower charges may apply for specific documents). The complete ES documentation may also be obtained on a CD free of charge (limited to one per person).
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1 INTRODUCTION

Introduction

1.1 PWA Planning is retained by Preston North End Football Club (‘the Applicant’) to prepare an Environmental Statement in respect of the redevelopment of land currently comprising Ingol Village Golf Course, Preston (‘the Site’). The proposal comprises a mixed-use development including a new first team Training Facility for Preston North End Football Club (‘PNE’) (Use Class D2), public open space and up to 450 dwellings (Use Class C3) (‘the Proposed Development’).

1.2 This ES has been prepared to support a hybrid planning application with full planning permission sought for the public open space and outline with all matters reserved save for access for the new first team Training Facility and up to 450 dwellings. Detailed permission relating to access is therefore also sought for (see Plans 3 – 9, Appendix 15.1, Volume 4 for drawings):

- New access off Tanterton Hall Road with ghost island right turn lane to provide access to Residential Parcels B and C.
- Continuation of existing golf course access junction on Tanterton Hall Road to provide access to Residential Parcels D, E and F.
- New access off Walker Lane to provide access to first team Training Facility.
- New access off Wychnor to provide access to Residential Parcel I.
- New access off B6241 (Tom Benson Way) with ghost island right turn lane to provide access to Residential Parcel A.
- New access off Wychnor to provide access to Residential Parcel H.
- New access off Walker Lane to provide access to Residential Parcel G.

1.3 This chapter outlines the background to the Applicant, the development and the project team, along with the legal framework and structure of the ES.

About the Applicant

1.4 PNE’s current first team training facilities are located at Springfield Sports Ground, Dodney Drive, Lea, Preston approximately 2.8km south west of the Site. It is also home to PNE’s Academy. As part of the Proposed Development the first team would be relocated to a new purpose built facility. The Academy would stay in its existing location at Springfield Sports Ground.

1.5 The motivation for this relocation is to support PNE’s aspirations and ambitions to play at the highest tier of English League football. Such aspirations bring a commensurate need for training facilities which are of the highest standard; this helps to attract and retain the type of professional players who can perform at this level.

1.6 The need to relocate from Springfield Sports Ground relates to space constraints at the current facility. The first team’s facilities require upgrading and expansion, and the Academy needs additional space to support it in its current location. Springfield Sports Ground is tightly constrained by Savick Brook to the north and residential dwellings to the south. The land itself is within Flood Zone 3 which places an additional constraint on future development of the sports ground. The relocation will provide the space needed to deliver the development sought, providing a purpose-built facility away from Flood Zone 3, and allowing the space needed for the existing Academy in the current location.
About the Development

1.7 The proposal comprises a mixed-use development including a new first team Training Facility for PNE, public open space and up to 450 dwellings. The residential development is to act in part as enabling development to offset the delivery costs of the Training Facility and public open space. These are illustrated on the Indicative Masterplan (Figure 1.1). In terms of enabling development, a confidential ‘Enabling Development Report’ has been undertaken and has been submitted as part of the suite of documents required as part of the planning submission.

1.8 The total site area is 69.4 hectares. The Site is approximately centred on National Grid Reference SD 51864 32671. Figure 1.2 shows the Site’s local context and Figure 1.3 illustrates the elements applied for in full and outline.

1.9 The Site is located on the northern fringe of the Preston conurbation approximately 3.5km from the centre of Preston and currently comprises the Ingol Village Golf Course, including the Club House (the only building onsite). The Golf Course opened in 1981 operating as an 18-hole golf course for nearly 30-years before closing in 2010. In April 2013, the Golf Course reopened with 14 holes available initially, and the full 18-hole course operational from September 2013.

1.10 The phased opening was due in part to a need for significant remedial works due to the closure period and the remodelling of the course to provide 18 holes in a smaller area (approximately 56 ha from 70ha). This involved the removal of three holes in the north west of the Site (Residential Parcel A of this planning application). The playing facilities currently comprise an 18-hole par 68 course over 5,511 metres. The primary ancillary facilities are a Club House (often used for functions) which also includes a pro-shop. As part of the Proposed Development, the Golf Course will cease to operate and not be re-provided elsewhere. The implications of this, and an assessment of the need of the Golf Course are included in Chapter 14 – Socio-Economics.

1.11 Historically, the Site has been subject to two previous planning applications for residential development. The details of these are provided in Chapter 6 – Planning Policy Context.

1.12 The key components of the Proposed Development are listed in Table 1.1 (final amounts to be determined at Reserved Matters based on the parameters set out in Figures 5.1 Building Height Parameter Plan and Figure 5.2 Land Use and Dwelling Density Parameter Plan).

Table 1.1: Key Components of the Proposed Development

<table>
<thead>
<tr>
<th>Indicative Components of the Proposed Development</th>
<th>Indicative Amount Based on Indicative Masterplan (Figure 1.1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PNE First Team Training Facility (Outline)</td>
<td>10.3ha</td>
</tr>
<tr>
<td>• Indoor football arena up to 120m (length) x 57m (width) x 11m (height) to include artificial pitch (61m x 43m) and ancillary facilities, such as; changing rooms; catering; laundry room; office space; gym; treatment room.</td>
<td>Up to 2500m² floor space (Use Class D2: Assembly and Leisure) with outstanding matters to be</td>
</tr>
<tr>
<td>• Two full size grass pitches (100m x 64m)</td>
<td></td>
</tr>
<tr>
<td>• One full size artificial pitch (100m x 64m)</td>
<td></td>
</tr>
<tr>
<td>• One full size floodlit grass pitch (100m x 64m)</td>
<td></td>
</tr>
<tr>
<td>• Two 5 a-side pitches (60 x 20m)</td>
<td></td>
</tr>
<tr>
<td>• Ancillary car parking (40 spaces) and infrastructure.</td>
<td></td>
</tr>
</tbody>
</table>
### Indicative Components of the Proposed Development

<table>
<thead>
<tr>
<th>Indicative Components of the Proposed Development</th>
<th>Indicative Amount Based on Indicative Masterplan (Figure 1.1)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Public Open Space (Full)</strong></td>
<td>41.3 Ha</td>
</tr>
<tr>
<td>The gifting of 41.3ha land for public open space constituting a forest park to be managed through a Management Company financed by the Proposed Development. Including:</td>
<td></td>
</tr>
<tr>
<td>• The provision of children’s play areas, community garden and orchard, foraging and trim trails, cycle track and improved footpath and cycle connections.</td>
<td></td>
</tr>
<tr>
<td>• The provision of improved landscaping throughout the Site to include woodland planting (and management of existing woodland).</td>
<td></td>
</tr>
<tr>
<td>• Ecological enhancement across the park to deliver proposed Newt mitigation areas (including opportunities to link educational benefits to the public open space) and ponds along with suitable wildlife crossings.</td>
<td></td>
</tr>
<tr>
<td>• Provision of ancillary parking (12 spaces) for potential uses of the space.</td>
<td></td>
</tr>
<tr>
<td><strong>Residential Development (Outline)</strong></td>
<td>17.8 ha</td>
</tr>
<tr>
<td>Delivery of up to 450 dwellings and associated infrastructure across nine residential development parcels of three densities (dwellings per hectare – dph) (see Figure 5.2);</td>
<td></td>
</tr>
<tr>
<td>• Low Density Parcel (5-15dph): Parcels F and G.</td>
<td></td>
</tr>
<tr>
<td>• Low – Medium Density Parcel (15-25dph): Parcel E and H.</td>
<td></td>
</tr>
<tr>
<td>• Medium Density Parcel (25-30dph): Parcels A, B, C, D and I.</td>
<td></td>
</tr>
<tr>
<td><strong>Access Works</strong></td>
<td></td>
</tr>
<tr>
<td>• New access off Tanterton Hall Road with ghost island (a road marking consisting of central cross-hatching which separates on-coming traffic and provides safe turning areas) right turn lane to provide access to Residential Parcels B and C.</td>
<td></td>
</tr>
<tr>
<td>• Continuation of existing golf course access junction on Tanterton Hall Road to provide access to Residential Parcels D, E and F.</td>
<td></td>
</tr>
<tr>
<td>• New access off Walker Lane to provide access to first team training facility.</td>
<td></td>
</tr>
<tr>
<td>• New access off Wychnor to provide access to Residential Parcel I.</td>
<td></td>
</tr>
<tr>
<td>• New access off B6241 (Tom Benson Way) with ghost island right turn lane to provide access to Residential Parcel A.</td>
<td></td>
</tr>
<tr>
<td>• New access off Wychnor to provide access to Residential Parcel H.</td>
<td></td>
</tr>
<tr>
<td>• New access off Walker Lane to provide access to Residential Parcel G.</td>
<td></td>
</tr>
<tr>
<td><strong>Six new access points and the continuation of the existing golf course access junction.</strong></td>
<td></td>
</tr>
</tbody>
</table>

1.13 **Chapter 5** of the ES provides a full description of the Proposed Development.

The Project Team
1.14 PWA Planning has been commissioned by the Applicant to carry out an Environmental Impact Assessment (EIA) on the Proposed Development. This has incorporated technical input from a number of consultants, as outlined in Table 1.2 below.

**Table 1.2: Project Team**

<table>
<thead>
<tr>
<th>Project Team</th>
<th>Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>PWA Planning</td>
<td>EIA Co-ordination and all other parts of the ES Volumes 1 – 4</td>
</tr>
<tr>
<td>FWP</td>
<td>Masterplan (with Randall Thorp)</td>
</tr>
<tr>
<td>Hoare Lea</td>
<td>Air Quality and Dust, Lighting, and Noise and Vibration Chapters</td>
</tr>
<tr>
<td>Cotswold Archaeology</td>
<td>Archaeology and Cultural Heritage Chapter</td>
</tr>
<tr>
<td>Avian Ecology</td>
<td>Ecology and Nature Conservation Chapters</td>
</tr>
<tr>
<td>Waterco</td>
<td>Flood Risk, Hydrology and Drainage Chapter</td>
</tr>
<tr>
<td>Randall Thorp</td>
<td>Landscape and Visual Chapter and Masterplan</td>
</tr>
<tr>
<td>Regeneris</td>
<td>Socio-Economics Chapter</td>
</tr>
<tr>
<td>Croft Transport Solutions</td>
<td>Transport and Access Chapter</td>
</tr>
</tbody>
</table>

**The Environmental Statement (ES)**

1.15 This Environmental Statement (ES) is the output of the EIA process which has been undertaken in accordance with the Town and Country Planning (Environmental Impact Assessment) Regulations 2011\(^1\), as amended in 2015\(^2\) (hereafter referred to as the ‘EIA Regulations’).

**Legal Framework for the ES**

1.16 The EIA Regulations require that prior to consent being granted for certain types of development, an EIA must be undertaken. The EIA Regulations set out the type of development which must always be subject to an EIA (Schedule 1 development) and other developments which may require an assessment if they are likely to have a significant effect on the environment by virtue of factors such as its nature, size or location (Schedule 2 developments).

1.17 The Proposed Development falls under Paragraph 10(b) of Schedule 2 of the EIA Regulations which relates to *Infrastructure Projects*. Specifically, Paragraph 10(b) relates to *Urban development projects, including the construction of shopping centres and car parks, sports stadiums, leisure centres and multiplex cinemas* and sets the following thresholds for when a development should be screened (Table 1.3 below).

**Table 1.3: Extract of Paragraph 10(b) of Schedule 2 of the EIA Regulations**

<table>
<thead>
<tr>
<th>10. Infrastructure projects</th>
<th>Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>(b) Urban development projects, including the construction of shopping centres and car parks, sports stadiums, leisure centres and multiplex cinemas;</td>
<td>(i) The development includes more than 1 hectare of urban development which is not development; or (ii) the development includes more than 150 dwellings; or (iii) the overall area of the development exceeds 5 hectares.</td>
</tr>
</tbody>
</table>

1.18 In this instance, the Proposed Development exceeds all the thresholds set. It has been agreed in consultation with Preston City Council (PCC) that the Proposed Development may have ‘significant’ environmental effects, and as such a voluntary ES should be submitted.

---


1.19 The EIA process identifies likely ‘significant’ environmental effects of Proposed Developments, by comparing the existing situation, that which pertains before development is carried out (baseline) with the situation once the proposals are in place. The significance of effects during construction should also be considered.

1.20 The first stage of the EIA process is to identify the issues which should be addressed in the ES; this is termed ‘scoping’ and the results are presented as a Scoping Report. This Scoping Report sets out the views of the Applicant, as to the proposed scope of the environmental issues to be considered in the EIA and the methods by which assessment will be undertaken. A Scoping Report (Appendix 1.2) was submitted to accompany a request for a Scoping Opinion from PCC under Regulation 13 of the EIA Regulations. The Scoping Opinion from PCC identified all issues to be addressed in the ES and is included in Appendix 1.1.

Structure of the ES

1.21 The ES is provided in four parts:

- **Volume 1: Non-Technical Summary** – contains, in non-technical language, a summary of the main text.
- **Volume 2: Main Text** – contains a detailed description of the proposal. It evaluates the existing environmental baseline conditions and identifies and addresses the predicted environmental effects that could occur as a result of the development. It provides detailed analysis of the design procedure and how mitigation measures have been embedded into the design, where possible, to prevent, reduce or offset any environmental effects identified. Where this is not possible, mitigation has been proposed to ameliorate those effects which cannot be dealt with through embedded mitigation.
- **Volume 3: Figures** – contains all the illustrative material referred to in the main text (Volume 2).
- **Volume 4: Appendices** – contains details of assessment methodologies, assessment data, technical details and background information.

1.22 Table 1.4 below outlines the structure and content of this document, Volume 2: Main Text.

**Table 1.4: Structure of Volume 2: Main Text**

<table>
<thead>
<tr>
<th>Chapter Number</th>
<th>Chapter Title</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction</td>
<td>This Chapter outlines the Project Team, along with the legal framework and structure of the ES.</td>
</tr>
<tr>
<td>2</td>
<td>Approach to the EIA</td>
<td>This Chapter outlines the approach to the Environmental Impact Assessment (EIA) in order to meet the information required in an ES under the EIA Regulations</td>
</tr>
<tr>
<td>3</td>
<td>Description of the Site and its surrounding area</td>
<td>This Chapter provides a description of both the Site location, defined by the red line boundary, and the surrounding area.</td>
</tr>
<tr>
<td>4</td>
<td>Consideration of Alternatives</td>
<td>This Chapter outlines the description of the main alternatives to the Proposed Development.</td>
</tr>
<tr>
<td>5</td>
<td>Description of the Proposed Development</td>
<td>This Chapter provides a description of the Proposed Development in accordance with the application for planning permission.</td>
</tr>
<tr>
<td>6</td>
<td>Planning and Environment Context</td>
<td>This Chapter summarises the land-use planning policy framework against which the Proposed Development has been considered.</td>
</tr>
</tbody>
</table>
Chapter Number | Chapter Title | Content
--- | --- | ---
7 – 15 | Technical Chapters | These Chapters provide a description of the existing baseline environment, the specific methods used to assess the potential effects of the proposed scheme, an assessment of these effects and mitigation measures proposed to remove/reduce adverse effects for each receptor on a chapter-by-chapter basis.
16 | Cumulative Effects | This Chapter assesses the potential for significant cumulative environmental effects associated with the Proposed Development.
17 | Summary of Effects and Mitigation | This Chapter provides a summary of significant effects table for each of the technical assessment chapters of the ES. A summary of all proposed mitigation measures is also included.

1.23 **Table 1.5** below provides a breakdown of the information required in an ES under the EIA Regulations, and where this information can be located in this ES.

**Table 1.5: Location of Required Information within the ES**

<table>
<thead>
<tr>
<th>Schedule No 1.</th>
<th>Required Information</th>
<th>Location within ES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Description of the development, including in particular</td>
<td></td>
</tr>
<tr>
<td>a)</td>
<td>Description of the physical characteristics of the whole development and land-use requirements during the construction and operation phases.</td>
<td>Chapter 5 – Description of the Proposed Development</td>
</tr>
<tr>
<td>b)</td>
<td>Description of the production processes, for instance, the nature and quantity of materials used.</td>
<td>Chapter 5 – Description of the Proposed Development</td>
</tr>
<tr>
<td>c)</td>
<td>An estimate, by type and quantity, of expected residues and emissions (water, air and soil pollution, noise, vibration, light, heat, radiation etc.) resulting from the operation of the Proposed Development.</td>
<td>Technical Chapters 7 - 15</td>
</tr>
<tr>
<td>2</td>
<td>An outline of the main alternatives studied by an applicant or appellant and an indication of the main reasons for this choice, taking into account the environmental effects.</td>
<td>Chapter 4 – Consideration of Alternatives</td>
</tr>
<tr>
<td>3</td>
<td>A description of the aspects of the environment likely to be significantly affected by the development, including in particular, population, fauna, flora, soil, water, air, climatic factors, material assets including architectural and archaeological heritage, landscape and the interrelationship between the above factors.</td>
<td>Technical Chapters 7-15</td>
</tr>
<tr>
<td>4</td>
<td>A description of the likely significant effects of the development on the environment, which should cover the direct effects and any indirect, secondary, cumulative, short, medium and long term, permanent and temporary, positive and negative effects of the development, resulting from:</td>
<td>Technical Chapters 7-15</td>
</tr>
<tr>
<td></td>
<td>• The existence of the development;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• The use of natural resources; and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• The emissions of pollutants, the creation of nuisances, and the elimination of waste</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>A description of the measures envisaged to prevent, reduce and where possible, offset any significant adverse effects on the environment.</td>
<td>Technical Chapters 7-15</td>
</tr>
<tr>
<td>6</td>
<td>A non-technical summary of the information provided.</td>
<td>Volume 1: Non-Technical Summary</td>
</tr>
</tbody>
</table>
1.24 The purpose of this ES is to provide a description of the Proposed Development, to identify and assess potential significant environmental effects and, where necessary, propose mitigation to offset those affects. Enhancement measures are also proposed in addition to mitigation where appropriate.

1.25 The ES is one of the supporting documents submitted to the determining planning authority, PCC, in support of the planning application. Volume 4 (Appendices) of the ES contains the Utilities Statement and Foul Sewage Assessment (Appendix 3.1), Arboricultural Report (Appendix 11.5), Flood Risk Assessment (including Drainage Strategy) (Appendix 10.1), Phase 1 Contaminated Land Desktop Study (Appendix 3.2), Transport Assessment including Framework Travel Plan (Appendix 15.2), which are required as part of PCC’s planning application local validation requirements. The ES should be read in conjunction with the other documents submitted as part of the planning application, comprising:

- Completed Planning Application Form and Ownership Certificates
- Community Infrastructure Levy Form
- Design and Access Statement (including Waste Management, Refuse and Recycling Statement and Crime Impact Statement)
- Enabling Development Report (CONFIDENTIAL)
- Environmental Statement (Volumes 1 to 4)
- Planning Drawings (Location Plan, Existing Site Plan)
- Planning Performance Agreement
- Planning Statement (including Affordable Housing Statement and Draft Heads of Terms)
- Statement of Community Involvement
- Sustainability Statement

**Definition of Key Terms**

1.26 The following provides the definition of some of the key terms included within the Environmental Statement. A full glossary is included at the end of Volume 2 (this document).

**Table 1.6: Definition of Key Terms**

<table>
<thead>
<tr>
<th>Key Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment</td>
<td>Process by which information about effects of the Proposed Development is collected, assessed and used to inform decision making.</td>
</tr>
<tr>
<td>Baseline Conditions</td>
<td>Environment as it appears (or would appear) immediately prior to the implementation of the project together with any known or foreseeable future changes that will take place before completion of the project.</td>
</tr>
<tr>
<td>Cumulative Effect</td>
<td>Effects that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project. A cumulative effect may arise as the result of (a) the combined effect of a number of different environmental topic-specific effects from a single environmental effect.</td>
</tr>
</tbody>
</table>
### Table of Concepts

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Effect</strong></td>
<td>Term used to express the consequence of an impact (expressed as the 'significance of effect'), which is determined by correlating the magnitude of the effect with the importance (or sensitivity) of the receptor or resource in accordance with defined significance criteria. For example, land clearing during construction results in habitat loss, the effect of which is the significance of the habitat loss on the ecological resource.</td>
</tr>
<tr>
<td><strong>Embedded Mitigation</strong></td>
<td>Mitigation that has been embedded into the design of the Proposed Development.</td>
</tr>
<tr>
<td><strong>Environmental Impact Assessment (EIA)</strong></td>
<td>Statutory process by which certain planned projects must be assessed before a formal decision to proceed can be made. Involves the collection and consideration of environmental information, which fulfils the assessment requirements of the EIA Directive, including the publication of an Environmental Statement.</td>
</tr>
<tr>
<td><strong>Environmental Statement</strong></td>
<td>Document produced in accordance with the EIA Directive (as transposed into UK law by the EIA Regulations) that reports the outcomes of the EIA process.</td>
</tr>
<tr>
<td><strong>Mitigation</strong></td>
<td>Measures that are necessary to avoid, minimize, or offset anticipated adverse impacts and, where appropriate, to incorporate these into an environmental management plan or system.</td>
</tr>
<tr>
<td><strong>Receptor</strong></td>
<td>Defined feature usually associated with population, fauna and flora with the potential to be affected by a project.</td>
</tr>
<tr>
<td><strong>Scoping</strong></td>
<td>Process of identifying the issues to be addressed by the Environmental Impact Assessment process. It is a method of ensuring that an assessment focuses on the important issues and avoids those that are considered not significant.</td>
</tr>
<tr>
<td><strong>Scoping Opinion</strong></td>
<td>Opinion provided by a competent authority that indicates the issues an Environmental Impact Assessment of a Proposed Development should consider.</td>
</tr>
<tr>
<td><strong>Screening</strong></td>
<td>Formal process undertaken with the competent authority to determine whether it is necessary to carry out a statutory Environmental Impact Assessment and publish an Environmental Statement in accordance with the EIA Regulations.</td>
</tr>
<tr>
<td><strong>Significant Effect</strong></td>
<td>Environmental effect considered material to the decision-making process</td>
</tr>
<tr>
<td><strong>Significance of Effect</strong></td>
<td>Measure of the importance or gravity of the environmental effect, defined by either generic significance criteria or criteria specific to the environmental topic</td>
</tr>
</tbody>
</table>
2 APPROACH TO EIA

Introduction

2.1 The key objectives of the EIA are as follows:

• Set the legal framework;

• Consider the main alternatives to the Proposed Development;

• Identify potentially significant effects during the design process so that some effects can be prevented or reduced through design changes and embedded mitigation prior to the assessments within the Environmental Statement (ES), i.e. demonstrating an iterative approach to EIA;

• Identify, predict and assess the significance of environmental effects associated with the Proposed Development: positive and negative; permanent and temporary; direct and indirect and short/medium/long term. These include environmental effects associated with the following topic areas; air quality and dust; archaeology and cultural heritage; ecology and nature conservation; flood risk, hydrology and drainage; landscape and visual; lighting; noise and vibration; socio-economics; transport and access and any interactions between these;

• Identify, predict and qualitatively assess the cumulative effects of the Proposed Development including those associated with the other developments (cumulative effects); and

• Identify suitable mitigation and monitoring measures to prevent, reduce or remedy significant negative environmental effects and identify the residual effects following the implementation of these measures.

EIA Strategy

2.2 This ES is based on the Proposed Development description and supporting plans outlined within Chapter 5 – Description of the Proposed Development. Effects are assessed based on the worst-case scenario to ensure all potential effects are considered in the ES.

Approach to Baseline Conditions

2.3 The baseline conditions for the purpose of this ES will be as at the time of the surveys for each individual topic as noted in the Technical Chapters 7-15, and generally July to November 2016. There are slight variances across the ES depending on the use of existing data obtained through other external sources as well as more recent surveys. A summary of the baseline environment is also provided in Chapter 3 – Description of the Site and Surroundings.

2.4 Table 2.4 (at the end of this chapter) details the developments that have been taken into account as part of the cumulative assessment for the technical assessments.

Design Parameters

2.5 The Proposed Development is assessed against parameter plans as detailed in Chapter 5 – Description of the Proposed Development. There will be a degree of flexibility within some of
the parameter plans to allow the Proposed Development to evolve through the detailed design stages and Reserved Matters Applications. However, the finalised design will be within these identified parameters, as set out in the following parameter plans:

- Building Height Parameter Plan (Figure 5.1)
- Lane Use and Dwelling Density Parameter Plan (Figure 5.2)

**Design Iterations**

2.6 Details of the design iterations are provided in Chapter 4 – Consideration of Alternatives, with design evolution specific to the various disciplines described in Technical Chapters 7 – 15. The assessment of pre-mitigation effects of the Proposed Development has been based on the information contained within Chapter 5 – Description of Proposed Development.

2.7 As a result of embedded mitigation via design iterations, a number of potentially significant effects have been reduced in severity. Consequently, the number of specific mitigation measures proposed to reduce potential significant effects is also reduced.

**Screening (Regulation 5)**

2.8 The EIA Regulations require that prior to consent being granted for certain types of development, there must be consideration, by the relevant planning authority, of environmental information. The EIA Regulations set out the type of development which must always be subject to an EIA (Schedule 1 development) and other developments which may require an assessment if they are likely to have significant effects on the environment (Schedule 2 development). In this instance, as described in Chapter 1, the Proposed Development is a Schedule 2 development and should be screened. It has been agreed in consultation with PCC that the Proposed Development may have ‘significant’ environmental effects, and as such a voluntary ES is submitted.

**Scoping (Regulation 13)**

2.9 An EIA Scoping Report was submitted to PCC on 19th August 2016 alongside a request for a formal Scoping Opinion in accordance with Regulation 13 of the EA Regulations. The Scoping Report identifies likely ‘significant’ environmental effects of the Proposed Development, by comparing the existing situation (that which pertains before development is carried out (baseline)), with the situation once the proposals are in place. The report also took into account significance of effects during construction. The Scoping Report is provided in Appendix 1.2 and the Scoping Opinion in Appendix 1.1. The effects outlined in the Scoping Opinion have been taken forward and assessed within this ES as presented in Chapters 7 – 15.

2.10 The scoping exercise identified that the Proposed Development would not give rise to significant environmental effects on either a temporary (construction) and / or permanent (constructed) basis to some of the environmental disciplines discussed. Table 2.1 below provides a summary of comments from the Scoping Opinion; the full Scoping Opinion is provided in Appendix 1.2.

2.11 Whilst no subjects were scoped out of this ES by the opinion, general comments within the Scoping Opinion confirm that the Scoping Report contains a satisfactory description of the Site and the Proposed Development. It also confirms that in general terms the scope of subjects to be assessed in the ES, as well as the approaches advocated in the Scoping Report, are considered to be acceptable, appropriate and proportionate to the nature of the Site and the development...
proposed. However, the absence of any reference to contaminated land was noted and it has been requested that given the presence of residential and allotments, a Phase 1 Contaminated Land Desktop Study should be provided. A Contaminated Land Assessment has been included in Appendix 3.2.

2.12 The Scoping Opinion also makes reference to pre-application views expressed by PCC which relate to pre-application engagement and consultation with the local community and Ingol and Tanterton Neighbourhood Council. The Scoping Opinion encouraged this to take place at an early stage and before the final scheme was prepared for submission. Details of the consultation that has taken place in relation to the Proposed Development are detailed in Table 2.2 below.

**Table 2.1 Summary of the Scoping Opinion**

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Summary of the Scoping Opinion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Quality and Emissions (Chapter 7)</td>
<td>The Environmental Health Manager confirmed that the approach was considered satisfactory.</td>
</tr>
<tr>
<td>Archaeology and Cultural Heritage (Chapter 8)</td>
<td>The Scoping Opinion makes reference to the response from Lancashire Archaeological Advisory Service (LAAS) which confirmed the recommendations for further work and the coverage of this work i.e. only those parts of the Site which have not previously been subject to landscaping and ground removal. The LAAS recommends that a programme of archaeological evaluation would need to be incorporated into the ES in order that the heritage implications of the development can be accounted for. PCC have confirmed that should more intrusive investigations be required they could be controlled by condition taking place prior to commencement of development. Following the Scoping Opinion, further consultation has taken place between Cotswold Archaeology and the LAAS. The details of this are included in Appendix 1.3, however they confirm that the conditioned approach proposed by PCC would be acceptable.</td>
</tr>
<tr>
<td>Ecology and Nature Conservation (Chapter 9)</td>
<td>The Greater Manchester Ecology Unit (GMEU) raised concerns regarding the proposals contained within the Scoping Report for undertaking Great Crested Newt surveys, i.e. that these would take place within Spring / Summer 2017. Whilst the GMEU have stated that these surveys and supporting mitigation should be provided prior to submission, subsequent consultation has been undertaken with PCC (see Appendix 1.3). In this it is confirmed that the approach proposed by Avian Ecology is acceptable, and that the further surveys are required prior to determination. The results of these surveys will inform that the mitigation measure assumed (based on previous ecological work undertaken since 2016) are suitable. The Proposed Development would not affect a nationally designated geological or ecological site, as such Natural England have not specifically advised on the content of the Scoping Report. However, they do note that the Site is within an area which could benefit from enhanced Green Infrastructure provision and as such this matter should be incorporated into the ES and the development proposals for the Site. The Environment Agency (EA) have made comments relating to Sharoe Brook regarding the ecological value of land alongside watercourses. The EA response sets out minimum requirements for the ES in this regard.</td>
</tr>
<tr>
<td>Flood Risk, Hydrology and Drainage (Chapter 10)</td>
<td>The EA response notes that only a small portion of the Site is designated as Flood Zones 2 and 3 (see Figure 10.2), and as such all development should be kept within the part of the Site which is within Flood Zone 1. This has been attained within the Indicative Masterplan (Figure 1.1). The response also states that the surface water infiltration mechanism set out within the Scoping Report would not be best practice, as it would be recommended that a portion of rainfall is infiltrated on site before the use of attenuation ponds via sustainable drainage systems.</td>
</tr>
</tbody>
</table>
Discipline | Summary of the Scoping Opinion
--- | ---
Landscape and Visual ((Chapter 11)) | PCC’s Parks and Street Scene section confirms overall agreement with the approach specified in the Scoping Report. The associated response suggests widening the scope of mitigation in include aspects such as site levels; detailed design, materials and finishes and; alterations to landform.

Lighting ((Chapter 12)) | PCC’s general scoping response confirms that the scope of the subjects to be assessed is acceptable.

Noise and Vibration ((Chapter 13)) | The Environmental Health Manager confirmed that the approach was considered satisfactory.

Socio- Economics ((Chapter 14)) | PCC’s general scoping response confirms that the scope of the subjects to be assessed is acceptable.

Transport and Access ((Chapter 15)) | Lancashire County Council’s (LCC) Highway’s scoping response was not provided at the time of the issuing of the Scoping Opinion, however, an official response was received at a later date and has been included within Appendix 1.1.

The scoping response confirms that for a development of this size it should be accompanied by a Transport Assessment and a Framework Travel Plan. The response subsequently provides further details on both these documents. Further information on the response is detailed in Chapter 15, along with subsequent meetings that have taken place with LCC Highways as detailed in Table 2.2.

Consultation has continued with LCC throughout the assessments undertaken and is detailed in Chapter 15.

2.13 Where relevant, responses to pre-application discussions and details of further technical consultations with consultees have been included within the respective technical chapters of the ES.

Consultation

2.14 As part of the planning process for the Proposed Development, the Applicant has engaged with stakeholders in advance of the submission of the planning application. This has allowed concerns raised through consultation to be addressed within the final planning submission, and the Indicative Masterplan to be amended accordingly in order to address some of these concerns.

2.15 Consultation undertaken has been detailed fully within the Statement of Community Involvement submitted as part of this planning application. Table 2.2 provides details of the consultation that has taken place to date.

Table 2.2: Summary of Consultation

<table>
<thead>
<tr>
<th>Consultation</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>24th May 2016: Pre-Application Meeting with PCC</td>
<td>Discussions took place in relation to the Site’s planning history, the proposed involvement of PNE with the first team Training Facility at the Site, Indicative Masterplans and the design evolution to date. With regards to the layout, constraints were discussed in relation to planning policy and where development could possibly be supported across the Site. It was agreed that any proposal should provide a Masterplan for the whole site.</td>
</tr>
</tbody>
</table>
A revised proposal was discussed that incorporated a reduced amount of development, and in particular, less residential development. Further to this the importance of a viability assessment (the Enabling Development Report) was discussed in order to provide evidence of the need for residential elements as enabling development for the Site as a whole. It was agreed that PCC would provide further comment on any potential viability argument following the supply of further information.

The meeting discussed the viability information previously provided. It was agreed that should a planning application be progressed, a more detailed assessment would need to be provided. It was proposed that a meeting should take place with LCC Highways to discuss potential transport constraints and the scope of any potential submission.

The meeting focused on transport and access of developing a scheme at Ingol Village Golf Course. The background for the development was presented, along with information from the submitted Scoping Report. It was agreed in principle where certain access points may be supported subject to a Transport Assessment. The scope of any transport submission was discussed along with the extent of any modelling and cumulative assessments that would be needed.

The meeting focused on the scope of the transport assessment and helped to clarify outstanding matters identified from LCC’s scoping response. Agreement was reached regarding the junctions to be assessed, the roads to be assessed as part of road traffic counts, along with details connected with various access points including access off Walker Lane.

A public exhibition took place at Preston Grasshoppers Rugby Football Club on 10th November 2016. In total 2,500 leaflets were delivered to the surrounding area, along with adverts placed in with a PNE matchday programme and a press release to the Lancashire Evening Post. Invitations were also sent out to local councilors and parish councils. In total 163 people attended the public exhibition. A total of 82 comments responses were received. The responses have been reviewed and a summary of the key themes and comments are included within the Statement of Community Involvement submitted with the planning application.

### Approach to the Assessment of the Proposed Development

2.16 The assessment of potential effects resulting from the Proposed Development has taken into account the construction and operational phases. The significance level attributed to each effect identified has been assessed on the magnitude of change due caused by the Proposed Development, and the sensitivity of the affected receptor / receiving environment to that change. The determination of the significance of residual effects has been assessed with regard to the extent to which mitigation measures will reduce or reverse significant negative effects. Whether these residual effects are significant or not is also stated.

### Assessment Criteria

2.17 The assessment of potential effects for each of the technical topic areas are presented in Technical Chapters 7 – 15 and have taken into account a number of criteria to determine whether or not the potential effects are ‘significant’. Wherever possible and appropriate, the effects will be assessed quantitatively. The following criteria have been taken into account when determining the significance of potential effects.

- Relevant legislation and planning policy;
• International, national, regional and local standards;
• Geographical extent;
• Magnitude and complexity of effect;
• Sensitivity / value of affected receptor or receiving environment;
• Duration (short, medium or long-term), frequency and reversibility of effect;
• Inter-relationship between different effects (both cumulatively and in terms of potential effect interactions); and
• The outcomes of consultations.

2.18 Unless stated otherwise in the Technical Chapters 7 – 15 the following criteria will be used to determine the magnitude of change and the sensitivity of the receptor / receiving environment.

Magnitude of Change

2.19 The magnitude (scale) of change for each effect has been identified and predicted as a deviation from the established baseline conditions, for the construction and operational phases of the Proposed Development. The scale used (high, medium, low, and negligible) is shown in Table 2.3 below.

Sensitivity of Receptors

2.20 The sensitivity of receptors / receiving environments considered within the ES are defined within Chapters 7 – 15. The sensitivity / value of receptors / receiving environments to change have been determined by quantifiable data (where applicable), the consideration of existing and proposed designations and professional judgement. The scale used (high, medium, low, and negligible) is also shown in Table 2.3.

Assessment Effect Significance

2.21 The level of effects has been assessed using appropriate national and international standards or limits (WHO Limits, EU Quality Standards etc.). Where no such standards exist, the assessments in each individual subject area describe the professional judgements (assumptions and value systems) that underpin the attribution of significance.

2.22 Each effect has been assessed against the change of magnitude and the sensitivity of the receptor as shown in Table 2.3.

Table 2.3: Matrix for determining significant effects

<table>
<thead>
<tr>
<th>Magnitude of Change/ effect</th>
<th>Sensitivity of receptor/ Receiving Environment to Change/ Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substantial</td>
<td>High</td>
</tr>
<tr>
<td>Major</td>
<td>Major</td>
</tr>
<tr>
<td>Moderate</td>
<td>Moderate</td>
</tr>
<tr>
<td>Minor</td>
<td>Minor</td>
</tr>
<tr>
<td>Negligible</td>
<td>Negligible</td>
</tr>
</tbody>
</table>
2.23 While effects are considered to fall into one of four effect categories ranging from ‘negligible’, ‘minor’, ‘moderate’, ‘major’ in the effects matrix presented in Table 2.3, it is only those effects that fall into the ‘moderate’ or ‘major’ category (as shaded above) that are considered to be significant environmental effects arising from the construction and operation of the Proposed Development. It should however be noted that different specialist topics within the ES may use a different approach to identify which level of effects are significant. A summary of effects table is contained within each technical assessment chapter clearly stating for each effect identified whether it has been found to be ‘significant’ or ‘not significant’.

2.24 Whilst the ES provides a full factual description of the development, as emphasised by Schedule 4 of the EIA Regulations, and clearly stated in Planning Practice Guidance (PPG), the ES needs to be proportionate and not any longer than is necessary to assess properly those effects which are considered significant. In this instance, effects considered significant within the meaning of the EIA Regulations have been assessed within the main technical chapters. The supporting chapter appendices provide details of the assessments undertaken on the effects assessed as not significant. Where there is deviation from this approach within technical chapters, it is clearly set out.

2.25 The terms as used within the table have been defined below:

- **Major positive or negative effect:** where the development would cause significant improvement (or deterioration) to the existing environment.
- **Moderate positive or negative effect:** where the development would cause noticeable improvement (or deterioration) to the existing environment.
- **Minor positive or negative effect:** where the development would cause perceptible improvement (or deterioration) to the existing environment.
- **Negligible:** no discernible improvement or deterioration to the existing environment.

2.26 In addition to the assessment structure set out above, specific criteria have been developed for certain technical studies and are detailed in the respective chapters of the ES. The inter-relationship between environmental effects and residual effects following implementation of mitigation measures has also been discussed.

2.27 In terms of the duration of an effect, short-term has been considered as 1 year (or less), a medium-term effect has been considered to be between 1 and 10 years in duration and a long-term effect has been considered to be greater than 10 years in duration. If variation on these timeframes is necessary, this is stated in Technical Chapters 7 to 15.

**Cumulative Effects**

2.28 Schedule 4 of the EIA Regulations requires that cumulative effects of a development are considered within an EIA. There is no widely accepted methodology or best practice for the assessment of cumulative effects, although various guidance documents exist. The following

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approach has been adopted for the assessment of cumulative effects, based on previous experience, the types of receptors being assessed, the nature of the Proposed Development, the committed developments under consideration and the information available to inform the assessment.

2.29 With regards to cumulative effects, they have been considered within the technical assessments as both cumulative effects from different committed developments and cumulative effects from different environmental features. In consultation with PCC, Table 2.4 lists the agreed committed developments that have been identified as part of this assessment. Figure 16.1 illustrates the locations of these sites.

2.30 As part of traffic flow data used as part of the Air Quality and Dust, Noise and Vibration and Transport and Access chapters, the baseline condition has been taken as the Preston Western Distributor Road and East-West Spine Route being operational (see Figure 15.1). As such the baseline condition takes into account that the North West Preston Strategic Location and Cottam Hall Strategic Site (identified within the Preston Local Plan) are constructed, and the assessment therefore already takes cumulative effects into account. Figure 16.2 illustrates the location of these two sites.

2.31 Further details regarding the scope of the assessment of cumulative effects are provided within Chapter 16 – Cumulative Effects.
### Table 2.4: List of committed developments that have been identified for cumulative assessment

<table>
<thead>
<tr>
<th>Site No.</th>
<th>Ref.</th>
<th>Location</th>
<th>Description</th>
<th>Approximate Centre Co-ordinates</th>
<th>Approximate Distance from Proposed Development Boundary and Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>In Planning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>06/2014/0442</td>
<td>(Grid Ref 512344), Sandyforth Lane, Woodplumpton, Preston, Lancashire</td>
<td>Erection of 182no. dwellings with access from Lightfoot Lane, internal access roads and landscaping</td>
<td>351449, 433531</td>
<td>0.0km, North</td>
</tr>
<tr>
<td>2.</td>
<td>06/2015/0085</td>
<td>Former Cottam Brickworks, Cottam Avenue/, Tom Benson Way, Preston, Lancashire</td>
<td>Outline planning application for the redevelopment of site (5.84 hectares) to include up to 6,105 sqm of Class A1 (retail); up to 1,380 sqm of Class A3/A4/A5 (food and drink); up to 2,035 sqm of Class D1/D2 (health hub); a petrol filling station and associated car parking (all matters reserved except for access)</td>
<td>350807, 431718</td>
<td>0.8km, South West</td>
</tr>
<tr>
<td>3.</td>
<td>06/2016/0291</td>
<td>Maxy House Farm, Sandy Lane, Cottam, Preston, Lancashire, PR4 0LE</td>
<td>Outline application for the residential development (Class C3) of 10.28 hectares of land for up to 230 dwellings, open space areas and other associated infrastructure (all matters reserved)</td>
<td>349783, 433244</td>
<td>1.0km, North West</td>
</tr>
<tr>
<td>4.</td>
<td>06/2016/0552</td>
<td>(Grid Ref 504336) Tabley Lane, Higher Bartle, Preston, Lancashire</td>
<td>Outline application for up to 175 dwellings (access applied for only)</td>
<td>350622, 433678</td>
<td>0.6km, North West</td>
</tr>
<tr>
<td>5.</td>
<td>06/2016/0942</td>
<td>Bridge House, Tabley Lane, Preston, PR4 0LH</td>
<td>Outline planning application for 58no. dwellings (access applied for only)</td>
<td>350334, 433691</td>
<td>0.8km, North West</td>
</tr>
<tr>
<td>Approved</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>06/2012/0094</td>
<td>Connemara, Lightfoot Green Lane, Fulwood, Preston, Lancashire, PR4 0AP</td>
<td>Outline application (access only) for the redevelopment of 4.50 hectares of land for residential development (Class C3) for up to 125 dwellings, public open space, landscaping, access from Lightfoot Green Lane, internal road layout, footpaths and other associated infrastructure</td>
<td>351981, 433677</td>
<td>0.0km, North</td>
</tr>
<tr>
<td>7.</td>
<td>06/2012/0145</td>
<td>Land adjacent to Cottam between Hoyles Lane Sidgrees Lane Lea</td>
<td>Outline application for the redevelopment of 53 hectares of land for residential development of up to 1,100 dwellings (Class C3), retail (Class A1 500 sqm), commercial (Class A3 1600 sqm) and</td>
<td>349543, 431884</td>
<td>1.3km, South West</td>
</tr>
<tr>
<td>Site No.</td>
<td>Ref.</td>
<td>Location</td>
<td>Description</td>
<td>Approximate Centre Coordinates</td>
<td>Approximate Distance from Proposed Development Boundary and Direction</td>
</tr>
<tr>
<td>---------</td>
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<td>-----------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------------------------</td>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Road and Lancaster Canal - Cottam Hall Lea</td>
<td>community facilities (Class D1/D2), children's play areas, open space provision, landscaping and associated infrastructure including internal road layout, footpaths, cycle routes and ecological mitigation measures (all matters reserved)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>06/2011/0473</td>
<td>Haydock Grange, Hoyles Lane, Preston, Lancashire, PR4 0LB</td>
<td>Erection of 450 no. dwellings, 3no. shops, public parking to serve existing community facilities, children's play areas, open space provision, new vehicular accesses from Tabley Lane, Sandy Lane and Hoyles Lane, internal road layout, footpaths and cycle routes together with associated infrastructure and demolition of existing agricultural buildings (outline application)</td>
<td>350442, 433014</td>
<td>0.3km, West</td>
</tr>
<tr>
<td>9.</td>
<td>06/2012/0822</td>
<td>(Grid Ref 504335), Lightfoot Lane, Higher Bartle, Preston, Lancashire, PR4 0LA</td>
<td>Outline planning application for the residential development (Class C3) of 14.2 hectares of land for up to 330 no. dwellings, new access junction from Lightfoot Lane, open space areas, landscaping, internal access road, pedestrian and cycle paths and other associated infrastructure.</td>
<td>350728, 433289</td>
<td>0.1km, North West</td>
</tr>
<tr>
<td>10.</td>
<td>06/2013/0140</td>
<td>Land to the rear of Cottam Nursery School, Sandy Lane, Preston, Lancashire</td>
<td>Outline planning application for the residential development (Class C3) of 11.30 hectares of land for up to 350 no. dwellings seeking approval for access only from Sandy Lane, with associated internal access roads, car parking, public open space and landscaping</td>
<td>350054, 432819</td>
<td>0.9km, West</td>
</tr>
<tr>
<td>11.</td>
<td>06/2013/0195</td>
<td>Land At (Grid Ref 521335) the Eastway Fulwood</td>
<td>Outline planning application for the residential development (Class C3) of 5.40 hectares of land for up to 140 no dwellings seeking approval for access only from Eastway, with associated public open space and landscaping</td>
<td>352195, 433812</td>
<td>0.0km, North East</td>
</tr>
<tr>
<td>Site No.</td>
<td>Ref.</td>
<td>Location</td>
<td>Description</td>
<td>Approximate Centre Co-ordinates</td>
<td>Approximate Distance from Proposed Development Boundary and Direction</td>
</tr>
<tr>
<td>---------</td>
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<td>-------------</td>
<td>---------------------------------</td>
<td>---------------------------------------------------------------------</td>
</tr>
<tr>
<td>12.</td>
<td>06/2015/0530</td>
<td>Hoyles Lane and to the east of, Sidgreaves Lane, Lea, Preston, Lancashire</td>
<td>Erection of 350 no dwellings, new vehicular access from Hoyles Lane and Sidgreaves Lane, open space, landscaping and associated infrastructure</td>
<td>349300, 432395</td>
<td>1.4km, West</td>
</tr>
<tr>
<td>13.</td>
<td>06/2016/0350</td>
<td>Preston Grasshoppers, Lightfoot Green Lane, Woodplumpton, Preston, Lancashire</td>
<td>Artificial sports pitch with associated hardstanding, floodlighting and storage container</td>
<td>351733, 433562</td>
<td>0.0km, North</td>
</tr>
<tr>
<td>14.</td>
<td>06/2016/0367</td>
<td>Land off Sandy Lane, Cottam, Preston, Lancashire, PR4 0LE</td>
<td>30 no. dwellings and new vehicular access off Sandy Lane</td>
<td>350062, 432715</td>
<td>0.8km, West</td>
</tr>
</tbody>
</table>

Baseline Developments considered part of background Traffic Flow Data

<table>
<thead>
<tr>
<th>Policy MD1 of PCC Local Plan</th>
<th>Location</th>
<th>See Figure 16.2</th>
<th>See Figure 16.2</th>
<th>0.0km, North and North West</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cottam Hall Strategic Site</td>
<td>See Figure 16.2</td>
<td>Approximately 70ha and anticipated to deliver 1,300 residential units.</td>
<td>350062, 432715</td>
<td>0.8km, West</td>
</tr>
</tbody>
</table>
3 DESCRIPTION OF THE SITE AND SURROUNDING AREA

Introduction

3.1 This Chapter provides a description of both the Site location, defined by the red line boundary (Figure 1.2), and the surrounding area. Further detailed site descriptions along with the study areas in relation to the technical assessments undertaken are provided within Chapters 7 – 15.

Site Location and Surrounding Area

3.2 The total site area is approximately 70 hectares. It is approximately centred on National Grid Reference SD 51864 32671. Figure 1.2 shows the Site’s local context. The Site falls from the north eastern corner at approximately 40.6 AOD to the south approximately 20.0 AOD over a distance of approximately 1.3km.

3.3 The Site is located on the northern fringe of the Preston conurbation approximately 3.5km from the centre of Preston and currently comprises the Ingol Village Golf Course, including the Club House (the only building onsite). The Golf Course opened in 1981 operating as an 18-hole golf course for nearly 30-years before closing in 2010. In April 2013, the Golf Course reopened with 14 holes available initially, and the full 18-hole course operational from September 2013.

3.4 The phased opening was due in part to a need for significant remedial works due to the closure period and the remodelling of the course to provide 18 holes in a smaller area (approximately 56 ha from 70ha). This involved the removal of three holes in the north west of the Site (Residential Parcel A of this planning application). The playing facilities currently comprise an 18-hole par 68 course over 5,511 metres. The primary ancillary facilities are a Club House (often used for functions) which also includes a pro-shop. As part of the Proposed Development, the Golf Course will cease to operate and not be re-provided elsewhere. The implications of this, and an assessment of the need of the Golf Course are included in Chapter 14 – Socio-Economics.

3.5 The Site sits on the eastern edge of the area known as Ingol and is separated from the residential area of Fulwood by the West Coast mainline railway which forms the Site’s eastern boundary. The B6241 (Tom Benson Way) runs along the northern boundary of the Site. North of this is residential development along Lightfoot Lane. Open countryside (allocated for development) lies between the residential areas off Lightfoot Lane and the M55. The southern and western boundaries of the Site are formed by the residential areas of Tanterton, Ingol, Cadley and Greyfriars. The Site is predominantly located within the ward of Greyfriars, however, the western end of the Site is also located within the ward of Ingol.

3.6 To the north is the M55 motorway, with junction 1, being located within 1km of the Site’s north-eastern corner. This motorway also provides direct access to the M6. The Site is dissected into two main parcels by Walker Lane (becoming Boys Lane to the south) in a north to south east direction. The other main roads in proximity to the Site are Tom Benson Way to the north, which provides access to Wychnor and Tanterton Hall Road.

3.7 Potable water supply and foul drainage services are present on part of the Site. Details of existing utility services are included in Appendix 3.1. In particular, this includes a 1200mm combined sewer that cuts through the Site and runs broadly parallel to Sharoe Brook (‘the Brook’). United Utilities have confirmed that the sewer has capacity to accommodate the Proposed Development (see Appendix 10.1).
3.8 The majority of the Site can be described as relatively flat or gently falling; with the exception of wooded valley that follows the Brook. The Brook joins the Site from under the railway line and follows the valley before flowing south out of the Site. A tributary to the Brook enters from the western boundary adjacent to the residential area of Sheraton Park. The Brook and associated vegetation creates a green corridor which forms a coherent green network that runs through the Site.

3.9 The majority of the Site is located within Flood Zone 1 on the EA ‘Flood Map for Planning – Rivers and Sea’ – an area considered to have the lowest probability of fluvial and tidal flooding. Areas of the Site immediately adjacent to the Brook are located in Flood Zone 2 and Flood Zone 3 (see Figure 10.2 for location of Zones 2 and 3). The Site is not shown to benefit from flood defences.

3.10 The Site comprises several large tracts of open land that are of varying sizes and shapes, due to the current use of large parts of the Site as a golf course. It is a mix of grassland and woodland habitats with bordering hedgerows, scrub and ruderal habitats. Aquatic habits include various stream, ditches and ponds. The Golf Course at times is known to suffer from poor drainage.

3.11 There are a number of small permanent ponds within the Site, generally these ponds are confined to the Site boundary and were originally designed as part of the course. No made ground is shown on published geology maps, although some made ground is anticipated associated with the current land use. A Land Contamination Assessment is included in Appendix 3.2.

3.12 To the north of the Site is a mature linear woodland plantation comprising of oak, sycamore and other native species. This belt of trees separates the Site from the heavily trafficked Tom Benson Way and Lightfoot Lane both of which lead to the M55.

3.13 To the rear of the properties fronting Walker Lane and houses at Upland Chase is a broad mature tree belt; this section of woodland provides an important physical separation between the Ingol Ward and the Greyfriars Ward. In addition to this the Golf Course is surrounded and interwoven with mature woodland that offers a visual and physical screen to the Golf Course from Public Rights of Ways (PROWS), residential roads and adjacent properties.

3.14 The Club House is located towards the western boundary of the Site and is accessed from Tanterton Hall Road. The facility is a single storey cluster of buildings with associated outbuildings. There is a car park comprising of approximately 2000m² area of hard standing adjacent to the Club House which accommodates approximately 90-95 cars.

3.15 The grain of the housing and roads to the north and west of the Brook comprises a number of Residential Parcels that outcrop into the Ingol Village Golf Course; each parcel of dwellings is made up of a network of roads and a number of cul-de-sacs. To the south of the Brook the houses are large detached dwellings with large gardens.

3.16 The landscape of the Site is not nationally designated for its landscape value nor does the Site form an important part of a wider open landscape which is sensitive to change.

3.17 The nature of the Site as a golf course means that there are substantial boundary treatments such as tree belts to most of the surroundings and it is therefore visually contained. The trees and vegetation within the Site have some landscape value, there is one TPO within the boundary
(located east of Walker Lane and south of Tom Benson Way) along with trees categorised as Grade A in accordance with BSS837:2012 in the tree survey (Appendix 11.5).

3.18 There are three fairways to the north west of the Site that are no longer used or maintained as a golf course, this tract of land is currently trespassed upon for recreational uses such as dog walking. The Golf Course itself is similarly used for recreational uses such as dog walking.

3.19 There are two PROWS, FP 43 and FP 46, that run through the Site, one to the east adjacent to the railway line embankment and one crossing into the middle of the Site from the eastern boundary following the bank of the Brook. In addition to the PROWS there are several Definitive Map Modification Orders (DMMO). The current status of these orders are not complete, however, they have been mapped on LCC’s mapping system (MARIO) and as such have been treated as used routes and connections in the area. As part of the Proposed Development, the final DMMO route locations will be formalised through new DMMO applications. The Site’s footpath connectivity is illustrated on Figure 11.3.

3.20 There are numerous shops and associated facilities located within walking distance of the Site. These are predominantly located along Tag Lane located to the west of the Proposed Development. Additionally, given the Site’s location approximately 3.5km north of Preston City Centre, and the availability of public transport in this direction, it is considered that the Site can be considered sustainably located. Further to this the Transport Assessment (Appendix 15.1) concludes by stating that the Site is well located to generate trips on foot and provides potential for a high degree of linked walk trips between the development and the surrounding area. It is accessible by cycle with National Cycle route 62 located to the south of the Site, and the bus services from the bus stops on Tanterton Hall Road, Wychnor and Lightfoot Lane show that the Proposed Development can be accessed by bus. In light of this the assessment considers the Site is accessible by non-car modes and will cater for needs of the Proposed Development’s residents and assist in promoting choice of travel modes other than the private car.

3.21 Overall there are 26 primary schools within a two-mile (3.2km) radius of the Site (these are detailed fully in Chapter 14). Of these, 14 are under capacity and 12 are at full capacity or operating over capacity. In net terms there are approximately 150 spare places across these schools. Over half of capacity is within one school, Ingol Community Primary, with a further 40 places at the closest school to the Site (Pool House Community Primary School).

3.22 LCC’s Asset Management School Planning Team calculates five-year pupil projections as part of its methodology for calculating developer contributions to education. The results of this forecasting exercise for the primary schools within two miles (3.2km) of the Proposed Development shows there is expected to be a shortfall in capacity by 2021, with demand for 5,656 primary school places compared to cumulative provision of 5,643. This is due in part to the increased demand for school places but also to the planned reduction in the capacity of Ingol Community Primary School (from 245 places down to 150).

3.23 There are eight secondary schools within a three-mile (4.8km) radius of the Site (these are detailed fully in Chapter 14), and two more lying just outside of the radius. Of these schools, five are currently under capacity. These schools have combined surplus capacity of 480 places (excluding the academies which currently have large amount of excess capacity).
3.24 LCC has also provided five-year pupil projections for high schools within a three mile (4.8km) radius of the Proposed Development. It projects that, by 2021, there will still be collective surplus capacity in secondary schools in the area. It is predicted by 2021 there will be demand for 8,107 secondary school places compared to a projected net capacity of 9088 school places, equivalent to 981 surplus school places.

3.25 Specifically, the following primary and secondary schools are located in close proximity to the Site; Pool House Community Primary School, Harris Primary School, St Anthony’s Catholic Primary School, Our Lady’s Catholic High School and Fulwood Academy.

3.26 To meet the education demand of the Proposed Development it is anticipated that a financial contribution would be required to increase capacity at existing or new facilities by a scale which is commensurate with the increase in demand. In the case of education facilities, this would be through a site-specific developer contribution.

3.27 There are 11 GP surgeries and eight dental practices located within a two-mile (3.2km) radius of the Site (these are detailed fully in Chapter 14). Specifically, these include Ingol Health Centre, Broadway Surgery, Beech Drive Surgery and Lytham Road Surgery. Of the 11 surgeries in a two-mile (3.2km) radius, six are currently assessed as potentially operating over capacity (as per the assessment in Chapter 14). This could change in the future as a result of planned increases in the capacity of local health provision. An Estates Strategy produced by the Greater Preston and Chorley and South Ribble Clinical Commissioning Groups (CCGs) notes that there are plans to increase capacity at an existing health centre (Ingol Health Centre) and to build a new health centre in North West Preston to accommodate the increase in demand from new housing developments in the local area. The nearest hospital to the Proposed Development is Royal Preston Hospital, located approximately 1.5km to the east of the Site.

3.28 Of the eight dental surgeries in a two-mile (3.2km) radius, one of them is currently accepting new patients. This suggests there is little capacity in local practices. For healthcare facilities, effects of the Proposed Development would be mitigated through financial contributions via the Community Infrastructure Levy (CIL).

3.29 There are two public leisure centres in Preston which are run by PCC, Fulwood Leisure Centre (1.3km east of the Proposed Development) and West View Climbing and Leisure Centre (4.3km south east of the Proposed Development). Both include the following facilities, gyms, sports halls, swimming pools, squash and badminton courts. West View Leisure Centre specifically features a climbing wall and a 3G 7 a-side football pitch.

3.30 PCC also run St Augustine’s Centre in Avenham (4.7km south east of the Proposed Development) on behalf of Cardinal Newman College, which offers hall space for several sport and leisure activities such as: football, cricket, basketball, badminton, table tennis and dancing.

3.31 There are three libraries, seven community centres and twenty three churches within a two-mile (3.2km) radius of the Site.

3.32 Much of the surrounding areas to the Proposed Development are currently lit to highway or residential street uses. Within the Site the environment is generally unlit due to the open expanses of land associated with the Golf Club, with the exception of the car parking and Club House facilities. Although localised, existing lighting elements to the developed areas
surrounding the Site do disrupt the night scene and can be considered as contributing to a detrimental effect on the local environment (light trespass and sky glow). The main contributors outside the Site boundary is road lighting at highway junctions and roundabouts, main traffic routes and residential streets.

3.33 The main existing noise sources are due to road traffic associated with nearby roads. In particular, this includes the M55 motorway, but also the adjacent West Coast mainline railway located on the eastern boundary of the Site.

3.34 The Site is neither in, nor adjacent to, an environmentally sensitive area, as defined by Regulation 2(1) of the EIA Regulations (i.e. sites designated as Sites of Special Scientific Interest (SSSI), National Parks, World Heritage Sites, Scheduled Ancient Monuments, Area of Outstanding Natural Beauty and sites covered by international conservation designations) and therefore is not considered to represent an environmentally sensitive location.

3.35 The nearest statutory designated landscape site is the Haslam Park Local Nature Reserve which is within 700m of the Site to the south. The online mapping tool MAGIC Map, infers the Site is also situated outside the Impact Risk Zones of the three nearest SSSIs, which are Red Scar and Tun Brook Woods (approximately 5.5km east), the Ribble Estuary SSSI (approximately 6.4km south west) and the Newton Marsh SSSI (approximately 6.6km south west).

3.36 No Scheduled Monuments, Registered Parks and Gardens or Registered Battlefields are present within or in the immediate vicinity of the Site. No Listed Buildings are present within the Site. One Listed Building is present within 500m of the Site, which is the Grade II listed building known as Wychnor, located to the north of the Site. The Grade II Listed Wychnor is a mid-18th century former farmhouse, now divided into two dwellings.

3.37 The Site is referred to as an Area of Major Open Space (AMOS) - Policy EN5 in PCC’s adopted Local Plan 2012-2026 (Preston Local Plan). The area between Lightfoot Lane and the M55 to the north of the Site is identified as a Major Development Area – North West Preston, Policy MD2. Further to the south west is the Major Development Area of Cottam Hall, Policy MD1 (see Figure 16.2 for Policy MD1 and MD2 locations).

3.38 Committed development in the surrounding area is illustrated in Figure 16.1 and listed in Table 2.5. As discussed above, North West Preston Strategic Location (Policy MD2 of the Preston Local Plan) is located directly to the north, north west and west of the Site. It comprises 319 ha and is anticipated to deliver around 5,322 residential units. Similarly, slightly further south west is Cottam Hall Strategic Site comprising 70 hectares and anticipated to deliver 1,300 residential units. The committed developments listed in Table 2.5 are largely located within these areas.
4 CONSIDERATION OF ALTERNATIVES

Introduction

4.1 This Chapter outlines the description of the main design alternatives to the Proposed Development which have been considered by the Applicant and the principal reasons for proceeding with the layout within the Indicative Masterplan.

4.2 The motivation for this relocation is to support PNE’s aspirations and ambitions to play at the highest tier of English League football. Such aspirations bring a commensurate need for training facilities which are of the highest standard; this helps to attract and retain the type of professional players who can perform at this level.

4.3 The need to relocate from Springfield Sports Ground relates to space constraints at the current facility. The first team’s facilities require upgrading and expansion, and the Academy needs additional space to support it in its current location. Springfield Sports Ground is tightly constrained by Savick Brook to the north and residential dwellings to the south. The land itself is within Flood Zone 3 which places an additional constraint on future development of the sports ground. The relocation will provide the space needed to deliver the development sought, providing a purpose-built facility away from Flood Zone 3, and allowing the space needed for the existing Academy in the current location.

Requirement of the Consideration of Alternatives

4.4 Schedule 4, Part 1 of the EIA Regulations states that an ES should include ‘an outline of the main alternatives studied by the Applicant or appellant and an indication of the main reasons for the choice made, taking into account the environmental effects’.

Alternative Site Layouts

4.5 The design team were brought together in 2016. During this time, environmental constraints have been identified and subsequently addressed through alteration of the Indicative Masterplan to minimise or avoid adverse significant environmental effects. As a result of embedded mitigation via design iterations, a number of potentially significant effects have been reduced in severity. Consequently, the number of specific mitigation measures proposed to reduce potential significant effects is also reduced. Appendix 4.1 illustrates details of how the scheme has evolved since its inception. The key design iteration changes can be summarised in Table 4.1.

Table 4.1: Design Iterations

<table>
<thead>
<tr>
<th>Iteration</th>
<th>Changes (see Appendix 4.1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>As illustrated in Design Iteration 1, the initial Indicative Masterplan looked to identify what land could be developed in the space available within the Site boundary and did not take into account the previous planning history or environmental constraints associated with the Site. The iteration helped aid initial discussions held with PCC as discussed in Chapter 2 of the ES.</td>
</tr>
<tr>
<td>2</td>
<td>Design Iteration 2 illustrates some of the amendments made to the initial Indicative Masterplan following pre-application discussions with PCC. Predominantly these revolved around the reduction in the number of dwellings to be delivered as part of the Proposed Development, along with amendments to the parcels of land to be developed to better reflect the existing planning policy for the Site. This relates to protecting Green Infrastructure through the Site.</td>
</tr>
<tr>
<td>Iteration</td>
<td>Changes (see Appendix 4.1)</td>
</tr>
<tr>
<td>-----------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td><strong>3 and 4</strong></td>
<td>Design iterations 3 and 4 illustrate the switch in the location of the proposed first team training facilities and the location of dwellings in the south west of the Site boundary. The design change was on two main reasons; planning and environmental constraints. With regards to planning, it was considered the location of the Training Facility along the south-eastern boundary of the Site better reflected the planning policy designation of the Site and the deliverability of Green Infrastructure across the Site as a whole. Secondly, from an environmental constraints perspective it allowed the first team Training Facility to be relocated away from a large number of existing dwellings and reduce the effect of noise and lighting upon them. By moving the residential dwellings away from the West Coast mainline railway it reduced the effect of vibration on dwellings proposed by the development in close proximity to the line.</td>
</tr>
<tr>
<td><strong>3 and 4</strong></td>
<td>Design Iterations 3 and 4 also followed a Design Team Meeting that took place on 5th September 2016. The meeting took place at FWP’s office and allowed all consultants to constructively discuss the environmental constraints of their assessments prior to undertaking a team site visit. Following the meeting a revised Indicative Masterplan was produced. This took into account the following environmental constraints embedding mitigation further into the design of the Proposed Development:</td>
</tr>
<tr>
<td></td>
<td>a) <strong>Landscape and Visual:</strong> Feedback from Randall Thorp on the landscape and visual constraints and opportunities following the recent planning history of the Site and the Site visit that took place on 5th September 2016. This included the identification of views to be protected that should be built into any Indicative Masterplan, the breaking up of parcels of residential development to better reflect the character of the area and planning policy designation, and identification of the protection of existing PROWS along with the other public links (see Figure 11.3) into and across the Site. These changes have allowed the scheme to be designed with the surrounding context in mind helping to build on its existing connectivity.</td>
</tr>
<tr>
<td></td>
<td>b) <strong>Ecology:</strong> Following ecological surveys that have been undertaken and the previous surveys that were submitted with previous applications, it was apparent that newt mitigation needed to be built into the Indicative Masterplan at an early stage. In this regard, following the 2016 surveys, the identification of ponds was mapped on a constraints plan. Suitable buffers around the ponds were incorporated where possible to avoid development in these locations reducing significant effects through embedded mitigation. A large number of ponds identified with newts are located along the western boundary of site, where possible development in these areas has been avoided. Further to this, locations for potential newt mitigation were provided on-site (see Design Iteration 5 for more details).</td>
</tr>
<tr>
<td></td>
<td>c) <strong>Trees:</strong> An updated arboricultural survey was undertaken in August 2016. This was overlaid on a constraints plan and the Indicative Masterplan has used this to identify potential development parcels which minimise the need for tree removal. The tree survey also identified trees protected under Tree Preservation Order. The removal of trees within these designations has been avoided.</td>
</tr>
<tr>
<td></td>
<td>d) <strong>Water:</strong> The constraints map was also updated with avoidance of areas at risk from surface water or fluvial flooding. Public sewers were mapped to avoid any potential impacts.</td>
</tr>
<tr>
<td><strong>5</strong></td>
<td>Following the commencement of assessments and other studies, further changes were made to the Proposed Development (see Design Iteration 5).</td>
</tr>
<tr>
<td></td>
<td>a) <strong>Sporting Need:</strong> As part of the initial work a feasibility study was undertaken to identify potential public provision that could be made within the public open space.</td>
</tr>
</tbody>
</table>
### Iteration

<table>
<thead>
<tr>
<th></th>
<th>Changes (see Appendix 4.1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>This</strong>, at the early stage has also fed into the design of the PNE first team Training Facility, and in particular guided which training pitches would need to be lit. The location of pitch lighting has been factored into early design to reduce potential effects on existing receptors across the Site.</td>
</tr>
<tr>
<td></td>
<td><strong>b) Archaeology:</strong> By moving the community allotments away from land west of Walker Lane (now newt mitigation) to land east of Walker Lane, this will avoid earthworks in this area and avoids significant effects on the possible motte and bailey castle potentially located in the area (see Figure 8.1). Simultaneously, it has allowed for the provision of some on-site newt mitigation.</td>
</tr>
<tr>
<td></td>
<td><strong>Design Iteration 6</strong> begins to look at in more detail landscape constraints. It aims to reflect previous reasons for refusal raised by the previous planning inspectors (as discussed in Chapter 6). This has led to a larger separation distance between residential development and Walker Lane and inclusion of a wooded screening belt (see Design Iteration 7). This gap helps to mirror the gap on the east of Walker Lane helping to protect what is noted as a tranquil area in the previous planning appeal decisions and reduce significant landscape effects in the area. Landscape input also led to a new Residential Parcel to the south of Wychnor, which based on previous planning application decisions was deemed suitable for potential housing. In this regard, Design Iteration 6 also includes indicative housing layouts.</td>
</tr>
<tr>
<td></td>
<td><strong>Design Iteration 7</strong> illustrates the final plan prior to the Indicative Masterplan included in Figure 1.1. This final iteration was led by Randall Thorp and aims to ensure that the Proposed Development responds to the surrounding landscape context. In particular, it addresses the following specific constraints:</td>
</tr>
<tr>
<td></td>
<td><strong>a) Newt Mitigation:</strong> Further newt mitigation was provided on-site in order to mitigate potential significant effects of the local newt population.</td>
</tr>
<tr>
<td></td>
<td><strong>b) SUDS Ponds:</strong> The Site also details suitable sites for SUDS ponds in accordance with feedback from the hydrological assessment undertaken. These are indicative locations, with full details to be determined at Reserved Matters.</td>
</tr>
<tr>
<td></td>
<td><strong>c) Sports Zone:</strong> Given the surrounding environmental constraints, the sports zone has now been removed, however, as indicated by the Sporting Needs Study (Appendix 14.3), off-site contributions are anticipated to be delivered as any potential approval. This has allowed further community garden space to be delivered as part of the Proposed Development.</td>
</tr>
<tr>
<td></td>
<td><strong>d) Connections:</strong> Links throughout the Proposed Development have been enhanced further. These improve the network of public open space and connectivity with the surrounding area, such as cycle linkages to the Guild Wheel, trim trails and foraging trails.</td>
</tr>
</tbody>
</table>
4.6 Through the key design iterations discussed in Table 4.1, Figure 1.1 Indicative Masterplan has been developed. It includes the embedded mitigation within the design required to reduce potential significant effects.
5 DESCRIPTION OF THE PROPOSED DEVELOPMENT

Introduction

5.1 This Chapter provides a description of the Proposed Development. An indicative description of how the Proposed Development will be constructed and construction principles has also been provided. It is upon this description, information and the supporting spatial plans that the technical assessments in Chapter 7 – 15 are based.

The Proposed Development

5.2 The key components of the Proposed Development will include:

Table 5.1: Key Components of the Proposed Development5

<table>
<thead>
<tr>
<th>Indicative Components of the Proposed Development</th>
<th>Indicative Amount Based on Indicative Masterplan (Figure 1.1)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PNE First Team Training Facility (Outline)</strong></td>
<td>10.3ha</td>
</tr>
<tr>
<td>• Indoor football arena up to 120m (length) x 57m (width) x 11m (height) to include artificial pitch (61m x 43m) and ancillary facilities, such as; changing rooms; catering; laundry room; office space; gym; treatment room.</td>
<td>Up to 2500m² floor space (Use Class D2: Assembly and Leisure) with outstanding matters to be determined at reserved matters.</td>
</tr>
<tr>
<td>• Two full size grass pitches (100m x 64m)</td>
<td></td>
</tr>
<tr>
<td>• One full size artificial pitch (100m x 64m)</td>
<td></td>
</tr>
<tr>
<td>• One full size floodlit grass pitch (100m x 64m)</td>
<td></td>
</tr>
<tr>
<td>• Two 5 a-side pitches (60 x 20m)</td>
<td></td>
</tr>
<tr>
<td>• Ancillary car parking (40 spaces) and infrastructure.</td>
<td></td>
</tr>
<tr>
<td><strong>Public Open Space (Full)</strong></td>
<td>41.4 Ha</td>
</tr>
<tr>
<td>The gifting of 41.3ha land for public open space constituting a forest park to be managed through a Management Company financed by the Proposed Development. Including:</td>
<td></td>
</tr>
<tr>
<td>• The provision of children’s play areas, community garden and orchard, foraging and trim trails, cycle track and improved footpath and cycle connections.</td>
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</tr>
<tr>
<td>• The provision of improved landscaping throughout the Site to include woodland planting (and management of existing woodland).</td>
<td></td>
</tr>
<tr>
<td>• Ecological enhancement across the park to deliver proposed Newt mitigation areas (including opportunities to link educational benefits to the public open space) and ponds along with suitable wildlife crossings.</td>
<td></td>
</tr>
<tr>
<td>• Provision of ancillary parking (12 spaces) for potential uses of the space.</td>
<td></td>
</tr>
<tr>
<td><strong>Residential Development (Outline)</strong></td>
<td>17.8 ha</td>
</tr>
<tr>
<td>Delivery of up to 450 dwellings and associated infrastructure across nine residential development parcels of three densities (dwellings per hectare – dph) (see Figure 5.2);</td>
<td>Up to 450 dwellings (Use Class C3: Dwellings) with outstanding matters to be</td>
</tr>
<tr>
<td>• Low Density Parcel (5-15dph): Parcels F and G.</td>
<td></td>
</tr>
<tr>
<td>• Low – Medium Density Parcel (15-25dph): Parcel E and H.</td>
<td></td>
</tr>
</tbody>
</table>

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5 Final amount to be determined at reserved matters within the parameters set by Figures 5.1 and 5.2
Indicative Components of the Proposed Development

<table>
<thead>
<tr>
<th>Indicative Amount Based on Indicative Masterplan (Figure 1.1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Medium Density Parcel (25-30dph): Parcels A, B, C, D and I.</td>
</tr>
<tr>
<td>determined at reserved matters.</td>
</tr>
</tbody>
</table>

Access Works

<table>
<thead>
<tr>
<th>Six new access points and the continuation of the existing golf course access junction.</th>
</tr>
</thead>
<tbody>
<tr>
<td>• New access off Tanterton Hall Road with ghost island (a road marking consisting of central cross-hatching which separates on-coming traffic and provides safe turning areas) right turn lane to provide access to Residential Parcels B and C.</td>
</tr>
<tr>
<td>• Continuation of existing golf course access junction on Tanterton Hall Road to provide access to Residential Parcels D, E and F.</td>
</tr>
<tr>
<td>• New access off Walker Lane to provide access to first team training facility.</td>
</tr>
<tr>
<td>• New access off Wychnor to provide access to Residential Parcel I.</td>
</tr>
<tr>
<td>• New access off B6241 (Tom Benson Way) with ghost island right turn lane to provide access to Residential Parcel A.</td>
</tr>
<tr>
<td>• New access off Wychnor to provide access to Residential Parcel H.</td>
</tr>
<tr>
<td>• New access off Walker Lane to provide access to Residential Parcel G.</td>
</tr>
</tbody>
</table>

5.3 Figure 1.1 Indicative Masterplan illustrates the latest version of the design.

5.4 The Training Facility will be located along the south east of the Site. Access to the facility will be off Walker Lane. Parking for the Site will be delivered to the south of the First Team Indoor Arena. It is anticipated that the development will provide employment opportunities for 40 staff, including players, along with training coaches, ground staff and catering staff. Training usually takes place Monday, Tuesday, Thursday and Friday from 08:00 until 13:30, although sometimes it will be outside these hours and therefore planning permission is sought from 08:00 until 18:00. However, it is sometimes required on Saturdays when there is a Sunday game, and Sundays when there is a Tuesday game, therefore the hours in the previous sentence allow for this. Only the first team squad will use the facility.

5.5 As part of the wider development of the Site, public open space will be delivered. This will see the change of private open space (Ingol Village Golf Course) into public open space. This space will have various access point to pedestrians and cyclists, as illustrated on Figure 1.1 Indicative Masterplan. The public open space will build upon the existing network of paths that exist across the Site, formalising those that have been established informally across it despite its private ownership and operating as a golf course.

5.6 In order to deliver the open space and Training Facility, residential development will act as enabling development. As detailed in Figure 1.1 Indicative Masterplan, a total of nine Residential Parcels will be delivered. It is anticipated that up to 450 dwellings will be completed across the Site as a whole. Figure 5.2 Land Use and Building Density Parameter Plan provides details of the density of each Residential Parcel to be delivered.

Access
5.7 **Figure 1.1** identifies the main access points to the Site, however further details are provided in Plans 3 – 9, Appendix 15.1, Volume 4 illustrating the following proposed access points:

- New access off Tanterton Hall Road with ghost island right turn lane to provide access to Residential Parcels B and C.
- Continuation of existing golf course access junction on Tanterton Hall Road to provide access to Residential Parcels D, E and F.
- New access off Walker Lane to provide access to first team Training Facility.
- New access off Wychnor to provide access to Residential Parcel I.
- New access off B6241 (Tom Benson Way) with ghost island right turn lane to provide access to Residential Parcel A.
- New access off Wychnor to provide access to Residential Parcel H.
- New access off Walker Lane to provide access to Residential Parcel G.

**Parameter Plans**

5.8 **Figures 5.1 to 5.2** provide details of the elements in Table 5.1 for which outline planning permission is sought. Specifically, **Figure 5.1 Building Height Parameter Plan** takes into account the varying needs of the surrounding local environment and has been largely governed by the assessments undertaken from both the cultural heritage and landscape and visual chapters of the EIA submitted with the application. The plan limits height to two storey for the residential development and 11m within the PNE Training Facility.

5.9 **Figure 5.2 Land Use and Building Density Parameter Plan** illustrates the information presented in Table 5.1. The building density of each Residential Parcel varies based on three categories of densities discussed in Table 5.1.

**Construction**

5.10 It is anticipated that should planning permission be granted, Reserved Matters Applications would be submitted within one year with construction starting within a year following approval, however, for the purpose of the ES, construction is anticipated to commence in 2018 with the following phasing plan assumed:

- **Phase A**: The PNE First Team Training Facility to be delivered within 5 years (therefore by 2023).
- **Phase B**: Residential Development to be delivered at a rate of 50 dwellings per year (and completion by 2027).
- **Phase C**: Public open space and community facilities to be delivered commensurate with the residential development areas. Agreement is anticipated through a Section 106 in terms of trigger points for the public open space and community facilities.

**Pre-construction Phase**

5.11 Prior to the main construction contract commencing, a number of enabling works will be undertaken, including geotechnical investigations of the Site, sufficient to facilitate the development of detailed designs, and the production of a detailed Construction Environmental Management Plan (CEMP). There are further details in relation to construction that will require pre-construction work, these are outlined within the **Technical Chapters 7-15** as they are
considered important mitigation measures to reducing the residual effect of the Proposed Development.

**Construction Phase**

5.12 A series of assumptions have been made to the construction proposals including the following:

- Anticipated construction activities;
- Haulage routes;
- Construction traffic timings and frequency;
- Traffic management requirements (including the sourcing of local construction materials);
- Construction compound locations;
- Temporary drainage solutions;
- Foundation solutions;
- Site working hours and days;
- Construction employment (including the sourcing of local labour);
- Site Management Plan;
- Trees within the Site boundary.

**Anticipated construction activities**

5.13 The following provides an outline sequence of the expected aspects of construction.

<table>
<thead>
<tr>
<th>Sequence</th>
<th>Activities</th>
</tr>
</thead>
</table>
| **1**    | - *Site activities*; site set up fencing and gates; site compound set up; start on site. The Site compound location, with fencing and gates will not be across the whole of the Site and will be agreed in consultation with PCC and an agreed phasing plan.  
  - *Plant anticipated*; minimal plant anticipated. |
| **2**    | - *Substructure*; Site Strip; Top soil strip and store; Drainage Works; Form site infrastructure, roads and services; Piling / Vibro compaction Operations; Excavate, Concrete Bases / footings; Services Ducts and drainage.  
  - *Plant anticipated*; Large Rotary Bored Piling Rig; Dumpers, Earth Moving Plant; Compressor Generators; Tracked Excavators; Dozer; Dump Truck; Tracked Mobile Crane; Water Pump. |
| **3**    | - *Superstructure works*; Structural Steel installation (Indoor Training Arena); In situ concrete; Roof/ Wall Cladding; Brick / Block walling; Rainwater Goods; Internal Services installation; Secondary Steelwork; Roof Sheeting / Cladding; Internal Walls; Windows / Curtain Walling / Doors; Rainwater goods / Signage.  
  - *Plant anticipated*; Tracked Mobile Crane; Dumpers, Earth Moving Plant; Compressor Generators; Cement Mixers; Concrete Mixer Truck; Lifting Platforms; Mobile Telescopic Crane. |
| **4**    | - *Internal Services and Finishing*; 1st Fix Mechanical and Plumbing; 1st Fix Electrical; 1st Fix Joinery; Partitions; Plasterwork; Lift installation; 2nd and Final Fix Mechanical and Plumbing; 2nd and Final Fix Electrical; Services; Decoration and Ceilings; Finishes – Wall, Floor and Ceilings; Fixtures and Fittings; Clean and Handover.  
  - *Plant anticipated*; Lifting Platforms; Mobile Telescopic Crane; Compressor Generators. |
| **5**    | - *External works*; Drainage; Service Trenches; Car Parks and Access Roads; Landscaping.  
  - *Plant anticipated*; Dumpers Earth Moving Plant; Tracked Excavators; Compressor Generators; Tarmac Machinery. |
5.14 Indicative construction activities are anticipated to be as per Table 5.2. Final timescales and construction activities are likely to be agreed as part of Reserved Matters planning applications, alongside any construction trigger points agreed within the Section 106 agreement which will determine the final phasing plan.

Haulage routes

5.15 The majority of construction traffic is expected to be routed via the M55, B6241 and Tanterton Hall Road. However, depending on the part of the Site in development this will vary with Wychnor used where appropriate. It is anticipated that construction traffic for the First Team Training Facility will be via the M55, the A6, Black Bull Lane, Boys Lane.

Construction traffic timings and frequency

5.16 The selection of construction vehicles and the numbers of vehicular trips which are required will depend on the size and number of vehicles operated by the contractor. Appropriate controls will be implemented to ensure the safety of other road users and to protect the environment.

5.17 When considering possible size restrictions for vehicles which would be in daily use, the key vehicles would be the tipper trucks used for disposing of materials arising from preparation of the Site and, in the later stages of construction, the delivery of bulky items by articulated lorry. Specialised items such as low-loaders to deliver construction plant and other machinery would need to be considered on an individual basis and would be dependent on both the form of construction to be adopted and the programme.

5.18 It has been assumed that the majority of construction deliveries and collections to the Site will occur outside the prevailing traffic peak periods on a weekday and weekend.

Traffic management requirements

5.19 Mitigation of the effects of construction will be achieved through controls imposed by planning conditions, health and safety requirements and good construction site practices. The mitigation measures to address the transport effects associated with the construction of the Proposed Development will be co-ordinated and implemented by means of a Construction Traffic Management Plan (CTMP) which will be secured by a planning condition. Measures are likely to include:

- Appropriate signing of the delivery route to ensure vehicles use the approved construction routes to and from the Site.
- Warning signs for vehicles and pedestrians as appropriate.
- Co-ordination of delivery times to ensure that as far as possible deliveries take place outside peak periods.
- Layout of site to allow adequate space for goods vehicle manoeuvring and ensure that vehicles are not required to wait on the public highway.
- Temporary traffic management for short periods if delivery of oversized loads may cause obstruction to the public highway.
- Design of the Site access to ensure that vehicles have appropriate visibility upon leaving the Site.
- Wheel washing facilities for vehicles leaving the Site, and road sweeping when necessary.
5.20 During construction, particular restrictions in relation to PROWS and DMMOs may be required for pedestrians in the vicinity of the Site in order to ensure their safety. When such restrictions are needed, the correct legal process will be followed as necessary.

5.21 In relation to on-site access, a traffic system will be designed and detailed in a CTMP (within the CEMP). It will also detail the maximum size of vehicles, appropriate routes, and appropriate delivery timings in line with the text above. Appropriate controls will be implemented to ensure the safety of other road users and to protect the environment.

5.22 It is anticipated that where required, material will be attempted to be sourced locally. No material will be moved off site as it will be used as part of the landscape works.

*Construction compound location*

5.23 During the construction period, a temporary construction compound(s) will be required. At this point in time, it is not known where the compound(s) will be located on the Site. Prior to construction starting a location plan will be provided to, and approved by, the Local Planning Authority (LPA). This will be secured via a planning condition and the CEMP.

5.24 The compound(s) will be surrounded by hoarding to reduce any potential visual effects and security lighting will be designed in accordance with a lighting design strategy in conjunction with the ecologists to ensure suitable bat mitigation is incorporated. It will be in use for the duration of the works and will require an area of approximately 0.3 ha. This will be confirmed when a plan of the location of the construction compound is submitted for LPA approval.

5.25 It is anticipated that the compound will comprise of a hardstanding area and will provide space for:

- Temporary porta cabins/parking for site offices and welfare facilities for contractors;
- Containers used for tool and equipment storage;
- Storage of construction vehicles when not in use;
- Storage of components and material including fuels, lubricants and oils.

*Temporary drainage solution*

5.26 Surface water management during the Site preparation, earthworks and construction phase will include measures to remove silt, sediment and debris and to attenuate surface water runoff prior to controlled discharge to the drainage network. This is discussed further within Chapter 10 of this ES. As part of the construction phase, mitigation is proposed to ensure no significant environmental effect.

*Foundation solutions and Ground Levels*

5.27 For the purposes of the ES it has been assumed that surcharge may be required across the Site. This is the temporary process by which additional material is added to the Site and existing moisture levels are reduced. A piling foundation solution has been assumed across the Site within the area of built development. The piles will be driven to the required depth using conventional pile driving equipment.

*Site working hours and days*

5.28 It has been assumed for the purposes of this ES that working hours for site construction activities will be as follows:
• 07:00 and 18:00hrs Monday to Friday;
• 08:00 and 13:00 on Saturdays; and
• Other hours by exception and with the prior agreement of the LPA.

Construction employment

5.29 It is estimated that the Proposed Development will result in approximately 110 full time equivalent jobs within the construction sector during a 12-month construction period (see Chapter 14 for further information). Where possible, labour will be sourced locally.

Site Management Plan

5.30 Detailed Site Management Plans will be prepared as part of the CEMP by the Contractor in advance of construction. Task specific risk assessment will be carried out for each work activity and detailed method statements prepared to control the operation and to ensure that all concerned are aware of safety and environmental hazards associated with the work and the precautions to be taken. These will refer to:

• Details on working boundaries for the work activity;
• Details on the order and method of construction for the work activity with reference to work procedures;
• The planned measures to reduce the risk identified;
• Information on material being used, plant, labour and any temporary works requirements;
• Site constraints that affect the works activity and how they will be dealt with e.g. pollution prevention methods, noise, by-pass channels, over pumping etc.;
• The quality requirements for the item of work;
• Focus on protected species: otters, water vole, great crested newt, etc.
• Compliance with all legal frameworks in force at the time.

Trees within site boundary

5.31 An Arboricultural Report has been undertaken as part of the planning application submission, showing tree locations, canopy sizes and classification with an accompanying tree schedule within the Site boundary. A Tree Constraints Plan has also been included as part of the planning submission and this ES (see Appendix 11.5) and its recommendation will be implemented during the construction phase.

Post-construction Phase

5.32 All reinstatement works, landscape mitigation and enhancement measures including grass seeding, native tree planting and shrub planting will be carried out upon completion of construction. The Principal Contractor will be responsible for the reinstatement works arising from construction operations, with monitoring implemented following the completion of this work.
6 PLANNING POLICY CONTEXT

Introduction

6.1 Section 38(6) of the Planning and Compulsory Purchase Act 2004 places a requirement upon Authorities when determining planning applications to do so in accordance with the adopted Development Plan unless material considerations indicate otherwise.

6.2 In this instance, the Development Plan for the application site comprises of the Central Lancashire Core Strategy (2012) and the Preston Local Plan 2012-2026. Key policy documents that comprise ‘material considerations’ include:

- National Planning Policy Framework (NPPF)
- Open Space and Playing Pitch Strategy
- Central Lancashire PPG17 Study (PPG17)
- Preston Physical Activity and Sports Strategy, 2015-2020
- Lancashire Strategic Economic Plan, 2015-2025

6.3 This chapter considers the planning policies from the Development Plan relevant to the determination of the application along with the relevant sections of the material considerations. The Planning Statement submitted as part of the planning submission contains a full planning policy assessment of the Proposed Development.

Planning History

6.4 The Site has been subject to two applications of notable interest. Whilst other applications exist locally, there are no other applications evident from the planning register which are deemed directly relevant to the Proposed Development.

Planning Application 06/2010/0626

6.5 Like this application, the above submission related to the entire golf course and was submitted in outline form following the closure of the Golf Course in January 2010. The proposal sought permission for up to 550 dwellings together with associated open space and community facilities. Seemingly the application was not determined by the Council and an appeal on the grounds of non-determination was submitted (PINs Ref. APP/N2345/A/11/2145837). The appeal decision notes that had the Council been in position to determine the application the reasons for refusal would be based around the following:

1) Inadequate detail in relation to the proposals impact on a range of transport modes other than private car;
2) The development would have an unacceptable detrimental impact on the landscape and visual amenity of an Area of Major Open Space;
3) The applicant had failed to demonstrate that the golf course facility has been adequately marketed for golf course or other community/leisure uses;
4) The Design and Access Statement contains insufficient detail or analysis to demonstrate that the proposal would have led to a high-quality development which respects and enhances the local character and distinctiveness of the surrounding area.
6.6 Additional reasons for refusal which related to impact upon protected species and habitats and ground investigations, were also included, but were ultimately not pursued, following the submission of further information.

6.7 Both the Inspector and Secretary of State (SoS) accepted that this previous scheme would have assisted in helping to address the Council’s 5-year housing supply deficit in a sustainable location, which is well served by public transport, schools, community facilities and shops. However, they also concluded that the development was contrary to the then adopted Local Plan Policy G6 in so far as this only permitted development within defined golf courses in certain circumstances. It was also considered to conflict with the former PPG17 in so far as this only permitted the development of existing open space, sports and recreational buildings / land when it could be demonstrated that the open space was surplus to requirements.

6.8 Whilst the SoS and Inspector accepted that an appropriately designed development could take place and be well-integrated to the urban area, they took the view that the development parameters submitted with the application were too limited and generalised to guarantee that a well-designed development could be delivered if outline permission were to be granted. They also considered that the scheme in the form previously proposed would have had a damaging effect on the character and appearance of the appeal site and surrounding area. Weighing up all these considerations they concluded that the balance fell in favour of refusal of planning permission.

6.9 Whilst the above decision was given notable consideration as the Proposed Development was designed, the planning policy position and other related circumstances have fundamentally changed since the above application was determined. Notably both the national and local policy background has changed. The former Lancashire Structure Plan and Preston Local Plan (1996-2006), including Policy G6, have been replaced by the adopted Central Lancashire Core Strategy (2012) (Core Strategy) and the Preston Local Plan 2012-2026 (Local Plan). PPG17 has also been superseded by the NPPF.

6.10 Secondly the proposal at hand is thought to be of greater detail and a more developed nature than that of the above application. The public benefits are more defined, through extended consideration over how the public space is delivered, whilst this scheme also offers support to the city’s football club, through the provision of a new purpose-built, first team training facility. Of further importance is the changing landscape in terms of cumulative development. The North-West Preston and Cottam strategic development areas / sites have redefined the planning context within the locality and in particular have confirmed and committed the necessary infrastructure developments, namely the Preston Western Distributor Road and the Proposed East-West Spine Route, which ultimately will provide an additional junction with the M55 to better serve the western part of Preston.

Planning Application 06/2014/0572

6.11 This application related to a portion of the former Golf Course, within the north-west of the Site, close to the pedestrian parts of Walker Lane. Following the closure of the golf course in 2010, the landowner undertook two marketing exercises, the most recent being in 2012 and undertaken by the Leisure and Hotel Development arm of Strutt and Parker. In 2012 the landowners granted a lease to Mr John and Timothy Wright to re-open and operate the course. Following a period of renovation and refurbishment the course was re-opened in 2013 by new
operators under the name of Ingol Village Golf Club. The new operators had sought to redesign elements of the old course and determined that the north western parts of the Site were surplus to their requirements; these areas remain unused. The new (and current) course remained 18 holes but did not include the land referred to above, which was then the subject of the residential planning application.

6.12 Following the re-opening of the course in 2013, Rowland Homes submitted an outline planning application for the development of that land considered surplus to requirements by the golf course operators. The application sought permission for up to 164 dwellings and associated infrastructure including public open space, footpaths, cycleways, landscaping and biodiversity works, with all matters other than access reserved for future approval.

6.13 The application was presented to the Council’s Planning Committee on 29th September 2014 with an officer recommendation for approval. Notwithstanding the positive recommendation, the Planning Committee refused permission. The Council’s decision notice primarily relates to the development not replacing the lost open space with equivalent or better provision on the grounds that the quantity and quality of the reconfigured golf course is inferior to that of the former course and that as a result is contrary to NPPF Paragraph 74. The notice also recognises a conflict with Core Strategy Policy 19, the then adopted Local Plan Policy G6 and the then emerging Local Plan (allocations) Policy EN5. It concluded that the adverse impacts significantly and demonstrably outweigh the benefits. The decision notice also includes a sentence stating that it has not been demonstrated that the land is surplus to requirements.

6.14 The subsequent planning appeal (PINs Ref. APP/N2345/W/3010715) was dismissed on 6th April 2016. Amongst other considerations, the Inspector concluded that the proposals would not represent sustainable development and that the Council was, at that time, able to demonstrate a 5-year housing land supply and therefore the development plan policies, including those within the then recently adopted PLP were considered up to date.

6.15 The Inspector acknowledged that the proposal would have provided a number of benefits, including the provision of market and affordable housing, public access to parts of the Site and improved pedestrian and cycle links. However, the Inspector concluded that the scheme would significantly harm the distinctive character of the surrounding neighbourhoods, the landscape character and visual amenities of the AMOS and would result in the loss of part of the AMOS, contrary to PLP Policy EN5. Overall the proposal was deemed not to comply with the policies and aims of the Core Strategy and the Local Plan.

6.16 The above decision was given notable consideration throughout the evolution of the current proposals and the current proposals are considered to incorporate various elements which directly address many of the concerns expressed by the previous appeal Inspector. Most importantly, the proposed Residential Parcel A incorporates an increased separation distance between the fringe of the parcel and Walker Lane and this will be supplemented by additional landscaping in this location. The anticipation is to maintain the tranquillity of Walker Lane (as identified in the 2016 appeal decision) and to ensure that this aspect is strengthened and complemented through the indicative Masterplan.

6.17 Secondly, the Proposed Development responds to previous concerns that the development did not replace the lost open space with equivalent or better provision. The Proposed Development will provide for the transfer (by way of gift) of approximately 41ha (over 100 acres) of land from
private space to public open space, that will be maintained and managed through financial contributions arising from the Proposed Development. The public open space will represent a significant public benefit to the surrounding area. Further to this, as has been demonstrated as part of this planning submission (Golf Needs Assessment - see Appendix 14.1), it is clear that the Golf Course is now in fact surplus to requirements. In summary, the Golf Needs Assessments states that the market within which the Golf Course operates is extremely challenging and that supply outstrips demand, with the local catchment more than capable of absorbing any displaced demand. Therefore, based on current trends, the position is unlikely to improve in the future, consequently, there is no demonstrable requirement to retain the golf course to meet any quantifiable needs.

Development Plan

6.18 The Central Lancashire Core Strategy⁶ was jointly prepared by Preston City Council, South Ribble Borough Council and Chorley Borough Council, to set out the development strategy for the three districts for the period 2006 to 2026. The Central Lancashire Core Strategy was adopted in July 2012 and therefore can broadly be regarded as containing relevant and up to date policies in the consideration of this application.

6.19 The Preston Local Plan⁷ was adopted on 2nd July 2015 and its purpose is to apply the general principles and policies from the Core Strategy. It contains development management policies to help guide the decision making processes of the Council in respect of planning applications.

6.20 These documents constitute the Development Plan for the Site. The Planning Statement submitted as part of the planning application contains a full planning policy assessment of the Proposed Development with regards to the policies within these documents.

Planning Policy Documents that comprise ‘Material Considerations’

National Planning Policy Framework (NPPF)⁸

6.21 The NPPF is a material consideration in planning decisions as per Paragraph 2 of the document and Section 38(6) of the Planning and Compulsory Purchase Act 2004. The NPPF sets out Government planning policies for England and how these are expected to be applied. The golden thread running throughout the NPPF is the Framework’s presumption in favour of sustainable development (Paragraph 14) whereby proposed development which correctly balances the requirements of economic, social and environmental issues should be granted planning permission unless there are overriding reasons that suggest that permission should not be granted. In particular the NPPF offers strong support for economic and housing development.

Open Space and Playing Pitch Strategy

6.22 Prepared by Knight Kavanagh & Page (KKP), The Central Lancashire Open Space and Playing Pitch Strategy (PPS) covers the local authority areas of Chorley, Preston and South Ribble. Covering

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⁶ Preston City Council, South Ribble Borough Council and Chorley Council (2012): Central Lancashire Adopted Core Strategy, July 2012
⁸ Department for Communities and Local Government (2012), National Planning Policy Framework
the period from 2012 to 2026 it addresses the supply and demand balance for natural turf pitches for football, rugby and cricket and Artificial Turf Pitches (ATPS).

6.23 Whilst the findings are not directly applicable to golf, the Strategy emphasises the principle of protecting existing sport and recreation facilities unless surplus to requirements, or unless improved alternative provision is made. Furthermore, the Strategy may provide a guide (to be augmented by consultation with the City Council and National Governing Bodies for sport (NGBs)), as to what facilities could be provided as a result of redevelopment on the Ingol Village Golf Course site.

Central Lancashire PPG17 Study (PPG17)

6.24 Published in May 2012 the PPG17 Study covers the Preston, Chorley and South Ribble areas. It provides a quantitative and qualitative assessment of the existing provision and identifies current and future (to 2026) open space surpluses and deficiencies across a range of greenspace typologies, namely:

- Parks and gardens
- Natural and semi-natural greenspaces
- Amenity greenspace
- Provision for children and young people
- Green corridors
- Cemeteries, disused churchyards and other burial grounds.

6.25 In common with the PPS, the demand for golf courses was not addressed. However, it is of relevance to any development on the Site, due to the potential to formally open the facilities for use and access by the local community.

Preston Physical Activity and Sports Strategy, 2015-2020

6.26 The vision of the Preston Physical Activity and Sports Strategy 2015-20 is to get ‘More People, More Active, More Often in More Places’. The Key issues have been identified as including the following:

- The high level of inactivity in the Preston area, with 30.4% of adults inactive compared to approximately 25% nationally;
- Health inequalities. The health of people in Preston is generally worse than the average for England;
- High deprivation;
- Lower than average life expectancy for men and women;
- the level of premature mortality from cardiovascular disease is significantly worse than the average from England.

6.27 The Strategic Priorities that emerge from the Strategy are:

- To increase participation (across all population and age groups);
- To ensure better communication;

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To improve infrastructure (facilities, space, people and skills).

Lancashire Strategic Economic Plan, 2015-2025

6.28 Lancashire LEP has developed a Strategic Economic Plan that sets out the SEP’s vision, objectives and outcomes for the period 2015-2025, additional to this it provides a framework for the Lancashire Growth Deal which features the strategic programmes and outcomes within the Lancashire Growth Deal. Much of the focus of the LEP has been the implementation of a number of key initiatives designed ‘to create the right conditions for sustained economic, business and housing growth. (Paragraph 4.1)’. The SEP outlines the following objectives up to 2025:

- 50,000 new jobs;
- 40,000 new houses;
- £3 billion additional economic activity.

Overall Assessment of Policy Context

6.29 In establishing the principle of development, the most germane issue, when considering both national and local policy is the loss of the golf course and whether this is justified. Such protection is set out in the Paragraph 74 of the NPPF and Policies 19 and EN2 of the Development Plan. However, as detailed throughout this statement, the golf needs assessment concludes on the need for the Golf Course as:

‘... the market within which IVGC operates is extremely challenging and that supply outstrips demand, with the local catchment more than capable of absorbing any displaced demand.

Based on current trends, this position that is unlikely to improve in the future, consequently, there is no demonstrable need for retention of IVGC as a golf course.’

6.30 As such, it is contended that the loss of the Golf Course is justified by reference to both national and local policy and hence that redevelopment in this location can be deemed to be acceptable in principle. Furthermore, it is also clear that the Proposed Development will deliver significant benefits, through the transfer of private recreational space into a significant area of public open space. This includes replacing a type of private green infrastructure which is of poor quality, limited ecological value and of limited benefit to the community with a more beneficial form of publicly accessible and maintained facilities, for which there is a clearly established need. Constituting a total land transfer of approximately 41ha, the scheme will:-

- Enhance the community’s access to recreational facilities including children’s play, which is an objective of Core Strategy Policy 24;
- Provide enhanced publicly accessible Green Infrastructure in the form of managed woodlands, parkland, amenity space and footpath networks, in line with the objectives of Core Strategy Policy 18 and Local Plan Policy GN2;
- Create footpaths through areas of open space which also connect to existing footways / cycleways within the wider AMOS and in so doing increasing the accessibility of the AMOS to the wider community.

6.31 Similarly, the provision of the public open space will help make progress towards the Preston Physical Activity and Sports Strategy. Specifically, this can be achieved by:

- Designing the scheme in a way that encourages formal and informal physical activity, maximising health outcomes.
- Providing a range of sport and physical activity opportunities that are available, during the day, at evenings, weekends, and that are family focused and near to home.
- Promoting and maximising the use of the Green Infrastructure, through the creation of new walking and cycling routes.
- Joining up and connecting existing provisions and build on community and club assets.
- Maximising opportunities for young people’s provision in order to increase physical activity levels.
- Providing secured funding to improve infrastructure and participation.

6.32 The Proposed Development will help to achieve many of the key strategies within the Core Strategy and Local Plan. Notably, a key aim of the Core Strategy is to foster growth and investment in Central Lancashire, and this is supported by significant long-term requirements for additional housing provision and the aspiration of the local authorities to achieve an up-lift in housing delivery. The Core Strategy states that the authorities remain committed to accelerated rates of housing development within the Core Strategy area (see Paragraph 5.14 of the Core Strategy). The Proposed Development provides significant investment within the Preston Urban Area and provides a mixed-use development in a sustainable location that will be of notable recreational, health and sporting value.

6.33 The scheme will also help to support the primary aspirations of PNE to secure a new first team training facility of the highest quality and in an appropriate location to serve the football club. PNE is the driving force behind the planning application and the whole scheme is predicated on the creation of a new, quality first team training facilities, which will help to support the club’s stated aspirations to play at the highest level of English football. Considering the private training facilities from a land use planning perspective, it is clear that, whilst not registering the same levels of policy support as the public open space facilities, the training facilities are indeed consistent with relevant planning policies. Importantly the proposed training facilities will help to support the city’s long-established professional football club, whose well-being and levels of success can be a crucial economic driver.

6.34 In terms of the proposed residential elements, and assuming compliance with Local Plan Policy EN5, it is clear that the development of accessible, urban land which has the potential to create a sustainable form of development is consistent with other relevant policies of the Development Plan. In this respect, the Council’s housing supply position is not determinative and the residential element does not require a shortfall in housing supply in order to be favourably considered. Approval of up to 450 dwellings would in fact bolster the housing supply position and provide a further site which can deliver housing in a sustainable manner for a number of years into the future.
6.35 It is therefore maintained that the Proposed Development is broadly policy compliant and hence is acceptable as a matter of principle. Moreover where the technical surveys and assessments undertaken can demonstrate, evidentially, that the effects of the Proposed Development can be deemed acceptable, as is considered to be the case, the development can and should be supported as being fully compliant in planning policy terms.

6.36 Notwithstanding the above and even if there were deemed to be a degree of conflict with Development Plan or other relevant policy, the considerable material benefits which would result from the Proposed Development would need to be weighed against the harm resulting from any policy conflict to ensure an appropriate assessment of the ‘planning balance’. In this circumstance it is considered that the material benefits which would flow from the Proposed Development are so clear and significant that there are unlikely to be any policy conflicts so weighty as to tip the balance against the grant of planning permission.

6.37 Moreover it is important to note that the residential elements of the scheme, although considered to be policy compliant, also act as enabling development for the other important aspects of the proposals. Indeed the enabling development appraisal identifies that the costs of the provision of the considerable area of public open space, together with ongoing maintenance costs, together with the construction of the PNE first team training facilities is offset by the expected receipts from the sale of the residential parcels. Accordingly even if the residential elements of the development were deemed to be in conflict with Development Plan policy, the degree to which these elements ‘enable’ the delivery of the wider scheme, with its attendant public benefits, needs to be fully considered. In this regard it is contended that the enabling function of the residential development alone is an important and potentially determinative factor in weighing the planning merits of the proposals.

6.38 With regards to sustainable development, the NPPF sets out three strands; economic; social, and; environmental. These can be used as a backbone to discussing the benefits to be delivered by the Proposed Development.

6.39 With regards to the economic benefits of the Proposed Development, the proposal will generate financial contributions through Council Tax income, New Homes Bonus payments and CIL contributions, which in turn will support regeneration and the delivery of new infrastructure. The proposal will also create an expected 110 jobs in the construction industry per annum during the construction period (see Appendix 14.1) and encourage growth in the primary and secondary sectors of the industry and local area due to the multiplier effect, i.e. sale of building materials, architectural / legal services and estate agents.

6.40 The social aspect of sustainability set out in NPPF is considered to be fully addressed, in that the proposal will result in the creation of a high-quality environment which will include enhanced public open space, which can be expected to deliver a range of benefits, but in particular those relating to health. Appendix 14.5 includes a Health Impact Assessment, which concludes that the Proposed Development will lead to a number of positive health impacts. The key positive impacts are as follows:

• **Improved access to open space and nature:** the benefits from increased access to a range of different types of open space are likely to offset any adverse effects from the loss of the Golf Course. The open space will be addressing identified deficiencies, be well-designed and
integrated into local communities, and will be maintained through a management company. This should encourage physical activity and participation in sport.

- **Social cohesion and lifetime neighbourhoods**: the network of open spaces and range of different community facilities throughout the Site will encourage social interaction and provide facilities and resources for voluntary and community groups to use.

6.41 Whilst, it needs to be recognised that the golf course currently acts as an informal recreational asset for walkers and other leisure users. Given the private ownership of the Site, the access to this space cannot be guaranteed, except for on existing Public Rights of Way. It is possible that access to parts of the Golf Course could be restricted in future, particularly if there was a change in ownership. Furthermore, if the Golf Course was to close due to commercial reasons, the quality of the recreational asset could deteriorate if maintenance of the open space did not continue.

6.42 The Proposed Development would provide an increase of 41.3ha of open space which would be publicly accessible and maintained by a management company. The open space would help to address the existing or expected deficiencies in different types of space in Preston (as identified above). In each case, the contribution made by the Proposed Development will be over and above that required to serve the needs of residents of the development. The Proposed Development will also generate additional demand for playing pitch facilities, equivalent to almost 1.1ha. This has been calculated in a separate Sports Needs Study (see Appendix 14.3). It is proposed that these sports facilities will potentially be provided off-site through appropriate financial contribution.

6.43 The Proposed Development would also create new walking and cycling routes and improve existing routes, and provide a range of other new recreational assets including a cycle track, orchards, foraging trails and trim trails. The increased access to open space and range of leisure assets is likely to encourage formal and informal physical activity which could contribute to health outcomes.

6.44 Increasing physical activity and improving facilities and space is identified as a priority in the Preston Physical Activity and Sports Strategy. Furthermore, the Open Space Audit and Central Lancashire Playing Pitch Strategy identified current or future deficiencies in a range of different types of space.

6.45 Turning to the environmental aspect of sustainability, it is demonstrated that the Proposed Development will achieve a number of positive environmental effects, including creation of new areas of managed public open spaces, management of established woodland areas, planting of new trees and landscaping / biodiversity enhancements. Weighing against this, there are some adverse effects which will be evident primarily during the construction phase of development.

6.46 Overall, when assessing all three roles of sustainability (economics, social and environmental) the proposals are considered to comprise sustainable development under the terms of the NPPF. As highlighted there is a clear presumption for decision makers to approve sustainable development where possible and this is significant material consideration weighing in favour of the planning application.
6.47 Based on the preceding assessment, it is considered that the Proposed Development can be found acceptable in relation to the individually discussed policies and therefore the Development Plan as a whole and that additionally there are significant material considerations which weigh in favour of the development.
7 AIR QUALITY AND DUST

Summary

The development has the potential to cause air quality effects at sensitive receptors (such as nearby existing houses) in the vicinity of the Site. These effects are generally related to dust emissions during construction works, and road vehicle exhaust emissions once the Proposed Development is constructed. As such, an Air Quality Assessment has been completed in order to quantify these potential effects.

The risk of dust effects on nearby housing and use of the surrounding area, and increased exposure to airborne particles that contribute to pollution during demolition and construction works has been assessed. With the recommended mitigation in place (through a Construction Environmental Management Plan), the construction and demolition dust effects are considered to be not significant in EIA terms.

The predicted nitrogen dioxide concentrations (released by car exhausts) on-site are likely to be below the annual mean guidance and therefore future residents proposed by the development will not be exposed to unacceptable air quality. However once completed the Proposed Development may give rise to a significant effect without mitigation to existing residents. Provided that the recommended mitigation measures are implemented (such as encouraging travel by sustainable modes of transport through a travel plan or including electric charging points in the development) the residual air quality effects at existing residential receptors are considered to be not significant in EIA terms.

No significant effects are anticipated.
Introduction

7.1 The aim of this chapter is to identify the effects of the Proposed Development on local air quality during its construction and operation.

7.2 The construction works will be phased, with the anticipated timescales, subject to granting of planning permission, anticipated to take 9 years with completion due in 2028. The risk to the local community of dust disamenity and elevated concentrations of particulate matter (PM$_{10}$) has been determined to identify appropriate mitigation measures.

7.3 Preston City Council (PCC) has designated five areas of the city as Air Quality Management Areas (AQMAs). The nearest AQMAs to the Site boundary are approximately 1.3km to the south east and approximately 1.5km to the north east. Both of these AQMAs have been declared for exceedances of the annual mean nitrogen dioxide (NO$_2$) objective.

7.4 The potential effect of the Proposed Development on local air quality, specifically NO$_2$ and particulate matter, has been quantified using a dispersion model.

7.5 In addition, the cumulative effect of the Proposed Development with other nearby developments has been considered qualitatively.

7.6 Prior to commencement of the air quality assessment, a scoping report was submitted to PCC outlining the proposed methodology. Hoare Lea did not receive any comments or objections regarding the air quality section of the scoping report and as such this has been taken as confirmation of the proposed methodology.

Legislation, Policy and Guidance

7.7 This section sets out the relevant legislation, planning policy, and guidance documents relating to air quality that are applicable to the Proposed Development.

Air Quality Strategy and Local Air Quality Management

7.8 The Environment Act 1995 requires the UK Government to produce a national Air Quality Strategy containing standards, objectives and measures for improving ambient air quality and to keep these policies under review.

7.9 The Air Quality Strategy provides the policy framework for all air quality management and assessment in the UK. It sets out air quality standards and objectives for key air pollutants designed to protect human health and the environment. The Air Quality Strategy also sets out how the different sectors of the economy including industry, transport and local government, can contribute to achieving these air quality objectives.

7.10 Section 82 of the Environment Act 1995 requires every local authority to review current and likely future air quality within its area. This process has become known as Local Air Quality Management (LAQM). Local authorities are seen to play a particularly important role in the air

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11 This is based on the completion of approximately 50 houses each year with works commencing in 2018

quality management process and the technical guidance, LAQM.TG16\textsuperscript{13}, and policy guidance, LAQM.PG16\textsuperscript{14}, produced by Defra, provides advice that local authorities should have regard to.

7.11 Section 83 of the Environment Act 1995 requires local authorities to designate an Air Quality Management Area (AQMA) where air quality objectives are not being achieved, or are not likely to be achieved, as set out in the Air Quality (England) Regulations 2000\textsuperscript{15} and Air Quality (England) (Amendment) Regulations 2002\textsuperscript{16}. Once the area has been designated, Section 84 requires the local authority to develop an Action Plan detailing remedial measures to tackle the problem within the AQMA.

7.12 The air quality objectives set out the extent to which the Government expects the standards to be achieved by a certain date. They take account of economic efficiency, practicability, technical feasibility and timescale.

7.13 The objectives for NO\textsubscript{2} and particulate matter (PM\textsubscript{10} and PM\textsubscript{2.5}) are set out in Table 7.1. The objectives for NO\textsubscript{2} and PM\textsubscript{10} were to have been achieved by 2005 and 2004 respectively, and continue to apply in all future years thereafter. The PM\textsubscript{2.5} objective is to be achieved by 2020. It should be noted that local authorities in England have a flexible role in working towards reducing emissions and concentrations of PM\textsubscript{2.5}.

Table 7.1: Air Quality Criteria for NO\textsubscript{2}, PM\textsubscript{10} and PM\textsubscript{2.5}

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Time Period</th>
<th>Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO\textsubscript{2}</td>
<td>1-hour Mean</td>
<td>200 µg/m\textsuperscript{3} Not to be exceeded more than 18 times a year</td>
</tr>
<tr>
<td></td>
<td>Annual Mean</td>
<td>40 µg/m\textsuperscript{3}</td>
</tr>
<tr>
<td>PM\textsubscript{10}</td>
<td>24-hour Mean</td>
<td>50 µg/m\textsuperscript{3} Not to be exceeded more than 35 times a year</td>
</tr>
<tr>
<td>Fine Particles (PM\textsubscript{2.5})*</td>
<td>Annual Mean</td>
<td>40 µg/m\textsuperscript{3}</td>
</tr>
</tbody>
</table>

7.14 The objectives apply at locations where members of the public are likely to be regularly present and exposed over the averaging period of the objective. Examples of where the annual mean objectives apply are provided in LAQM.TG16, and include: building facades of residential properties, schools and hospitals. The annual mean objectives do not apply at the building facades of offices or other places of work where members of the public do not have regular access, kerbsides or gardens.

7.15 The 24-hour objective for PM\textsubscript{10} is considered to apply at the same locations as the annual mean objective, as well as in gardens of residential properties and at hotels.

7.16 The 1-hour mean objective for NO\textsubscript{2} also applies wherever members of the public might regularly spend 1-hour or more, including outdoor eating locations, pavements of busy shopping streets,

\textsuperscript{13} Defra (2016) Local Air Quality Management Technical Guidance (TG16)
\textsuperscript{14} Defra (2016) Local Air Quality Management Policy Guidance (PG16)
carparks and bus stations which are not fully enclosed. The 1-hour objective does not apply at kerbside sites where the public do not have regular access.

**EU limit values**

7.17 The European Union has also set limit values for NO$_2$, PM$_{10}$ and PM$_{2.5}$; these are legally binding and have been implemented into UK legislation (The Air Quality Standards Regulations 2010$^{17}$). Achievement of these values is a national obligation rather than a local requirement.

7.18 The limit values for NO$_2$, PM$_{10}$ and PM$_{2.5}$ are the same as the English objectives (Table 7.1), but applied from 2010 for NO$_2$, 2005 for PM$_{10}$ and 2015 for PM$_{2.5}$. The limit values apply at all locations (apart from where the public does not have access, where health and safety at work provisions apply and on the road carriageway).

**PCC Air Quality Action Plan (AQAP)**

7.19 The overall aim of an AQAP is to provide a framework to minimise the effects of air pollution on human health. The latest AQAP for Preston was produced in 2014$^{18}$. It focuses specifically on the AQMA at Broughton.

7.20 There are seven actions outlined in the AQAP and these correspond to measures set out in the Central Lancashire Highways and Transport Master plan. The actions include: capacity improvements at Junction 1 of the M55, construction of a bypass at Broughton, construction of the Preston Western Distributor Road, Construction of Cottam Parkway Railway station and development of new Public Transport Priority corridors. These actions are particularly relevant to this assessment as they are located to the north of Preston and so within the vicinity of the Proposed Development. It is anticipated that the actions will not only benefit the AQMA at Broughton (approximately 1.5km to the north east of the Proposed Development), but Preston as a whole.

**Guidance on the Assessment of Dust from Demolition and Construction**

7.21 The Institute of Air Quality Management (IAQM) guidance$^{19}$ on the assessment of dust from demolition and construction provides a framework for the assessment of risk associated with the construction and demolition phase of a development (including earthworks and trackout where appropriate). The construction dust assessment is used to define appropriate mitigation measures to ensure that there will be no significant effect.

**Guidance on the Assessment of Operational Effects of New Developments**

7.22 Guidance produced by Environmental Protection UK (EPUK) and IAQM$^{20}$ aims to ensure that air quality is properly accounted for in the development control process. The main foci of the

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guidance are the assessment of the effect of traffic and boiler emissions and advice on how to describe air quality effects and their significance.

**National Planning Policy Framework**

7.23 The National Planning Policy Framework (NPPF)\textsuperscript{21} 2012 sets out planning policy for England. It includes advice on when air quality should be a material consideration in development control decisions. Relevant sections are set out below:

7.24 Paragraph 109: ‘The planning system should contribute to and enhance the national and local environment by ... preventing both new and existing development from contributing to or being put to an unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability...’

7.25 Paragraph 120: ‘To prevent unacceptable risks from pollution and land instability, planning policies and decisions should ensure that new development is appropriate for its location. The effects (including cumulative effects) of pollution on health, the natural environment or general amenity, and the potential sensitivity of the area or proposed development to adverse effects from pollution, should be taken into account. Where a site is affected by contamination or land stability issues, responsibility for securing a safe development rests with the developer and/or landowner.’

7.26 Paragraph 124: ‘... Planning decisions should ensure that any new development in Air Quality Management Areas is consistent with the local air quality action plan.’

7.27 The NPPF is supported by Planning Practice Guidance (PPG)\textsuperscript{22}.

7.28 The PPG states that:

‘Defra carries out an annual national assessment of air quality using modelling and monitoring to determine compliance with EU Limit Values. It is important that the potential impact of new development on air quality is taken into account in planning where the national assessment indicates that relevant limits have been exceeded or are near the limit.’ Paragraph 001 (Reference ID: 32-001-20140306)

7.29 The PPG makes clear that:

‘Whether or not air quality is relevant to a planning decision will depend on the proposed development and its location. Concerns could arise if the development is likely to generate air quality impact in an area where air quality is known to be poor. They could also arise where the development is likely to adversely impact upon the implementation of air quality strategies and action plans and/or, in particular, lead to a breach of EU legislation (including that applicable to wildlife).’ Paragraph 005 (Reference ID: 32-005-20140306)

7.30 The PPG also sets out the information that may be required in an air quality assessment, stating that:

\textsuperscript{21} National Planning Policy Framework, Department for Communities and Local Governments, March 2012.

7.31 ‘Assessments should be proportional to the nature and scale of development proposed and the level of concern about air quality, and because of this are likely to be locationally specific’. Paragraph 007 (Reference ID: 32-007-20140306)

7.32 It also provides guidance on options for mitigating air quality effects, and makes clear that:

‘Mitigation options where necessary will be locationally specific, will depend on the proposed development and should be proportionate to the likely impact.’ Paragraph 008 (Reference ID: 32-008-20140306)

The Preston Local Plan23

7.33 The Preston Local Plan refers to Policy 30 of the Central Lancashire Core Strategy24 on air quality. This policy aims to:

‘Improve air quality through delivery of Green Infrastructure initiatives and through taking account of air quality when prioritising measures to reduce road traffic congestion.’

7.34 The strategy recognises that spatial planning can affect air quality and the current AQMAs should be considered to ensure that proposed locations for development and investment will not adversely affect those areas already suffering from the worst air pollution.

7.35 The Core Strategy states that transport and congestion are the major contributors to air pollution locally and suggests that improvements to air quality will be best achieved through the implementation of the Travel Strategic Objectives and policies, such as the encouragement of more sustainable transport arrangements. Specifically, Chapter 7 states that the layouts of new developments should include safe and secure pedestrian routes and cycleways linking with local services including public transport connections to enable necessary longer trips.

Assessment Methodology and Significance Criteria

Consultation

7.36 Prior to commencement of the air quality assessment, a scoping report was submitted to PCC outlining the proposed methodology (see Appendix 1.2). Hoare Lea did not receive any comments or objections regarding the air quality section of the scoping report (see Appendix 1.1) and as such this has been taken as confirmation of the proposed methodology.

Construction Phase effects

7.37 Fugitive dust emissions during the construction and demolition phase may give rise to increased PM$_{10}$ concentrations and dust deposition, albeit this is a temporary effect during the works. These effects have been assessed using the IAQM guidance25.

7.38 The risk of dust effects during four activities (demolition, earthworks, construction and trackout) was identified based on the sensitivity of the area and the dust emissions magnitude as classified

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as high, medium, low and negligible. The mitigation recommended for each activity was then
determined based on the identified risk.

7.39 It should be noted that where detailed information was not available to inform the risk category,
professional judgement and experience was used and a cautious approach adopted.

7.40 The construction dust assessment study area is shown in Figure 7.1. For dust the potential effect
was based on the distance from the Site boundary, and for PM$_{10}$ effects the background
concentration was also used to define the area sensitivity. For ecological effects the distance of
50m from the Site boundary and within the Site was used. The study area for consideration of
human receptors as part of the construction air quality assessment is 350m from the Site
boundary based on the latest guidance$^{25}$ this also takes account of those receptors proposed as
part of the development.

7.41 The magnitude of the emissions was determined by considering a range of factors that effect on
dust emissions including the scale of the works, the local geology and the construction materials
used.

Operational Phase effects

7.42 Air quality has been modelled in 2023 with and without the Proposed Development. This year
was chosen to represent the worst case future concentrations. Traffic data was also provided
for 2027, the anticipated year of completion of the Development. The effect on air quality of the
expected reduction in vehicle emissions between 2023 and 2027 is expected to be greater than
the effect of the increase in traffic, and for this reason concentrations are likely to be higher in
2023.

7.43 Concentrations of NO$_x$, PM$_{10}$ and PM$_{2.5}$ have been predicted at the facades of existing receptors
using the ADMS-Roads dispersion model (version 4.0.1). The annual average daily traffic (AADT),
vehicle fleet composition and traffic speeds have been provided by the project transport
consultant. Vehicle emissions have been calculated based on these parameters using the
Emission Factor Toolkit (Version 7.0) (EFT) published by Defra.

7.44 For NO$_x$ two future-year emission scenarios have been used to provide information on possible
future concentrations. This is because EFT uses the same assumptions regarding emissions as
the 2015 national Air Quality Plan, which the High Court recently criticised as being ‘overly
optimistic’$^{26}$. These future-year emissions are:

- Scenario A - Using 2023 EFT emissions
- Scenario B - Using 2015 EFT emissions; i.e. assuming no improvement

7.45 Whilst Scenario A is likely to be too optimistic; Scenario B is likely to be too pessimistic. This is
because emissions of nitrogen oxides (NOx) from the most recent diesel vehicles are lower than
from those of previous generations. Professional judgement has therefore been used, drawing
on the results of these two Scenarios, to assess likely future concentrations of NO$_x$.

7.46 Scenario B has as mentioned used 2015 EFT emissions data to predict future emissions with the
development present. This is considered as a worst case prediction as discussed above. General

$^{26}$ Accessed online via: http://www.clientearth.org/major-victory-health-uk-high-court-government-inaction-air-
pollution/
understanding is that there will be an improvement in air quality over time, therefore to use the 2015 EFT emissions for scenario B these are considered as worse case and likely to be pessimistic as essentially allow for no improvement in emissions to air quality over time as a result of air quality initiatives such as improvements in engine technologies.

7.47 The model has been run using one full year of meteorological data that corresponds to the most recent set of NO\(_2\) monitoring data (2015). The wind direction, wind speed, cloud cover and temperature data has been taken from Manchester Airport which is considered suitable for the development’s location\(^{27}\).

7.48 The Defra background concentrations for the 1km by 1km grid in which the receptors are located were used. In the case of NO\(_2\), two sets of future year backgrounds are presented to take into account of the uncertainty in future years’ vehicle emissions.

7.49 Defra’s NOx to NO\(_2\) calculator version 5.1 has been used to convert the total NOx concentrations to NO\(_2\) concentrations.

7.50 The ADMS-Roads model was verified using roadside NO\(_2\) concentrations measured at PCC diffusion tube monitoring sites (see Figure 7.2).

7.51 Concentrations have been predicted at a number of existing properties around the Proposed Development and the local road network. These concentrations have been predicted at ground level (i.e. 1.5m above the ground). The receptor locations are shown in Figures 7.3 to 7.5. Figure 7.5 details model receptors approximately 1.3 km south of the Proposed Development.

7.52 Full details of the modelling methodology are provided in Appendix 7.1

Significance Criteria

7.53 The assessment of the construction phase effects has been used to determine an appropriate level of mitigation for the construction and demolition phases that once implemented should ensure that there will be no significant effect. The IAQM guidance recommends that mitigation measures are required for developments with low, medium and high risk classifications and as a result these can be considered as having a significant effect. Sites classified with negligible risks will not have a significant effect and do not require mitigation, although a limited number of best practice measures would be recommended.

7.54 An assessment of the operational effects at individual receptors was undertaken using the EPUK/IAQM guidance. The percentage change in concentration relative to an air quality assessment level (AQAL) has been compared with the total long-term average process concentration. This approach is set out in Table 6.3 of the EPUK/IAQM guidance, and is reproduced below in Table 7.2. The IAQM guidance recommends the use of the PM\(_{2.5}\) objective as it is more conservative than the objectives for PM\(_{10}\), and most of the emissions from combustion sources, occur in the PM\(_{2.5}\) fraction. In this assessment the AQAL is the annual mean objective for NO\(_2\) (40 \(\mu g/m^3\)) and PM\(_{2.5}\) (25 \(\mu g/m^3\)).

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\(^{27}\) Meteorological data for Manchester has been used by Preston City Council in their detailed air quality assessments and so this site is assumed to be suitable for the Proposed Development.
A moderate or substantial effect will generally give rise to a significant effect and requires mitigation. A negligible or slight effect will generally not have a significant effect and so not usually require mitigation.

**Table 7.2: Effect descriptors for individual receptors**

<table>
<thead>
<tr>
<th>Long term average concentration at receptor in assessment year</th>
<th>% change in concentration relative to Air Quality Assessment Level (AQAL)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>75% of less of AQAL</td>
<td>Negligible</td>
</tr>
<tr>
<td>76-94% of AQAL</td>
<td>Negligible</td>
</tr>
<tr>
<td>95-102% of AQAL</td>
<td>Slight</td>
</tr>
<tr>
<td>103-109% of AQAL</td>
<td>Moderate</td>
</tr>
<tr>
<td>110% or more of AQAL</td>
<td>Moderate</td>
</tr>
</tbody>
</table>

This takes into account the number of receptors and their sensitivity and the magnitude of the effect. The results have then been combined with the likely duration of the effects and their likelihood to determine the overall significance of the effects of the Proposed Development on the existing local community. All effects, unless otherwise stated, are considered to be adverse.

The determination of the significance of the effects includes elements of professional judgement and consequently, the professional experience of the consultants that prepared this assessment are set out in **Appendix 7.2**.

**Baseline Conditions**

Baseline air quality refers to the concentrations of relevant substances that are already present in ambient (outdoor) air. These substances are emitted by various sources and include road traffic, industry, domestic heating, agriculture and natural sources. This section sets out the available information on air quality in the vicinity of the Proposed Development.

A baseline air quality review was undertaken and draws upon the following data sources:

- Relevant air quality data from PCC
- UK Pollutant Release and Transfer Register\(^{28}\),
- Background pollution maps from Defra’s Local Air Quality Management (LAQM) website \(^{29}\).


• Environment Agency ‘what’s in your backyard’ tool \(^{30}\);

• Aerial photography from Google Maps

Local air quality monitoring

7.60 There are two automatic monitoring stations within Preston and the nearest, is a roadside site in Meadow Street\(^{31}\) approximately 3.1 km south east from the Site boundary. The annual mean concentrations recorded at this site have been consistently under the annual mean NO\(_2\) objective for the past five years (Table 7.3).

7.61 The second automatic monitoring site, Bootle Street, is part of the Automatic Urban and Rural Network and is approximately 3.7 km south east from the Site boundary. Bootle Street is classified as an urban background site and as such is located away from the direct influence of major roads. The concentrations recorded at Bootle Street are likely to be similar to those found within the Proposed Development, which is also away from the direct influence of major roads. The annual mean concentrations recorded at Bootle Street are well below the objective levels of 40 \(\mu\)g/m\(^3\) and 25 \(\mu\)g/m\(^3\) for NO\(_2\) and PM\(_{2.5}\) respectively. There are no recorded exceedences of the hourly NO\(_2\) objective at either monitoring site.

7.62 Note, PM\(_{10}\) is not measured at either of the automatic monitoring stations.

Table 7.3: Measured annual mean concentrations for NO\(_2\) at Meadow Street automatic monitoring site, and measured annual mean NO\(_2\) and PM\(_{2.5}\) at Bootle Street automatic monitoring site.

<table>
<thead>
<tr>
<th>Site ID</th>
<th>Pollutant</th>
<th>Annual mean ((\mu)g/m(^3))</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2011</td>
</tr>
<tr>
<td>Meadow Street</td>
<td>NO(_2)</td>
<td>36</td>
</tr>
<tr>
<td>Bootle Street</td>
<td>NO(_2)</td>
<td>31</td>
</tr>
<tr>
<td>Bootle Street</td>
<td>PM(_{2.5})</td>
<td>11</td>
</tr>
</tbody>
</table>

7.63 PCC also use passive diffusion tubes to monitor NO\(_2\) concentrations at a number of locations across the city of Preston. The tube locations are mainly in the AQMAs and none are located within the vicinity of the Proposed Development.

7.64 The nearest tube location (PR8) is approximately 1.5 km to the south east of the Proposed Development on Plungington Road. The annual mean NO\(_2\) concentrations recorded at this diffusion tube site and the other tubes located nearby are given in Table 7.4, along with each tube’s approximate distance from the Site boundary. The diffusion tube locations are illustrated in Figure 7.2.

7.65 The annual mean NO\(_2\) concentration recorded at several diffusion tubes in Preston has exceeded the objective level. In particular, the tubes PR45 and PR44, both located within the Broughton AQMA, recorded annual mean NO\(_2\) concentrations in excess of 40 \(\mu\)g/m\(^3\) in 2015. However, these


\(^{31}\) Data available from http://www.ukairquality.net/
concentrations do not represent the ambient air quality at the Proposed Development which, as mentioned above, is not directly influenced by emissions from major roads.

**Table 7.4:** Measured annual mean concentrations for NO\(_2\) at diffusion tubes in Preston City Centre. Exceedences of the annual mean objective are highlighted in bold

<table>
<thead>
<tr>
<th>Site ID</th>
<th>Approximate distance to site (m)</th>
<th>Annual mean (µg/m(^3))</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2011</td>
</tr>
<tr>
<td>PR5</td>
<td>1560</td>
<td>42.0</td>
</tr>
<tr>
<td>PR6</td>
<td>1540</td>
<td>35.0</td>
</tr>
<tr>
<td>PR7</td>
<td>1520</td>
<td>38.0</td>
</tr>
<tr>
<td>PR8</td>
<td>1480</td>
<td>34.0</td>
</tr>
<tr>
<td>PR46</td>
<td>1520</td>
<td>38.0</td>
</tr>
<tr>
<td>PR45</td>
<td>1530</td>
<td>51.0</td>
</tr>
<tr>
<td>PR44</td>
<td>1510</td>
<td>64.0</td>
</tr>
</tbody>
</table>

**Industrial Pollution**

7.66 A desk based review of potential industrial sources using the UK Pollutant Release and Transfer Register, and the EA’s ‘what’s in your backyard’ website did not identify any significant industrial or waste management sources that are likely to affect the Proposed Development with regard to air quality.

**Background Concentrations**

7.67 Estimated background concentrations are provided by Defra at a 1km\(^2\) resolution for the whole of the UK. The Proposed Development falls across four separate 1km\(^2\) and the estimated background concentrations for these four grid squares are shown in **Table 7.5**.

7.68 The estimated pollutant concentrations for 2015 are well below the annual objective levels that are designated for the protection of human health.

**Table 7.5:** Estimated annual mean background concentrations in 2015 and 2018 (µg/m\(^3\))

<table>
<thead>
<tr>
<th>Year</th>
<th>Easting, Northing of grid square centre point</th>
<th>Annual mean (µg/m(^3))</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>NO(_2)</td>
</tr>
<tr>
<td>2015</td>
<td>351500, 433500</td>
<td>16.5</td>
</tr>
<tr>
<td></td>
<td>352500, 433500</td>
<td>15.8</td>
</tr>
<tr>
<td></td>
<td>351500, 432500</td>
<td>12.3</td>
</tr>
<tr>
<td></td>
<td>352500, 432500</td>
<td>13.3</td>
</tr>
<tr>
<td>2018</td>
<td>351500, 433500</td>
<td>14.1</td>
</tr>
<tr>
<td></td>
<td>352500, 433500</td>
<td>13.6</td>
</tr>
<tr>
<td></td>
<td>351500, 432500</td>
<td>10.7</td>
</tr>
<tr>
<td></td>
<td>352500, 432500</td>
<td>11.6</td>
</tr>
</tbody>
</table>

**Baseline conditions summary**

7.69 The available data suggests that NO\(_2\) concentration on the Site are likely to be well below the annual mean objective. In addition, the background PM\(_{10}\) and PM\(_{2.5}\) concentrations are low.

**Traffic Baseline Flow**
7.70 As part of traffic flow data used as part of the Air Quality and Dust, Noise and Vibration and Transport and Access chapters, the baseline condition has been taken as the Preston Western Distributor Road and East-West Spine Route being operational (see Figure 15.1). As such the baseline condition takes into account that the North West Preston Strategic Location and Cottam Hall Strategic Site (identified within the Preston Local Plan) are constructed, and the assessment therefore already takes cumulative effects into account. Figure 16.2 illustrates the location of these two sites.

**Design Evolution**

7.71 The Indicative Masterplan (Figure 1.1) has been developed through various iterations. As part of delivering a sustainable development, the layout of the Site, as discussed in Chapter 4 has built upon the existing network of footpaths and connections through the Site. These have been developed as being central to the Proposed Development, which in turn have helped to improve the sustainable location credentials of the Proposed Development. By trying to maximise links by sustainable modes of transport it has ensured that effects assessed have been mitigated and minimised from the outset.

**Potential Effects**

**Construction Effects**

7.72 Construction activities associated with the Proposed Development may give rise to dust emissions although these will be temporary and restricted to areas close to construction activity.

7.73 The construction activities are understood to be phased during the 10 year construction period. The construction air quality assessment has assumed activities are based at the Site boundary with respect this being a worse case distance between the activity and the existing receptors when assessing the effects.

7.74 As a result of this phasing, construction will not be occurring across the whole site continuously at all locations for the whole 10 year period. There is potential, as a result of this phasing, that the proposed receptors will be built and occupied while construction activity is ongoing within the development boundary.

7.75 As mentioned, as the construction assessment assumes minimal distance between the activity and existing receptors this has accounted for activities occurring within the Site boundary alongside the proposed receptors. Given the dimensions of the Site parcels of development are likely to be greater than the 350m criteria for assessment from the activities in certain areas. Reference should be made to Chapter 5 for further detail relating to the phasing.

**Potential Dust Emission Magnitude**

7.76 The activities that are considered to be the most significant potential sources of fugitive dust emissions are:

7.77 **Demolition:** The existing Club House (5,000 m³) will be demolished. It is constructed from potentially dusty construction material, but given its small size the potential dust emissions magnitude is considered to be small.
7.78 **Earthworks:** The total Site area is approximately 70 hectares. Given the large size of the Site, and in the absence of a phasing plan, the potential dust emissions magnitude is considered to be large.

7.79 **Construction:** In accordance with the IAQM criteria, the potential dust emission magnitude from construction based on the number of dwellings to be constructed is large.

7.80 **Trackout:** The total number of outward Heavy Duty Vehicle (HDV) trips during the construction phase per day is not available. However, there may be unpaved road / tracks used by construction traffic, and given the size of the Site these are likely to be in excess of 100m in length. In accordance with the IAQM criteria, the potential dust emissions magnitude from trackout is large.

*Sensitivity of the Area*

7.81 The area surrounding the Site consists of mainly residential premises, there is also a primary school within the 350m of the Site boundary. A map of the study area is provided in Figure 7.1 and shows the Site boundary (dashed red line) and a series of distances from the Site boundary that correspond to those specified in the IAQM guidance.

7.82 The sensitivity of the construction dust study area has been defined for the following three effect categories:

7.83 **Dust Soiling:** There are over 100 residential properties within 50m of the Site. The study area is classified as large sensitivity to dust soiling for the activities of construction, earthworks and trackout, and low sensitivity for demolition. The dust soiling effect will be temporary.

7.84 **Health Effects of PM$_{10}$:** The background PM$_{10}$ concentrations for the area, as provided in the Defra 1km$^2$ grids (see Table 7.5), ranges between 13.5 and 12.1 µg/m$^3$ and so is well below the threshold of 24 µg/m$^3$ outlined in the IAQM guidance. The study area is therefore classified as low sensitivity in terms of the potential health effects resulting from the activities of demolition, construction, earthworks and trackout.

7.85 **Ecological:** There are ecologically sensitive areas located in the study area of within 50m of the Site boundary. However, these are not designated sites. The areas of ecological interest are on a local scale. Reference should be made to Chapter 9: Ecology and Nature Conservation to provide detail relating to the habitats identified. Based on this the sensitivity of the area to ecological effects is classified as low for the activities of demolition, construction, earthworks and trackout.

*Risk of Dust Effects*

7.86 Combining the sensitivity of the study area with the dust emissions magnitude for each construction activity, the risk of dust effects can be defined. The risk of dust effects can be classified as: negligible, low risk, medium risk and high risk.

7.87 The unmitigated risk of dust effects during each activity is provided in Table 7.6.

7.88 It should be noted that the potential for effects depends significantly on the distance between the dust generating activity and receptor location. Risk was predicted based on the worst-case assumption that all works will be undertaken at the Site boundary closest to each receptor area.
Therefore, the actual risk is likely to be lower than that predicted during the majority of the construction phase.

**Table 7.6: Summary of potential unmitigated dust risk**

<table>
<thead>
<tr>
<th>Potential Effect</th>
<th>Demolition</th>
<th>Earthworks</th>
<th>Construction</th>
<th>Trackout</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dust Soiling</td>
<td>Negligible</td>
<td>High Risk</td>
<td>High Risk</td>
<td>High Risk</td>
</tr>
<tr>
<td>Human Health</td>
<td>Negligible</td>
<td>Low Risk</td>
<td>Low Risk</td>
<td>Low Risk</td>
</tr>
<tr>
<td>Ecological</td>
<td>Negligible</td>
<td>Low Risk</td>
<td>Low Risk</td>
<td>Low Risk</td>
</tr>
</tbody>
</table>

*Environmental Assessment: Construction Phase Summary*

7.89 The effects from dust soiling are significant in EIA terms and require mitigation.

7.90 The effects of PM$_{10}$ concentrations on human health are significant in EIA terms and require mitigation.

7.91 The effects on ecology is significant in EIA terms and require mitigation.

7.92 Construction and demolition phase mitigation measures have therefore been recommended for the Proposed Development (see below). Provided these mitigation measures are followed the construction dust effects are considered to be not significant in EIA terms with negligible residual effects.

**Operational effects**

*Existing Receptors*

7.93 As Scenario A is considered overly optimistic and Scenario B overly pessimistic, the average of the predicted concentrations was used to inform the assessment. These results are shown below in Table 7.7, and the results for Scenarios A and B are in Appendix 7.3.

7.94 The air quality effect is predicted to be negligible at 35 receptors of the 46 existing receptors, slight at six receptors, moderate at four receptors and substantial at one receptor. The receptor described as substantial (receptor 41) is located approximately 1.7 km to the south of the Proposed Development on the junction where Tulketh Brow meets Tom Benson Way (B6241). The receptor is in close proximity to the road carriageway/junction (approximately 7m), see Figure 7.3. The receptors described as moderate are located adjacent to Tom Benson Way to the north of the Proposed Development and are again in close proximity to the road carriageway. Appendix 7.1 provide detail relating to the locations of the modelling receptors.

**Table 7.7: Predicted Concentrations of NO$_2$ in 2023 at existing receptors**

<table>
<thead>
<tr>
<th>Existing Receptor</th>
<th>Concentration without development ($\mu$g/m$^3$)</th>
<th>Concentration with development ($\mu$g/m$^3$)</th>
<th>Difference expressed as % AQAL</th>
<th>Effect descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>85.7</td>
<td>85.8</td>
<td>0.10</td>
<td>Negligible</td>
</tr>
<tr>
<td>Existing Receptor</td>
<td>Concentration without development (µg/m³)</td>
<td>Concentration with development (µg/m³)</td>
<td>Difference expressed as % AQAL</td>
<td>Effect descriptor</td>
</tr>
<tr>
<td>-------------------</td>
<td>------------------------------------------</td>
<td>---------------------------------------</td>
<td>--------------------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>R2</td>
<td>57.9</td>
<td>57.9</td>
<td>0.03</td>
<td>Negligible</td>
</tr>
<tr>
<td>R3</td>
<td>77.3</td>
<td>77.3</td>
<td>0.18</td>
<td>Negligible</td>
</tr>
<tr>
<td>R4</td>
<td>58.0</td>
<td>58.0</td>
<td>0.15</td>
<td>Negligible</td>
</tr>
<tr>
<td>R5</td>
<td>58.0</td>
<td>58.0</td>
<td>0.13</td>
<td>Negligible</td>
</tr>
<tr>
<td>R6</td>
<td>42.6</td>
<td>42.7</td>
<td>0.03</td>
<td>Negligible</td>
</tr>
<tr>
<td>R7</td>
<td>40.4</td>
<td>40.4</td>
<td>0.08</td>
<td>Negligible</td>
</tr>
<tr>
<td>R8</td>
<td>29.9</td>
<td>30.0</td>
<td>0.18</td>
<td>Negligible</td>
</tr>
<tr>
<td>R9</td>
<td>40.5</td>
<td>40.7</td>
<td>0.50</td>
<td>Slight</td>
</tr>
<tr>
<td>R10</td>
<td>40.8</td>
<td>41.0</td>
<td>0.50</td>
<td>Slight</td>
</tr>
<tr>
<td>R11</td>
<td>41.0</td>
<td>41.8</td>
<td>1.95</td>
<td>Moderate</td>
</tr>
<tr>
<td>R12</td>
<td>41.0</td>
<td>41.5</td>
<td>1.15</td>
<td>Moderate</td>
</tr>
<tr>
<td>R13</td>
<td>36.6</td>
<td>37.2</td>
<td>1.30</td>
<td>Slight</td>
</tr>
<tr>
<td>R14</td>
<td>24.4</td>
<td>24.8</td>
<td>0.80</td>
<td>Negligible</td>
</tr>
<tr>
<td>R15</td>
<td>25.8</td>
<td>26.1</td>
<td>0.78</td>
<td>Negligible</td>
</tr>
<tr>
<td>R16</td>
<td>36.9</td>
<td>37.4</td>
<td>1.22</td>
<td>Slight</td>
</tr>
<tr>
<td>R17</td>
<td>32.0</td>
<td>32.9</td>
<td>2.15</td>
<td>Slight</td>
</tr>
<tr>
<td>R18</td>
<td>40.1</td>
<td>40.9</td>
<td>2.02</td>
<td>Moderate</td>
</tr>
<tr>
<td>R19</td>
<td>20.4</td>
<td>21.2</td>
<td>1.88</td>
<td>Negligible</td>
</tr>
<tr>
<td>R20</td>
<td>15.8</td>
<td>16.4</td>
<td>1.58</td>
<td>Negligible</td>
</tr>
<tr>
<td>R21</td>
<td>14.0</td>
<td>14.5</td>
<td>1.15</td>
<td>Negligible</td>
</tr>
<tr>
<td>R22</td>
<td>13.6</td>
<td>13.9</td>
<td>0.72</td>
<td>Negligible</td>
</tr>
<tr>
<td>R23</td>
<td>12.8</td>
<td>12.9</td>
<td>0.48</td>
<td>Negligible</td>
</tr>
<tr>
<td>R24</td>
<td>26.6</td>
<td>26.8</td>
<td>0.70</td>
<td>Negligible</td>
</tr>
<tr>
<td>R25</td>
<td>34.8</td>
<td>35.0</td>
<td>0.57</td>
<td>Negligible</td>
</tr>
<tr>
<td>R26</td>
<td>29.0</td>
<td>29.2</td>
<td>0.63</td>
<td>Negligible</td>
</tr>
<tr>
<td>R27</td>
<td>21.5</td>
<td>21.6</td>
<td>0.15</td>
<td>Negligible</td>
</tr>
<tr>
<td>R28</td>
<td>24.3</td>
<td>24.5</td>
<td>0.50</td>
<td>Negligible</td>
</tr>
<tr>
<td>R29</td>
<td>24.6</td>
<td>24.7</td>
<td>0.27</td>
<td>Negligible</td>
</tr>
<tr>
<td>R30</td>
<td>36.3</td>
<td>36.5</td>
<td>0.53</td>
<td>Negligible</td>
</tr>
<tr>
<td>R31</td>
<td>29.2</td>
<td>29.3</td>
<td>0.35</td>
<td>Negligible</td>
</tr>
<tr>
<td>R32</td>
<td>33.3</td>
<td>33.5</td>
<td>0.50</td>
<td>Negligible</td>
</tr>
<tr>
<td>R33</td>
<td>34.5</td>
<td>34.6</td>
<td>0.30</td>
<td>Negligible</td>
</tr>
</tbody>
</table>
### Existing Receptor

<table>
<thead>
<tr>
<th>Existing Receptor</th>
<th>Concentration without development (µg/m³)</th>
<th>Concentration with development (µg/m³)</th>
<th>Difference expressed as % AQAL</th>
<th>Effect descriptor</th>
</tr>
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<tbody>
<tr>
<td>R34</td>
<td>31.8</td>
<td>31.9</td>
<td>0.30</td>
<td>Negligible</td>
</tr>
<tr>
<td>R35</td>
<td>31.3</td>
<td>31.3</td>
<td>0.15</td>
<td>Negligible</td>
</tr>
<tr>
<td>R36</td>
<td>31.7</td>
<td>31.7</td>
<td>0.10</td>
<td>Negligible</td>
</tr>
<tr>
<td>R37</td>
<td>35.3</td>
<td>35.4</td>
<td>0.33</td>
<td>Negligible</td>
</tr>
<tr>
<td>R38</td>
<td>31.0</td>
<td>31.1</td>
<td>0.32</td>
<td>Negligible</td>
</tr>
<tr>
<td>R39</td>
<td>38.3</td>
<td>38.5</td>
<td>0.43</td>
<td>Slight</td>
</tr>
<tr>
<td>R40</td>
<td>43.4</td>
<td>43.6</td>
<td>0.52</td>
<td>Moderate</td>
</tr>
<tr>
<td>R41</td>
<td>54.0</td>
<td>54.3</td>
<td>0.65</td>
<td>Substantial</td>
</tr>
<tr>
<td>R42</td>
<td>13.9</td>
<td>14.0</td>
<td>0.25</td>
<td>Negligible</td>
</tr>
<tr>
<td>R43</td>
<td>12.6</td>
<td>12.7</td>
<td>0.13</td>
<td>Negligible</td>
</tr>
<tr>
<td>R44</td>
<td>13.8</td>
<td>13.9</td>
<td>0.07</td>
<td>Negligible</td>
</tr>
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<td>R45</td>
<td>13.6</td>
<td>13.8</td>
<td>0.33</td>
<td>Negligible</td>
</tr>
<tr>
<td>R46</td>
<td>21.6</td>
<td>22.1</td>
<td>1.15</td>
<td>Negligible</td>
</tr>
</tbody>
</table>

### Environmental Assessment: Operational Phase Summary

7.95 In summary, taking into consideration the effect descriptors for each of the 46 existing receptors the overall effect of the operational phase of the Proposed Development is considered to be moderate. The overall effect is therefore significant in EIA terms and mitigation is required.

7.96 The air quality effects for receptors within the Proposed Development (see Appendix 7.4) are not significant in EIA terms and do not require mitigation.

### Mitigation and Enhancement Measures

#### Construction phase

7.97 Mitigation measures are required for the construction phase of the Proposed Development as the works have been identified as a high risk for dust soiling effects, and a low risk category for both human health and ecological. A number of appropriate mitigation measures consistent with the IAQM guidance and the Proposed Development are recommended in Table 7.8.

7.98 The table details the measures that should be incorporated in a Dust Management Plan for the Proposed Development. It is recommended that the local planning authority agree a Dust Management Plan prior to commencement of works, and that this is implemented using an appropriately worded planning condition. It is expected that the Dust Management Plan will be part of a wider Construction Environmental Management Plan to be agreed as part of planning permission for development on the Site. With the recommended mitigation in place, the construction dust effects are considered negligible.
### Table 7.8: Construction phase mitigation and monitoring measures recommended for the Proposed Development

<table>
<thead>
<tr>
<th>Issue</th>
<th>Mitigation</th>
</tr>
</thead>
</table>
| Mitigation for all sites: Communications | • Develop and implement a stakeholder communications plan that includes community engagement before work commences on site  
• Display the name and contact details of person(s) accountable for air quality and dust issues on the Site boundary. This may be the environment manager/engineer or the Site manager  
• Display the head or regional office contact information |
| Mitigation for all sites: Dust Management | • Develop and implement a Dust Management Plan (DMP), which may include measures to control emissions, approved by the Local Authority. |
| Mitigation for all sites: Site Management | • Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken  
• Make the complaints log available to the Local Authority when asked  
• Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the log book  
• Hold regular liaison meetings with other high risk construction sites within 500m of the Site boundary; these are Connemara (Outline – 06/2012/0094), Lightfoot Lane (06/2012/0822), Land at the Eastway (Outline – 06/2013/0195) and Preston Grasshoppers (Full – 06/2016/0350) as the 350m distance zone for each of these developments will overlap with that of the Proposed Development. Ensure plans are coordinated and dust and particulate matter emissions are minimized. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes |
| Mitigation for all sites: Monitoring | • Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the Local Authority when asked. This should include regular dust soiling check of surfaces such as street furniture, cars, window sills within 100m of the Site boundary, with cleaning to be provided if necessary  
• Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the Local Authority when asked  
• Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions |
| Mitigation for all sites: Preparing and maintaining the Site | • Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible  
• Erect solid screens or barriers around dusty activities or the Site boundary that are at least as high as any stockpiles on site  
• Fully enclose site or specific operations where there is a high potential for dust production and the Site is active for an extensive period  
• Avoid site runoff of water or mud  
• Keep site fencing, barriers and scaffolding clean using wet methods |
## Issue | Mitigation
--- | ---
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used cover as described below  
- Cover, seed or fence stockpiles to prevent wind whipping

### Mitigation for all sites: Operating vehicle/machinery and sustainable travel
- Ensure all vehicles switch off engines when stationary – no idling vehicles  
- Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable  
- Impose and signpost a maximum-speed-limit of 15mph on surfaced and 10 mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the Local Authority, where applicable)  
- Produce a construction logistics plan to manage the sustainable delivery of goods and materials  
- Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking and car-sharing)

### Mitigation for all sites: Operations
- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems  
- Ensure an adequate water supply on the Site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate  
- Use enclosed chutes and conveyors and covered skips  
- Minimize drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate  
- Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods

### Mitigation for all sites: Waste management
- Avoid bonfires and burning of waste materials

### Mitigation specific to earthworks (High risk)
- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable  
- Use hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable  
- Only remove the cover in small areas during work and not all at once

### Mitigation specific to construction (High risk)
- Avoid scrabbling (roughening of concrete surfaces) if possible  
- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place  
- Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery  
- For smaller supplies of fine powder material ensure bags are sealed after use and stored appropriately to prevent dust

### Mitigation specific to trackout (High risk)
- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the Site. This may require the sweeper being in continuous use  
- Avoid dry sweeping of large areas
<table>
<thead>
<tr>
<th>Issue</th>
<th>Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport</td>
</tr>
<tr>
<td></td>
<td>• Inspect on-site haul routes for integrity and instigate necessary repairs to the surfaces as soon as reasonably practicable</td>
</tr>
<tr>
<td></td>
<td>• Record all inspections of haul routes and any subsequent action in a site log book</td>
</tr>
<tr>
<td></td>
<td>• Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowers and regularly cleaned</td>
</tr>
<tr>
<td></td>
<td>• Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the Site where reasonably practicable)</td>
</tr>
<tr>
<td></td>
<td>• Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the Site exit, wherever site size and layout permits</td>
</tr>
<tr>
<td></td>
<td>• Access gates to be located at least 10 m from receptors where possible</td>
</tr>
</tbody>
</table>

**Operational phase**

7.99 The dispersion modelling shows that significant effects are predicted at some existing receptors (see Table 7.7) in the vicinity of the Proposed Development, and therefore mitigation measures are required. The exact mitigation measures appropriate to the development are to be clarified and agreed with PCC but recommended measures are set out below.

7.100 Firstly, it is recommended that sustainable travel is promoted throughout the Proposed Development. Cycle sheds and storage facilities should be provided, along with safe and secure pedestrian routes and cycleways that link up with local services and the existing public transport infrastructure as highlighted in the Local Plan as a means of reducing congestion and promoting sustainable transport.

7.101 Secondly, it is recommended that electric vehicle charging points are incorporated into the design of the Proposed Development. Electric charging points may encourage occupants of the Proposed Development to use zero (at point of use) emission vehicles and so contribute to a reduction in traffic emissions associated with the development.

7.102 The client could also off-set the emissions associated with the Proposed Development by making a financial contribution to those schemes highlighted in the latest AQAP for Broughton. The actions outlined in the AQAP includes the construction of the Preston Western Distributor Road and Cottam Parkway Railway station. Both these schemes would have an effect on the level of congestion in the local area.

7.103 Reference should be made to Appendix 15.1 Transport Assessment which includes a Framework Travel Plan that include details of measures proposed.

**Residual Effects**

7.104 With the recommended mitigation in place, the construction effects will **not be significant** in EIA terms.

7.105 The residual effect of the operational phase with respect to proposed receptors will **not be significant** in EIA terms subject to the implementation the recommended mitigation measures.
Cumulative Effects

7.106 As part of this assessment the potential cumulative effects associated with other schemes in the vicinity of the Site have been considered.

7.107 The schemes considered include those currently approved by planning (nine developments) and those that are currently in planning for review (five developments), see Error! Reference source not found. and Figure 16.1.

Construction Effects

7.108 Depending on the timings of when the various developments are completed, the construction dust generated from a number of schemes outlined in Error! Reference source not found. has the potential to affect the amenity of new receptors introduced as part of the Proposed Development.

7.109 The main effects on air quality during the demolition and construction of the cumulative developments relate to dust. The closest potential development sites that have construction works overlapping with those from the Proposed Development construction phase of the development and are within approximately 350m of the Site boundary are Connemara (Outline – 06/2012/0094), Lightfoot Lane (06/2012/0822), Land at the Eastway (Outline – 06/2013/0195) and Preston Grasshoppers (Full – 06/2016/0350). The location of these cumulative schemes are shown in Figure 16.1.

7.110 Construction dust has a temporary effect and the development schemes should have appropriate mitigation measures in place to minimise the release of construction dust in line with current good practice as is typically within the industry and as required in planning, and as a consequence the cumulative effect of nearby development schemes is considered to be not significant in EIA terms.

Operational Effects

7.111 As discussed, as part of traffic flow data used as part of the Air Quality and Dust, Noise and Vibration and Transport and Access chapters, the baseline condition has been taken as the Preston Western Distributor Road and East-West Spine Route being operational (see Figure 15.1). As such the baseline condition takes into account that the North West Preston Strategic Location and Cottam Hall Strategic Site (identified within the Preston Local Plan) are constructed, and the assessment therefore already takes cumulative effects into account. Figure 16.2 illustrates the location of these two sites.

7.112 The residual effects of the completed and operational development taking account of the cumulative schemes would therefore be not significant in EIA terms.

Conclusions

7.113 The potential air quality effects during construction and operation of the Proposed Development have been assessed.

7.114 The risk of dust causing a loss of local amenity, increased exposure to PM$_{10}$ concentrations and effects to ecology during construction has also been assessed and used to identify appropriate mitigation measures.
7.115 Fugitive dust emissions during the construction phase may give rise to a significant effect and consequently mitigation measures have been recommended. With the recommended mitigation in place, the construction dust effects are considered to be **not significant** in EIA terms.

7.116 The predicted NO$_2$ concentrations on-site are likely to be below the annual mean objective, and therefore future residents will not be exposed to unacceptable air quality.

7.117 The operational phase of the Proposed Development may give rise to significant effects at some existing receptors. Mitigation measures have therefore been recommended to mitigate these effects. Provided these measures are implemented the residual air quality effects at existing receptors is considered to be **not significant** in EIA terms.
<table>
<thead>
<tr>
<th>Receptor</th>
<th>Effect</th>
<th>Phase (Construction / Operation)</th>
<th>Embedded Mitigation</th>
<th>Sensitivity of Receptor</th>
<th>Magnitude of Change</th>
<th>Level of Effect and Significance Prior to Mitigation</th>
<th>Mitigation</th>
<th>Enhancement</th>
<th>Level of Effect (and Significance) after Mitigation</th>
<th>Nature of effect (short term / medium term / long term, permanent / temporary, direct / indirect)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local residents (existing and proposed)</td>
<td>Dust soiling</td>
<td>Construction and demolition phase</td>
<td>N/A</td>
<td>Large</td>
<td>Large</td>
<td>High risk. Significant</td>
<td>Dust management plan</td>
<td>N/A</td>
<td>Negligible. Not significant</td>
<td>Short term and medium, temporary, indirect.</td>
</tr>
<tr>
<td>Local residents (existing and proposed)</td>
<td>Health effects</td>
<td>Construction and demolition phase</td>
<td>N/A</td>
<td>Low</td>
<td>Large</td>
<td>Low risk. Significant</td>
<td>Dust management plan</td>
<td>N/A</td>
<td>Negligible. Not significant</td>
<td>Short and medium term, temporary, indirect.</td>
</tr>
<tr>
<td>Local residents (existing and proposed)</td>
<td>Ecological</td>
<td>Construction and demolition phase</td>
<td>N/A</td>
<td>Low</td>
<td>Large</td>
<td>Low risk. Significant</td>
<td>Dust management plan</td>
<td>N/A</td>
<td>Negligible. Not significant</td>
<td>Short and medium term, temporary, indirect.</td>
</tr>
<tr>
<td>Local residents (existing)</td>
<td>Air quality – NO₂</td>
<td>Operational phase</td>
<td>Indicative Masterplan has been designed around maximising existing connections.</td>
<td>High</td>
<td>Moderate</td>
<td>Moderate. Significant</td>
<td>Promotion of sustainable transport, electric charging points and contribution to AQAP</td>
<td>N/A</td>
<td>Negligible. Not significant</td>
<td>Long term, permanent, direct</td>
</tr>
<tr>
<td>Local residents (existing)</td>
<td>Air quality – PM</td>
<td>Operational phase</td>
<td>Indicative Masterplan has been designed around maximising existing connections.</td>
<td>High</td>
<td>Negligible</td>
<td>Negligible. Not Significant</td>
<td>N/A</td>
<td>N/A</td>
<td>Negligible. Not significant</td>
<td>Long term, permanent, direct</td>
</tr>
<tr>
<td>New residents (Proposed)</td>
<td>Air quality – NO₂</td>
<td>Operational phase</td>
<td>N/A</td>
<td>High</td>
<td>Negligible</td>
<td>Negligible. Not significant</td>
<td>N/A</td>
<td>N/A</td>
<td>Negligible. Not significant</td>
<td>Long term, permanent, direct</td>
</tr>
<tr>
<td>New residents (Proposed)</td>
<td>Air quality – PM</td>
<td>Operational phase</td>
<td>N/A</td>
<td>High</td>
<td>Negligible</td>
<td>Negligible. Not significant</td>
<td>N/A</td>
<td>N/A</td>
<td>Negligible. Not significant</td>
<td>Long term, permanent, direct</td>
</tr>
</tbody>
</table>
8 ARCHAEOLOGY AND CULTURAL HERITAGE

Summary

Chapter 8 undertakes an assessment of the below-ground archaeological resource, the visible archaeological resource, historic buildings and the historic landscape. This is referred to collectively as the ‘cultural heritage resource’. The chapter has been informed by a staged programme of archaeological/heritage research and investigations, including desk-based assessment and assessment of the setting of heritage assets.

The desk-based assessment identified earthworks associated with a possible medieval motte and bailey castle which extends into the Site, as well as possible remains of Durham House, and a further house and associated outbuildings, both presumed to be post-medieval in date. Design measures have been implemented through the layout of the Indicative Masterplan which will ensure the medieval motte and bailey castle, along with the house and associated outbuildings will be preserved and not effected by the Proposed Development.

Whilst the Proposed Development will result in an adverse effect on the buried remains associated with Durham House, a demolished post-medieval farmhouse, the remains are of a low heritage significance and a minor adverse effect is anticipated, which is not significant in EIA terms.

An assessment of potential non-physical (or non-direct) effects of the Proposed Development was carried out. The Proposed Development will not lead to harm to the significance of any designated heritage assets through alteration of their setting.

Therefore, no significant effects are anticipated by the Proposed Development.
Introduction

8.1 This chapter of the Environmental Statement considers the likely significant effects of the Proposed Development on heritage assets. The chapter describes the assessment methodology, the baseline conditions within the Site and its environs, the likely significant environmental effects upon identified and potential heritage assets, the mitigation measures required to prevent, reduce, or offset any significant adverse effects, potential enhancement measures, and the likely residual effects after these measures have been employed.

8.2 The chapter has been prepared by Cotswold Archaeology, a Registered Organisation with the Chartered Institute for Archaeologists (CIfA). The chapter is supported by Appendix 8.1 which comprises the Desk-Based Heritage Assessment compiled by Cotswold Archaeology. Figure 8.1 illustrates those heritage assets within the environs of the Site which are relevant to the Proposed Development. An Outline Archaeological Strategy has been prepared, and approved by Lancashire Archaeology Advisory Service (LAAS), and is included as Appendix 8.2. This chapter presents only significant effects in respect of heritage; non-significant effects are detailed within Appendix 8.3.

Legislation, Policy and Guidance

8.3 This chapter has been prepared within the following key heritage statute:

- Ancient Monuments and Archaeological Areas Act 1979
- Planning (Listed Buildings and Conservation Areas) Act 1990
- The National Planning Policy Framework 2012 (hereafter ‘the Framework’)

8.4 Further advice has been published by Historic England comprising three Advice Notes on ‘Historic Environment Good Practice in Planning’. These are:

- Note 1: The Historic Environment in Local Plans
- Note 2: Decision-taking in the Historic Environment, and
- Note 3: The Setting of Heritage Assets

Planning (Listed Buildings and Conservation Areas) Act (1990)

32 Ancient Monuments and Archaeological Areas Act, 1979
33 Planning (Listed Buildings and Conservation Areas) Act, 1990
34 National Heritage Act, 1983
36 English Heritage, 2008
8.5 The Planning (Listed Buildings and Conservation Areas) Act (1990) states that ‘in considering whether to grant planning permission for development which affects a listed building or its setting, the local planning authority or, as the case may be, the Secretary of State shall have special regard to the desirability of preserving the building or its setting or any features of special architectural or historic interest that it possesses’ (Part I, Chapter VI, Section 66).

The Framework

8.6 Regarding National heritage policy this chapter has been compiled within the context of the National Planning Policy Framework. Relevant policies regarding heritage are set out in Paragraphs 126 – 141 of the Framework.

8.7 Paragraph 128 of the Framework requires a degree of information ‘proportionate’ to the significance of heritage assets potentially affected by development proposals. A staged programme of assessment and survey has provided a proportionate level of information for the ES. It has been agreed with LAAS that the information presented within this ES is ‘proportionate’ and of a suitable level to inform determination of the hybrid application.

8.8 With regard to heritage assets, the Framework clarifies that LPAs ‘should conserve them in a manner appropriate to their significance’ (Paragraph 126). Paragraph 132 notes that ‘When considering the impact [‘effect’ in ES terms] of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset’s conservation. The more important the asset, the greater the weight should be.’ The same paragraph explains that ‘substantial harm’ to designated heritage assets should only be permitted in ‘exceptional’ circumstances; and to those of the highest significance in ‘wholly exceptional’ circumstances.

8.9 When harm to a designated heritage asset is less than substantial, then this harm should be weighed against the public benefits of the proposal, including securing its optimum viable use (Paragraph 134).

8.10 Regarding non-designated heritage assets, Paragraph 135 states that any effects upon them should be taken into account in determining the application, taking account of the scale of any harm or loss and the significance of the heritage asset.

Local Planning Policy

8.11 Current planning policy for Preston is contained within the Preston Local Plan 2012-26 (adopted July 2016). Those policies which are relevant to heritage, and the Proposed Development, are reproduced below.

Policy EN8 – Development and Heritage Assets

A. Proposals affecting a heritage asset or its setting will be permitted where they:

i. Accord with national policy on the historic environment and the relevant Historic England guidance;

ii. Take full account of the information and guidance in the Council’s Conservation Area Appraisals and Management Plans and other relevant policy guidance on the historic environment;

iii. Make a positive contribution to the character and local distinctiveness through high quality new design that responds to its context;
iv. Act as a catalyst for the regeneration of the area in accordance with the Council’s objectives for regeneration;

v. Are accompanied by a satisfactory Heritage Statement that fully explains the impact ['effect' in ES terms] of the proposal on the significance of the heritage asset and;

vi. Sustain, conserve and, where appropriate, enhance the significance, appearance, character and setting of the heritage asset itself and the surrounding historic environment and where they have consideration of the following:
   a. The scale, layout, and appearance to the heritage asset and its setting;
   b. The proposed use of the heritage asset being appropriate in relation to its significance.

B. Proposals involving the total or substantial loss of a heritage asset or the loss of the elements that contribute to its significance will be refused. Proposals will only be granted in exceptional circumstances where they can be clearly and convincingly justified in accordance with national planning guidance on heritage assets. In addition to the requirements of national policy applicants will be required as part of the justification to provide evidence that:
   i. i to iii are not applicable to the Proposed Development

C. Where the loss of the whole or part of a heritage asset is approved this will be subject to an appropriate condition or planning obligation to ensure that any loss will not occur until a contract is in place to carry out a replacement development that has been approved.

8.12 Further relevant policy is contained within the Central Lancashire Core Strategy (adopted July 2012). The Core Strategy was prepared jointly by PCC, Chorley Council and South Ribble Council, in order to co-ordinate development within the area covered by the afore mentioned councils. Relevant policy form the Core Strategy is reproduced below.

Policy 16: Heritage Assets (only relevant sections are reproduced)
Protect and seek opportunities to enhance the historic environment, heritage assets and their settings by:

a) Safeguarding heritage assets from inappropriate development that would cause harm to their significances.

b) Supporting development or other initiatives where they protect and enhance the local character, setting, management and historic significance of heritage assets [...].

Assessment Methodology and Significance Criteria

Consultation

8.13 The LAAS Scoping Opinion, dated 1 September 2016, was based upon information contained in a previous archaeological desk-based assessment, undertaken for a previous scheme. With regards to below-ground archaeology and potential physical effects, the Scoping Opinion advised that, on the basis of the limited archaeological potential of the Site, and the widespread landscaping associated with Ingol Village Golf Course, ‘any large scale evaluation of the Site would be disproportionate to the potential’. As such, the Scoping opinion advised that only those parts of the Site which haven’t been subjected to landscaping and ground removal, but would receive direct physical effects resulting from the Proposed Development, be evaluated through a programme of geophysical survey and trial trenching; specifically, evaluation works were recommended to target the potential remains of Durham House. The Scoping Opinion suggested
that the programme of archaeological evaluation could be undertaken pre-determination of the present application.

8.14 Subsequent to the Scoping Opinion, consultation has been carried out with LAAS. Following the submission of an updated heritage desk-based assessment (Appendix 8.1) to LAAS, it was agreed by email (dated 29/09/16 – see Appendix 1.3) that a staged evaluation strategy could be undertaken following the determination of the initial application, but prior to any Reserved Matters Applications. An Outline Archaeological Evaluation Strategy has been prepared (Appendix 8.2) and agreed with LAAS on 9 November 2016.

Heritage Desk-Based Assessment

8.15 The heritage desk-based assessment (Appendix 8.1) was undertaken in line with the Chartered Institute for Archaeologists Standard and Guidance for Historic Environment Assessment 40.

8.16 In order to provide sufficient contextual information about the Site, and to help characterise the heritage resource within the Site’s environs, a study area of at least a 1km buffer from the Site’s perimeter was utilised. All relevant archaeological sites, monuments and other heritage assets within this study area were identified, described and effects upon them identified.

8.17 Detail on the collection of baseline data is provided within Appendix 8.1, and a summary provided here. Historic environment data was collected from the following sources:

- Lancashire Historic Environment Record (HER: data requested August 2016) 41
- Historic England Archives (HEA: data requested August 2016) 42
- The National Heritage List for England 43
- Lancashire Archives and Record Office 44
- Online sources including the British Geological Survey website 45

The Setting of Heritage Assets

8.18 The guidance on setting and development management, including assessing the implications of development proposals, is provided by the Historic Environment Good Practice Advice in Planning: Note 3: The Setting of Heritage Assets (Historic England 2015). This guidance was utilised to establish the setting of heritage assets within and around the Site; the contribution that setting makes to their heritage significance; and any development effects upon their setting and significance.

8.19 In accordance with this guidance and the Framework (Annex 2), setting comprises ‘the surroundings in which a heritage asset is experienced’. All heritage assets have a setting, and elements of a setting may make a positive or negative contribution to its significance and may affect the ability to appreciate that significance. The extent of the setting of a heritage asset is not fixed and may change as the asset and its surroundings evolve. The extent and importance of setting is often expressed by reference to visual considerations, but also comprises other

40 CIfA, 2014
41 Lancashire Historic Environment Record, Lancashire County Council
42 Historic England Archives, Swindon
43 The National Heritage List For England (NHLE), Historic England
44 Lancashire Archives, Lancashire County Council, Lancashire
45 Geology of Britain Viewer, British Geological Survey
elements that contribute to the ways in which a heritage asset is experienced, including historic relationships.

8.20 A staged approach was carried out for the settings assessment, in accordance with the guidance. Initially, heritage assets potentially affected were identified, and then whether, how and to what degree those settings make a positive contribution to the significance of the heritage asset(s); that is ‘what matters and why’. This included a consideration of the key attributes of the heritage asset itself, and also considered:

- The physical surroundings of the asset, including its relationship with other heritage assets
- The way the asset is appreciated
- The asset’s associations and patterns of use

8.21 Following this, the potential effect of change was considered through the consideration of the key attributes of the Proposed Development in terms of its:

- Location and siting
- Form and appearance
- Additional effects
- Permanence

8.22 The settings assessment fully informed the evolving masterplan and design process during the project. This is in accordance with step 4 of the guidance which stresses that ‘Maximum advantage can be secured if any effects on the significance of a heritage asset arising from development liable to affect its setting are considered from the project’s inception’ (Historic England 2015, 12).

The Value of Heritage Assets

8.23 Assessment of the heritage significance of a site sets out to identify how particular parts of a place and different periods in its evolution contribute to, or detract from, the identified heritage values associated with the heritage asset.

8.24 Heritage significance (for heritage policy) is defined in the Framework as ‘... the value of a heritage asset to this and future generations because of its heritage interest. That interest may be archaeological, architectural, artistic or historic. Significance derives not only from a heritage asset’s physical presence, but also from its setting’.

8.25 The Framework identifies designated heritage assets ‘of the highest significance’, namely scheduled monuments, protected wreck sites, battlefields, Grade I and II* listed buildings, Grade I and II* registered parks and gardens, and World Heritage Sites.

8.26 Current national guidance for the assessment of the significance of heritage assets is based on criteria provided by Historic England in ‘Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment’46. Within this document, significance is weighed by considering four distinct types of value, namely: evidential value; historical value; aesthetic value; and communal value.

46 English Heritage, 2008
8.27 Table 8.1 below sets out the criteria for assessing heritage asset value.

<table>
<thead>
<tr>
<th>Value of Resource</th>
<th>Description</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Designated heritage assets ‘of the highest significance’ as defined by the Framework. Includes scheduled monuments, battlefields, Grade I and II* listed buildings, Grade I and II* registered parks and gardens and World Heritage Sites. Also includes non-designated heritage assets which are demonstrably of equivalent significance (as set out in Paragraph 139 of the Framework)</td>
<td>Designated Heritage Asset or Heritage Asset</td>
</tr>
<tr>
<td>Medium</td>
<td>Listed buildings not identified as of ‘the highest significance’ i.e. Grade II listed buildings and Conservation Areas Archaeological remains not of the ‘highest significance’ but with the potential to contribute distinctly to archaeological knowledge. Often remains associated with past types of activity identified in Regional Research Frameworks and the broader heritage community and academia as of particular interest or importance. Also includes non-designated heritage assets which are demonstrably of equivalent significance</td>
<td>Designated Heritage Asset or Heritage Asset</td>
</tr>
<tr>
<td>Low</td>
<td>Buildings and structures which have a degree of significance meriting consideration in planning decisions, due to their heritage interest Archaeological remains, buildings and other elements of the historic landscape which have a degree of significance meriting consideration in planning decisions, due to their heritage interest</td>
<td>Heritage Asset (non-designated)</td>
</tr>
<tr>
<td>Negligible / None</td>
<td>Archaeological remains which do not have a sufficient degree of interest to comprise ‘heritage assets’</td>
<td>Not a Heritage Asset (national planning policy regarding heritage assets does not apply)</td>
</tr>
<tr>
<td>Uncertain</td>
<td>The importance of the resource has not been ascertained. Archaeological resources the importance of which cannot be ascertained. Buildings with some hidden (i.e. inaccessible) potential for historical significance.</td>
<td>Uncertain</td>
</tr>
</tbody>
</table>

Assessment of the Magnitude of Effect

8.28 The effect upon historic assets is defined as the change resulting from the Proposed Development that affects the heritage asset. The classification of the magnitude of effect on heritage assets is rigorous and based on consistent criteria. This takes account of such factors as the physical scale and type of disturbance anticipated to affect them and whether features or evidence would be lost that are fundamental to their historic character and integrity. Changes
may be adverse or beneficial. Depending on the nature of the change and the duration of development, effects can be temporary and/or reversible or permanent and irreversible. Change in itself, however, may not necessarily be harmful to heritage assets. For example, recent judgements\(^{47}\) have clarified that in the context of the Planning (Listed Buildings and Conservation Areas) Act 1990 ‘preserving’ means doing ‘no harm’; and does not necessarily mean ‘no change’. Similarly Historic England’s Conservation Principles defines ‘preserve’ as ‘to keep safe from harm’\(^{48}\).

8.29 The descriptions of change describe the ways in which an asset or elements of its setting may be harmed (or benefitted) by the Proposed Development, and will include the consideration of such issues as which, and how many, elements of an asset are affected; whether the change physically modifies the asset or whether it comprises changes in visual aspects, noise or access that would alter its setting; and whether the change in the significance of an asset will be adverse or beneficial.

8.30 Effects can be direct, and indirect. Direct effects largely relate to physical effects, \(e.g.\) truncation and / or removal of archaeological deposits. Indirect effects primarily relate to non-physical changes, \(i.e.\) changes to the setting of a heritage asset which alter its significance. Such changes can be positive, \(i.e.\) better revealing the significance of a heritage asset, and can be negative, removing part of the setting of a heritage asset which contributes towards its significance. However, less often, indirect effects can derive from physical changes, such as changes which alter the environmental conditions of buried archaeological deposits, causing positive and negative effects. An example of such an occurrence would be changes to the water table following drainage works, which subsequently cause the degrading of formerly waterlogged archaeological deposits. The magnitude of effect (summation of direct and indirect effects) on each individual heritage asset is assessed using the criteria in Table 8.2 below. Effects may be adverse or beneficial.

<table>
<thead>
<tr>
<th>EIA Significance of Effect</th>
<th>Criteria</th>
</tr>
</thead>
</table>
| Substantial               | • Change to most or all key archaeological or historic building elements, such that the asset is totally altered  
• Total changes to setting of archaeological or historic building assets  
• Change to most or all key historic landscape elements, parcels or components; extreme visual effects; gross change of noise or change to sound quality; fundamental changes to use or access; resulting in total change to the character of a historic landscape area |
| Moderate                  | • Changes to many key archaeological or historic building elements, such that the asset is noticeably modified  
• Changes to setting of archaeological or historic building assets, such that it is noticeably modified  
• Changes to many key historic landscape elements, parcels or components; visual change to many key aspects of the historic landscape; noticeable differences in noise or sound quality; considerable changes to use or access; resulting in moderate changes to the character of a historic landscape area |

\(^{47}\) that is, paragraph 45 of the judgement by Lindblom J in R (Forge Field Society) v. Sevenoaks DC [2014] EWHC 1895 (Admin)

\(^{48}\) Historic England 2008, 72
### Determination of significance of effect

**8.31** The EIA significance of the effect upon any heritage asset is a product of the heritage significance of the resource, and the magnitude of effect upon it. This is illustrated in Table 8.3 below. Where two alternatives are given in the table, professional judgement is used to decide which best reflects the significance of effect upon the heritage asset.

**8.32** The significance of effect is then discussed. The key principle to be considered is whether the effect comprises significant harm in EIA terms. For the purposes of the cultural heritage assessment, effects which are of ‘Moderate’ EIA significance or higher, are considered to be significant effects within the meaning of the EIA Regulations. When a significant EIA effect is identified, it is appropriate to propose suitable mitigation measures in order to remove, reduce or offset the level of effect.

**8.33** An effect can be adverse or beneficial, temporary and/or reversible, or permanent and irreversible.

### Table 8.3: Significance of effect

<table>
<thead>
<tr>
<th>EIA Significance of Effect</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slight</td>
<td>• Changes to key archaeological or historic building elements, such that the asset is slightly modified  &lt;br&gt;• Changes to setting of archaeological or historic building assets, such that it is slightly altered and noticeably changed  &lt;br&gt;• Change to few key historic landscape elements, parcels or components; slight visual changes to few key aspects of historic landscape; limited changes to noise levels or sound quality; slight changes to use or access; resulting in limited changes to the character of a historic landscape area</td>
</tr>
<tr>
<td>Negligible</td>
<td>• Very minor changes to archaeological or historic building elements or their settings  &lt;br&gt;• Very minor changes to key historic landscape elements, parcels or components; virtually unchanged visual effects; very slight changes in noise levels or sound quality; very slight changes to use or access; resulting in very small change to the character of a historic landscape area</td>
</tr>
<tr>
<td>No change</td>
<td>• No change to heritage assets or their settings</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>High heritage significance</th>
<th>Medium heritage significance</th>
<th>Low heritage significance</th>
<th>Negligible heritage significance</th>
<th>No heritage significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substantial magnitude of effect</td>
<td>Major adverse or beneficial*</td>
<td>Major or moderate adverse or beneficial*</td>
<td>Moderate or minor adverse or beneficial*</td>
<td>Negligible</td>
</tr>
<tr>
<td>Moderate magnitude of effect</td>
<td>Major or moderate adverse or beneficial*</td>
<td>Moderate or minor adverse or beneficial*</td>
<td>Minor adverse or beneficial</td>
<td>Negligible</td>
</tr>
<tr>
<td>Slight magnitude of effect</td>
<td>Moderate or minor adverse or beneficial*</td>
<td>Minor adverse or beneficial</td>
<td>Minor or negligible adverse or beneficial</td>
<td>Negligible</td>
</tr>
</tbody>
</table>
The measured significance of the effect of development may be expressed according to the definitions and criteria in Table 8.4 below. This corresponds to key heritage principles that are considered, in accordance with the Framework, including whether the effect comprises substantial harm or total loss. This therefore represents a ‘qualitative’ description of the identified effects.

**Table 8.4: Description of effects with reference to heritage policy**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Major Beneficial</th>
<th>Moderate Beneficial</th>
<th>Minor Beneficial</th>
<th>Negligible</th>
<th>Minor Adverse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development will deliver a positive contribution and / or better reveal the value of a heritage asset of recognised international value such that an application should be treated very favourably</td>
<td>Development will deliver a positive contribution and / or better reveal the value of a designated heritage asset (or asset worthy of designation) such that an application should be treated favourably</td>
<td>Development will deliver a positive contribution and / or better reveal the value of a non-designated heritage asset</td>
<td>So small or unimportant as to not be worth considering</td>
<td>Harm to a non-designated heritage asset that can be adequately compensated through the implementation of a programme of industry standard mitigation measures</td>
<td>Less than substantial harm to the value of a designated heritage asset, of a lesser degree than that perceived as Moderate Adverse, but which should still be weighed against the public benefit delivered by the development to determine consent</td>
</tr>
<tr>
<td>Major Adverse</td>
<td></td>
<td>Moderate Adverse</td>
<td>Minor Beneficial</td>
<td>Negligible</td>
<td>Minor Adverse</td>
</tr>
<tr>
<td>Less than substantial harm or total loss of the value of a designated heritage asset (or asset worthy of designation) such that the harm should be weighed against the public benefit delivered by the development to determine consent</td>
<td>Less than substantial harm or total loss of the value of a designated heritage asset (or asset worthy of designation) such that the harm should be weighed against the public benefit delivered by the development to determine consent</td>
<td>Loss than substantial harm to the value of a designated heritage asset, of a lesser degree than that perceived as Moderate Adverse, but which should still be weighed against the public benefit delivered by the development to determine consent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderate Adverse</td>
<td></td>
<td>Moderate Adverse</td>
<td>Minor Beneficial</td>
<td>Negligible</td>
<td>Major Adverse</td>
</tr>
<tr>
<td>Substantial harm or total loss of the value of a designated heritage asset (or asset worthy of designation) such that development should not be consented unless substantial public benefit is delivered by the development</td>
<td>Substantial harm or total loss of the value of a designated heritage asset (or asset worthy of designation) such that development should not be consented unless substantial public benefit is delivered by the development</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major Adverse</td>
<td></td>
<td>Moderate Adverse</td>
<td>Minor Beneficial</td>
<td>Negligible</td>
<td>Major Adverse</td>
</tr>
<tr>
<td>Total loss of a non-designated heritage asset of medium heritage significance (i.e. which may contribute to regional research objectives) with compensatory mitigation measures agreed with statutory consultees</td>
<td>Total loss of a non-designated heritage asset of medium heritage significance (i.e. which may contribute to regional research objectives) with compensatory mitigation measures agreed with statutory consultees</td>
<td>Loss than substantial harm to the value of a designated heritage asset, of a lesser degree than that perceived as Moderate Adverse, but which should still be weighed against the public benefit delivered by the development to determine consent</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Potentially significant effects (subject to professional judgement) within the meaning of the EIA Regulations*
Baseline Conditions

The identified heritage resource

8.35 A detailed review of the recorded resource within the Site and study area is given in the heritage desk-based assessment provided in Appendix 8.1, a brief summary of which is given in the following baseline in order to provide context for the Site. Only those heritage assets which are considered to be potentially sensitive to the Proposed Development are assessed in terms of potential effects within this assessment. Those heritage assets discussed in the following baseline summary are depicted on Figure 8.1. A more comprehensive figure showing all relevant heritage assets recorded within the study area is provided alongside the full baseline conditions in Appendix 8.1 (Figure 2).

8.36 No designated heritage assets are recorded within the Site.

8.37 There are no prehistoric finds or features recorded within the Site or study area. Two cropmark ring ditches were recorded from aerial photographs in an area now occupied by housing enclosed by, but lying outside, the northern extent of the Site (Figure 8.1, 1); both cropmarks may represent prehistoric features. Both cropmark features are likely to have been truncated, or possibly entirely removed by the housing development, but the extent of such impacts remains uncertain. The possible cropmark ring ditches are indicative of prehistoric activity within the environs of the Site.

8.38 Two Roman roads are recorded within the study area; the Ribchester to Poulten Le Fylde Roman road runs broadly east-west c.640m south of the Site (Figure 8.1, 2), and the Preston to Lancaster Roman Road runs broadly north / south from c.840m east of the Site (Figure 8.1, 3). No associated settlement is recorded within the study area. A substantial roadside settlement lies at Walton-le-Dale, c.5.1km south-east of the Site, and it is possible that the Site lay within the agricultural hinterland of this established settlement during the Roman period.

8.39 There are no early medieval finds or features recorded within the Site. Neither Ingol or the adjacent settlements of Fulwood or Cadley are referenced within the Domesday survey of 1086 and, as such, it is unlikely that an established settlement existed prior to the Survey. Ashton-On-Ribble, located immediately south of Ingol, is recorded and had three churches at the time of the Survey indicating a well-established settlement at this time. As such, it is likely that settlement at this time was focused further south of the Site and study area, at Ashton-On-Ribble, with the Site being situated within its agricultural hinterland.

8.40 The Lancashire Historic Environment Record (HER) records earthwork remains, which extend partially into the southern half of the Site (Figure 8.1, 4), and have been interpreted as the possible remains of a medieval motte and bailey castle. The exact nature and origin of the features remains uncertain; the survey in which they were recorded was undertaken from the nearest field boundary and there are some elements of the earthworks which are inconsistent with the form of motte and bailey castles. However, the earthworks do have some semblance of a medieval motte and bailey, and a poorly defined line of motte and bailey castles are known along the Ribble Valley, which are thought to relate to a frontier; possibly that which formed
during the anarchy of the reign of Stephen\textsuperscript{49}. As such, it remains possible that the earthworks are of archaeological origin relating to a motte and bailey.

8.41 Post-medieval features within the Site include the possible buried remains of Durham House in the west of the Site (Figure 8.1, 5) and possible buried remains of a former house / farmstead and associated farm buildings in the south of the Site (Figure 8.1, 6). The HER records a footbridge crossing Sharoe Brook (‘the Brook’) in the east of the Site (Figure 8.1, 7), as mapped by the First Edition Ordnance Survey map of 1893. However, this is no longer in evidence and a wooden bridge of recent date remains crossing the Brook which is not of sufficient historic interest to be considered a heritage asset.

Setting assessment

8.42 Designated heritage assets within the vicinity of the Site have been addressed in line with English Heritage’s Note 3: The Setting of Heritage Assets. Following a desk-based review of all potentially sensitive heritage assets within the vicinity of the Site, and a subsequent walkover survey, only The Grade II listed Wychnor (Figure 8.1, D1), located immediately north of the Site, was identified as being potentially sensitive to the Proposed Development, and is discussed in detail below. A detailed assessment of those other assets within the vicinity of the Site not deemed potentially sensitive to the Proposed Development, is given in Appendix 8.1.

8.43 The Grade II listed Wychnor (Figure 8.1, D1) is a mid-18th century former farmhouse, now divided into two dwellings. Wychnor is constructed from brick, with stucco finish, with some quoins and a slate roof with two chimneys. Wychnor is two storeys in height, formed of three bays with later additions to the left and right ends, and a single gabled porch which dates to the 19th century.

8.44 The principal aspect of Wychnor faces north, onto Lightfoot Lane which carries relatively heavy traffic, beyond which lies a large carpark associated with Preston Grasshoppers Rugby Football Club. The house is enclosed on its east, west and southern sides by dense mature trees, with some trees obscuring views of the main north facing elevation (See Appendix 8.1, Photograph 8). As such, Wychnor lies entirely divorced from its former farmland setting, from which it would have derived a degree of historical (associative) value. Therefore, the wider setting of Wychnor makes a neutral contribution towards its significance. On this basis, the key setting from which the house is experienced is from its private gardens to the north and south, which afford clear views of the former farmhouse.

Heritage Significance

8.45 The Grade II listed Wychnor derives its heritage significance predominantly from the evidential and historical (illustrative) values embodied within its fabric as an example of a later post-medieval farmhouse. Wychnor also draws some heritage significance from the aesthetic value embodied within its architecture. As a Grade II listed building, Wychnor is a heritage asset of Medium heritage significance, as per the criteria presented in Table 8.1.

Possible Motte and Bailey Earthworks

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The interpretation of those earthwork remains which extend into the southern area of the Site as that of a motte and bailey castle (Figure 8.1, 4) remains uncertain. The English Heritage Scheduling Selection Guide for Pre-1500 Military Sites\textsuperscript{50} states that ‘with mounds which are suspected to be mottes [...] without proof that such are indeed castles, designation is unlikely’. As such, and in accordance with the criteria presented in Table 8.1, the earthworks are not of High Significance. However, motte and bailey castles are identified within the Archaeological Research Framework for the North West Region\textsuperscript{51} (hereafter the ‘Research Framework’) as ‘less clearly defined’, and those earthworks which extend into the Site hold potential evidential value, which could contribute towards our understanding of this type of monument both locally, and within its wider context within the north-west. Medieval earthwork castles are identified as heritage assets in greater need of research by the Research Framework, particularly in terms of their date or origin and abandonment, as well as their exact purpose and nature. With specific regards to motte and bailey castles in the Ribble Valley, the Research Framework asks whether they are representative of fluctuating frontier lines\textsuperscript{52}. On this basis, and as per the criteria presented in Table 8.1, the earthworks are considered to comprise a heritage asset of Medium heritage significance.

Possible buried remains associated with post-medieval houses and structures

There is potential for buried remains within the Site associated with probable post medieval farmsteads / homesteads, including Durham House and its associated outbuildings in the north-west of the Site (Figure 8.1, 5), and a second unnamed house and its associated outbuildings broadly central within the Site (Figure 8.1, 6). Such remains would be anticipated to include surfaces and foundation walls, which would be of limited evidential value, and contribute little towards our understanding of post-medieval settlement in the region. In particular, such remains would not contribute towards questions surrounding the nature of settlement pattern during the post-medieval period, raised in the Archaeological Research Framework for the North West Region\textsuperscript{53}. On this basis, and in accordance with the criteria presented in Table 8.1, such remains would comprise heritage assets of Low heritage significance.

Design Evolution

Heritage led design measures have been incorporated into the design evolution of the Proposed Development in order to address identified and potential sensitivities to heritage assets. This is in accordance with heritage policy set out in the Framework, as well as best-practice guidance including step 4 (maximising enhancement and minimising harm) of Historic England’s Historic Environment Good Practice Advice in Planning: 3. The initial Proposed Development had the potential to result in the truncation of earthworks interpreted as the potential remains of a motte and bailey castle. Initially, the area in which the earthworks are located was proposed for community allotments and sports pitches. However, this area is now proposed to be kept as green space, utilised as habitat; particularly for newts. No invasive ground works, including

\textsuperscript{50} English Heritage, 2012
\textsuperscript{51} Available at http://www.liverpoolmuseums.org.uk/mol/archaeology/arf/accessing-resource-assessment.aspx (Accessed )
\textsuperscript{53} Available at http://www.liverpoolmuseums.org.uk/mol/archaeology/arf/vol2/resource_assessments/chp5_medieval.pdf
landscaping, are proposed for this area and, as such, there will be no adverse effects to the earthworks as a result of the Proposed Development.

8.49 No new housing is proposed in that part of the Site to the south of Wychnor (listed building). The existing strip of woodland within the Site on the south side of the rear garden will be retained, with the proposed ecological area to the south of that. These design measures are appropriate, and ensure that the heritage significance of the listed building is not harmed.

8.50 Consideration of any effects from changes in lighting at night time is provided in Chapter 12 of the ES, and Wychnor comprises R24 in that study. Only a Negligible effect from change in lighting following the Proposed Development is identified (following Enhancement measures of retention of natural screening and considered luminaire positions and orientation).

Potential Effects

Construction Effects

8.51 This section considers the potential physical effects on archaeological remains within the Site as a result of the Proposed Development. With regards to potential non-physical effects on heritage assets as a result of the Proposed Development (i.e. changes which effect their setting), effects during construction will largely equate to effects during operation, as described below.

8.52 No significant EIA effects are anticipated in respect of heritage as a result of Proposed Development during the construction phase. Non-significant EIA effects in respect of the known and potential archaeological remains recorded within the Site are defined in Appendix 8.3.

Operational Effects

8.53 No significant EIA effects are anticipated in relation to archaeology and cultural heritage during the operational phase of the development. This has included consideration of any lighting effects at night time (see Chapter 12). Again, details for the assessment of all heritage assets are contained within Appendix 8.3.

Mitigation and Enhancement Measures

8.54 In an email dated 29 September 2016, it was agreed with LAAS that a programme of evaluation works, comprising geophysical survey and trial trench evaluation, undertaken in the event that planning permission is granted, but prior to any Reserved Matters, will be acceptable. An Outline Archaeological Evaluation Strategy sets out the methodology of these measures (Appendix 8.2), approved by LAAS on 9 November 2016.

8.55 Following the programme of agreed archaeological evaluation works, any necessary further works, such as excavation and preservation by record of any known archaeological deposits, would be agreed with LAAS.

Residual Effects

8.56 The programme of further evaluation works, and any subsequent archaeological investigation works, such as the excavation and preservation by record of any identified archaeological remains, will ensure that proportionate account is taken of their evidential value, allowing for post-excavation and subsequent analyses to inform our understanding of the past and, as
appropriate, to contribute towards the Research Framework. However, as established within this assessment, there are no significant EIA effects upon archaeological remains.

**Cumulative Effects**

**Construction Effects**

8.57 Consideration has been given to any ‘cumulative’ effects which may affect heritage assets arising from other developments (as listed in Table 2.5 and illustrated on Figure 16.1), including those leading to ‘in-combination’ effects upon heritage significance. No cumulative or in-combination significant effects during construction have been identified in respect of archaeology and cultural heritage.

8.58 The present assessment has found no significant EIA effects to heritage in respect of the Proposed Development. With regards to direct physical effects, the present assessment has found no potential significant direct physical effects pertaining to buried archaeological remains. Those developments elsewhere in proximity to the Site will not result in direct physical or indirect physical effects to those heritage assets recorded within the Site, particularly the earthworks of the possible motte and bailey castle (Figure 8.1, 4).

**Operational Effects**

8.59 No cumulative or in-combination significant effects have been identified during operation (including any effects upon the ‘setting’ of heritage assets) in respect of archaeology and cultural heritage.

8.60 No significant indirect, i.e. non-physical effects regarding the setting of heritage assets are anticipated as a result of the Proposed Development. Two approved residential developments to the north of the Site (Figure 16.1, 6 and 11: planning refs. 06/2012/0094 and 06/2013/0195) lie immediately north and north-east of the Grade II listed Wychnor. However, as identified by the present assessment, the present setting of Wychnor, a former farmhouse, makes a neutral contribution towards its significance and, as such, it is not considered that either residential scheme would result in a cumulative effect on the Grade II listed Wychnor over and above that measured with regard to the present Proposed Development.

**Conclusions**

8.61 This chapter has considered the potential effects of the Proposed Development on archaeological and cultural heritage assets, and has been informed by the results of a heritage desk-based assessment. The assessment identified earthworks associated with a possible medieval motte and bailey castle which extend into the Site, as well as possible remains of Durham House, and a further house and associated outbuildings, both presumed to be post-medieval in date.

8.62 In accordance with professional guidance (in particular step 4 of Historic England’s Good Practice Advice in Planning 3) design measures have been implemented to ‘maximise enhancement and minimise harm’. On this basis, there will be no effect on the significance of the potential motte and bailey earthworks, or the unnamed house and associated outbuildings as a result of the Proposed Development, as detailed in Appendix 8.3. The Proposed Development will result in an effect on the buried remains of Durham House, a demolished post-medieval farmhouse (as
detailed in Appendix 8.3). The remains are of a low heritage significance and a Minor Adverse EIA significance of effect is anticipated, which is **not significant** in EIA terms. In accordance with Paragraph 135 of the National Planning Policy Framework this level of effect should be weighed in the planning balance in determining the application.

8.63 LAAS, archaeological advisor to PCC, has requested that a programme of archaeological evaluation works be undertaken in the event that planning permission is granted, but prior to any Reserved Matters. An Outline Archaeological Strategy for geophysical survey and trial trenching has been prepared and was approved by LAAS on 9 November 2016 (Appendix 8.2).

8.64 An assessment of potential non-physical effects of the Proposed Development was carried out. The Proposed Development will not lead to harm to the heritage significance of any designated heritage assets through alteration of their setting. The proposals are thus consistent with the requirements of section 66(1) if the Planning (Listed Building and Conservation Areas) Act 1990, which requires ‘special regard’ be given to the desirability of preserving listed buildings and their settings. The proposals are also consistent with Paragraph 132 of the Framework, which notes that ‘great weight’ should be given to the conservation of heritage assets. The proposals are also consistent with Policy EN8 within the Preston Local Plan which states that proposals should ‘conserve’ the setting of heritage assets.

8.65 **No significant** EIA effects are anticipated by the Proposed Development.
### Table 8.5: Summary of Archaeology and Cultural Heritage Effects and Mitigation

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Effect</th>
<th>Phase (Construction / Operation)</th>
<th>Embedded Mitigation</th>
<th>Sensitivity of Receptor</th>
<th>Magnitude of Change</th>
<th>Level of Effect and Significance Prior to Mitigation</th>
<th>Mitigation</th>
<th>Enhancement</th>
<th>Level of Effect (and Significance) after Mitigation</th>
<th>Nature of effect (short term / medium term / long term, permanent / temporary, direct / indirect)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade II listed Wychnor</td>
<td>Potential impact on the setting of Wychnor as a result of the Proposed Development</td>
<td>Operation</td>
<td>Retention of existing vegetation screening, and no built development occurring in proximity to Wychnor.</td>
<td>Medium</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>N/A</td>
</tr>
<tr>
<td>Possible medieval motte and bailey castle earthworks</td>
<td>Potential for disturbance and truncation relating to ground works associated with the Proposed Development.</td>
<td>Construction</td>
<td>Earthworks to be retained within an area of greenspace and utilised as part of a newt habitat.</td>
<td>Medium</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Possible buried remains associated with Durham House</td>
<td>Possible truncation and part removal relating to ground works associated with the creation of a children’s play area</td>
<td>Construction</td>
<td>None</td>
<td>Low</td>
<td>Moderate</td>
<td>Minor Adverse. Not significant.</td>
<td>None</td>
<td>Possible excavation following geophysical survey and trial trench evaluation</td>
<td>Minor Adverse. Not significant.</td>
<td>Permanent, long term, direct</td>
</tr>
<tr>
<td>Possible buried remains of a probable post medieval house and associated outbuildings</td>
<td>Potential for disturbance and truncation relating to ground works associated with the Proposed Development.</td>
<td>Construction</td>
<td>None</td>
<td>Low</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>N/A</td>
</tr>
</tbody>
</table>
9 ECOLOGY

Summary

Chapter 8 assesses the likely significant effects on the flora, fauna and habitats potentially affected by the construction and on-going use and management of the Proposed Development.

An assessment of the potential ecological effects of the Proposed Development has been undertaken. It is based upon information compiled from desk study including previous survey and assessments completed in relation to the Site, and from field surveys. The process has also involved consultation with organisations (such as Natural England), with information provided from the Lancashire Ecological Records Network.

Important ecological receptors (e.g. designed sites, habitats, and species) which could potentially be affected by the Proposed Development have been identified and subject to detailed assessment. A precautionary approach, based upon professional judgement, has been adopted where there is uncertainty.

The important ecological receptors that have been included into this ecological assessment are as follows; Habitats; Birds; Bats; Hedgehog; Great Crested Newt; and Common Toad. Where effects on habitats or species have been identified, the assessment has taken into consideration the designed layout within the Indicative Masterplan (embedded mitigation) which is intended to avoid or minimise, as far as practicable, the ecological effects associated with the development.

The Site supports a variety of habitats including woodland, open grassland, pond and margin habitats, currently managed within an operational golf course, with varying levels of maintenance across greens, fairways, and boundary/rough areas.

The majority of assessed ecological effects on habitats and species are not significant and therefore do not require specific mitigation. These have however been considered and addressed through good practice measures and local enhancements along with measures to ensure legislative compliance.

Those effects identified as significant relate to bats, great crested newts and toads, and targeted mitigation measures have been identified for these species which have formed the focus of the proposed mitigation. With mitigation in place, the assessed residual effects on these ecological receptors are considered to be not significant in EIA terms.

Therefore, no significant effects are anticipated by the Proposed Development.
Introduction

9.1 This chapter provides an assessment of the ecological and nature conservation effects of the Proposed Development, which is described in Chapter 5.

9.2 This assessment establishes the likely presence or likely absence of protected or notable species, identifies statutory and non-statutory designated sites for nature conservation in the vicinity of the Proposed Development and evaluates the overall conservation interest of the Site. The potential for the Proposed Development to have an effect on designated sites, habitats and protected and notable species is assessed and the significance of any effect is identified. It sets out mitigation measures required to reduce the significance of any negative effects and describes the biodiversity enhancements that will be implemented.

9.3 Baseline information has been compiled from desk study and field surveys of habitats and species enabling the determination of the likely ecological effects of the Proposed Development.

Legislation, Policy and Guidance

European Legislation


National Legislation and Policy

9.5 The National Planning Policy Framework\(^{54}\) (NPPF) sets out the Government planning policies for England and how these are expected to be applied. Wildlife, biodiversity and ecological networks are referred to in the NPPF 2012, Section 11 ‘Conserving and enhancing the natural environment’. This states that the planning system should contribute to and enhance the natural and local environment by; recognising the wider benefits of ecosystem services, minimizing impacts on biodiversity and providing net gains in biodiversity where possible, including by establishing coherent ecological networks that are more resilient to current and future pressures such as climate change.

9.6 In addition to the above planning guidance, certain plants, animals and wild birds receive further legal protection and / or are identified as conservation priority species or habitats within a UK context. The following provides a summary of national legislation with regards to species and habitats in England:

- The Conservation of Habitats and Species Regulations 2010 (as amended)\(^{55}\)
- The Wildlife and Countryside Act 1981 (as amended)\(^{56}\)
- The Countryside and Rights of Way (CROW) Act 2000\(^{57}\)


\(^{56}\) http://www.legislation.gov.uk/ukpga/1981/69/contents

\(^{57}\) http://www.legislation.gov.uk/ukpga/2000/37/contents
• The Natural Environment and Rural Communities (NERC) Act 2006
• The Protection of Badgers Act 1992
• The Hedgerows Regulations 1997

Local Planning Policy

9.7 Local planning policies include strategies to protect and enhance wildlife and ecological corridors, with the Local Biodiversity Action Plan specifically listing notable species and habitats of importance within the Lancashire region:

- Lancashire Biodiversity Action Plan (LBAP)
- Central Lancashire Core Strategy 2012
- Preston Local Plan 2012-2016
- Central Lancashire Biodiversity and Nature Conservation Supplementary Planning Document 2015

9.8 **Table 9.9** in this Chapter provides a summary of conformance with relevant local planning policies relating to ecology and biodiversity.

Guidance

9.9 The following guidance documents have been referred to within the assessment where appropriate:

- Chartered Institute of Ecology and Environmental Management (CIEEM) - ‘Guidelines for Ecological Impact Assessment in the UK and Ireland’ 2016
- JNCC - Handbook for Phase I Habitat Survey – a Technique for Environmental Audit 2010;
- Great crested newt survey guidelines (various)

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58 http://www.legislation.gov.uk/ukpga/2006/16/contents
61 http://www.lancspartners.org/lbap
64 Chorley Council, Preston City Council and South Ribble Borough Council (July 2015) Central Lancashire Biodiversity and Nature Conservation Supplementary Planning Document.
Assessment Methodology and Significance Criteria

Scope of the Assessment

9.10 An initial review of ecological receptors and potential receptors, together with a review of the likely activities associated with the Proposed Development, was used to define the scope of the assessment and identify appropriate 'zones of influence' for study. These contain ecological areas and features that may be affected by the Proposed Development. The initial review of ecological features was used to identify an overall initial zone of influence of 5km from the Site ownership boundary within the desk study, extended further for more mobile interest receptors such as birds and bats. Within this zone, specific study areas were identified for more detailed desk study and subsequent field surveys required to inform the valuation of ecological resources and the selection of 'key' ecological receptors.

9.11 These study areas were identified for the desk study and field survey to inform the valuation of ecological receptors and the selection of important ecological receptors 'scoped-in' to the assessment. The study area for desk study included a 5km radius from the Site boundary for designated sites of natural conservation importance and 3km for biological records from the local record centre. For the field surveys, the study area comprised the Site boundary, as shown in Figure 1.2 – Local Context Plan.

Consultation

9.12 Consultation with Preston City Council (PCC) and a Scoping Report (Appendix 1.2) identified the likely environmental (including ecological) effects that the Proposed Development may have on the receiving environment and the manner in which they will be examined. The Scoping Opinion from PCC identified all issues to be addressed in the Environmental Statement (ES) and is included in Appendix 1.1. A summary of scoping responses relevant to ecology is provided in Table 9.1 below.

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## Table 9.1: Consultation

<table>
<thead>
<tr>
<th>Consultee</th>
<th>Summary of Response</th>
<th>How response has been addressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preston City Council (PCC)</td>
<td>Noted GMEU concerns regarding great crested newt surveys i.e. that these will take place within Spring/Summer 2017. Given that Great Crested Newts (GCNs) are a European Protected Species, GMEU state that all survey work should be completed and submitted to the Local Planning Authority, together with appropriate mitigation, at the point of submission of the planning application.</td>
<td>A series of previous great crested newt surveys undertaken across the Site between 2009 and 2014 provide a good baseline of information on this species, supported by updated Phase 1 habitat surveys and pond assessments completed in 2016. It was agreed with PCC that additional update surveys will be completed in spring 2017 and provided to PCC to further inform and underpin the findings of the assessment and provide additional information.</td>
</tr>
<tr>
<td>GMEU</td>
<td>Noted the requirement to complete protected species surveys including in particular for GCNs as part of the submission.</td>
<td>Green Infrastructure and habitat enhancement and management is addressed in the mitigation section of this chapter, in the Landscape and Visual Impact Assessment in Chapter 11 and in the summary of effects and mitigation Chapter 17.</td>
</tr>
<tr>
<td>Lancashire Environmental Record Network (LERN)</td>
<td>Provided Biological data records in response to data request as part of desk study.</td>
<td>Consideration is given to the ecological value of land alongside watercourses in the assessment and mitigation sections of this chapter.</td>
</tr>
<tr>
<td>Natural England</td>
<td>Scoping Opinion consultation response.</td>
<td>Addressed as part of Scoping Opinion consultation with PCC.</td>
</tr>
<tr>
<td></td>
<td>Information on nearby great crested newt licence application.</td>
<td>Freedom of Information request to NE for information on great crested newt licence application and mitigation works in the vicinity of the Site.</td>
</tr>
</tbody>
</table>

### Baseline Methodology

9.13 This assessment aims to provide an objective and transparent assessment of the ecological effects of the Proposed Development and determine the consequences in the context of relevant legislation, policy and guidance.
9.14 This assessment has been undertaken with reference to the principles of CIEEM (2016) guidance, which focuses on those activities that could potentially generate significant ecological effects on important ecological receptors. The appraisal methodology also reflects the Town and Country Planning (Environmental Impact Assessment) Regulations 2011. Details of the overall assessment methodology for this Environmental Statement (ES) are provided in Chapter 2.

Desk Study

9.15 The following data sources have been used in the compilation of this assessment:

- The Multi Agency Geographic Information for the Countryside (MAGIC), Joint Nature Conservation Committee (JNCC) and Natural England (NE) websites to obtain information on statutory sites from within a 5km radius of the Site boundary; and
- Ordnance Survey maps of the wider area and online aerial images (www.google.co.uk/maps) in order to determine any receptors of nature conservation interest in the surrounding landscape.

9.16 The following documents have been reviewed to provide additional baseline information on habitats and protected and notable species within the Site and the wider locality:

a. **Drivers Jonas Deloitte. Ingol Vision Environmental Statement 2010** and associated appendices which included the following baseline surveys which were undertaken within the Site:
   
   - Phase 1 Habitat survey including badger – July 2009
   - Amphibian Survey and HSI Assessment – Spring 2010
   - Bat Activity Survey and Tree Roost Assessment – August and September 2009
   - Breeding Bird Survey – April May 2010
   - Water Vole and Otter – August 2009
   - Reptiles - May and June 2010

b. **TEP (April 2014) Land South of Tom Benson Way Preston. Ecological Assessment.** 3340.006. which included the following baseline surveys undertaken within the Site:

   - Extended Phase 1 Habitat Survey – September 2013
   - Amphibian Survey – Spring 2012
   - Bat Activity Survey –July-September 2012
   - Breeding Bird Survey – April-June 2012
   - Badger Survey - September 2013
   - Water vole and otter survey - September 2013

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69 [http://www.magic.gov.uk](http://www.magic.gov.uk)
70 [http://jncc.defra.gov.uk/](http://jncc.defra.gov.uk/)
72 Drivers Jonas Deloitte. Ingol Vision Environmental Statement 2010
73 TEP Ingol Vision Amphibian Survey Report. 2104.012
74 TEP Ingol Vision Bat Survey Report. 2104.004
75 TEP Ingol Vision Breeding Bird Survey Report. 2104.001
76 TEP Ingol Vision Water Vole Survey Report. 2104.013
77 TEP Ingol Vision Reptile Survey Report. 2104.014


Field Surveys

Table 9.2 details field survey methodologies used.

Table 9.2: Field Survey Methods

<table>
<thead>
<tr>
<th>Ecological Receptor</th>
<th>Methodology</th>
<th>Study Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Habitats</td>
<td>An Extended Phase 1 habitat survey, following the methodology set out in JNCC (2010) guidance was undertaken on the 16th August 2016 by suitably qualified and experienced ecologists. This habitat survey method was extended through the additional recording of specific receptors indicating the presence, or likely presence, of protected species and other species of conservation significance. The habitats recorded across the Site are shown on Figure 9.1 and features of interest requiring further detail are noted as Target Notes. Full methodology is presented in Appendix 9.1 Extended Phase 1 Habitat Survey</td>
<td>All land within the Site although bordering habitats were noted from within the Site, shown in Figure 1 – Local Context Plan.</td>
</tr>
<tr>
<td>Great Crested Newt</td>
<td>Existing data from previous surveys within the Site in 200978 and 201279 was reviewed to inform the study. Additional raw data was provided by the Homes and Communities Agency relating to surveys undertaken in 2014 on a number of ponds within the southern extents of the Site (see Appendix 9.2 Amphibians). A total of twenty ponds were identified within the Site (Ponds P0-P19). A further 12 ponds were identified from aerial images within 500m, lying to the north and west of the Site, but were excluded from the assessment due to the B6241 (Tom Benson Way) and extensive residential properties lying in-between. This busy road and the built development is considered to be a major barrier to newt dispersal between off-site ponds and the Site and any GCN populations are therefore considered to be distinct and unaffected by the Proposed Development. Two additional ponds are located adjacent to the Site (P20 and 21) but access permission was not obtained. All 20 ponds (P0-P19) were subject to a Habitat Suitability Index (HSI) assessment80 and suitable ponds (i.e. &gt;10cm water depth)</td>
<td>All ponds within a 500m radius of the Site. The survey area is shown on Figure 9.2</td>
</tr>
</tbody>
</table>

78 Drivers Jonas Deloitte. Ingol Vision Environmental Statement 2010
80 Amphibian and Reptile Groups of the United Kingdom (ARG UK) methodology (ARG UK, 2010), which is a refined version of the Oldham et al. (2000) method
were subject to Environmental DNA (eDNA) sampling\(^81\) and sweep netting on 19\(^{th}\) August 2016.
Full details are presented in Appendix 9.2 Amphibians.

### Bats

Automated and walked transect surveys were undertaken in August and September 2016 with reference to Bat Conservation Trust (2016) guidance\(^82\). This comprised two separate walked transects within the Site, walked on three occasions; one in August and two in September, and four automated monitoring stations set to record for a minimum of ten nights for the ‘summer’ season.

Full methodology is presented in Appendix 9.3 Bats.

All land within the Site and the survey layout is presented on Figure 9.3.

### Assessment of Effects

9.18 The effect on each ecological receptor has been assessed based upon the interaction between the importance of the receptor and the magnitude of change potentially effected upon it (the approach is described more fully for this Environmental Statement in Chapter 2 – Approach to EIA).

9.19 Relevant European, national and local guidance from governments and specialist organisations (as outlined under the Legislation, Policy and Guidance heading) was referred to in order to determine the importance of ecological receptors. Additionally, importance was determined on a contextual basis, taking into account the results of baseline surveys and the context of the geographic area and not solely the level of legal protection that a receptor receives. Ecological receptors may be important for a variety of reasons, examples of which include the diversity and naturalness of habitats, the rarity of species or the geographical location of species relative to their known range.

9.20 Receptor importance is described on a scale from International to Less than Local (or Site level), as detailed in Table 9.3. The Site is located to the outer northern extents of the district of the City of Preston, within the township of Fulwood. Due to the size of the Site, the immediate environs also comprise the settlements of Ingol, Tanterton (which the Site surrounds), Cadley, Greyfriars and Fulwood, all of which are, for the purposes of this assessment, considered to fall within the definition of the ‘Local’ area.

<table>
<thead>
<tr>
<th>Sensitivity of Receptor/ Scale of Importance</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>High - International and European</td>
<td>Beyond a UK scale, typically at European level.</td>
</tr>
</tbody>
</table>

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Sensitivity of Receptor/ Scale of Importance | Definition
--- | ---
High - National | England
Medium - County | Lancashire
Medium - District | Preston
Low - Local | Wards of Ingol, Tanterton, Cadley, Greyfriars and Fulwood
Negligible - Site | Considered within the context of the Site

**Effects Parameters**

9.21 Effects have been further described in terms of the parameters detailed in *Table 9.4.*

**Table 9.4: Environmental Parameters**

<table>
<thead>
<tr>
<th>Environmental Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnitude</td>
<td>The ‘size’ or amount of the effect is referred to as the magnitude and is determined on a quantitative basis where possible.</td>
</tr>
<tr>
<td>Extent</td>
<td>The area over which an effect occurs. The magnitude and extent of an effect may be synonymous.</td>
</tr>
<tr>
<td>Duration</td>
<td>The time over which an effect is expected to last prior to the recovery or replacement of the receptor. This can be considered in terms of life cycles of species or regeneration of habitats. The duration may be longer than the duration of an activity.</td>
</tr>
<tr>
<td>Reversibility</td>
<td>Reversible (or temporary) effects are those that occur during construction and are either re-instated post construction or in the case of species able to recover within a reasonable timescale which would not affect the functionality of the population. Either spontaneous recovery or effective mitigation is possible. Permanent effects are those which cannot be recreated within the Proposed Development or there is no reasonable chance that actions can be undertaken to reverse it.</td>
</tr>
<tr>
<td>Timing and frequency</td>
<td>The timing of effects in relation to important seasonal and/or life cycle constraints has also been evaluated. Similarly, the frequency with which activities and simultaneous effects would take place can be an important determinant, and has therefore also been assessed and described where possible.</td>
</tr>
</tbody>
</table>

9.22 Consideration has been given to how existing baseline conditions may change over time. Changes in the baseline could occur through land use and habitat changes, in the form of differing management and natural growth or succession of habitats.

**Magnitude of Change**
9.23 The magnitude of change effected on each receptor can be defined on a scale ranging from substantial to negligible as detailed in Chapter 2, and is described in terms of ecological change in Table 9.5. The likelihood or probability that an effect will occur is described as far as possible based on available information and is referred to throughout this Chapter using the following terms: certain, likely, unlikely or highly unlikely. While it is reasonably straightforward to identify effects that are certain to occur, or conversely will not occur, it is generally less practicable to quantify occurrences defined as 'likely' or 'unlikely'. In these circumstances, professional judgement is used, with reasoning supported by available evidence.

Table 9.5: Magnitude of Change

<table>
<thead>
<tr>
<th>Magnitude</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substantial</td>
<td>The effect (either on its own or with other proposals) may negatively or positively affect the biodiversity conservation status of a site/ species population, in terms of the coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the population levels of species of interest.</td>
</tr>
<tr>
<td>Medium</td>
<td>Biodiversity conservation status of a Site or population will not be negatively or positively affected, but some element of the functioning might be affected and the effect on the Site/ population is likely to be significant in terms of its ability to sustain some part of itself in the long term.</td>
</tr>
<tr>
<td>Minor</td>
<td>Neither of the above applies, but some minor negative or positive effect is evident on a temporary basis or affects extent of habitat abundant in the local area.</td>
</tr>
<tr>
<td>Negligible</td>
<td>No observable effect in either direction.</td>
</tr>
</tbody>
</table>

Assessment of Effect Significance

9.24 Ecological effects are considered in terms of geographic scale, capacity of receiving receptors to accommodate change, conservation objectives, conservation status and condition of the Site or its interest/ qualifying receptors. It considers whether the structure and function of an ecosystem may be changed, whether processes or key characteristics will be removed or changed, or whether there will be an effect on the nature, extent, structure and function of component habitats; or there is an effect on the average population size and viability of component species.

9.25 A significant effect is assessed to be an effect that either supports or undermines biodiversity conservation, including effects on structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species (such as extent, abundance and distribution). The 2016 CIEEM guidelines on ecological impact assessment note that ‘A significant effect does not necessarily equate to an effect so severe that consent for the project should be refused planning permission. For example, many projects with significant negative ecological effects can be lawfully permitted following EIA procedures as long as the mitigation hierarchy has been applied effectively as part of the decision-making process.’

9.26 Professional judgement is used based on these variables. In cases of reasonable doubt, where it is not possible to robustly justify a conclusion of no significant effect, a significant effect has been assumed as a precautionary approach. Where uncertainty exists, this is acknowledged.
9.27 For an effect to be significant, the ecological integrity or conservation status of a sensitive receptor must be influenced in some way. It may be that the effect is substantial in magnitude or scale, irreversible, has a long-term effect, or coincides with a critical period in a species’ life-cycle.

9.28 A significant effect in the context of this ES (Chapter 2) is considered to be any ‘major’ or ‘moderate’ effect on an important ecological receptor, whether positive or negative in line with Table 2.3, Chapter 2. Professional judgement has been employed throughout and where ecological receptors of lower value or importance could experience significant effects, albeit at a Local or Site geographic scale, this is discussed and a precautionary approach is adopted where appropriate.

9.29 It is recognised that effects can also occur at local geographic level or below. These effects merit discussion within the assessment, but are not sufficiently severe to be categorised as ‘significant’ in accordance with the approach set out in Chapter 2. In the interest of completeness these effects are addressed in Appendix 9.4: Non-significant Effects.

Baseline Conditions

9.30 The Proposed Development is located within an urban area within the township of Fulwood, north of Preston and surrounding the residential community of Tanterton. Open farmland is located directly to the north of the Site, although the majority of this land is allocated for redevelopment under the North West Preston Masterplan – PCC, with some developments having received full and outline planning permission or currently under construction to the north of Tom Benson Way.

Designated Sites

9.31 The desk study identified five statutory designated sites within a 5km radius and one Special Protection Area (SPA) within 10km.

9.32 The designated sites are detailed within Table 9.6 below.

Table 9.6: Statutory Designated Sites. LNR: Local Nature Reserve. SPA: Special Protection Area

<table>
<thead>
<tr>
<th>Site Name</th>
<th>Distance and Direction</th>
<th>Reason for Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haslam Park Preston LNR</td>
<td>0.7km south west</td>
<td>Open meadow, woodland and orchards with some manicured gardens. Supports breeding birds, invertebrates and small mammals.</td>
</tr>
<tr>
<td>Hills and Hollows LNR</td>
<td>3.4km east</td>
<td>Open meadows and woodland. Supports breeding birds, invertebrates and small mammals.</td>
</tr>
<tr>
<td>Fishwick Bottoms LNR</td>
<td>4km south east</td>
<td>Woodland, grassland and wetland habitats with a small remnant orchard.</td>
</tr>
<tr>
<td>Grange Valley LNR</td>
<td>4.5km east</td>
<td>Woodland, grassland and wetland habitats with a small remnant orchard. Supports breeding birds, invertebrates and small mammals.</td>
</tr>
<tr>
<td>Preston Junction LNR</td>
<td>4.6km south</td>
<td>Former railway line with florally diverse embankments providing habitat for birds and invertebrates.</td>
</tr>
</tbody>
</table>
### Site Name, Distance and Direction, Reason for Designation

<table>
<thead>
<tr>
<th>Site Name</th>
<th>Distance and Direction</th>
<th>Reason for Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ribble and Alt Estuaries SPA</td>
<td>6.5km south west</td>
<td>Designated for wildfowl populations and estuarine habitats.</td>
</tr>
</tbody>
</table>

9.33 The Ribble and Alt Estuaries SPA are designated for their estuarine habitats and bird populations. While wader and wildfowl can move inland to feed, the distance, relative location and type of the habitats within the Site and lack of open vistas preferred by these species, all mean that the Site will not be important for these bird populations. The SPA sites and their predominantly coastal qualifying interest species and habitats are considered to be outside the zone of influence of the Proposed Development and are not considered further.

9.34 Non-statutory designated sites include Cottam Hall Brick Works Biological Heritage Site (BHS) located c. 770m south west, Lancashire Canal BHS c. 700m south, Bartle Wetland BHS 2.2km west and Masons Wood BHS, 1.8km east. BHSs are designated primarily for their habitat interests, with some supporting populations of GCN within ponds. The majority of woodland within and bordering the Site is listed on the Priority Habitat Inventory for Deciduous Woodland (England) as a broad\(^3\) habitat type.

9.35 There are no direct habitat connections between the Site and the designated BHS and the qualifying features of these sites (flora and amphibians) are unlikely to be reliant on habitats present within the Site.

**Habitats and Flora and Protected and Notable Species**

9.36 Table 9.7 below provides a summary of surveys undertaken in 2016 with full details provided within Appendix 9.1 Extended Phase 1 Habitat Survey, Appendix 9.2 Amphibians and Appendix 9.3 Bats. The Table also considers results from desk study and data from previous surveys undertaken within the Site and surrounding area.

**Table 9.7: Summary of Habitats and Flora and Protected and Notable Species**

<table>
<thead>
<tr>
<th>Ecological Receptor</th>
<th>Summary</th>
<th>Information Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Habitats</td>
<td>The Site comprises a mix of grassland and woodland habitats with bordering hedgerows, scrub and ruderal habitats. Aquatic habitats include various streams/ditches and 20 ponds. The majority of open land within the Site is part of the operational Ingol Village Golf Course, comprising manicured amenity grassland fairways. Being a golf course, the landscape has been actively managed and contains a mixture of trees, open water and rough grassland to the boundaries of the intensively-managed amenity grassland fairways and greens. The amenity grassland is species poor and generally kept very short.</td>
<td>Appendix 9.1 Extended Phase 1 Habitat Survey, Figure 9.1 and 9.2.</td>
</tr>
</tbody>
</table>

\(^3\) Although broad habitats are not given the same legal and planning weight as Priority Habitats (NERC Act, 2006), the classification is the framework through which the Government is committed to meet its obligations for monitoring in the wider countryside. Furthermore, broad habitat types are usually outdated and have limited supporting information and low confidence levels for classification.
Ecological Receptor | Summary | Information Sources
---|---|---
**Fairway margins** supported slightly more floristic diversity, merging into poor-semi improved grassland. Woodland comprised a mixture of semi-natural and plantation broad-leaved woodland, predominantly to the boundaries of the Site and along the valley of the Sharoe Brook. Immature and mature broad-leaved trees are also present as individuals or small groups scattered across the Site.

NERC S41 Priority Habitats included: ponds, streams (Sharoe Brook) and mixed deciduous woodland. Local BAP habitats also include native hedgerows.

Native bluebell was the only protected species recorded during baseline surveys and through desk study.

**Breeding Birds**

LERN provided existing bird records. Breeding bird surveys were undertaken in 2010 and 2012 within the Site, recording an assemblage of common and widespread woodland and urban fringe passerine species, including some of conservation concern such as bullfinch, house sparrow, linnet, song thrush, starling and tree sparrow. Waders included curlew, oystercatcher and lapwing.

Habitats within the Site offer a mosaic of woodland, hedgerows and tall grassland habitats and of moderate value for breeding birds locally. Potential for ground nesting birds is negligible, particularly within the open amenity grassland. Some opportunities are provided within boundary habitats but the limited, thin nature of the long grassland boundaries which are adjacent to tall mature hedgerows and trees is largely unsuitable for most ground nesting birds as they provide perches and cover for avian and mammalian predators.

Records of kingfisher, short-eared owl, peregrine and common tern were returned from LERN however in recognition of the habitats present only kingfisher is likely to be present on open water habitats, and semi-improved grassland may support foraging kestrel and barn owl.

**Bats**

Desk study and surveys undertaken at the Site between 2009 and 2016 recorded the following species:

- Common pipistrelle *Pipistrellus*
- Soprano pipistrelle *P. pygmaeus*
- Noctule *Nyctalus noctula*
- Unidentified *Myotis spp.*
- Daubenton’s bat *Myotis daubentonii*
- Brown long-eared *Plecotus auritus*

Overall the surveys demonstrate that the entire Site is used for foraging and/or commuting bats, with species composition over the years consistently being low to moderate activity of common pipistrelle and low levels of *Myotis*, noctule and brown long-eared bats.

Bats use all areas of the Site which is unsurprising given the woodland, rough grassland and pond habitats that are present. Avian Ecologys’s 2016 surveys corroborate the earlier survey findings; however they suggest a stronger relationship

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**Appendix 9.1 Extended Phase 1 Habitat Survey** includes LERN desk study records and findings of Extended Phase 1 Habitat Survey (2016)

TEP (2014) Ingol Vision Breeding Bird Survey Report. 2104.001


**Appendix 9.3 Bats.**

2016 Bat survey layout *Figure 9.3.*

2016 transect survey results *Figure 9.4.*


2012 survey results in TEP (2014) Ingol
<table>
<thead>
<tr>
<th>Ecological Receptor</th>
<th>Summary</th>
<th>Information Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>with habitats to the east and a strong association with woodland edges, open water and sheltered fairways which offer increased invertebrate food resources. A tree inspection survey carried out in August 2009 and updated in 2016 identified numerous trees with moderate to high potential for bat roosts. No evidence of roosting bats was found in the Golf Club buildings in 2009.</td>
<td>Vision Bat Survey Report. 2104.004</td>
</tr>
<tr>
<td>Other Mammals</td>
<td>Targeted water vole, otter surveys and badger surveys were completed in 2009 and no evidence of presence of any of these species was found. Updated surveys undertaken in 2016 also found no evidence of these species, although habitats remain potentially suitable. Records of hedgehog were returned within the Site and the network of hedgerows, woodland and residential gardens provide a network of moderate to high quality habitats for hedgehog, although open amenity grassland is of low to negligible value. Hedgehogs were recorded on Site during 2016 bat surveys. Water shrew was recorded in Pond P2 during amphibian surveys in 2010.</td>
<td>Appendix 9.1 Extended Phase 1 Habitat Survey TEP (2014) Ingol Vision Water Vole Survey Report. 2104.013 Drivers Jonas Deloitte 2010. Ingol Vision Environmental Statement.</td>
</tr>
<tr>
<td>Great Crested Newt (GCN)</td>
<td>This species is present in several ponds across the Site as evidenced by a series of previous surveys. GCN larvae were found in P8 and P12 through net sweeping in 2016. The HSI assessment found seven ponds to be of ‘Good’ suitability, three ‘Average’ and one of ‘Below Average’ suitability. Remaining ponds are dry and not subject to HSI. Surveys undertaken in 2010, 2012, 2014 and 2016 confirmed presence within ponds P0, P3, P5, P8, P9, P11, P12, P15 and 16. Some ponds appear to dry annually or sometimes every few years. The peak count from any one pond in 2010 was 11 GCN (P12), 20 in 2012 (P12) and 3 in 2014 (P8 and P9). Overall Site Peak Counts were 15 in 2010, 33 in 2012 and 6 in 2014. Ponds P3, P8, P12, P15 and P16 have been recorded as confirmed ‘breeding’ ponds. As well as the aquatic (breeding) habitats there is also a good range and extent of suitable terrestrial amphibian habitats on Site. These include areas of boundary rough grassland, strips of hedgerow, woodland and dry ditch lines. Within the woodlands deadwood habitat provides favourable conditions for invertebrate prey for foraging newts. There is strong connecting habitat linking ponds and terrestrial habitat through most of the Site, but especially in the southern parts. There is also a greater density of ponds in the south of the Site, combining well with the terrestrial habitats also present in this area. On a precautionary basis, given the ponds onsite are functionally linked through terrestrial habitats and in recognition of Natural England (2001) guidance, it has been assumed that all ponds are GCN ponds.</td>
<td>Appendix 9.2 Amphibians Table 3.1, Table 3.2. Appendix 9.2 Amphibians Section 3.3. Appendix 9.2 Amphibians Section 4 and Table 4.1.</td>
</tr>
</tbody>
</table>
The Site is considered to support three populations over its extent. All three populations are within 250m of each other so form part of a wider meta-population which is ecologically linked through habitat corridors within the Site. The Site is considered to support a combined ‘small’ or, on a precautionary basis, ‘medium’ metapopulation.

Other Amphibians
Amphibian surveys undertaken between 2009-2016 recorded smooth newt, palmate newt, common frog and toad in several ponds, which therefore qualify as NERC S41 Priority Habitat.

Reptiles
There are several records for slow worm from 1993 to 2005 at least 1km from the Site to the northeast and the south and a single slow worm record within the Site near P21. Reptile surveys completed within the Site in May and June 2010 did not record presence of any reptile species but given the habitats present and previous records, small numbers of individual common reptile species are assumed to be present for the purpose of this assessment.

Himalayan balsam is widespread across the Site, particularly at boundary habitats near open water. Records of Japanese knotweed were returned along the West Coast Mainline railway and rhododendron has been planted around the Golf Club. Full details provided within Appendix 9.1 Extended Phase 1 Habitat Survey.

The habitats within the Site are currently managed within an operational golf course, with varying levels of maintenance undertaken across greens, fairways, and boundary/rough areas. In the absence of the Proposed Development, the land within the Site is assumed to remain under recreational management with a similar range of managed and less managed areas. Hence no substantive changes to the future baseline are anticipated.

A number of ponds are present across the Site, currently forming part of the Golf Course environment. Several of these ponds are either completely dried out, or likely to be dry for much of the year. If left unmanaged, all of the ponds across the Site will undergo natural succession and will gradually become largely vegetated and overgrown, in time becoming dry and scrubbed over. These changes will result in mixed effects for ecological receptors, with some species such as hedgehog, bats and birds potentially benefitting, but with amphibians in particular experiencing adverse effects. This is a natural change over time for small, relatively shallow ponds such as these, which require periodic clearance and de-silting to remain favourable wetland conditions for many species, including for GCNs and toads.

Ecological receptors have been assigned a level of importance based on the evaluation criteria presented within Table 9.2 of the Assessment Methodology.
9.41 This section identifies key ecological receptors (habitats, species, ecosystems and their functions / processes) which are then subject to more detailed assessment. Key ecological receptors are those that are considered to be important at more than a Site level, and are potentially affected by the Proposed Development.

9.42 Receptors which are unlikely to be affected by the Proposed Development or which are considered sufficiently widespread, unthreatened or resilient to effects from the Proposed Development, and hence will remain viable and sustainable, do not require detailed assessment.

9.43 Table 9.8 identifies which receptors have been assessed as important and sets out the rationale for their inclusion or otherwise for detailed assessment.

**Table 9.8: Receptors Scoped In/Out of Detailed Assessment**

<table>
<thead>
<tr>
<th>Ecological Receptor</th>
<th>Importance</th>
<th>Scoped in/out of detailed assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Designated sites (SPAs, SSSIs, LNR, BHS)</td>
<td>International / National / County</td>
<td>No designated sites will be directly or indirectly affected due to separation distances and lack of functional linkage between habitats. <strong>Scoped out of the assessment, however general precautionary mitigation such as pollution control and prevention measures is provided within the assessment.</strong></td>
</tr>
<tr>
<td>Habitats</td>
<td>District / local</td>
<td>Habitats within the Site are generally common and widespread, although habitats listed under S41 of the NERC Act are present. The Site and its immediate surrounds are not considered to support rare or endangered habitat or vegetation assemblages or rare or protected plant species. However the network of habitats across the Site is regarded as being of District importance in terms of their function as linking ecological networks. Habitats are <strong>scoped into the assessment</strong>, primarily in relation to potential effects on protected or notable species that may utilize such habitats. Assessment of effects provided within <strong>Appendix 9.4 non-significant Effects.</strong></td>
</tr>
<tr>
<td>Birds</td>
<td>Local / County (Annex-I species Kingfisher)</td>
<td>The Site is likely to support a limited bird assemblage typical of woodland and urban fringe habitats. Some ponds and the Sharoe Brook may support kingfisher. Potential for destruction of nests or disturbance to breeding birds depending of timing of the construction phase. Loss of aquatic and terrestrial habitat for kingfisher. <strong>Scoped into the assessment. Assessment of effects provided within Appendix 9.4 Non-significant Effects.</strong></td>
</tr>
<tr>
<td>Bats</td>
<td>County</td>
<td>All UK bats and their roosts are protected. Bats are present within and around the Site. The Site’s boundary habitats offer moderate to high foraging and/or commuting opportunities for bats and a number of on-site mature trees offer moderate - high roost potential. Potential for loss, fragmentation or severance of foraging habitat and roost locations and disruption to commuting corridors. <strong>Scoped into the assessment.</strong></td>
</tr>
<tr>
<td>Ecological Receptor</td>
<td>Importance</td>
<td>Scoped in/out of detailed assessment</td>
</tr>
<tr>
<td>---------------------</td>
<td>------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td><strong>Hedgehog</strong></td>
<td>District</td>
<td><strong>Scoped into the assessment.</strong> Assessment of effects provided within <strong>Appendix 9.4 Non-significant Effects.</strong> Hedgehogs are present on Site and species listed under S41 of the NERC Act and on the Lancashire BAP. The habitats within the Site, supported by the surrounding residential gardens provide a high value resource for the local population of this species.</td>
</tr>
<tr>
<td><strong>Other Mammals</strong></td>
<td>Site</td>
<td><strong>Scoped out of detailed assessment.</strong> General mitigation measures beneficial to a range of mammal species are provided within the assessment. No evidence of badger, otter or water vole has been recorded on Site. Water shrew has been recorded in Pond P2. There is habitat suitable for brown hare, and this species may be present on occasion.</td>
</tr>
<tr>
<td><strong>Amphibians</strong></td>
<td>County / District</td>
<td><strong>Scoped into assessment.</strong> GCN are present in and around the Site, with presence confirmed within 9 out of 20 ponds on Site. A maximum count of GCN in any one pond was 20 individuals (2012 data) and therefore the Site is considered to support a ‘small’ or possibly ‘medium’ population. Common toad presence confirmed in 12 out of 20 ponds on Site. Species listed under S41 of the NERC Act and on the Lancashire BAP. Potential for aquatic (breeding) and immediate and intermediate terrestrial habitat to be lost and for individuals to be inadvertently killed or injured during construction. Potential for fragmentation and severance effects on local populations.</td>
</tr>
<tr>
<td><strong>Other amphibians</strong></td>
<td>Local</td>
<td><strong>Scoped out of detailed assessment.</strong> General and precautionary mitigation applicable to amphibian species is provided within the assessment as Appendix 9.4. Smooth newt, palmate newt and common frog are widespread across the UK. They are considered of low (Local level) importance. Potential for fragmentation and severance effects on local populations.</td>
</tr>
<tr>
<td><strong>Reptiles</strong></td>
<td>Local</td>
<td><strong>Scoped out of detailed assessment.</strong> General and precautionary mitigation is provided within the assessment as Appendix 9.4. Reptiles have not been recorded on Site; however, rough grassland, woodland edge, scrub and tall ruderal habitat within the Site is considered potentially suitable for reptiles, although of limited value. Potential for occasional presence, particularly in association with the adjacent West Coat Mainline railway which may provide linking habitat for dispersal of reptiles.</td>
</tr>
<tr>
<td><strong>Other species</strong></td>
<td>Local / Site</td>
<td>Other species such as invertebrates are limited by the dominance of amenity grassland which provides limited suitability for anything more than a limited range of common and widespread species. Woodland and wetland habitats provide more varied opportunities at a local scale.</td>
</tr>
</tbody>
</table>
Ecological Receptor | Importance | Scoped in/out of detailed assessment
--- | --- | ---
Other species scoped out of the assessment. | | 

Invasive species such as Himalayan balsam and Japanese knotweed are scoped out of the assessment but considered in relation to general precautionary avoidance and mitigation measures to avoid accidental introduction or spread and risk of an offence under the Wildlife and Countryside Act, 1981 (as amended).

**Design Evolution**

9.44 Measures to avoid or reduce potentially adverse effects have been implemented as embedded mitigation throughout the iterative design process. In summary, these measures comprise:

- Integrating habitat links and wildlife corridors within the development layout and Indicative Masterplan, in particular maintaining the wildlife corridor of the Sharoe Brook (‘the Brook’);
- Allocating land within the Site specifically as undisturbed habitat for GCNs (and other species) to be managed to maintain favourable habitat conditions over the long-term;
- Concentrating built development on land of lowest ecological value (i.e. managed amenity grassland within the Golf Course) and avoiding loss of locally more valuable habitat such as woodland and trees as far as practicable;
- Minimizing loss of waterbodies (ponds and ditches) through adjusting the layout of built development and accesses, and ensuring any losses are fully mitigated on at least a 2 for 1 replacement basis with new ponds incorporated within the Indicative Masterplan;
- Avoiding built development within 50m of ponds where possible; and,
- Avoiding the use of culverts in favour of open ditches and swales as part of the sustainable drainage design for the Proposed Development.

9.45 The results of field surveys and desk study were used to inform the design and Indicative Masterplan from the initial concept, and ecological receptors such as ponds and woodland have been avoided so far as possible.

9.46 Results of ecological surveys and assessment conclusions submitted for previous applications indicated that newt mitigation will be a key consideration within the design of the Indicative Masterplan at an early stage.
Close liaison has been maintained across the design and assessment team, involving the ecologists, landscape, hydrology and lighting specialists, designers and planning team throughout the design evolution, which ensured that habitat links and allocated space for GCN mitigation was designed-in from an early stage; with ecological buffers, pond creation and native-species planting key components of the Indicative Masterplan. During the ongoing project team discussions, an internal road within Parcel B was also re-positioned further east to maintain a wider ecological corridor along the western boundary of the Site, avoiding the risk of isolating ponds and moving traffic further away from these habitats and their associated wildlife.

The 2016 habitat survey and bat activity survey results identified key foraging and commuting corridors and this information, in conjunction with information gathered from the extended Phase 1 habitat survey, was used to inform the operational lighting design, avoiding potentially more sensitive flyways and minimizing light spill. The lighting design has also drawn upon guidance provided in the Bat Conservation Trust publication - *Bats and Lighting in the UK* (Version 3 - May 2009). The sensitive lighting scheme around residential development and the Training Facility will maintain dark corridors (full details: Chapter 12 Lighting). Lighting will be positioned away from trees and woodland edge when required with the use of glare controlling louvres, baffles, cowls and light shields to avoid light spill. Lux levels will be restricted to 3.0 or below outside of the immediate residential zones, as shown on Figures 3.5 - 3.10 within Appendix 12.3.

### Potential Effects

The following section discusses the potential effects which are considered to be significant prior to mitigation, with non-significant effects discussed separately within Appendix 9.4: Non-Significant Effects. A summary of effects is provided in Table 9.10.

#### Construction Effects

Potential construction phase ecological effects associated with the Proposed Development are considered to relate to:

- Direct land take (habitat loss) to accommodate the Proposed Development;
- Temporary disturbance and land take for materials storage and construction areas;
- Disturbance to, fragmentation or severance of connecting habitat or potential commuting routes within and adjacent to the Site;
- Disturbance and pollution resulting from site clearance and construction, plant and vehicles movements and site workers’ activities (including indirect effects such as noise and vibration, dust, lighting sources, pollution from surface water run-off).

The construction phase therefore has the potential to result in effects on habitats and their ability to support protected and notable species. Habitat loss and disturbance such as noise and light pollution during construction could affect breeding birds, bat roosts and foraging and commuting behaviour, amphibians, small mammals such as hedgehog and cause the inadvertent introduction or spread of invasive species.

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See Table 1.2.
9.52 Following embedded mitigation it is not anticipated that there will be any significant effects on habitats, birds, and hedgehog, and therefore these effects (along with general good practice measures and associated biodiversity enhancements) are discussed within Appendix 9.4: Non-significant Effects.

9.53 The following section focusses on the potential for significant effects on bats and amphibian species (specifically GCN and common toad).

*Bats*

9.54 Potential effects on bats during construction relate to Loss or severance of foraging or commuting habitat. At this hybrid stage the exact number or location of trees requiring removal, or whether they may support bat roosts cannot be confirmed. These effects are discussed within Appendix 9.4: Non-significant effects.

9.55 The bat surveys that have been undertaken indicate that the entire Site is used for foraging and/or commuting bats, with species composition over the years consistently being low to moderate activity of common pipistrelle and low levels only of Myotis, noctule and brown long-eared bats.

9.56 Core Sustenance Zones (CSZ) are defined core foraging areas surrounding a bat roost which are considered to provide an essential resource to maintain the resilience and conservation status of a roost (Collins *et al*, 2016). The loss of amenity grassland, which comprises the majority of habitat removed for the Proposed Development, will have a negligible effect on bat foraging or commuting opportunities as it provides relatively low foraging value. woodland, scrub and wetland habitats (for example along the Sharoe Brook valley, boundary woodlands, ponds and marginal vegetation around the Site) are considered likely to be more important as foraging and commuting resources for bat roosting within the local area, but activity levels recorded during 2016, and in earlier surveys, do not indicate that the habitats are of greater importance at a district (Preston) level.

9.57 The overall layout has been designed to maintain habitats of higher value to bats such as woodland and woodland edge which are likely to be used as roosts, and (along with ponds and associated marginal habitats rich in insect prey) for foraging and commuting.

9.58 The majority of habitat lost to development comprises amenity grassland of low value to foraging bats. Other, higher value foraging areas will also be affected but to a much lesser extent. Bats will continue to have access to a range of suitable foraging and commuting habitats, including along the Sharoe Brook woodland corridor, retained and protected as part of the embedded design. The retained habitats, along with the implementation of the lighting design to ensure ‘dark’ corridors for bat flight, will also avoid fragmentation of severance of commuting and dispersal routes. It is considered that bats will readily cross local roadways and development edges as they already do in the local residential areas when accessing the Site. The construction phase is likely to cause a degree of temporary disturbance and disruption to parts of the Site that will at times be used by bats, but development is to be undertaken in Phases and hence areas of undisturbed habitat will remain throughout the construction period.
9.59 The loss of habitats within the Site is most likely to affect bats present in the vicinity of the Site and surrounding communities, but is unlikely to affect the favourable conservation status of bats across Preston or within the County. Habitat loss is assessed to be a medium magnitude effect on commuting and foraging bats. Much of this will be temporary during construction, but some effects are likely to be discernible over the long term. This will result in a moderate significant effect and hence is significant and will require mitigation.

Amphibians (GCN and Common Toad)

9.60 Amphibian receptors considered within this assessment are GCN and toad, with the potential effects and suitable mitigation being similar for both species, although GCN are afforded a significantly higher degree of legal protection. GCN and toads are therefore discussed together for brevity and to avoid repetition within this chapter. No other protected or notable amphibian species were recorded within the Site but palmate and smooth newt and common frog are present. Measures to safeguard and mitigate effects on GCN and toad will also be of benefit to these other amphibians.

9.61 Potential significant construction phase effects relate to:

- Direct loss of breeding ponds and terrestrial habitat used by GCN and toads for breeding, foraging and shelter;

- Fragmentation or isolation of ponds and suitable terrestrial habitat, affecting the ability of individuals to disperse within the Site or into or out of the wider area (severance of the ecological network); and,

- Direct harm or disturbance to individuals during construction work.

9.62 Approximately 5.5ha of ‘core’[^85] habitat will be lost as a result of the Proposed Development within Development Parcels A, B, C, D, E, G and the Training Facility, and three ponds will be lost (Pond P0, P4 and P11). Given the existing level of information available on GCN presence, an equal area of habitat has been set aside to be enhanced and specifically managed for amphibians as part of the embedded mitigation design (see Figure 1.1) along with other Site-wide habitat enhancement and management measures. The assessment of effects is based upon this embedded provision.

9.63 None of the three ponds to be lost are confirmed breeding ponds from the series of surveys undertaken to date (see Appendix 9.2: Amphibians) but are nonetheless likely to be used by GCN and toads for foraging as part of the wider network of waterbodies and associated terrestrial habitat. In the context of the Site, and given the extensive network of waterbodies present in the Preston area, the loss of these three ponds will reduce the available aquatic habitats at a Local level. This will be a medium magnitude effect on potential breeding habitat without mitigation in place.

9.64 Appendix 9.2 Amphibians Table 4.2 provides a description of habitats lying within the different Development Parcels.

[^85]: Defined by Natural England as terrestrial habitat <50m from a great crested newt pond
Overall, the Proposed Development will result in the loss of up to 50% of ‘core’ terrestrial habitat around ponds on Site. This is a precautionary estimate, in line with current guidance provided by Natural England and based on the conservative assumption that all ponds across the Site are regarded as ‘GCN ponds’, even though some have never been shown to support breeding GCN and are of lower habitat suitability for this species.

In the absence of mitigation, terrestrial and aquatic habitat loss together will have a permanent substantial magnitude adverse effect on the favourable conservation status of the local GCN population and will be significant in the absence of mitigation. Specific mitigation is therefore required, and is set out later in this chapter.

Effects on common toad will be very similar to those on GCN, and for this species are therefore (on a precautionary basis) medium/high and significant.

Fragmentation of, and disturbance to, terrestrial and aquatic habitats during the construction phase will, without mitigation, adversely affect dispersal, foraging and sheltering opportunities and could adversely affect the favourable conservation status of the local GCN population. The potential magnitude of this effect is however reduced by the fact that the majority of the development areas lie within lower suitability amenity grassland which is of relatively low value to GCNs, while more suitable habitats (woodland, scrub and rough grassland) have been maintained as part of the Proposed Development around and between retained ponds as shown in the Indicative Masterplan. These will provide continued foraging and refuge habitat and will also maintain links between ponds, avoiding fragmentation or severance which would result in GCNs within pond clusters becoming isolated from other groups across the Site or in neighbouring nearby locations.

However, it is likely that some short or medium-term (during the various construction phases) indirect disturbance and disruption to habitats will occur, which is considered to be a medium magnitude effect on GCN. This is a moderate and significant effect and requires mitigation.

Effects of indirect disturbance are assessed as moderate/minor for common toad, requiring mitigation.

Indirect effects from pollution and site surface runoff or local changes to drainage or hydrology are possible across parts of the Site during the separate phases of construction, but due to the likely extended timescale of this phasing over a number of years, the risk of such adverse effects will be short-term (construction risk period likely less than three years during any individual phase), reversible and contained within discrete areas and not across the whole Site or adjacent areas. There are relatively few off-site ponds or watercourses adjacent to the Site (Figure 9.1), and potential runoff/pollution receptors are considered likely to be waterbodies and associated habitat within the Site, the Brook and downstream receiving waterbodies. The magnitude of potential effects on ponds and habitats on Site is considered to be medium in the absence of pollution control measures or other forms of construction site runoff mitigation. Due to the distance between working areas and the Brook, any pollution to offsite areas is unlikely and negligible.

In addition to the above, in the absence of mitigation, construction activity could lead to the death or injury of individual GCNs and toads if present within active working areas. This is considered to represent a medium to substantial magnitude effect on GCN (without mitigation) and is a moderate and significant effect (Table 2.3) requiring specific mitigation.
Effects on common toad are considered to be of minor/medium magnitude on the population and significant.

**Operational Effects**

Post-construction, the Site will comprise the new Training Facility and residential development with associated infrastructure and provision for public recreation and amenity. Associated with this will be areas of retained and enhanced habitat and newly-created green space forming part of a Site-wide Landscape Strategy.

There will be no additional habitat loss over and above that discussed under construction phase effects.

Post-construction ecological effects relate to the potential for increased disturbance arising from new residents (including introduction of domestic pets) and visitors using the Training Facility and Public Open Space, movement of vehicles around and out of the Site, new permanent lighting across the Site, and changes to surface water drainage and waterbodies from the installed drainage scheme. The Site is currently under active management as a recreational golf course and is also (informally) used by dogwalkers and other members of the public and hence is already subject to a certain level of management, disturbance and human disruption.

Significant effects prior to mitigation are anticipated on GCN only; operational effects on all other important ecological receptors, including bats, are discussed in Appendix 9.4: Non-Significant Effects.

**Amphibians (GCN and Common Toad)**

The potential for disturbance effects on ponds across the Site due to increased public pressure could potentially reduce the potential suitability of aquatic habitat for GCNs and toads (see also Habitats in Appendix 9.4: Non-significant effects). The potential for fish to be introduced and for waterfowl numbers to increase through human interference (both predate on juvenile GCNs and can adversely affect local populations) has been considered. However, under current conditions there is ongoing recreational use of the Site, waterfowl are already recorded as using several of the ponds on Site, and fish eggs are commonly introduced to ponds on the feet of birds as well as through human interference. The additional influence of increased public presence across the Site compared to potential change under existing conditions is therefore unlikely to be large, but has been assessed on the precautionary basis that some additional predation and effects from fish and waterfowl could affect the favourable conservation status of GCNs (and to a lesser degree toads) within the Site. This would be a medium magnitude and moderate significance effect and would require mitigation.

No other additional effects, above those discussed under Construction, are anticipated.

**Mitigation and Enhancement Measures**

The following section details mitigation and enhancement measures to address identified significant effects. Measures are included for non-significant effects in Appendix 9.4: Non-Significant Effects, including general good practice measures, ensuring legislative compliance and enhancements to achieve biodiversity benefit.
9.81 Enhancements are described that address overall Site biodiversity, maintenance of wildlife corridors and long-term habitat gain as an integrated approach. These address the overall biodiversity interests of the Site throughout the construction phases and as part of a long-term management strategy for the habitats and green spaces across the completed development throughout its lifetime.

Overall Mitigation (applicable to bats, GCN, toads and other species)

9.82 An Ecological Clerk of Works (ECoW) will be appointed prior to commencement of construction activities to ensure the implementation of all mitigation measures detailed below.

9.83 Specific measures relating to works during the construction phase will be set out within a Construction Environmental Management Plan (CEMP) and habitat management proposals will be detailed within a Habitat Management Plan (HMP) and Woodland Management Plan (WMP).

9.84 The CEMP, HMP and WMP will all include monitoring measures to ensure that the required actions to achieve objectives are properly implemented, allowing remedial actions or revisions to management practices to be implemented if necessary and to provide monitoring reports to nominated organisations so that progress can be tracked.

9.85 Through the Proposed Development, the Applicant intends to establish a Management Company to manage retained habitats and implement the above Plans.

9.86 Landscaping and habitat creation will be undertaken to complement retained habitats across the Site and will include native species appropriate to the locality as illustrated on the Indicative Masterplan 1.1. Habitat creation and long-term management will offset habitat lost through development and enhance the quality and value of these habitats for the benefit of a range of species.

9.87 The HMP will include aftercare and long-term management proposals for all retained and established habitats. The CEMP, HMP and WMP will also include specific requirements for species of Principal Importance that currently occupy the Site or are likely to be present. The HMP and WMP will include measures to manage the ecological effects likely to result from increased recreational pressure on retained and created habitats, and will contain a monitoring and review programme.

9.88 Details of landscape planting, habitat creation and species mitigation (such as pond creation and erection of bird and bat boxes) will be submitted to and approved in writing by PCC.

9.89 As shown on the Indicative Masterplan 1.1, landscape planting and pond creation will be undertaken across the Site. Planting will include trees, shrubs and grasslands, and incorporates ‘stepping-stone’ habitats to establish a linked mosaic of habitats for wildlife. Further planting along woodland boundaries will protect and buffer woodland areas from human disturbance and new species—rich meadow grasslands will be established providing a coherent network of habitats for biodiversity linked to the wildlife corridor of the Brook. A summary is provided within Appendix 9.4: Non-significant Effects.

Bats

Mitigation
Appropriate tree protection measures will be implemented for all retained woodland, hedgerow and individual trees. These will include establishing exclusion and root protection zones around woodlands and trees and other sensitive habitats in accordance with current applicable standards (for example BS5837:2005 Trees in relation to construction – recommendations). These will be maintained throughout the construction phases.

Construction activities will not be permitted to take place within retained habitats (controlled through the CEMP), thereby protecting foraging and commuting areas. Construction lighting will be controlled in line with the lighting design and the CEMP to avoid excessive light spill and to maintain dark corridors along woodlands. Working periods will be restricted and defined in the CEMP, such that times when bats are active (dawn and dusk) will largely be avoided. The measures will minimise incidental damage and disturbance to individual trees, woodland habitats and hence will serve to protect potential roost locations, and foraging and commuting habitat used by bats.

A variety of bat boxes will be installed around the Site on suitable trees and structures to provide roost opportunities. These will be maintained as part of the HMP for the Site.

Landscape planting including tree, shrub and species-rich meadow grassland will be undertaken across the Site. Replacement and new woodland, shrub and meadow grassland planting will be undertaken using native species designed to attract a diversity of insect prey and provide strengthened commuting and foraging corridors as well as future roost potential. Chapter 12 Lighting also includes additional planting to reduce light spill.

This, along with appropriate management implemented through the HMP and WMP will maintain foraging resources, which may also be supplemented by the resource provided by residential gardens as they mature. The long-term management of habitats across the Site through the HMP will include objectives to establish and maintain favourable habitat conditions for roosting, commuting and foraging bats.

Amphibians (GCN and Common Toad)

Mitigation

Habitats suitable for GCN and toads such as ponds, woodlands, rough grassland and areas of scrub will be retained as far as practicable within an established ecological and open space network. Where trees, hedgerow, woodland or scrub are removed to facilitate development, replacement planting will be undertaken to maintain net resources. The ecological network of habitats across the Site will be protected and enhanced to maintain the GCN metapopulation within its current range and ensure the continued favourable conservation status of GCN. Measures detailed below specifically focus on the Site GCN population; however all measures will also mitigate effects on common toad.

The following protection and mitigation measures will be implemented:

- Trapping and exclusion of GCN from all construction areas under European Protected Species licence issued by Natural England and implementation of agreed advance mitigation where necessary, prior to commencing works;

- Adoption of safe working practices through the CEMP under the advice of a licensed ecologist where necessary to prevent accidental killing or injury of individuals;
• Habitat and new pond creation to mitigate for the loss of three ponds and associated terrestrial habitat. Habitat creation and on-going management will provide suitable conditions for breeding, foraging, shelter and dispersal. Ponds will be replaced on at least a 2 for 1 basis. Creation of new overwintering (hibernaculae) and refuge features at a number of locations around the Site associated with ponds to aid GCN survival year-round and to strengthen habitat connectivity and dispersal opportunities. Set-aside habitat areas to be enhanced and managed specifically for GCNs as shown on the Indicative Masterplan 1.1,

• Positive post-construction management of habitat for the species will be ensured through the Landscape Strategy, HMP along with a Site-wide HMP and the WMP to maintain the favourable conservation status of GCN populations on Site. The HMP will be agreed with PCC.

• Sustainable Drainage System (SUDS) design for site runoff to ensure attenuation and management of surface runoff and prevent large changes in water levels along the brooks and in the pond habitats. SUDS features will include additional new surface waterbodies such as ponds, swales and ditches which will increase wetland habitat opportunities for GCNs and other species.

9.97 Given that the embedded design includes provision for aquatic and high quality terrestrial habitats for GCNs, and that retained open space within the wider Site provides extensive similar habitat which will maintain breeding, foraging, and movement routes for this species and amphibians in general, it is considered that the favourable conservation status of GCN can be maintained through the implementation of theses mitigation measures.

9.98 All GCN mitigation will be completed by suitably licensed ecologists and under an EPS licence from Natural England. In addition to the above, the scheme will ensure provision of SUDS and other amphibian friendly drainage measures and ensure roads and other infrastructure are carefully designed so as not to pose a barrier to amphibian dispersal. All actions will also mitigate the potential for effects on other amphibian species. Full details will be presented in the CEMP.

9.99 Proposed details of mitigation and habitat enhancement for GCN will be agreed with the LPA prior to determination and on consideration of updated survey results (surveys to be undertaken in the 2017 survey season), but it is considered that off-site mitigation and enhancement can be adequately addressed within the Site, in combination with on-site enhancement of Green Infrastructure for this species.

9.100 Approximately 5.5ha of ‘core’ habitat will be lost under the Proposed Development and an equal sized area will be enhanced and specifically managed for GCN. An indicative area for mitigation and enhancement is shown in Figure 1.1.

9.101 Within the primary habitat network there will be core areas established around breeding ponds and key refuge features into which public access is restricted (either by fencing or, more preferably, by sensitive landscaping and structural planting).

9.102 Pond creation will be on at least a two for one basis so a minimum of six new GCN ponds will be created along with associated marginal planting and hibernaculae creation to provide favourable GCN habitat. In addition, SUDS ponds and ditches will also provide new wetland suitable for amphibians.
9.103 Every new pond will have associated with it (within 50m) a refuge structure or hibernaculum, created from the material excavated and arisings from tree, hedge and scrub removal. Tree and hedge stems will be logged, hedge and scrub brash will be chipped and the log and chip arisings will be layered into the refuge bank, interspersed and covered with soil and then turfed. Each refuge bank will either be seeded with a species rich native wildflower mix or be planted with native scrub/shrub. Excess materials derived from pond excavation and vegetation removal, if any remains, will be utilised to create similar refuge features elsewhere in the primary habitat network. Inert materials derived as by-product from construction activities, such as damaged or waste block and brick, could also be utilised within refuge banks to reduce the quantities of any such materials having to be removed from site. The licensed ecologist will need to verify the origin of any such materials prior to their inclusion with refuge features. Arisings from vegetation removal, primarily logged materials, will also be used to create dead wood features within retained plantation areas to increase temporary shelter and foraging opportunities.

9.104 With these mitigation measures in place, defined and agreed as part of a Natural England EPS Mitigation licence, the favourable conservation status of the GCN population will be maintained.

**Residual Effects**

9.105 The majority of assessed ecological effects on habitats and species are not significant and therefore do not require specific mitigation. These have been considered and addressed in Appendix 9.4: Non-significant Effects through good practice measures and local enhancements along with measures to ensure legislative compliance, such as avoiding inadvertent harm to nesting birds during their breeding season.

9.106 Those effects identified as significant relate to bats, GCN and common toad, and targeted mitigation measures have been identified for these species which have formed the focus of the proposed mitigation as described. With mitigation in place, the assessed effects on these ecological receptors are considered to reduce from significant to *not significant* as summarised in Table 9.10.

9.107 Overall it is considered that the mitigation adequately off-sets the likely ecological effects of the Proposed Development in compliance with legislation and Planning Policy and that, with the implementation of the proposed long-term management of the habitats across the Site, overall biodiversity value will be maintained.

9.108 Adverse ecological effects are addressed through embedded design mitigation and mitigation measures directed at specific receptors, including GCNs and bats. With mitigation measures in place, it is considered that there will be no significant residual effects requiring additional compensation measures (other than highly localized effects discernible only at a local or Site geographic scale, which are addressed through good practice mitigation and enhancement measures described in Appendix 9.4).
9.109 The ecological effects of the Proposed Development primarily relate to the loss of habitat used by protected species (bats, GCNs and common toad) and are addressed through the embedded design measures and a series of mitigation measures which will be delivered through a CEMP, HMP and WMP. The need to maintain and if possible reinforce habitat connectivity, ecological networks and the overall biodiversity value of the Site is recognised as an integral part of the Proposed Development and is addressed in this chapter. Overall, with embedded design, mitigation and enhancement measures in place it is considered that the Proposed Development will have no significant residual ecological effects, and that any temporary effects will be at Site or Local level and will be reversible.

9.110 A summary of conformance with relevant local planning policies is set out in Table 9.9 below.
Table 9.9: Ecological Policy Compliance

<table>
<thead>
<tr>
<th>POLICY</th>
<th>Addressed through the Proposed Development</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Central Lancashire Core Strategy 2012-26</strong></td>
<td></td>
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<tr>
<td><strong>Policy 18: Green Infrastructure</strong></td>
<td></td>
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<tr>
<td><strong>Policy 19: Areas of Separation and Major Open Space</strong></td>
<td></td>
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<tr>
<td><strong>Policy 22: Biodiversity and Geodiversity</strong></td>
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<tr>
<td><strong>POLICY EN2 – Protection and enhancement of Green Infrastructure</strong></td>
<td>Policy EN2 is addressed through establishing and maintaining Green Infrastructure as an integral part of the Proposed Development, as shown on the Indicative Masterplan. The ecological value of the Green Infrastructure is central to this and will be delivered through:</td>
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<tr>
<td></td>
<td>• Retention of existing habitats, new planting and habitat protection across approximately 60% of Site as part of the Proposed Development, in particular the ecological corridor of the Sharoe Brook;</td>
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<td></td>
<td>• New planting using native species appropriate to the locality to create diverse habitats suitable for a wide range of species;</td>
</tr>
<tr>
<td></td>
<td>• Integrating new and existing habitats to maintain and strengthen habitat connections across the Site and maintain links with the wider area beyond the Site boundaries;</td>
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<tr>
<td></td>
<td>• Addition of new biodiversity features suitable for a variety of species, providing additional food resources, refuge and shelter, nest sites and hibernation spaces; and</td>
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<tr>
<td></td>
<td>• Ensuring that biodiversity value is maintained and enhanced over the long-term through a Habitat Management Plan for the Site, integrated with the landscape planting strategy and Woodland Management Plan.</td>
</tr>
<tr>
<td><strong>Preston Local Plan</strong></td>
<td></td>
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<tr>
<td><strong>POLICY EN3 – Future Provision of Green Infrastructure</strong></td>
<td>The Proposed Development will make provision for the conservation of the biodiversity of the Site and maintain habitat connectivity and functional ecological links with the wider area (as discussed under Policy EN2). The measures set out include provision for the long-term management and enhancement of habitats and the provision of new features for the benefit of biodiversity.</td>
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<tr>
<td><strong>All developments will where necessary:</strong></td>
<td></td>
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<tr>
<td></td>
<td>• provide appropriate landscape enhancements;</td>
</tr>
</tbody>
</table>
**POLICY**

<table>
<thead>
<tr>
<th>Addressed through the Proposed Development</th>
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<tr>
<td><strong>b) conserve and enhance important environmental assets, natural resources and biodiversity including the City’s ecological network:</strong></td>
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<tr>
<td><strong>c) make provision for the long-term use and management of these areas; and</strong></td>
</tr>
<tr>
<td><strong>d) provide access to well-designed cycleways, bridleways and footpaths (both off and on road), to help link local services and facilities.’</strong></td>
</tr>
</tbody>
</table>

**POLICY EN5 – Areas of Major Open Space**

Development within the Areas of Major Open Space will not be permitted unless the following criteria are satisfied:

- **a) the provisions of Policy EN2 – Protection of Existing Green Infrastructure are fulfilled;**
- **b) development complements and does not compromise the retention within the Area of Major Open Space of a full size 18 hole golf course (unless it can be demonstrated that a need no longer exists for such provision in accordance with NPPF Paragraph 74)**
- **c) development complements and does not compromise the Area of Major Open Space for other leisure and recreational purposes**
- **d) the proposal does not detrimentally affect the visual amenity, landscape amenity, landscape character or nature conservation value of the open space/Area of Major Open Space**
- **e) the identity of the neighbourhoods/urban communities is maintained’**

Policy EN2 is discussed above. Applicable to ecology regarding point d).

The nature conservation value of the area of major open space will be maintained through the described in relation to Policy EN2.

**POLICY EN10 Biodiversity and Nature conservation**

In Preston, Biodiversity and Ecological Network resources will be protected, conserved, restored and enhanced:

No nationally or locally designated sites (Ramsar, SPA, SAC, SSSI, or Biological Heritage Sites or Local Nature Reserves etc.) are affected by the Proposed Development. No geological heritage sites are affected. S41 Habitats of Principal Importance listed in the NERC Act are present within the Site and have been taken into consideration as part of the evolving Indicative Masterplan.
### POLICY

**Priority will be given to:**

1. Protecting and safeguarding all designated sites of international, national, regional, county and local level importance including all Ramsar sites, Special Protection Areas, Special Areas of Conservation, national nature reserves, sites of special scientific interest and biological heritage sites, S41 Habitats of Principal Importance, geological heritage sites, local nature reserves and wildlife corridors together with any ecological network approved by the Council;

2. Protecting, safeguarding and enhancing habitats for European, nationally and locally important species;

3. The ecology of the Site and the surrounding area (safeguarding existing habitats/features such as but not exclusive to trees, hedgerows, ponds and streams), unless justified otherwise.

4. When considering applications for planning permission, protecting, conserving, restoring and enhancing Preston’s ecological network and providing links to the network from and/or through the Proposed Development site.

### Addressed through the Proposed Development

layout and embedded design for the Proposed Development, which has sought to minimize as far as practical any reduction in such habitats. Mitigation measures will include the replacement of S41 habitats to include wetland (ponds and ditches), woodlands and shrub areas.

Additional areas of Priority Habitats to be added through the landscape strategy as shown on the Indicative Masterplan include:

- Arable and horticulture (orchard and community garden)
- Boundary (hedgerows)
- Freshwater (ponds and ditches)
- Grassland (species rich meadows)
- Woodland (broad leaved deciduous native species)

Wildlife corridors and ecological networks across the Site are an integrated part of the Indicative Masterplan design, with areas of linked woodland, hedgerow, scrub, meadow grassland and a network of waterbodies, watercourses and ditches forming breeding, foraging, movement and dispersal corridors around and through the Proposed Development.

A suite of ecological surveys supported by desk study have been undertaken to inform the assessment, and to identify the presence or potential presence of valued ecological receptors, including protected and notable habitats and species. The ecological impact assessment has considered the potential effects of the Proposed Development on protected and notable habitats and species, including bats, GCNs, water voles, otter, birds, badgers and hedgehogs.

The Indicative Masterplan has evolved taking into account habitats most likely to support protected and notable species, such as ponds and woodlands, and has sought to avoid direct effects on these areas as far as practicable as embedded mitigation. Mitigation measures (underpinned by licensed approval from Natural England as an essential prerequisite where necessary) will ensure that there will be no significant or long-term adverse effects on species populations and that the ‘favourable conservation status’ of protected species will be maintained.

---

**EN10 Continued...**

The following definition of what constitutes damage to natural environment assets will be used in assessing applications potentially impacting upon assets:

Ecological networks are an integrated part of the Proposed Development. The majority of built development lies within areas of species-poor amenity managed grassland which has limited value as an ecological corridor and generally low biodiversity value. The majority of the more valuable habitats which contribute to the functioning of the ecological network (boundary
### POLICY

1. Loss of the undeveloped open character of a part, parts or all of the ecological network;
2. Reducing the width or causing direct or indirect severance of the ecological network or any part of it;
3. Restricting the potential for lateral movement of wildlife;
4. Causing the degradation of the ecological functions of the ecological network or any part of it;
5. Directly or indirectly damaging or severing links between green spaces, wildlife corridors and the open countryside; and
6. Impeding links to ecological networks recognized by neighbouring planning authorities.

### POLICY EN11 – Species Protection

Planning permission will not be granted for development which would have an adverse effect on a protected species unless the benefits of the development outweigh the need to maintain the population of the species in situ. Should development be permitted that might have an effect on a protected species planning conditions or agreements will be used to:
- a) Facilitate the survival of the individual species affected;
- b) Reduce the disturbance to a minimum; and
- c) Provide adequate alternative habitats to sustain the viability of the local population of that species.

### Addressed through the Proposed Development

- Mitigation has been provided both within the embedded design and as specific measures to ensure that protected and notable species are safeguarded. A suite of ecological surveys supported by desk study have been undertaken to inform the assessment, and to identify the presence or potential presence of valued ecological receptors, including protected and notable habitats and species. The ecological impact assessment has considered the potential effects of the Proposed Development on protected and notable habitats and species, including bats, GCNs, water voles, otter, birds, badgers and hedgehogs.
- The Indicative Masterplan has evolved taking into account habitats most likely to support protected and notable species, such as ponds and woodlands, and has sought to avoid direct effects on these areas as far as practicable as embedded mitigation. Further mitigation measures (underpinned by licensed approval from Natural England as an essential prerequisite) will ensure that there will be no significant or long-term adverse effects on species populations and that the ‘favourable conservation status’ of protected species will be maintained.
- Baseline surveys have been undertaken to characterize the habitats and species present or likely to be present and to help describe the ecological interest of the surveyed area. Surveys have been undertaken by appropriately qualified and experienced ecologists, licensed to survey for European protected species where necessary. Surveys have been scoped and undertaken in accordance with published guidance (including NE Standing Advice and CIEEM advice notes). Local Biological records were obtained from LERN and other sources as part of the desk study.
<table>
<thead>
<tr>
<th>POLICY</th>
<th>Addressed through the Proposed Development</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>for the ecological baseline. The ecological assessment addresses potential effects on ecological receptors (also known as ecological receptors), and includes a description of avoidance, mitigation and enhancement measures.</td>
</tr>
</tbody>
</table>
Cumulative Effects

9.111 Potential cumulative ecological effects arising from the Proposed Development in combination with other developments is considered in this section. The key receptors identified as potentially vulnerable to cumulative effects are:

- Cumulative loss of priority habitats;
- Fragmentation of habitat, loss of ecological networks and potential isolation of species; and,
- Cumulative effects on protected species, specifically GCNs and bats.

Cumulative habitat loss

9.112 There will inevitably be a cumulative loss of habitats in the Local and Preston area should all the consented and in-planning developments go ahead. However, all of these have addressed effects arising from land take and habitat loss at the planning application stage through a variety of mitigation measures, including habitat creation and enhancement, new planting and maintenance of connecting habitats. The current Proposed Development mainly affects amenity grassland of limited ecological value, and provides for the retention of approximately 60% of the Site for wildlife habitat and open space which will be maintained and managed through a HMP for the benefit of biodiversity over the long-term. As a result, no significant cumulative residual effects are predicted.

Cumulative effects on habitat fragmentation, ecological networks and protected species

9.113 With mitigation in place no significant effects are predicted in relation to habitat fragmentation and isolation for other assessed developments, with ecological networks and habitat connections maintained.

9.114 The developments listed in Table 2.4 have addressed a range of ecological considerations, including potential effects on GCN, birds, bats, trees, water voles, hedgerows and reptiles. GCN were only identified as present and requiring mitigation at two of the cumulative sites listed (see Appendix 9.5: Ecology Table of Cumulative Developments) have GCN present No significant residual effects have been identified within the ecological reports provided for these planning applications, with potential adverse effects all being addressed through on-site mitigation.

9.115 Developments to the north of the Site are separated from it by Tom Benson Way, acknowledged to be a barrier to GCN dispersal north-south. Hence it is considered that there will be no cumulative effects on GCN dispersal or metapopulations within the Site from developments to the north. Development to the west of the Site, primarily in relation to Cottam Hall (shown on Figure 16.1) has ensured the maintenance of the favourable conservation status of GCN through on-site mitigation. This development is separated from the Site by a substantial area of built development and intervening roads and it is unlikely that GCN will disperse or have strong population links between these areas.
9.116 The nearest relevant development is Cottam Hall Commercial, where mitigation measures include the creation of a nature reserve area with new ponds to maintain a small population of GCN. Mitigation suitable to maintain the favourable conservation status of GCN is also part of the current Proposed Development. Potential dispersal links to the south are also maintained with set-aside habitat at the southern end of the Site. Mitigation measures provided for the Proposed Development include set-aside GCN habitat and continued habitat connectivity around the Site which maintains suitable on-Site conditions and dispersal links which will be maintained and managed over the long-term through the HMP and WMP.

Conclusion

9.117 Effects are assessed to be not significant in-combination or cumulative on the favourable conservation status of bats or GCN, nor on local populations of other species including common toad, birds and hedgehogs with mitigation in place and maintained through an agreed HMP.
### Table 9.10: Summary of Ecology and Nature Conservation Effects and Mitigation

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Effect</th>
<th>Phase (Construction / Operation)</th>
<th>Embedded Mitigation</th>
<th>Sensitivity of Receptor</th>
<th>Magnitude of Change</th>
<th>Level of Effect and Significance Prior to Mitigation</th>
<th>Mitigation</th>
<th>Enhancement</th>
<th>Level of Effect (and Significance) after Mitigation</th>
<th>Nature of effect (short term / medium term / long term, permanent / temporary, direct / indirect)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Habitats</td>
<td>Habitat Loss</td>
<td>Construction</td>
<td>Layout avoids higher value habitats and retains ponds, marginal vegetation and woodland where possible</td>
<td>Local/district</td>
<td>Minor</td>
<td>Minor</td>
<td>Not required. Good practice measures provided within CEMP prior to construction phase.</td>
<td>Habitat Management Plan (HMP)</td>
<td>Minor. Not significant.</td>
<td>Direct and temporary. Permanent.</td>
</tr>
<tr>
<td>Habitats</td>
<td>Pollution</td>
<td>Construction</td>
<td>N/A</td>
<td>Local/district</td>
<td>Minor</td>
<td>Minor</td>
<td>Not required. Good practice measures provided within CEMP prior to construction phase.</td>
<td>HMP</td>
<td>Negligible. Not significant.</td>
<td>Indirect. Temporary.</td>
</tr>
<tr>
<td>Habitats</td>
<td>Increased public pressure and pollution</td>
<td>Operation</td>
<td>N/A</td>
<td>Local/district</td>
<td>Negligible</td>
<td>Negligible</td>
<td>Not required.</td>
<td>HMP</td>
<td>Negligible. Not significant.</td>
<td>Indirect. Permanent.</td>
</tr>
<tr>
<td>Birds</td>
<td>Habitat loss</td>
<td>Construction</td>
<td>Avoidance of woodland.</td>
<td>Local/county</td>
<td>Minor</td>
<td>Negligible/ minor</td>
<td>Not required. Good practice measures required to be detailed within CEMP prior to construction phase.</td>
<td>CEMP and HMP</td>
<td>Negligible. Not significant.</td>
<td>Direct and indirect. Temporary.</td>
</tr>
<tr>
<td>Species</td>
<td>Impact Description</td>
<td>Phase</td>
<td>Mitigation Measures</td>
<td></td>
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<tr>
<td>Birds</td>
<td>Cat predation</td>
<td>Operation</td>
<td>N/A</td>
<td>Local/county</td>
<td>Minor</td>
<td>Negligible/minor</td>
<td>Not required</td>
<td>HMP</td>
<td>Minor. Not significant.</td>
<td>Indirect. Permanent.</td>
</tr>
<tr>
<td>Bats</td>
<td>Roost loss, lighting and noise disturbance to roosts/</td>
<td>Construction</td>
<td>N/A</td>
<td>County</td>
<td>Negligible/minor</td>
<td>Negligible/minor</td>
<td>Not required</td>
<td>Construction Environmental Management Plan (CEMP) and HMP</td>
<td>Negligible. Not significant.</td>
<td>Direct and indirect. Temporary.</td>
</tr>
<tr>
<td>Bats</td>
<td>Loss or severance of foraging or commuting habitat</td>
<td>Construction</td>
<td>N/A</td>
<td>County</td>
<td>Medium</td>
<td>Moderate</td>
<td>CEMP prior to construction phase</td>
<td>HMP</td>
<td>Minor. Not significant.</td>
<td>Direct and indirect. Temporary.</td>
</tr>
<tr>
<td>Species</td>
<td>Impact Description</td>
<td>Stage</td>
<td>County</td>
<td>Medium</td>
<td>Moderate</td>
<td>Approval Required</td>
<td>Harm Potential</td>
<td>Duration</td>
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<tr>
<td>Great crested newt</td>
<td>Fragmentation/isolation of ponds</td>
<td>Construction</td>
<td>County</td>
<td>Medium</td>
<td>Moderate</td>
<td>EPS Licence, CEMP and Method Statement require prior to construction</td>
<td>HMP</td>
<td>Negligible. Not significant.</td>
<td>Permanent. Direct.</td>
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<tr>
<td>Great crested newt</td>
<td>Indirect pollution</td>
<td>Construction</td>
<td>County</td>
<td>Medium</td>
<td>Moderate</td>
<td>EPS Licence, CEMP and Method Statement require prior to construction</td>
<td>HMP</td>
<td>Negligible. Not significant.</td>
<td>Temporary. Indirect.</td>
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</tr>
<tr>
<td>Great crested newt</td>
<td>Degradation of ponds</td>
<td>Operation</td>
<td>N/A</td>
<td>County</td>
<td>Medium</td>
<td>Moderate</td>
<td>N/A</td>
<td>HMP</td>
<td>Negligible. Not significant.</td>
<td>Permanent. Indirect and Direct.</td>
</tr>
<tr>
<td>Common Toad</td>
<td>Degradation of ponds</td>
<td>Operation</td>
<td>N/A</td>
<td>District</td>
<td>Medium</td>
<td>Moderate</td>
<td>CEMP</td>
<td>HMP</td>
<td>Negligible. Not significant.</td>
<td>Permanent. Indirect and Direct.</td>
</tr>
</tbody>
</table>
10 FLOOD RISK, HYDROLOGY AND DRAINAGE

Summary

Chapter 10 assesses the likely significant effects of the Proposed Development on flood risk, hydrology and drainage in line with current policy and legislation. The assessment identifies the potential effects occurring through the construction and operation of the development and outlines the mitigation measures required to offset significant environmental effects.

The majority of the Site is located within Flood Zone 1 (low risk of flooding) on the Environment Agency Flood Map for Planning. Areas of the Site immediately adjacent to Sharoe Brook are shown within Flood Zones 2 (moderate risk of flooding) and Flood Zone 3 (high risk of flooding). There are numerous surface water features on site including ponds, land drains, Sharoe Brook and its tributary.

An assessment has been undertaken to assess the potential effects of the development from flood risk, surface water drainage, foul drainage and groundwater sources. SuDS will be implemented on site as part of layout of the Proposed Development (embedded mitigation). Significant effects in EIA terms have been identified prior to mitigation measures as follows:

- During the construction phase there is potential to effect the water quality in watercourses and geological aquifers. Surface water runoff has the potential to contain high levels of pollutants from chemical and fuel spillages.

- There is also potential for surface water runoff during the construction phase to cause siltation of waterbodies.

The production and incorporation of a Construction Environmental Management Plan and Surface Water Management Plan will ensure that surface water runoff is successfully managed on site during the construction phase.

The embedded mitigation and mitigation measures will ensure that flood risk, drainage and hydrology are not significantly affected during the construction and operation phases of the Proposed Development and therefore no significant effects are anticipated in EIA terms. All other effects have been assessed as non-significant.

No significant effects are anticipated.
Introduction

10.1 This chapter, prepared by Waterco Consultants, presents information relating to: flood risk to the Site and the potential effects of the Proposed Development on flood risk elsewhere; how surface water and foul flows from the Proposed Development will be managed; and, the potential effects on hydrology.

10.2 The Proposed Development will include up to 450 dwellings with associated roads, open space and a new first team Training Facility for Preston North End (PNE) football club, as outlined in Figure 1.1 Indicative Masterplan. The full development proposal is described in Chapter 5.

10.3 The effects of flood risk to the Site have been assessed from a range of sources including fluvial, tidal, surface water, sewer flooding, groundwater and artificial sources.

10.4 This assessment determines the relative significance of flood risk, drainage and hydrology effects. Where applicable, mitigation and enhancement measures have been identified and residual effects evaluated. Cumulative effects between the Proposed Development and other committed development in the surrounding area has also been assessed.

10.5 The assessment covers both the construction and operational phases of the Proposed Development.

10.6 A site-specific Flood Risk Assessment and Drainage Strategy has been prepared for the Proposed Development site. This is included as Appendix 10.1.

Legislation, Policy and Guidance

10.7 As part of the assessment, a review of legislation, planning policy and relevant guidance documents will be undertaken. The Environmental Statement will refer to the various documents and how they have been considered and the relevant points addressed. The relevant documents are:

- Water Framework Directive (WFD) 2000/60/EC
- Directive on Environmental Quality Standards (EQSD) 2008/105/EC
- Water Act 2014
- Water Resources Act 1991
- Flood and Water Management Act 2010
- Environmental Protection Act 1990
- The Land Drainage Act 1991
- The Groundwater (England and Wales) Regulations 2009
- Environmental Permitting (England and Wales) Regulations 2010
- Environmental Protection (Duty of Care) Regulations 1991
- Environmental Damage (Prevention and Remediation) Regulations 2015
- Central Lancashire Adopted Core Strategy
Water Framework Directive (WFD) 2000/60/EC

10.8 Published in December 2000, the directive aims to preserve, restore and improve the water environment. It is a legal requirement within England and Wales, transposed into law through the Water Environment (Water Framework Directive) (England and Wales) (2003) to record data within River Basin Management Plans. River Basin Planning is managed in six year cycles.

10.9 The environmental objectives of the WFD for surface waters include:

- Prevent deterioration in the status of all bodies of surface water;
- Protect, enhance and restore all bodies of surface water, with the aim of achieving good surface water status at the latest 15 years after the date of entry into force of this Directive (2015);
- Protect and enhance all artificial and heavily modified bodies of surface water, with the aim of achieving good ecological potential and good surface water chemical status at the latest 15 years after the date of entry into force of this Directive (2015). There are five classes of rating which are; high, good, moderate, poor or bad. The ecological and chemical status of the waterbody is assessed, and the overall status is reflective of which of these is worst rated.
- Implementation of necessary measures, with the aim of progressively reducing pollution from priority substances and ceasing or phasing out emissions, discharges and losses of priority hazardous substances.

Directive on Environmental Quality Standards (EQSD) 2008/105/EC

10.10 This directive establishes the environmental quality standards (EQS) for priority substances and certain other pollutants in surface waters.

10.11 With reference to the WFD, good chemical status is achieved when a water body complies with the EQS for all the priority substances and certain other pollutants listed in the EQSD.


10.12 Governs the control of water abstraction, discharge to water bodies, water impoundment, conservation and drought provision.

Flood and Water Management Act 2010

10.13 Provides details on the management of risks associated with flooding and coastal erosion.

Environmental Protection Act 1990

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88 Water Act 2014
89 Water Resources Act 1991
90 Flood and Water Management Act 2010
91 Environmental Protection Act 2012
10.14 Provides details for identifying and dealing with waste, emissions, contaminated land and water resources.

   The Land Drainage Act 1991\(^{92}\)

10.15 Establishes the regulation of ordinary watercourses by Local Authorities and Internal Drainage Boards.

10.16 Outlines that a watercourse should be maintained by its owner so that the flow of water is not impeded.

10.17 The riparian owner must accept the natural flow from upstream but does not need to carry out works to cater for increased flows which may result from works carried out upstream.

   The Groundwater (England and Wales) Regulations 2009\(^{93}\)

10.18 Outlines the requirements for the protection of groundwater against pollution and deterioration from hazardous substances and non-hazardous pollutants.

   Environmental Permitting (England and Wales) Regulations 2010\(^{94}\)

10.19 Provides a consolidated system of environmental permitting including the discharge of water and groundwater activities.

   Environmental Protection (Duty of Care) Regulations 1991\(^{95}\)

10.20 Ensures that waste is properly imported, produced, treated and / or stored on site and adequately packaged for transportation and disposed of through issue of environmental permits.

   The Environmental Damage (Prevention and Remediation) (England) Regulations 2015\(^{96}\)

10.21 Aim to prevent and remedy damage to a protected species, natural habitat, a site of special scientific interest, water or land.

   The Water Environment (Water Framework Directive) (England and Wales) Regulations 2003\(^{97}\)


   National Planning Policy Framework (NPPF) (Framework)\(^{98}\)

10.23 The Framework and the associated Practice Guide (NP PG) advise on how planning can take account of the risks associated with flooding and coastal changes in the plan-making and the application process.

10.24 In accordance with Paragraph 100 of the Framework, a sequential risk based approach should be applied to the location of development to avoid, where possible, flood risk to people and

\(^{92}\) The Land Drainage Act 1991
\(^{93}\) The Groundwater (England and Wales) Regulations 2009 No. 2902
\(^{94}\) The Environmental Permitting (England and Wales) Regulations 2010 No. 675
\(^{95}\) Environmental Permitting (England and Wales) Regulations 2010
\(^{96}\) The Environmental Damage (Prevention and Remediation) (England) Regulations 2015
\(^{98}\) Communities and Local Government (2012), ‘National Planning Policy Framework’
property and manage any residual risk, taking account the impact of climate change. This will be achieved by:

- Applying the Sequential Test;
- If necessary, applying the Exception Test;
- Safeguarding land from development that is required for current and future flood management; and
- Using opportunities offered by new development to reduce the causes and effects of flooding.

10.25 The aim of the Sequential Test is to steer new development into areas with the lowest probability of flooding.

10.26 If, following application of the Sequential Test, it is not possible, consistent with wider sustainability objectives, for the Proposed Development to be located in zones with a lower probability of flooding, the Exception Test can be applied if appropriate. For the Exception Test to be passed:

- It must be demonstrated that the Proposed Development provides wider sustainability benefits to the community that outweigh flood risk, informed by a Strategic Flood Risk Assessment where one has been prepared; and
- A site-specific flood risk assessment must demonstrate that the Proposed Development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

Planning Practice Guidance (NPPG) (Practice Guide): Flood Risk and Coastal Change

10.27 Table 2 of the Practice Guide [Reference I.D: 7-066-20140306] sets out the flood risk vulnerability classification for a range of developments and land uses. The proposed residential aspect of the Proposed Development is considered ‘more vulnerable’ in accordance with Table 2 of the Practice Guide. The proposed Training Facility is classified as ‘less vulnerable’.

10.28 Table 3 of the Practice Guide [Reference I.D: 7-067-20140306] sets out the compatibility of each development and land use vulnerability classification within a specific flood zone, indicating whether development is ‘appropriate’ within a defined flood zone.

10.29 The Practice Guide [Reference I.D: 7-079-201504415] states that; when considering major development, as defined in the Town and Country Planning Order 2015, sustainable drainage systems should be provided unless demonstrated to be inappropriate.

10.30 The Practice Guide [Reference I.D: 7-080-20150323] states that; generally, the aim should be to discharge surface run off as high up the following hierarchy of drainage options as reasonably practicable:

- Into the ground (infiltration);
- To a surface water body;
- To a surface water sewer, highway drain or another drainage system;
- To a combined sewer.

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Central Lancashire Adopted Core Strategy\textsuperscript{100}

10.31 The Central Lancashire Adopted Core Strategy was adopted in July 2012 and contains the following policy relating to flood risk and drainage;

\textbf{Policy 29: Water Management}

10.32 \textit{Improve water quality, water management and reduce the risk of flooding by:}

\begin{itemize}
\item[(a)] Minimising the use of potable mains water in new developments;
\item[(b)] Working with the regional water company and other partners to promote investment in sewage water treatment works to reduce the risk of river pollution from sewage discharges;
\item[(c)] Working with farmers to reduce run-off polluted with agricultural residues into watercourses;
\item[(d)] Appraising, managing and reducing flood risk in all new developments, avoiding inappropriate development in flood risk areas particularly in Croston, Penwortham, Walton-le-Dale and southwest Preston;
\item[(e)] Pursuing opportunities to improve the sewer infrastructure, particularly in Grimsargh, Walton-le-Dale and Euxton, due to the risk of sewer flooding;
\item[(f)] Managing the capacity and timing of development to avoid exceeding sewer infrastructure capacity;
\item[(g)] Encouraging the adoption of Sustainable Drainage Systems;
\item[(h)] Seeking to maximise the potential of Green Infrastructure to contribute to flood relief.
\end{itemize}

\textbf{EA Definitions}\textsuperscript{101}

10.33 The EA Flood Map for Planning (Rivers and Sea) highlights Main Rivers. Main Rivers are described by the EA as ‘usually larger rivers and streams. Other rivers are called ‘ordinary watercourses’.

The Environment Agency carries out maintenance, improvement or construction work on Main Rivers to manage flood risk. Environment Agency powers to carry out flood defence work apply to main rivers only. Lead local flood authorities, district councils and internal drainage boards carry out flood risk management work on ordinary watercourses.’

10.34 The EA Flood Map for Planning (Rivers and Sea) outlines the areas at risk of flooding from fluvial and / or tidal sources. The Flood Zones are described in Table \textbf{10.1} below.

\begin{table}[h]
\centering
\begin{tabular}{|l|l|}
\hline
\textbf{Flood Zone} & \textbf{Description} \\
\hline
Flood Zone 1 & An area with a less than 0.1\% (1 in 1000) chance of flooding from rivers or the sea in any given year. \\
\hline
\end{tabular}
\caption{EA Flood Zone Description}
\end{table}

\textsuperscript{100} Central Lancashire Adopted Core Strategy, Local Development Framework, July 2012

\textsuperscript{101} Taken from the Environment Agency’s online ‘Flood Map for Planning (Rivers and Sea)’, available at \url{http://apps.environment-agency.gov.uk/wiyby/37837.aspx}
### Assessment Methodology and Significance Criteria

#### Data Sources

10.35 The following sources of information were reviewed during the initial site assessment to establish the existing site environment:

- EA Flood Map for Planning (Rivers and Sea)\(^{102}\)
- EA Flood Risk from Surface Water and Reservoir mapping\(^{103}\)
- Central Lancashire Strategic Flood Risk Assessment (SFRA)\(^{104}\)
- Lancashire Area Preliminary Flood Risk Assessment (PFRA)\(^{105}\)
- OS Mapping
- Aerial Mapping
- British Geological Survey geological mapping and borehole records\(^{106}\)
- United Utilities sewer plan
- Site specific topographical survey
- Proposed Development plans

10.36 A site-specific FRA and Drainage Strategy has been prepared by Waterco Consultants and accompanies this ES chapter. This is included as **Appendix 10.1**.

#### Study Area

10.37 The Study Area comprises the Site and a nominal area beyond the Site boundary. This Study Area was selected as the area to the north of the Site is topographically higher and would not be affected by the Proposed Development and is therefore excluded. The Site is bounded to the east by the West Coast mainline railway, which serves as a physical boundary for the purposes of the assessment.

10.38 The hydrological effect of the Site on the Brook is considered to be limited, therefore areas to the south and west beyond the Site boundary have been excluded from the assessment.

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\(^{102}\) Environment Agency’s online ‘Flood Map for Planning (Rivers and Sea)’, available at [http://apps.environment-agency.gov.uk/wiwyby/37837.aspx](http://apps.environment-agency.gov.uk/wiwyby/37837.aspx)


\(^{104}\) Central Lancashire Strategic Flood Risk Assessment, December 2007

\(^{105}\) Lancashire Area Preliminary Flood Risk Assessment, May 2011

\(^{106}\) British Geological Survey online Onshore GeoIndex viewer, available at [http://mapapps2.bgs.ac.uk/geoindex/home.html](http://mapapps2.bgs.ac.uk/geoindex/home.html)
10.39 The study area covered by this chapter is highlighted on the ‘Study Area’ plan included as Figure 10.2.

Consultation and Scoping Overview

10.40 A Scoping Report was prepared in August 2016 (Appendix 1.2), which set out the approach of the assessment to the Proposed Development. The Scoping Report outlined the methods used for the assessment of flood risk, hydrology and drainage. Table 10.2 below and overleaf provides an overview of the responses received from the statutory consultees in response to the Scoping Report.

Table 10.2: Scoping Responses

<table>
<thead>
<tr>
<th>Consultee</th>
<th>Issue Raised</th>
<th>Location in Chapter where addressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Utilities</td>
<td>UU stated within their scoping response that ‘United Utilities do not comment on Screening or Scoping Requests as the level of information we require in terms of understanding any water or wastewater requirements is likely to only become available once the development proposal is progressed nearer to planning application stage.’</td>
<td>No issues raised at this stage</td>
</tr>
<tr>
<td>EA Scoping Response dated 24/08/2016</td>
<td>Only a small portion of the Site is designated as Flood Zone 2 (medium probability of flooding) and Flood Zone 3 (high probability of flooding) along the corridor of Sharoe Brook, which is designated a Main River. All development can and should therefore be kept within Flood Zone 1 (low probability of flooding), keeping any fluvial flood risk area clear of development.</td>
<td>Section - Design Evolution</td>
</tr>
<tr>
<td>EA Scoping Response dated 06/09/2016</td>
<td>Residential and commercial development must not enclose the Main River watercourse network which would make access difficult for routine and emergency maintenance. In particular, houses must not back onto the river. Instead, the development layout should be designed in a way that keeps watercourses open to access. This not only provides flood risk and biodiversity benefits, but also improves amenity and recreational value of the development.</td>
<td>Section - Design Evolution</td>
</tr>
<tr>
<td>EA Scoping Response dated 06/09/2016</td>
<td>The development is likely to require new crossings of Sharoe Brook and its tributary. The development should be designed in a way that reduces the need for multiple new crossings. Any new crossing must be designed so that it can convey the 1 in 100 year plus climate change flow, plus a freeboard of 600mm.</td>
<td>Section - Design Evolution</td>
</tr>
<tr>
<td>EA Scoping Response</td>
<td>All surface water attenuation ponds must be kept outside of Flood Zones 2 and 3, otherwise this could prevent them from functioning properly.</td>
<td>Section - Design Evolution</td>
</tr>
<tr>
<td>Consultee</td>
<td>Issue Raised</td>
<td>Location in Chapter where addressed</td>
</tr>
<tr>
<td>------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>dated 06/09/2016</td>
<td>Sharoe Brook, which is designated a Main River, is located within the bounds of the proposal site. As such, an Environmental Permit may be required for any proposed works or structures in, under, over or within 8 metres of the top of bank of the Sharoe Brook.</td>
<td>Flood Risk Assessment and Drainage Strategy (Appendix 10.1)</td>
</tr>
<tr>
<td>EA Scoping Response</td>
<td>Any subsequent planning application should be accompanied by a scheme to dispose of surface and foul water. If infiltration methods are used for surface water disposal a simple index approach should be used when selecting suitable water quality treatment measures. Guidance can be found in Chapter 26 of the CIRIA SUDS Manual (C753).</td>
<td>Flood Risk Assessment and Drainage Strategy (Appendix 10.1)</td>
</tr>
<tr>
<td>dated 06/09/2016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EA Scoping Response</td>
<td>The need for surface water outfalls to Sharoe Brook and its tributary must be kept to a minimum to reduce the impact on the ecology of the watercourse.</td>
<td>Section - Design Evolution</td>
</tr>
<tr>
<td>dated 06/09/2016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EA Scoping Response</td>
<td>We are opposed to the culverting of watercourses as it destroys wildlife habitats, damages a natural amenity and interrupts the continuity of this linear habitat. It also has adverse effects on flood defence and land drainage.</td>
<td>Section - Design Evolution</td>
</tr>
<tr>
<td>dated 06/09/2016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EA Scoping Response</td>
<td>Appropriate control measures for construction site run-off and sedimentation should be identified to prevent detrimental impacts on nearby watercourses. Any contaminated water should not, unless appropriately permitted under Environmental Permitting Regulations 2010, enter any watercourse. We would recommend the use of SUDS to absorb diffuse pollutants and improve water quality, thereby contributing to WFD objectives.</td>
<td>Flood Risk Assessment and Drainage Strategy (Appendix 10.1)</td>
</tr>
<tr>
<td>dated 06/09/2016</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10.41 The EA were also consulted as part of FRA and Drainage Strategy (included as Appendix 10.1) in regards to obtaining flood levels and outputs from the Savick Study\(^\text{109}\) (flood mapping study) undertaken in 2011. The EA have also provided pre-application comments in relation to the development outlining the following:

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107 CIRIA C753 The SuDS Manual, 2015  
109 Savick Study 2011
• The FRA should have regard to the Sequential Test and, where applicable, the Exception Test.

• Consideration must be made for the effects of climate change.

• As the Site exceeds 1 hectare in size, the FRA should also demonstrate that surface water on site will be properly managed to prevent flooding on and off site.

• Any proposed surface water attenuation ponds should be kept outside of Flood Zones 2 and 3, otherwise this could prevent them from functioning properly.

• As only a small area of the Site falls within Flood Zone 2 or 3, we would expect all development to be kept within Flood Zone 1 (low probability of flooding), keeping any fluvial flood risk area clear of development.

• The Proposed Development is likely to require new crossings of Sharoe Brook, which is designated a Main River, and its tributary. The Proposed Development should be designed in a way that reduces the need for multiple new crossings. Any new crossing must be designed so that it can convey the 1 in 100 year plus climate change flow plus a freeboard of 600mm.

• The need for surface water outfalls to Sharoe Brook and its tributary must be kept to a minimum to reduce the effect on the ecology of the watercourse.

• The Site is underlain by a Principal Aquifer and nearby to a groundwater abstraction for public consumption. Therefore, a relevant assessment of the groundwater conditions should be made and appropriate measures should be in place to prevent any detrimental effects on groundwater quality where applicable.

• Any subsequent planning application should be accompanied by a scheme to dispose of surface and foul water. If infiltration methods are used for surface water disposal a simple index approach should be used when selecting suitable water quality treatment measures.

• This Site is in an area served by the public sewer and any development on this site would be expected to connect all foul drainage to the existing sewer network.

• Given that the Site levels are 2 meters higher than the tributary, no further modelling is necessary and a qualitative assessment of this risk from this watercourse is satisfactory.

10.42 Lancashire County Council (LCC) were consulted in their capacity as the Lead Local Flood Authority (LLFA) to determine specific requirements for surface water drainage. However, the webpage states that ‘LCC is unable to offer a bespoke site-specific pre-application service.’

UU have been consulted regarding foul drainage. UU stated in correspondence included in Appendix A of the FRA and Drainage Strategy (Appendix 10.1), that foul water will be permitted to drain to the public combined sewer network at an unrestricted rate. The preferred point of discharge would be to the 1200mm public combined sewer that crosses through the eastern and southern extent of the Site.

Assessment Methodology: Flood Risk
10.43 All potential sources of flooding have been reviewed as part of this assessment including fluvial (from rivers), tidal, surface water, sewer flooding, groundwater and artificial sources. The existing flood risk to the Site has been assessed using a range of information sources including:

- EA fluvial, tidal, surface water and reservoir flood mapping
- Fluvial flood level data provided by the EA
- Site specific topographical survey
- Central Lancashire Strategic Flood Risk Assessment (SFRA)
- Lancashire Area Preliminary Flood Risk Assessment (PFRA)

**Assessment Methodology: Surface Water Drainage**

10.44 An assessment of existing (greenfield) surface water runoff rates has been carried out using the Interim Code of Practice (ICP) for Sustainable Drainage Systems (SUDS) Flood Studies Report (FSR) method. This method is part of the Institute of Hydrology (IH) formula, which is recognised as a suitable method for calculating greenfield runoff rates within The SUDS Manual.

10.45 An assessment of the Proposed Development surface water runoff rates and associated storm water attenuation volumes has been made using industry standard MicroDrainage software.

10.46 In accordance with Lancashire County Council (LCC) Pre-Application Standing Advice attenuation storage should be provided to accommodate storm events up to and including the 1 in 100 annual probability plus 30% climate change event. An assessment should also be made of the 1 in 1, 1 in 2 and 1 in 30 annual probability storm events.

**Assessment Methodology: Foul Drainage**

10.47 The effect of the Proposed Development on the public sewer network will be determined by the sewerage undertaker UU, through an assessment of the existing capacity and proposed foul flows from the development.

10.48 Design guidance for the Site’s foul drainage system is in accordance with Sewers for Adoption 7th Edition.

**Significance Criteria**

10.49 The assessment of potential effects as a result of the Proposed Development has considered both the construction and operation phases. The significance level attributed to each effect has

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112 Savick Study 2011
113 Central Lancashire Strategic Flood Risk Assessment, December 2007
114 Lancashire Area Preliminary Flood Risk Assessment, May 2011
115 Interim Code of Practice for Sustainable Drainage Systems, July 2004
116 Institute of Hydrology 124 Flood Estimation for Small Catchments, 1994
117 CIRIA C753 The SuDS Manual, 2015
118 XP Solutions MicroDrainage 2016
119 WRc plc Sewers for Adoption 7th Edition, September 2012
been assessed based on the magnitude of change due to the development proposals and the sensitivity of the affected receptor / receiving environment to change.

10.50 The sensitivity of each receptor has been designated using professional judgement and by reference to the guidance criteria presented in Table 10.3.

10.51 The potential effects and magnitude of effects of each receptor have been identified using the criteria presented in Table 10.4 and informed by the baseline assessment.

Table 10.3: Sensitivity of Receptor / Receiving Environment to Change or Effect

<table>
<thead>
<tr>
<th>Importance</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>A watercourse / feature with national hydrological importance to biodiversity and ecosystems; highly and more vulnerable property, residents / site users and land such as emergency services and residential properties. A Principal Aquifer. Flood Zone 3.</td>
</tr>
<tr>
<td>Medium</td>
<td>A watercourse / feature with regional hydrological importance to biodiversity and ecosystems, more vulnerable and less vulnerable property and land such as public, commercial and industrial buildings. A Secondary Aquifer. Flood Zone 2.</td>
</tr>
<tr>
<td>Low</td>
<td>A watercourse / feature with local / minimal hydrological importance to biodiversity and ecosystems, undeveloped land. Unproductive strata. Flood Zone 1.</td>
</tr>
<tr>
<td>Negligible</td>
<td>Sacrificial land, undevelopable land.</td>
</tr>
</tbody>
</table>

Table 10.4: Magnitude of Change / Effect

<table>
<thead>
<tr>
<th>Importance</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substantial</td>
<td>Long term / permanent changes to the hydrology, significant change in the physical state of the water feature and / or serious pollution resulting in substantial degradation of the water quality. Significant damage to land and property occupiers. Major change from the baseline conditions. Increase in flood risk offsite by 5mm or greater during all flood events.</td>
</tr>
<tr>
<td>Medium</td>
<td>Short to medium term changes to the hydrology, minor change in the physical state of the water feature and / or minor degradation of the water quality. Damage to land and property, resulting in moderate economic loss. A reduction of the economic value provided by the water feature. Less than 5mm increase in flood risk offsite. Moderate change from the baseline conditions.</td>
</tr>
<tr>
<td>Minor</td>
<td>Small measurable changes to the hydrology but no overall change in flood risk elsewhere. Minimal changes in water quality which are unlikely to affect sensitive receptors. Minor change from the baseline conditions.</td>
</tr>
<tr>
<td>Negligible</td>
<td>Little to no change when compared with the baseline conditions.</td>
</tr>
</tbody>
</table>

10.52 In order to assess the effect significance of the Proposed Development on the identified receptors, the characteristics of each identified effect at the construction and operational stages have been considered in accordance with the following criteria, taken from Chapter 2:

Table 2.3: Matrix for determining the level of effects

<table>
<thead>
<tr>
<th>Sensitivity of receptor/ Receiving Environment to Change/ Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
</tr>
</tbody>
</table>

The following terms have been used to define the significance of effects identified:

- **Major positive or adverse effect**: where the development would cause significant improvement (or deterioration) to the existing environment.
- **Moderate positive or adverse effect**: where the development would cause noticeable improvement (or deterioration) to the existing environment.
- **Minor positive or adverse effect**: where the development would cause perceptible improvement (or deterioration) to the existing environment.
- **Negligible**: no discernible improvement or deterioration to the existing environment.

For the purpose of this assessment moderate and major effects (as shaded in Table 2.3) are considered to be significant effects requiring mitigation.

**Baseline Conditions**

**Introduction**

A FRA and Drainage Strategy has been prepared by Waterco Consultants (Appendix 10.1). Baseline conditions relating to flood risk and drainage at the Site have been established using the FRA and Drainage Strategy and additional published information, as follows:

- EA flood level data\(^\text{120}\) and flood mapping\(^\text{121}\)
- EA groundwater mapping\(^\text{122}\)
- EA Water body classifications\(^\text{123}\)
- 2 metre resolution EA composite Light Detection and Ranging (LiDAR) Digital Terrain Model (DTM)\(^\text{124}\)
- Central Lancashire Strategic Flood Risk Assessment (SFRA)\(^\text{125}\)
- Lancashire Area Preliminary Flood Risk Assessment (PFRA)\(^\text{126}\)

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\(^{120}\) Savick Study 2011


\(^{124}\) LiDAR available to download at [http://environment.data.gov.uk/ds/survey/index.jsp#survey](http://environment.data.gov.uk/ds/survey/index.jsp#survey)

\(^{125}\) Central Lancashire Strategic Flood Risk Assessment, December 2007

\(^{126}\) Lancashire Area Preliminary Flood Risk Assessment, May 2011
• British Geological Survey (BGS) online mapping
• UU sewer plans

Topographical Setting

10.56 A topographical survey, included in Appendix D of the FRA and Drainage Strategy (Appendix 10.1), has been prepared by CPS Surveys Ltd, dated October 2009. The topographical survey indicates that the Site generally slopes from north to south. Site levels vary from a topographic high point of 41.425 metres Above Ordnance Datum (m AOD) in the north-east to a topographical low point of 19.721m AOD in the south, adjacent to the confluence of Sharoe Brook and its tributary.

Geological Setting

10.57 Reference to the British Geological Survey (BGS) online mapping (1:50,000 scale) indicates that the majority of the Site is underlain by superficial deposits consisting of Till (Devensian). Sharoe Brook in the north-eastern extent of the Site is shown to be underlain by Devensian Glaciofluvial deposits comprising sand and gravel. Towards the centre of the Site, Sharoe Brook is shown to be underlain by Head deposits, comprising gravelly, silty, sandy, clay. Sharoe Brook and its tributary in the southern extent of the Site are shown to be underlain by Alluvium deposits, comprising clay, sand and gravel. All of the superficial deposits are shown to be further underlain by bedrock deposits consisting of the Sherwood Sandstone Formation.

10.58 Online BGS borehole records from the Site generally confirm the superficial and bedrock geology identified on BGS mapping. BGS borehole records indicate that groundwater levels are variable across the Site, with the shallowest recorded level reviewed being 0.8m below ground level (bgl) in the centre of the Site, adjacent to Sharoe Brook (BGS borehole ref: SD53SW74). Groundwater was primarily recorded in the superficial deposits and was recorded as absent in a number of the historical logs.

10.59 According to the EA’s online Groundwater Vulnerability Mapping, the superficial Glaciofluvial and Alluvial deposits are classified as Secondary A aquifers. Secondary A aquifers are permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. The Till is classified as a Secondary (undifferentiated) aquifer. This aquifer is assigned in cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type. The underlying bedrock is described as a Principal aquifer. These are layers of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale.

10.60 Reference to the EA’s online groundwater Source Protection Zone maps indicates that the Site is located within a groundwater Source Protection Zone, Total Catchment (Zone 3). This is defined

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127 British Geological Survey online Onshore GeoIndex viewer, available at http://mapapps2.bgs.ac.uk/geoindex/home.html
128 Borehole records available to view on the British Geological Survey online Onshore GeoIndex viewer, available at http://mapapps2.bgs.ac.uk/geoindex/home.html
as ‘the area around a source within which all groundwater recharge is presumed to be discharged at the source. In confined aquifers, the source catchment may be displaced some distance from the source. For heavily exploited aquifers, the final Source Catchment Protection Zone can be defined as the whole aquifer recharge area where the ratio of groundwater abstraction to aquifer recharge (average recharge multiplied by outcrop area) is >0.75.’

10.61 The soil is described ‘slowly permeable seasonally wet acid loamy and clayey soils’ with ‘impeded drainage’ by the National Soil Resources Institute\(^\text{129}\).

**Hydrological Features**

10.62 There are numerous hydrological features located within the study area (included in Figure 10.2). These features are shown on the ‘Identified Surface Water Features’ map included in Figure 10.1. There is an identified EA Main River, Sharoe Brook, intersecting the Site in the eastern extent, flowing south through the centre of the Site.

10.63 There is a tributary of Sharoe Brook located within the western extent of the Site. It is assumed this tributary originates on site. The tributary flows south, through the Site, to its confluence with Sharoe Brook in the southern extent of the Site.

10.64 There are a number of land drains located within the northern extent of the Site, as observed on OS mapping. Some land drains are not shown on OS Mapping and were observed during a site walkover, undertaken on 5\(^{th}\) September 2016.

10.65 There is an unnamed watercourse located approximately 132m north of the Site. This watercourse is not located within the Study Area. Sharoe Brook is a tributary of Savick Brook, which is located approximately 167m south of the Site. Savick Brook is located outside the study area.

10.66 There are several ponds located throughout the Site, situated in topographical low points. During the Site walkover, there were no formal inflows or outflows in the ponds that were observed. It is also recognised that the Golf Course is known to suffer from poor drainage.

**Water Quality**

10.67 The WFD requires that environmental objectives are set for surface water bodies and groundwater resources to allow them to achieve overall ‘good’ status at the end of each six year cycle. Where the existing waterbody is of a poor quality, it is less likely to be sensitive to changes as a result of development e.g. increases in silt from runoff during the construction phase. The sensitivity of a waterbody is therefore dependent on its overall rating.

10.68 The WFD classification is available for Sharoe Brook\(^\text{130}\). This has been assessed as having a ‘moderate’ ecological rating, a ‘good’ chemical rating with an overall rating of ‘moderate’.

**Baseline Assessment: Fluvial and Tidal Risk**

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\(^{129}\) Cranfield Soil and Agrifood Institute, Soilscape, available at [http://www.landis.org.uk/soilscape/](http://www.landis.org.uk/soilscape/)

The majority of the Site is located within Flood Zone 1 on the EA ‘Flood Map for Planning (Rivers and Sea)’ – an area considered to have the lowest probability of fluvial and tidal flooding (see Figure 10.2).

Areas of the Site immediately adjacent to Sharoe Brook are located in Flood Zone 2 and Flood Zone 3. The Site is not shown to benefit from flood defences.

Sharoe Brook, an EA designated ‘Main River’, intersects the Site in the east, flowing south through the centre of the Site. A tributary of Sharoe Brook, which originates on site, is located in the western extent of the Site. From here, the tributary flows south to its confluence with Sharoe Brook in the southern extent of the Site.

There are a number of land drains located within the northern extent of the Site and it is assumed that these are associated with the drainage of the existing Golf Course. Anecdotal information suggests that a land drain exists in the immediate vicinity of the proposed Training Facility. However, its presence has not been confirmed or otherwise by either visual inspection or hydrological mapping.

EA flood modelling of Sharoe Brook, as part of the Savick Study, shows that areas immediately adjacent to Sharoe Brook are at risk of flooding during all events up to and including the extreme 0.1% annual probability event. The flood extent is minimal and restricted by steep local topography to within 50m of Sharoe Brook. There is no flood modelling currently available for the tributary of Sharoe Brook.

A review of the EA LiDAR DTM data shows that areas immediately adjacent to the unnamed tributary are located a minimum of 2m above the watercourse. A site walkover established that the tributary is contained within a short (<5m in length) double pipe culvert in the southern extent of the Site prior to its confluence with Sharoe Brook.

The EA ‘Flood Risk from Surface Water’ map has been reviewed; the surface water mapping identifies areas at risk from the land drains located within the northern extent of the Site. This map shows that no out of channel flows or overland flow is predicted from the land drains.

The Site is located at a minimum of 19.721m AOD and is significantly above sea level. On this basis the risk of tidal flooding has been scoped out and not considered further in this assessment.

Baseline Assessment: Surface Water Flood Risk

The EA ‘Flood Risk from Surface Water’ map shows that the majority of the Site is at very low risk of surface water flooding, with a less than 0.1% annual probability of flooding. The EA map identifies two flow routes with a ‘high’ (an area with a 3.3% annual probability of flooding or greater), ‘medium’ (an area with between a 1% and 3.3% annual probability of flooding) and ‘low’ (an area with between a 0.1% and 1% annual probability of flooding) risk of flooding. The flow routes, shown on the EA ‘Flood Risk from Surface Water – Low Risk: Velocity’ map included in Appendix B of the FRA and Drainage Strategy (Appendix 10.1) are associated with Sharoe Brook and its tributary, and have been assessed under fluvial flooding.

Isolated areas of the Site are shown at high risk of surface water flooding. These areas are associated with topographical depressions and land drains.
10.79 There are no records of surface water flooding at the Site. Any potential surface water flooding arising on site would collect in topographical depressions, or directed south into the watercourses on site.

Baseline Assessment: Sewer Flood Risk

10.80 A review of the SFRA, PFRA and internet record search found no historical records of sewer flooding at the Site.

Baseline Assessment: Groundwater Flood Risk

10.81 BGS borehole records indicate that groundwater levels are variable across the Site, with groundwater recorded primarily in superficial deposits. The shallowest recorded level was 0.8m bgl. Groundwater was recorded absent in a number of historical logs. The SFRA states ‘little or no records of groundwater flooding were found during the course of the study.’

Baseline Assessment: Flood Risk from Artificial Sources

10.82 There are no canals within the vicinity of the Site. The EA ‘Flood Risk from Reservoirs’ map shows that the Site is not at risk of flooding from reservoirs. On this basis the risk of flooding from canals and reservoirs has been scoped out and not considered further in this assessment.

10.83 There are a number of ponds on the Site which are associated with the Golf Course. During a site walkover there was no evidence to suggest that the ponds have a formal inflow or outflow. There are no records of flooding on site as a result of a breach in the ponds.

Baseline Assessment: Surface Water Drainage

10.84 The Site predominantly comprises the Golf Course. It is therefore likely, given the area of landscaping and the natural water bearing properties of vegetated soil that surface water from the Golf Course infiltrates into the ground. During extreme storm events when the infiltration rate of the landscaped area is exceeded by the rainfall and runoff is generated, it is likely that flows generated on the Golf Course are directed towards and discharge into the land drains, ponds, Sharoe Brook and its tributary located on site.

10.85 From a review of the topographical survey, the Golf Club, access road and car park are assumed to drain to the 450mm public surface water sewer to the west of the Site in Tanterton Hall Road.

10.86 Greenfield runoff calculations have been undertaken using the ICP SUDS (FSR) method within MicroDrainage. The greenfield calculations are conservative and assume that there is no formal drainage system on the Existing Site, assessing the entire site as greenfield (undeveloped) land. The greenfield runoff rate has been estimated per hectare of land. The estimated QBAR (mean annual greenfield peak flow, with an approximate return period of 2.3 years) runoff rate is 6.5 litres per second per hectare (l/s/ha). The 1 in 100 year greenfield runoff rate is 13.5 l/s/ha.

10.87 The UU sewer plans indicated that there are 4no. public surface water sewers which cross the Site in the northern and central extents. The surface water sewers eventually discharge into Sharoe Brook. There is a 150mm public surface water sewer located in the south-western extent of the Site. It is likely that this sewer flows offsite to join the wider drainage network, although the sewer plans do not extend to show this.
Baseline Assessment: Foul Drainage

10.88 The UU sewer plans indicate that there is a 1200mm public combined sewer crossing the Site. This sewer enters the Site at the eastern boundary, flowing south through the Site following the course of Sharoe Brook, before exiting the Site at the south. A 225mm and 150mm public foul sewer flow into the 1200mm public combined sewer on site, and are associated with the public foul network serving the existing adjacent housing estates. There is a 150mm public foul sewer located in the south-western extent of the Site. It is likely this sewer flows offsite to join the wider drainage network, although the sewer plans do not extend to show this.

10.89 It is assumed that the existing foul drainage system serving the Golf Club discharges into the 225mm public foul sewer to the west of the Site in Tanterton Hall Road.

Receptors

10.90 Receptors potentially susceptible to environmental effects from flooding and drainage during the construction and operational phases of the Proposed Development have been identified. The receptors have been selected following a review of baseline information for the Site and the Proposed Development and because they could be subject to detrimental effects if left unmitigated during the construction and operational phases.

10.91 The sensitivity of these receptors to change and effect has been considered, based on knowledge of the receptor, project experience and professional judgement. Table 10.5 below summarises the selected sensitivity of each receptor.

Table 10.5: Receptor Sensitivity

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Sensitivity to Change / Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction workers (human receptor)</td>
<td>High</td>
</tr>
<tr>
<td>Sharoe Brook (and Tributary) - classified as a main river and recorded</td>
<td>High</td>
</tr>
<tr>
<td>as having a moderate water quality.</td>
<td></td>
</tr>
<tr>
<td>Surface Water Drains and Ponds on site – incorporated as part</td>
<td>Low</td>
</tr>
<tr>
<td>of the current use landscaping and unlikely to be in direct hydraulic</td>
<td></td>
</tr>
<tr>
<td>continuity with main river and underlying groundwater.</td>
<td></td>
</tr>
<tr>
<td>Groundwater (Principal Aquifer) described as layers of rock or</td>
<td>High</td>
</tr>
<tr>
<td>drift deposits that have high intergranular and/or fracture permeability</td>
<td></td>
</tr>
<tr>
<td>- meaning they usually provide a high level of water storage. They may</td>
<td></td>
</tr>
<tr>
<td>support water supply and/or river base flow on a strategic scale.</td>
<td></td>
</tr>
<tr>
<td>Public sewers and existing sewer infrastructure – failure / exceedance</td>
<td>Medium</td>
</tr>
<tr>
<td>of capacity of such infrastructure can result in economic / environmental issues</td>
<td></td>
</tr>
<tr>
<td>West Coast Mainline railway - a major inter-city railway route and the</td>
<td>High</td>
</tr>
<tr>
<td>most important rail network in terms of population served.</td>
<td></td>
</tr>
<tr>
<td>Existing Adjacent Schools, Residents and Properties (human receptor)</td>
<td>High</td>
</tr>
<tr>
<td>Future Site Residents, Users and Properties (human receptor)</td>
<td>High</td>
</tr>
<tr>
<td>Future Infrastructure – proposed local infrastructure</td>
<td>Medium</td>
</tr>
</tbody>
</table>
Design Evolution

10.92 The Indicative Masterplan for the Proposed Development has evolved so that all built development and attenuation storage ponds will be located in Flood Zone 1, avoiding the higher risk areas. The Proposed Development will increase the impermeable area from the pre-development state, and as such will result in an increase in surface water runoff across the Site. It will therefore be necessary to manage surface water on site in order to limit the discharge of surface water off site at an agreed rate. This is assessed within the FRA and Drainage Strategy included in Appendix 10.1.

10.93 The Indicative Masterplan (Figure 1.1) also maintains an adequate buffer zone along Sharoe Brook and its tributary, which will allow for ease of access and maintenance where required. There are no new river crossings or culverts proposed, and any surface water outfalls will be kept to a minimum.

10.94 The embedded mitigation for the Site will take the form of the proposed SUDS as indicated in the Indicative Masterplan (Figure 1.1). It will include a combination of soakaways, swales, infiltration basins and permeable paving which should be located depending on the relative groundwater depths, underlying soil type and locality of proposed buildings. Discharge from the Site is likely to be via infiltration. Where infiltration is not feasible, surface water could be discharged into Sharoe Brook at a restricted runoff rate. This is assessed within the FRA and Drainage Strategy included in Appendix 10.1.

10.95 Further information on the draft drainage strategy, and therefore embedded mitigation is included as part of the Flood Risk Assessment (Appendix 10.1).

Potential Effects

10.96 Both the effects of the development during the construction and operation phases have been considered and evaluated against the receptors described above. The assessment of effects considered as significant prior to mitigation is included below, with effects not considered significant detailed in Appendix 10.2. Receptors and associated sensitivities are outlined in Table 10.5.

Construction Effects

10.97 The construction assessment stage is based on the designs with design evolution (embedded mitigation – outlined above) during the construction phase. During the construction phase, there is the potential for the construction of the Proposed Development to result in the following effects on the water environment:

- Chemical and fuel spillages and contaminated runoff from construction plant and material.
- Siltation of watercourses through increased erosion of temporary stockpiles on site.
- Inappropriate disposal of foul water from the Site.
- Debris from the construction site blocking culverts and increasing the risk of flooding.
- Increasing the amount of surface water runoff entering the receiving waterbody through introduction of impermeable areas.
During the construction phase, following embedded mitigation, but prior to mitigation measures being implemented there is potential significant effects anticipated from chemical and fuel spillages and siltation of waterbodies. The assessment of these is discussed below, however the full detailed assessments for non-significant effects during the construction phase, as discussed, are included in Appendix 10.2.

### Chemical / Fuel Spillages and Contaminated Runoff

10.99 The use of oils, paints, solvents and fuels on construction sites provide a risk of leakages and spillages, leading to pollution incidents. The runoff from haul roads contains a large amount of hydrocarbons. This could affect the water quality in the receiving waterbodies if pollution is mobilised. Where fuels and chemicals reach a waterbody, there is a potential for effects on water quality, which can affect local flora and fauna.

10.100 The sensitivity of Sharoe Brook is considered to be high due to its connectivity with Savick Brook and its designation as a main river. The tributary of Sharoe Brook on site is considered to have a high sensitivity due to its hydrological connectivity with Sharoe Brook. The underlying aquifer is also considered to have a high sensitivity due to its designation as a Principal Aquifer.

10.101 Accidental leakages and spillages of contaminants, and contaminated runoff which has the potential to migrate towards Sharoe Brook, its tributary or the underlying Principal Aquifer could have a substantial magnitude of change due to the potential of causing long term, significant changes to the water quality.

10.102 In accordance with the assessment matrix included in Table 2.3, the overall significance of chemical and fuel spillages on the water quality within Sharoe Brook, its tributary and / or the underlying aquifer is considered to be moderate adverse. This is therefore viewed as a significant effect in EIA terms.

### Siltation of Waterbodies

10.103 Recently disturbed and vegetation free ground allows for relatively low velocity runoff to erode the surface. Rainfall could also lead to erosion of material should a stockpile be uncovered. This leads to increased runoff and sedimentation of receiving waters, thereby increasing flood risk.

10.104 Sharoe Brook and its tributary on Site are both considered to have a high sensitivity, as described in Table 10.5.

10.105 Runoff which has a high concentration of suspended solids and silt has the potential to migrate towards Sharoe Brook and it’s tributary, and could have a medium magnitude of change with the potential to increase flood risk elsewhere.

10.106 In accordance with the assessment matrix included in Table 2.3, the overall significance of chemical and fuel spillages on the water quality within Sharoe Brook, its tributary and / or the underlying aquifer is considered to be moderate adverse. This is therefore viewed as a significant effect in EIA terms.

### Operational Effects

10.107 The operation assessment stage is based on the designs with design evolution (embedded mitigation – outlined above) during the operational phase. During the operational phase, it is
considered that there are no significant effects on the water environment which need to be considered in this chapter. An assessment of non-significant effects has been made and is included in Appendix 10.2.

**Mitigation and Enhancement Measures during Construction**

10.108 During construction, surface water management will be carried out in accordance with the Construction Environmental Management Plan (CEMP) which will be produced at the pre-construction phase. Similarly, a standalone Surface Water Management Plan (SWMP) will be prepared in response to a condition on any planning permission that is granted. These documents will be secured through planning conditions. The production of a CEMP and SWMP will ensure that the effect of the Proposed Development on receptors is minor or negligible.

10.109 The management of surface water runoff during the construction period is summarised in Appendix 10.3.

**Residual Effects**

10.110 Residual significant effects have been categorised as those having a more than minor effect of significance after the application of mitigation measures. The mitigation measures will ensure that the effect of the development on all receptors is minor or negligible. Therefore, no significant effects are anticipated in EIA terms.

**Cumulative Effects**

**Construction Effects**

10.111 Cumulative effects of committed development during the construction phase on flood risk, surface water drainage, foul water drainage and groundwater are not considered to be significant as there is no hydrological link between the Site and committed development sites listed in Table 2.4.

10.112 Furthermore, Paragraph 100 of PPG states that development should not increase flood risk elsewhere. It is therefore considered that during the planning application process any effects will have been identified and mitigation measures will have been incorporated on the development sites to ensure that any offsite effects have a minor or negligible effect.

**Operational Effects**

10.113 Cumulative effects of committed development during the operational phase on flood risk, surface water drainage, foul water drainage and groundwater are not considered to be significant as there is no hydrological link between the Site and committed development sites listed in Table 2.4.

**Conclusions**

**Flood Risk**

10.114 The Proposed Development is located solely within Flood Zone 1 on the EA ‘Flood Map for Planning (rivers and sea)’ – an area considered to have the lowest probability of fluvial flooding. Areas immediately adjacent to Sharoe Brook are located within Flood Zones 2 and 3.
10.115 From a review of the flood level data provided by the EA for Sharoe Brook, the majority of the Site, including all proposed developable areas as outlined in Figure 1.1 (the Indicative Masterplan), are located above the extreme 0.1% annual exceedance probability event. It is therefore considered that the Proposed Development is at low risk of flooding from Sharoe Brook. Development will be raised sufficiently above the Brook to mitigate against future climate change predictions.

10.116 From a review of local topography, areas immediately adjacent to the tributary of Sharoe Brook are shown to be a minimum of 2m above the watercourse. It is therefore considered that any out of channel flows would be very unlikely.

10.117 Topographical low points on the Site have been identified at risk of surface water flooding. The risk to the Proposed Development will be minimised by raising floor levels and through consideration of site levels. No properties are proposed within topographical low points, which will be utilised for SUDS features as shown on the Indicative Masterplan included as Figure 1.1.

10.118 The Proposed Development will be located outside of the fluvial and tidal 0.1% annual exceedance probability extent and a minimum of 2m above the tributary of Sharoe Brook. The development area does not provide flood storage and is not critical to flood flow routes. Therefore, the effect on receptors is considered to be negligible and not significant in EIA terms.

Surface Water Management

10.119 Surface water runoff during the construction phase will be managed in accordance with the Construction Environmental Management Plan (CEMP), which will be produced at the pre-construction phase.

10.120 Surface water runoff rates and volumes will increase as a result of the Proposed Development. There is also potential for the introduction of contaminants such as hydrocarbons from residential roads into surface water courses.

10.121 The potential effect of the Proposed Development on receptors is an increase in flood risk elsewhere through an increased runoff rate and pollution of receiving watercourses and aquifers.

10.122 The surface water drainage system will be designed to limit runoff rates to the existing greenfield QBAR rate, provide on-site attenuation storage up to the 1 in 100 year plus 30% climate change storm event and provide a sufficient amount of treatment to runoff through the inclusion of SUDS and separators.

10.123 A suitably designed and maintained surface water drainage system will ensure the effect on receptors is minor or negligible and not significant in EIA terms.

Foul Drainage

10.124 Foul water will be permitted to connect to the 1200mm public combined sewer crossing the eastern and southern extent of the Site at an unrestricted rate. This has been confirmed as acceptable with United Utilities and will not negatively affect flood risk or infrastructure offsite.

10.125 Mitigation measures will ensure that flood risk, drainage and hydrology are not significantly affected as a result of the Proposed Development and therefore no significant effects are anticipated in EIA terms.
<table>
<thead>
<tr>
<th>Receptor</th>
<th>Effect</th>
<th>Phase (Construction / Operation)</th>
<th>Embedded Mitigation</th>
<th>Sensitivity of Receptor</th>
<th>Magnitude of Change</th>
<th>Level of Effect and Significance Prior to Mitigation</th>
<th>Mitigation</th>
<th>Enhancement</th>
<th>Level of Effect (and Significance) after Mitigation</th>
<th>Nature of effect (short term / medium term / long term, permanent / temporary, direct / indirect)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjacent residents, adjacent properties, adjacent schools, West Coast mainline railway, surrounding farmland.</td>
<td>Increase in flood risk through introduction of impermeable areas and removal of land drains and ponds</td>
<td>Construction</td>
<td>Locating all development outside Flood Zones 2 and 3.</td>
<td>High</td>
<td>Minor</td>
<td>Minor</td>
<td>Not required</td>
<td>Not required</td>
<td>Minor adverse. Not significant.</td>
<td>Medium term, temporary, direct</td>
</tr>
<tr>
<td>Construction workers</td>
<td>Injury through working in flood plain during time of flood</td>
<td>Construction</td>
<td>Locating all construction activity outside Flood Zones 2 and 3.</td>
<td>High</td>
<td>Minor</td>
<td>Minor</td>
<td>Not required</td>
<td>Not required</td>
<td>Minor adverse. Not significant.</td>
<td>Medium term, temporary, direct</td>
</tr>
<tr>
<td>Sharoe Brook and its tributary</td>
<td>Increase in surface water runoff through introduction of impermeable areas</td>
<td>Construction</td>
<td>None at the design stage.</td>
<td>High</td>
<td>Minor</td>
<td>Minor</td>
<td>Not required</td>
<td>Production of a CEMP prior to construction phase.</td>
<td>Minor adverse. Not significant.</td>
<td>Medium term, temporary, direct</td>
</tr>
<tr>
<td>Adjacent properties, West Coast mainline railway, existing sewer infrastructure</td>
<td>Increase in surface water runoff through introduction of impermeable areas</td>
<td>Construction</td>
<td>None at the design stage.</td>
<td>High</td>
<td>Minor</td>
<td>Minor</td>
<td>Not required</td>
<td>Production of a CEMP prior to construction phase.</td>
<td>Minor adverse. Not significant.</td>
<td>Medium term, temporary, Indirect</td>
</tr>
<tr>
<td>Sharoe Brook, its tributary and groundwater</td>
<td>Introduction of contaminants to adjacent watercourse and underlying aquifer, affecting water quality</td>
<td>Construction</td>
<td>None at the design stage.</td>
<td>High</td>
<td>Medium</td>
<td>Moderate</td>
<td>Production of a CEMP prior to construction phase.</td>
<td>Not required</td>
<td>Negligible. Not significant.</td>
<td>Medium term, temporary, direct</td>
</tr>
<tr>
<td>Adjacent residents, adjacent properties, adjacent schools, West Coast mainline railway, future residents and future properties.</td>
<td>Exceedance event of the Sites drainage system causing flooding off site.</td>
<td>Operational</td>
<td>Design the Site so that any exceedance flooding would be contained within highways and landscaped areas.</td>
<td>High</td>
<td>Minor</td>
<td>Minor</td>
<td>Not required</td>
<td>Not required</td>
<td>Minor adverse. Not significant.</td>
<td>Short term, temporary, direct</td>
</tr>
<tr>
<td>---</td>
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</tr>
<tr>
<td>Future properties, Sharoe Brook and its tributary</td>
<td>Potential to alter fluvial flood storage and overland flow routes.</td>
<td>Operational</td>
<td>Place all properties outside the extreme 0.1% annual probability flood extent.</td>
<td>High</td>
<td>Negligible</td>
<td>Negligible</td>
<td>Not required</td>
<td>Not required</td>
<td>Negligible. Not significant.</td>
<td>N/A</td>
</tr>
<tr>
<td>Adjacent residents, adjacent properties, adjacent schools, West Coast mainline railway, future residents and future properties.</td>
<td>Introduction of additional hard standing, increasing surface water runoff with the potential to increase flood risk</td>
<td>Operational</td>
<td>Inclusion of appropriately sized and located attenuation storage features and surface water drainage system.</td>
<td>High</td>
<td>Minor</td>
<td>Minor</td>
<td>Not required</td>
<td>Not required</td>
<td>Negligible. Not significant.</td>
<td>Long term, permanent, direct</td>
</tr>
<tr>
<td>Watercourses and groundwater</td>
<td>Introduction of contaminants to adjacent watercourse and underlying aquifer, affecting water quality.</td>
<td>Operational</td>
<td>Ensure that a suitable amount of SUDS are included so that surface water receives a sufficient level of treatment.</td>
<td>High</td>
<td>Minor</td>
<td>Minor</td>
<td>Not applicable</td>
<td>Not required</td>
<td>Negligible. Not significant.</td>
<td>N/A</td>
</tr>
<tr>
<td>Existing sewer infrastructure, adjacent residents, adjacent properties, adjacent schools, future</td>
<td>Introduction of additional foul flows causing flooding off site.</td>
<td>Operational</td>
<td>Consultation with the sewerage undertaker to ensure that there is sufficient capacity available.</td>
<td>High</td>
<td>Negligible</td>
<td>Negligible</td>
<td>Not required as there is sufficient capacity available.</td>
<td>Not required</td>
<td>Negligible. Not significant.</td>
<td>Long term, permanent, direct</td>
</tr>
<tr>
<td>residents and future properties.</td>
<td>capacity in the network.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
11 LANDSCAPE AND VISUAL

Summary

Chapter 11 contains an assessment of the potential significant environmental effects on the landscape and visual environment of the Proposed Development.

The effects on the landscape features, landscape character and visual amenity of the Site have been assessed both during the construction and operation phases. The residual effects assess the effect of the Proposed Development 15 years post completion when the planting proposed as part of the Indicative Masterplan has established and the development has integrated into the surrounding landscape.

The construction effects will be temporary and mitigated by a CEMP. Effects on views for users of public rights of way through the Site and residents of adjacent houses will be temporally major adverse during the construction phase and therefore significant in EIA terms.

Fifteen years post completion, once the planting proposed as part of the Indicative Masterplan has matured and the management plan has been implemented, and the proposals have integrated into the landscape, the effects of the Proposed Development on the landscape character and landscape features has been assessed overall as negligible – minor beneficial and therefore not significant in EIA terms. The effects on the Local Urban Character and the Area of Major Open Space are assessed overall as being negligible and therefore not significant in EIA terms.

Effects on views on completion of the development from the visual receptors identified fifteen years post completion, as the vegetation within the Site parameters matures and establishes, are assessed overall as minor adverse – negligible and therefore not significant in EIA terms. Although an obvious change from that of a golf course, the change will be of residential development and will not be at odds with the landscape setting, the proposals include substantial areas of open space with community facilities.

Adverse significant effects which will be temporary are anticipated during the construction phase.
Introduction

11.1 This chapter provides an assessment of anticipated effects of the Proposed Development on the character of the surrounding landscape and on visual amenity.

11.2 The Landscape and Visual Impact Assessment (LVIA) reviews the landscape planning policy context for the area; describes the landscape of the Site and its wider context; describes the aspects of the Proposed Development which have potential to cause landscape and visual effects and the measures which have been incorporated into the design to mitigate these effects; and identifies the potential effects of the scheme on landscape character and visual amenity.

11.3 This LVIA chapter has been prepared by Randall Thorp Chartered Landscape Architects.

Legislation, Policy and Guidance

11.4 Planning Policy is reviewed in Chapter 6 of this Environmental Statement (ES). Within this chapter the information below identifies the key elements of policy which provide the landscape and design framework for proposals, and the context for the LVIA.

National Planning Policy

11.5 The National Planning Policy Framework (NPPF) broadly promotes a presumption in favour of sustainable development and this is the golden thread running through both plan-making and decision-taking (Paragraph 14).

11.6 Paragraph 17 sets out 12 core land-use planning principles, these principles make certain the appropriate responses to site planning and design; protection of landscape; and landscape treatments. Of the 12 principles, the following are relevant to the Site:

- *proactively drive and support sustainable economic development to deliver the homes, business and industrial units, infrastructure and thriving local places that the country needs;*

- *always seek to secure high quality design and good standard of amenity for all existing and future occupants of land and buildings;*

- *take account of the different roles and character of the different areas, promoting the vitality of our main urban areas, protecting the Green Belts around them, recognising the intrinsic character and beauty of the countryside and supporting thriving rural communities within it;*

- *contribute to conserving and enhancing the natural environment and reducing pollution. Allocations of land for development should prefer land of lesser environmental value, where consistent with other policies in the Framework;*

11.7 Section 7 of the NPPF, Requiring Good Design, sets out the requirements for good design in new development. Paragraph 58 includes several objectives that planning decisions should aim to ensure new development will deliver.

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131 National Planning Policy Framework (NPPF) March 2012
11.8 Section 11 of the NPPF, Conserving and Enhancing the Natural Environment, sets out how planning should contribute to and enhance the natural local environment including the protection of valued landscapes, the avoidance and mitigation of adverse environmental effects; the creation, protection, enhancement and management of Green Infrastructure; the protection and creation of priority habitat; and the protection of ancient woodland and wildlife Sites.

Planning Policy Guidance

11.9 The Planning Policy Guidance (PPG)\textsuperscript{132} reiterates the sentiment that ‘good design is indivisible from good planning’ and that design qualities, amongst other things, play a fundamental role in delivering successful development. Local character and landscape setting is recognised within the guidance as one of the many issues to consider when assessing the effect of new design in the physical environment.

Central Lancashire Core Strategy

11.10 The Central Lancashire (CL) Core Strategy 2012\textsuperscript{133} was prepared by the CL authorities (Preston, South Ribble and Chorley) and it is a key document in the Local Development Framework. The Core Strategy sets out the important principles for the management of development in CL, and helps each authority prepare for growth and respond positively to development.

11.11 Policy MP is the first policy referred to within the Core Strategy; this policy ensures that the council will take a positive approach that reflects the presumption in favour of sustainable development.

11.12 The Core Strategy provides the vision for Central Lancashire; it comprises Strategic Objectives to be met and the policies in place to meet these objectives.

11.13 The Strategic Objectives within the Core Strategy pertinent to this chapter of the ES are the following:

- ‘SO15: To foster ‘place shaping’ to enhance the character and local distinctiveness of the built environment in Central Lancashire by encouraging high quality design of new buildings.
- SO16: To protect, conserve and enhance Central Lancashire’s places of architectural and archaeological value and the distinctive character of its landscape.
- SO17: To maintain and improve the quality of Central Lancashire’s built and natural environmental assets so that it remains a place with ‘room to breathe’.

11.14 Policies within the Core Strategy relevant to the above Strategic Objectives are the following:

- ‘Policy 17: Design of New Buildings – The policy states that the design of new buildings will be expected to take account of the character and appearance of the local area.
- Policy 21: Landscape Character Areas – The policy sets out the need for New Development to be well integrated into the existing settlement patterns, appropriate to the landscape.

\textsuperscript{132} The Planning Policy Guidance (PPG), March 2014
\textsuperscript{133} The Central Lancashire Core Strategy, July 2012
character type and designation within which it is situated contribute positively to its conservation, enhancement or restoration or creation of appropriate new features.’

11.15 The Core Strategy Key Diagram (Appendix 11.1) notionally marks the Site and its surroundings as a designated Area of Major Open Space (AMOS) that fulfils the objectives of SO 17:

- ‘Policy 19: Areas of Separation and Major Open Space – The policy protects the identity, local distinctness and Green Infrastructure of certain settlements and neighbourhoods by the designation of Areas of Separation and Major Open Space, to ensure that those places at greatest risk of merging are protected and environmental/open space resources are safeguarded

Areas of Major Open Space will be designated within the Preston urban boundary, in particular areas between:

Ingol/Tanterton and Greyfriars/Cadley’

Preston Local Policy

11.16 The Preston City Council (PCC) Local Plan 2012 -2026134 was adopted on 2nd July 2015, and forms part of the statutory Development Plan for Preston. The policies within the Local Plan aim to deliver the strategic objectives and vision of the CL’s Core Strategy.

11.17 As with the CL’s Core Strategy, PCC Local Plan Policy: V1 Model Policy sets out the need for the LPA to take a positive approach that reflects NPPF Paragraph 14: a presumption in favour of sustainable development.

11.18 The Site is designated in the PCC Local Plan Policies Map as EN2 and EN5 (Figure 11.1 Landscape Planning Policy).

**Policy EN2**: Protection and enhancement of Green Infrastructure – sets out policy to protect and enhance existing Green Infrastructure. Proposals which would involve the loss of Green Infrastructure will only be granted planning permission where:

‘a) it can be clearly shown that the Site is surplus to requirements; or

b) the loss resulting from the Proposed Development would be replaced by equivalent or better provision in terms of quantity and quality in a suitable location;

c) the development itself is for alternative Green Infrastructure provision, the need for which clearly outweigh the loss;

d) Policy EN10 is adhered to where the Site is part of an ecological network’

**Policy EN5**: Area of Major Open Space (as identified on Figure 11.1) – defines areas designated within the Preston urban boundary as Major Open Space, development will not be permitted unless the following criteria are met:

‘a) the provision of policy EN2 (as above) are fulfilled

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b) development complements and does not compromise the retention of a full 18 hole Golf Course (unless it can be demonstrated that a need no longer exists in accordance with NPPF Paragraph 74).

c) development complements and does not compromise the Area of Major Open Space for other leisure and recreational purposes.

d) the proposal does not detrimentally affect the visual amenity, landscape amenity, landscape character, and nature conservation value of the open space/Area of Major Open Space.

e) the identity of the neighbourhoods/urban communities is maintained’ as identified on Figure 11.1 which illustrates Ingol, Greyfriars and Cadley wards.

Other relevant policies include:

- **AD1**: Development within (or in close proximity to) the existing residential area - sets out the criteria for the scale and design of any Proposed Development within existing residential areas.

- **HS3**: Green Infrastructure in New Housing Developments – sets out the requirements of public open space provision to be created in accordance with the policy standards.

- **EN9**: Design of New Development – sets out the requirements for all new development to be designed with the principles as set out and explained in the CL Design Guide SPD.

**Supplementary Plan Documents**

11.19 The following supplementary documents are of relevance to this LVIA:

- North West Preston Masterplan
- Central Lancashire SPD: Affordable Housing
- Central Lancashire SPD: Design
- Central Lancashire SPD: Open Space and Playing Pitch
- Central Lancashire SPD: Biodiversity and Nature Conservation
- Natural England National Character Area 32: Lancashire and Amounderness Plain
- A Landscape Strategy for Lancashire: Landscape Character Assessment

**Assessment Methodology and Significance Criteria**

**Assessment Methodology**

11.20 This assessment has been prepared in accordance with ‘Guidelines for Landscape and Visual Impact Assessment (GLVIA), Third Edition, 2013; Landscape Institute and the Institute of Environmental Management and Assessment (GLVIA3)\(^{135}\). These guidelines set out the many variables to be considered in the LVIA, and the assessment has been tailored to the specific requirements of the proposals in accordance with these guidelines.

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The landscape study area is shown on Figure 11.2 Study Area Plan is based on the landscape character areas likely to be affected and the areas from which the development may potentially be visible. This has been informed by the initial desktop work carried out in August 2016. The study area encompasses the wider context of the Site in order to appreciate the role of the Site in its surroundings. It includes the visual envelop of the Site taking into consideration the distance of at which views of new housing are likely to be significant. In general views of new housing within or abutting an urban area beyond 1km from the Site boundary are unlikely to be significant, and 1km has therefore been adopted as a general cut off distance for the detailed visibility study. The study area as shown in Figure 11.2 Study Area Plan was agreed with the Local Planning Authority (LPA) through the scoping report.

Data Sources

Baseline conditions have been defined using a combination of desk study mapping, aerial photographs and relevant reports as detailed in the legislation section of this chapter as well as site visits.

Desk – Based Data

The assessment of landscape character effect has been based on characterisation work carried out by LCC as well as the National Character Assessments as defined by Natural England. Appendix 11.2 includes National Character Area 32, the Lancashire and Amounderness Plain, defined by Natural England\(^\text{136}\). Appendix 11.3 contains the description from Lancashire Character Assessment, Suburban Landscape Character Area\(^\text{137}\).

Study of aerial photographs and OS Mapping assisted in the assessment of baseline conditions and the identification of visual receptors.

A Tree Survey and Arboricultural Report have been undertaken by Urban Green in September 2016\(^\text{138}\), in accordance with BS5837:2012 ‘Trees in relation to design, demolition and construction’\(^\text{139}\). This has been relied upon to establish the quality and value of the existing trees within the Site. This survey will be submitted to the Local Planning Authority (LPA) as one of the application documents (Appendix 11.5).

An ecology assessment has been prepared by Avian Ecology and has been relied upon in respects of the appreciation of ecological value of landscape features within the Site. Chapter 9 of this ES covers this in more detail.

Site Surveys

Site visits were undertaken by a qualified chartered landscape architect on 17th October 2016 and in 19th October 2016 to appraise the baseline condition, landscape character and visual context.

\(^{136}\) National Character Area 32, the Lancashire and Amounderness Plain, Natural England, September 2014

\(^{137}\) Lancashire Character Assessment, Suburban Landscape Character Type, October 1999

\(^{138}\) Tree survey and arboricultural report, Urban Green, September 2016

\(^{139}\) BS5837:2012, Tree in relation to design, demolition and construction
11.28 Representative photographs were taken during the Site visits when the vegetation was in full leaf. Additional sites visits will take place to ascertain the visual effects of the Proposed Development during the winter months.

11.29 Visual assessment undertaken during the Site visits identified the representative viewpoints and visual receptors which could potentially view the Site and the Proposed Development. This included residents of properties and those using the Public Rights of Way (PRoW), Definitive Map Modification Orders (DMMOs), Locally Walked Routes and Roads. Observations made from those selected viewpoints have been used to make assumptions of the likely visual effect on residential properties and settlements in the area.

11.30 All pedestrian routes through the Site have been considered within the assessment and have been assessed equally in terms of their sensitivity. The DMMOs that run through the Site area currently under-review to become legalised PROWS and are currently shown on the Lancashire Definitive footpath maps. The Locally Walked Routes have been designed into the surrounding residential development as key desire lines and linkage to the local amenities. Although DMMOs and Locally Walked Routes are not considered as legal Public Rights of Way it is prudent to assess the effects of the Proposed Development on users of all footpaths within the Site, and to consider the sensitive of these receptors as high.

Consultation

11.31 In addition to the original scoping opinion, prior to submission of the ES, PCC were consulted on the location of the representative viewpoints for consideration within the visual assessment of the ES. Michael Aitcheson, Landscape Architect from PCC, agreed these locations via email on 4th November 2016. A copy of this email correspondence is included as Appendix 11.5.

11.32 Within the scoping report the need for Photomontages or a Zone of Theoretical Visibility were scoped out of the assessment. Subsequently, within the scoping opinion letter, PCC have not requested any additional method of assessment be used to evaluate landscape or visual amenity.

Photography Methodology

11.33 Photographs of the Site are shown on Figures 11.4 to 11.6 Site Photographs. Viewpoint locations agreed with the LPA are indicated on Figure 11.7 Viewpoint Locations and the photographs from viewpoints are included on Figures 11.8 to 11.41 Viewpoint Photographs. Photographs have been taken from publically accessible locations with a digital SLR camera (Nikon D330) with a 35mm fixed lens. This produces individual photographs with an approximate horizontal field of view of 40 degrees which are similar to those taken with a standard 35mm film camera and a 50mm fixed focal length lens. Individual photographs are then joined as panoramas to obtain fields of view which are representative of the views obtained from a particular viewpoint. Technical Guidance set out within the Landscape Institute Advice Note 01/11 – Photography and Photomontage in landscape and visual impact assessments140 has been followed, although tripod mounting and levelling to horizontal and vertical axes has not been employed, and any grid references are approximate. It was agreed through the scoping report that photomontages would not be required in connection with the scheme; subsequently there were no requests

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140 Landscape Advice Note 01/11 Photography and Photomontage in landscape and visual impact assessments, Landscape Institute, February 2011
from the LPA to provide any visualisations or photomontage work. Photographs are included as an aide memoire and evidence of the field study.

11.34 In line with published guidance the assessment is based on the consideration of the sensitivity of landscape character, landscape features and views/viewers to the development being proposed (i.e. residential development), and the magnitude of change that is likely to occur. The sensitivity and magnitude of change will then be considered together to enable conclusions to be drawn on the significance of any likely effects on landscape character, landscape features, and on people’s visual amenity.

11.35 **Table 11.1** illustrates the considerations which inform the judgement relating to the establishment of the significance of landscape effects. **Table 11.2** illustrates the considerations which inform the judgement relating to the establishment of the significance of visual effects.

**Table 11.1: Considerations Contributing to Establishing the Significance of Landscape Effects**

<table>
<thead>
<tr>
<th>1A SENSITIVITY OF LANDSCAPES</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sensitivity of landscape receptor</strong> =</td>
<td><strong>Value attached to landscape receptor</strong> +</td>
</tr>
<tr>
<td>Designations attached to landscape character types or areas which may be affected and their national, regional, local importance</td>
<td><strong>Landscape quality (condition)</strong></td>
</tr>
<tr>
<td>Landscape quality (condition)</td>
<td>Scenic quality</td>
</tr>
<tr>
<td>Rarity or representativeness</td>
<td>Conservation heritage interests</td>
</tr>
<tr>
<td>Recreational value</td>
<td>Notable perceptual qualities</td>
</tr>
<tr>
<td>Associations with art or literature</td>
<td><strong>Susceptibility of landscape receptor to change</strong></td>
</tr>
<tr>
<td>The ability of the landscape receptor to accommodate the Proposed Development without undue consequences for the maintenance of the baseline and/or landscape planning policy or strategy</td>
<td></td>
</tr>
</tbody>
</table>

**Overall Judgement in respect of sensitivity**: This will be explained in text as High, Medium, Low or Negligible depending on the combination of circumstances

<table>
<thead>
<tr>
<th>1B MAGNITUDE OF CHANGE WITHIN LANDSCAPES</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Magnitude of landscape effects</strong> =</td>
<td><strong>Size and scale of changes</strong> +</td>
</tr>
<tr>
<td>Extent of existing landscape elements that contribute to character that will be lost</td>
<td>Degree to which the proposal fits in with or changes existing character</td>
</tr>
<tr>
<td>The contribution made to the landscape by the scheme by virtue of good design, and its relationship to existing character</td>
<td><strong>Geographical extent</strong> +</td>
</tr>
<tr>
<td>Extent of geographical area over which effects are felt e.g.: at Site level; within the immediate setting of the Site; at the scale of a landscape type or character area; effects spread over a wider area.</td>
<td></td>
</tr>
</tbody>
</table>
Duration of effects

| Duration of effects | Short term: (0-5 years), medium term: (5-10 years), long term: (10-25 years); Consideration of reversibility and changes which will occur over time. |

**Overall judgement in respect of magnitude of landscape effects:** This will be explained in text as Major, Moderate, Minor or Negligible depending on the combination of circumstances

### 1A x 1B = SIGNIFICANCE OF EFFECTS ON LANDSCAPES

**Judgement of significance of effects:** Combines sensitivity and magnitude in a considered way and will be described as Major, Moderate, Minor or Negligible, and as either Beneficial, Adverse or Neutral depending on the circumstances. Major and Moderate Adverse effects are considered significant in EIA terms.

### Table 11.2: Considerations Contributing to Establishing the Significance of Visual Effects

#### 2A SENSITIVITY OF VIEWS AND VIEWPOINTS

<table>
<thead>
<tr>
<th>Sensitivity of views and viewers =</th>
<th>Value attached to views + Relationship to heritage assets or planning designations</th>
<th>Indicators of value in publications, maps, art etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Susceptibility of viewer to change</td>
<td>Occupation or activity of viewer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Extent to which their attention or interest is focussed on the view</td>
</tr>
</tbody>
</table>

**Overall judgement in respect of sensitivity:**
This will be explained in text as High, Medium, Low or Neutral depending on the combination of circumstances

#### 2B MAGNITUDE OF CHANGE TO VIEWS

<table>
<thead>
<tr>
<th>Magnitude of visual effects =</th>
<th>Size and scale of changes + Loss or addition of features and changes in composition, including consideration of proportion of view affected, and whether it will be full, partial or glimpsed.</th>
<th>Degree of contrast or integration with the landscape setting, including the design of the scheme and its visual qualities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Geographical extent +</td>
<td>Permanence of the view and its changes over time</td>
</tr>
<tr>
<td></td>
<td>Duration of effects</td>
<td>Angle of view compared to activity of main receptor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Distance of viewer from the development</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Extent of area over which changes are visible (including lengths of footpaths etc.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Short, medium, long term and reversibility</td>
</tr>
</tbody>
</table>

**Overall judgement in respect of magnitude of visual effects**
This will be explained in text as Major, Moderate, Minor or Negligible depending on the combination of circumstances
11.36 The assessment of the significance of effects will take into account all the variables set out in Tables 11.1 and 11.2 including:

- The sensitivity of the landscape or visual receptor – *i.e.* their value and susceptibility to change;
- The magnitude of change experienced by the landscape or visual receptor – *i.e.* the degree of alteration from the baseline;
- The scale at which any effect will be felt – *i.e.* site level, at the immediate setting of the Site, at the scale of the landscape character area;
- The visual quality of the development itself; and
- The changes that will occur over time with the development in place.

11.37 The scheme effects on the landscape and visual receptors will be described as major, moderate, minor, or negligible, and the scale at which any effect may be considered to be significant in EIA terms will be identified. Effects may be either positive (beneficial), negative (adverse) or neutral. Major and moderate adverse effects are considered significant in EIA terms.

11.38 Depending on visual qualities of the Proposed Development and the setting, major changes in the landscape or view may not always be judged as significant. Minor or negligible effects are not considered to be of EIA significance.

11.39 Chapter 2, Table 2.3 Matrix for Determining the Level of Effect, indicates the relationship between sensitivity and magnitude of change. This table is not applied automatically and professional judgement is used to weigh the balance according to the individual circumstances.

**Embedded Mitigation**

11.40 Embedded mitigation has formed an integral part of the project planning and design in order to avoid, reduce or offset any adverse effects on the landscape or wider environment. During the design process the Proposed Development have been adapted and modified to take account of the constraints and opportunities of the Site and to achieve the optimum environmental fit. In addition to this community consultation and pre-application discussions with Local Authority officers have taken place.

11.41 Alternative designs were assessed for landscape and visual effects and the design evolved to incorporate adequate buffers to protect existing visual amenity and the amenity of footpaths. Chapter 4, Table 4.1 of the ES sets out the masterplan iterations, and the mitigation measures and design evolution are described later in this chapter.
11.42 The potential effects have been assessed taking into account the proposed masterplan design, including the embedded mitigation measures.

Assumptions and Limitations

11.43 It is assumed that the scheme will be development in accordance with the Parameter Plans (Figures 5.1 – 5.2), and will largely be developed in line with Figure 1.1 Indicative Masterplan and Urban Design Principles. The Design and Access Statement will also ensure that a high quality, well landscaped new residential area is achieved.

11.44 Views from the settlements and PRoW within a 1km radius have been considered. In respect of the private residential properties, photographic viewpoints are selected at the curtilage of properties to provide representative views sufficient to enable assessment.

11.45 The assessment considers daytime effects because the Site is located near to an existing settlement and the principal viewpoints are PRoW’s used in the daylight hours.

11.46 The assessment considers the effects during construction following the implementation of the CEMP; upon completion which considers effect of the Proposed Development with embedded mitigation; and at fifteen years’ post completion i.e. when landscape treatments have matured. Significant and non-significant effects are discussed within the chapter.

11.47 It was agreed through the scoping report that a computer-generated map of the Zone of Theoretical Visibility would not be undertaken. The visibility of the Site has been determined by a study of the existing topographical baseline and field work. Site observations take into account the existing terrain, vegetation and intervening development. The predication of visibility of the development is based on the assumption that overall building heights will be two storeys.

Baseline Conditions

Landscape Character Context

11.48 Landscape character is a landscape resource resulting from the interplay of the physical, natural and cultural components of the Site and its surroundings.

National Landscape Character

11.49 The vicinity of the Site is identified by Natural England as falling within National Landscape Character Area (NCA) 32 – Lancashire and Amounderness Plain (see Appendix 11.2). The summary describes the area as:

'The Lancashire and Amounderness Plain is an area of high-grade agricultural land, bounded by Morecambe Bay in the north and Liverpool in the south. The eastern boundary is contained by Bowland Fringe. The plain is made up of a series of low-lying landscape types: in the east, undulating lowland farmland on the highly productive coastal plain, and in the west, the former mosslands and their remnant Sites, and coastal marshes and dunes.

The northern Fylde (or Amounderness) coastal plain contains the estuary and lower reaches of River Wyre, as well as its tributaries, the rivers Calder and Brock. It is predominantly improved pasture, with isolated arable fields. It is an ordered landscape of medium sized fields with field

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141 Urban Design Compendium, Llewlyn Davies Yeang, 3rd Edition 2013
ponds, clipped hedgerows and drainage ditches. This medium – to large - scale landscape, where blocks of wind sculptures mixed woodland punctuates the relatively flat to gently rolling plain.’

11.50 The NCA covers a large tract of land including both coastal and inland areas and as such the description is broad scale. As a golf course the Site itself is quite distinctive and the surrounding land use is largely residential as such the landscape of the study area is not typical of NCA 32 – Lancashire and Amounderness Plain.

County Landscape Character

11.51 A more detailed landscape character assessment has been carried by LCC; within the Lancashire Landscape Character Assessment the Site falls into Lancashire Urban Landscape Character Type and is identified as lying within Suburban (1930 onwards) Landscape Character Area (see Appendix 11.3). The assessment describes the area as follows:

‘This urban landscape type includes a wide variety of architectural styles and layouts. The majority of urban areas are characterised by spacious pattern of street, low buildings, garages and gardens, although there are also examples of high-rise tower blocks estates, with communal amenity grassland and extensive parking.

Earl suburban housing (1930-40) is typically semi-detached, built of brick and arranged in crescents and wide streets with large front and rear gardens. This type of older suburban housing often forms ribbon development along principal urban routes, with access to more recent housing estates behind. 1950s to 60s estates tend to have predominantly straight streets with some cul-de-sacs and with gardens and garages. Since the 1970s, housing development has been concentrated in relatively dense estates with cul-de-sac layouts, curved streets, small gardens and garages and are often a mixture of many different styles, frequently pastiches of old styles.

The use of many different materials, usually not of local origin and standardised architectural detailing of particular styles has resulted in a loss of regional identity; the same house designs recur across the whole country.’

11.52 The character of the study area reflects the description above. Much of the Site itself is utilised as a golf course and the dominant use and character of the surroundings is residential. To the north west of Sharoe Brook the character of the Site is influenced by the housing and residential nature of Ingol Village. To the south east of Sharoe Brook the character is more rural although influenced by the surrounding large detached houses. The Golf Course and associated landscape is a distinguishing feature in the area.

Description of the study area

11.53 The study area as indicated on Figure 11.2 includes the Site (Ingol Village Golf Course) and 1km offset of surrounding land; to the north the study area is open countryside, which is dissected by the M55, beyond the M55 is an inert waste tip and recycling plant.

11.54 The majority of the study area is residential development. To the east of the Site is the West Coast mainline railway, running in a north south direction, and beyond this is the residential area of Fulwood. South of the Site is the residential area of Cadley. Central to the Site and the study area is the Greyfriars Ward, and to the west is the Ingol Ward.
11.55 Running through the study area and the Site is the Sharoe Brook, this brook and the associated woodland form a green corridor. The Brook is joined by a tributary as it travels south through the Site.

Description of the Site and its Immediate Landscape Context

11.56 Figure 11.3 shows the landscape features in more detail which are described further within this chapter. Photographs taken from within the Site and the locations of these are shown on Figure 11.4-11.6.

11.57 The Site comprises approximately 70ha of land located on the northern fringe of Preston approximately 3.5km from the centre of Preston.

Site Boundaries

11.58 The Site is irregular in shape and is primarily bordered by residential development.

11.59 The B6241/Tom Benson Way (Figure 11.4 Photograph A) runs along the northern boundary of the Site, north of this is residential development along Lightfoot Lane, and open countryside beyond.

11.60 The eastern boundary of the Site is formed by the West Coast mainline railway that cuts through an embankment separating Ingol from Fulwood.

11.61 The western boundary is generally formed by existing residential development, to the south is the Greyfriars estate and beyond the residential area of Cadley.

11.62 The residential areas of Greyfriars (indicated on Figure 11.1) associated with Wychnor; the area around Walker Lane; and the Greyfriars Hall including surrounding detached properties are not included within the Site boundary.

Landuse and Pattern

11.63 Land within the Site comprises open grassland (Figure 11.4 Photograph B and C), mature woodland (Figure 11.5 Photograph D), parking areas and the Club House associated with the Golf Course.

11.64 There are three fairways to the north west of the Site that are no longer used or maintained as Golf Course, and this tract of land is currently encroached upon for recreational uses such as dog walking (Figure 11.5 Photograph E).

11.65 Sharoe Brook and tributary run through the Site. There are a number of small permanent ponds within the Site. Generally, these ponds are confined to the Site boundary and were originally designed as part of the course (Figure 11.5 Photograph F).

Public rights of way

11.66 There are two Public Rights of Way (PRoW), FP 43 and FP 46 that run through the Site. FP46 runs adjacent to the West Coast mainline railway embankment and FP43 crosses into the middle of the Site from the eastern boundary following the bank of the Sharoe Brook.

11.67 In addition to the PROWS there are several Definitive Map Modification Orders (DMMO) and one unadopted locally used footpath that cross the Site. The locations of these footpaths are shown on Figure 11.3 and detail of these linkages and their setting is described further in this chapter.
**Topography and Drainage**

11.68 The Site falls from a high point within the north eastern corner (approximately 40.6 AOD) to the lowest point within the Site south (approximately 20.0 AOD) over a distance of approximately 1.3km.

11.69 A majority of the Site can be described as relatively flat or gently falling; with the exception of the deep wooded valley that follows Sharoe Brook ([Figure 11.5 Photograph G](#)). Sharoe Brook joins the Site from under the West Coast mainline railway line and follows a meandering route southwards through the Site. A tributary to Sharoe Brook enters from the western boundary adjacent to the residential area of Sheraton Park before joining Sharoe Brook itself.

**Vegetation**

11.70 There are 359 existing individual trees, groups of trees, and woodlands within the Site as identified in the Tree Survey (see [Appendix 11.5](#)).

11.71 The vegetation associated with Sharoe Brook creates a green corridor which forms a coherent green network that runs through Site, then continues south and carries on towards the city of Preston.

11.72 To the north within the Site is a mature linear woodland plantation as identified in the Tree Survey, as a category A woodland, comprising of oak, sycamore and other notable native species ([Figure 11.5 Photograph H](#)). This belt of trees separates the Site from the heavily trafficked Tom Benson Way and Lightfoot Lane both of which lead to the M55.

11.73 To the back of the properties fronting Walker Lane and houses at Upland Chase is a broad mature tree belt; this section of woodland provides an important physical separation between the Ingol Ward and the Greyfriars Ward ([Figure 11.6 Photograph I](#)). In addition to this the Golf Course is surrounded and interwoven with mature woodland that offers a visual and physical screen to the Golf Course from PROWS, DMMOs, residential roads and adjacent properties.

**Buildings within the Site and the surroundings**

11.74 The Club House facility is located towards the western boundary of the Site and is accessed from Tanterton Hall Road. The facility is a single storey cluster of buildings with associated outbuildings. There is a car park comprising approximately 2000sqm area of hard standing adjacent to the Club House with room for approximately 90-95 cars.

11.75 To the north and west of Sharoe Brook there are a number of Residential Parcels that project into the Ingol Village Golf Course. The Residential Parcels of dwellings comprise a network of roads and a number of cul-de-sacs forming a relatively tight grain. To the south east of the Brook the houses are large detached dwellings with large gardens and the grain of residential development is significantly less dense.

**Landscape Value**

11.76 The landscape of the Site and study area are not internationally or nationally designated for its landscape value, nor does the Site form an important part of a wider open landscape which is sensitive to change. The study area is predominantly residential development.

11.77 The study area is a pleasant but unremarkable landscape with an integrated local character associated with this part of Preston. The landscape is not rare or representative of a particular landscape character type. Main roads, the West Coast mainline railway line and adjacent
settlements are part of this local character and therefore it is not valued as wilderness or classed as a tranquil landscape.

11.78 The nature of the Site as a golf course means that there are substantial boundary treatments such as tree belts to most of the surroundings and it is therefore visually contained. The trees and vegetation within the Site have local landscape value. The tree survey identifies there is a large TPO woodland (W91) adjacent DMMO2 within the boundary to the north of the Site; and some of the trees and woodlands have been categorised as Grade A in accordance with BS5837:2012. The landscape features are of local significance and where possible should be retained.

11.79 The landscape within the Site links the communities through this network of open spaces, it has some value in so much that it forms visual and physical break from the surrounding built up area. The scenic quality of the Site is influenced by adjacent housing areas particularly to the north and west.

11.80 To the south and east the landscape has a more rural character and has some influence from adjacent large detached properties.

11.81 The Site has recreational value with a network of formal PRoW and informal linkages that allow access between the existing housing developments.

Visual Context – Visual Receptors and Views from within the Site

11.82 Figure 11.7 shows the Site and viewpoint location as agreed with the LPA; Figures 11.8 – 11.41 show these photographs from each viewpoint.

11.83 DMMO 1 runs along the north-western corner of the Site. The northern part of the route tracks through the woodland plantation adjacent Tom Benson Way and this section of the route is not clearly defined on the ground and it is difficult to navigate through the woodland. There are filtered views through the woodland towards the Site / former fairways with glimpsed views of the upper storeys and rooftops of the existing residential development at The Avenue. To the west, the route runs along the Site boundary which is defined by vegetation and a palisade fence. Looking north east there are clear views across open land of the Site. It is possible in these views to see the upper floors and rooftops of the properties at New Links Avenue, West Avenue and The Avenue, although these views are somewhat filtered by the existing vegetation that borders these houses (Figure 11.8 VP1.1). A section of palisade fence has been installed to the boundary of the Golf Course and so it is not possible to follow the alignment of this path out of the Site towards Tanterton Hall Road. However a break in the fence adjacent to a parking court at New Rough Hey allows access in and out of the Golf Course.

11.84 DMMO 2 runs east to west, to the north of the Site adjacent to Tom Benson Way and links with the pedestrianised section of Walker Lane to Lightfoot Lane. The start of the route is defined by a stile; the footpath runs parallel to Lightfoot Lane through the woodland plantation at the northern boundary of the Site. There is an opening in the vegetation in the western section of the route that allows views east across the Site and existing fairway (Figure 11.9 VP2.1). Once inside the woodland there are glimpsed filtered views through the dense vegetation. The route leaves the Site at Lightfoot Lane which is a heavily trafficked road; looking south from DMMO2 as it enters the Site, the woodland belt is dense and the Site cannot be perceived.
11.85 DMMO 3 runs from the north of the Site linking the pedestrianised section of Walker Lane to Tanterton Hall Road at the western boundary of the Site. The middle section of the route runs parallel to the Site boundary that borders the properties on the eastern side of The Avenue. Existing vegetation and ponds mean that the route is different on the ground from that shown on Lancashire definitive footpath maps, but there is a route through the open land that can be accessed. To the north of the route there are clear views west across open land and the former Golf Course at the north-western section of the Site (Figure 11.10 VP3.1). The vegetation to the boundary along Tom Benson Way screens any long-distance views to the north. Looking south from this northern section of footpath there are also clear views across the existing fairways (Figure 11.10 VP3.2), however dense vegetation to the rear of the properties at Walker Lane and Upland Chase prevent any long-distance views. Travelling south along DMMO 3 there are filtered views of the upper floors and rooftops of the properties at Sheraton Park. In the southern section of this route there are short distance views north across open land and views towards the properties at The Avenue. These views are somewhat filtered by mature trees and vegetation.

11.86 DMMO 4 runs from DMMO 3 to the west of the Site in a north-easterly direction to the pedestrianised section of Walker Lane. Travelling east from the junction with DMMO 3 there are views across open land north towards the upper floors and rooftops of the properties at The Avenue although these views are somewhat filtered by existing vegetation (Figure 11.11 VP4.1). As the route continues north the footpath runs through a cluster of mature trees. Further north there is an opening in the vegetation which allows views both north and south across the Golf Course. In views to the south dense vegetation to the rear of the properties at Walker Lane and Upland Chase prevent long distance views (Figure 11.11 VP4.2). In views to the north, the properties to the south-east side of The Avenue can be seen through the vegetation; mature trees and vegetation to Walker Lane and Tom Benson Way prevent any long-distance views (Figure 11.11 VP4.3). As the route enters the Site tracking west from Walker Lane, the houses at Walker Lane and dense vegetation impede any views from this section of footpath across the Site.

11.87 DMMO 5 runs from PRoW FP 64 which links to the properties at Dukes Meadow outside the Site through the Site towards Walker Lane. Most of the route that is within the Site boundary runs through dense vegetation and the Site cannot be perceived (Figure 11.13 VP5.1). There are breaks in the vegetation to allow access into the Golf Course and at these locations there are glimpsed views into the Site. As the route leaves the Site the vegetation corridor continues along FP 51 (a PRoW); however, DMMO 5 follows a loop around the edge of this green corridor at the top of the valley to the brook (Figure 11.13 VP5.2). In views from the section of the footpath outside the Site the upper storeys and rooftops of the properties at Higher Greenfield can also be seen through the vegetation that follows the brook corridor.

11.88 DMMO 6 runs from Walker Lane and descends rapidly to follow the banks of the Sharoe Brook. The route then rises briefly crossing the Site before leaving the Proposed Development on the southern boundary and continuing into dense vegetation. Outside the Site the path meanders through the woodland to connect to the existing residential area of Higher Greenfield. The majority of the footpath is contained within dense woodland associated with the Sharoe Brook, and in most instances the footpath is at a low level so that the Site is not seen. However, as the footpath crosses the southern section of the Site there are views west across the vegetation to the Brook looking into the south western section of the Site and views east towards the south of the Site. In views to the west the vegetation along DMMO 5 prevents any long range views but
there is a clear view into Ingol Village Golf Course and a distinctive tree within the fairway, identified as T239 Category A tree on the Tree Survey (Figure 11.14 VP6.1). In views to the east the vegetation on the Site boundaries prevent any long distances views, but there is a clear view down the existing fairway (Figure 11.14 VP9.1).

11.89 There is an existing locally walked route that connects Walker Lane to Tanterton Hall Road. This path has not been defined as a PRoW, nor is it one of the DMMOs within this area, however the route is a surfaced and lit footpath that provides a connection through the Site. For the majority of this route the open land within the Site cannot be seen. To the western boundary of Site the route runs between a brick boundary wall to the existing houses at Sheraton Park and vegetation at the rear of the Golf Course Club House and from this location the open land within the Site is not visible (Figure 11.15 VP7.1). As the route tracks further along this boundary edge there are views into the Site of the Golf Course, and there are glimpsed views through the trees of the Club House and associated out buildings. The route enters the Golf Course adjacent the Club House and there are short distance views across a fairway towards the vegetation that borders the Site and the properties at Upland Chase (Figure 11.15 VP7.2). The route continues north east into a cluster of trees at the rear of the properties at Upland Chase, and from this section of the footpath the Site cannot be seen (Figure 11.15 VP7.3).

11.90 To the north of the Site leading from Tom Benson Way running south is a pedestrianised section of Walker Lane. This sylvan route provides linkage from the residential areas of Ingol and Greyfriars, north, to the Guild Wheel Cycle Route and the open countryside beyond. For most of the route there are filtered views into the Site (Figure 11.17 VP8.1), and at openings in the vegetation there are clear views across the former fairways towards residential areas (Figure 11.17 VP8.2).

11.91 DMMO 7 connects Walker Lane to DMMO 6 in an east to west direction, within the most southerly section of the Site. From the east looking west into the Site from Walker Lane there are clear views across the course fairway towards the surrounding mature trees and vegetation (Figure 11.19 VP10.1).

11.92 DMMO 8 runs from Walker Lane, within the southern part of the Site, through the Golf Course towards the eastern boundary. The route crosses the Golf Course and then enters the woodland located along the West Coast mainline railway embankment at the eastern boundary. The route continues north through the woodland and at the most northern point of DMMO 8 the route descends rapidly down the steep valley of Sharoe brook and joins PRoW 43. There are clear views across the Site for approximately half the route, however intervening vegetation prevents any long distance views to the landscape beyond that of the Village Golf Course (Figure 11.20 VP11.1, 11.2, and 11.3).

11.93 DMMO 9 connects the residential area of Ingol and the properties at Manor Court to PRoW FP43. The route descends rapidly between two existing properties into the Site down the valley formed by Sharoe Brook. There is a timber footbridge that crosses the brook connecting the DMMO9 to the PRoW FP 43. The vegetation to either side of the route is mature and dense, and there are no views across open land or vistas to be gained from this route (Figure 11.22 VP12.1).

11.94 DMMO 10 connects the residential area of Ingol and the properties at Manor Court and Green Acres to PRoW FP43. The route enters the Site in between the gable ends of two properties at Manor Court; there is also a linkage to a cul-de-sac at Green Acres. The path meanders through
the dense overgrown vegetation and descends towards Sharoe Brook. There is a timber footbridge that crosses the brook connecting the DMMO to the PRoW FP 43. As with DMMO 9 there are no views across open land or vistas to be gained from this route (Figure 11.23 VP13.1).

11.95 PRoW FP43 runs along the banks of the Sharoe Brook and connects the residential area of Fulwood to Ingol and Greyfriars. The route is entirely surrounded by mature vegetation so that the adjacent residential areas and Golf Course cannot be perceived from this route (Figure 11.24 VP14.1).

11.96 FP46 connects FP 43 to Lightfoot Lane along the eastern boundary of the Site adjacent to the existing West Coast mainline railway embankment. The route runs in a north south direction within a woodland belt that screens the railway line from the Site and Ingol. From the southern section of the route there are filtered views through the vegetation across the Golf Course towards the rear boundaries of the properties at Green Acres (Figure 11.25 VP15.1). As the footpath runs north the woodland becomes wider and denser and no views of the course or the adjacent housing are possible (Figure 11.25 VP15.2).

Visual Context – Visual Receptors and Views of the Site

11.97 The Site is not visible from PRoW's FP88, BW89 (Guild Wheel Cycle Route), FP3, FP65, FP44, FP 62, FP41, FP42, FP64, FP66, FPS3, FPS2, and FPS1 as shown on (Figure 11.2) are located outside the Site boundary. Due to the existing vegetation to the perimeters of the Golf Course, the topography of the land and the screening effects of surrounding residential development.

11.98 From Tom Benson Way and Lightfoot Lane the woodland plantation to the northern boundary of the Site means that the Site is heavily screened to motorists and users of these roads. There are some areas of less dense vegetation that allow fleeting views into the Site (Figure 11.26 VP16.1 and 11.27 17.1).

11.99 The majority of the Site cannot be seen from Wychnor (Figure 11.28 VP18.1, 18.2, 18.3, and18.4), Tanterton Hall Road (Figure 11.30 VP19.1 and19.2), and Walker Lane (Figure 11.31 VP20.1) due to existing vegetation, residential development and the topography of the land. There are a few opportunities for fleeting views into a portion of the Site where the Golf Course crosses these roads. Visual receptors experience views across the course fairways, towards existing housing development or woodland planting that surrounds the Site.

11.100 The Site is not visible from Boys Lane due to the topography of the land and intervening vegetation (Figure 11.32 VP21.1).

11.101 Due to the road layout and gaps in the existing vegetation along the boundaries of the Site, residents and motorists on residential roads at New Rough Hey (Figure 11.33 VP22.1), West Ave, New Links Avenue and The Avenue (north west side) (Figure 11.34 VP23.1), experience views into and across the former fairways in the north-western part of the development area. Residents of the properties on these roads will also experience views from upper floor windows across the Site.

11.102 Views into the development area are limited for motorists using residential roads at The Avenue (south east side) (Figure 11.35 24.1), Sheraton Park (Figure 11.36 VP25.1), Dukes Meadow (Figure 11.37 VP26.1), Greenfield Way and Higher Greenfield (Figure 11.38 VP27.1). Manor Court (Figure 11.39 29.1), Gleneagles Drive and Carnoustie Close (Figure 11.40 VP30.1) due to
intervening vegetation and built form. However, residents of these properties will experience views from upper floor windows across the former Golf Course site.

11.103 From the cul-de-sac at Hoylake Close (Figure 11.39 VP28.1) there are views into the Site of the Golf Course. These views are filtered by vegetation in some locations. However wire mesh boundaries offer less filtered views across the Site. In views from these cul-de-sacs the residential development at Manor Court can be seen in the middle distance and screens any long-distance views. Occupants of the properties at Hoylake Close are expected to experience views from upper windows into the Site.

11.104 Due to the layout of the properties at The Maples the Site is not visible from this small cul-de-sac of houses. Through gaps in the houses there are views across the Site to the rooftops of houses that back onto the Golf Course from Gleneagles Drive and Carnoustie Close (Figure 11.41 VP31.1). Intervening boundary fences and vegetation mean that there are no views from the road into the Site; however it is assumed that residents of the properties at The Maples will have clear views into the Site and across the Site to the residential area to the south.

11.105 Due to the typography of the land and intervening vegetation the residents at Ingol Cottage may experience some filtered views into the Site from upper floor windows. This property is located within private grounds and is not public accessible, but the view from this property is considered within the assessment.

**Design Evolution**

11.106 The initial design of the Site considers the following embedded mitigation.

**Site layout design, retention and protection of landscape features**

11.107 The proposed layout will be arranged around existing landscape features within the Site which are of high sensitivity in order to retain landscape character and pattern. Existing woodland belts and green corridors will be retained and enhanced. A majority of the Site will be retained as public open space and publically accessible. The existing trees and vegetation provide a mature setting for the Green Infrastructure within the Site and will aid in integrating the development into the landscape. In addition to this the mature vegetation provides a visual and physical strategic separation between Ingol, Greyfriars and Cadley.

11.108 A tree survey has been undertaken by a qualified Arboriculturalist (Appendix 11.5); this indicates adequate Root Protection Areas (RPA), the scheme will be laid out to ensure that existing trees will be retained where possible. No TPO trees will be removed as part of the Proposed Development. Any trees lost as part of the Proposed Development will be compensated for within the new layout.

**Integration into the wider landscape and maintaining a strategic gap**

11.109 The existing vegetation that runs central to the Site in a north south direction provides a separation function between Ingol and Greyfriars, this woodland belt will be strengthened with further tree planting and open space to establish a broad physical and visual gap between Ingol and Greyfriars.

11.110 Lower density housing will be designed into the parameters of the Site in the central location to the rear of Ingol Cottage, in order to create a transition between the residential urban fringe.
areas to the north west of Sharoe Brook, into the denser development to the south east at adjacent Ingol Cottage and the Greyfriars estate.

11.111 The location of the Training Facility to the south eastern part of the Site respects the character of the area. The proposed residential dwellings have been focused to the northern and western parts of the Site, north of the Sharoe Brook. Whereas the southern and eastern parts of the Site are generally more open and sports pitches and their open nature will be generally more in-keeping with this part of the Site.

Public Open Space: Creation of a new forest park and community facilities

11.112 41.3ha of the Site is intended to be set aside for Public Open Space forming Green Infrastructure to be utilised for informal and formal recreation as a forest parkland, to improve linkages and movement across the area as well as increasing biodiversity and supporting existing ecology, more details are included within the Chapter 9 of this ES.

11.113 A series of community facilities will be provided as part of this accessible open space. The design and usage of this open space will be agreed with the LPA and local community to fulfil local need. Local amenity space and local play spaces will be provided in accordance with PCC Local Plan.

Retention and enhancement of existing Green Corridor/ Biodiversity/ Habitat Creation

11.114 Sharoe Brook and tributary will be retained and integrated into the design along with the Sustainable Drainage System (SUDS) and new wetland habitat and ponds.

11.115 Existing ponds throughout the Site will be retained and enhanced for their biodiversity and ecological value. New ponds and areas of wetland habitat will be designed into the Proposed Development and will be designated for Newt habitat mitigation, the details of which have been include in Chapter 9 of this ES.

Protection of existing residential amenity

11.116 Existing boundary treatments and vegetation will be retained and where possible enhanced in order to reduce any effects on residential amenity

11.117 The height of ridgelines and buildings within the Proposed Development will be restricted to two storeys high.

11.118 Where necessary woodland belts and screen planting have been incorporated into the design to screen any Proposed Development from impeding on the amenity value of adjacent properties. Where screen planting has not been appropriate the layout of houses has been designed to respect the adjacent grain of the existing residential development.

Protection and enhancement of Public Rights of Way/ DMMOs/ and Locally Walked Routes

11.119 With the exception of DMMO 8; all PROWS, DMMOs and existing locally walked routes will be retained throughout the Site layout and additional linkages will be created in appropriate locations as indicated on the Indicative Masterplan Figure 1.1. DMMO 8 in its current alignment tracks the proposed Training Facility; this route will be realigned into the woodland along the southern and eastern boundaries of the Site into a similar setting to that of the northern section of the route.
11.120 Open space for formal and informal recreation throughout and adjacent to proposed Residential Parcels will be designed to ensure they are overlooked where possible by outward facing properties providing natural surveillance.

11.121 Landscape management will be implemented throughout the scheme to ensure that the linkages through the Site are kept clear and accessible and the amenity of the routes will be retained and enhanced.

11.122 Following the initial Site analysis indicative housing layouts were produced. These layouts were amended to incorporate advanced tree planting and to reduce development adjacent to the pedestrianised section of Walker Lane. Further layout changes were made in order to ensure outward facing development parcels were designed adjacent to open spaces. A landscape lead masterplan was agreed and produced to incorporate a forest park and network of linkages through community facilities across the Site.

11.123 Following discussion with the project ecologist and the requirement for newt mitigation, the areas of proposed newt ponds and habitats were increased. The indicative road and housing layouts were amended to retain key green links through the Site; further details have been included in Chapter 9 of this ES.

11.124 A north to south cycle link has been included in the masterplan linking the proposed housing parcels to the Guild Wheel cycle route north of the Site increasing connectivity through the Site to the surrounding.

Proposed planting and visual screening

11.125 Structure planting has been designed into the layout to help integrate the Proposed Development with the surrounding landscape. New planting will complement the existing retained trees throughout the Site by using similar species appropriate to the landscape character.

Embedded Mitigation – During Construction

11.126 Mitigation of the likely construction effects on landscape and views will be largely achieved through the implementation of the Construction Effects Management Plan (CEMP) which will include the following (in other chapters this has formed part of mitigation measures as opposed to embedded mitigation):

- Protection of hedgerows and trees to be retained in accordance with BS5837 (2012), for the duration of clearance, grading and construction phases;
- Protection of landscape features such as water bodies and brooks through careful working methods and handling of materials to prevent pollution and ensure integrity of resources;
- Visual screening of on-Site activity where is it practical to do so, and where this would not be a negative visual distraction in itself;
- Management of Site traffic to and from the Site, minimising excessive traffic movement on the surrounding road network;
- Siting of construction compounds to minimise visual effects on receptors;
• Management of working time to minimise visual effects on receptors in the evenings and at weekends.

Potential Effects

11.127 A review of the baseline description suggests that issues of most importance or relevance for the development during either construction or operation or both, will include:

11.128 Potential effects on landscape:

• Effect on National Character Area 32;
• Effect on Local Landscape Character Area;
• Effect on the local urban character of the residential areas, including New Rough Hey, West Avenue, New Links Avenue, The Avenue, Sheraton Park, Dukes Meadow, Green Field Way, Higher Green Field, Hoylake Close, Manor Court, Gleneagles Drive and Carnoustie Close, The Maples (Lightfoot Lane);
• Effect on the Area of Major Open Space;
• Effect on the landscape features within the Site;

11.129 Potential visual effects:

• Effect on views from footpaths outside the Site (FP88, BW89 (Guild Wheel Cycle Route), FP3, FP65, FP44, FP 62, 41, 42, FP64, FP66, FP53, FP52, and FP51);
• Effect on views from footpaths adjacent to proposed residential development (FP DMMO1, FP DMMO2, FP DMMO3, FP DMMO4, FP DMMO5, DMMO6, Locally Walked Route, and pedestrianised section of Walker Lane);
• Effect on views from footpaths in the Site within new training facilitates/ recreational space (FP DMMO6, FP DMMO7, FP DMMO8, FP DMMO9, DMMO 10, FP46, and FP43);
• Effect on views from Tom Benson Way, Lightfoot Lane, Walker Lane, Tanterton Hall Road, Wychnor, and Boys Lane;
• Effect on views from residential roads adjacent to the proposed residential development (New Rough Hey, West Avenue, New Links Avenue, The Avenue, Sheraton Park, Dukes Meadow, Green Field Way, Higher Green field, Hoylake Close, Manor Court, Gleneagles Drive and Carnoustie Close, The Maple (Lightfoot Lane));
• Effect on views from Private Properties around the Site;

11.130 Private views are of relevance when judging the land use effect of a Proposed Development. However, there is no ‘right to a view’, and thus the change to view is not itself of concern to the planning system unless there is a material effect upon residential amenity as a result of the Proposed Development.

11.131 The effects on the landscape features, landscape character and visual amenity of the Site have been assessed both during the construction and operation phases.
11.132 Effects have been assessed to take into account the embedded mitigation which have been integrated into the design and are described early within this chapter.

11.133 The location of the representative viewpoints around the Site are identified on Figure 11.7. All of these viewpoints lie within 1km of the Site.

Landscape and Visual Sensitivity

Conclusions in respect of sensitivity of landscape character

11.134 The Site itself visually is well contained and abuts residential development. The Proposed Development of the Site to include a forest park, a Training Facility and residential development will be in keeping with the existing land uses. In terms of susceptibility to change it is considered that the landscape within the study area that is reasonably tolerant of change.

11.135 Due to its local value and context, the sensitivity of the landscape within the study area has been determined as medium and will be reasonably able to accommodate the Proposed Development.

Conclusion in respect of sensitivity of landscape features

11.136 The woodland plantations and the surrounding mature trees and vegetation to the boundaries of the Site are the principal landscape features. There are trees and woodlands within the Site that have been assessed in the Tree Survey as being high to moderate quality. The vegetation that runs along Sharoe Brook and the unnamed tributary provide visual screening to the PROWS and form a valued green corridor through the Site. There are a number of ponds along the Site boundaries with wildlife and ecological value as identified in Chapter 9 of this ES. Overall the landscape pattern and features within the Site have moderate value. Within the Site there are no features which are particularly susceptible to change. The sensitivity of the landscape features has been determined as medium.

Conclusion in respects of sensitivity of visual receptors

11.137 Visual receptors which have long lasting or permanent views and those whose attention or interest is likely to be focused on the appreciation of the landscape are classed as high sensitivity receptors. This includes views from residential properties, those using PROW and visiting public viewing points.

11.138 Visual receptors which have intermittent or less permanent views and are likely to be aware of the landscape, are classed as medium sensitivity. As such travellers using local roads around the Site are determined as medium sensitivity

11.139 Views which are experienced infrequently are fleeting and of limited importance are considered to be low sensitivity, as well as users of motorways, and receptors at commercial properties.

11.140 The Proposed Development has been modified and refined during the design process to avoid and minimise effects. Mitigation has therefore been used as a design approach to achieve the optimum environmental fit.

11.141 The proposals are shown on the Parameter Plans (Figures 5.1 – 5.2) and described fully in Chapter 5 of the ES.

Construction Effects
During the construction period, there is the likelihood of the following temporary changes which could affect the landscape for a relatively short period of time:

- Movement of plant and heavy goods vehicles;
- Site compound;
- Earthworks;
- Temporary stockpiling of earth and storage of materials on Site;
- Temporary fencing, including protection fencing;
- Services and drainage infrastructure works;
- Highways construction;
- Implementation of embedded mitigation/landscape strategy;

**Conclusions in respect of effects in EIA terms on the Landscape Character**

The construction effects are temporary and mitigated for where possible by a Construction Management Plan (CEMP). The effects will largely be associated with the introduction and movement of Site vehicles and construction machinery, Site preparation work, stockpiled material, Site compounds, storage buildings, temporary fencing and signage to the Site.

At Site level and within the immediate setting, the construction activity will be uncharacteristic and out of context resulting in some significant adverse effects. On a wider scale, the construction activity will be uncharacteristic of the local landscape character area, but will not be of a scale to have an influence on the character area as a whole. The magnitude of effect on the landscape character of the study area during construction is assessed as medium. The landscape has a medium sensitivity to change, resulting in temporary moderate adverse effect on the landscape character at a local level and is therefore significant in EIA terms.

**Conclusions in respect of in EIA terms on landscape features**

There is an inevitable loss of open land (the Golf Course and former Golf Course). The tree survey recommends that 21nr trees and a small group of cherries, identified as category U, in line with BS5837 2012, be removed as part of arboricultrual management. A further 18nr identified as category B/C trees in line with BS5837 2012 will need to be removed to accommodate the Proposed Development. 123m of hedgerow to the north western portion of the Site that will need to be removed to accommodate the Proposed Residential Development. 421m of hedgerow will be retained and protected in order to be incorporated into the proposed layout. 0.9ha of woodland will need to be removed (3% of the overall woodland across the Site) in order to provide enough open space for the proposed football pitches associated with the Training Facility; over 30ha of existing woodland is to be retained across the Site. Any trees lost as a result of the Proposed Development will be compensated for with replacement tree planting within the Site.

It is recommended that the all proposed woodland planting be planted at the beginning of the project and be in place and protected during the construction phase.
11.147 The woodland plantation to the north of the Site, and the green corridor to the Sharoe Brook and tributary will be retained. All retained trees and vegetation will be protected in accordance with BS 5837 during the construction period.

11.148 No defining characteristics of the landscape or features of importance within the Site will be lost during the construction phase.

11.149 During the construction phase the magnitude of change to landscape features has been assessed as medium - minor given there will be a minimal change to the landscape pattern and features within the Site and over 41.3ha of landscape will remain as currently existing or enhanced. Although a portion of woodland will be removed to accommodate the sports pitches this is 3% of the overall woodland within the Site boundary and it is not an integral part of the visual screening or green corridor that runs through the Site. The sensitivity of the landscape features has been assessed as medium sensitivity, resulting in a temporary moderate - minor adverse effect on the landscape features within the Site during the construction phase and therefore not significant in EIA terms.

Conclusions in respect of magnitude of change and effect on Local Urban Character

11.150 The construction activity is uncharacteristic and out of context to the surrounding residential area resulting in some significant adverse effects. The magnitude of effect on the landscape character of the study area during construction is assessed as substantial. The landscape has a medium sensitivity to change, resulting in temporary moderate adverse effect on the landscape character at a local level and therefore significant in EIA terms.

Conclusions in respect of the Visual Effects of the Proposed Development

11.151 Effects on views from footpaths outside of the Site (FP88, BW89 (Guild Wheel Cycle Route), FP3, FP65, FP44, FP 62, 41, 42, FP64, FP66, FP53, FP52, and FP51) is negligible and therefore not significant in EIA terms; given that the Site is visually well contained and intervening residential development and buildings mean that the Site is not visible from these locations.

11.152 Effect on views during construction from footpaths, which include DMMOs, PROWS and Locally Walked Routes, adjacent to proposed residential development; users of these routes are considered to have high sensitivity.

- Users of FP DMMO1, FP DMMO3, and FP DMMO4 will have clear open views across the construction Site for a majority of the overall route and the so the magnitude of change is assessed as substantial, resulting in a temporary major adverse effect on the visual receptors and therefore significant in EIA terms.

- The majority of FP DMMO5, DMMO6, and Locally Walked Route are within substantial vegetation that prevents views into the Site. There are sections of the footpath that experience views across the construction Site through breaks in the vegetation but this will be experienced for a small proportion of the overall route. The magnitude of change is assessed as being medium – minor, resulting in a temporary moderate – minor adverse effect on the visual receptors and therefore significant in EIA terms.

- FP DMMO2 and a pedestrianised section of Walker Lane are contained within dense vegetation. There will be filtered views of the construction Site through the vegetation and openings in the vegetation. As the advance planting to the west of Walker Lane and within the newt mitigation area east of Walker Lane establishes the magnitude of change is
assessed as minor, resulting in a temporary minor adverse effect on the visual receptors and therefore not significant in EIA terms.

11.153 Effect on views during construction from footpaths through the Site within new Training Facility/recreational space; users of these footpaths are considered to have high sensitivity.

- FP DMMO6 tracks through substantial vegetation that prevents views into the Site. There are sections of the footpath where users will experience views across the construction Site through breaks in the vegetation but this will be experienced for a small proportion of the overall route. The magnitude of change is assessed as being medium, resulting in a temporary moderate adverse effect on the visual receptors and therefore significant in EIA terms.

- Users of FP DMMO7 and FP DMMO8 will experience clear views across the construction Site. The magnitude of change is assessed as substantial, resulting in a temporary major adverse effect on the visual receptors and therefore significant in EIA terms.

- Users of FP46 will experience some filtered views into the construction Site. The magnitude of change is assessed as medium - minor, resulting in a temporary moderate - minor adverse effect on the visual receptors and therefore significant in EIA terms.

- There are no possible views from FP DMMO9, FP DMMO 10, and FP43 of the Construction Site due to the intervening vegetation along the Sharrow Brook, the effects are therefore assessed as negligible and therefore not significant in EIA terms.

11.154 Effect on views during construction from roads through and adjacent to the Site; pedestrian users of these roads are assessed as having high sensitivity and motorists are assessed as having medium sensitivity.

- From Lightfoot Lane and Boys Lane the Site cannot be perceived and therefore the visual effects of construction on the Site will be negligible and therefore not significant in EIA terms.

- There are currently no views into the Site from Tom Benson Way and Tanterton Hall Road, existing vegetation along this route is proposed to be retained. However, an access road is proposed from this road. During construction some activity is likely to be perceived by users of Tom Benson Way and Tanterton Hall Road. The magnitude of change is assessed as medium; therefore resulting in a temporary moderate adverse effect for pedestrians (significant in EIA terms) and temporary minor adverse effect for motorists (not significant in EIA terms).

- Pedestrian users of Walker Lane and Wychnor will experience views into the construction Site across open land at points where the Golf Course crosses the road. There will be a change in these views as a result of construction on the Site and the creation of an access point. However, these changes will be experienced for a small percentage of the overall journey; therefore the magnitude of change is assessed as medium – minor, and the effect as temporary moderate - minor adverse and therefore significant in EIA terms.

- Motorists using Walker Lane and Wychnor will experience views into the construction Site across open land at a number of points along the roads. There will be a change in these
views as a result of construction on the Site. These changes will be fleeting for a brief portion of the overall journey; therefore the magnitude of change is assessed as minor - negligible, and the effect as temporary minor adverse – negligible and therefore not significant in EIA terms.

11.155 Effect on views during construction from residential roads adjacent to the proposed residential development. Pedestrian users and residents are assessed as having high sensitivity.

- Users of New Rough Hey, West Avenue, New Links Avenue, The Avenue, and Hoylake Close will experience clear views across the construction Site the magnitude of change is assessed as substantial, resulting in a temporary major adverse effect on the visual receptors and therefore significant in EIA terms.

- Users of Sheraton Park, Dukes Meadow, Greenfield Way, Higher Greenfield, Manor Court, Gleneagles Drive, Carnoustie Close, and The Maples (at Lightfoot Lane); experience filtered views through trees/ boundary fences towards the Site the magnitude of change is assessed as medium, resulting in a temporary moderate adverse effect on the visual receptors and therefore significant in EIA terms.

- It is expected that residents of the existing properties directly adjacent the Proposed Development will experience views across the construction Site. The magnitude of change is assessed as substantial, resulting in a temporary major adverse effect on the visual receptors and therefore significant in EIA terms.

Operational Effects – On Completion

11.156 During the operational period when the Proposed Development has been completed the public open spaces and landscape space around the scheme will be managed in accordance with a management plan to ensure that they remain in good order and that the long-term objectives and character are achieved.

11.157 The housing areas will settle into their permanent structure, and garden areas will mature. There will be night-time lighting commensurate with usual standards for an edge of town housing area; further details of the lighting effects as a result of the Proposed Development are included in Chapter 12 of the ES.

Effects on the Landscape Character

11.158 There will be some loss of open land that was once part of Ingol Village Golf Course however, the layout will allow for the retention and enhancement of a majority of the green networks through the Site; this will provide a mature setting for the Proposed Development. The proposals include 3.3ha of new woodland and tree planting as part of the overall 41.3ha forest park design, as well as ornamental tree planting, hedgerows and shrubs associated with the domestic gardens within the proposed residential development. This will result in an overall increase in vegetation and enhancement of wildlife value and biodiversity within the Site and includes 6.2ha of newt mitigation with 14 additional ponds.

11.159 The proposals include tree planting to Site boundaries in order to integrate the Proposed Development into the wider landscape. The interface between the urban edge and the wider landscape will be retained as existing as the Site is well contained by vegetation.
11.160 The proposed public open space and Green Infrastructure including the forest park, footpaths and cycle linkages, play areas, sports facility, allotments, and cycle track provide opportunities for informal recreation and increase the recreational value of the Site.

11.161 The footpaths through the Site offer views across the Golf Course but residential development is often part of the surrounding context. There will be some loss of these views but the layout will retain long distance views that have been identified as having local importance from the existing Club House across the course towards Preston as identified in the Design and Access Statement.

11.162 The character of the landscape within the Site itself will inevitably change as a result of the development; but the magnitude of change on the landscape character of the study area will be minor and will result in minimal alterations to the landscape pattern and characteristics of the baseline. There will be an introduction of elements that will be consistent with the existing landscape character and the surrounding features. The landscape has a medium sensitivity and the magnitude of change will be minor adverse on completion and therefore not significant in EIA terms.

**Effects on the landscape features**

11.163 Of the overall Site 72% will be retained as open space including 6.2ha of newt mitigation; 65% will be accessible for recreational uses. There will be a loss of some trees, woodland, and hedgerow as detailed above but this will be compensated for by additional new planting of over 3.3ha new woodland in proposed across the Site. This planting will be proposed as advanced planting before the construction phasing begins.

11.164 Sharoe Brook, which runs through the Site, will be retained and new water bodies will be created through the open spaces as part of SUDS for the residential areas. Additional ponds (to those which form part of the SUDS proposals), will be provided as part of the 6.2ha of newt mitigation across the Site.

11.165 No defining characteristics of the landscape or features of importance will be lost as a result of the Proposed Development.

11.166 On completion the planting proposed will more than compensate for the loss resulting in an overall strengthening of the landscape features. As such the magnitude of change to the landscape features following mitigation has been assessed as medium - minor. The sensitivity of the Site is determined as medium resulting in a moderate - minor beneficial effect on landscape features and therefore significant in EIA terms.

**Conclusions in respect of magnitude of change and effect on Local Urban Character**

11.167 Overall there will be a change in character to the residential areas within the immediate setting of the Site. Although the change will not be uncharacteristic of the adjacent land uses, it should be acknowledged that in some cases adjacent residents will be able to perceive new development on the Site. Through the mitigation process the design of the Site layout is such that open spaces and green fingers run through the Proposed Development in order to retain view lines across open space through the new residential areas and integrate the proposals with the existing housing.

11.168 Although there will been an immediate loss of open space adjacent to existing houses, the development proposes new linkages throughout the area and the formalising of the existing open space for public use as a forest park. The magnitude of change given the adjacent land uses
will be medium - minor; as a result there will be a **moderate - minor adverse effect** on the adjacent residential areas and therefore **significant** in EIA terms.

**Conclusions in respect of magnitude of change and effect on Area of Major Open Space**

11.169 There will be an inevitable loss of open space between the wards of Ingol and Greyfriars. However the narrowing of this open space, as identified in Preston Local Plane Policy EN5, will not cause the two wards to merge. The Proposed Development of the Site will retain and enhance the existing woodland belt that runs through the Site in a north – south direction. This space has been incorporated into a forest park, publicly accessible open space with wildflower meadows, wetland habitats, SUDS systems allotments, community orchard and play areas. The space will also include a foraging route for the local residents and people with appropriate edible species as well as providing an important linkage, north to the north west Preston area and the Guild Wheel, and south to Preston City Centre. This unified area of Green Infrastructure will benefit from improved and greater accessibility, greater functionality and more typologies of green space uses.

11.170 Given that currently the narrowest point in the area of major open space will not be reduced any more than already exists as a result of the Proposed Development the magnitude of change has been assessed as low; as a result there will be a **minor adverse effect** on the Area of Major Open Space and therefore **not significant** in EIA terms.

**Visual Impact of the Proposed Development**

11.171 Effects on views from footpaths outside the Site (FP88, BW89 (Guild Wheel Cycle Route), FP3, FP65, FP44, FP 62, 41, 42, FP64, FP66, FP53, FP52, and FP51) will be **negligible** (not significant in EIA terms) given that intervening residential development and buildings mean that the Site is not visible from these locations.

11.172 Effect on views on completion from footpaths adjacent to proposed residential development; users of these routes are considered to have high sensitivity.

- Users of FP DMMO1, FP DMMO3, and FP DMMO4 will have clear open views of Proposed Development for most of the overall journey. These views are through open space looking towards existing residential development. The proposed housing will be within a closer proximity of the footpaths, but the view will be experienced in the context of existing residential development. The magnitude of change is assessed as medium, resulting in a **moderate adverse effect** on the visual receptors and therefore **significant** in EIA terms.

- A majority of FP DMMO5, DMMO6, and Locally Walked Route are within substantial vegetation that prevents views into the Site. There are sections of the footpath that offer views across the Site through breaks in the vegetation but this is experienced for a small proportion of the overall route and where housing is already a visible feature. The magnitude of change is assessed as being minor - negligible, resulting in a **minor - negligible adverse effect** on the visual receptors and therefore **not significant** in EIA terms.

- FP DMMO2 and a pedestrianised section of Walker Lane are contained within dense vegetation. The Site will be perceivable at openings in the vegetation however; the advanced planting to the west of Walker Lane and within the newt mitigation area east of Walker Lane establishes the magnitude of change is assessed as minor, resulting in a **minor**
adverse effect - negligible on the visual receptors and therefore not significant in EIA terms.

11.173 Effect on views on completion from footpaths through the Site within new Training Facility/recreational space; users of these routes are considered to have high sensitivity.

- FP DMMO6 runs through substantial vegetation that prevents views of the Proposed Development. There are sections of the footpath that offer views across the Site through breaks in the vegetation but these views are experienced for a small proportion of the overall route. Any views gained will be of proposed public open space, resulting in a neutral effect (not significant in EIA terms) on the visual receptors given that this open space will be designed as a wildlife habitat for newts and routes will be formalised with boardwalks.

- Users of FP DMMO 7 will experience clear views across of the Proposed Development; the change in view will be from the Golf Course to an area of wetland habitat with boardwalks and newt habitat. Resulting in a neutral effect on the visual receptors and therefore not significant in EIA terms.

- Users of DMMO 8 currently experience views across the Site, it is proposed through the planning application to adjust the current alignment of this route to the southern and eastern boundary of the Site. The route will change however the diverted route will run through an area of newt mitigation and into existing woodland in a similar setting to that of the northern half of the route. Resulting in a minor adverse effect - negligible on the visual receptors and therefore not significant in EIA terms.

- Users of FP46 will experience some filtered views into the Proposed Development of recreational space. This space will incorporate a facility that will fulfil an established need in the local community, Resulting in a neutral effect on the visual receptors and therefore not significant in EIA terms.

- There are no possible views from FP DMMO9, FP DMMO 10, and FP43 of the Proposed Development due to the intervening vegetation along the Sharoe Brook, the effects are therefore assessed as negligible and therefore not significant in EIA terms.

11.174 Effect on views from roads through and adjacent to the Site; pedestrian users of these roads are assessed as having high sensitivity and motorists are assessed as having medium sensitivity.

- From Lightfoot Lane and Boys Lane the Site cannot be seen. The visual effects will be negligible and therefore not significant in EIA terms.

- Existing vegetation along Tom Benson Way and Tanterton Hall Road is proposed to be retained, however a section of vegetation will need to be removed to create one of the proposed Site access points. The other access point from Tanterton Hall Road will utilise the existing drive into Ingol Village Golf Course. The changes in views to that of access roads and proposed residential development will be experienced in the context of the existing residential area of Ingol. The magnitude of change is assessed as minor; therefore resulting in a minor adverse effect for pedestrians and minor adverse effect for motorists, both not significant in EIA terms.
- Pedestrian users of Walker Lane and Wychnor have open views into the Golf Course as it crosses the road. There will be brief glimpses of the Proposed Development in the context of the existing residential area; therefore, the magnitude of change is assessed as minor, and the effect as **minor adverse (not significant)** in EIA terms.

- Motorists using Walker Lane and Wychnor have views into the Site at a number of points along the roads. There will be a change in these as a result of Proposed Development within the Site. However, these changes will be fleeting for a brief portion of the overall journey along these roads; therefore the magnitude of change is assessed as minor - negligible, and the effect as **minor adverse – negligible** and therefore **not significant** in EIA terms.

11.175 Effect on views on completion from residential road adjacent to the proposed residential development; Pedestrian users and residents are assessed as having high sensitivity.

- Users of New Rough Hey, West Avenue, New Links Avenue, The Avenue, and Hoylake Close experience views across the Site; although the view will change from that of Golf Course to residential development the change will be experienced in the context of the existing adjacent housing. The magnitude of change is assessed as medium, resulting in a **moderate adverse effect** on the visual receptors and therefore **significant** in EIA terms.

- Users of Sheraton Park, Dukes Meadow, Greenfield Way, Higher Greenfield, Manor Court, Gleneagles Drive, Carnoustie Close and The Maples (Lightfoot Lane); experience filtered views through trees towards the Site, although there will be a change in this view the change will be experienced in the context of the existing residential development. The magnitude of change is assessed as medium - low, resulting in a **moderate - minor adverse effect** on the visual receptors and therefore **significant** in EIA terms.

- It is expected that residents of the existing properties directly adjacent the Proposed Development will experience views across the Site. The magnitude of change is assessed in the context of an existing residential area as medium, resulting in a **moderate adverse effect** on the visual receptors and therefore **not significant** in EIA terms.

**Mitigation and Enhancement Measures**

11.176 No additional mitigation, other than the implementation of a CEMP, is suitable during construction period.

11.177 The Proposed Development has been modified and refined during the design process to avoid and minimise effects. Mitigation has therefore been considered post completion when the vegetation has matured and the development has integrated into the surroundings.

**Proposed advance planting and visual screening**

11.178 It is recommended that the development will be phased so that any new woodland will be planted as the project commences so that the vegetation is given the optimum time to mature during the construction period. It should be noted that at the time of planting the woodland will be too young to provide much visual screening of construction activity, however it is beneficial to plant this area first to allow the woodland time to establish over the phases of the development and reducing the residual effects of development.
Approximately 0.5ha of new woodland structural planting is proposed to the west of the pedestrianised section of Walker Lane to maintain the character of this route and screen any views towards the Proposed Development.

**Landscape Management**

A Landscape Management Plan will provide to ensure that the structural landscape and open spaces are managed and maintained for visual amenity and ecological enhancement.

The design and management of landscape spaces will ensure the adoption of safety and surveillance, and encourage community engagement.

The management plan will also set out objectives to ensure the successful planting operations, establishment and growth of new trees, shrubs, and grasslands; as well as the continued health and vigour of the existing trees and retained the landscape elements within the Site that are not currently being managed.

**Residual Effects**

The effects on the landscape features, landscape character and visual amenity of the Site have been assessed both during the construction and operation phases. The residual effects assess the effect of the Proposed Development 15 years’ post completion when the mitigation planting has established and the development has integrated into the surrounding landscape.

**Effects on the Landscape Character and landscape features**

Fifteen years’ post completion once the mitigation planting has matured and the management plan has been implemented the effects of the Proposed Development on the landscape character and landscape features will reduce to **negligible – minor beneficial** and **not significant** in EIA terms.

**Conclusions in respect of magnitude of change and effect on character of Local Urban Character**

Fifteen years’ post completion once the mitigation planting has matured and the development has integrated into the landscape the effects of the Proposed Development on the local urban character will reduce to **negligible** and **not significant** in EIA terms.

**Conclusions in respect of magnitude of change and effect on the Area of Major Open Space**

Fifteen years’ post completion once the mitigation planting has matured and the management plan has been implemented the effects of the Proposed Development on the Area of Major Open Space will reduce to **negligible** and **not significant** in EIA terms.

**Visual Effect of the Proposed Development**

Effect on views on completion from footpaths adjacent to proposed residential development; users of these routes are considered to have **high sensitivity**.

- Fifteen years’ post completion, as the vegetation within the Site parameters and within the gardens of the development matures and establishes, the visual effect will reduce to **minor adverse – negligible (not significant** in EIA terms). Although an obvious change from that of Golf Course, the change will be of residential development and not at odds with the landscape setting.

Effect on views on completion from footpaths through the Site within new Training Facility/ recreational space; users of these routes are considered to have **high sensitivity**.
• Fifteen years’ post completion as the newt mitigation area has established and the development has integrated into the wider landscape the effects on views is assessed as negligible and therefore not significant in EIA terms.

11.189 Effect on views from roads through and adjacent to the Site; pedestrian users of these roads are assessed as having high sensitivity and motorists are assessed as having medium sensitivity.

• Fifteen years’ post completion when the development has integrated into the surroundings the effect is assessed as minor adverse to negligible and therefore not significant in EIA terms.

11.190 Effect on views on completion from residential road adjacent to the proposed residential development; Pedestrian users and residents are assessed as having high sensitivity.

• Fifteen years’ post completion when the development has integrated into the surroundings the effect is assessed as minor adverse to negligible and therefore not significant in EIA terms.

Cumulative effects

11.191 Consideration has been given to the cumulative effect of development of the Site with the adjacent proposed future proposals.

11.192 There are five planning applications in the process of being determined and nine planning approvals within close proximity of the Ingol Village Golf Course; these future potential development Sites are located to the north and west of the Site. All sites have been considered with the Proposed Development for the cumulative effects on landscape character.

11.193 Of the 14 applications, the application for the Land at Sandyforth Lane and consented scheme at Connemara should be considered for the cumulative visual effects due to their close proximity to the Site. The remaining application sites are visually screened from Ingol Village Golf course by intervening vegetation and existing housing.

Cumulative Landscape Effect

11.194 The Proposed Development of the Site at Ingol Village Golf Course cannot be perceived from the application sites to north west of Preston. Collectively the application sites make up a small portion of the overall regional landscape character area within which they are located. The proposals will be experienced in the context of existing residential development and will not significantly intensify the magnitude of change on landscape character, during construction or upon completion. As such there are no significant cumulative landscape effects as a result of the Proposed Development.

Cumulative Visual Effect

11.195 There are no viewpoints identified in which both the Ingol Site and proposed North West Preston strategic Sites are visible. Due to intervening vegetation to the northern boundary of Ingol Village Golf Course at Tom Benson Way or Lightfoot Lane the Site is well contained and so there is no significant cumulative visual effect as a result of the development.
11.196 The characteristic of the routes throughout the study area are that of a suburban landscape, and the users of these footpaths are aware of the surrounding housing development, whether the visual receptor is looking direct at existing housing or housing is within close proximity. The overall experience for users of these footpaths is not that of a rural or tranquil landscape and the overall cumulative effects of development are not considered significant in EIA terms.

11.197 A roundabout to the north of the Proposed Development Site is to be constructed as part of the implementation of the North West Preston Strategic Sites. The construction of this roundabout maybe perceived by users of the pedestrianised section of Walker Lane. However, due to the mitigation woodland planting proposed, users of Walker Lane will not experience views of the roundabout and the development of Ingol Village Golf Course together. The proposed roundabout and proposed new access from Tom Benson Way to the Ingol Village Golf Course site are physically and visually separated. The proposed access to the Ingol Course Site cannot be viewed in the context of the new roundabout due to the curvature in the road and distance. From a landscape and visual amenity perspective there would be no significant cumulative effects.

Conclusions

11.198 The Site is not protected by any international or national designations. The Site is locally designated as an Area of Major Open Space separating Ingol, Greyfriars and Cadley.

11.199 The Site is visually well contained. Views from the surrounding areas are limited and lie within 1km of the Site. The Site is influenced by adjacent housing development.

11.200 The construction effects will be temporary and mitigated by a CEMP.

11.201 New woodland planting is proposed to be implemented at the outset of the project so that it matures during the construction phase.

11.202 Due to its local value and context, the sensitivity of the landscape within the study area has been assessed as medium and reasonably able to accommodate the Proposed Development. There will be a medium to minor magnitude of change on the landscape character, landscape features and Local Urban Character during construction, resulting in temporary moderate adverse effect which is significant in EIA terms.

11.203 Effects on views for users of public rights of way through the Site and residents of adjacent houses will be temporally major adverse during the construction phase which is significant in EIA terms.

11.204 Upon completion, there will be an increase in publicly accessible open space, hedgerows, and trees; the proposed planting will compensate for the loss of vegetation. As such the residual effects on landscape features will be minor – beneficial which is not significant in EIA terms.

11.205 The character of the Site itself will inevitably change as a result of the development but the magnitude of change on the landscape character of the study area will be minor. There will be an introduction of elements that will be consistent with the existing surroundings. Fifteen years’ post completion once the mitigation planting has matured and the management plan has been implemented the effects on the development on landscape character; Local Urban Character and
the Area of Major Open Space have been assessed as being **negligible** and **not significant** in EIA terms.

11.206 Overall effects on views from within the Site, and directly adjacent to the Site, fifteen years’ post completion, when the development has integrated into the landscape, have been assessed as **minor adverse** and **not significant** in EIA terms.
### Table 11.3: Summary of Landscape and Visual Effects and Mitigation

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Effect</th>
<th>Phase (Construction / Operation)</th>
<th>Embedded Mitigation</th>
<th>Sensitivity of Receptor</th>
<th>Magnitude of Change</th>
<th>Level of Effect and Significance Prior to Mitigation</th>
<th>Mitigation</th>
<th>Enhancement</th>
<th>Level of Effect (and Significance) after Mitigation</th>
<th>Nature of effect (short term / medium term / long term, permanent / temporary, direct / indirect)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landscape Character</td>
<td>Landscape Effect</td>
<td>Construction</td>
<td>N/A</td>
<td>Medium</td>
<td>Medium</td>
<td>Temporary Moderate Adverse and Significant.</td>
<td>N/A</td>
<td>N/A</td>
<td>Moderate and Significant.</td>
<td>Temporary, medium, indirect.</td>
</tr>
<tr>
<td>Landscape Features</td>
<td>Landscape Effect</td>
<td>Construction</td>
<td>Construction Effects Management Plan - Existing woodland areas retained and enhanced. Existing trees to be protected.</td>
<td>Medium</td>
<td>Medium - Minor</td>
<td>Temporary Moderate Adverse and Significant.</td>
<td>N/A</td>
<td>N/A</td>
<td>Moderate and Significant.</td>
<td>Temporary, medium, indirect.</td>
</tr>
<tr>
<td>Local Urban Character</td>
<td>Landscape Effect</td>
<td>Construction</td>
<td>N/A</td>
<td>Medium</td>
<td>Substantial</td>
<td>Temporary Moderate Adverse and Significant.</td>
<td>N/A</td>
<td>N/A</td>
<td>Moderate and Significant.</td>
<td>Temporary, medium, indirect.</td>
</tr>
<tr>
<td>Views from footpaths outside the Site</td>
<td>Visual Effect</td>
<td>Construction</td>
<td>N/A</td>
<td>High</td>
<td>Negligible</td>
<td>N/A</td>
<td>N/A</td>
<td>CEMP</td>
<td>Negligible and not significant.</td>
<td>N/A</td>
</tr>
<tr>
<td>Views from footpaths adjacent to proposed residential development (FP DMMO 1, DMMO 3, DMMO 4)</td>
<td>Visual Effect</td>
<td>Construction</td>
<td>Construction Effects Management Plan – Visual screening of on-site activity, and siting compound to minimise visual effects.</td>
<td>High</td>
<td>Substantial</td>
<td>Temporary Major Adverse and Significant.</td>
<td>N/A</td>
<td>N/A</td>
<td>Major and Significant.</td>
<td>Temporary, medium, indirect.</td>
</tr>
<tr>
<td>Views from footpaths adjacent to proposed residential development (FP DMMO 5, DMMO 6, Locally Walked Routes)</td>
<td>Visual Effect</td>
<td>Construction</td>
<td>Construction Effects Management Plan – Visual screening of on-site activity, and siting compound to minimise visual effects.</td>
<td>High</td>
<td>Medium - Minor</td>
<td>Temporary Moderate – Minor Adverse</td>
<td>N/A</td>
<td>N/A</td>
<td>Moderate and significant.</td>
<td>Temporary, medium, indirect.</td>
</tr>
<tr>
<td>Views from footpaths adjacent to proposed residential development (FP DMMO 2, Pedestrianised Section of Walker Lane)</td>
<td>Visual Effect</td>
<td>Construction</td>
<td>Construction Effects Management Plan – Visual screening of on-site activity, and siting compound to minimise visual effects.</td>
<td>High</td>
<td>Minor</td>
<td>Temporary Minor Adverse, Not Significant.</td>
<td>N/A</td>
<td>N/A</td>
<td>Minor, not significant.</td>
<td>Temporary, medium, indirect.</td>
</tr>
<tr>
<td>Views from footpaths through the Site within the new Training Facility and recreational space (DMMO 6)</td>
<td>Visual Effect</td>
<td>Construction</td>
<td>Construction Effects Management Plan – Visual screening of on-site activity, and siting compound to minimise visual effects.</td>
<td>High</td>
<td>Medium</td>
<td>Temporary Moderate Adverse, Significant.</td>
<td>N/A</td>
<td>N/A</td>
<td>Moderate and significant.</td>
<td>Temporary, medium, indirect.</td>
</tr>
<tr>
<td>Views from footpaths through the Site within the new Training Facility and recreational space (DMMO 7, DMMO 8)</td>
<td>Visual Effect</td>
<td>Construction</td>
<td>Construction Effects Management Plan – Visual screening of on-site activity, and siting compound to minimise visual effects.</td>
<td>High</td>
<td>Substantial</td>
<td>Temporary major Adverse and Significant.</td>
<td>N/A</td>
<td>N/A</td>
<td>Major and Significant.</td>
<td>Temporary, medium, indirect.</td>
</tr>
<tr>
<td>Views from footpaths through the Site within the new Training Facility and recreational space (FP 46)</td>
<td>Visual Effect</td>
<td>Construction</td>
<td>Construction Effects Management Plan – Visual screening of on-site activity, and siting compound to minimise visual effects.</td>
<td>High</td>
<td>Medium – Minor</td>
<td>Temporary moderate – minor adverse, Significant.</td>
<td>N/A</td>
<td>N/A</td>
<td>Moderate and Significant.</td>
<td>Temporary, medium, indirect.</td>
</tr>
<tr>
<td>Views from footpaths through the Site within the new Training Facility and recreational space (DMMO 9, DMMO 10, FP 43)</td>
<td>Visual Effect</td>
<td>Construction</td>
<td>N/A</td>
<td>High</td>
<td>Negligible</td>
<td>Negligible, Not Significant.</td>
<td>N/A</td>
<td>N/A</td>
<td>Negligible, Not Significant.</td>
<td>Temporary, medium, indirect.</td>
</tr>
<tr>
<td>Views from road through and adjacent the Site (Lightfoot Lane and Boys Lane)</td>
<td>Visual Effect</td>
<td>Construction</td>
<td>N/A</td>
<td>Medium - High</td>
<td>Negligible</td>
<td>Negligible</td>
<td>N/A</td>
<td>N/A</td>
<td>Negligible, Not significant.</td>
<td>Temporary, medium, indirect.</td>
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<tr>
<td>Views from road through and adjacent the Site (Tom Benson Way and Tanterton Hall Road)</td>
<td>Visual Effect</td>
<td>Construction</td>
<td>Construction Effects Management Plan – Visual screening of on-site activity, siting compound to minimise visual effects, and management of site traffic.</td>
<td>Medium - High</td>
<td>Medium</td>
<td>Temporary moderate adverse and Significant.</td>
<td>N/A</td>
<td>N/A</td>
<td>Moderate and Significant.</td>
<td>Temporary, medium, indirect.</td>
</tr>
<tr>
<td>Views from road through and adjacent the Site (Walker Lane and Wychnor)</td>
<td>Visual Effect</td>
<td>Construction</td>
<td>Construction Effects Management Plan – Visual screening of on-site activity, siting compound to minimise visual effects, and management of site traffic.</td>
<td>Medium - High</td>
<td>Medium – Minor</td>
<td>Temporary Moderate – Minor Adverse, Significant.</td>
<td>N/A</td>
<td>N/A</td>
<td>Moderate and Significant.</td>
<td>Temporary, medium, indirect.</td>
</tr>
<tr>
<td>Views from residential roads and properties adjacent to the proposed residential development (Sheraton Park, Dukes</td>
<td>Visual Effect</td>
<td>Construction</td>
<td>Construction Effects Management Plan – Visual screening of on-site activity, siting compound to minimise visual effects, and management of site traffic.</td>
<td>Medium - High</td>
<td>Medium</td>
<td>Temporary moderate adverse, Significant.</td>
<td>N/A</td>
<td>N/A</td>
<td>Moderate and Significant.</td>
<td>Temporary, medium, indirect.</td>
</tr>
<tr>
<td>Landscape Character</td>
<td>Landscape Effect</td>
<td>Operation</td>
<td>Effect</td>
<td>N/A</td>
<td>N/A</td>
<td>Negligible, Not Significant.</td>
<td>Operation</td>
<td>Medium</td>
<td>Medium</td>
<td>Minor Adverse</td>
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<tr>
<td>Meadow, Greenfield Way, High Greenfield, Manor Court, Gleneagles Drive, Carnoustie Close, The Maples)</td>
<td>Landscape Effect</td>
<td>Operation</td>
<td>The study area is not considered typical of the national character area; however the development site not of a scale to be considered as having a significant impact on the wider character of the landscape.</td>
<td>Medium</td>
<td>Medium</td>
<td>Minor Adverse</td>
<td>N/A</td>
<td>N/A</td>
<td>Negligible, Not Significant.</td>
<td></td>
</tr>
<tr>
<td>Landscape Features</td>
<td>Landscape Effect</td>
<td>Operation</td>
<td>Proposed layout arranged around existing landscape features. Retain and enhance green corridors through the Site. Tree Survey undertaken indicates Root Protection Areas; the layout is designed to avoid compromising tree roots. Proposed tree planting to compensate for the loss of any trees and hedgerows throughout the Site.</td>
<td>Medium</td>
<td>Medium - Minor</td>
<td>Moderate – Minor Beneficial</td>
<td>N/A</td>
<td>15 years post construction the proposed advance planting carried out at the construction phase would be established and the vegetation within the residential development would have matured, the impact of the Proposed Development would be reduced.</td>
<td>N/A</td>
<td>Moderate - Minor Beneficial, Not Significant.</td>
</tr>
<tr>
<td>Local Urban Character</td>
<td>Landscape Effect</td>
<td>Operation</td>
<td>The Proposed Development is not uncharacteristic of the suburban setting of the</td>
<td>Medium</td>
<td>Medium - Low</td>
<td>Moderate – Minor Adverse</td>
<td>N/A</td>
<td>N/A</td>
<td>Negligible, Not Significant.</td>
<td></td>
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</tbody>
</table>

Permanent, Long term, Direct.
study area. To the north and west of the Site residential development is proposed to assimilate that of the adjacent land. The Training Facility and associated sports pitches have been focused to the south and east of the Site to be more in-keeping with the open and more rural nature of this area. The proposed residential development has been designed as such that open spaces and green fingers run through the development to retain view lines from adjacent Residential Parcels.

<table>
<thead>
<tr>
<th>Area of Major Open Space</th>
<th>Landscape Effect</th>
<th>Operation</th>
<th>Medium</th>
<th>Low</th>
<th>Minor Adverse</th>
<th>N/A</th>
<th>15 years post construction the proposed advance planting carried out at the construction phase would be established and the vegetation within the residential development would have matured, the impact of the Proposed Development would be reduced.</th>
<th>Negligible, Not Significant.</th>
<th>Permanent, Long term, direct.</th>
</tr>
</thead>
<tbody>
<tr>
<td>study area. To the north and west of the Site residential development is proposed to assimilate that of the adjacent land. The Training Facility and associated sports pitches have been focused to the south and east of the Site to be more in-keeping with the open and more rural nature of this area. The proposed residential development has been designed as such that open spaces and green fingers run through the development to retain view lines from adjacent Residential Parcels.</td>
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<td></td>
</tr>
<tr>
<td>Views from footpaths outside the Site</td>
<td>Visual Effect</td>
<td>Operation</td>
<td>Visual Effect</td>
<td>Operation</td>
<td>Visual Effect</td>
<td>Operation</td>
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<tr>
<td>Greyfriars would not be reduced as a result of the Proposed Development.</td>
<td>N/A</td>
<td>High</td>
<td>Negligible</td>
<td>N/A</td>
<td>N/A</td>
<td>Negligible, Not Significant.</td>
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<td></td>
<td>Permanent, Long term, Indirect.</td>
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</tr>
<tr>
<td>Views from footpaths adjacent to proposed residential development (FP DMMO 1, DMMO 3, DMMO 4)</td>
<td>Visual Effect</td>
<td>Operation</td>
<td>Visual Effect</td>
<td>Operation</td>
<td>Visual Effect</td>
<td>Operation</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>The proposed residential development has been designed into the scheme in locations that are currently influenced by housing. Although there would be an obvious change in setting for these footpaths, the change would be experienced in the context of existing residential development. The layout has been designed to retain the existing routes through open space and informal recreation space that would be overlooked by outward facing properties. The footpaths would be surfaced and formalised.</td>
<td>High</td>
<td>Medium</td>
<td>Moderate Adverse</td>
<td>15 years post construction the proposed advance planting carried out at the construction phase would be established and the vegetation within the residential development would have matured, the impact of the Proposed Development would be reduced.</td>
<td>Negligible, Not Significant.</td>
<td>Permanent, Long term, Indirect.</td>
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<tr>
<td>Views from footpaths adjacent to proposed residential development (FP DMMO 5, DMMO 6, Locally Walked Routes)</td>
<td>Visual Effect</td>
<td>Operation</td>
<td>Visual Effect</td>
<td>Operation</td>
<td>Visual Effect</td>
<td>Operation</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>The proposed residential development has been designed into the scheme in locations that are currently influenced by housing. A majority of these footpath routes are contained within existing vegetation,</td>
<td>High</td>
<td>N/A</td>
<td>Neutral</td>
<td>Negligible, Not Significant.</td>
<td>Permanent, Long term, Indirect.</td>
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</tr>
</tbody>
</table>
although for a small proportion of the overall route there would be an obvious change in setting, this change would be experienced in the context of existing residential development.

<table>
<thead>
<tr>
<th>Views from footpaths adjacent to proposed residential development (FP DMMO 2, Pedestrianised Section of Walker Lane)</th>
<th>Visual Effect</th>
<th>Operation</th>
<th>15 years post construction the proposed advance planting carried out at the construction phase would be established and screen the Proposed Development from these footpath routes.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Advance planting, allotments and an area of newt mitigation are proposed within this northern portion of the Site. The proposed residential development is offset from these locally walked routes in order to retain the visual amenity of footpaths. The advanced planting to the west of Walker Lane would screen any Proposed Development. It is proposed that this planting would be carried out at the onset of construction.</td>
<td>High</td>
</tr>
<tr>
<td>Views from footpaths through the Site within the new Training Facility and recreational space (DMMO 6)</td>
<td>Visual Effect</td>
<td>Operation</td>
<td>15 years post construction the proposed advance planting carried out at the construction phase would be established and screen the Proposed Development from these footpath routes.</td>
</tr>
<tr>
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<td>The southern section of the Site has been set aside for newt mitigation; this has been designed into the scheme in locations along locally walked routes in order to retain the visual amenity. Users of this section of the footpath would experience a change from that of Golf Course to a wildlife/wetland habitat. Although an</td>
<td>High</td>
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obvious change the route would be remain in open space and be formalised on board walks and interpretation boards with educational value.

| Views from footpaths through the Site within the new Training Facility and recreational space (DMMO 7) | Visual Effect | Operation | The southern section of the Site has been set aside for newt mitigation; this has been designed into the scheme in locations along locally walked routes in order to retain the visual amenity. Users of this section of the footpath would experience a change from that of Golf Course to a wildlife/ wetland habitat. Although an obvious change the route would be remain in open space and be formalised on board walks and interpretation boards with educational value. | High | N/A | Neutral | N/A | N/A | Negligible, Not Significant. | Permanent, Long term, Indirect. |
| Views from footpaths through the Site within the new Training Facility and recreational space (DMMO 8) | Visual Effect | Operation | The southern section of the Site has been set aside for newt mitigation; this has been designed into the scheme in locations along locally walked routes in order to retain the visual amenity. As part of the Proposed Development this footpath would be diverted and users of this section of the footpath would experience a change from that of Golf | High | Minor | Minor Adverse – Negligible | N/A | N/A | Negligible, Not Significant. | Permanent, Long term, Indirect. |
Course to a wildlife/wetland habitat. Although an obvious change the route would be remain in open space and be formalised on board walks and interpretation boards with educational value. Beyond this the route would track through existing trees and vegetation adjacent the railway embankment, in a similar setting to that of the northern section of the route.

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<td>High</td>
<td>N/A</td>
<td>Neutral</td>
<td>N/A</td>
<td>N/A</td>
<td>Negligible, Not Significant.</td>
<td>Permanent, Long term, Indirect.</td>
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<tr>
<td>Views from footpaths through the Site within the new Training Facility and recreational space (DMMO 9, DMMO 10, FP 43)</td>
<td>Visual Effect</td>
<td>Operation</td>
<td>N/A</td>
<td>High</td>
<td>Negligible</td>
<td>Negligible</td>
<td>N/A</td>
<td>N/A</td>
<td>Negligible, Not Significant.</td>
<td>Permanent, Long term, Indirect.</td>
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</tr>
<tr>
<td>Views from road through and adjacent the Site (Lightfoot)</td>
<td>Visual Effect</td>
<td>Operation</td>
<td>N/A</td>
<td>Medium - High</td>
<td>Negligible</td>
<td>Negligible</td>
<td>N/A</td>
<td>N/A</td>
<td>Negligible, Not Significant.</td>
<td>Permanent, Long term, Indirect.</td>
<td></td>
</tr>
<tr>
<td>Views from road through and adjacent the Site (Tom Benson Way and Tanterton Hall Road)</td>
<td>Visual Effect</td>
<td>Operation</td>
<td>The existing vegetation that screens the Site is proposed to be retained where possible. There are access points proposed along these roads in order to gain access into the Site. Road user’s views will be fleeting, for a small percentage of the overall journey, and the context of existing houses.</td>
<td>Medium - High</td>
<td>Minor</td>
<td>Minor Adverse</td>
<td>N/A</td>
<td>N/A</td>
<td>Minor Adverse – Negligible, Not Significant.</td>
<td>Permanent, Long term, Indirect</td>
<td></td>
</tr>
<tr>
<td>Views from road through and adjacent the Site (Walker Lane and Wychnor)</td>
<td>Visual Effect</td>
<td>Operation</td>
<td>The existing vegetation that screens the Site is proposed to be retained where possible. There are access points proposed along these roads in order to gain access into the Site. Road user’s views will be fleeting, for a small percentage of the overall journey, and the context of existing houses.</td>
<td>Medium - High</td>
<td>Minor Negligible</td>
<td>Minor Adverse – Negligible</td>
<td>N/A</td>
<td>N/A</td>
<td>Minor Adverse – Negligible, Not Significant.</td>
<td>Permanent, Long term, Indirect</td>
<td></td>
</tr>
<tr>
<td>Views from residential roads and properties adjacent to the proposed residential development (New Rough Hey, West Ave, New Links Ave, The Avenue, and Hoylake Close)</td>
<td>Visual Effect</td>
<td>Operation</td>
<td>The proposed residential development has been designed into the scheme in locations that are currently influenced by housing. The proposed residential Development has been designed as such that open spaces and green fingers run through the development to retain view lines from</td>
<td>Medium - High</td>
<td>Medium</td>
<td>Moderate Adverse</td>
<td>15 years post construction the proposed advance planting carried out at the construction phase would be established and the vegetation within the residential development</td>
<td>Minor Adverse – Negligible, Not Significant.</td>
<td>Permanent, Long term, Indirect</td>
<td></td>
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</table>
adjacent residential areas. There is an obvious change in views from properties that surround the proposed residential development; the layout proposes that the development will be off-set from existing properties and the areas of open space will border the Site filtering views.

Views from residential roads and properties adjacent to the proposed residential development (Sheraton Park, Dukes Meadow, Greenfield Way, High Greenfield, Manor Court, Gleneagles Drive, Carnoustie Close, The Maples)

<table>
<thead>
<tr>
<th>Visual Effect</th>
<th>Operation</th>
<th>Medium - High</th>
<th>Medium - Minor</th>
<th>Moderate – Minor Adverse</th>
<th>15 years post construction the proposed advance planting carried out at the construction phase would be established and the vegetation within the residential development would have matured, the impact of the Proposed Development would be reduced.</th>
</tr>
</thead>
</table>
Chapter 12 presents the findings of an assessment of the current artificial lighting levels at the Site and the predicted effects as a result of the assumed additional lighting which will be required for the Proposed Development.

Within the Site boundary, the environment is generally unlit due to the open expanses of land associated with the Golf Club, with the exception of the car parking and clubhouse facilities. Although localised, existing lighting elements to the developed areas surrounding the Site do disrupt the night scene and can be considered as contributing to an existing adverse effect on the local environment.

In order to reduce the assessed effect of lighting during the Site preparation, earthworks and construction phases, best practice measures will be implemented as part of a Construction Environmental Management Plan (CEMP). During operation care will be taken to minimise the light spill and glare from any lighting installed by ensuring the correct lighting levels and types are selected and installed correctly in line with guidance recommendations.

For the sensitive receptors, the residual effect as a result of mitigated construction phase lighting is expected to be negligible adverse, which is not significant in EIA terms. Similarly, receptor locations are likely to receive a negligible or minor adverse effect which is not significant in EIA terms during the Site’s operation.

Therefore, no significant effects are anticipated by the Proposed Development.
Introduction

12.1 This chapter describes the baseline conditions currently existing at the Site and surrounding area, the methods used to assess the effects, the potential effect of the development arising from external lighting, the mitigation measures required to prevent, reduce, or offset the significant effect and the residual effects of the Proposed Development. In particular, it considers the potential effects of horizontal and vertical light trespass, glare and direct sky glow.

12.2 Information is presented regarding pre- and post-development illuminance values in locations where bats and light sensitive ecological systems are known to be present. This informs the assessment of effects for the relevant sensitivities addressed within Chapter 9: Ecology and Nature Conservation, but does not form part of the assessment of this chapter. The chapter includes an assessment of all significant and non-significant effects.

12.3 This chapter should be read in conjunction with:

- Appendix 12.1 – Baseline Survey;
- Appendix 12.2 – Operational Lighting Parameters;
- Appendix 12.3 – Illumination Impact Profile.

Legislation, Policy and Guidance

Legislation

Clean Neighbourhoods and Environment Act (CNEA) 2005\textsuperscript{142}

12.4 The Clean Neighbourhoods and Environment Act (CNEA) 2005 gives Local Authorities additional powers to deal with artificial lighting by classifying artificial light emitted from defined premises as a statutory nuisance (from April 2006). Guidance produced on Sections 101 to 103 of the CNEA extends the duty on local authorities to ensure their areas are checked periodically for existing and potential sources of statutory nuisances including nuisances arising from artificial lighting. Local authorities must take reasonable steps to investigate complaints of such nuisances from artificial light.

Empowerment to Light Roads - The Highways Act 1980\textsuperscript{143}

12.5 Section 97 empowers a Highway Authority to provide lighting for any highway or proposed highway for which they are or will be the Highway Authority. District Councils and many Parish or Town Councils also have the power to provide lighting as local lighting authorities.

The National Planning Policy Framework 2012\textsuperscript{144}

12.6 The National Planning Policy Framework (NPPF) encourages good design with planning policies and decisions limiting the effect of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.


\textsuperscript{143} \textit{The Highways Act 1980}, HMSO, London.

National Planning Practice Guidance – Light pollution

The National Planning Practice Guidance (NPPG) advises on how to consider light within the planning system, specifically focusing on:

- When light pollution is relevant to planning;
- What factors should be considered when assessing whether a development proposal might have implications for light pollution;
- What factors are relevant when considering where, when and how much light shines;
- What factors are relevant when considering possible ecological effect.

Local Planning Policy

12.7 Local planning policy does not specifically address obtrusive light cause, consequence or effects and, as such, does not provide relevance.

Obtrusive Light and Design Guidance

Institute of Lighting Professionals – Guidance Notes for the Reduction of Obtrusive Light GN01:2011

12.8 This Guidance provides measurable design guidance limits and recommendations to ascertain acceptability of obtrusive light levels at night.


12.9 The purpose of this Guide is to help formulate guidelines for assessing the environmental effects of outdoor lighting and to give recommended limits for relevant lighting parameters to contain the obtrusive effects of outdoor lighting within tolerable levels. As the obtrusive effects of outdoor lighting are best controlled initially by appropriate design, the guidance given is primarily applicable to new installations; however, some advice is also provided on remedial measures which may be taken for existing installations. This Guide refers to the potentially adverse effects of outdoor lighting on both natural and man-made environments for people in most aspects of daily life, from residents, sightseers, transport users to environmentalists and astronomers.

CIE 126 (1997) Guidelines for Minimising Sky Glow

12.10 This Guide gives general guidance for lighting designers and also policy makers about the ways the interference by light of astronomical observations can be reduced or even avoided. The report gives guidance for the design of lighting installations and lighting equipment. Practical implementation of the general guidance is left to National Regulations.


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146 Institute of Lighting Professionals (2011) Guidance Notes for the Reduction of Obtrusive Light GN01, ILP, Rugby
12.11 The purpose of this Guide is to provide guidance for the design of lighting for exterior work areas. The objectives of lighting for exterior work areas are to ensure:

- Efficient working conditions;
- Safe movement and traffic; and
- Safety and security of people and property.

BS5489-1: 2013 – Code of practice for the design of road lighting – Part 1: Lighting of roads and public amenity areas

12.12 This part of BS 5489 gives recommendations on the general principles of road lighting, and its aesthetic and technical aspects, and advises on operation and maintenance.

BS EN 13201-2: 2015 – Road lighting – Part 2: Performance requirements

12.13 This part of this European Standard defines, according to photometric requirements, lighting classes for road lighting aiming at the visual needs of road users, and it considers environmental aspects of road lighting.


12.14 This European standard specifies lighting requirements for outdoor work places, which meet the needs for visual comfort and performance. All usual visual tasks are considered.

BS EN 12193:2007 – Light and Lighting – Sports Lighting

12.15 This European standard deals with sports lighting to ensure good visual conditions for players, athletes, referees, spectators and CTV transmission. The objective of this document is to provide recommendations and specify requirements for good quality sports lighting by:

- Optimising the perception of visual information used during sports events
- Maintaining the level of visual performance
- Providing acceptable visual comfort
- Restricting obtrusive light

Campaign to Protect Rural England (CPRE) – Night Blight 2016

12.16 CPRE – Night Blight data (2016) gives a broad brush indication of upwards light (sky glow) experienced within the UK. The interactive mapping tool allows specific areas and locations to be assessed with regards to a baseline condition.

Bats and Lighting Guidance

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12.17 The Bat Conservation Trust and the Institution of Lighting Engineers (now the Institute of Lighting Professionals) have produced the ’Bats and Lighting in the UK’. This document is aimed at lighting engineers, lighting designers, planning officers, developers, bat workers and anyone specifying lighting and is intended to raise awareness of the effects of lighting on bats and mitigation is suggested for various scenarios.

12.18 In addition, Bat Conversation Trust guidance 2014 states that where lighting equipment utilises LED, a colour correlated temperature (CCT) of lower than 4200K should be used. This spectral composition has reduced blue light and UV light content (known to be detrimental to invertebrate nocturnal activities) and is more in line with traditional recognised acceptable lamp sources (low pressure and high pressure sodium).

**Assessment Methodology and Significance Criteria**

**Consultation**

12.19 The scope and methodology for the obtrusive light assessment, relevant constraints and sensitive receptor types were summarised to inform the Scoping Report issued to the Competent Authority (Preston City Council) and relevant Consultees.

12.20 The response considered the approach to be considered to be acceptable, appropriate and proportionate to the nature of the Site and the development proposed.

12.21 Specific lighting related responses from Consultees included:

12.22 Natural England: ‘Schedule 4 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2011 (as amended), sets out the necessary information to assess impacts on the natural environment to be included in an ES, specifically: ...Expected residues and emissions (water, air and soil pollution, noise, vibration, light, heat, radiation, etc.) resulting from the operation of the proposed development...’

12.23 A part of the process, Applicant team consultation was held to advise on the following:

- Obtrusive light assessment methodology;
- Relevant specialist discipline constraints (ecology, landscape and heritage);
- Specific survey and assessment requirements (as part of the obtrusive light assessment) to inform the relevant associated disciplines;
- Initial overview of baseline conditions and obtrusive light effects; and
- Subsequent design evolution

**Extent of Study Area**

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12.24 The Site and nearby sensitive receptors have determined the extent of the study area for the baseline lighting survey.

12.25 The study area includes sensitive receptors within and outside the boundaries of the Site which are likely to have a direct line of sight towards the Proposed Development and which may therefore be affected during the construction and operation phases. Figures 12.1, 12.2 and 12.3 illustrate the Site boundary and respective sensitive receptor locations.

Identification of Sensitive Receptors

12.26 Advised by professional judgement with input from the Applicant team, the following identifies sensitive receptors which could be at risk of ‘effect’ from the external lighting of the Development

- R1 to R38 – Residential (inc. R24 - Grade II Listed Residential – Wychnor) – Figure 12.1
- Ecology Assessment Zones (EZ1 to EZ4) - Ecology Receptors - Bat Commuting / Foraging / Potential Roost and Main River and 8m EA Stand-off – Figure 12.2
- T1 to T8 – Rail (West Coast mainline railway) and Highway Receptors – Figure 12.3
- SG1 – Natural - Direct Sky Glow – (Applies to whole site as a single receptor)

Methodology

12.27 The approach and methodology used to assess the baseline lighting conditions on and in the immediate vicinity of the Site involved a desk study and a baseline lighting survey.

12.28 Appendix 12.1 provides the detailed survey results for each identified receptor, which are summarised in this chapter.

Lighting Survey Methodology

12.29 Light Readings (illuminance levels in Lux) were taken using a hand held Konica Minolta T-10A illuminance meter. As recognised by standard industry methodology all horizontal lux readings were taken on the ground and all vertical lux readings were taken at arm’s length from a standing position; approximately 1.5m above ground.

12.30 This method provides consistency of measurement locations relative to the sensitive receptor type and provides a datum point for the calculation and comparison of effects.

Desk Study Methodology

12.31 A desk study has been undertaken to identify relevant legislation, good practice guidance, local designations and relevant planning policy in relation to lighting following the CIE 126 (1997), Institute of Lighting Professionals – Guidance Notes for the Reduction of Obtrusive Light GN01: 2011 and CIE 150 (2003) guidance.

Lighting Assessment Methodology

Residential Receptors R1 to R38 (Inc. R24 - Grade II Residential – Wychnor)

12.32 In terms of common locations, orientation and aspects relating to the Proposed Development, individual residential premises are grouped into representative receptor zones.
For occupied residential receptors the lighting assessment has followed the methodology outlined in CIE 126 (1997) and CIE 150 (2003) guidance. The criteria used to assess the magnitude and significance of the effects of installed lighting have been derived from CIE 150 (2003), with consideration also given to the Institute of Lighting Professionals – Guidance Notes for the Reduction of Obtrusive Light GN01: 2011. Here reference is made to the Environmental Zone Criteria for light nuisance into windows (measured in Lux) defined as:

- **E0**: Protected surroundings, dark landscapes – UNESCO Starlight reserves, IDA Dark Sky Parks
- **E1**: Natural surroundings, intrinsically dark landscapes - National Parks, Areas of Outstanding Natural Beauty etc.
- **E2**: Rural surroundings, low district brightness areas – Village or relatively dark outer suburban locations
- **E3**: Suburban, moderate district brightness – small town centres or suburban locations
- **E4**: Urban, high district brightness – Town/city centres with high levels of night-time activity

The ILP guideline values for the Environmental Zones are outlined in Table 12.1.

<table>
<thead>
<tr>
<th>Environmental Zone</th>
<th>Sky Glow</th>
<th>ULR (Max %) (1)</th>
<th>Light into Windows EV (2) Pre Curfew</th>
<th>Post Curfew</th>
<th>Source Intensity I (cd) (3) Pre Curfew</th>
<th>Post Curfew</th>
<th>Building Luminance (4) L (cd/m²) Ave. Before Curfew</th>
</tr>
</thead>
<tbody>
<tr>
<td>E0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>E1</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2500</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>E2</td>
<td>2.5</td>
<td>5</td>
<td>1</td>
<td>7500</td>
<td>500</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>E3</td>
<td>5</td>
<td>10</td>
<td>2</td>
<td>10000</td>
<td>1000</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>E4</td>
<td>15</td>
<td>25</td>
<td>5</td>
<td>25000</td>
<td>2500</td>
<td>25</td>
<td>25</td>
</tr>
</tbody>
</table>

Notes to Table 12.1:

- **ULR (Upward Waste Light Ratio)** = Maximum permitted percentage of luminaire flux that goes directly into the sky.
- **EV** = Vertical Illuminance in Lux - measured flat on the glazing at the centre of the window.
- **I** = Light intensity in Candelas
- **L** = Luminance cd/m²
- **Curfew** = The time after which stricter requirements (for the control of obtrusive light) will apply.

Where:

1. **Upward Light Ratio** – Some lighting schemes will require the deliberate and careful use of upward light, e.g. ground recessed luminaires, ground mounted floodlights, festive lighting, to which these limits cannot apply. However, care should always be taken to minimise any upward waste light by the proper application of suitably directional luminaires and light controlling attachments.

2. **Light Intrusion (into Windows)** – These values are suggested maxima and need to take account of existing light intrusion at the point of measurement. In the case of road lighting on public highways where building facades are adjacent to the lit highway, these levels may not be obtainable. In such cases where a specific complaint has been received, the Highway Authority should endeavour to reduce the light intrusion into the window down to the post curfew value by fitting a shield, replacing the luminaire, or by varying the lighting level.
3 - Luminaire Intensity – This applies to each luminaire in the potentially obtrusive direction, outside the area being lit. The figures given are for general guidance only and for some sports lighting applications with limited mounting heights, may be difficult to achieve.

4 - Building Luminance – This should be limited to avoid over lighting, and related to the general district brightness. In this reference building luminance is applicable to buildings directly illuminated as a night-time feature as against the illumination of a building caused by spill light from adjacent luminaires or luminaires fixed to the building but used to light an adjacent area.

Ecology Assessment Zones (EZ1 to EZ4) - Ecology Receptor Areas - Bat Commuting / Foraging / Potential Roost and Main River and 8m EA Stand-off

12.35 The applicant ecologist has advised the bat commuting, foraging and potential roost locations to be surveyed and the relative light effect calculation measurement criteria and heights to support the ecological light effect assessment provided within Ecology and Nature Conservation Chapter 9.

12.36 Assessment is provided on the pre- and post-curfew peak horizontal and vertical effect condition (vertical being the more relevant indicator and maximum adverse effect to bat flight) for representative ecology zones (Figure 12.2). Where a potential significant effect is possible, tabulated baseline, effect and resultant values are provided for assessment locations on the centre line of the respective ecology zone.

12.37 The following outputs are provided within Appendix 12.3:

- Graphical Representation of Peak Pre Curfew and Post Curfew Horizontal Lux value at ground level within assessment area (EZ1 to EZ4).

- Tabulated reference points provide measured baseline conditions, peak / resultant Pre Curfew and Post Curfew horizontal and vertical light effects (2m, 5m and 10m) on the centre line of the respective ecology zone (E1 to E25) where a notable effect is expected.

12.38 In general, Bat Conservation Trust - Bats and Lighting in the UK (Version 3 - May 2009) recommends a maximum illuminance of 3 Lux dependent upon the surroundings and on the species of bat affected. However, currently there is a lack of evidence regarding the light levels below which there are no/reduced effects on bats. Responses of bats to light levels are likely to vary between species and between behaviours. A ‘light threshold’ below which there is little effect on bats may not exist for some species which may be light averse regardless of intensity.

12.39 Light levels at the Site should be considered in the context of the lux data recorded during pre-development lighting and bat surveys. Where possible post-development light levels should be as close to the light levels recorded at key areas of bat use on the Site pre-development.

12.40 Further information on the use of the Site by species and the light effect assessment is provided within Ecology and Nature Conservation Chapter 9.

Rail and Highway Receptors T1 to T8

12.41 The threshold increment is a measure of the loss visibility caused by disability glare. Disability glare is defined as the impairment of visual performance caused by a reduction of contrast. The ILP and CIE 150 guidelines provide a maximum target value of 15% for adaption luminance between 0.1 and 5 cd/m². These values refer to both rail and lit / unlit situations.
12.42 This is primarily in relation to the effect of the proposed floodlighting (sports pitch) illumination where adverse glare could prove to be detrimental to the safety of transport users. Therefore, representative assessment locations relate to surrounding uses which may have a potential direct and unobscured view towards the proposed illuminated pitch locations.

12.43 Furthermore, in respect of rail uses, BS 5489-1:2013 provides guidance with respect to minimising light trespass onto railways. The following influences the lighting strategy approach for lighting in the vicinity of the railway:

- Columns should be placed as far away as practicable from a rail bridge or the fence line of the railway track.
- Glare should be minimized for the train driver by the use of luminaires conforming to an appropriate G class selected from BS EN 13201-2:2015, Table A.1 or shielding. In the absence of published limits the ILP Guidance Notes for source intensity limits relating to an E3 Zone are used for assessment. Assessment based on a peak value at 2.75m AFL (assumed typical driver eye level).
- Colours in a lighting scheme should not conflict or cause confusion with colours used for signal lights.

**Natural Receptor – Direct Sky Glow SG1**

12.44 When considering direct sky glow, as a result of direct upwards light, there is the possibility of a site wide effect being visible from darker environments. Direct Sky Glow cannot be measured. The baseline is professionally judged relative to visual baseline survey conditions and published CPRE – Night Blight data.

12.45 The ILP Guidance Notes for the Reduction of Obtrusive Light (2011) provides limiting sky glow percentages relative to the Environmental Zone. This is assessed on a Site wide basis relative to the overarching Environmental Zone classification for intended and existing artificially lit areas.

**Sensitive Locations Excluded from Assessment**

**Landscape Designations - AONB, SSSI etc. and surrounding Public Rights of Way**

12.46 The nearest statutory designated landscape site is the Haslam Park Local Nature Reserve which is within 700m of the Site to the south. The online mapping tool MAGIC Map, infers the Site is also situated outside the Effect Risk Zones of the three nearest SSSIs, which are Red Scar and Tun Brook Woods (approximately 5.5km), the Ribble Estuary SSSI (approximately 6.35km) and the Newton Marsh SSSI (approximately 6.55km).

12.47 Due to distance, stray obtrusive light from the Site is unlikely to exceed or contribute to that already received on a local, regional or national scale, as such, Landscape Designations are not considered further as part of this assessment.

12.48 Relating to obtrusive light and unless ecologically designated, Public Rights of Way are considered to be nil in terms of sensitivity due to limited frequencies and durations of night time human use and activity. As such, these are not included as part of this assessment.

**Other Locations**
12.49 Due to the expected type and nature of light effect, in relation to the likely activities and periods of occupation existing commercial, industrial and employment developments are considered to have a negligible sensitivity and are therefore excluded from the assessment.

**Sensitivity of Receptor**

12.50 **Appendix 12.1** provides assessment of receptor sensitivity for different types of use contained within the adjacent areas to the Site. These are as follows:

- Existing Residential – High Sensitivity;
- Rail and Highway – Moderate Sensitivity;

12.51 Ecological receptor sensitivities are determined within **Chapter 9**.

**Effect Duration**

12.52 In determining the overall effect magnitude distinction is made between temporary and permanent effects based on the following timescale:

- Short Term – the effects from lighting will be of short duration and will not last more than 2 to 5 years from the commencement of the works;
- Moderate Term – the effects from the lighting will take 5 to 15 years to be mitigated; and
- Long Term – the effects from the lighting will be reasonably mitigated over a long period of time (15 years or more) or cannot be effectively mitigated (permanent effects).

**Effect Magnitude**

12.53 The assessment of potential effects, as a result of the Proposed Development, has taken into account both the construction and operational phases. The construction phase effect is assessed through professional judgement and the significance level attributed to each operational effect has been assessed based on the effect magnitude due to the Proposed Development, and the sensitivity of the affected receptor/receiving environment to change.

12.54 In the absence of published methodology for the evaluation of the effect magnitude the following, derived by Hoare Lea, provides a basis for a quantitative evaluation relative to the nature and baseline condition of the sensitive receptor and the potential obtrusive light effect and guidance limitations.

- Where measured baseline conditions are available (i.e. – measurable and accessible) the Magnitude of Effect relates to the percentage difference between measured baseline value to threshold guidance and resultant value to threshold guidance.
- Where baseline conditions are not available the Magnitude of Effect is determined by the calculated percentage increase (Proposed Development only) over threshold guidance for the Environmental Zone.

**Significance Criteria**
12.55 The significance of an environmental effect is determined by the interaction of magnitude and sensitivity, whereby the effects can be beneficial or adverse.

12.56 The overall significance of effect at each receptor is evaluated using Effect Significance Matrix as set out in Table 12.2 and the factors below:

- The value of the resource (international, national, regional and local level importance);
- The effect magnitude;
- Obtrusive light limiting thresholds;
- The duration involved; and
- The sensitivity of receptors.

Table 12.2: Effect Significance Matrix

<table>
<thead>
<tr>
<th>Effect Magnitude</th>
<th>Sensitivity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High</td>
</tr>
<tr>
<td>Major</td>
<td>Major Beneficial</td>
</tr>
<tr>
<td>Moderate</td>
<td>Moderate Beneficial</td>
</tr>
<tr>
<td>Minor</td>
<td>Minor Beneficial</td>
</tr>
<tr>
<td>Negligible</td>
<td>Negligible</td>
</tr>
</tbody>
</table>

|                  | Moderate             |
| Major            | Major to Moderate Beneficial |
| Moderate         | Moderate to Minor Beneficial |
| Minor            | Minor to Minor Beneficial |
| Negligible       | Negligible           |

|                  | Low                  |
| Major            | Moderate to Minor Beneficial |
| Moderate         | Minor Adverse / Beneficial |
| Minor            | Minor to Negligible   |
| Negligible       | Negligible           |

12.57 The following provides a definition for varying degrees of significance:

- Major Beneficial: Major decrease in the levels of obtrusive light onto surrounding areas and illuminance levels at the receptor, resulting in a noticeable or major improvement in baseline conditions;
- Moderate Beneficial: Moderate decrease in the levels of obtrusive light onto surrounding areas and illuminance levels at the receptor, resulting in a moderate improvement in the current baseline conditions;
- Minor Beneficial: Minor decrease in the levels of obtrusive light onto surrounding areas and illuminance levels at the receptor, resulting in a minor perceptible improvement in baseline conditions;
- Negligible: Negligible or barely perceptible change in the levels of obtrusive light onto surrounding areas and illuminance levels at the receptor and would cause a negligible or barely discernible change to current baseline conditions;
- Minor Adverse: Minor increase in the levels of obtrusive light onto surrounding areas and illuminance levels at the receptor, would cause a minor perceptible change in baseline conditions;
• Moderate Adverse: Moderate increase in the levels of obtrusive light onto surrounding areas and illuminance levels at the receptor, and would result in a noticeable effect on baseline conditions; and

• Major Adverse: Major increase in the levels of obtrusive light onto surrounding areas and illuminance levels at the receptor, and would result in a major effect on baseline conditions.

12.58 While effects are considered to fall into one of four effect categories ranging from ‘negligible’, ‘minor’, ‘moderate’, ‘major’ in the effects matrix presented in Table 12.2, it is only those effects that fall within the range of ‘moderate to minor’ through to ‘major’ categories (as shaded above) that are considered to be the significant environmental effects arising from the construction and operation of the Proposed Development.

12.59 Similarly, it should be noted that although a degree of significance can appear as negative (due to a negative change in condition) the effect may still fall within obtrusive guidance limits for the affected receptor. Where this is the case this becomes the overriding definition of effect. For example, an obtrusive light pre curfew light trespass condition of + 4 Lux to a previously unlit E2 zone would be considered as being a Major Adverse Effect over the baseline condition. However, guidance for an E2 zone defines a limit of 5 Lux. Therefore, although being a Major Adverse Effect, the resultant condition complies with guidance limitations and is therefore considered to be acceptable.

Assumptions / Limitations

Construction Lighting Parameters

12.60 Construction requires artificial lighting that can potentially cause detrimental light spill and glare, particularly when poorly controlled and misdirected. The methods and scheduling of construction lighting activities are based on professional judgement, which should be confirmed within an approved Construction Environmental Management Plan (CEMP) prepared by the Contractor in advance of construction.

Completed Development Lighting Parameters

12.61 External Operational Lighting Parameters have been prepared for the purposes of this hybrid planning application. Detailed lighting design, which will be prepared within these parameters and any mitigation recommended within this chapter, will be completed as a subsequent detailed submission as part of Reserved Matters Applications. Appendix 12.3 provides the parameters for the assessment lighting arrangements.

12.62 Assessment is provided for a pre and post curfew condition. Where curfew is defined as being the time at which non-essential lighting is turned off (subject to Health and Safety approval).

12.63 On a precautionary basis, non-essential lighting is limited to floodlighting related to proposed sports pitch illumination. Where, it is proposed that, all floodlighting will be turned off at 18:00 (based on periods of use). Hence, this is defined as the post curfew condition with all other forms of artificial lighting remaining in operation.

Assessment Criteria for the Completed Development

12.64 For the purposes of demonstrating a robust assessment, the following standard industry precautionary measures are applied to the assessment calculation:
• It has been assumed that all external lighting is operational simultaneously for the relevant pre or post curfew operational condition (i.e. a maximum adverse scenario);

• A unity maintenance factor of 1.0 is applied to represent the maximum adverse condition from initial installation (maximum light output not including for light losses through light source degradation and dirt accumulation);

• As per standard industry practise and for the demonstration of maximum pre mitigation effects existing and proposed landscape bunding and planting / trees have not been included within the assessment calculations.

Reflective Properties of Illuminated Surfaces

12.65 Guidance is expressed in terms of the direct illuminance component. However, where the surface is relatively light in colour and typically >30% the reflected light component should be taken into account. In the case of this assessment it is assumed that the typical landscape reflectance value is <30% and will not provide significant contribution, by reflection, to the illuminance at the measured point.

Baseline Conditions

12.66 This section describes the results of the baseline lighting survey undertaken on the 27th October 2016. This includes information relating to the existing lighting on and surrounding the Site and provides site specific data on existing illumination.

12.67 The detailed results and findings of the survey are included in Appendix 12.1.

Overview of the Site and Adjacent Area

12.68 The notable use of artificial lighting is in relation to sports pitch lighting arrangements at Preston Grasshoppers Sports facility, where 15m floodlighting columns are currently installed. However, much of the surrounding areas to the Proposed Development are currently lit to highway and residential street uses typical of a suburban environment.

12.69 Within the Site boundary, the environment is generally unlit due to the open expanses of land associated with the Golf Club, with the exception of the car parking and Club House facilities. Although localised, existing lighting elements to the developed areas surrounding the Site do disrupt the night scene and can be considered as contributing to an adverse effect on the local environment (light trespass and sky glow).

12.70 Table 12.3 provides a summary of the baseline conditions and the relationship to the Site for the Residential receptor locations.

12.71 Table 12.4 provides a summary of the baseline conditions and the relationship to the Site for Rail and Highway Locations.

Table 12.3: Baseline conditions and the relationship to the Site for the Residential receptor locations.
<table>
<thead>
<tr>
<th>Sensitive Receptor</th>
<th>Peak Illuminance Measurement (Lux)</th>
<th>Environmental Zone Classification and ILP Threshold Limits</th>
<th>Conditions Relative to the Site</th>
<th>Existing Lighting Guidance Compliant</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>Vertical @ 1.5m above ground – 0.09</td>
<td>E2 - (Village or relatively dark outer suburban locations). Light into Window - 5 lux before curfew / 1 lux after curfew Source Intensity – 7500 cd before curfew / 500 lux after curfew</td>
<td>Being &lt; 100m to the Site boundary creates marginal potential for light disturbance, however treeline and obscured view of the Site provides dense natural screening. Reduction in terrain height of visible Site to the SE decreases potential light source visibility.</td>
<td>Yes, none present</td>
</tr>
<tr>
<td>R2</td>
<td>Vertical @ 1.5m above ground – 0.06</td>
<td>E2 - (Village or relatively dark outer suburban locations). Light into Window - 5 lux before curfew / 1 lux after curfew Source Intensity – 7500 cd before curfew / 500 lux after curfew</td>
<td>Adjacent to Site boundary creates potential for light disturbance, however partial treeline and obscured view of the Site provides partial natural screening. Terrain being approximately level with the visible Site reduces potential view of light sources</td>
<td>Yes, none present</td>
</tr>
<tr>
<td>R3</td>
<td>Vertical @ 1.5m above ground – 0.11</td>
<td>E2 - (Village or relatively dark outer suburban locations). Light into Window - 5 lux before curfew / 1 lux after curfew Source Intensity – 7500 cd before curfew / 500 lux after curfew</td>
<td>Adjacent to Site boundary creates potential for light disturbance, however partial treeline and obscured view of the Site provides partial natural screening. Terrain being approximately level with the visible Site reduces potential view of light sources</td>
<td>Yes, none present</td>
</tr>
<tr>
<td>R4</td>
<td>Vertical @ 1.5m above ground – 0.07</td>
<td>E2 - (Village or relatively dark outer suburban locations). Light into Window - 5 lux before curfew / 1 lux after curfew Source Intensity – 7500 cd before curfew / 500 lux after curfew</td>
<td>Adjacent to Site boundary creates potential for light disturbance, however partial treeline and obscured view of the Site provides partial natural screening. Terrain being approximately level with the visible Site reduces potential view of light sources</td>
<td>Yes, none present</td>
</tr>
<tr>
<td>R5</td>
<td>Vertical @ 1.5m above ground – 0.12</td>
<td>E2 - (Village or relatively dark outer suburban locations). Light into Window - 5 lux before curfew / 1 lux after curfew Source Intensity – 7500 cd before curfew / 500 lux after curfew</td>
<td>Adjacent to Site boundary creates potential for light disturbance, however partial treeline and obscured view of the Site provides partial natural screening. Terrain being approximately level with the visible Site</td>
<td>Yes, none present</td>
</tr>
<tr>
<td>Sensitive Receptor</td>
<td>Peak Illuminance Measurement (Lux)</td>
<td>Environmental Zone Classification and ILP Threshold Limits</td>
<td>Conditions Relative to the Site</td>
<td>Existing Lighting Guidance Compliant</td>
</tr>
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</tr>
<tr>
<td>R6</td>
<td>Vertical @ 1.5m above ground – 0.34</td>
<td>E2 - (Village or relatively dark outer suburban locations). Light into Window - 5 lux before curfew / 1 lux after curfew Source Intensity – 7500 cd before curfew / 500 lux after curfew</td>
<td>Adjacent to Site boundary creates potential for light disturbance, however partial treeline and obscured view of the Site provides partial natural screening. Terrain being approximately level with the visible Site reduces potential view of light sources.</td>
<td>Yes, none present</td>
</tr>
<tr>
<td>R7</td>
<td>Vertical @ 1.5m above ground – 3.96</td>
<td>E2 - (Village or relatively dark outer suburban locations). Light into Window - 5 lux before curfew / 1 lux after curfew Source Intensity – 7500 cd before curfew / 500 lux after curfew</td>
<td>Adjacent to Site boundary creates potential for light disturbance, however partial treeline and obscured view of the Site provides partial natural screening. Reduction in terrain height of visible Site to the SE decreases potential light source visibility. Existing lit footpath to rear of properties may create an existing Post-Curfew obtrusive light condition.</td>
<td>No, Existing Post Curfew non-compliance.</td>
</tr>
<tr>
<td>R8</td>
<td>Vertical @ 1.5m above ground – 0.06</td>
<td>E2 - (Village or relatively dark outer suburban locations). Light into Window - 5 lux before curfew / 1 lux after curfew Source Intensity – 7500 cd before curfew / 500 lux after curfew</td>
<td>Adjacent to Site boundary creates potential for light disturbance, however partial treeline and obscured view of the Site provides partial natural screening. Terrain being approximately level with the visible Site reduces potential view of light sources</td>
<td>Yes, none present</td>
</tr>
<tr>
<td>R9</td>
<td>Vertical @ 1.5m above ground – 0.12</td>
<td>E2 - (Village or relatively dark outer suburban locations). Light into Window - 5 lux before curfew / 1 lux after curfew Source Intensity – 7500 cd before curfew / 500 lux after curfew</td>
<td>Adjacent to Site boundary creates potential for light disturbance, however treeline and obscured view of the Site provides dense natural screening. Reduction in terrain height of visible Site to the east decreases potential light source visibility.</td>
<td>Yes, none present</td>
</tr>
<tr>
<td>R10</td>
<td>Vertical @ 1.5m above ground – 0.09</td>
<td>E2 - (Village or relatively dark outer suburban locations). Light into Window - 5 lux before curfew / 1 lux after curfew</td>
<td>Adjacent to Site boundary creates potential for light disturbance, however treeline and obscured view of the Site provides dense natural screening.</td>
<td>Yes, none present</td>
</tr>
<tr>
<td>Sensitive Receptor</td>
<td>Peak Illuminance Measurement (Lux)</td>
<td>Environmental Zone Classification and ILP Threshold Limits</td>
<td>Conditions Relative to the Site</td>
<td>Existing Lighting Guidance Compliant</td>
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</tr>
<tr>
<td>R11</td>
<td>Vertical @ 1.5m above ground – 0.13</td>
<td>E2 - (Village or relatively dark outer suburban locations). Light into Window - 5 lux before curfew / 1 lux after curfew Source Intensity – 7500 cd before curfew / 500 lux after curfew</td>
<td>Increase in terrain height of visible Site to the north increases potential light source visibility.</td>
<td>Yes, none present</td>
</tr>
<tr>
<td>R12</td>
<td>Vertical @ 1.5m above ground – 0.12</td>
<td>E2 - (Village or relatively dark outer suburban locations). Light into Window - 5 lux before curfew / 1 lux after curfew Source Intensity – 7500 cd before curfew / 500 lux after curfew</td>
<td>Adjacent to Site boundary creates potential for light disturbance, however treeline and obscured view of the Site provides dense natural screening. Reduction in terrain height of visible Site to the west decreases potential light source visibility.</td>
<td>Yes, none present</td>
</tr>
<tr>
<td>R13</td>
<td>Vertical @ 1.5m above ground – 0.10</td>
<td>E2 - (Village or relatively dark outer suburban locations). Light into Window - 5 lux before curfew / 1 lux after curfew Source Intensity – 7500 cd before curfew / 500 lux after curfew</td>
<td>Adjacent to Site boundary creates potential for light disturbance, however treeline and obscured view of the Site provides dense natural screening. Terrain being approximately level with the visible Site reduces potential view of light sources.</td>
<td>Yes, none present</td>
</tr>
<tr>
<td>R14</td>
<td>Vertical @ 1.5m above ground – 0.09</td>
<td>E2 - (Village or relatively dark outer suburban locations). Light into Window - 5 lux before curfew / 1 lux after curfew Source Intensity – 7500 cd before curfew / 500 lux after curfew</td>
<td>Adjacent to Site boundary creates potential for light disturbance, however partial treeline and obscured view of the Site provides partial natural screening. Terrain being approximately level with the visible Site reduces potential view of light sources.</td>
<td>Yes, none present</td>
</tr>
<tr>
<td>R15</td>
<td>Vertical @ 1.5m above ground – 0.11</td>
<td>E2 - (Village or relatively dark outer suburban locations). Light into Window - 5 lux before curfew / 1 lux after curfew Source Intensity – 7500 cd before curfew / 500 lux after curfew</td>
<td>Adjacent to Site boundary creates potential for light disturbance, however partial treeline and obscured view of the Site provides partial natural screening. Reduction in terrain height of visible Site to the east</td>
<td>Yes, none present</td>
</tr>
<tr>
<td>Sensitive Receptor</td>
<td>Peak Illuminance Measurement (Lux)</td>
<td>Environmental Zone Classification and ILP Threshold Limits</td>
<td>Conditions Relative to the Site</td>
<td>Existing Lighting Guidance Compliant</td>
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<td>decreases potential light source visibility.</td>
<td>Adjacent to Site boundary creates potential for light disturbance, however partial treeline and obscured view of the Site provides partial natural screening. Terrain being approximately level with the visible Site reduces potential view of light sources.</td>
<td>Yes, none present</td>
</tr>
<tr>
<td>R16</td>
<td>Vertical @ 1.5m above ground – 0.09</td>
<td>E2 - (Village or relatively dark outer suburban locations). Light into Window - 5 lux before curfew / 1 lux after curfew Source Intensity – 7500 cd before curfew / 500 lux after curfew</td>
<td>Adjacent to Site boundary creates potential for light disturbance, however partial treeline and obscured view of the Site provides partial natural screening.</td>
<td>Yes, none present</td>
</tr>
<tr>
<td>R17</td>
<td>Vertical @ 1.5m above ground – 0.07</td>
<td>E2 - (Village or relatively dark outer suburban locations). Light into Window - 5 lux before curfew / 1 lux after curfew Source Intensity – 7500 cd before curfew / 500 lux after curfew</td>
<td>Reduction in terrain height of visible Site to the south decreases potential light source visibility.</td>
<td>Yes, none present</td>
</tr>
<tr>
<td>R18</td>
<td>Vertical @ 1.5m above ground – 0.08</td>
<td>E2 - (Village or relatively dark outer suburban locations). Light into Window - 5 lux before curfew / 1 lux after curfew Source Intensity – 7500 cd before curfew / 500 lux after curfew</td>
<td>Adjacent to Site boundary creates potential for light disturbance, however partial treeline and obscured view of the Site provides partial natural screening. Reduction in terrain height of visible Site to the SW decreases potential light source visibility.</td>
<td>Yes, none present</td>
</tr>
<tr>
<td>R19</td>
<td>Vertical @ 1.5m above ground – 0.10</td>
<td>E2 - (Village or relatively dark outer suburban locations). Light into Window - 5 lux before curfew / 1 lux after curfew Source Intensity – 7500 cd before curfew / 500 lux after curfew</td>
<td>Adjacent to Site boundary creates potential for light disturbance, however partial treeline and obscured view of the Site provides partial natural screening. Terrain being approximately level with the visible Site reduces potential view of light sources</td>
<td>Yes, none present</td>
</tr>
<tr>
<td>R20</td>
<td>Vertical @ 1.5m above ground – 0.09</td>
<td>E2 - (Village or relatively dark outer suburban locations). Light into Window - 5 lux before curfew / 1 lux after curfew Source Intensity – 7500 cd before curfew / 500 lux after curfew</td>
<td>Adjacent to Site boundary creates potential for light disturbance, however treeline and obscured view of the Site provides dense natural screening. Terrain being approximately level with the visible Site reduces potential view of light sources</td>
<td>Yes, none present</td>
</tr>
<tr>
<td>Sensitive Receptor</td>
<td>Peak Illuminance Measurement (Lux)</td>
<td>Environmental Zone Classification and ILP Threshold Limits</td>
<td>Conditions Relative to the Site</td>
<td>Existing Lighting Guidance Compliant</td>
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</tr>
<tr>
<td>R21</td>
<td>Vertical @ 1.5m above ground – 0.06</td>
<td>E2 - (Village or relatively dark outer suburban locations). Light into Window - 5 lux before curfew / 1 lux after curfew Source Intensity – 7500 cd before curfew / 500 lux after curfew</td>
<td>Adjacent to Site boundary creates potential for light disturbance, however treeline and obscured view of the Site provides dense natural screening. Reduction in terrain height of visible Site to the SE decreases potential light source visibility.</td>
<td>Yes, none present</td>
</tr>
<tr>
<td>R22</td>
<td>Vertical @ 1.5m above ground – 0.10</td>
<td>E2 - (Village or relatively dark outer suburban locations). Light into Window - 5 lux before curfew / 1 lux after curfew Source Intensity – 7500 cd before curfew / 500 lux after curfew</td>
<td>Adjacent to Site boundary creates potential for unobscured light disturbance. Terrain being approximately level with the visible Site reduces potential view of light sources.</td>
<td>Yes, none present</td>
</tr>
<tr>
<td>R23</td>
<td>Vertical @ 1.5m above ground – 0.07</td>
<td>E2 - (Village or relatively dark outer suburban locations). Light into Window - 5 lux before curfew / 1 lux after curfew Source Intensity – 7500 cd before curfew / 500 lux after curfew</td>
<td>Adjacent to Site boundary creates potential for light disturbance, however treeline and obscured view of the Site provides dense natural screening. Reduction in terrain height of visible Site to the SW decreases potential light source visibility.</td>
<td>Yes, none present</td>
</tr>
<tr>
<td>R24</td>
<td>Vertical @ 1.5m above ground – 0.06</td>
<td>E2 - (Village or relatively dark outer suburban locations). Light into Window - 5 lux before curfew / 1 lux after curfew Source Intensity – 7500 cd before curfew / 500 lux after curfew</td>
<td>Being &lt; 100m to the Site boundary creates marginal potential for light disturbance, however treeline and obscured view of the Site provides dense natural screening. Terrain being approximately level with the visible Site reduces potential view of light sources.</td>
<td>Yes, none present</td>
</tr>
<tr>
<td>R25</td>
<td>Vertical @ 1.5m above ground – 0.04</td>
<td>E2 - (Village or relatively dark outer suburban locations). Light into Window - 5 lux before curfew / 1 lux after curfew Source Intensity – 7500 cd before curfew / 500 lux after curfew</td>
<td>Adjacent to Site boundary creates potential for light disturbance, however treeline and obscured view of the Site provides dense natural screening. Increase in terrain height of visible Site to the NW increases potential light source visibility.</td>
<td>Yes, none present</td>
</tr>
<tr>
<td>R26</td>
<td>Vertical @ 1.5m above ground – 0.05</td>
<td>E2 - (Village or relatively dark outer suburban locations).</td>
<td>Adjacent to Site boundary creates potential for light disturbance, however</td>
<td>Yes, none present</td>
</tr>
<tr>
<td>Sensitive Receptor</td>
<td>Peak Illuminance Measurement (Lux)</td>
<td>Environmental Zone Classification and ILP Threshold Limits</td>
<td>Conditions Relative to the Site</td>
<td>Existing Lighting Guidance Compliant</td>
</tr>
<tr>
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</tr>
<tr>
<td>Light into Window - 5 lux before curfew / 1 lux after curfew</td>
<td>Source Intensity – 7500 cd before curfew / 500 lux after curfew</td>
<td>partial treeline and obscured view of the Site provides partial natural screening. Terrain being approximately level with the visible Site reduces potential view of light sources</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R27 Vertical @ 1.5m above ground – 0.06</td>
<td>E2 - (Village or relatively dark outer suburban locations).</td>
<td>Adjacent to Site boundary creates potential for light disturbance, however partial treeline and obscured view of the Site provides partial natural screening. Increase in terrain height of visible Site to the SE increases potential light source visibility.</td>
<td>Yes, none present</td>
<td></td>
</tr>
<tr>
<td>R28 Vertical @ 1.5m above ground – 0.03</td>
<td>E2 - (Village or relatively dark outer suburban locations).</td>
<td>Being &lt; 100m to the Site boundary creates marginal potential for light disturbance, however treeline and obscured view of the Site provides dense natural screening. Increase in terrain height of visible Site increases potential light source visibility.</td>
<td>Yes, none present</td>
<td></td>
</tr>
<tr>
<td>R29 Vertical @ 1.5m above ground – 0.04</td>
<td>E2 - (Village or relatively dark outer suburban locations).</td>
<td>Adjacent to Site boundary creates potential for light disturbance, however treeline and obscured view of the Site provides dense natural screening. Increase in terrain height of visible Site to the NE increases potential light source visibility.</td>
<td>Yes, none present</td>
<td></td>
</tr>
<tr>
<td>R30 Vertical @ 1.5m above ground – 0.06</td>
<td>E2 - (Village or relatively dark outer suburban locations).</td>
<td>Being &lt; 100m to the Site boundary creates marginal potential for light disturbance, however treeline and obscured view of the Site provides dense natural screening. Increase in terrain height of visible Site increases potential light source visibility.</td>
<td>Yes, none present</td>
<td></td>
</tr>
<tr>
<td>R31 Vertical @ 1.5m above ground – 0.04</td>
<td>E2 - (Village or relatively dark outer suburban locations).</td>
<td>Being &lt; 100m to the Site boundary creates marginal potential for light disturbance, however</td>
<td>Yes, none present</td>
<td></td>
</tr>
<tr>
<td>Sensitive Receptor</td>
<td>Peak Illuminance Measurement (Lux)</td>
<td>Environmental Zone Classification and ILP Threshold Limits</td>
<td>Conditions Relative to the Site</td>
<td>Existing Lighting Guidance Compliant</td>
</tr>
<tr>
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</tr>
<tr>
<td>Light into Window - 5 lux before curfew / 1 lux after curfew Source Intensity – 7500 cd before curfew / 500 lux after curfew</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R32 Vertical @ 1.5m above ground – 0.06</td>
<td>E2 - (Village or relatively dark outer suburban locations). Light into Window - 5 lux before curfew / 1 lux after curfew Source Intensity – 7500 cd before curfew / 500 lux after curfew</td>
<td>Being &lt; 100m to the Site boundary creates marginal potential for light disturbance, however treeline and obscured view of the Site provides dense natural screening. Increase in terrain height of visible Site to the east increases potential light source visibility.</td>
<td>Yes, none present</td>
<td></td>
</tr>
<tr>
<td>R33 Vertical @ 1.5m above ground – 0.11</td>
<td>E2 - (Village or relatively dark outer suburban locations). Light into Window - 5 lux before curfew / 1 lux after curfew Source Intensity – 7500 cd before curfew / 500 lux after curfew</td>
<td>Adjacent to Site boundary creates potential for light disturbance, however partial treeline and obscured view of the Site provides partial natural screening. Increase in terrain height of visible Site to the north increases potential light source visibility.</td>
<td>Yes, none present</td>
<td></td>
</tr>
<tr>
<td>R34 Vertical @ 1.5m above ground – 1.39</td>
<td>E2 - (Village or relatively dark outer suburban locations). Light into Window - 5 lux before curfew / 1 lux after curfew Source Intensity – 7500 cd before curfew / 500 lux after curfew</td>
<td>Being &gt; 100m to the Site boundary creates negligible potential for light disturbance and treeline and obscured view of the Site provides dense natural screening. Increase in terrain height of visible Site to the north increases potential light source visibility. Existing street lighting may create a Post-Curfew obtrusive light condition.</td>
<td>No, Existing Post Curfew non-compliance</td>
<td></td>
</tr>
<tr>
<td>R35 Vertical @ 1.5m above ground – 0.06</td>
<td>E2 - (Village or relatively dark outer suburban locations). Light into Window - 5 lux before curfew / 1 lux after curfew Source Intensity – 7500 cd before curfew / 500 lux after curfew</td>
<td>Being &lt; 100m to the Site boundary creates marginal potential for light disturbance, however treeline and obscured view of the Site provides dense natural screening. Terrain being approximately level with the visible Site reduces potential view of light sources.</td>
<td>Yes, none present</td>
<td></td>
</tr>
<tr>
<td>Sensitive Receptor</td>
<td>Peak Illuminance Measurement (Lux)</td>
<td>Environmental Zone Classification and ILP Threshold Limits</td>
<td>Conditions Relative to the Site</td>
<td>Existing Lighting Guidance Compliant</td>
</tr>
<tr>
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</tr>
<tr>
<td>R36</td>
<td>Vertical @ 1.5m above ground – 0.05</td>
<td>E2 - (Village or relatively dark outer suburban locations). Light into Window - 5 lux before curfew / 1 lux after curfew Source Intensity – 7500 cd before curfew / 500 lux after curfew</td>
<td>Being &lt; 100m to the Site boundary creates marginal potential for light disturbance, however treeline and obscured view of the Site provides dense natural screening. Terrain being approximately level with the visible Site reduces potential view of light sources.</td>
<td>Yes, none present</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R37</td>
<td>Vertical @ 1.5m above ground – 0.07</td>
<td>E2 - (Village or relatively dark outer suburban locations). Light into Window - 5 lux before curfew / 1 lux after curfew Source Intensity – 7500 cd before curfew / 500 lux after curfew</td>
<td>Being approximately 100m to the Site boundary creates negligible potential for light disturbance and treeline and obscured view of the Site provides dense natural screening. Terrain being approximately level with the visible Site reduces potential view of light sources.</td>
<td>Yes, none present</td>
</tr>
<tr>
<td>R38</td>
<td>Vertical @ 1.5m above ground – 0.09</td>
<td>E2 - (Village or relatively dark outer suburban locations). Light into Window - 5 lux before curfew / 1 lux after curfew Source Intensity – 7500 cd before curfew / 500 lux after curfew</td>
<td>Being &lt; 100m to the Site boundary creates marginal potential for light disturbance, however treeline and obscured view of the Site provides dense natural screening. Terrain being approximately level with the visible Site reduces potential view of light sources.</td>
<td>Yes, none present</td>
</tr>
</tbody>
</table>

**Table 12.4: Baseline conditions and the relationship to the Site for Rail and Highway Locations**

<table>
<thead>
<tr>
<th>Sensitive Receptor</th>
<th>Type</th>
<th>Typical Average Horizontal Illuminance (Lux)</th>
<th>Conditions Relative to the Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1 – Rail Southbound</td>
<td>Unlit, assumed to be compliant in terms of T1%</td>
<td>Unlit baseline condition – Horiz – 0.03 lux</td>
<td>Being &lt; 100m to the Site boundary creates marginal potential for light disturbance. Treeline provides dense natural screening and obscured views of the Site. Terrain being approximately level with the visible Site reduces potential view of light sources.</td>
</tr>
<tr>
<td>T2 – Rail Northbound</td>
<td>Unlit, assumed to be compliant in terms of T1%</td>
<td>Unlit baseline condition – Horiz – 0.03 lux</td>
<td>Being &lt; 100m to the Site boundary creates marginal potential for light disturbance. Treeline provides dense natural screening and obscured views of the Site. Terrain being approximately level with the visible Site reduces potential view of light sources.</td>
</tr>
<tr>
<td>Sensitiv e Receptor</td>
<td>Type</td>
<td>Typical Average Horizontal Illuminance (Lux)</td>
<td>Conditions Relative to the Site</td>
</tr>
<tr>
<td>---------------------</td>
<td>------</td>
<td>---------------------------------------------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td>T3 – Highway</td>
<td>Lit – Discharge lamp, 6m columns, assumed to be compliant in terms of TI%</td>
<td>Horiz – 12lux</td>
<td>Being &gt; 100m to the Site boundary creates negligible potential for light disturbance. Neighbouring residential properties and treeline provides dense screening and obstructed views of the Site. Terrain being approximately level with the visible Site reduces potential view of light sources.</td>
</tr>
<tr>
<td>T4 – Highway</td>
<td>Lit – Discharge lamp, 6m columns, assumed to be compliant in terms of TI%</td>
<td>Horiz – 10lux</td>
<td>Being &gt; 100m to the Site boundary creates negligible potential for light disturbance. Neighbouring residential properties and treeline provides dense screening and obstructed views of the Site. Terrain being approximately level with the visible Site reduces potential view of light sources.</td>
</tr>
<tr>
<td>T5 – Highway</td>
<td>Lit – Discharge lamp, 6m columns, assumed to be compliant in terms of TI%</td>
<td>Horiz – 8lux</td>
<td>Being &gt; 100m to the Site boundary creates negligible potential for light disturbance. Neighbouring residential properties and treeline provides dense screening and obstructed views of the Site. Terrain being approximately level with the visible Site reduces potential view of light sources.</td>
</tr>
<tr>
<td>T6 – Highway</td>
<td>Lit – Discharge lamp, 6m columns, assumed to be compliant in terms of TI%</td>
<td>Horiz – 9lux</td>
<td>Being &lt; 100m to the Site boundary creates marginal potential for light disturbance, Neighbouring residential properties provides partially obstructed views of the Site. Terrain being approximately level with the visible Site reduces potential view of light sources.</td>
</tr>
<tr>
<td>T7 – Highway</td>
<td>Lit – Discharge lamp, 8m columns, assumed to be compliant in terms of TI%</td>
<td>Horiz – 10lux</td>
<td>Being &lt; 100m to the Site boundary creates marginal potential for light disturbance, Neighbouring residential properties provides partially obstructed views of the Site. Terrain being approximately level with the visible Site reduces potential view of light sources.</td>
</tr>
<tr>
<td>T8 – Highway</td>
<td>Lit – Discharge lamp, 6m columns, assumed to be compliant in terms of TI%</td>
<td>Horiz – 9lux</td>
<td>Being &lt; 100m to the Site boundary creates marginal potential for light disturbance, Neighbouring residential properties and treeline provides dense screening and obstructed views of the Site. Reduction in terrain height of visible Site to the NE decreases potential light source visibility.</td>
</tr>
</tbody>
</table>

**Natural – Direct Sky Glow**

12.72 When considering direct sky glow, as a result of direct upwards light, there is the possibility of a site wide effect being visible from darker environments. Direct Sky Glow cannot be measured. The baseline is assessed relative to visual baseline survey conditions and published CPRE – Night Blight data.
12.73 When viewed from within the Site boundary, sky glow is visible and is predominately associated with upwards light associated with surrounding urban developments (e.g. Preston and other associated conurbation).

12.74 The closest dark sky region (Forest of Bowland AONB) is approximately 9km north east of the Site boundary, and any stray upwards light from the Site is unlikely to exceed or contribute to that already received on a local, regional or national scale.

12.75 With reference to Appendix 12.1, CPRE – Night Blight data gives a broad brush indication of the upwards light (sky glow) experienced (2016). Satellite measurements range from <0.25 (being a dark sky typical of an E0 zone) to >32 (being a saturated bright sky at night typical of an E4 Zone). It can be seen that the Site and surrounding areas experiences data values between 4 to 8, which is considered representative of an E3 site wide night sky classification.

12.76 For sites, without ecological (bat) activity, the sensitivity of the Site to direct upwards light would normally be considered as Low. However, due to the presence of flying nocturnal species and the potential detrimental effects relating to predator evasion (bat flight may become more visible) the sensitivity of the Site is increased to Moderate (precautionary).

Environmental Zone

12.77 Assessment of the designation, use, habitat and external lighting condition dictates the classification of Environmental Zones across the Site and surrounding areas. The Environmental Zones prescribe limiting obtrusive light guidance values published by the Institute of Lighting Professionals ILP for obtrusive light (residential and highway) - ILP Guidance Notes for the Reduction of Obtrusive Light (2011). With respect to the Site and surroundings, the area is considered to be representative mix of E3 (moderate district brightness) and E2 (low district brightness) zonal classifications. However, applied as a precautionary basis, the more stringent E2 thresholds are applied within the assessment for open unlit areas and abutting residential property elevations (which may fall within adjacent urban development’s representative of an E3 Zone).

12.78 It is considered this is a fair representation of the existing Environmental Zone classifications.

Do Nothing Scenario

12.79 Should the Proposed Development not proceed there will be no change to the Environmental Zone Classification for the Application Site.

Design Evolution

12.80 Through applicant team consultation in relation to constraints, considered design measures, operation and internal site allocations (lighting, building and landscape developments) the design has evolved to minimise potential obtrusive light adverse effects from the outset.

12.81 With respect to constraints and internal site allocation, lighting has only been included where essential to the safe night use of the Proposed Development. This includes activities in relation to development access / internal roadways and activities in relation to the floodlit sports pitch (during the hours of darkness until 18:00). All other areas, which are currently unlit, will remain as being unlit in the interests of maintaining the current baseline condition to identified local
12.82 With respect to the lighting parameters the following good practice embedded measures have been included, which are intended as being the base principals for the future light developments of the Site:

- Wherever possible, ensuring the use of controlled light distribution, optimised optics (flat glass - controlled light distribution below the horizontal) and considered luminaire positioning / minimal heights are employed;

- Where possible, modern LED luminaires should be employed throughout the Site to minimise the obtrusive light spill footprint and be as energy efficient as possible;

- All luminaires used around the perimeter of the Site should be mounted within the Site, so that the main photometric distribution of the luminaire will be towards the task area, keeping all light within the boundary of the development and preventing artificial light spilling outside of this;

- Wherever possible, adopting a light quality that minimises disruption to existing ecological systems in the form of ‘LED’ light sources (<4200K) which emit minimal UV and blue light.

12.83 Further to minimising potential detrimental effects as result of sports pitch floodlighting, a single pitch has been assigned as being artificially illuminated and is located furthest away from the existing dwellings. Similarly, use of the external pitch is limited to use until 18:00 (during the hours of darkness). As a result, the sports pitch lighting will only be predominately in use during the autumnal equinox (September till March), where any associated adverse effects will be limited in duration within this period.

12.84 Further developments to the proposed new training complex (to be submitted as a full application) have included the use of minimal glazing to the most onerous internal lighting elements (the indoor illuminated pitch). Where the proposed use of minimal glazing area has been incorporated in to the progressing sketch design in order to minimise potential internal lighting emissions.

12.85 In addition, the facility is described as being in general use from 08:00 until 13:30. Therefore, the use of internal lighting, during the hours of darkness will be predominately lighting associated with operational tasks excluding indoor pitch uses.

Potential Effects

Construction Effects (Pre Mitigation)

12.86 The following provides a description of the effect (pre mitigation) for identified Residential, Rail / Highway and Natural (direct sky glow) sensitive receptors. This is based on a professional judgement of the effect magnitude relative to the nature of obtrusive light effect.

12.87 Where the following Site characteristics are present, in relation to the sensitivity, an adverse degree of magnitude could be expected.
Partial / no natural treeline screening along with a reduction in height of terrain (at the receptor location when compared to the adjacent visible Site area) may create a potential for obtrusive light spill (when in close proximity to) and luminous source intensity glare from poorly aimed and orientated temporary construction luminaires.

12.88 This effect is likely to be limited to short, temporary and infrequent durations where the majority of construction related activities would be undertaken during the hours of daylight.

12.89 Obtrusive light effects, in relation to construction lighting, are described as being temporary, short term and direct.

12.90 Regarding specific wildlife and ecology receptors the potential effects of the Construction lighting is not included within this assessment. Refer to Chapter 9 – Ecology and Nature Conservation.

Potential Pre Mitigation Effect on Residential Receptors

Residential Receptors Affected by Construction and Security Lighting Associated with Proposed Housing Development Areas.

12.91 Where dense treelines are retained / proposed it is judged that, due to natural screening, the potential for obtrusive light to facing residential elevations is likely to result in a pre mitigation negligible adverse effect, which is not significant within the meaning of the EIA Regulations.

12.92 With respect to residential sensitivities being partially screened by treelines; an increased pre mitigation minor magnitude of change is expected. This would likely result in a short term, temporary and direct pre mitigation moderate to minor adverse significance of effect (which would be significant in EIA terms) relevant to residential receptors inclusive of R2 to R8 and R14 to R19 as a result of potential light spill and glare from poorly aimed luminaires.

12.93 Furthermore, where no / limited natural treeline screening is present and when in close proximity to the housing development proposals it is expected that a pre mitigation moderate magnitude of change is likely, resulting in a short term, temporary and direct pre mitigation major to moderate adverse significance of effect (which would be significant in EIA terms) relevant to residential receptor R22 as a result of potential light spill and glare from poorly aimed luminaires.


12.94 A further potentially significant artificial lighting activity is in relation to the aiming and final stage commissioning of operational sports pitch floodlighting. The operational floodlights are likely to be mounted on minimum 15m columns and prior to fixed installation will require precision aiming to achieve the necessary field of play illuminance requirements. This might involve a short duration period where lamps may be visible which could cause excessive glare and obtrusive light trespass to surrounding close proximity sensitivities that are on a lower terrain and have an unobscured view of the artificially lit pitch location.

12.95 Where dense treelines are retained / proposed it is judged that, due to natural screening, the potential for obtrusive light to facing residential elevations is likely to result in a pre mitigation negligible adverse effect, which is not significant within the meaning of the EIA Regulations.
12.96 With respect to residential sensitivities being partially screened by treelines; an increased pre mitigation minor magnitude of change is expected. This would likely result in a short term, temporary and direct pre mitigation moderate to minor adverse significance of effect (which would be significant in EIA terms) relevant to residential receptors **R26, R27 and R33** as a result of potential, but limited duration, light spill and glare.

**Potential Pre Mitigation Effect on Rail / Highway Receptors**

*Rail / Highway Receptors Affected by Construction and Security Lighting Associated with Proposed Housing Development Areas.*

12.97 Threshold increment (TI %) is a measure of the loss visibility caused by disability glare. Disability glare is defined as the impairment of visual performance caused by a reduction of contrast. The ILP and CIE 150 guidelines provide a maximum target value of 15% for adaption luminance between 0.1 and 5 cd/m². These values refer to lit and unlit baseline conditions.

12.98 On professional judgement, it considered unlikely that disability glare to sensitivities will exceed limiting thresholds. This is primarily due existing / proposed treelines and existing developments limiting potential views towards the Proposed Development. As a result, a pre mitigation negligible adverse effect can be expected, which is not significant within the meaning of the EIA Regulations.


12.99 As a consequence of floodlight aiming, during construction, it is possible that disability glare could potentially adversely affect surrounding sensitivities. However, due to limited durations and obstructed views adverse effects are likely to be limited to pre mitigation negligible adverse effect, which is not significant within the meaning of the EIA Regulations.

**Potential Pre Mitigation Effect on Natural Receptors – Direct Sky Glow (SG1)**

12.100 Based on professional judgement, and the current sky glow condition CPRE data (comparable to an E3: Suburban, medium district brightness area) the pre mitigation magnitude of change for the Proposed Development Site is likely to be minor which would result in a temporary, short term and direct pre mitigation minor adverse effect, which is not significant within the meaning of the EIA Regulations, as a result of uncontrolled upwards light spill from unshielded and poorly aimed temporary construction lighting.

**Completed Development Operational Effects (Pre Mitigation)**

12.101 The following provides a description of the pre curfew and post curfew effect for identified Residential, Rail / Highway and Natural (direct sky glow) sensitive receptors. This is based on a quantitative modelling and assessment of the effect magnitude relative to the nature of obtrusive light effect.

12.102 **Appendix 12.3** provides assessment for a pre and post curfew condition. Where curfew is defined as being the time at which non-essential lighting is turned off (subject to Health and Safety approval). On a precautionary basis, non-essential lighting is restricted to sports pitch floodlighting. Where, based on periods of use, sports pitch floodlighting will be turned off at 18:00.
12.103 Obtrusive light effects, in relation to operational lighting, are described as being permanent (during the period of operation), long term and direct.

12.104 Regarding specific ecology receptors the potential effect of the Operational lighting is not included within this assessment. However, where a notable effect is expected and to inform Chapter 9 – Ecology and Nature Conservation, Appendix 12.3 provides a tabulated overview of the measured baseline conditions and the resultant Pre Curfew and Post Curfew horizontal and vertical light effects to the centre line of the affected ecology zone.

Potential Pre Mitigation Effect on Residential Receptors

Residential Receptors Affected by Operational Lighting – Pre Curfew

12.105 The majority of residential receptors are likely to receive a pre curfew, unscreened pre mitigation negligible effect, which is not significant within the meaning of the EIA Regulations, and are also likely to remain compliant with pre curfew ILP guidance for an E2 Zone

12.106 The following identifies residential sensitive receptors where a significant pre curfew effect is potentially likely. These effects are primarily due to potential, close proximity highway lighting locations to the Site. However, any resultant predicted increase in light trespass (inclusive of the baseline condition) is likely to remain compliant with pre curfew ILP guidance for an E2 Zone.

Sensitive Receptors R2, R5 and R19

12.107 Due to close proximity and viewing angle the magnitude of change is likely to be minor which would result in a direct, permanent and long term pre mitigation moderate to minor adverse significance of effect (which would be significant in EIA terms) as a result of vertical light trespass over the unlit baseline condition.

Sensitive Receptor R22

12.108 Due to close proximity and viewing angle the unscreened magnitude of change is likely to be moderate which would result in a direct, permanent and long term pre mitigation major to moderate adverse significance of effect (which would be significant in EIA terms) as a result of vertical light trespass over the unlit baseline condition.

Residential Receptors Affected by Operational Lighting – Post Curfew

12.109 Similar to the pre curfew assessment, the majority of residential receptors are likely to receive an unscreened pre mitigation negligible effect, which is not significant within the meaning of the EIA Regulations, and are also likely to remain compliant with post curfew ILP guidance for an E2 Zone (with the exception of R34, where although in receipt of a compliant increased effect from the Proposed Development, the baseline condition currently exceeds post curfew guidance limits).

12.110 The following identifies residential sensitive receptors where a significant post curfew effect is potentially likely. The increase in number of significantly affected sensitive receptors (over the pre curfew condition) directly relates to more stringent post curfew obtrusive light limits.

Sensitive Receptor R1

12.111 Due to distance and restricted viewing angle the unscreened magnitude of change is likely to be minor which would result in a direct, permanent and long term pre mitigation moderate to minor adverse significance of effect (which would be significant in EIA terms) as a result of vertical light trespass over the unlit baseline condition.
Sensitive Receptors R2, R5 and R19

12.112 Due to close proximity and viewing angle the magnitude of change is likely to be major which would result in a direct, permanent and long term pre mitigation major adverse significance of effect (which would be significant in EIA terms) as a result of vertical light trespass over the unlit baseline condition. Where, it should be noted that the unscreened light trespass conditions at R5 and R19 are likely to exceed post curfew limiting guidance.

Sensitive Receptors R3 and R4

12.113 Due to close proximity and viewing angle the unscreened magnitude of change is likely to be minor which would result in a direct, permanent and long term pre mitigation moderate to minor adverse significance of effect (which would be significant in EIA terms) as a result of vertical light trespass over the unlit baseline condition.

Sensitive Receptor R7

12.114 Due to close proximity and restricted viewing angle the unscreened magnitude of change is likely to be moderate which would result in a direct, permanent and long term pre mitigation major to moderate adverse significance of effect (which would be significant in EIA terms) as a result of vertical light trespass over the currently lit non-compliant baseline condition.

However, it should be noted that although the contribution expected from the Proposed Development is likely to be compliant any resultant predicted increase in light trespass (due to the current non-compliant post curfew condition) is likely to remain in excess of post curfew ILP guidance for an E2 Zone.

Sensitive Receptor R22

12.116 Due to close proximity and viewing angle the unscreened magnitude of change is likely to be major which would result in a direct, permanent and long term pre mitigation major adverse significance of effect (which would be significant in EIA terms) as a result of non-compliant vertical light trespass over the unlit baseline condition.

Similarly, in relation to glare, the unscreened magnitude of change is likely to be moderate resulting in a pre mitigation major to moderate adverse significance of effect (which would be significant in EIA terms) as a result of potentially visible light sources (although being compliant to guidance limits).

Sensitive Receptor R23

12.118 Due to close proximity and viewing angle the unscreened magnitude of change is likely to be minor which would result in a direct, permanent and long term pre mitigation moderate to minor adverse significance of effect (which would be significant in EIA terms) as a result of vertical light trespass over the unlit baseline condition.

Potential Pre Mitigation Effect on Rail and Highway Receptors

Rail and Highway Receptors Affected by Operational Lighting

12.119 Due to distance, building obstructions and the currently lit baseline conditionals all surrounding highway receptors are expected to receive a pre and post curfew, unscreened pre mitigation negligible effect, which is not significant within the meaning of the EIA Regulations, being compliant to guidance Threshold Increment (TI) 15% limits.

Sensitive Receptors T1 and T2
12.120 In comparison, the southbound (T1) and northbound (T2) rail locations are unlit, and due to the potential unscreened viewing angles of the pre curfew operation (off at 18:00) of the proposed sports pitch floodlighting, are likely to experience TI values in excess of 15%.

12.121 This would likely result in a pre curfew direct, semi-permanent (during the hours of darkness until 18:00) and long term pre mitigation minor adverse significance of effect (disability glare), which is not significant within the meaning of the EIA Regulations.

Potential Pre Mitigation Effect on Natural Receptors – Direct Sky Glow (SG1)

12.122 Based on quantitative assessment the pre and post curfew magnitude of change and pre mitigation significance of effect is likely to be negligible, which is not significant within the meaning of the EIA Regulations, and compliant to guidance direct sky glow limits (ULR) for the current site wide E3 zonal classification baseline condition.

Mitigation and Enhancement Measures

Construction Mitigation

12.123 In order to reduce the assessed effect of lighting during the Site preparation, earthworks and construction phases on the sensitive receptors, the following best practice measures as recommended by the CIE, ILP, CIRIA and Health and Safety Executive (HSE) will be implemented as part of a Construction Environmental Management Plan (CEMP) and as included within a planning condition:

- All luminaires used around the perimeter of the Site should be mounted within the Site, so that the main photometric distribution of the luminaire will be towards site works, keeping all light within the boundary of the development and preventing artificial light spilling outside this;

- Wherever possible consideration should be given to the need for lighting in areas where ecology habitat crosses or is situated directly adjacent to. Should Health and Safety require artificial lighting to these areas all luminaires should be directed away from the habitat area;

- Wherever possible and subject to landscape design natural and solid screen perimeters (hoardings) should be included to reduce obtrusive light to adjacent sensitive areas;

- All artificial lighting used during the construction phase should be directed below the horizontal to prevent unwanted upward light;

- Where necessary glare shields, baffles and cowls should be used to control and minimise the light distribution;

- When not in use, all artificial lighting used for construction should be extinguished;

- Illuminated site construction activities should be minimised, consideration should be given to the use of lighting equipment within the vicinity of identified sensitive receptors;

- Modern, high efficiency lamps and luminaires should be employed throughout the Site to be as energy efficient as possible;
• Prior to and during sports pitch operational floodlight aiming, orientation and commissioning activities (during the hours of darkness) care and consideration should be given to minimising luminaire tilt to ensure light spill exposure and the visibility of, lamps (glare) from adjacent surroundings is kept to a minimum;

• Illuminance levels should be designed accordance with CIE Technical Report Document 129 - 1998 Guide for lighting exterior work areas; the areas should not be over lit.

Completed Development Operational Mitigation

12.124 Care should be taken to minimise light spill and glare from any lighting installed by ensuring the correct luminaire is selected and installed correctly in line with the following recommendations within CIE 150 (2003) and ILP Guidance Notes for the Reduction of Light Pollution.

12.125 The following mitigation measures are recommended and, where appropriate, should be incorporated into the detailed lighting design / installation:

• Adopting an appropriate control strategy for the operational lighting so that, when not required and subject to Health and Safety assessment, non-essential lighting is switched off (occupancy sensing) at a pre-determined curfew time (suggested as 23:00 in accordance with ILP Guidance Notes) in order to further reduce the effect. This excludes floodlighting related to sports pitch illumination. Where, it is proposed that, based on periods of use, all floodlighting will be turned off at 18:00.

• All luminaires used around the perimeter of the Site should be mounted within the Site, so that the main photometric distribution of the luminaire will be towards the task area, keeping all light within the boundary of the development and preventing artificial light spilling outside of this;

• Wherever possible consideration should be given to the need for lighting in areas where ecology habitat crosses or is situated directly adjacent to. Should HEALTH AND SAFETY require artificial lighting to these areas all luminaires should be directed away from the habitat area;

• Wherever possible and subject to landscape design, the retention of trees to the Site perimeter.

• Where applicable, glare controlling louvres and light shields to be applied post installation;

• The implementation of new / supplementary dense natural screening (treelines, foliage etc.) where applicable to minimise light spill and luminaire visibility;

Residual Effects (Post Mitigation)

12.126 The following provides a description of the residual effect (post mitigation) for identified sensitive receptors where an initial pre mitigation effect is judged to exceed negligible adverse. This is based on a professional judgement of the magnitude of change relative to the nature of obtrusive light effect. The resultant residual significance effect is determined by the interaction of effect magnitude and sensitivity of the receptor.

12.127 Table 12.5 provides a summary of all Lighting Effects and Mitigation (Significant and Not Significant).
Construction

Residential Receptors Affected by Construction and Security Lighting Associated with Proposed Housing Development Areas (R2 to R18, R14 to R19 and R22) – Residual

12.128 A significant short term, temporary and direct pre mitigation effect of moderate to minor adverse significance of effect, based on potential light spill and glare, is predicted at residential receptors inclusive of R2 to R8 and R14 to R19.

12.129 From the implementation of identified mitigation measures and as a result of limited hours of illuminated night working activities it is expected that a reduction in the magnitude of change to negligible can be achieved. This will result in a residual negligible adverse effect which is not significant within the meaning of the EIA Regulations.

12.130 A significant short term, temporary and direct pre mitigation effect of major to moderate adverse significance of effect, based on potential light spill and glare, is predicted at residential receptor R22.

12.131 From the implementation of identified mitigation measures and as a result of maintaining limited hours of illuminated night working activities it is expected that a reduction in the magnitude of change to minor to negligible can be achieved. Resulting in a short term, temporary and direct residual minor to negligible adverse effect (based on a potential and infrequent exposure to glare), which is not significant within the meaning of the EIA Regulations.

Residential Receptors Affected by Construction and Security Lighting Associated with Proposed Sport Uses and Illuminated Sports Pitch (R26, R27 and R33) – Residual

12.132 A significant short term, temporary and direct pre mitigation effect of moderate to minor adverse significance of effect, based on limited duration light spill and glare, is predicted at residential receptors R26, R27 and R33.

12.133 From the implementation of identified mitigation measures, in particular consideration with respect to maintaining limited luminaire tilt prior to a fixed installation, it is expected that a reduction in the magnitude of change to negligible can be achieved. This will result in a residual negligible adverse effect which is not significant within the meaning of the EIA Regulations.

Potential Post Mitigation Effect on Natural Receptors – Direct Sky Glow (SG1) – Residual

12.134 In view of the current E3 zonal classification, a significant short term temporary and direct pre mitigation effect of minor adverse significance of effect, based on potential uncontrolled direct upwards light spill, is considered likely.

12.135 From the implementation of identified mitigation measures, primarily through the use of upwards light shielded luminaires and considered aiming, it is expected that a reduction in the magnitude of change to negligible can be achieved. This will result in a residual negligible adverse effect which is not significant within the meaning of the EIA Regulations.

Completed Development Operational

Residential Receptors Affected by Operational Lighting – Residual / Pre Curfew
Sensitive Receptors R2, R5 and R19
12.136 A significant direct, permanent, long term pre mitigation effect of moderate to minor adverse significance of effect, based on vertical light trespass over the unlit baseline condition is predicted at residential receptors R2, R5 and R19.

12.137 From the implementation of identified mitigation measures, primarily through considered luminaire positions, orientation (during detailed design stages) and the retention of existing partial natural perimeter treeline it is expected that a reduction in the magnitude of change to negligible can be achieved. This will result in a residual negligible adverse effect which is not significant within the meaning of the EIA Regulations.

**Sensitive Receptor R22**

12.138 A significant direct, permanent, long term pre mitigation effect of major to moderate adverse significance of effect, based on vertical light trespass over the unlit baseline condition is predicted at residential receptor R22.

12.139 Currently, due to limited natural treeline, the receptor is relatively unscreened. Therefore, mitigation relies on the retention of and further implementation of natural screening and considered luminaire positions / orientation (during further design stages) to achieve an expected reduction in the magnitude of change to minor. This would result in a direct, permanent and moderate term (0 to 15 years) residual minor adverse effect, which is not significant within the meaning of the EIA Regulations, as a result of vertical light trespass over the unlit baseline condition.

12.140 Subject to future landscape development, and from mitigation for implementation of further and additional perimeter natural screening it is expected that this effect could be further reduced (due to tree maturity). This will result in a direct, permanent and long term residual minor to negligible adverse effect which is not significant within the meaning of the EIA Regulations.

**Residential Receptors Affected by Operational Lighting – Residual / Post Curfew**

**Sensitive Receptor R1**

12.141 A significant direct, permanent, long term pre mitigation effect of moderate to minor adverse significance of effect, based on vertical light trespass over the unlit baseline condition is predicted at residential receptors R1.

12.142 From the implementation of identified mitigation measures, primarily through considered luminaire positions, orientation (during detailed design stages) and the retention of existing dense natural perimeter treeline it is expected that a reduction in the magnitude of change to negligible can be achieved. This will result in a residual negligible adverse effect which is not significant within the meaning of the EIA Regulations.

**Sensitive Receptors R2, R5 and R19**

12.143 A significant direct, permanent, long term pre mitigation effect of major adverse significance of effect, based on vertical light trespass over the unlit baseline condition is predicted at residential receptors R2, R5 and R19.

12.144 From the implementation of identified mitigation measures, primarily through considered luminaire positions, orientation (during detailed design stages), post installation luminaire shields and the retention of existing natural screening it is expected that a reduction in the magnitude of change to minor can be achieved. This will result in a compliant residual minor adverse effect, which is not significant within the meaning of the EIA Regulations.
**Sensitive Receptors R3 and R4**

12.145 A significant direct, permanent, long term pre mitigation effect of moderate to minor adverse significance of effect, based on vertical light trespass over the unlit baseline condition is predicted at residential receptors **R3 and R4**.

12.146 From the implementation of identified mitigation measures, primarily through considered luminaire positions, orientation (during detailed design stages) and the retention of existing partial natural perimeter treeline it is expected that a reduction in the magnitude of change to negligible can be achieved. This will result in a residual negligible adverse effect which is not significant within the meaning of the EIA Regulations.

**Sensitive Receptor R7**

12.147 A significant direct, permanent, long term pre mitigation effect of major to moderate adverse significance of effect, based on vertical light trespass over the currently lit and non-compliant baseline condition, is predicted at residential receptors **R7**.

12.148 From the implementation of identified mitigation measures, primarily through considered luminaire positions, orientation (during detailed design stages) and the retention of existing partial natural perimeter treeline it is expected that a reduction in the magnitude of change to minor can be achieved. This will result in a residual minor to negligible adverse effect, which is not significant within the meaning of the EIA Regulations. However, it should be noted that the partially screened light trespass condition at R7 is likely to remain non-compliant due to the current non-compliant baseline condition.

**Sensitive Receptor R22**

12.149 A significant direct, permanent, long term pre mitigation effect of major adverse significance of effect, based on a non-compliant vertical light trespass effect over the unlit baseline condition, is predicted at residential receptor **R22**.

12.150 From the implementation of identified mitigation measures, primarily through considered luminaire positions, orientation (during detailed design stages), post installation luminaire shields and the retention of and further implementation of natural screening it is expected that a reduction in the magnitude of change to minor can be achieved. This would result in a direct, permanent and moderate term (0 to 15 years) residual minor adverse effect, which is not significant within the meaning of the EIA Regulations, as a result of vertical light trespass over the unlit baseline condition.

12.151 Subject to future landscape development, and from mitigation for implementation of further and additional perimeter natural screening it is expected that this effect could be further reduced (due to tree maturity). This will result in a direct, permanent and long term residual minor to negligible adverse effect which is not significant within the meaning of the EIA Regulations.

**Sensitive Receptor R23**

12.152 A significant direct, permanent, long term pre mitigation effect of moderate to minor adverse significance of effect, based on vertical light trespass over the unlit baseline condition is predicted at residential receptor **R23**.

12.153 From the implementation of identified mitigation measures, primarily through considered luminaire positions, orientation (during detailed design stages) and the retention of existing dense natural perimeter treeline it is expected that a reduction in the magnitude of change to
negligible can be achieved. This will result in a residual negligible adverse effect which is not significant within the meaning of the EIA Regulations.

**Rail and Highway Receptors Affected by Operational Lighting – Residual**

12.154 A significant direct, semi-permanent, long term pre mitigation effect of minor adverse significance, based on disability glare during pre curfew operation, is predicted for the currently unlit southbound (T1) and northbound (T2) rail locations.

12.155 From the implementation of identified mitigation measures, primarily through considered luminaire positions, orientation (during detailed design stages) and the retention of existing dense natural perimeter treeline it is expected that a reduction in the magnitude of change to negligible can be achieved. This will result in a residual negligible adverse effect which is not significant within the meaning of the EIA Regulations.

**Cumulative Effects**

12.156 The cumulative developments (outlined within Chapter 2, Table 2.14) are considered within the Cumulative Effects.

12.157 Based on professional judgement, due to the nature of the likely associated external lighting, it is considered unlikely that a significant cumulative effect will be evident where a committed development is located in excess of 100m from the Proposed Development boundary. Therefore, due to distance from the Site boundary (<100m) the expected notable committed developments are defined as:

1) 06/2014/0442 - Sandyforth Lane, Woodplumpton, Preston, Lancashire (351449, 433531), 0 m North (boundary to boundary) – In planning;

6) 06/2012/0094 - Connemara, Lightfoot Green Lane, Fulwood, Preston, Lancashire, PR4 0AP (351981, 433677), 17.0 m North (boundary to boundary) – Approved;

9) 06/2012/0822 – Lightfoot Lane, Higher Bartle, Preston, Lancashire, PR4 0LA (350728, 433289), 80.0 m North West (boundary to boundary) – Approved;

11) 06/2013/0195 - Land At (Grid Ref 521335) Off Eastway Fulwood (352195, 433812), 58.0 m North West (boundary to boundary) – Approved; and

13) 06/2016/0350 - Preston Grasshoppers, Lightfoot Green Lane, Woodplumpton, Preston, Lancashire (351733, 433562), 43.0 m North (boundary to boundary) – Approved (see notes).

**Notes:**

1) The assessment of obtrusive light is relative to receptor elevations facing artificially lit proposals (having a direct view of). Therefore, due to receptor orientations and site locations, there is a likely minimal potential for a cumulative condition at any single facing elevation (e.g. a south facing elevation will only be affected by artificially illuminated developments due south of the receptor).

2) Planning application reference 06/2016/0350 Appendix A (Floodlighting Performance Results) provides calculated light trespass values for the pitch lighting proposals, where on
review, a distance of 60m (approximate) will be required to maintain a light trespass value equal to or less than 1.0 Lux to receiving and facing residential elevations. This calculation, in support of 06/2016/0350, was defined as being relative to the northern and eastern facing elevations of R22 which are greater than 60m from the pitch lighting proposals and are, also (due to facing direction), currently unaffected by the Proposed Development.

12.158 For all other potential committed developments, it is considered that these are of a sufficient screened distance (>100m) from the Proposed Development boundary to avoid any significant obtrusive light cumulative effect. However, where direct sky glow is considered, being based on a wider scale rather than individual receptor locations, the further afield developments may increase the potential of any cumulative direct sky glow effect.

12.159 In view of location, sensitive receptors that have the potential to be adversely affected are determined as being R1, R22, R23 and R24. These receptors lay within a close proximity to the Proposed Development northern boundary and fall within 100m from the boundaries associated to the committed developments identified. However, the respective receptor facing elevations differ from the Proposed Development and the committed developments and therefore are unlikely to experience an increased effect as a result of a cumulative condition.

Construction Effects

12.160 Construction phase external lighting activity for all cumulative developments is expected to be operated in accordance with current guidance and primarily limited to security, temporary car parking, access, storage and health and safety relating to after dark on-going working areas. For the committed developments, conditions include Construction Method Statements and Environmental Management Plans to be submitted, including measures for the control of light during construction.

12.161 With respect to the locations of identified committed developments and the orientation of receiving elevations it is unlikely that there will be a resultant change in condition and will remain as a minor to negligible adverse effect (R22) and negligible adverse effect (R1, R23 and R24) which are not significant within the meaning of the EIA Regulations.

Completed Development Operational Effects

12.162 In general, operational external lighting activity for identified committed developments is expected to be limited to highway, car parking and access, use and designed / installed in accordance with current guidance.

12.163 The exception being planning application reference 06/2016/0350 - Preston Grasshoppers Rugby Football Club where 20 no. floodlights mounted on 15m columns are proposed for the illuminated operation of a new 3G artificial grass pitch (use limited between 09:00 to 22:00 Mondays to Sundays). Where, supporting calculations demonstrate that less than 1.0 Lux is likely to be received on the closest residential facing elevation (being of a greater distance than 60m).

12.164 As a result and in relation to elevations associated with sensitive receptors R1, R22, R23 and R24, it is considered that due to distances (all being in excess of 60m from the proposed floodlighting to Preston Grasshoppers Rugby Football Club) and the differing orientations of receiving elevations it is unlikely that there will be a resultant change in condition and will remain as a minor adverse effect (R22) and negligible adverse effect (R1, R23 and R24) which are not significant within the meaning of the EIA Regulations.
**Direct Sky Glow Effect**

12.165 The current baseline for the Site and surroundings is considered representative of an E3 (Suburban, moderate district brightness – small town centres or suburban locations) night sky classification. Where it has been assessed that a negligible and compliant effect is likely to be received from the Proposed Development.

12.166 Similarly, based on standard good practise design and mitigation, it likely that the individual effects received from the construction and operational phases of the committed developments will also be negligible and will not adversely affect the current E3 baseline condition. Therefore, when considered as a cumulative effect the residual direct sky glow effect is considered as being **negligible** which is **not significant** within the meaning of the EIA Regulations.

**Conclusions**

**Residual Significance of Effect**

12.167 The following Table 12.5 provides the pre mitigation significance of effect and the residual (post mitigation) significance of effect for both a pre curfew and post curfew construction and operational condition. Where, the natures of effect and mitigation measures are outlined.

12.168 While effects are considered to fall into one of four effect categories ranging from ‘negligible’, ‘minor’, ‘moderate’, ‘major’, it is only those effects that fall within the range of ‘moderate to minor’ through to ‘major’ categories that are considered to be the significant environmental effects arising from the operation of the Proposed Development.

12.169 Similarly, it should be noted that although a degree of significance can appear as negative (due to a negative change in condition) the effect may still fall within obtrusive guidance limits for the affected receptor.

12.170 To summarise, the following outlines the residual (post mitigation) effects that exceed a negligible adverse degree of effect:

- **R2** – New Rough Hey Residential – A post curfew, long term, permanent and direct **Minor adverse effect** (light trespass) is expected. Which is not significant within the meaning of the EIA Regulations and resultant values are guidance compliant.

- **R5** – Sheraton Park Residential – A post curfew, long term, permanent and direct **Minor adverse effect** (light trespass) is expected. Which is not significant within the meaning of the EIA Regulations and resultant values are guidance compliant.

- **R7** – Sheraton Park Residential – A post curfew, long term, permanent and direct **Minor to Negligible adverse effect** (light trespass) is expected. Which is not significant within the meaning of the EIA Regulations.

  Note: A non-compliant condition is expected at this receptor, due to the current non-compliant baseline.

- **R19** – Gleneagles Drive / Carnoustie Close Residential – A post curfew, long term, permanent and direct **Minor adverse effect** (light trespass and glare) is expected. Which is not significant within the meaning of the EIA Regulations and resultant values are guidance compliant.
• R22 – The Maples Residential – A pre curfew, moderate term (0 to 15 years), permanent and direct Minor adverse effect (light trespass) is expected and reduces to a long term Minor to Negligible adverse effect (due to tree maturity). Which is not significant within the meaning of the EIA Regulations and resultant values are guidance compliant.

• R22 – The Maples Residential – A post curfew, moderate term (0 to 15 years), permanent and direct Minor adverse effect (light trespass and glare) is expected and reduces to a long term Minor to Negligible adverse effect (due to tree maturity). Which is not significant within the meaning of the EIA Regulations and resultant values are guidance compliant; and

• R34 – Holly Bank Residential – Where, although a residual negligible adverse effect is expected and is not significant within the meaning of the EIA Regulations, a non-compliant condition is expected, due to the current non-compliant baseline.

12.171 In order to maintain the above conclusions, the following mitigation measures are recommended and, where appropriate, should be incorporated into the detailed lighting design / installation:

• Adopting an appropriate control strategy for the operational lighting so that, when not required and subject to Health and Safety assessment, non-essential lighting is switched off (occupancy sensing) at a pre-determined curfew time (suggested as 23:00 in accordance with ILP Guidance Notes) in order to further reduce the effect. This excludes floodlighting related to sports pitch illumination. Where, it is proposed that, based on periods of use, all floodlighting will be turned off at 18:00.

• All luminaires used around the perimeter of the Site should be mounted within the Site, so that the main photometric distribution of the luminaire will be towards the task area, keeping all light within the boundary of the development and preventing artificial light spilling outside of this;

• Wherever possible consideration should be given to the need for lighting in areas where ecology habitat crosses or is situated directly adjacent to. Should HEALTH AND SAFETY require artificial lighting to these areas all luminaires should be directed away from the habitat area;

• Wherever possible and subject to landscape design, the retention of trees to the Site perimeter.

• Where applicable, glare controlling louvres and light shields to be applied post installation (this is particularly relevant to R19 and R22);

• The implementation of new / supplementary dense natural screening (treelines, foliage etc.) where applicable to minimise light spill and luminaire visibility (this is particularly relevant to R22).

12.172 Therefore, no significant effects are anticipated.
## Table 12.5: Summary of Lighting Effects and Mitigation

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Effect</th>
<th>Phase (Construction / Operation)</th>
<th>Embedded Measures</th>
<th>Sensitivity of Receptor</th>
<th>Magnitude of Change</th>
<th>Level of Effect and Significance Prior to Mitigation</th>
<th>Mitigation</th>
<th>Enhancements</th>
<th>Level of Effect (and Significance) after Mitigation</th>
<th>Nature of effect (short term / medium term / long term, permanent / temporary, direct / indirect)</th>
<th>Predicted Compliance to ILP Guidance (after Mitigation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1, R9 to R13, R20 to R21, R23 to R25 R31 and R38</td>
<td>Glare and Light Trespass as a result of proposed housing development</td>
<td>Construction</td>
<td>-</td>
<td>High</td>
<td>Negligible</td>
<td>Negligible</td>
<td>-</td>
<td>As per CEMP</td>
<td>Negligible</td>
<td>-</td>
<td>Compliant</td>
</tr>
<tr>
<td>R2 to R8 and R14 to R19</td>
<td>Glare and Light Trespass as a result of proposed housing development</td>
<td>Construction</td>
<td>-</td>
<td>High</td>
<td>Minor</td>
<td>Moderate to Minor Adverse</td>
<td>As per CEMP</td>
<td>-</td>
<td>Negligible</td>
<td>-</td>
<td>Compliant</td>
</tr>
<tr>
<td>R22</td>
<td>Glare and Light Trespass as a result of proposed housing development</td>
<td>Construction</td>
<td>-</td>
<td>High</td>
<td>Moderate</td>
<td>Major to Moderate Adverse</td>
<td>As per CEMP</td>
<td>-</td>
<td>Minor to Negligible Adverse (Not significant)</td>
<td>Short term, temporary and direct</td>
<td>Compliant</td>
</tr>
<tr>
<td>R28 to R30, R32 and R34 to R37</td>
<td>Glare and Light Trespass as a result of sports pitch floodlighting</td>
<td>Construction</td>
<td>-</td>
<td>High</td>
<td>Negligible</td>
<td>Negligible</td>
<td>-</td>
<td>As per CEMP</td>
<td>Negligible</td>
<td>-</td>
<td>Compliant</td>
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<tr>
<td>R26, R27 and R33</td>
<td>Glare and Light Trespass as a result of sports pitch floodlighting</td>
<td>Construction</td>
<td>-</td>
<td>High</td>
<td>Minor</td>
<td>Moderate to Minor Adverse</td>
<td>As per CEMP</td>
<td>-</td>
<td>Negligible</td>
<td>-</td>
<td>Compliant</td>
</tr>
<tr>
<td>T1 to T8</td>
<td>Disability Glare (1%)</td>
<td>Construction</td>
<td>-</td>
<td>Moderate</td>
<td>Negligible</td>
<td>Negligible</td>
<td>-</td>
<td>As per CEMP</td>
<td>Negligible</td>
<td>-</td>
<td>Compliant</td>
</tr>
<tr>
<td>SG1</td>
<td>Uncontrolled upwards light spill from unshielded and poorly aimed temporary construction lighting.</td>
<td>Construction</td>
<td>-</td>
<td>Moderate</td>
<td>Minor</td>
<td>Minor Adverse</td>
<td>As per CEMP</td>
<td>-</td>
<td>Negligible</td>
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<td>Compliant</td>
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<tr>
<td>R1</td>
<td>Pre Curfew – Light Trespass</td>
<td>Operational</td>
<td>Paragraph 12.21</td>
<td>High</td>
<td>Negligible</td>
<td>Negligible</td>
<td>-</td>
<td>Retention of natural screening</td>
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<td>-</td>
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<td>R2</td>
<td>Pre Curfew – Light Trespass</td>
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<td>Paragraph 12.21</td>
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<td>Minor</td>
<td>Moderate to Minor Adverse</td>
<td>-</td>
<td>Retention of natural screening</td>
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<td>R2</td>
<td>Post Curfew – Light Trespass</td>
<td>Operational</td>
<td>Paragraph 12.21</td>
<td>High</td>
<td>Major</td>
<td>Major Adverse</td>
<td>- Considered luminaire positions and orientation</td>
<td>Minor Adverse (Not significant)</td>
<td>Long term, permanent and direct</td>
<td>Compliant</td>
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<td>R3</td>
<td>Pre Curfew – Light Trespass</td>
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<td>Paragraph 12.21</td>
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<td>Negligible</td>
<td>Negligible</td>
<td>- Retention of natural screening - Considered luminaire positions and orientation</td>
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<td>R3</td>
<td>Post Curfew – Light Trespass</td>
<td>Operational</td>
<td>Paragraph 12.21</td>
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<td>Minor</td>
<td>Moderate to Minor Adverse</td>
<td>- Retention of natural screening - Considered luminaire positions and orientation</td>
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<td>Compliant</td>
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<tr>
<td>R4</td>
<td>Pre Curfew – Light Trespass</td>
<td>Operational</td>
<td>Paragraph 12.21</td>
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<td>Negligible</td>
<td>Negligible</td>
<td>- Retention of natural screening - Considered luminaire positions and orientation</td>
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<td>-</td>
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<tr>
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<td>Post Curfew – Light Trespass</td>
<td>Operational</td>
<td>Paragraph 12.21</td>
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<td>Minor</td>
<td>Moderate to Minor Adverse</td>
<td>- Retention of natural screening - Considered luminaire positions and orientation</td>
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<tr>
<td>R5</td>
<td>Pre Curfew – Light Trespass</td>
<td>Operational</td>
<td>Paragraph 12.21</td>
<td>K. High</td>
<td>Minor</td>
<td>Moderate to Minor Adverse</td>
<td>- Retention of natural screening - Considered luminaire positions and orientation</td>
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<td>Compliant</td>
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<td>R6</td>
<td>Post Curfew – Light Trespass</td>
<td>Operational</td>
<td>Paragraph 12.21</td>
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<td>Negligible</td>
<td>- Retention of natural screening - Considered luminaire positions and orientation</td>
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<td>Compliant</td>
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<td>R7</td>
<td>Pre Curfew – Light Trespass</td>
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<td>- Retention of natural screening</td>
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<td>R7</td>
<td>Post Curfew – Light Trespass</td>
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<td>Paragraph 12.21</td>
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<td>Major to Moderate Adverse</td>
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<td>Non-Compliant (due to current non-compliant baseline)</td>
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<td>R8 to R18</td>
<td>Pre and Post Curfew – Light Trespass</td>
<td>Operational</td>
<td>Paragraph 12.21</td>
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<td>Negligible</td>
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<td>- Retention of natural screening - Considered luminaire positions and orientation</td>
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<td>R19</td>
<td>Pre Curfew – Light Trespass</td>
<td>Operational</td>
<td>Paragraph 12.21</td>
<td>High</td>
<td>Minor</td>
<td>Moderate to Minor Adverse</td>
<td>- Retention of natural screening - Considered luminaire positions and orientation</td>
<td>-</td>
<td>Minor Adverse (Not significant)</td>
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<td>Compliant</td>
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<tr>
<td>R19</td>
<td>Pre Curfew – Light Trespass and Glare</td>
<td>Operational</td>
<td>Paragraph 12.21</td>
<td>High</td>
<td>Major</td>
<td>Major Adverse</td>
<td>- Retention of natural screening - Considered luminaire positions and orientation</td>
<td>-</td>
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<tr>
<td>R20 to R21</td>
<td>Pre and Post Curfew – Light Trespass</td>
<td>Operational</td>
<td>Paragraph 12.21</td>
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<td>Negligible</td>
<td>-</td>
<td>- Retention of natural screening - Considered luminaire positions and orientation</td>
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<td>R22</td>
<td>Pre Curfew – Light Trespass</td>
<td>Operational</td>
<td>Paragraph 12.21</td>
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<td>Major to Moderate Adverse</td>
<td>Retention of and implementation of natural screening - Considered luminaire positions and orientation</td>
<td>-</td>
<td>Minor Adverse (Not significant)</td>
<td>Long term, permanent and direct</td>
<td>Compliant</td>
</tr>
</tbody>
</table>

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Non-Compliant (due to current non-compliant baseline)
<table>
<thead>
<tr>
<th>R22</th>
<th>Post Curfew – Light Trespass and glare</th>
<th>Operational</th>
<th>Paragraph 12.21</th>
<th>High</th>
<th>Major</th>
<th>Major Adverse</th>
<th>Retention of and implementation of natural screening - Considered luminaire positions and orientation - Potential application of post-installation luminaire shields</th>
<th>Minor Adverse (Not significant)</th>
<th>Moderate, permanent and direct (new tree growth assumed as being 0 to 15 years)</th>
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</tr>
</thead>
<tbody>
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<td>Pre Curfew – Light Trespass</td>
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<td>Paragraph 12.21</td>
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<td>-</td>
<td>Retention of natural screening - Considered luminaire positions and orientation</td>
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<td>R23</td>
<td>Post Curfew – Light Trespass</td>
<td>Operational</td>
<td>Paragraph 12.21</td>
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<td>Minor</td>
<td>Moderate to Minor Adverse</td>
<td>-</td>
<td>Retention of natural screening - Considered luminaire positions and orientation</td>
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<tr>
<td>R24 to R33</td>
<td>Pre and Post Curfew – Light Trespass</td>
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<td>Paragraph 12.21</td>
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<td>Compliant</td>
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<td>Pre Curfew – Light Trespass</td>
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<td>Paragraph 12.21</td>
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<td>Negligible</td>
<td>-</td>
<td>Retention of natural screening - Considered luminaire positions and orientation</td>
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<td>R34</td>
<td>Post Curfew – Light Trespass</td>
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<td>Paragraph 12.21</td>
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<td>Negligible</td>
<td>-</td>
<td>Retention of natural screening - Considered luminaire positions and orientation</td>
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<td>Non-Compliant (due to current non-compliant baseline)</td>
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<td>R35 to R38</td>
<td>Pre and Post Curfew – Light Trespass</td>
<td>Operational</td>
<td>Paragraph 12.21</td>
<td>High</td>
<td>Negligible</td>
<td>Negligible</td>
<td>-</td>
<td>Retention of natural screening - Considered luminaire positions and orientation</td>
<td>Negligible</td>
<td>Compliant</td>
</tr>
<tr>
<td>T1</td>
<td>Pre Curfew – Disability Glare</td>
<td>Operational</td>
<td>Paragraph 12.21</td>
<td>Moderate</td>
<td>Minor</td>
<td>Minor Adverse</td>
<td>Retention of natural screening - Considered luminaire</td>
<td>Negligible</td>
<td>Compliant</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Operational</td>
<td>Paragraph 12.21</td>
<td>Moderate</td>
<td>Negligible</td>
<td>Negligible</td>
<td>positions and orientation</td>
<td>Compliant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>T1</td>
<td>Post Curfew – Disability Glare</td>
<td>Paragraph 12.21</td>
<td>Moderate</td>
<td>Negligible</td>
<td>Negligible</td>
<td>- Retention of natural screening - Considered luminaire positions and orientation</td>
<td>Negligible</td>
<td>-</td>
<td>Compliant</td>
<td></td>
</tr>
<tr>
<td>T2</td>
<td>Pre Curfew – Disability Glare</td>
<td>Paragraph 12.21</td>
<td>Moderate</td>
<td>Minor</td>
<td>Minor Adverse</td>
<td>- Retention of natural screening - Considered luminaire positions and orientation</td>
<td>Negligible</td>
<td>-</td>
<td>Compliant</td>
<td></td>
</tr>
<tr>
<td>T2</td>
<td>Post Curfew – Disability Glare</td>
<td>Paragraph 12.21</td>
<td>Moderate</td>
<td>Negligible</td>
<td>Negligible</td>
<td>- Retention of natural screening - Considered luminaire positions and orientation</td>
<td>Negligible</td>
<td>-</td>
<td>Compliant</td>
<td></td>
</tr>
<tr>
<td>T3 to T8</td>
<td>Pre and Post Curfew – Disability Glare</td>
<td>Paragraph 12.21</td>
<td>Moderate</td>
<td>Negligible</td>
<td>Negligible</td>
<td>- Retention of natural screening - Considered luminaire positions and orientation</td>
<td>Negligible</td>
<td>-</td>
<td>Compliant</td>
<td></td>
</tr>
<tr>
<td>SG1</td>
<td>Pre Curfew – Direct Sky Glow ULR%</td>
<td>Paragraph 12.21</td>
<td>Moderate</td>
<td>Negligible</td>
<td>Negligible</td>
<td>- Minimal landscape light reflectance characteristics (&lt;30%) - Considered luminaire position, tilt and orientation</td>
<td>Negligible</td>
<td>-</td>
<td>Compliant</td>
<td></td>
</tr>
<tr>
<td>SG1</td>
<td>Post Curfew – Direct Sky Glow ULR%</td>
<td>Paragraph 12.21</td>
<td>Moderate</td>
<td>Negligible</td>
<td>Negligible</td>
<td>- Minimal landscape light reflectance characteristics (&lt;30%) - Considered luminaire position, tilt and orientation</td>
<td>Negligible</td>
<td>-</td>
<td>Compliant</td>
<td></td>
</tr>
</tbody>
</table>
13 NOISE AND VIBRATION

Summary

Chapter 13 assesses the potential significant environmental effects of traffic and other noise sources on the existing residents surrounding the Site and for those as part of the Proposed Development.

A baseline noise survey was carried out to measure the existing noise climate across the Site. A total of four locations were selected to represent the spatial variation in noise climate across the Site. Noise levels during the construction phase of the development have been estimated using a worst-case assumption of likely construction tasks, plant and equipment. Operational noise from activity taking place at the Training Facility within the Proposed Development and long-term changes in road traffic noise as a result of vehicles accessing the Site from the existing highway network has been calculated and assessed.

Construction noise impacts during the noisiest periods of construction at the nearest existing dwellings would be of temporary moderate adverse significant effect without mitigation which is considered to be significant in EIA terms. Outline mitigation measures have been recommended for inclusion in a Construction and Environment Management Plan (CEMP), which would reduce this effect to a worst-case residual minor significant effect which would be temporary, therefore not significant in EIA terms.

Operational noise associated with the use of the outdoor sport pitches within the Training Facility are likely to result in a moderate significant adverse effect at the neighbouring dwellings. Mitigation has been recommended in the form of a noise barrier which would provide a residual minor significant effect which is not significant in EIA terms. Changes in road traffic noise levels during the operation of the Proposed Development have been assessed to be of minor adverse significance and, therefore not significant in EIA terms.

Therefore, no significant effects are anticipated by the Proposed Development.
Introduction

13.1 This chapter reports the findings of an assessment of the potential effects and the likely significant effects of noise and vibration as a result of the Proposed Development. Potential impacts of existing noise levels on the future occupants of the Proposed Development have been considered, along with the potential impacts of noise and vibration generated by the construction and operation of the Proposed Development on nearby noise sensitive receptors. A glossary of noise terms is provided in Appendix 13.1. Survey details are provided in Appendix 13.2. Significant and non-significant effects assessments are included within the chapter.

Legislation, Policy and Guidance

13.2 The following policy and guidance documents have been used in the noise and vibration assessment:

Noise Policy Statement for England

13.3 Noise Policy Statement for England (NPSE)\textsuperscript{157} advises that noise impacts should be assessed on the basis of adverse and significant adverse effect but does not provide any specific guidance on assessment methods or noise limits.

13.4 The NPSE introduces the concepts summarised in Table 13.9 that can be applied when considering the significance of noise impacts, which are applied by the World Health Organization.

<table>
<thead>
<tr>
<th>Effect Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No Observed Effect Level (NOEL)</strong></td>
<td>This is the noise level below which no effect can be detected. In simple terms, below this level of noise, there is no detectable effect on health and quality of life due to the noise being assessed.</td>
</tr>
<tr>
<td><strong>Lowest Observed Adverse Effect Level (LOAEL)</strong></td>
<td>This is the level of noise above which adverse effects on health and quality of life can be detected.</td>
</tr>
<tr>
<td><strong>Significant Observed Adverse Effect Level (SOAEL)</strong></td>
<td>This is the level of noise above which significant adverse effects on health and quality of life occur.</td>
</tr>
</tbody>
</table>

13.5 The document advises that it is not possible to have ‘a single objective noise based measure... that is applicable to all sources of noise in all situations’. It further advises that the sound level at which an adverse effect occurs is likely to be different for different noise sources, for different receptors at different times.

National Planning Policy Framework

13.6 National Planning Policy Framework (NPPF)\textsuperscript{158} sets out the Government's planning policies and how these are expected to be applied. In relation to noise and vibration, NPPF section 11 Paragraph 109 states:

‘The planning system should contribute to and enhance the natural and local environment by:


• preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability’

13.7 Whilst Paragraph 123 states:

‘Planning policies and decisions should aim to:

• avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;

• mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including through the use of conditions;

• recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put upon them because of changes in nearby land uses since they were established; and

• identify and protect areas of tranquility which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.’

Planning Practice Guidance

13.8 Online Planning Practice Guidance (PPG)\(^{159}\) has been published to provide greater details in relation to the relevance of noise to the planning process following the introduction of the NPPF and NPSE.

13.9 This guidance states, under the heading 'How to Determine the Noise Impact', that the following should be considered by local authorities:

• Whether or not a significant adverse effect is occurring or likely to occur;

• Whether or not an adverse effect is occurring or likely to occur; and

• Whether or not a good standard of amenity can be achieved.

13.10 In line with NPSE, this includes identifying where noise exposure is above or below the significant observed adverse effect level and the lowest observed adverse effect level for a given situation, during both construction and operation of the Proposed Development.

13.11 Further guidance on each of the various observed effect levels set out in the NPSE is provided in the table detailed in the section headed ‘How to Recognise when Noise could be a concern?’ which is reproduced below.

<table>
<thead>
<tr>
<th>Perception</th>
<th>Examples of outcomes</th>
<th>Increasing effect level</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not noticeable</td>
<td>No effect</td>
<td>No Observed Effect</td>
<td>No specific measures required</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Perception</th>
<th>Examples of outcomes</th>
<th>Increasing effect level</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Noticeable and not Intrusive</strong></td>
<td>Noise can be heard, but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.</td>
<td>No specific measures required</td>
<td></td>
</tr>
<tr>
<td><strong>Lowest Observed Adverse Effect Level</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Noticeable and Intrusive</td>
<td>Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; closing windows for some of the time because of the noise. Potential for non-awakening sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life.</td>
<td>Observed Adverse Effect</td>
<td>Mitigate and reduce to a minimum</td>
</tr>
<tr>
<td><strong>Significant Observed Adverse Effect Level</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Noticeable and disruptive</td>
<td>The noise causes a material change in behaviour and/or attitude, e.g. having to keep windows closed most of the time, avoiding certain activities during periods of intrusion. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.</td>
<td>Significant Observed Adverse Effect Level</td>
<td>Avoid</td>
</tr>
<tr>
<td>Noticeable and disruptive</td>
<td>Extensive and regular changes in behaviour and/or inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory.</td>
<td>Unacceptable Adverse Effect</td>
<td>Prevent</td>
</tr>
</tbody>
</table>

13.12 It is important to note that no specific noise parameters are defined in the text or target noise levels provided.

13.13 Under the heading 'What factors influence whether noise could be a Concern?', the subjective nature of noise is discussed. It is stated that there is no simple relationship between noise levels and the impact on those affected. This depends on how various factors combine in particular situations, these include:

- 'the source and absolute level of the noise together with the time of day it occurs. Some types and level of noise will cause a greater adverse effect at night than if they occurred during the day - this is because people tend to be more sensitive to noise at night as they
are trying to sleep. The adverse effect can also be greater simply because there is less background noise at night;

• for non-continuous sources of noise, the number of noise events, and the frequency and pattern of occurrence of the noise;

• the spectral content of the noise (i.e. whether or not the noise contained particular high or low frequency content) and the general character of the noise (i.e. whether or not the noise contains particular tonal characteristics or other particular features). The local topology and topography should also be taken into account along with the existing and, where appropriate, the planned character of the area.

More specific factors to consider when relevant:

• consideration should also be given to whether adverse internal effects can be completely removed by closing windows and, in the case of new residential development, if the proposed mitigation relies on windows being kept closed most of the time. In both cases a suitable alternative means of ventilation can be found in the Building Regulations.

• In cases where existing noise sensitive locations already experience high noise levels, a development that is expected to cause even a small increase in noise may result in a significant adverse effect occurring even though little to no change in behaviour would be likely to occur.

• If external amenity spaces are an intrinsic part of the overall design, the acoustic environment of those spaces should be considered so that they can be enjoyed as intended.

• Some commercial developments including fast food restaurants, night clubs and public houses can have particular impacts, not least because activities are often at their peak in the evening and late at night. Local planning authorities will wish to bear in mind not only the noise that is generated within the premises but also the noise that may be made by customers in the vicinity.

Preston Local Plan

13.14 Preston Local Plan, 2012-2026, dated July 2015\textsuperscript{160} sets out the vision for Preston and applies the general principles and policies set out in the Central Lancashire Core Strategy. This includes outline visionary requirements for potential environmental impacts such as noise. Policy AD1 (a) is the only policy which addresses noise. Policy AD1(a) states:

\textit{Policy AD1 (a) Development within (or in close proximity to) the Existing Residential Area will be permitted provided that it meets with the criteria listed below:}

\begin{itemize}
  \item \textbf{a)} the design and scale of development is sensitive to, and in keeping with, the character and appearance of the area;
  \item \textbf{b)} there would be no adverse impact on residential amenity, particularly by reason of noise, general disturbance and loss of privacy due to the activity under consideration or the vehicular/pedestrian movement it generates;
  \item \textbf{c)} the proposal would not lead to an over concentration of non residential uses, detrimental to residential character and amenity, and;
\end{itemize}

d) the proposal would not lead to an over intensification of use of the Site.


13.15 British Standard 5228-1:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites - Part 1: noise' (BS 5228-1)\(^{161}\) provides guidance on a range of considerations relating to construction noise including the legislative framework, general control measures, example methods for estimating construction noise levels and example criteria which may be considered when assessing the significance of any impacts.

13.16 Similarly, BS 5228 2:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites - Part 2: vibration' (BS 5228-2)\(^{162}\) provides general guidance on legislation, prediction, control and assessment criteria for construction vibration. These standards have been adopted as the relevant method to predict and assess the impacts of construction noise and vibration.

**British Standard (BS) 4142:2014**

13.17 Current Government advice to Local Planning Authorities in both England and Wales makes reference to BS 4142\(^{163}\) as being the appropriate guidance for assessing commercial operations and fixed building services plant noise. This British Standard provides an objective method for rating the likelihood of complaint from industrial and commercial operations. It also describes means of determining noise levels from fixed plant installations and determining the background noise levels that prevail on a site.

13.18 The assessment of impacts is based on the subtraction of the measured background noise level from the rating level determined. The rating level is the source noise level (either measured or predicted) corrected for tone or character (if necessary). The difference is compared to the following criteria to evaluate the impact:

- A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context;
- A difference of around +5 dB indicates is likely to be an indication of an adverse impact, depending on the context; and
- Where the rating level does not exceed the background noise level, this is an indication of the specific sound source having a low impact, depending on the context.

13.19 This method is only applicable for external noise levels.

**BS 8233: Sound Insulation and Noise Reduction for Buildings**


13.20 BS 8233: 2014 ‘Guidance on sound insulation and noise reduction for buildings’ (BS 8233)\textsuperscript{164} provides guidance for control of noise in and around buildings, and suggests appropriate criteria and limits for different situations. The criteria and limits are primarily intended to guide the design of new or refurbished buildings undergoing a change of use.

13.21 Table 4 within BS 8233 provides desirable internal ambient noise levels for spaces in residential dwellings when they are unoccupied. This table is reproduced below in Table 13.11.

<table>
<thead>
<tr>
<th>Activity (daytime resting)</th>
<th>Location</th>
<th>Daytime (07.00 to 23.00)</th>
<th>Night-time (23.00 to 07.00)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resting</td>
<td>Living Room</td>
<td>35 dB $L_{Aeq, 16hr}$</td>
<td>-</td>
</tr>
<tr>
<td>Dining</td>
<td>Dining Room / Area</td>
<td>40 dB $L_{Aeq, 16hr}$</td>
<td>-</td>
</tr>
<tr>
<td>Sleeping</td>
<td>Bedroom</td>
<td>35 dB $L_{Aeq, 16hr}$</td>
<td>30 dB $L_{Aeq, 8hr}$</td>
</tr>
</tbody>
</table>

13.22 Supplementary Note 2 and 4 to Table 4 within BS 8233 are copied below for reference:

‘NOTE 2 - The levels shown in Table 4 are based on the existing guidelines issued by the World Health Organization…

NOTE 4 - Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL or $L_{A_{max}, F}$ depending on the character and number of events per night.’

13.23 BS 8233 provides recommendation for external noise levels. It recommends that for external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise levels do not exceed 50 dB $L_{A_{eq}, T}$, with the upper guideline value of 55 dB $L_{A_{eq}, T}$ which would be acceptable in noisier environments.


13.24 The World Health Organization (WHO) has published a series of guidelines that relate to acceptable levels of noise from a health perspective. These are detailed in two separate documents, the WHO ‘Guidelines for Community Noise’\textsuperscript{165}, 2000 and the WHO ‘Night Noise Guidelines for Europe’\textsuperscript{166}, 2009. The Guidelines for Community Noise set out the following criteria in Table 13.12 that should be achieved in order to avoid sleep disturbance in dwellings.

<table>
<thead>
<tr>
<th>Specific Environment</th>
<th>Health Effect</th>
<th>Guideline Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dwelling, inside bedrooms</td>
<td>Sleep disturbance, night-time</td>
<td>$30$ dB</td>
</tr>
<tr>
<td>Dwelling, external noise level, windows open.</td>
<td>Sleep disturbance, night-time</td>
<td>$45$ dB</td>
</tr>
</tbody>
</table>


13.25 The WHO Guidelines also give the following criteria in Table 13.13 that relate to noise levels experienced in outdoor living areas (e.g. gardens).

**Table 13.13: Guideline Values for Noise in Outdoor Areas during the Day**

<table>
<thead>
<tr>
<th>Specific Environment</th>
<th>Health Effect</th>
<th>Guideline Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor living area</td>
<td>Serious annoyance, daytime and evening</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>Moderate annoyance, daytime and evening</td>
<td>50</td>
</tr>
</tbody>
</table>

13.26 The WHO ‘Night Noise Guidelines for Europe’ provide further criteria that relate external noise levels at dwellings to specific health impacts. These criteria were produced with the intention of supplementing the criteria that were given in the ‘Guidelines for Community Noise’. The ‘Night Noise Guidelines’ are, however, set in terms of the Lnight, outside, which is the average night time noise level experienced outside the building over a year. It therefore does not take into account mitigation measures that may be designed into the building envelope and requires knowledge of the noise levels experienced at the development site over the course of a full year. As such, the Lnight, outside measurement descriptor is not appropriate for assessing the acceptability of noise affecting the proposed new development and will therefore not be considered further in this assessment.

**Calculation of Road Traffic Noise (1988)**

13.27 In England and Wales, the standard method for predicting road traffic noise levels is given in the Calculation of Road Traffic Noise 1988 (CRTN)\(^{167}\). This methodology utilises a number of input parameters (e.g. road traffic flow, composition, speed, gradient road, road surface, distance of receptor from road etc.) to enable predictions of noise levels due to road traffic to be produced. This method enables the calculation of average levels over a period of either 18 hours or 1 hour. Predictions are produced in terms of L\(_{A10}\), as this is considered the measurement descriptor that best describes road traffic noise.

**Design Manual for Roads and Bridges (2011)**

13.28 The Design Manual for Roads and Bridges (DMRB)\(^{168}\) was originally published by the Department of Transport in 1993 and sets out procedures for undertaking the design of road schemes. Volume 11, Section 3, Part 7 sets out a methodology for assessing the impacts of noise and vibration. This methodology can be applied to the assessment of new road schemes or schemes that result in changes in traffic flows on existing road links. The most recent revision of this section of the Design Manual for Roads and Bridges was published in November 2011 with a Design Manual Road Bridges Interim Advice Note (DMRB IAN) published in 2015. The DMRB IAN provides noise speed bands that are to be used when predicting road traffic noise for motorways and urban/rural roads. It is therefore this version of the guidance that is referred to in this assessment.

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Table 13.14: Classification of Magnitude of Long Term Road Traffic Noise Impacts

<table>
<thead>
<tr>
<th>Noise Change (L_{A10, 18hr})</th>
<th>Magnitude of Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No change</td>
</tr>
<tr>
<td>0.1 – 2.9</td>
<td>Negligible</td>
</tr>
<tr>
<td>3.0 – 4.9</td>
<td>Minor</td>
</tr>
<tr>
<td>5.0 – 9.9</td>
<td>Moderate</td>
</tr>
<tr>
<td>10.0+</td>
<td>Major</td>
</tr>
</tbody>
</table>

Possible Options for the Identification of SOAEL and LOAEL in support of the NPSE

In the absence of any specific guidance in the NPSE relating to the levels of noise from different sources to effect levels, DEFRA commissioned AECOM to carry out research to identify the potential threshold levels for LOAEL and SOAEL for residential receptors affected by different sources of noise. A summary of AECOM’s findings were published in the report entitled Possible Options for the Identification of SOAEL and LOAEL in Support of the NPSE169, dated 2014. A summary of the recommendations of the report are contained within Table 1.1 of the report, the relevant sections to this assessment are reproduced in Table 13.15.

Table 13.15: Summary of Outcomes of the AECOM Report

<table>
<thead>
<tr>
<th>Source / Effect</th>
<th>Annoyance / stress dB L_{Aeq, 18hr}</th>
<th>Sleep disturbance dB L_{night}</th>
<th>Cardiovascular disease dB L_{Aeq, 16hr}</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road</td>
<td>53-59 (56)</td>
<td>64-68 (66)</td>
<td>51-64 (56)</td>
</tr>
<tr>
<td>Rail</td>
<td>61-66 (63)</td>
<td>70-74 (72)</td>
<td>n/a</td>
</tr>
</tbody>
</table>

Note: numbers shown in parentheses indicate mid points of the range, ‘n/a’ indicates that no information is available for this effect.

Artificial Grass Pitch Acoustics – Planning Implications

Design Guidance Note ‘Artificial Grass Pitch Acoustics – Planning Implications’170, August 2015 provides advice on the noise implications of outdoor sports facilities, such as football pitches and recommends a limit of 50 dB L_{Aeq, 1 hour} outside a nearby residential dwelling. This has been derived from the WHO Guidelines for Community Noise value of 50 dB L_{Aeq, 16 hour} and confirms that whilst the shorter assessment period is more relevant to sports noise it may result in a higher level of noise and ‘it is not necessarily the case that where these levels are exceeded, the noise will adversely affect nearby residential properties’.

Assessment Methodology and Significance Criteria

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13.32 Consultation was carried out with PCC Environmental Protection Department on 13th September 2016. Initial contact was made over the phone where details were requested to be provided in writing. In response to this a letter was issued which contained details of the assessment method and survey locations, a copy is included in Appendix 13.3 for reference. PCC did not raise any concern with the proposed approach, which is generally in line with this assessment, or the survey locations which broadly correspond to the finalised survey locations.

13.33 A baseline noise survey was carried out across the Site between Friday 23rd September and Tuesday 27th September 2016 noise measurements were made at a total of four locations across the Site. Measurements were carried out in areas representative of the Residential Parcels of land of the Site and adjacent to existing residential dwellings which are closest to the proposed PNE sports pitches. All measurements comprised continuous measurement of a range of noise parameters over a sampling period of 5-minutes.

13.34 All locations were considered to be under free-field conditions as the microphone was at least 3.5 metres away from any significant acoustically reflective surfaces other than the ground surface, which in most cases was at a height of 1.4 metres, unless stated otherwise. Photographs of the survey locations and details of the equipment used during the surveys are provided in Appendix 13.2. The equipment was calibrated prior to and at the conclusion of each set of measurements with no significant drift observed. All survey locations are illustrated on Figure 9.1.

13.35 No dwellings are proposed in close proximity, within 50m, of the railway. The scoping report and the consultation letter confirm that at this distance vibration impacts from trains using the nearby railway are not considered likely to produce perceptible levels of vibration at the nearest proposed sensitive receptor and were therefore scoped out of the assessment. This approach was agreed with PCC Environmental Health Department; therefore, the assessment does not consider the suitability of the existing vibration climate for the proposed use.

13.36 A traffic noise model has been created using DataKustik Cadna-A v4.6 proprietary noise modelling software. This software implements the environmental noise propagation prediction methodology set out in CRTN and the Calculation of Railway Noise (CRN) and is a method for predicting and assessing the impact of noise from a variety of sources. A number of scenarios have been created in the noise model using road traffic flow data provided by transport consultants, Croft Transport Solutions. Table 13.16 summarises where the different noise model scenarios have been used in the assessment.

Table 13.16: Noise Model Scenarios Used

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Traffic flow year</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2016</td>
<td>Current year, no development</td>
</tr>
<tr>
<td>B</td>
<td>2027</td>
<td>Future baseline, due to be the year of 100% completion, no development</td>
</tr>
<tr>
<td>C</td>
<td>2042</td>
<td>Design year, 15th year after completion, with development</td>
</tr>
</tbody>
</table>

13.37 For the assessment of the baseline conditions the measured noise survey results were first compared to the calculated noise levels from the noise model under scenario A to gain assurance in the model predictions, then Scenario C was used to assess the suitability of the future noise climate for the proposed use.
13.38 It should be noted that due to availability of current traffic flow data and the extant east-west link road due to be introduced before 2027, the two future Scenarios, B and C, contain more road links than the current year, Scenario A.

13.39 As part of traffic flow data used as part of the Air Quality and Dust, Noise and Vibration and Transport and Access chapters, the baseline condition has been taken as the Preston Western Distributor Road and East-West Spine Route being operational (see Figure 15.1). As such the baseline condition takes into account that the North West Preston Strategic Location and Cottam Hall Strategic Site (identified within the Preston Local Plan) are constructed, and the assessment therefore already takes cumulative effects into account. Figure 16.2 illustrates the location of these two sites.

13.40 For the residential areas of the Proposed Development the following criteria in Table 13.17 have been applied to determine the acceptability of the Site for residential development, which are based on the guidance set out in BS 8233, WHO Guidelines and the AECOM report. Particular reference has been made to LOAEL and SOAEL guideline values contained in the AECOM report.

### Table 13.17: Noise Criteria for Acceptability of Site for Residential Use

<table>
<thead>
<tr>
<th>External Noise criterion</th>
<th>Acceptability for residential development</th>
<th>Relation to likely adverse effect level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daytime, ( L_{Aeq, 16\text{hr}} )</td>
<td>Night-time, ( L_{Aeq, 8\text{hr}} )</td>
<td></td>
</tr>
<tr>
<td>&lt;53</td>
<td>&lt;43</td>
<td>Noise level considered acceptable.</td>
</tr>
<tr>
<td>53 &lt; 64</td>
<td>43 &lt; 51</td>
<td>Considered to be acceptable provided reasonable internal noise levels can be achieved and each dwelling has access to an external amenity space which would be expected to experience noise levels of less than 55 dB ( L_{Aeq, 16\text{hr}} ) during daytime hours.</td>
</tr>
<tr>
<td>64 ≤ 68</td>
<td>51 ≤ 64</td>
<td>Considered to be at the upper end of acceptability provided reasonable internal noise levels can be achieved and each dwelling has access to an external amenity space which would be expected to experience noise levels of less than 55 dB ( L_{Aeq, 16\text{hr}} ) during daytime hours.</td>
</tr>
<tr>
<td>&gt; 68</td>
<td>&gt; 64</td>
<td>Most likely considered to be unacceptable, unless development of the Site is desirable for other reasons (e.g. to address a lack of housing in the local area) and it can be demonstrated that reasonable internal noise levels can be achieved and each dwelling has access to an external amenity space which would be expected to experience noise levels of less than 55 dB ( L_{Aeq, 16\text{hr}} ) during daytime hours.</td>
</tr>
</tbody>
</table>

13.41 Where it is noted in Table 13.17 that reasonable internal noise levels are to be achieved these are considered to be 35 dB \( L_{Aeq, 16\text{hour}} \) or lower during daytime in living rooms and bedrooms and 30 dB \( L_{Aeq, 8\text{hour}} \) or lower during night-time in bedrooms. The additional requirement for access
to an external amenity space can apply to either private garden spaces for sole use by a household and/or a space used by a limited group of residents as part of their amenity of their dwellings.

13.42 Full details of construction activities, such as the type, exact number and location of each of the items of plant together with when they will be in operation, are not available at this stage in the project. Information is provided in Chapter 5 of the construction programme and the associated construction sequences, which are discussed further in Paragraph 13.63. The construction noise and vibration impact assessment considers the typical plant for the activities discussed in Chapter 5. The likely impacts have been determined based on these assumptions.

13.43 The analysis of likely construction noise has been undertaken in accordance with BS 5228-1 which provides methods for predicting construction noise levels on the basis of reference data for the emissions of typical construction plant and activities.

13.44 The BS 5228 calculated levels are then compared with absolute noise limits for temporary construction activities which are commonly regarded as providing an acceptable level of protection from the short term noise levels associated with construction activities.

13.45 The nature of works and distances involved in the construction of the Proposed Development are such that the risk of significant effects relating to ground borne vibration are very low. Occasional momentary vibration can arise when heavy vehicles pass dwellings at very short separation distances, but again this is not sufficient to constitute a risk of significant impacts. Accordingly vibration impacts do not warrant detailed assessment and are therefore not discussed further in this assessment.

13.46 There are two potential operational noise impacts associated with the Proposed Development. They are: noise from the use of the Training Facility; and changes in road traffic noise due to altered vehicle flow rates as a result of the Proposed Development.

13.47 Sport England design guidance note ‘Artificial Grass Pitch Acoustics – Planning Implications’ aims to provide a greater understanding of overall design concepts of outdoor sports pitches with regard to noise. It provides a method of assessment whereby the sporting noise is calculated over a 1-hour period and compared to 50 dB L_{Aeq,1hour}. It is unlikely that levels of noise from sports pitches below this value would adversely affect nearby residential properties. An alternative method is also discussed where the change in noise level is considered, but this is more relevant to the intensification of existing sports pitches.

13.48 The Cadna-A noise model has been used to calculate the level of noise at the nearby residential properties off Walker Lane when the nearest sports pitch is in use. A value of 58 dB L_{Aeq,1hour} 10 m from the pitch has been used as the source of noise, as provided by the Sport England design guide. Noise levels were calculated outside nearby properties using the method provided in ISO 9613-2.

13.49 The potential impacts of road traffic generated by the operation of the Proposed Development have been assessed. As with construction traffic impacts, in considering potential noise levels associated with operational traffic movement on public roads, reference is made to the accepted UK prediction methodology provided by CRTN. The change in long-term road traffic noise level has been determined by the difference between noise modelling scenarios B and C, as shown in Table 13.16. Changes in long-term road traffic noise contained within DMRB and summarised
Assessing significant effects

13.50 The significant effect of any noise impacts will vary depending on the sensitivity of the receptor and the magnitude of the impact. In addition, the magnitude of impact will vary depending on the noise source. The following sections describe how the significance criteria have been determined.

13.51 Sensitive receptors in the assessment have been classified into the following categories of sensitivity. These categories have been determined based on the guidance contained in BS 8233, WHO Guidelines, and other relevant reference criteria. Table 13.18 summarises the sensitivities for the different receptor types. It should be noted that residential receptors are classed as high sensitivity, according to the classification system adopted for this assessment and represent those closest to the Proposed Development.

Table 13.18: Definition of Sensitivity

<table>
<thead>
<tr>
<th>Sensitivity</th>
<th>Typical descriptors</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Residential receptors (e.g. houses, flats and apartments, as well as residential healthcare and educational establishments). Educational facilities (e.g. schools and colleges).</td>
</tr>
<tr>
<td>Medium</td>
<td>Healthcare (non-residential).</td>
</tr>
<tr>
<td>Low</td>
<td>Noise sensitive leisure receptors (e.g. non-residential hospitals and hotels, museums, libraries etc.).</td>
</tr>
<tr>
<td>Negligible</td>
<td>Commercial facilities (e.g. retail, office developments).</td>
</tr>
</tbody>
</table>

13.52 BS 5228 informative Annex E provides example criteria that may be used to consider the significance of any construction noise impacts. The criteria do not represent mandatory limits but rather a set of example approaches intended to reflect the type of methods commonly applied to construction noise. The example methods are presented as a range of possible approaches (both façade and free field noise levels, hourly and daytime averaged noise levels) according to the ambient noise characteristics of the area in question, the type of development under consideration, and the expected hours of construction activity. In broad terms, the example criteria are based on a set of fixed limit values which, if exceeded, may result in a significant effect unless ambient noise levels are sufficiently high to provide a degree of masking of construction noise.

13.53 The range of guidance values detailed in BS 5228 Annex E have been used to numerically define the magnitude levels, as per Table 13.19. The presented impact levels have been normalised to free-field daytime noise levels occurring over a time period, T, equal to the duration of a working day on site. BS 5228 Annex E provides varied definitions for the range of daytime working hours which can be grouped for equal consideration. The values presented in Table 13.19 have been chosen to relate to daytime hours from 08:00 to 18:00 on weekdays, and 08:00 to 13:00 on Saturdays. As construction noise will always be an introduction of a noise source which would otherwise not be there the impacts will always be adverse and never beneficial.

Table 13.19: Magnitude of Construction Noise Impact
13.54 The magnitude of impact of operational noise associated with PNEFC Training Facility has been developed using the Sport England design guide.

### Table 13.20: Magnitude of Sports Facility Noise Impact

<table>
<thead>
<tr>
<th>Magnitude</th>
<th>Noise Level</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substantial</td>
<td>&gt; 60 dB (L_{A_{eq}, 1\text{hour}})</td>
<td>Sports noise above this level is likely to cause significant adverse effect regardless of the frequency of events. Considered to be the Unacceptable Adverse Effect Level.</td>
</tr>
<tr>
<td>Medium</td>
<td>&gt; 55 dB (L_{A_{eq}, 1\text{hour}}) ≤ 60 dB (L_{A_{eq}, 1\text{hour}})</td>
<td>Sports noise at this level is likely to be discernable in most circumstances and regular events may cause annoyance. This has been considered as the onset of SOAEL.</td>
</tr>
<tr>
<td>Minor</td>
<td>&gt; 50 dB (L_{A_{eq}, 1\text{hour}}) ≤ 55 dB (L_{A_{eq}, 1\text{hour}})</td>
<td>Upper value derived from WHO guidelines. Considered to be between LOAEL and SOAEL.</td>
</tr>
<tr>
<td>Negligible</td>
<td>≤ 50 dB (L_{A_{eq}, 1\text{hour}})</td>
<td>Noise below this level for the whole day would avoid ‘moderate annoyance’; therefore, short-term events up to this value are unlikely to cause adverse impact. Considered as the onset of LOAEL.</td>
</tr>
</tbody>
</table>

13.55 The criteria listed in DMRB for assessment of long term road traffic noise impacts have been adopted for the determination of the magnitude of impact for operational traffic noise as shown in Table 13.21. This approach is based on the change in road traffic noise level rather than absolute noise level generated. An increase in noise would be considered to be an adverse impact, whereas a reduction in road traffic noise would be considered to be a beneficial impact.

### Table 13.21: Magnitude of Operational Traffic Noise Impact

<table>
<thead>
<tr>
<th>Magnitude</th>
<th>Noise Change (\Delta L_{A_{10, 18\text{hour}}})</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substantial</td>
<td>&gt; 10</td>
<td>Change in long term noise level would be perceptible. Considered in DMRB to be a major magnitude.</td>
</tr>
<tr>
<td>Medium</td>
<td>5.0 – 9.9</td>
<td>Change in level may be perceptible over a long term. Considered in DMRB to be a moderate magnitude.</td>
</tr>
<tr>
<td>Minor</td>
<td>3.0 – 4.9</td>
<td>Change in level may be perceived at the upper end of the range over a long term. Considered to be onset of LOAEL. Described in DMRB to be a minor magnitude.</td>
</tr>
</tbody>
</table>
### 13.56

The significant effect of a predicted impact was determined through a standard method of assessment based on professional judgement, considering the sensitivity of the receptor and magnitude of change as detailed in **Table 13.22** below. The significance criteria applies all aspects of the assessment i.e. both construction and operational noise, using the appropriate magnitude of change discussed above. ‘Moderate’ and ‘Major’ significant effects (shaded grey in **Table 13.22**) are considered as ‘significant’ in the context of the noise impact assessment for the EIA. ‘Negligible’ and ‘Minor’ significant effects are considered as ‘not significant’ in the context of the noise impact assessment for the EIA.

**Table 13.22: Significance of Effect Assessment Matrix**

<table>
<thead>
<tr>
<th>Magnitude of Change/Effect</th>
<th>Sensitivity of Receptor/Receiving Environment to Change/Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High</td>
</tr>
<tr>
<td>Substantial</td>
<td>Major</td>
</tr>
<tr>
<td>Medium</td>
<td>Moderate</td>
</tr>
<tr>
<td>Minor</td>
<td>Minor</td>
</tr>
<tr>
<td>Negligible</td>
<td>Negligible</td>
</tr>
</tbody>
</table>

### 13.57

The significant effect of any impacts will be of either temporary or permanent. For the purpose of this assessment short-term temporary effects are considered to be those which are likely to occur during transient phases, such as construction. Changes in road traffic noise due to the operation of the Proposed Development are considered to be long-term permanent effects.

**Baseline Conditions**

### 13.58

A noise survey was carried out at a total of four locations spread across the Proposed Development, concentrating on three areas of proposed residential and a fourth location which was considered to be representative of the existing dwellings which would be near to the proposed Training Facility. **Table 13.23** lists the survey locations and the noise sources heard locally and **Appendix 13.1** illustrates their location.

**Table 13.23: Summary of Measurement Locations**

<table>
<thead>
<tr>
<th>Reference</th>
<th>Location</th>
<th>Description of noise environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1</td>
<td>North of the Site adjacent to the B6241.</td>
<td>Wind disturbed vegetation, birdsong, aircraft and road traffic noise from the B6241.</td>
</tr>
<tr>
<td>L2</td>
<td>West centre of Site near Tanterton Hall Road.</td>
<td>Wind disturbed vegetation, lawn-mower on the green of the sixth hole, birdsong and distant road traffic noise thought to be from B6241, although it is not possible to definitively confirm.</td>
</tr>
</tbody>
</table>
The noise climate across the whole site and survey locations was observed to be influenced by natural sources, such as wind induced vegetation and birdsong. Other noise sources noted were distant road traffic, aircraft, mowing and maintenance work associated with the Golf Course and train pass-bys (Location L4 only). A summary of the measured noise levels are provided below in Table 13.24.

<table>
<thead>
<tr>
<th>Location</th>
<th>Description of noise environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>L3</td>
<td>South west of the Site near Dukes Meadow. Wind disturbed vegetation, birdsong, a distant lawn mower and road traffic noise from the local roads.</td>
</tr>
<tr>
<td>L4</td>
<td>East of Site, near to the proposed Training Facility. Wind in trees, birdsong, train and aircraft pass-bys and distant road traffic noise.</td>
</tr>
</tbody>
</table>

Table 13.24: Summary of Noise Levels Measured

<table>
<thead>
<tr>
<th>Location</th>
<th>Daytime, dB</th>
<th>Night-time, dB</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$L_{Aeq, 16 hour}$</td>
<td>$L_{A90, 1 hour}$</td>
</tr>
<tr>
<td>L1</td>
<td>55</td>
<td>48</td>
</tr>
<tr>
<td>L2</td>
<td>47</td>
<td>40</td>
</tr>
<tr>
<td>L3</td>
<td>51</td>
<td>37</td>
</tr>
<tr>
<td>L4</td>
<td>65</td>
<td>40</td>
</tr>
</tbody>
</table>

Further details of the measured noise level are provided in Appendix 13.4.

Design Evolution

The areas allocated for residential development and the Training Facility have evolved as the project has progressed. Housing has moved away from the railway line into areas where the noise climate is more appropriate for residential use. Where possible areas of the Site which would be exposed to lower noise levels have been allocated for residential use and those areas where higher noise is expected residential development has been minimised. Residential development has been avoided in the areas of the Site with the highest levels of noise. The Training Facility was originally further west and situated within areas of medium density housing in all directions. This facility was moved towards the east of the Site, closer to the railway and further from the majority of existing housing.

Across the Site there are large areas which will have tree plantations, these have been concentrated in the noisier areas of the Site, adjacent to the B6241 and the railway. This has created a buffer in the noisier areas of the Site where noise-sensitive uses will not be positioned. No screening benefit has been included in the assessment for the trees as generally foliage of trees and shrubs provide a small amount of sound attenuation, but only if it is sufficiently dense to completely block the view along the propagation path. It is anticipated that the depth of plantation to the north of the Site will provide attenuation in the region of 2.5 dB if densely planted, according to the method specified in Annex A of ISO 9613-2\textsuperscript{171}.

Potential Effects

Construction Effects

13.63 Assessment of the potential noise impacts associated with the construction of the Proposed Development has been conducted through calculating predicted noise levels based on typical expected construction tasks. Table 5.2, within Chapter 5 of the ES provides a summary of the anticipated construction activities. Construction work is separated into five sequences:

- Sequence 1 – site set up and fencing. Minimal noise with limited plant.
- Sequence 2 – Substructure works. Noisy plant likely to be used during this sequence are: piling rigs (rotary), earth moving plant, generators and mobile crane.
- Sequence 3 – Superstructure works. Noisy plant likely to be used during this sequence are: mobile crane, dumpers, earth moving plant, generators and lifting platforms.
- Sequence 4 – Internal servicing and finishing works. Limited noise generating plant, but likely to include generators and mobile crane.
- Sequence 5 – External works. Noisy plant likely to include: dumpers, excavators, generators and tarmac machinery.

13.64 Noise levels of construction work have been calculated following the methodology set out in BS 5228-1 for a series of fixed distances and are provided in Table 13.25. The Site has existing residential dwellings on a number of its boundaries. Therefore, construction activity may be in close proximity to existing noise sensitive receptors from time to time. However, this will be temporary and other construction work will be considerably further away and therefore at a lower level of noise. The shortest distance of 25m is considered to also represent a reasonable worst case should dwellings within the Site be occupied as an earlier phase of the development when construction is still ongoing.

**Table 13.25: Summary of Construction Noise Levels**

<table>
<thead>
<tr>
<th>Phase</th>
<th>Construction noise level, dB $L_{Aeq,T}$ at given distance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>25 m</td>
</tr>
<tr>
<td>Sequence 1</td>
<td>68</td>
</tr>
<tr>
<td>Sequence 2</td>
<td>77</td>
</tr>
<tr>
<td>Sequence 3</td>
<td>75</td>
</tr>
<tr>
<td>Sequence 4</td>
<td>68</td>
</tr>
<tr>
<td>Sequence 5</td>
<td>74</td>
</tr>
</tbody>
</table>

13.65 It can be seen from Table 13.25 that the level of noise from construction activity varies between 77 dB $L_{Aeq,T}$ and 40 dB $L_{Aeq,T}$, depending on the construction sequence being undertaken and the distance away from it.

13.66 For the nearest existing dwellings during the noisiest construction sequences (2, 3 and 5) the level of noise would be of medium magnitude for the period which that activity was at the minimum distance. For dwellings with high sensitivity to noise this would result in a moderate significant effect, as per Table 13.22, which is considered to be significant in EIA terms. Work carried out during Sequence 1 and 4 is at worst of minor impact at the shortest distance, reducing
with increased distance. This magnitude of impact would result in a minor significant effect upon highly sensitive dwellings, which is not considered to be significant in EIA terms.

**Operational Effects**

13.67 As discussed above, there are two potential operational noise impacts associated with the Proposed Development which may cause a significant effect. The first assessed here is the noise associated with the use of the Training Facility, specifically the use of the outdoor training pitches.

13.68 Following the guidance provided in the Sport England design guide a typical free-field noise level of 58 dB $L_{A_{eq}, 1\text{ hour}}$ at a distance of 10m has been modelled to simulate the use of a full-size sports pitch. **Figure 13.4** illustrates the level of noise from the use of the nearest sports pitch to the neighbouring existing dwellings at a height of 1.5m, where it can be seen that levels reach 53 dB $L_{A_{eq}, 1\text{ hour}}$ in the garden area of the nearest dwelling, which corresponds to a minor impact. For dwellings with high sensitivity to noise this would result in a minor significant effect, as per **Table 13.22**, which is considered to be not significant in EIA terms.

13.69 If multiple sports pitches are used simultaneously with the same level of intensity, assumed to be equivalent to a game, then noise could increase. **Figure 13.5** illustrates the level of noise considering a worst case with all four full-sized outdoor pitches in simultaneous use for a complete one hour period. During this case noise levels of 56 dB $L_{A_{eq}, 1\text{ hour}}$ are calculated. This would result in a medium magnitude of impact, giving a moderate significant adverse effect which is considered significant in EIA terms.

13.70 The second potential operation noise impact which could cause a significant effect is associated with changes in road traffic noise. **Table 13.26** provides a summary of the long-term change in road traffic noise at nearby receptors.

**Table 13.26: Predicted Changes in Road Traffic Noise Levels**

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Road traffic noise level, dB $L_{A_{10}, 1\text{hr}}$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2027 no development</td>
</tr>
<tr>
<td>R1 - B6241</td>
<td>70.3</td>
</tr>
<tr>
<td>R2 - B6241</td>
<td>74.6</td>
</tr>
<tr>
<td>R3 - B6241</td>
<td>71.8</td>
</tr>
<tr>
<td>R4 - Tanterton Hall Road</td>
<td>63.1</td>
</tr>
<tr>
<td>R5 - Tanterton Hall Road</td>
<td>55.3</td>
</tr>
<tr>
<td>R6 - Walker Lane</td>
<td>64.2</td>
</tr>
<tr>
<td>R7 - Walker Lane</td>
<td>64.2</td>
</tr>
<tr>
<td>R8 - Wychnor</td>
<td>64.2</td>
</tr>
<tr>
<td>R9 - Walker Lane</td>
<td>50.6</td>
</tr>
</tbody>
</table>

13.71 It can be seen from **Table 13.26** that the greatest change in road traffic noise is calculated to occur at R9 - Boys Lane. As a worst-case this would be a negligible magnitude of impact, which upon a dwelling with high sensitivity would result in a negligible significant effect, which in EIA terms would be not significant.
Suitability for Proposed Use

13.72 The likely future noise climate across the Site has been determined from noise model Scenario C (see Table 13.16) which is considered to be the highest level of noise with 15 years after the Proposed Development is complete. Figure 13.2 and Figure 13.3 illustrate the daytime and night-time noise levels for the year 2042 with the Proposed Development. It should be noted that details of individual building layouts have not been included in the noise model as this may change. Furthermore, buildings will provide screening of road traffic noise to those dwellings situated behind and by not including this screening it is considered that a worst-case has been assessed.

13.73 It can be seen from Figure 13.2 and Figure 13.3 that the daytime and night-time noise levels in the majority of the residential areas of the Site fall below LOAEL, indicated by the green areas. The two Residential Parcels to the north of the Site, situated closest to the B6241, Lightfoot Lane / Tom Benson Way, are calculated to be exposed to slightly higher levels of noise which fall between LOAEL and SOAEL, indicated by the yellow areas. This is also true for two of the central residential areas which are situated close to Wychnor and Walker Lane where some areas of these plots fall between LOAEL and SOAEL. The daytime noise levels shown in Figure 13.2 have been calculated at a height of 1.5 m to correspond to the ground floor and the night-time noise levels shown in Figure 13.3 have been calculated at a height of 4.0 m to correspond to a first-floor bedroom window.

13.74 Daytime noise levels within the northern two plots adjacent to the B6241 are the highest of the proposed residential areas and are typically 60 dB L\text{Aeq, 16 hour}. This is slightly above the recommended upper guidance value of 55 dB L\text{Aeq, 16 hour} given in BS 8233 for external garden areas.

13.75 Internal noise levels for the most exposed dwellings would be in the region of 45 dB L\text{Aeq, 16 hour} and 39 dB L\text{Aeq, 8 hour} for the daytime and night-time respectively in the case of an open window, which provides 15 dB attenuation. These internal noise levels would also be above those which are considered to be reasonable in BS 8233.

Mitigation and Enhancement Measures

13.76 Some construction noise impacts were found to be of significant effect at the nearest residential dwellings for a limited period of the construction phase of the development. It is primarily for this reason that mitigation has been specified. It is recommended that the following good practice measures are incorporated into the CEMP to help control noise emissions from the Site.

- Regular communication between the contractor and affected neighbours so as to clearly understand the anticipated level and duration of noise throughout the construction period. Where excessive noise cannot be avoided, adjacent neighbours should be notified as to when such noisy works will be undertaken and these times adhered to.

- Adequate planning should be undertaken within the project to prevent noise emissions from double handling of materials and overlapping of high noise activities.

- Loading and unloading of vehicles, dismantling of site equipment such as scaffolding or moving equipment or materials around the Site are to be conducted in a manner as to
minimise noise generation. Vehicles should be switched off when not in use. The use of reverse beepers shall be avoided as far as is practicable with safe operating practices.

- Compressors should be ‘sound reduced’ models, fitted with properly lined and sealed acoustic covers, to be kept closed whether the machines are in use. All percussive tools shall be fitted with mufflers or silencers of the type recommended by the manufacturer.

- All machines in intermittent use shall be shut down in the intervening periods between works if possible, or throttled down to a minimum.

- Where possible, equipment should ideally be powered by mains electricity in preference to locally powered sources such as diesel generators. Hand tools to be electrically powered.

- To minimise breakout and as far as is practically possible when taken against the scope of works, ensure that all external windows and doors to the existing building are kept closed.

- No radios or similar noise-producing entertainment devices.

- Contractors should belong to the Considerate Contractors Scheme.

13.77 Operational noise from the use of the Training Facility has been calculated to be between LOAEL and SOAEL and therefore current guidance advises that such noise should be mitigated. The following mitigation is considered necessary to minimise any impacts associated with the use of the sport pitches at the Training Facility:

- An acoustic barrier shall be built to the west of the sports pitches within the Training Facility.

- The barrier is to be a minimum height of 2m and is to be constructed from solid material, earth bunding, acoustic timber fencing or a combination of these. The finished acoustic barrier shall have a minimum surface density of 15 kg/m².

- The acoustic barrier and any solid advertising signs should be built outside the perimeter fence of the sports pitches to protect them from being hit by balls and generating impact sounds.

- Any weldmesh fence installed around the perimeter of the sport pitches are to be securely clamped with resilient fixings to minimise rattling noises from ball impacts.

13.78 The areas of the Proposed Development where dwellings are proposed which are exposed to a level of noise above LOAEL will require mitigation. The highest levels of noise are in the northern areas of the Site adjacent to the B6241. The orientation of the majority of the dwellings in this area, as shown on the Indicative Masterplan (see Figure 1.1), is for the garden areas to be situated south of the dwelling with the road to the north. This will provide a screening effect for the garden areas. There are a few dwellings where the associated garden is nearer to the source of noise, the local road, than the dwelling and therefore the building would not offer any screening. In these cases a perimeter garden fence would be required on the boundary closest to the local road. The fence should be of solid construction with a minimum surface density of 15 kg/m² and height of 2m.
13.79 In addition to garden areas, noise levels inside habitable rooms will need to be mitigated in some areas. In practice, the structural components of the building envelope can be expected to provide a sound reduction in excess of 45 dB and will not provide a significant pathway for noise break-in and greatest sound break-in can be expected to occur via windows.

13.80 Data given in BRE IP 12/89 and BS 8233 indicates that, for road traffic noise, standard thermal double glazing provides a typical sound reduction of approximately 33 dB. This order of reduction would be adequate to enable the BS 8233 internal criteria to be achieved for habitable rooms that overlook the transport links.

13.81 The sound reductions discussed above apply to closed windows, and BS 8233 advises that the sound reduction across an open window is limited to 15 dB. From this, internal sound levels with windows open for ventilation will exceed the BS 8233 criteria for those habitable rooms that overlook transport links. Given these conditions, it will be necessary for any habitable rooms with windows overlooking these links to be provided with alternative means of ventilation. Background ventilation in accordance with Building Regulations requirements can be achieved with proprietary window- or wall-mounted trickle vents. All such vents, when open, would require a sound reduction rating equivalent to that of the room window system.

13.82 Dwellings not immediately adjacent to transport links will be exposed to significantly lower noise levels than those calculated in Figure 13.2 and Figure 13.3 as the intervening dwelling(s) would screen transportation noise. Therefore the proposed additional ventilation requirements would not apply to these dwellings.

Residual Effects

13.83 It is not possible to accurately predict a residual level of construction noise with the mitigation in place. The mitigation is likely to offer a greater reduction in noise for some activities compared to others, but overall it would be reasonable to expect the total noise predicted for each of the sequences to reduce by between 5 dB and 10 dB.

13.84 For the nearest existing dwellings during the noisiest construction sequences (2, 3 and 5) the level of noise with mitigation in place would be of minor magnitude for the period which that activity was at the minimum distance. For dwellings with high sensitivity to noise this would result in a residual minor significant effect, as per Table 13.22, which is considered to be not significant in EIA terms.

13.85 Figure 13.6 illustrates the level of residual noise from the use of the nearest sports pitch to the neighbouring existing dwellings at a height of 1.5 m, with a 2 m barrier installed in the position shown. It can be seen that levels are now in the region of 50 dB LAeq, 1 hour in the garden area of the nearest dwellings, which is of negligible magnitude. For dwellings with high sensitivity to noise this would result in a negligible significant effect, as per Table 13.22, which is considered to be not significant in EIA terms.

13.86 Figure 13.7 illustrates the level of residual noise from the use of all four outdoor full-sized sports pitches simultaneously after the above mitigation has been included. The level of residual noise is in the region of 52 dB LAeq, 1 hour in the garden area of the nearest dwellings, which is of minor magnitude. For dwellings with high sensitivity to noise this would result in a minor significant effect, as per Table 13.22, which is considered to be not significant in EIA terms.
When the screening effect of dwellings and acoustic fencing is allowed for, all garden areas should have at least an area where the noise is below 55 dB $L_{Aeq, 16\ hour}$. This is considered desirable and appropriate for proposed residential developments.

Residual noise levels inside habitable rooms with windows overlooking a nearby road would be substantially below the BS 8233 desirable levels for the day and night times. This will be reliant on the windows remaining closed and cooling being provided via the acoustic ventilators. It is recommended that windows can still be openable as the level of noise inside a room with an open window is not considered to be harmful to health and this would provide the resident with the option to boost ventilation albeit with an increase in noise.

**Cumulative Effects**

It may be possible that the Proposed Development would be under construction at the same time as other major development, resulting in a combined construction noise impact and potential cumulative effect. It can be seen from Table 13.25 that the noisier Sequences of the construction result in a noise impact of 65 dB $L_{Aeq, T}$ at a distance of 100 m away. This impact would provide a temporary negligible significant effect upon a dwelling. For the less noisy Sequences of the construction the distance at which the effect becomes negligible is less than 50m.

The Cottam Hall Strategic Site is situated over 700 m from the nearest dwelling to the Proposed Site. At this distance construction noise would be less than 50 dB $L_{Aeq, T}$ (see Table 13.25) or much lower if intermediate screening is taken into account. Construction noise at this level would not contribute to an increased cumulative level of 65 dB $L_{Aeq, T}$, which is the upper value for the negligible impact.

The North West Preston Strategic Location covers a wider area and in places comes close to the northern Site boundary of the Proposed Development. As a worst case some of the properties within The Maples, accessed off B6241 Lightfoot Lane, could be within 50 m of both developments. With the effects of mitigation considered Sequence 2, 3 and 5 of the Proposed Development are in the region of 60 - 65 dB $L_{Aeq, T}$.

In the unlikely event that the noisiest periods of construction for the Proposed Development and the North West Preston Strategic Location coincide at a single receptor and both are close enough from that receptor to contribute to the noise climate, there would be an increase in construction noise of up to 3 dB. If at the same time the North West Preston Strategic Site are producing a level of construction noise of 72 dB $L_{Aeq, T}$, both individually would be considered to be of minor effect and therefore not significant in EIA terms. However, the cumulative level could be 73 dB $L_{Aeq, T}$ (in the case of an additional 65 dB $L_{Aeq, T}$ from the Proposed Development), which is a medium impact, resulting in a temporary moderate significant effect upon a dwelling and is considered to be significant in EIA terms.

Additional vehicle traffic associated with other nearby developments could potentially contribute to increased traffic flows. Increased traffic flows correlate with increased noise levels.

We understand that the traffic flows provided include all other committed development and therefore accounts for cumulative effects. As a result, cumulative operational noise would generate a negligible adverse significant effect and therefore be not significant in EIA terms.
13.95 The operation of more than one sport pitch is discussed above in Paragraph 13.69. If all four of the outdoor full-sized sports pitches are fully operational for a complete hour the residual cumulative noise would be at worst case a minor impact, which is of **minor significant effect** at the nearby dwellings and therefore **not significant** in EIA terms.

**Conclusions**

13.96 The noise impacts associated with the construction and operation of the Proposed Development would be of **no significant** effect.

13.97 Some areas of the Site would be exposed to levels of noise in the future case which would marginally exceed recommended levels for habitable rooms and garden areas. Mitigation has been recommended and suitable noise levels can be easily achieved.
**Table 13.27: Summary of Noise and Vibration Effects and Mitigation**

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Effect</th>
<th>Phase (Construction / Operation)</th>
<th>Embedded Mitigation</th>
<th>Sensitivity of Receptor</th>
<th>Magnitude of Change</th>
<th>Level of Effect and Significance Prior to Mitigation</th>
<th>Mitigation</th>
<th>Enhancement</th>
<th>Level of Effect (and Significance) after Mitigation</th>
<th>Nature of effect (short term / medium term / long term, permanent / temporary, direct / indirect)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nearby dwellings (existing and proposed)</td>
<td>Noise disturbance from construction sequences</td>
<td>Construction</td>
<td>N/A</td>
<td>High</td>
<td>Medium</td>
<td>Moderate</td>
<td>CEMP</td>
<td>N/A</td>
<td>Minor, Not Significant.</td>
<td>Short-term, temporary, direct</td>
</tr>
<tr>
<td>Nearby dwellings (existing)</td>
<td>Noise disturbance from Training Facility</td>
<td>Operation</td>
<td>N/A</td>
<td>High</td>
<td>Medium</td>
<td>Moderate</td>
<td>Acoustic Barrier</td>
<td>N/A</td>
<td>Negligible, Not Significant.</td>
<td>Long-term, permanent, direct</td>
</tr>
<tr>
<td>Nearby dwellings (existing)</td>
<td>Noise disturbance from operational traffic</td>
<td>Operation</td>
<td>N/A</td>
<td>High</td>
<td>Negligible</td>
<td>Negligible</td>
<td>N/A</td>
<td>N/A</td>
<td>Negligible, Not Significant.</td>
<td>Long-term, permanent, direct</td>
</tr>
</tbody>
</table>
SOCIO-ECONOMICS

Summary

Chapter 14 assesses the potential significant environmental effects of Proposed Development on socio-economic conditions in Preston City Council. Socio-economic effects include, primarily, effects on population, employment, economy and health.

The Proposed Development is expected to lead to positive benefits for Preston’s population and demographic structure by attracting more working age people to live and work in the area. This could help to offset some of the forecast fall in the working age population. It is anticipated to deliver a moderate beneficial effect which would be significant in EIA terms.

The Proposed Development is also expected to lead to benefits for access to leisure and recreation. Although the Proposed Development involves the loss of an existing leisure asset (the Golf Course), a separate Golf Needs Assessment has demonstrated that there is not a need for this facility and that the current users could be accommodated at other golf courses in the local catchment area. The benefits arise through the provision of approximately 41ha of publicly accessible open space and other leisure facilities (including a cycle track, trim trail, orchards, foraging trails) which will provide greater access to recreational assets then currently exists. The significance of effect is therefore moderate positive, which is significant in EIA terms.

The Proposed Development is also expected to have a negative effect on socio-economic conditions by increasing demand for health services and school places which will create additional pressure on local facilities. These effects will be mitigated through a legally binding financial contribution to increase capacity at these local facilities. Post-mitigation, the significance of effects will be reduced to negligible and therefore not significant in EIA terms.

Beneficial significant effects are therefore anticipated during the operational phase of the Proposed Development.
Introduction

14.1  This chapter assesses the potential effect of the Proposed Development on socio-economic conditions in the Preston City Council (PCC) local authority area. The assessment has been prepared by Regeneris Consulting and includes the following:

- The methodology for assessing the socio-economic effects,
- The baseline conditions currently existing in Preston and the area around the Site, including local population and economy, labour market, community facilities and crime,
- The potential direct and indirect effects of the Proposed Development, both positive and negative, whether these effects are temporary or permanent, and any mitigation required to address significant effects; and,
- The cumulative effect of the Proposed Development with a number of other Proposed Developments on socio-economic conditions in the local area.

Legislation, Policy and Guidance

National Policy

National Planning Policy Framework, 2012


14.3  The presumption in favour of sustainable development is central to the NPPF. It is identified as ‘the golden thread running through both plan-making and decision taking’ (Paragraph 14). Three dimensions of sustainable development are defined by the NPPF in setting out the role of the planning system:

- Economic: the planning system is able to perform an economic role through supporting growth and innovation;
- Social: the planning system is able to perform a social role through supporting strong, vibrant and healthy communities;
- Environmental: the planning system is able to perform an environmental role through protecting and enhancing the natural, built and historic environment.

14.4  Of particular relevance to this assessment are the ‘positive improvements’ identified by the NPPF which the planning system should seek to achieve (Paragraph 9)

- Making it easier for jobs to be created in cities, towns and villages;
- Improving the conditions in which people live, work, travel and take leisure; and

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172  Department for Communities and Local Government (2012), National Planning Policy Framework
• widening the choice of high quality homes

14.5 The NPPF sets out a number of core land-use planning principles, to aid in both plan-making and decision-taking. The following are particularly relevant to the Proposed Development (Paragraph 17):

• Proactively drive and support sustainable economic development to deliver the homes, business and industrial units, infrastructure and thriving local places that the country needs.

• Take account of and support local strategies to improve health, social and cultural wellbeing for all, and deliver sufficient community and cultural facilities and services to meet local needs

14.6 The NPPF outlines the importance that developments provide access to recreational and sporting facilities as well as promoting health and wellbeing in the vicinity of the Proposed Development. The following priorities for Local Authorities are relevant to the Proposed Development:

• ‘Safe and accessible environments where crime and disorder, and the fear of crime, do not undermine quality of life or community cohesion’ (Paragraph 69);

• Achieving ‘safe and accessible developments, containing clear and legible pedestrian routes, and high quality public space, which encourage the active and continual use of public areas’ (Paragraph 69);

• Ensure an integrated approach to considering the location of housing, economic uses and community facilities and services (Paragraph 70);

• ‘Plan positively for the provision and use of shared space, community facilities (such as local shops, meeting places, sports venues, cultural buildings, public houses and places of worship) and other local services to enhance the sustainability of communities and residential environments’ (Paragraph 70)

Sport England: Assessing needs and opportunities guide for indoor and outdoor sports facilities

14.7 This document provides further guidance for local planning authorities in relation to the requirement set out in NPPF to undertake assessments of the need for open space, sports and recreation facilities, and identifying new provision. Key points are as follows:

• The assessment of demand should consider local demographics, rates of sport participation, evidence of unmet or latent demand, and any local sports priorities.

• The assessment of supply should focus on the overall quantity and quality of provision in a local authority area, but should also consider the accessibility and availability of facilities. These four factors (quality, quantity, accessibility, availability) should provide the framework for assessing need and planning interventions.

Local Policy

173 Sport England (2014): Assessing needs and opportunities guide for indoor and outdoor sports facilities
14.8 This section summarises some of the key policies, strategy and guidance documents which are directly relevant to the assessment of socio-economic effects.

_Lancashire Strategic Economic Plan_

14.9 Lancashire LEP has developed a Strategic Economic Plan that sets out the SEP’s vision, objectives and outcomes for the period 2015-2025, additional to this it provides a framework for the Lancashire Growth Deal which features the strategic programmes and outcomes within the Lancashire Growth Deal.

14.10 Much of the focus of the LEP has been the implementation of a number of key initiatives designed ‘to create the right conditions for sustained economic, business and housing growth. (Paragraph 4.1)’

14.11 The SEP outlines the following Lancashire-wide objectives up to 2025:

- 50,000 new jobs;
- 40,000 new houses;
- £3 billion additional economic activity

14.12 The SEP sets out a clear priority of achieving housing led economic growth:

- ‘Key initiatives have been specifically designed to support and accelerate the delivery of agreed economic and housing growth priorities and reduce local productivity gaps (Paragraph 2.6).’

- ‘The economic success of Lancashire both depends upon, and supports, a new approach to housing growth’ (Paragraph 3.17)

- ‘The LEP’s growth ambition for the Lancashire economy is such that, allied to our own strategic investment plans and those of others, we envisage housing build completion rates returning to levels not seen since the mid-1990s’ (Paragraph 3.19)

14.13 Lancashire LEP has led the development of a Lancashire Skills Strategy, Skills for Growth, which identifies retaining and developing skills in the area as a key priority. ‘The priorities area recognising and building on the impact of Lancashire’s Higher Education Institutions (HEIs) and retaining their talent within the economy (Paragraph 1.44).’

_Central Lancashire Adopted Core Strategy, 2010-2026_

14.14 The Central Lancashire Adopted Core Strategy was jointly produced by the Local Authorities’ of Preston, South Ribble and Chorley Councils with assistance from Lancashire County Council (LCC), it was adopted in July 2012. The strategy sets out a long term spatial vision identifying the need for different kinds of development

14.15 The Strategy includes Strategic Objectives, designed to set out the key issues to be addressed in each policy area, the following are relevant to the Proposed Development (p36-37):

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175 Preston City Council, South Ribble Borough Council and Chorley Council (2012): Central Lancashire Adopted Core Strategy, July 2012
• ‘SO 5 To help make available and maintain within Central Lancashire a ready supply of residential development land over the plan period so as to help deliver sufficient new housing of appropriate types to meet future requirements. This should also be based on infrastructure provision, as well as ensuring that delivery does not compromise existing communities.’

• ‘SO 14 To ensure appropriate education facilities are available and skills deficiencies are addressed.’

• ‘SO 17 To maintain and improve the quality of Central Lancashire’s built and natural environmental assets so that it remains a place with ‘room to breathe.’

• ‘SO 18 To improve the health and wellbeing of all Central Lancashire’s residents.’

• ‘SO 19 To improve access to health care, sport and recreation, open green spaces, culture, entertainment, and community facilities and services, including healthy food.’

14.16 The Strategy provides several polices relevant to the Proposed Development:

• Policy 1: Locating Growth – ‘To promote vibrant local communities and support services, an appropriate scale of growth and investment will be encouraged in identified Local Service Centres, providing it is in keeping with their local character and setting, and at certain other key locations outside the main urban areas. (p50)’

• Policy 4: Housing delivery – Preston to deliver at least 507 dwellings pa out of a total of 1,341 dwellings pa for Central Lancashire between 2010-2026 period.

• Policy 7: Affordable and Special Needs Housing – Market housing developments in urban parts of Preston are required to achieve a 30% mix of affordable housing (p78)

• Policy 9: Economic Growth and Employment – ‘The identification of 454 hectares of land for employment development between 2010 and 2026. (p87)’

• Policy 15: Skills and Economic Inclusion – Improving skills and economic inclusion:
  o ‘Working with existing and incoming employers to identify skills shortages’
  o ‘Encouraging knowledge based businesses and creative industries associated with the University of Central Lancashire to enable graduate retention. (p98)’

• Policy 24: Sport and Recreation - Ensure that everyone has the opportunity to access good sport, physical activity and recreation facilities (including children’s play) by:
  o ‘Devising robust minimum local standards based on quantified needs, accessibility and qualitative factors, through seeking developer contributions (either in the form of new provision or financial payment in lieu) where new development would result in a shortfall in provision’
• ‘Protecting existing sport and recreation facilities, unless they are proven to be surplus to requirements or unless improved alternative provision is to be made. (p120)’

- Policy 25: Community Facilities - Ensure that local communities have sufficient community facilities provision by:
  - ‘Resisting the loss of existing facilities by requiring evidence that they are no longer viable or relevant to local needs’
  - ‘Assessing all development proposals for new housing in terms of their contribution to providing access to a range of core services including education and basic health and care facilities. (p121)’

14.17 The Strategy highlights ‘Promoting health and wellbeing’ as one of its three Cross Cutting Themes, which plays a role in harnessing economic growth in all policy areas (p14).

_Preston Local Plan, 2012-2026_

14.18 The Preston Local Plan\(^{176}\) was adopted in July 2015. It contains detailed local policies and specific site allocations and conforms with higher level planning guidance contained in the Central Lancashire Core Strategy.

14.19 Policy EN5 (p99) identifies ‘Ingol/Tanterton and Greyfriars/Cadley’ (the Proposed Development area) as an area of major open space. The policy goes on to state that development in Areas of Major Open Space will not be permitted unless the following criteria are satisfied:

- The provisions of Policy EN2 – Protection of Existing Green Infrastructure are fulfilled;
- Development complements and does not compromise the retention within the Area of Major Open Space of a full size 18 hole golf course, unless it can be demonstrated that a need no longer exists for such provision in accordance with NPPF Paragraph 74.
- Development complements and does not compromise the Area of Major Open Space for other leisure and recreational purposes
- The proposal does not detrimentally affect the visual amenity, landscape amenity, landscape character or nature conservation value of the open space/ Area of Major Open Space
- The identity of the neighbourhoods/ urban communities is maintained

14.20 Chapter 3 (Delivering Infrastructure) identifies the need for additional primary care facilities in Central Preston, Ingol and North West Preston. (p25)

_Preston Physical Activity and Sports Strategy, 2015-20\(^{177}\)_

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\(^{176}\) Preston City Council (2015): Preston Local Plan 2012-26, July 2015

14.21 The vision of the Preston Physical Activity and Sports Strategy 2015-20 is to get ‘More People. More Active, More Often in More Places’.

14.22 Key issues are:

- The high level of inactivity in the Preston area, with 30.4% of adults inactive compared to approximately 25% nationally;
- Health inequalities. The health of people in Preston is generally worse than the average for England;
- High deprivation;
- Lower than average life expectancy for men and women;
- The level of premature mortality from cardiovascular disease is significantly worse than the average from England.

14.23 The Strategic Priorities that emerge from the Strategy are:

- To increase participation (across all population and age groups)
- To ensure better communication
- To improve infrastructure (facilities, space, people and skills).

Assessment Methodology and Significance Criteria

14.24 The assessment considers the expected temporary socio-economic effects during construction of the Proposed Development, and the permanent effects once the development is completed and occupied.

Study Area

14.25 The assessment uses different study areas depending on the nature of the effect being assessed. For employment effects, the local authority area of Preston is used as the study area. This area is appropriate because the majority of expenditure, employee and supply chain effects are likely to occur within this area (see Figure 14.1). This will also be large enough to capture the net effects of employment increases as a result of jobs relocated from existing training facilities in Preston.

14.26 In the case of social and community infrastructure, the assessment uses government guidance on the distance that people are prepared to travel to access different types of services. This varies according to the type of facility. For primary schools and primary healthcare, the focus is on facilities within 3.2km (2 miles) of the Site. Secondary schools have a larger catchment. The study area is therefore within 4.8km (3 miles) of the Site (see Figure 14.2).

14.27 For the assessment of access to leisure and recreation opportunities, the study area is based on a 20 minute drive time from the Site. This is because the Proposed Development would result in the closure of the existing Golf Course. The assessment has therefore used the same study area
as the Golf Needs Assessment (see Appendix 6 of the report in Appendix 14.1). The study area for this assessment was determined following discussion with Sport England and England Golf.

14.28 Potential effects on crime will focus on those wards most affected by the proposals, including Greyfriars and Ingol. These wards are broadly consistent with the areas covered by the two neighbourhood policing teams (NPTs) which deal with crime and incidents on the Golf Course or in immediately adjacent communities (Ingol and Tanterton and Greyfriars NPTs) (see Figure 14.3).

Datasets

14.29 The datasets which are drawn upon in the socio-economic baseline and assessment are all from secondary data sources. No primary research or surveys were undertaken. The secondary data sources include:

- Census 2011\textsuperscript{178}
- Office for National Statistics (ONS), Mid-Year Population Estimates, 2015\textsuperscript{179}
- ONS, 2014 Sub-National Population Projections (SNPP)\textsuperscript{180}
- ONS, Annual Population Survey (APS), 2015\textsuperscript{181}
- Business Register and Employment Survey (BRES), 2015\textsuperscript{182}
- ONS UK Business Counts\textsuperscript{183}
- Jobseeker's Allowance (JSA) Claimant Data, 2015\textsuperscript{184}
- Sport England Active People Survey\textsuperscript{185}
- The English Indices of Deprivation, 2015\textsuperscript{186}
- Department for Education capacity and pupil numbers data\textsuperscript{187}
- NHS Health and Social Care Information Centre\textsuperscript{188}
- Crime data from data.police.uk\textsuperscript{189}

Consultations

14.30 The scoping opinion did not provide any comments specifically related to the socio-economic assessment (see Appendix 1.1).

14.31 Consultation was carried out with LCC’s School Planning Team about the potential increase in demand for school places from the Proposed Development and the effect this will have on the

\textsuperscript{178} Accessed via www.nomisweb.co.uk during September 2015
\textsuperscript{179} Accessed via www.nomisweb.co.uk during September 2015
\textsuperscript{180} Accessed via www.ons.gov.uk during September 2015
\textsuperscript{181} Accessed via www.nomisweb.co.uk during September 2015
\textsuperscript{182} Accessed via www.nomisweb.co.uk during September 2015
\textsuperscript{183} Accessed via www.nomisweb.co.uk during September 2015
\textsuperscript{184} Accessed via www.nomisweb.co.uk during September 2015
\textsuperscript{185} Accessed via http://activepeople.sportengland.org/ in October 2016
\textsuperscript{189} Accessed via data.police.uk in October 2016
capacity of local schools. The Schools Planning Team also provided data on the anticipated level of capacity in local schools in five years’ time, which has been incorporated in to this assessment.

14.32 Consultation was carried out with the Greater Preston Clinical Commissioning Group about the potential increase in demand for primary care services from the Proposed Development and the effect this will have on the capacity of local GP surgeries. No specific comments were made about the potential effects of the Proposed Development as they had only recently been made aware of the plans and therefore had yet to determine the implications for its Estates Strategy. Information was also requested on the planned increase in capacity at Ingol Health Centre and the plans for a new health centre in North West Preston. However, the scale of these facilities has yet to be determined, meaning it has not been possible to factor this increase in capacity into the assessment.

14.33 Consultations were carried out with the Football Association and PCC as part of the Sports Needs Study, which has informed this chapter. Details of these consultations can be found in Appendix 14.3.

Potential effects included in assessment

14.34 The main effects that are assessed in this socio-economic chapter are as follows:

- **Temporary construction employment**: The Proposed Development could generate temporary employment effects during the construction phase; both directly through the employment required on site and through the supply chain.

- **Permanent increase in employment levels**: The Proposed Development could generate increased levels of employment directly as a result of jobs located at the on-site Training Facility, and indirectly as a result of increased expenditure of resident households in the local economy. These will need to be set against potential job losses at Ingol Village Golf Club and any jobs at the training facilities which have been relocated from elsewhere.

- **Change in population and demographic structure**: The Proposed Development could attract new residents which will increase the population and potentially alter the demographic profile of the area.

- **Increased pressure on local social and community infrastructure**: Increased population levels could lead to increased demand for a range of local social and community services, which could put these under increased pressure.

- **Changes in access to leisure and recreation opportunities**: The loss of the Golf Club could reduce the local community’s opportunities for leisure and recreation, while the increased access to public open space could increase these opportunities.

- **Change in number of crimes and police incidents**: The Proposed Development could have an effect on levels of crime in the local area by reducing availability of spaces where anti-social behaviour has taken place. Crime could also potentially increase as a result of the increase in population.

Significance Criteria
14.35 The assessment of socio-economic effects has been based on a widely used and accepted methodology which considers the sensitivity of the receptor and the magnitude of effect on that receptor. These are combined to arrive at an assessment of the significance of effect.

14.36 The following indicators have been defined as the main receptors for the Proposed Development:

- Employment in the construction sector in Preston
- Total employment in Preston
- Population and working age population in Preston
- Capacity of local social and community infrastructure (focusing on schools, GP surgeries and sports and leisure facilities)
- Availability and usage of local leisure and recreation opportunities.
- Number of crimes committed in Ingol and Tantanu and Greyfriars wards

14.37 The sensitivity of receptor is based on the importance attached to the receptor in local, regional and national economic development and regeneration policy, and whether there is evidence of underperformance in the study area. Examples of how sensitivity may be determined for a particular feature are provided in Table 14.1.

**Table 14.1: Criteria for assessing sensitivity**

<table>
<thead>
<tr>
<th>Sensitivity</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Evidence of direct and significant socio-economic challenges relating to receptor. Acceded a high priority in local, regional or national economic regeneration policy.</td>
</tr>
<tr>
<td>Medium</td>
<td>Some evidence of socio-economic challenges linked to receptor, which may be indirect. Change relating to receptor has medium priority in local, regional and national economic, social and regeneration policy.</td>
</tr>
<tr>
<td>Low</td>
<td>Little evidence of socio-economic challenges relating to receptor. Receptor is accorded a low priority in local, regional and national economic and regeneration policy.</td>
</tr>
<tr>
<td>Negligible</td>
<td>No socio-economic issues relating to receptor. Receptor is not considered a priority in local, regional and national economic development and regeneration policy.</td>
</tr>
</tbody>
</table>

14.38 The magnitude of socio-economic effects is determined by considering the predicted deviation from baseline conditions, both before and after mitigation (if applicable). The criteria used for the assessment of the magnitude of change, which can be either positive (beneficial) or negative (adverse) is shown in Table 14.2.

14.39 The assessment of magnitude of socio-economic effects requires an element of professional judgement and cannot be made solely on the basis of percentage thresholds. This is for the following reasons:
• A number of the potential effects cannot easily be quantified and therefore require a qualitative assessment to be made (e.g. changes in access to leisure and community facilities).

• Where potential effects can be quantified, the assessment may need to consider a number of possible contextual indicators to assess the potential magnitude of effect in Preston. This is particularly the case for construction employment, where the jobs may be based in Preston but may draw upon contractors and workers from outside the local authority area. The assessment therefore needs to consider the capacity in the local construction sector and labour market, as well as the number of jobs created.

14.40 When measuring the magnitude of effect of increases in total employment in Preston, any increase over 1% is considered to be substantial. An increase of between 0.5% and 1% is considered to be medium. An increase of 0.1% to 0.5% is considered to be low, and anything below 0.1% is negligible.

**Table 14.2: Criteria for assessing magnitude of socio-economic effects**

<table>
<thead>
<tr>
<th>Magnitude of Effect</th>
<th>Description/Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substantial</td>
<td>Proposed Development would cause a large change to existing socio-economic conditions in terms of absolute and/or percentage change.</td>
</tr>
<tr>
<td>Medium</td>
<td>Proposed Development would cause a moderate change to existing socio-economic conditions in terms of absolute and/or percentage change.</td>
</tr>
<tr>
<td>Minor</td>
<td>Proposed Development would cause a minor change to existing socio-economic conditions in terms of absolute and/or percentage change.</td>
</tr>
<tr>
<td>Negligible</td>
<td>No discernible change in baseline socio-economic conditions.</td>
</tr>
</tbody>
</table>

14.41 In assessing the significance of socio-economic effects, both in construction and operational terms, the assessment combines the sensitivity of the receptor and magnitude of change, as shown in the matrix below. Any effect judged to be moderate or major is considered to be significant within the meaning of the EIA Regulations.

**Table 14.3: Significance of effects assessment matrix**

<table>
<thead>
<tr>
<th>Sensitivity of receptor/ Receiving Environment to Change/ Effect</th>
<th>High</th>
<th>Medium</th>
<th>Low</th>
<th>Negligible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnitude of effect</td>
<td>Substantial</td>
<td>Major</td>
<td>Moderate</td>
<td>Minor</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Minor</td>
</tr>
<tr>
<td></td>
<td>Minor</td>
<td>Minor</td>
<td>Minor</td>
<td>Negligible</td>
</tr>
<tr>
<td></td>
<td>Negligible</td>
<td>Negligible</td>
<td>Negligible</td>
<td>Negligible</td>
</tr>
</tbody>
</table>

**Baseline Conditions**
This section outlines the demographic and economic profile of the study areas (as shown on Figure 14.1, 14.2 and 14.3). For analysis of socio-economic conditions in Preston, the baseline draws comparison with Lancashire and England to identify under or over performance and any socio-economic challenges.

Population and Demographics

According to the latest ONS Population Estimates\(^{190}\), the population of Preston is around 141,300. The age profile of Preston is younger than that of Lancashire and England, reflecting the presence of a large student population. Table 14.4 shows there are a higher proportion of 0-15 year olds and a lower proportion of retirement age residents (65 and above). Working age residents make up a larger proportion of Preston’s population (66%, equivalent to 93,100 residents) when compared to Lancashire (62%) and England (63%).

Table 14.4: Age structure of population, 2015

<table>
<thead>
<tr>
<th>Age</th>
<th>Preston</th>
<th>Lancashire</th>
<th>England</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-15</td>
<td>20%</td>
<td>18%</td>
<td>19%</td>
</tr>
<tr>
<td>16-64</td>
<td>66%</td>
<td>62%</td>
<td>63%</td>
</tr>
<tr>
<td>65+</td>
<td>15%</td>
<td>20%</td>
<td>18%</td>
</tr>
</tbody>
</table>

Source: ONS Mid Year Population Estimates, 2015

The latest small area population estimates reveal the population in the area of the Proposed Development has a significantly older age structure than Preston (see Table 14.5). The wards of Greyfriars and Ingol have populations of 6,400 and 7,500 respectively, of which 59% and 61% are working age residents, significantly lower than proportion of working age residents in Preston (66%). Greyfriars and Ingol also have higher proportions of retirement age residents (65 and above).

Table 14.5: Age structure of local wards, 2014

<table>
<thead>
<tr>
<th>Age</th>
<th>Greyfriars</th>
<th>Ingol</th>
<th>Preston</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-15</td>
<td>16%</td>
<td>19%</td>
<td>19%</td>
</tr>
<tr>
<td>16-64</td>
<td>59%</td>
<td>61%</td>
<td>66%</td>
</tr>
<tr>
<td>65+</td>
<td>25%</td>
<td>20%</td>
<td>14%</td>
</tr>
</tbody>
</table>

Source: ONS Mid Year Population Estimates, 2014

Like many parts of the country, Preston has an ageing population. Between 2014 and 2026 the retirement age population of Preston is forecast to grow by 19% (equivalent to 3,800 residents), compared with a slight fall in the working age population (-1% or 1,400 residents). In contrast, England’s working age population is forecast to grow by 4%.

Although the forecast fall in the working age population in this case is slight, a widening gap between retired people and working age people can create a number of challenges for an area.

\(^{190}\) ONS 2015 Mid-Year Population Estimates
Most notably, it means employers may face difficulty recruiting workers to replace those who are leaving the workforce through retirement or to support their expansion plans.

**Employment Trends**

14.47 According to the latest Business Register and Employment Survey (BRES), employment in Preston stood at 83,500 in 2015, a 6% decrease from 2009 (equivalent to 5,700 jobs). This is in contrast to the employment growth experienced in Lancashire (2%) and England (7%) over the same period. The majority of job losses have been in social work, warehousing, education and construction.

14.48 **Table 14.6** shows that Preston is highly dependent on the public sector as a source of jobs. Public administration and health services are the two largest sectors, accounting for 13% and 12% of employment respectively (equivalent to 10,800, 9,700), compared to 4% and 8% for Great Britain as a whole). The retail sector accounts for a further 8,500 jobs (10%) which is the same as the national average.

### Table 14.6: Employment and employment share by sector, 2015

<table>
<thead>
<tr>
<th>Sector</th>
<th>Employment</th>
<th>Share of total employment</th>
<th>Public Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public admin</td>
<td>10,765</td>
<td>13%</td>
<td>Yes</td>
</tr>
<tr>
<td>Health services</td>
<td>9,663</td>
<td>12%</td>
<td>Yes</td>
</tr>
<tr>
<td>Retail</td>
<td>8,508</td>
<td>10%</td>
<td>No</td>
</tr>
<tr>
<td>Education</td>
<td>6,060</td>
<td>7%</td>
<td>Yes</td>
</tr>
<tr>
<td>Wholesale trade</td>
<td>5,341</td>
<td>6%</td>
<td>No</td>
</tr>
<tr>
<td>Food and Beverage services</td>
<td>3,674</td>
<td>4%</td>
<td>No</td>
</tr>
</tbody>
</table>

Source: Business register and employment survey, 2015

**Economic participation and unemployment**

14.49 Annual Population Survey (APS) data for Preston shows that it faces a number of labour market challenges. Preston has a higher economic inactivity and unemployment rate than the Lancashire and England average (see **Table 14.7**). This means there are more people who have withdrawn from the labour market (because of poor health, caring responsibilities or other barriers to work) and more people who are seeking work but have been unable to find a job.

### Table 14.7: Labour Market Indicators, 2015-2016

<table>
<thead>
<tr>
<th></th>
<th>Unemployment rate(^{192})</th>
<th>Economic Inactivity Rates(^{193})</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lancashire</td>
<td>4%</td>
<td>22%</td>
</tr>
<tr>
<td>Preston</td>
<td>6%</td>
<td>26%</td>
</tr>
<tr>
<td>England</td>
<td>5%</td>
<td>22%</td>
</tr>
</tbody>
</table>

Source: Annual population survey, 2015-2016.

---

\(^{191}\) According to BRES, a large proportion of the job losses have been in social work activities, with around 2,900 job losses occurring in one year (2011 to 2012). This may be due to an error or re-categorisation in BRES rather than large scale job losses.

\(^{192}\) those without a job who have been actively seeking work in the past 4 weeks and are available to start work in the next 2 weeks.

\(^{193}\) People not in employment who have not been seeking work within the last 4 weeks and/or are unable to start work within the next 2 weeks.
14.50 An alternative measure of unemployment is the Claimant Count, which measures the number of residents claiming Jobseeker’s Allowance (JSA). The latest data (September 2016) suggests that there are 1,930 residents claiming JSA in Preston, which accounts for 2.1% of Preston’s working age population. This rate is higher than that observed regionally (1.8%) and nationally (1.7%).

14.51 According to the latest JSA data there are currently 60 residents in Preston who are seeking work in construction industries and an additional 50 residents if the rest of Central Lancashire is included. The Proposed Development has the potential to generate employment opportunities for these residents.

Skills of the population

14.52 The skill level of residents is a crucial determinant of the economic potential of an area. A highly skilled population can support the growth of high value, knowledge based industries and attract new investment to an area. Raising the skill levels of people with no qualifications can also significantly increase their employability and earnings potential over the course of their working life.

14.53 According to the latest data from the Annual Population Survey (Jan 2015-Dec 2015) Preston has a relatively unskilled labour force (see Table 14.8). Preston has a much larger proportion of residents with no qualification (15%), compared to Lancashire (9%) and England (8%). There is also a much lower proportion of residents with degree level qualifications; 25% of residents in Preston hold a level 4 or above qualification (i.e. a foundation degree or higher) compared to 32% in Lancashire and 37% in England.

Table 14.8: Qualification Levels, 2015

<table>
<thead>
<tr>
<th>No qualification</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
<th>Other qualification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preston</td>
<td>15%</td>
<td>77%</td>
<td>64%</td>
<td>48%</td>
<td>25%</td>
</tr>
<tr>
<td>Lancashire</td>
<td>9%</td>
<td>84%</td>
<td>72%</td>
<td>52%</td>
<td>32%</td>
</tr>
<tr>
<td>England</td>
<td>8%</td>
<td>85%</td>
<td>73%</td>
<td>56%</td>
<td>37%</td>
</tr>
</tbody>
</table>

Source: Annual Population Survey, 2015

14.54 Around 26% of Preston’s residents are in highly skilled occupations. This is lower than in Lancashire (29%) and England (31%). Preston also has a notably low proportion of its residents working in associate professional and technical occupations, less than half the proportion observed in the national occupational structure.

14.55 There is also an above average proportion of residents working in elementary occupations in Preston: 17% of Preston’s residents work in such occupations compared to 12% in Lancashire and 11% in England.

Capacity of local services

14.56 The following section assesses the existing provision of:

- Education, and primary and secondary schools

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194 Highly skilled occupations are defined as managers, directors and senior officials, and those who hold professional occupations based on 2010 Standard Occupational Classification codes.
• Healthcare, encompassing GP surgeries and dental practices

• Community and leisure facilities

**Primary Schools**

14.57 The assessment of primary schools is based on those schools within a two-mile radius of the Proposed Development site. Section 444(5) of the Education Act 1996 suggests a maximum walking distance of 3.2km (2 miles) for a child who is under the age of eight. This is used as the cut-off point for determining eligibility for free school transport. This is also consistent with the methodology used by LCC to calculate education contributions\(^\text{195}\), which states the assessment should ‘measure the projected impact of the development on surrounding primary and secondary schools within:

• 2 mile radius of the development for primary aged school pupils
• 3 mile radius of the development for secondary aged school pupils’

14.58 **Table 14.9** gives data on rolls and capacity for each primary school within two miles (3.2km). A number of schools offer nursery education, and the capacity data does not provide a breakdown of total capacity by age group. Therefore, for the schools that have spare places, it is not possible to say with certainty that all spare capacity represents surplus primary places.

14.59 Overall there are 26 primary schools within a two-mile radius of the Site (see **Figure 14.4**). Of these, 14 are under capacity and twelve are at full capacity or operating over capacity. In net terms there are approximately 150 spare places across these schools. Over half of capacity is within one school, Ingol Community Primary, with a further 40 places at the closest school to the Site (Pool House Community Primary School).

**Table 14.9: Primary School Provision and Capacity, 2016**

<table>
<thead>
<tr>
<th>School Name</th>
<th>Type</th>
<th>Ages</th>
<th>Capacity</th>
<th>Roll Size</th>
<th>Spare places</th>
<th>Postcode</th>
<th>Distance from Site (km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pool House Community Primary School</td>
<td>Community School</td>
<td>4-11</td>
<td>175</td>
<td>135</td>
<td>40</td>
<td>PR2 7BX</td>
<td>0.5</td>
</tr>
<tr>
<td>Harris Primary School</td>
<td>Community School</td>
<td>4-11</td>
<td>210</td>
<td>215</td>
<td>-5</td>
<td>PR2 7EE</td>
<td>0.6</td>
</tr>
<tr>
<td>Holy Family Catholic Primary School</td>
<td>Voluntary Aided School</td>
<td>3-11</td>
<td>175</td>
<td>187</td>
<td>-12</td>
<td>PR2 3YP</td>
<td>1.0</td>
</tr>
<tr>
<td>Ingol Community Primary School</td>
<td>Community School</td>
<td>4-11</td>
<td>245</td>
<td>138</td>
<td>107</td>
<td>PR2 3YP</td>
<td>1.0</td>
</tr>
<tr>
<td>St Anthony's Catholic Primary School</td>
<td>Voluntary Aided School</td>
<td>4-11</td>
<td>300</td>
<td>316</td>
<td>-16</td>
<td>PR2 3SQ</td>
<td>1.1</td>
</tr>
<tr>
<td>Queen's Drive Primary School</td>
<td>Community School</td>
<td>4-11</td>
<td>450</td>
<td>452</td>
<td>-2</td>
<td>PR2 3LA</td>
<td>1.3</td>
</tr>
<tr>
<td>Fulwood and Cadley Primary School</td>
<td>Community School</td>
<td>4-11</td>
<td>315</td>
<td>314</td>
<td>1</td>
<td>PR2 3QT</td>
<td>1.4</td>
</tr>
</tbody>
</table>

\(^{195}\) Lancashire County Council (2016): Methodology for Education Contributions in Lancashire
<table>
<thead>
<tr>
<th>School Name</th>
<th>Type</th>
<th>Ages</th>
<th>Capacity</th>
<th>Roll Size</th>
<th>Spare places</th>
<th>Postcode</th>
<th>Distance from Site (km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cottam Primary School</td>
<td>Community School</td>
<td>4-11</td>
<td>210</td>
<td>203</td>
<td>7</td>
<td>PR4 0NY</td>
<td>1.6</td>
</tr>
<tr>
<td>Our Lady and St Edward's Catholic Primary School</td>
<td>Voluntary Aided School</td>
<td>5-11</td>
<td>210</td>
<td>210</td>
<td>0</td>
<td>PR2 3LP</td>
<td>1.8</td>
</tr>
<tr>
<td>Ashton-on-Ribble St Andrew's Church of England Primary School</td>
<td>Voluntary Aided School</td>
<td>5-11</td>
<td>420</td>
<td>423</td>
<td>-3</td>
<td>PR2 1EQ</td>
<td>2.1</td>
</tr>
<tr>
<td>The Roebuck School</td>
<td>Community School</td>
<td>3-11</td>
<td>420</td>
<td>382</td>
<td>38</td>
<td>PR2 2BN</td>
<td>2.2</td>
</tr>
<tr>
<td>Fulwood, St Peter's Church of England Primary School and Nursery</td>
<td>Voluntary Aided School</td>
<td>4-11</td>
<td>236</td>
<td>246</td>
<td>-10</td>
<td>PR2 9RE</td>
<td>2.2</td>
</tr>
<tr>
<td>Ashton Primary School</td>
<td>Community School</td>
<td>4-11</td>
<td>210</td>
<td>199</td>
<td>11</td>
<td>PR2 1TU</td>
<td>2.4</td>
</tr>
<tr>
<td>St Clare's Catholic Primary School</td>
<td>Voluntary Aided School</td>
<td>4-11</td>
<td>252</td>
<td>248</td>
<td>4</td>
<td>PR2 9HH</td>
<td>2.4</td>
</tr>
<tr>
<td>Lea Neeld's Endowed Church of England Primary School</td>
<td>Voluntary Aided School</td>
<td>4-11</td>
<td>140</td>
<td>138</td>
<td>2</td>
<td>PR4 0RA</td>
<td>2.4</td>
</tr>
<tr>
<td>Woodplumpton St Anne's CofE Primary School</td>
<td>Voluntary Aided School</td>
<td>4-11</td>
<td>105</td>
<td>100</td>
<td>5</td>
<td>PR4 0NE</td>
<td>2.4</td>
</tr>
<tr>
<td>Broughton-in-Amounderness Church of England Primary School</td>
<td>Voluntary Aided School</td>
<td>5-11</td>
<td>245</td>
<td>242</td>
<td>3</td>
<td>PR3 5JB</td>
<td>2.4</td>
</tr>
<tr>
<td>Eldon Primary School</td>
<td>Community School</td>
<td>2-11</td>
<td>266</td>
<td>237</td>
<td>29</td>
<td>PR1 7YE</td>
<td>2.6</td>
</tr>
<tr>
<td>Sacred Heart Catholic Primary School</td>
<td>Voluntary Aided School</td>
<td>4-11</td>
<td>194</td>
<td>167</td>
<td>27</td>
<td>PR2 2SA</td>
<td>2.6</td>
</tr>
<tr>
<td>Lea Community Primary School</td>
<td>Community School</td>
<td>5-11</td>
<td>210</td>
<td>199</td>
<td>11</td>
<td>PR2 1PD</td>
<td>2.7</td>
</tr>
<tr>
<td>Sherwood Primary School</td>
<td>Community School</td>
<td>4-11</td>
<td>385</td>
<td>419</td>
<td>-34</td>
<td>PR2 9GA</td>
<td>2.9</td>
</tr>
<tr>
<td>Kennington Primary School</td>
<td>Community School</td>
<td>4-11</td>
<td>233</td>
<td>240</td>
<td>-7</td>
<td>PR2 8ER</td>
<td>2.9</td>
</tr>
<tr>
<td>St Bernard's Catholic Primary School</td>
<td>Voluntary Aided School</td>
<td>4-11</td>
<td>210</td>
<td>207</td>
<td>3</td>
<td>PR2 1RP</td>
<td>3.0</td>
</tr>
<tr>
<td>English Martyrs Catholic Primary School, Preston</td>
<td>Voluntary Aided School</td>
<td>3-11</td>
<td>210</td>
<td>217</td>
<td>-7</td>
<td>PR1 7DR</td>
<td>3.2</td>
</tr>
<tr>
<td>School Name</td>
<td>Type</td>
<td>Ages</td>
<td>Capacity</td>
<td>Roll Size</td>
<td>Spare places</td>
<td>Postcode</td>
<td>Distance from Site (km)</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>-------------------</td>
<td>------</td>
<td>----------</td>
<td>-----------</td>
<td>--------------</td>
<td>-------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>St Mary and St Andrews Catholic Primary</td>
<td>Voluntary Aided School</td>
<td>5-11</td>
<td>112</td>
<td>112</td>
<td>0</td>
<td>PR3 5DY</td>
<td>3.7</td>
</tr>
<tr>
<td>Deepdale Community Primary</td>
<td>Community school</td>
<td>3-11</td>
<td>630</td>
<td>676</td>
<td>-46</td>
<td>PR1 6RD</td>
<td>3.7</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>6,768</td>
<td>6,622</td>
<td>146</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Department for Education (2016)

14.60 The data in **Table14.10** is based on the pupil census in 2016. However the capacity assessment also needs to consider the future balance between demand and supply of school places. Future demand is dependent on the local birth rate, migration in to and out of the local area, as well as the level of house building. Future supply is dependent on any planned investments or changes to provision in the local area.

14.61 LCC’s Asset Management School Planning Team calculates five-year pupil projections as part of its methodology for calculating developer contributions to education. The results of this forecasting exercise for the primary schools within two miles (3.2km) of the Proposed Development is shown in **Table14.10**. The column labelled ‘planned net capacity, Jan 2021’ shows the expected capacity in 2021, while the column labelled ‘projected enrolment Jan 2021’ shows the expected demand for school places. This shows there is expected to be a shortfall in capacity by 2021, with demand for 5,656 primary school places compared to cumulative provision of 5,643. This is due in part to the increased demand for school places but also to the planned reduction in the capacity of Ingol Community Primary School (from 245 places down to 150). This school has seen low demand for school places resulting in excess capacity in recent years (see **Table14.10**). This may be due in part to the school’s poor performance on a previous Ofsted inspection in 2013, which found the school was in need of improvement\(^\text{196}\). Although it is noted that a more recent inspection in December 2015 found that the school had addressed many of its previous challenges and is now assessed as ‘good’\(^\text{197}\).

**Table 14.10:** Primary School Five-year pupil projections, 2016

<table>
<thead>
<tr>
<th>Name</th>
<th>Current No of Pupils</th>
<th>Planned Net Capacity, Jan 2021</th>
<th>Projected enrolment Jan 2021</th>
<th>Distance from development (km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pool House Community</td>
<td>141</td>
<td>175</td>
<td>134</td>
<td>0.5</td>
</tr>
<tr>
<td>Harris</td>
<td>214</td>
<td>210</td>
<td>202</td>
<td>0.6</td>
</tr>
<tr>
<td>Holy Family Catholic</td>
<td>164</td>
<td>177</td>
<td>184</td>
<td>1.0</td>
</tr>
<tr>
<td>Ingol Community</td>
<td>145</td>
<td>150</td>
<td>178</td>
<td>1.0</td>
</tr>
<tr>
<td>St Anthony's Catholic</td>
<td>316</td>
<td>315</td>
<td>300</td>
<td>1.1</td>
</tr>
<tr>
<td>Queen’s Drive</td>
<td>447</td>
<td>450</td>
<td>465</td>
<td>1.3</td>
</tr>
<tr>
<td>Fulwood And Cadley</td>
<td>314</td>
<td>315</td>
<td>298</td>
<td>1.4</td>
</tr>
<tr>
<td>Cottam</td>
<td>205</td>
<td>210</td>
<td>217</td>
<td>1.6</td>
</tr>
<tr>
<td>Our Lady And St Edward’s Catholic</td>
<td>211</td>
<td>210</td>
<td>197</td>
<td>1.8</td>
</tr>
</tbody>
</table>

\(^{196}\) Ofsted (2013): School Report – Ingol Community Primary School

\(^{197}\) Ofsted (2016): School Report – Ingol Community Primary School
<table>
<thead>
<tr>
<th>Name</th>
<th>Current No of Pupils</th>
<th>Planned Net Capacity, Jan 2021</th>
<th>Projected enrolment Jan 2021</th>
<th>Distance from development (km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ashton-on-Ribble St Andrew's Church of England</td>
<td>421</td>
<td>417</td>
<td>431</td>
<td>2.1</td>
</tr>
<tr>
<td>The Roebuck School</td>
<td>357</td>
<td>388</td>
<td>396</td>
<td>2.2</td>
</tr>
<tr>
<td>Fulwood, St Peter's Church of England and Nursery</td>
<td>214</td>
<td>204</td>
<td>200</td>
<td>2.2</td>
</tr>
<tr>
<td>Ashton</td>
<td>198</td>
<td>210</td>
<td>229</td>
<td>2.4</td>
</tr>
<tr>
<td>St Clare's Catholic</td>
<td>246</td>
<td>252</td>
<td>230</td>
<td>2.4</td>
</tr>
<tr>
<td>Lea Neeld's Endowed Church of England</td>
<td>139</td>
<td>140</td>
<td>155</td>
<td>2.4</td>
</tr>
<tr>
<td>Woodplumpton St Anne's CofE</td>
<td>101</td>
<td>105</td>
<td>95</td>
<td>2.4</td>
</tr>
<tr>
<td>Broughton-In-Amounderness Church Of England</td>
<td>244</td>
<td>244</td>
<td>233</td>
<td>2.6</td>
</tr>
<tr>
<td>Eldon</td>
<td>193</td>
<td>203</td>
<td>228</td>
<td>2.6</td>
</tr>
<tr>
<td>Sacred Heart Catholic</td>
<td>163</td>
<td>195</td>
<td>216</td>
<td>2.6</td>
</tr>
<tr>
<td>Lea Community</td>
<td>196</td>
<td>203</td>
<td>223</td>
<td>2.7</td>
</tr>
<tr>
<td>Sherwood</td>
<td>418</td>
<td>420</td>
<td>396</td>
<td>2.9</td>
</tr>
<tr>
<td>Kennington</td>
<td>240</td>
<td>240</td>
<td>227</td>
<td>2.9</td>
</tr>
<tr>
<td>English Martyrs Catholic</td>
<td>191</td>
<td>210</td>
<td>222</td>
<td>3.2</td>
</tr>
<tr>
<td>Total</td>
<td>5478</td>
<td>5643</td>
<td>5656</td>
<td></td>
</tr>
</tbody>
</table>

Source: Education Contribution Assessment Ingol Golf Site, PCC, 2016
Note: this report did not include St Mary and St Andrew Catholic School or Deepdale Community Primary School.

**Secondary Schools**

There are 11 schools within a three-mile radius of the Site (see Figure 14.4). These include a number of academies, girls schools and faith schools. A number of these schools are currently operating some way below capacity. Cumulatively, the schools have over 2,000 spare places.

**Table 14.11: Secondary School Provision and capacity, 2016**

<table>
<thead>
<tr>
<th>School Name</th>
<th>Type</th>
<th>Ages</th>
<th>Capacity</th>
<th>Roll Size</th>
<th>Spare places</th>
<th>Postcode</th>
<th>Distance from development (km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Our Lady's Catholic High School</td>
<td>Voluntary Aided School</td>
<td>11-16</td>
<td>900</td>
<td>883</td>
<td>17</td>
<td>PR2 3SQ</td>
<td>1.1</td>
</tr>
<tr>
<td>Fulwood Academy</td>
<td>Sponsored Academy</td>
<td>11-18</td>
<td>1,200</td>
<td>727</td>
<td>473</td>
<td>PR2 9YR</td>
<td>1.1</td>
</tr>
<tr>
<td>Corpus Christi Catholic High School</td>
<td>Voluntary Aided School</td>
<td>11-16</td>
<td>850</td>
<td>673</td>
<td>177</td>
<td>PR2 8QY</td>
<td>2.1</td>
</tr>
<tr>
<td>Ashton Community Science College</td>
<td>Community School</td>
<td>11-18</td>
<td>960</td>
<td>719</td>
<td>241</td>
<td>PR2 1SL</td>
<td>2.1</td>
</tr>
<tr>
<td>Archbishop Temple School</td>
<td>Voluntary Aided School</td>
<td>11-16</td>
<td>758</td>
<td>763</td>
<td>-5</td>
<td>PR2 8RA</td>
<td>2.2</td>
</tr>
</tbody>
</table>
LCC has also provided five-year pupil projections for high schools within a three mile (4.8km) radius of the Proposed Development, as shown in Table 14.12. It projects that, by 2021, there will still be collective surplus capacity in secondary schools in the area. It is predicted by 2021 there will be demand for 8,107 secondary school places compared to a projected net capacity of 9,088 school places, equivalent to 981 surplus school places.

### Table 14.12 Secondary School Five-year pupil projections, 2016

<table>
<thead>
<tr>
<th>Name</th>
<th>Current No of Pupils</th>
<th>Planned Net Capacity, Jan 2021</th>
<th>Projected enrolment Jan 2021</th>
<th>Distance from development (km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fulwood Academy</td>
<td>677</td>
<td>1000</td>
<td>808</td>
<td>1.1</td>
</tr>
<tr>
<td>Our Lady's Catholic High School</td>
<td>888</td>
<td>900</td>
<td>1021</td>
<td>1.1</td>
</tr>
<tr>
<td>Corpus Christi Catholic High School</td>
<td>665</td>
<td>1009</td>
<td>775</td>
<td>2.1</td>
</tr>
<tr>
<td>Broughton High School</td>
<td>898</td>
<td>900</td>
<td>1056</td>
<td>2.4</td>
</tr>
<tr>
<td>Archbishop Temple School</td>
<td>757</td>
<td>750</td>
<td>899</td>
<td>2.2</td>
</tr>
<tr>
<td>Ashton Community Science College</td>
<td>684</td>
<td>800</td>
<td>810</td>
<td>2.1</td>
</tr>
<tr>
<td>Preston Muslim Girls School</td>
<td>400</td>
<td>454</td>
<td>475</td>
<td>3.23.2</td>
</tr>
<tr>
<td>Moor Park High School And Sixth Form</td>
<td>516</td>
<td>670</td>
<td>615</td>
<td>3.5</td>
</tr>
<tr>
<td>Penwortham Priory Academy</td>
<td>619</td>
<td>1,143</td>
<td>704</td>
<td>4.2</td>
</tr>
<tr>
<td>Eden Boys School</td>
<td>144</td>
<td>700</td>
<td>154</td>
<td>4.6</td>
</tr>
<tr>
<td>Penwortham Girls High School</td>
<td>694</td>
<td>762</td>
<td>790</td>
<td>4.6</td>
</tr>
<tr>
<td>Total</td>
<td>6,942</td>
<td>9,088</td>
<td>8,107</td>
<td></td>
</tr>
</tbody>
</table>

Source: Education Contribution Assessment Ingol Golf Site, PCC, 2016
There are 11 GP surgeries and eight dental practices located within a two-mile (3.2km) radius of the Site (see Figure 14.5). There are no statutory guidelines for assessing the capacity of primary care services. For GP facilities, the most commonly used indicator for assessing capacity is the ratio of patients to full time equivalent GPs. A range of benchmarks can be used to determine whether local GP surgeries are operating over capacity. This assessment has used a benchmark of 2,000 patients per FTE GP, which is taken from emerging guidance produced by NHS England on developer contributions towards health\(^{198}\). This compares to a national average of 1,950 patients per FTE GP.

Of the 11 surgeries in a two-mile radius, six currently have more than 2,000 patients per FTE GP. Cumulatively, these surgeries have a ratio of 2,106 patients per FTE GP which suggests that they are currently operating over capacity. This could change in the future as a result of planned increases in the capacity of local health provision. An Estates Strategy produced by the Greater Preston and Chorley and South Ribble Clinical Commissioning Groups (CCGs) notes that there are plans to increase capacity at an existing health centre (Ingol Health Centre) and to build a new health centre in North West Preston to accommodate the increase in demand from new housing developments in the local area, although it is not known how many additional GPs will be accommodated or how this will affect the GP to patient ratio\(^{199}\).

<table>
<thead>
<tr>
<th>Surgery Name</th>
<th>No of registered patients</th>
<th>No of FTE GPs</th>
<th>Patients per FTE GP</th>
<th>Postcode</th>
<th>Distance from Site (km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingol Health Centre(^{200})</td>
<td>9,213</td>
<td>5.6</td>
<td>1,645</td>
<td>PR2 7DS</td>
<td>0.5</td>
</tr>
<tr>
<td>Broadway Surgery</td>
<td>2,059</td>
<td>0.99</td>
<td>2,087</td>
<td>PR2 3NB</td>
<td>1.6</td>
</tr>
<tr>
<td>Beech Drive Surgery</td>
<td>14,029</td>
<td>3.96</td>
<td>3,543</td>
<td>PR2 1JR</td>
<td>1.9</td>
</tr>
<tr>
<td>The Park Medical Practice</td>
<td>1,830</td>
<td>1</td>
<td>1,830</td>
<td>PR2 1JR</td>
<td>1.9</td>
</tr>
<tr>
<td>Dr K Nath</td>
<td>5,805</td>
<td>1.76</td>
<td>3,298</td>
<td>PR2 1HY</td>
<td>2.1</td>
</tr>
<tr>
<td>Briarwood Medical Centre</td>
<td>10,874</td>
<td>7.33</td>
<td>1,483</td>
<td>PR2 8JB</td>
<td>2.1</td>
</tr>
<tr>
<td>Lytham Road Surgery</td>
<td>13,715</td>
<td>8.02</td>
<td>1,710</td>
<td>PR2 8HE</td>
<td>2.4</td>
</tr>
<tr>
<td>Sharoe Green Surgery(^{201})</td>
<td>6,688</td>
<td>2.4</td>
<td>2,787</td>
<td>PR2 2RL</td>
<td>2.7</td>
</tr>
<tr>
<td>Dr G A Robb and Partner</td>
<td>5,867</td>
<td>2.45</td>
<td>2,395</td>
<td>PR1 1LB</td>
<td>2.7</td>
</tr>
<tr>
<td>Moor Park Surgery</td>
<td>4,358</td>
<td>1.84</td>
<td>2,368</td>
<td>PR1 1LB</td>
<td>2.7</td>
</tr>
<tr>
<td>Total</td>
<td>74,438</td>
<td>35.35</td>
<td>2,106</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: NHS Health and Social Care Information Centre and NHS Choices, 2016

\(^{198}\) The document titled ‘Premises Principles of Best Practice Part 1 Procurement & Development’ is part of a suite of documents that were developed by a Primary Care Premises Experts Advisory group to support Area Teams with decisions including the procurement and development of Primary Care Premises. This is not yet published but the guidance is already being widely used to calculate developer contributions.

\(^{199}\) This information was requested from the Greater Preston CCG, however a representative confirmed that the size of these proposed facilities has not yet been determined.

\(^{200}\) Ingol Health Centre & Broadway Surgery belong to the same practice hence the corresponding figures in table 14.11 represent their shared capacity.

\(^{201}\) Sharoe Green Surgery, The Healthcare Centre and Longsands Medical Centre (2.6 miles (4.2km) from the Proposed Development) are all surgeries belonging to the practice Dr C M Wilson & Partners hence the corresponding figures in table 14.11 represent their shared capacity.
14.66 There is no guidance available on the most suitable benchmarks to assess capacity in local dental practices. In the absence of this, capacity has been assessed by considering whether the local practices are accepting new NHS patients. Of the eight dental surgeries in a two-mile radius, one of them is currently accepting new patients. This suggests there is little capacity in local practices.


<table>
<thead>
<tr>
<th>Surgery Name</th>
<th>No of Dentists</th>
<th>Currently Accepting New Patients?</th>
<th>Postcode</th>
<th>Distance from Site (miles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr M C Jolly and Associates</td>
<td>3</td>
<td>No</td>
<td>PR2 7AA</td>
<td>0.6</td>
</tr>
<tr>
<td>Mrs H Burns</td>
<td>1</td>
<td>No</td>
<td>PR2 3QA</td>
<td>1.3</td>
</tr>
<tr>
<td>Oasis Dental Care</td>
<td>3</td>
<td>No</td>
<td>PR2 3NB</td>
<td>1.6</td>
</tr>
<tr>
<td>Ashton Dental Dept</td>
<td>Unknown</td>
<td>No</td>
<td>PR2 1HR</td>
<td>2.2</td>
</tr>
<tr>
<td>The Cedars Dental Practice</td>
<td>3</td>
<td>No</td>
<td>PR2 1HQ</td>
<td>2.4</td>
</tr>
<tr>
<td>Marshall and Lavelle</td>
<td>4</td>
<td>No</td>
<td>PR1 1LB</td>
<td>2.7</td>
</tr>
<tr>
<td>Hennessy and Walsh</td>
<td>5</td>
<td>Yes</td>
<td>PR2 8BP</td>
<td>2.9</td>
</tr>
<tr>
<td>Adelphi Dental Practice</td>
<td>4</td>
<td>No</td>
<td>PR1 7BH</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Source: NHS Choices

Community and Leisure Facilities

14.67 Figure 14.6 and Table 14.15 show local community and leisure facilities. There are two public leisure centres in Preston which are run by PCC, Fulwood Leisure Centre (0.8 miles (1.3km) from the Proposed Development) and West View Climbing and Leisure Centre (2.7 miles (4.3km) from the Proposed Development). Both include the following facilities, gyms, sports halls, swimming pools, squash and badminton courts. West View Leisure Centre specifically features a climbing wall and a 3G 7 a-side football pitch.

14.68 PCC also run St Augustine’s Centre in Avenham (2.9 miles (4.6km) from the development) on behalf of Cardinal Newman College, which offers hall space for several sport and leisure activities such as: football, cricket, basketball, badminton, table tennis and dancing.

14.69 There are three libraries, seven community centres and twenty three churches within a two-mile (3.2km) radius of the Site.

Table 14.15: Provision of community and leisure facilities

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Postcode</th>
<th>Distance from Site (km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingol Library</td>
<td>Library</td>
<td>PR2 3YX</td>
<td>1.0</td>
</tr>
<tr>
<td>Savick Library</td>
<td>Library</td>
<td>PR2 1UL</td>
<td>2.4</td>
</tr>
<tr>
<td>Sharoe Green Library</td>
<td>Library</td>
<td>PR2 8ED</td>
<td>2.7</td>
</tr>
<tr>
<td>Fulwood Leisure Centre</td>
<td>Leisure Centre</td>
<td>PR2 9YA</td>
<td>1.3</td>
</tr>
<tr>
<td>Preston Sports Arena University Of</td>
<td>Leisure Centre</td>
<td>PR2 1SG</td>
<td>1.6</td>
</tr>
<tr>
<td>Central Lancashire</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>West View Leisure Centre</td>
<td>Leisure Centre</td>
<td>PR1 5EP</td>
<td>4.3</td>
</tr>
<tr>
<td>St Augustine’s Centre</td>
<td>Leisure Centre</td>
<td>PR1 3YJ</td>
<td>4.6</td>
</tr>
<tr>
<td>Tanterton Village Centre</td>
<td>Community Centre</td>
<td>PR2 7BX</td>
<td>0.5</td>
</tr>
<tr>
<td>St Margaret’s Parish Centre</td>
<td>Community Centre</td>
<td>PR2 3ZU</td>
<td>0.8</td>
</tr>
<tr>
<td>Intact Community Centre</td>
<td>Community Centre</td>
<td>PR2 3YP</td>
<td>1.0</td>
</tr>
<tr>
<td>Cottam Community Centre</td>
<td>Community Centre</td>
<td>PR4 0NY</td>
<td>1.6</td>
</tr>
<tr>
<td>Al-Ansaa Welfare &amp; Education</td>
<td>Community Centre</td>
<td>PR2 8NA</td>
<td>2.2</td>
</tr>
</tbody>
</table>
### Access to leisure and recreation

14.70 This refers to all opportunities in the local area to participate in sport, physical activity and other recreational activities. The baseline has drawn upon two studies completed by Knight Kavanagh and Page (KKP), both completed in 2012:

- **Central Lancashire Playing Pitch Strategy.** This covers the local authority areas of Preston, Chorley and South Ribble. It addresses the supply and demand balance for natural turf pitches for football, rugby, cricket and Artificial Turf Pitches (ATPs)

- **Central Lancashire PPG17 Open Space Audit.** Also covering the three districts. It provides a quantitative and qualitative assessment of the existing provision of a range of greenspace typologies, including parks and gardens, natural and semi-natural greenspaces, provision for children and young people etc.

#### Central Lancashire Playing Pitch Strategy (PPS)

14.71 Whilst a comprehensive study, this was commissioned prior to the publication of the latest Sport England guidance on the preparation of Playing Pitch Strategies. Consequently it may not accurately reflect the actual position with regard to participation and the increasingly important

<table>
<thead>
<tr>
<th>Location</th>
<th>Type</th>
<th>Postcode</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plungington Community Centre</td>
<td>Community Centre</td>
<td>PR1 7NB</td>
<td>2.7</td>
</tr>
<tr>
<td>Ashton Young Peoples Centre</td>
<td>Community Centre</td>
<td>PR2 2RH</td>
<td>2.7</td>
</tr>
<tr>
<td>Tanterton Christian Fellowship Church</td>
<td>Church</td>
<td>PR2 7BX</td>
<td>0.5</td>
</tr>
<tr>
<td>Ingol Methodist Church</td>
<td>Church</td>
<td>PR2 3XA</td>
<td>0.8</td>
</tr>
<tr>
<td>St. Margarets C of E Church</td>
<td>Church</td>
<td>PR2 3ZU</td>
<td>0.8</td>
</tr>
<tr>
<td>St. Anthonys R.C Church</td>
<td>Church</td>
<td>PR2 3RX</td>
<td>1.3</td>
</tr>
<tr>
<td>Fulwood Free Methodist Church</td>
<td>Church</td>
<td>PR2 3LT</td>
<td>1.3</td>
</tr>
<tr>
<td>Free Methodist Church in the UK</td>
<td>Church</td>
<td>PR2 9RX</td>
<td>1.6</td>
</tr>
<tr>
<td>Our Lady &amp; St. Edwards R.C Church</td>
<td>Church</td>
<td>PR2 9UE</td>
<td>1.6</td>
</tr>
<tr>
<td>St Cuthbert’s Church</td>
<td>Church</td>
<td>PR2 3AR</td>
<td>1.8</td>
</tr>
<tr>
<td>St. Andrews Parish Church</td>
<td>Church</td>
<td>PR2 1ES</td>
<td>2.1</td>
</tr>
<tr>
<td>Sacred Heart R.C Church</td>
<td>Church</td>
<td>PR2 1DU</td>
<td>2.2</td>
</tr>
<tr>
<td>St. Annes Church (CE)</td>
<td>Church</td>
<td>PR4 0RX</td>
<td>2.2</td>
</tr>
<tr>
<td>St. Clares Parish Church</td>
<td>Church</td>
<td>PR2 9HH</td>
<td>2.4</td>
</tr>
<tr>
<td>Ashton Methodist Church</td>
<td>Church</td>
<td>PR2 1BU</td>
<td>2.4</td>
</tr>
<tr>
<td>Churches &amp; Other Places of Worship</td>
<td>Church</td>
<td>PR2 8NE</td>
<td>2.4</td>
</tr>
<tr>
<td>Broughton St. John Baptist Church</td>
<td>Church</td>
<td>PR3 5JB</td>
<td>2.4</td>
</tr>
<tr>
<td>Christ Church Fulwood</td>
<td>Church</td>
<td>PR2 8NE</td>
<td>2.4</td>
</tr>
<tr>
<td>Lea Methodist Church</td>
<td>Church</td>
<td>PR2 1UN</td>
<td>2.4</td>
</tr>
<tr>
<td>Fulwood Methodist Church</td>
<td>Church</td>
<td>PR2 8EA</td>
<td>2.6</td>
</tr>
<tr>
<td>St Michael’s and All Angels Church</td>
<td>Church</td>
<td>PR2 1AJ</td>
<td>2.6</td>
</tr>
<tr>
<td>Wycliffe Memorial Evangelical Church</td>
<td>Church</td>
<td>PR2 2SH</td>
<td>2.7</td>
</tr>
<tr>
<td>Preston Christadelphian Ecclesia</td>
<td>Church</td>
<td>PR1 7NU</td>
<td>2.7</td>
</tr>
<tr>
<td>St. Walburge’s Catholic Church</td>
<td>Church</td>
<td>PR2 2QE</td>
<td>3.0</td>
</tr>
<tr>
<td>Preston Church 4 You</td>
<td>Church</td>
<td>PR1 7BY</td>
<td>3.2</td>
</tr>
</tbody>
</table>

Source: Preston City Council; Lancashire County Council; yell.com 2016
role played by ATPs in supporting both training and competitive use in football and rugby. It is understood that PCC is updating the PPS which will be published in 2017.

14.72 Although the report was based on a detailed analysis of playing pitches throughout Central Lancashire, it did not provide conclusions on the undersupply of pitches or the key priorities below the level of local authorities. The key issues and priorities for the Preston area include:

- An additional area of 36 hectares (ha) of playing field space will be required in the period to 2026. Of which almost nine ha is to meet latent demand and the remainder is to meet deficiencies due to projected population growth.

- There is sufficient supply of ATPs to meet demand in Preston. However this is based on the requirements of the Sport England Facilities Planning Model (January 2011) and does not reflect the growing demand for ATP use by football and rugby teams.

- Changing facilities are generally substandard with a lack of segregated changing rooms a particular issue. This can limit use by children and women due to child protection and/ or privacy concerns.

- Surplus of 11.5 senior football pitches, estimated to decrease by 2026.

- Deficiencies of junior football (8.0) and mini soccer pitches (7.0), estimated to increase by 2026.

- Deficiency of cricket pitches (6.9), estimated to increase by 2026

- Deficiency of senior rugby union pitches (2.5), estimated to increase by 2026.

- Small shortfall in rugby league provision. However, Preston is identified as a possible growth area.

Central Lancashire Open Space Audit

14.73 The different types of open space play an important role in supporting formal and informal physical activity, as well as biodiversity and wildlife conservation. Again, the report did not identify surpluses or deficiencies of open space below the level of local authority areas. The key findings for Preston were as follows:

- Parks and gardens: no current deficiency. 16.7 ha required by 2026 to meet the needs of the projected population growth.

- Natural and semi-natural greenspace: no current deficiency. 16.3 ha required by 2026 to meet the needs of the projected population growth.

- Amenity greenspace: no current deficiency. 4.95 ha required by 2026 to meet the needs of the projected population growth.

- Provision for children and young people: identified deficiency of 0.08 ha. A total of 0.3 ha required by 2026 to meet the existing deficit and the needs of the projected population growth.
• Allotments: identified deficiency of 1.6 ha. A total of 3.3 ha required by 2026 to meet the existing deficit and the needs of the projected population growth.

• No standards were set for green corridors or cemeteries.

Access to Golf Courses

14.74 Neither the PPS nor the Open Space Audit considered the demand for, or supply of, golf courses. This is a key consideration for the assessment since it is located on the Site of Ingol Village Golf Course (IVGC).

14.75 The Golf Needs Assessment provided in Appendix 14.1 shows that IVGC is one of 14 golf courses within a 20 minute catchment of the Site. These are shown in Table 14.16. As part of the research, a questionnaire was sent to all of these golf clubs to understand their current membership levels and whether they have capacity to take on new members or for further pay and play use. Five golf clubs responded (Ashton and Lea, Inskip, Fishwick Hall, Pleasington and Shaw Hill) and all confirmed that they do have capacity to absorb an increase in demand.

Table 14.16: Golf Clubs within a 20 minute Catchment of Site

<table>
<thead>
<tr>
<th>Name</th>
<th>LGU Affiliated</th>
<th>Holes</th>
<th>Facility Sub Type</th>
<th>Range in Minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingol Village Golf Club</td>
<td>Y</td>
<td>18</td>
<td>Standard</td>
<td>n/a</td>
</tr>
<tr>
<td>Ashton and Lea Golf Club</td>
<td>Y</td>
<td>18</td>
<td>Standard</td>
<td>0-10</td>
</tr>
<tr>
<td>Preston Golf Club</td>
<td>Y</td>
<td>18</td>
<td>Standard</td>
<td>0-10</td>
</tr>
<tr>
<td>Leyland Golf Club</td>
<td>Y</td>
<td>18</td>
<td>Standard</td>
<td>10-20</td>
</tr>
<tr>
<td>Blackburn Golf Club</td>
<td>Y</td>
<td>18</td>
<td>Standard</td>
<td>10-20</td>
</tr>
<tr>
<td>Fishwick Hall Golf Club Ltd</td>
<td>Y</td>
<td>18</td>
<td>Standard</td>
<td>10-20</td>
</tr>
<tr>
<td>Inskip Golf Club</td>
<td>Y</td>
<td>9</td>
<td>Standard</td>
<td>10-20</td>
</tr>
<tr>
<td>Myerscough Golf Club</td>
<td>Y</td>
<td>9</td>
<td>Standard</td>
<td>10-20</td>
</tr>
<tr>
<td>Oak Royal Golf and Country Club</td>
<td>Y</td>
<td>9</td>
<td>Standard</td>
<td>10-20</td>
</tr>
<tr>
<td>Penwortham Golf Club</td>
<td>Y</td>
<td>18</td>
<td>Standard</td>
<td>10-20</td>
</tr>
<tr>
<td>Pleasington Golf Club</td>
<td>Y</td>
<td>18</td>
<td>Standard</td>
<td>10-20</td>
</tr>
<tr>
<td>Shaw Hill Golf Club</td>
<td>Y</td>
<td>18</td>
<td>Standard</td>
<td>10-20</td>
</tr>
<tr>
<td>Garstang Golf Club</td>
<td>N</td>
<td>18</td>
<td>Standard</td>
<td>10-20</td>
</tr>
<tr>
<td>Highfield Golf Course</td>
<td>N</td>
<td>9</td>
<td>Standard</td>
<td>10-20</td>
</tr>
</tbody>
</table>

14.76 Table 12 of the Golf Needs Assessment shows that membership and green fee costs at IVGC are considerably lower than the courses in the surrounding area. There are no municipal courses within the catchment and only one course has lower membership fees (Inskip Golf Club), although this is a nine hole course. Pay and play costs at Ashton and Lea Golf Club, Fishwick Hall Golf Club, Myerscough Golf Club, Oak Royal Golf and Country Club and Garstang Golf Club are all
£20 or less at weekends and £16 or less during the week. These are more expensive than IVGC (£12.50 at weekends and £10 during the week) but represent affordable alternatives.

14.77 Although IVGC offers one of the cheapest options for playing golf, it compares unfavourably on a number of quality measures based on reviews of local courses on the Golfshake website\textsuperscript{202}, including the quality of the course and facilities and value for money. Overall it was the lowest ranked course of any of those reviewed (see Table 13 of the Golf Needs Assessment).

14.78 The lower course fees have also not translated into growing demand at IVGC. There are currently 226 playing members (as of November 2016,) and 541 social members. This represents a fall from the level seen in January 2015 (340 playing members) and from the first year of operation in July 2014, when membership stood at 249. It is also someway below the target in the Business Plan for 400 playing members by 2016.

14.79 The Golf Needs Assessment also shows that participation in golf has been falling at national, regional and sub-regional levels. The Active People Survey used by Sport England to measure participation shows that the number of people playing golf on a weekly basis has fallen from 2.33% in 2005/6 to 1.74% in 2014/15, which is a greater fall than the national or regional average. Whilst a small level of population growth is forecast, this will be predominantly in older age groups that are less likely to participate in sport and physical activity. Taken together, this suggests that demand for golf courses is likely to continue to decline.

14.80 As well as being an operational golf course, the Club House is also used as a venue for social functions. The owners have reported that the Club House has been used for 51 functions in the 12 months to September 2016, with an average attendance of around 125 people. These events include a mix of weddings and other private parties, fund-raising events, funerals and live-music nights. It is likely that a large proportion of the attendees over the past 12 months have been from the local community, although the split between local residents and visitors to functions is unknown.

Crime and anti-social behaviour

14.81 Based on a standard measure of crime rates (Crime Domain, The English Indices of Deprivation 2015) which measures the risk of personal and material victimisation at local level, Preston is ranked 69th out of 329 districts where 1 represents the highest crime rates. This puts Preston in the top 25% in terms of crime rates, this is indicative that crime rates are significantly higher in Preston than those in most parts of the country.

14.82 A more localised analysis of the Crime Domain reveals that all four Lower Super Output Areas (LSOAs) that make up Greyfriars are in the top twenty percent least deprived in terms of crime in England, indicating crime rates are low in the area surrounding the Site. Of the five LSOAs that make up the ward of Ingol, four are in the top 50% least deprived in the Crime Domain. Again this is indicative that crime rates are below the national average in the immediate vicinity of the Site (see Figure 14.7).

\textsuperscript{202} The Golf Needs Assessment acknowledges that the sample on this website is self-selecting and therefore not representative, however it represents the only source available on the relative quality of local golf courses.
14.83 Using the latest crime data in conjunction with small area population estimates to calculate the number of crimes per thousand residents reveals the wards of the Proposed Development (Ingol and Greyfriars) have below average crime rates. Greyfriars and Ingol have 50 and 141 crimes per 1000 residents compared with rates of 156 and 161 observed in Preston and Lancashire. This indicates crime rates are lower in the immediate vicinity of the Proposed Development.

14.84 The Crime Impact Statement provided for the Proposed Development (see Appendix 14.4) indicates that, in addition to recorded crimes, there have been 229 reported incidents that fall into the ‘nuisance’ category where there is insufficient evidence that a crime has been committed. These include anti-social behaviour caused by youths. The anti-social behaviour most frequently reported on the Golf Course relates to motorcycle nuisance.

Design Evolution

14.85 The Proposed Development includes the gifting of 41.3ha of land for public open space, which will provide improved access to recreational assets and promote greater participation in sport. This includes a minimum of 0.6ha of space for children and young people (within the residential development), a minimum of 2ha of park and gardens and 2ha of semi natural green space, a minimum of 0.2ha of community allotments and path activity trails through the Site.

14.86 The design of the scheme has been informed by an analysis of the demand for, and supply of, recreational facilities in the local area, and the role that the Proposed Development could play in meeting any shortfall or complementing existing assets. This identified a potential role for trim trails and cycle tracks which have been incorporated into the designs for the Site. The importance of the Guild Wheel was also highlighted, and a north to south cycle link has been included in the Indicative Masterplan linking the proposed housing parcels to the cycle route north of the Site.

Potential Effects

14.87 This section provides an assessment of all effects which are considered to be significant in EIA terms. Appendix 14.2 provides an assessment of other effects which are not significant in EIA terms.

Population and demographic effects

14.88 It is estimated the Proposed Development will accommodate approximately 1,160 residents, assuming a complete and fully occupied development. This is based on evidence from the English Housing Survey on the average number of people living in dwellings of different sizes, applied to the housing mix for the Proposed Development.

14.89 It is assumed that around 75% of the population will be of working age (aged 16-64). This equates to around 872 working age residents. This rate is higher than the current rate for Preston (66%) but represents a reasonable estimate given the nature of the proposed housing which is targeted at families.

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203 ASB Incidents, Crime and Outcomes, Home Office, 2015-16
The receptor for this effect is the population and demographic profile of Preston. Sub-national population projections forecast a large increase in the retired population in Preston (19% between 2014 and 2026) relative to the working age population (-1% in the same period). This will create a growing imbalance between young and old people, which could also give rise to labour market challenges. This is recognised as a major challenge in Lancashire in the LEP’s employment and skills evidence base. The sensitivity of receptor is considered to be medium in this case because the projected fall in the working age population in Preston is not as great as in other parts of Lancashire.

Assuming full occupation of the Proposed Development the additional residents will increase the population of Preston by 0.8% and increase Preston’s working age population by 0.9%. The magnitude of the effect is assessed as medium.

Considering the level of significance and magnitude, the significance of the effect for Preston is therefore assessed as moderate beneficial which is significant in EIA terms.

**Capacity of local social and community infrastructure**

**Effect on capacity of schools**

To assess the likely increase in demand for primary and secondary school places, the assessment has drawn on the pupil yield figures used by LCC in its education contributions methodology. The results for primary schools are shown in Table 14.17. This shows an increase in demand for 89 primary school places.

Latest projections for the local primary schools show there to be a shortfall of 13 places in five years time (see Table 14.17). This is based on LCC’s capacity projections which are based on a five year period up to 2021. It is noted that the construction period for the Proposed Development is not expected to be complete until 2027. Pupil and capacity projections are not available over this longer period and would be subject to a large degree of uncertainty. The assessment has therefore assumed that this shortfall of 13 places persists until the end of the construction period. With an expected yield of 89 places from the Proposed Development the shortfall would increase to 102.

### Table 14.17: Primary Pupil Yield

<table>
<thead>
<tr>
<th>Number of bedrooms</th>
<th>Yield applied per dwelling</th>
<th>Number of dwellings</th>
<th>Primary yield for this development</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>0.07</td>
<td>90</td>
<td>6.3</td>
</tr>
<tr>
<td>3</td>
<td>0.16</td>
<td>248</td>
<td>39.68</td>
</tr>
<tr>
<td>4</td>
<td>0.38</td>
<td>113</td>
<td>42.94</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td><strong>451</strong></td>
<td><strong>(88.92) 89 Places</strong></td>
</tr>
</tbody>
</table>

Source: Lancashire County Council, 2016

For secondary schools it is estimated that the Proposed Development will generate demand for an additional 42 places. Latest projections for the local secondary schools show there to be 981 places available in five years’ time. There is therefore likely to be sufficient capacity to meet this increased demand.

### Table 14.18: Secondary Pupil Yield
### Table 14.18

<table>
<thead>
<tr>
<th>Number of bedrooms</th>
<th>Yield applied per dwelling</th>
<th>Number of dwellings</th>
<th>Secondary yield for this development</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>0.03</td>
<td>90</td>
<td>2.7</td>
</tr>
<tr>
<td>3</td>
<td>0.09</td>
<td>248</td>
<td>22.32</td>
</tr>
<tr>
<td>4</td>
<td>0.15</td>
<td>113</td>
<td>16.95</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td><strong>451</strong></td>
<td><strong>(41.97) 42 Places</strong></td>
</tr>
</tbody>
</table>

Source: Lancashire County Council, 2016

14.96 The significance of the effects on education area assessed as follows:

- A number of primary schools are currently operating at or over capacity. This is likely to get worse over the next five years when demand for primary school places is likely to exceed supply (see **Table14.18**). The sensitivity of receptor is therefore considered to be high.

- The Proposed Development will increase demand for primary and secondary school places (by 89 and 42 places respectively). This is considered to be a medium magnitude.

14.97 The overall significance of effect on education is assessed as Moderate Adverse which is significant in EIA terms. Therefore mitigation of these effects will be required.

**Effect on capacity of health facilities**

14.98 There are 11 GP surgeries and eight dental practices within two miles (3.2km) of the Site. The baseline shows that a number of GP surgeries and dental practices are currently operating over capacity (as indicated by average patient list sizes per FTE GP and whether dental practices are accepting new patients). The sensitivity of receptor is therefore assessed as high.

14.99 A fully occupied development will increase the local population by 1,160 residents. A large proportion of these people are likely to want to register with a local GP and/or dentist. There are currently just over 74,400 people registered with a GP within two miles (3.2km) of the Site. Therefore the increase in demand will be equivalent to 1.6% (if everyone chose to register with a GP). This magnitude of effect is considered to be medium.

14.100 The significance of effect is therefore considered to be Moderate Adverse which is significant in EIA terms. Therefore mitigation of these effects will be required.

**Access to leisure and recreation opportunities**

14.101 The assessment of the change in access to leisure and recreation opportunities needs to consider both the loss of the Golf Course and the addition of 41.3 ha of publicly accessible open space and outdoor recreation facilities. This has been assessed qualitatively through an assessment of the need for these types of facilities.

14.102 The assessment has drawn upon the findings of the Golf Needs Assessment in **Appendix 14.1**. This shows that membership at the Golf Club has fallen since it reopened and has failed to achieve the targets set for both membership and pay and play use. The report concludes that

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204 Cumulatively, the GP surgeries had an average patient list size per FTE GP of over 2,100 which is over the recommended ratio of 2,000 per FTE GP. Only one dental practice is currently accepting new patients.

205 This assumes that the increase in population will all be net-additional to the local area.
that it is highly questionable whether the course will be commercially viable in the medium to long term, particularly as the operator continues to enjoy a rent free agreement as well as other financial support from the freeholder.

14.103 The fall in membership is set in the wider context of decreasing participation in golf at national, regional and sub-regional levels. The decline in participation has been particularly steep in Lancashire, and the England Golf Market Segmentation indicates that the catchment area potential for IVGC is significantly smaller than the averages across the region suggesting that IVGC is competing for a share of a smaller market than might be the case in other parts of the county and region.

14.104 The 20 minute catchment area is currently served by 14 courses and three floodlit driving ranges which offer coaching and pay and play access. All of the golf clubs that engaged with the consultation process indicated that they have capacity for both memberships and pay and play. Although these have higher fees than those at IVGC, affordable memberships and comparable green fees are all available at these other courses. Satisfaction ratings are also higher.

14.105 The assessment concludes that these factors mean the market within which IVGC operates is extremely challenging and that supply outstrips demand, with other clubs in the local catchment area being more than capable of absorbing any displaced demand. Based on current trends, this position is unlikely to improve in the future. Consequently, there is no demonstrable need for retention of IVGC as a golf course.

14.106 It needs to be recognised that the Golf Course currently acts as an informal recreational asset for walkers and other leisure users. However, given the private ownership of the Site, the access to this space cannot be guaranteed, except for on existing Public Rights of Way. It is possible that access to parts of the Golf Course could be restricted in future, particularly if there was a change in ownership. Furthermore, if IVGC was to close due to commercial reasons, the quality of the recreational asset could deteriorate if maintenance of the open space did not continue.

14.107 The Proposed Development would provide an increase of 41.3 ha of open space which would be publicly accessible and maintained by a management company. The open space would help to address the following existing or expected deficiencies in different types of space in Preston (identified in the Central Lancashire Open Space Audit):

- Parks, contributing to the 16.7 ha required by 2026 to meet the needs of the projected population growth.

- Natural and semi-natural greenspace, contributing to the 16.3 ha required by 2026.

- Amenity greenspace, contributing to the 4.95 ha required by 2026.

- Provision for children and young people, contributing to the current deficiency of 0.08ha and the 0.3ha required by 2026.

- Allotments, contributing to the current deficiency of 1.6 ha and the 3.3 ha required by 2026.
14.108 In each case, the contribution made by the Proposed Development will be over and above that required to serve the needs of residents of the development. The Proposed Development will also generate additional demand for playing pitch facilities, equivalent to almost 1.1 ha. This has been calculated in a separate Sports Needs Study (see Appendix 14.3). It is proposed that these sports facilities will be provided off-site.

14.109 The Proposed Development would also create new walking and cycling routes and improve existing routes, and provide a range of other new recreational assets including a cycle track, orchards, foraging trails and trim trails. The increased access to open space and range of leisure assets is likely to encourage formal and informal physical activity which could contribute to health outcomes.

14.110 Increasing physical activity and improving facilities and space is identified as a priority in the Preston Physical Activity and Sports Strategy. Furthermore, the Open Space Audit and Central Lancashire Playing Pitch Strategy identified current or future deficiencies in a range of different types of space. The sensitivity is therefore assessed as high.

14.111 The magnitude of effect is judged to be medium positive. This has been based on the findings that there is no demonstrable need for the Golf Course and that any demand which is displaced could be accommodated through other clubs in the catchment area, while the provision of maintained open space and a range of new recreational assets will enhance access to new and existing assets and encourage physical activity.

14.112 The significance of effect is therefore moderate positive, which is significant in EIA terms.

Mitigation and Enhancement Measures

14.113 Significant effects have been identified for local education and health facilities. To mitigate these effects, a financial contribution will be required to increase capacity at existing or new facilities by a scale which is commensurate with the increase in demand. In the case of education facilities, this will be through a site specific developer contribution.

14.114 For healthcare facilities, adverse effects will be mitigated through financial contributions via the Community Infrastructure Levy (CIL). The Estates Strategy for the three Central Lancashire CCGs states that the three councils would not be likely to seek site specific contributions from developers for health infrastructure, as these needs will be provided for through the CIL charging schedule 206.

14.115 Although no significant effects were identified during construction, there are a number of enhancement measures which could maximise the potential economic benefits of the Proposed Development. The specific measures will need to be discussed and agreed with PCC and local training providers but could include a commitment to:

- Maximise the number of contracts awarded to local businesses, and encouraging all first tier contractors to work with local businesses wherever possible. Supporting measures could include the publication of details about potential contracts and services required,

and organising 'meet the buyer' events for local businesses to understand more about how they could access supply chain opportunities.

- Maximise the number of local people gaining employment during the construction phase, and encouraging all first tier contractors to recruit locally and employ and train local young people on apprenticeship schemes.

Residual Effects

14.116 A financial contribution towards the increased capacity of health and education facilities will address the imbalance between demand and supply for these facilities in the local area and any capacity issues being experienced by individual providers. Therefore the residual effect will be negligible and not significant in EIA terms.

Cumulative Effects

14.117 The assessment of cumulative effects is based on all of the consented and Proposed Developments identified in Table 2.4. These include a mix of residential, mixed use and leisure developments which have the potential to increase the magnitude of socio-economic effects in the study areas, which are assessed in this section.

14.118 It has not been possible to provide quantitative estimates for all socio-economic effects as there is insufficient detail contained in the planning applications for these developments. A large number of these were either not required to carry out a full environmental impact assessment (EIA), or did carry out an EIA but did not assess socio-economic effects (see Table 14.19). In the absence of this information, standard benchmarks have been used, or only assessed potential cumulative effects qualitatively.

**Table 14.19: Availability of information on socio-economic effects for cumulative developments**

<table>
<thead>
<tr>
<th>Planning Ref</th>
<th>Name</th>
<th>Assessment of socio-economic effects included in application?</th>
</tr>
</thead>
<tbody>
<tr>
<td>06/2014/0442</td>
<td>Sandyforth Lane</td>
<td>No</td>
</tr>
<tr>
<td>06/2015/0085</td>
<td>Former Cottam Brickworks</td>
<td>No</td>
</tr>
<tr>
<td>06/2016/0291</td>
<td>Maxy House Farm</td>
<td>No</td>
</tr>
<tr>
<td>06/2016/0552</td>
<td>Tabley Lane</td>
<td>No</td>
</tr>
<tr>
<td>06/2016/0942</td>
<td>Bridge House</td>
<td>No</td>
</tr>
<tr>
<td>06/2012/0094</td>
<td>Connemara</td>
<td>No</td>
</tr>
<tr>
<td>06/2012/0145</td>
<td>Land between Hoyles Lane Sidgreaves Lane Lea Road and Lancaster Canal</td>
<td>Yes</td>
</tr>
<tr>
<td>06/2011/0473</td>
<td>Haydock Grange</td>
<td>Yes</td>
</tr>
<tr>
<td>06/2012/0822</td>
<td>Lightfoot Lane</td>
<td>No</td>
</tr>
<tr>
<td>06/2013/0140</td>
<td>Land to the rear of Cottam Nursery School</td>
<td>No</td>
</tr>
<tr>
<td>06/2013/0195</td>
<td>Off Eastway Fulwood</td>
<td>No</td>
</tr>
<tr>
<td>06/2015/0530</td>
<td>Hoyles Lane</td>
<td>Yes</td>
</tr>
<tr>
<td>06/2016/0350</td>
<td>Preston Grasshoppers</td>
<td>No</td>
</tr>
<tr>
<td>06/2016/0367</td>
<td>Land off Sandy Lane</td>
<td>No</td>
</tr>
</tbody>
</table>

Construction Effects
14.119 All of the developments will generate temporary construction employment and associated training opportunities during the construction phase. While it is not possible to quantify this using the information in the planning applications, a report by the National Homebuilders Federation\(^{207}\) estimates that, on average, each dwelling constructed supports a total of 4.3 temporary jobs, including all direct, indirect and induced effects. It should be noted that this is a national figure and therefore captures all of the jobs created through the supply chain which are located in other parts of the country (i.e. outside Preston).

14.120 If applied to the list of cumulative developments identified in Table 2.4 and the Proposed Development this would create in the region of 17,100 temporary jobs nationally (3,970 dwellings \(\times 4.3\)). A large proportion of these jobs would be expected to be located within Preston, although it is not possible to estimate exactly how many.

14.121 This is considered to be a major positive effect for Preston which will be significant in EIA terms.

14.122 It should also be noted that, if a large proportion of temporary workers moved to Preston from other areas, there would potentially be increased pressure on local social and community infrastructure (e.g. schools and health facilities). However this is very difficult to assess given the limited information available on the construction plans of these developments.

Operational Effects

Operational Employment

14.123 A large number of the cumulative developments will support economic activity and new jobs once operational. This could be directly through the provision of on-site employment space. This is the case for the Proposed Development at the Former Cottam Brickworks site (06/2015/0085) and the consented development on land at Cottam Hall (06/2012/0145) which both include a range of retail, hospitality and community uses which will accommodate employment. Employment could also be supported indirectly as a result of households moving in to Preston and spending money in the local area.

14.124 There is insufficient information to quantify employment effects. Given the cumulative scale of new housing development planned (just under 4,000 dwellings in total), and the potential to attract a large number of new households to Preston, it is expected that these household expenditure effects would be very large.

14.125 When combined with the direct employment effects associated with the two developments above, this is considered to be a major positive effect for Preston which would be significant in EIA terms.

Population and Demographics

14.126 The list of cumulative developments will create just under 4,000 new dwellings if all are built out. This would be expected to increase the population of Preston by attracting new people to the area. There is insufficient information in the planning applications to quantify population effects. Given an average household size in England of 2.3 people, it is expected that all of the developments (if fully occupied), will result in a gross increase of around 9,200 people.

\(^{207}\) Home Builders Federation and Nathaniel Lichfield & Partners (2015): The Economic Footprint of UK Housebuilding
14.127 The age profile of these residents is subject to uncertainty and will depend on the size and nature of the housing provided. Working age people currently account for 66% of the population in Preston. If the new housing developments attracted a population with a similar age profile, this would result in a gross increase of 6,100 working age people and help to offset the projected falls in this age group in Preston.

14.128 This is considered to be a major positive effect for Preston which would be significant in EIA terms.

Social and Community Infrastructure

14.129 The increase in the population associated with the cumulative developments will increase demand for local social and community services, which could potentially increase pressure on local schools and health facilities and affect the quality of services delivered to new and existing residents.

14.130 For schools, the development of 3,970 dwellings will be expected to generate demand for a maximum of 1,510 primary school places and 595 secondary school places. This is based on the average pupil yield for four bedroom houses (0.38 primary age pupils and 0.15 secondary age pupils per dwelling) and therefore represents a worst-case scenario. In practice, the cumulative developments are likely to include a large share of smaller housing which will generate lower demand for primary school places.

14.131 LCC has an established methodology for assessing future capacity in local schools which focuses on schools within a two-mile radius and also considers the potential demand generated through housing developments with planning permission in the local area. This means that the nine developments with planning permission in Table 2.4 have already been factored into the assessment of future capacity which was reported in Table 14.10. This showed that the primary schools within two miles (3.2km) of the Site are likely to be over-capacity by 2021.

14.132 Of the remaining four residential-led developments which do not have planning permission, LCC are seeking developer contributions toward education for three of them\(^{208}\). This is on the grounds that each of the developments will result in local primary or secondary schools going further over-capacity. The only development where LCC has not submitted a request for education contributions is for Sandyforth Lane (06/2014/0442). However this application was submitted two years ago. The absence of any request for contributions may therefore reflect the position at the time the application was submitted. If this planning application was progressed, it is likely that LCC will undertake the assessment again which may identify that developer contributions are necessary.

14.133 Given that most of the residential developments without planning permission will result in further capacity issues for local schools, the cumulative effect is considered to be major negative. However, if the developer contributions were agreed as part of a Section 106 agreement, this will mitigate any negative effects by providing resources for the expansion of existing schools or

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\(^{208}\) Lancashire County Council (2016a): Education Contribution Assessment – Tabley Lane, Higher Bartle 06/2016/0552
Lancashire County Council (2016b): Education Contribution Assessment – Bridge House, 06/2016/0942
Lancashire County Council (2016c): Education Contribution Assessment – Maxy House Farm, 06/2016/0291
14.134 For primary healthcare services (including GPs and dental surgeries), there is also evidence that local facilities in North West Preston are operating over-capacity. This will be exacerbated by increased demand generated by the cumulative developments, with a potential increase of 9,200 people in the local population. This is considered to be a major negative effect. However these negative effects will be mitigated through Community Infrastructure Levy (CIL) contributions by providing resources for the expansion of existing health centres or the development of new facilities. Post mitigation, the effect will be negligible and not significant in EIA terms.

Access to Leisure and Recreation

14.135 There is limited information in any of the available EIAs on how the developments will affect communities’ access to leisure and recreation opportunities. Based on the information available, it is worth noting the following points:

- A number of the developments include proposals for new public open space, including Maxy House Farm (06/2016/0291), Connemara (06/2012/0094), Land between Hoyles Lane Sidgreaves Lane Lea Road and Lancaster Canal (06/2012/0145), Haydock Grange (06/2011/0473), Lightfoot Lane (06/2012/0822), Land to the rear of Cottam Nursery School (06/2013/0140) and Land off Eastway (06/2013/0195). Although the exact quantity is unclear, this should ensure that all new and existing residents within walking distance of these developments have improved access to publicly accessible open space.

- The Proposed Development and two of the cumulative developments include proposals for children’s play areas. These are Land between Hoyles Lane Sidgreaves Lane Lea Road and Lancaster Canal (06/2012/0145) and Haydock Grange (06/2011/0473). The Central Lancashire Open Space Audit identified a small deficiency of this type of space in Preston and a need for 0.3 Ha by 2026, which these developments will contribute to.

- The Proposed Development and a number of other developments will provide new or improved footpaths or cycle routes, providing greater opportunities for walking and cycling in new and existing communities. These include Connemara (06/2012/0094), Land between Hoyles Lane Sidgreaves Lane Lea Road and Lancaster Canal (06/2012/0145), Haydock Grange (06/2011/0473) and Lightfoot Lane (06/2012/0822).

14.136 Based on the above, the significance of effect is considered to be moderate positive which is significant in EIA terms.

Conclusions

14.137 The Proposed Development is expected to generate the following significant adverse socio-economic effects:

- Increased demand for primary school places which will result in a shortfall in capacity in local schools within two miles (3.2km) of the Site. These effects will be mitigated through a financial contribution to increase capacity at existing or new schools. Following mitigation, the residual significance of effect will be negligible.
• Increased demand for primary healthcare services which will result in a shortfall in capacity in local GP and dental surgeries within two miles (3.2km) of the Site. These effects will be mitigated through a financial contribution via the CIL.

14.138 The Proposed Development will also be expected to generate the following significant positive socio-economic effects:

• Increased working age population of Preston. This will help to offset a forecast decline in the working age population and restore a greater balance between the economically active and retired population.

• Increased access to leisure and recreational facilities, which could encourage physical activity and improvements in health.
Table 14.20: Summary of Socio-Economics Effects and Mitigation

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Effect</th>
<th>Phase (Construction / Operation)</th>
<th>Embedded Mitigation</th>
<th>Sensitivity of Receptor</th>
<th>Magnitude of Change</th>
<th>Level of Effect and Significance Prior to Mitigation</th>
<th>Mitigation</th>
<th>Enhancement</th>
<th>Level of Effect (and Significance) after Mitigation</th>
<th>Nature of effect (short term / medium term / long term, permanent / temporary, direct / indirect)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment in the construction sector in Preston</td>
<td>Change in temporary construction employment</td>
<td>Construction</td>
<td>None</td>
<td>Low</td>
<td>Medium</td>
<td>Minor Beneficial (not significant)</td>
<td>None</td>
<td>Local recruitment and supply chain initiatives</td>
<td>Minor Beneficial (not significant)</td>
<td>Temporary, medium term, direct</td>
</tr>
<tr>
<td>Total employment in Preston</td>
<td>Permanent change in employment levels</td>
<td>Operation</td>
<td>None</td>
<td>High</td>
<td>Negligible</td>
<td>Negligible (not significant)</td>
<td>None</td>
<td>None</td>
<td>Negligible (not significant)</td>
<td>Permanent, long term, indirect</td>
</tr>
<tr>
<td>Population and working age population of Preston</td>
<td>Change in population size and demographic structure</td>
<td>Operation</td>
<td>None</td>
<td>Medium</td>
<td>Medium</td>
<td>Moderate Beneficial (significant)</td>
<td>None</td>
<td>None</td>
<td>Moderate Beneficial (significant)</td>
<td>Permanent, long term, direct</td>
</tr>
<tr>
<td>Capacity of schools</td>
<td>Change in capacity of local schools</td>
<td>Operation</td>
<td>None</td>
<td>High</td>
<td>Medium</td>
<td>Moderate Adverse (significant)</td>
<td>Financial contribution to increase capacity</td>
<td>None</td>
<td>Negligible (not significant)</td>
<td>Permanent, long term, direct</td>
</tr>
<tr>
<td>Capacity of health services</td>
<td>Change in capacity of health services</td>
<td>Operation</td>
<td>None</td>
<td>High</td>
<td>Medium</td>
<td>Moderate Adverse (significant)</td>
<td>Financial contribution to increase capacity</td>
<td>None</td>
<td>Negligible (not significant)</td>
<td>Permanent, long term, direct</td>
</tr>
<tr>
<td>Access to and usage of leisure and recreational assets</td>
<td>Change in access to and usage of leisure and recreation opportunities</td>
<td>Operation</td>
<td>Provision of open space and community sports facilities (see off-site contribution)</td>
<td>High</td>
<td>Medium</td>
<td>Moderate Beneficial (significant)</td>
<td>None</td>
<td>None</td>
<td>Moderate Beneficial (significant)</td>
<td>Permanent, long term, direct</td>
</tr>
<tr>
<td>Rates of crime</td>
<td>Change in number of crimes and police incidents</td>
<td>Operation</td>
<td>Safe by design measures incorporate d</td>
<td>Low</td>
<td>Negligible</td>
<td>Negligible (not significant)</td>
<td>None</td>
<td>None</td>
<td>Negligible (not significant)</td>
<td>Permanent, long term, direct</td>
</tr>
</tbody>
</table>
15 TRANSPORT AND ACCESS

Summary

Chapter 15 assesses the potential significant environmental effects of the Proposed Development in terms of transport. A comprehensive Transport Assessment has been prepared to inform this assessment (see Appendix 15.1), and examines in detail the existing transport conditions around the Site.

The methodology adopted in assessing the traffic and transportation effects of the Proposed Development has been set out and undertaken in line with the advice contained within the Institute of Environmental Management and Assessment ‘Guidelines for the Environmental Assessment of Road Traffic’.

As part of traffic flow data, the baseline condition has been taken as the Preston Western Distributor Road and East-West Spine Route being operational (see Figure 15.1). As such the baseline condition takes into account that the North West Preston Strategic Location and Cottam Hall Strategic Site (identified within the Preston Local Plan) are constructed, and the assessment therefore already takes cumulative effects into account. Figure 16.2 illustrates the location of these two sites.

The assessment concludes that the Development will result in minimal changes in traffic volume on the surrounding network. The findings of the assessment demonstrate that all traffic can be accommodated during construction and operation on the local road network without compromising operational capacity or safety.

With regard the effect of development traffic flow on severance (the separation of residents from facilities and services they use within their community caused by new or improved roads or by changes in traffic flows), driver delay, pedestrian delay, pedestrian amenity, fear and intimidation, and Accidents and Safety, all effects upon these issues are considered negligible and therefore not significant in EIA terms.

Therefore, no significant effects are anticipated by the Proposed Development.
Introduction

15.1 This chapter of the Environmental Statement (ES) assesses the transportation effects of the Proposed Development and whether these effects are significant in EIA terms. It incorporates a summary of the Transport Assessment (TA), which forms Appendix 15.1 to the ES. Appendix 15.1 also includes a Travel Plan for the Proposed Development. Significant and non-significant effects assessments are included within the chapter.

15.2 This chapter has been prepared by Croft Transport Solutions and describes the methodology used to determine the effects; the baseline conditions currently existing at the Site and its surroundings; the mitigation measures required to prevent, reduce or offset any significant adverse effects; and the likely residual effects after these measures have been employed.

15.3 This chapter has been assessed in accordance with the Scoping Opinion issued by the Local Planning Authority on 30th September 2016. During its preparation consultation has also been held with the Highways section of Lancashire County Council (LCC), the details of which are discussed within this chapter.

Legislation, Policy and Guidance

National Planning Policy

15.4 The National Planning Policy Framework was published in March 2012 and sets out the Government's planning policies for England.

15.5 With specific regard to transport, Paragraph 29 states that 'Transport policies have an important role to play in facilitating sustainable development but also in contributing to wider sustainability and health objectives. Smarter use of technologies can reduce the need to travel. The transport system needs to be balanced in favour of sustainable transport modes, giving people a real choice about how they travel.'

15.6 Within Paragraph 30 it is stated that 'Encouragement should be given to solutions which support reductions in greenhouse gas emissions and reduce congestion. In preparing Local Plans, local planning authorities should therefore support a pattern of development which, where reasonable to do so, facilitates the use of sustainable modes of transport.'

15.7 Paragraph 32 confirms that 'All developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment.' It continues by stating that 'Plans and decisions should take account of whether:

- the opportunities for sustainable transport modes have been taken up depending on the nature and location of the Site, to reduce the need for major transport infrastructure;
- safe and suitable access to the Site can be achieved for all people; and
- improvements can be undertaken within the transport network that cost effectively limit the significant impacts of the development. Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe.'

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209 Department for Communities and Local Government 'National Planning Policy Framework', March 2012
15.8 Paragraph 34 advises that 'Plans and decisions should ensure developments that generate significant movement are located where the need to travel will be minimised and the use of sustainable transport modes can be maximised. However this needs to take account of policies set out elsewhere in this Framework, particularly in rural areas.'

15.9 Paragraph 35 states that 'Plans should protect and exploit opportunities for the use of sustainable transport modes for the movement of goods or people. Therefore, developments should be located and designed where practical to:

- accommodate the efficient delivery of goods and supplies;
- give priority to pedestrian and cycle movements, and have access to high quality public transport facilities;
- create safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians, avoiding street clutter and where appropriate establishing home zones;
- incorporate facilities for charging plug-in and other ultra-low emission vehicles; and
- consider the needs of people with disabilities by all modes of transport.'

15.10 Paragraph 36 relates to Travel Plans and confirms that 'A key tool to facilitate this will be a Travel Plan. All developments which generate significant amounts of movement should be required to provide a Travel Plan.'

15.11 Paragraph 37 of the Framework states that 'Planning policies should aim for a balance of land uses within their area so that people can be encouraged to minimise journey lengths for employment, shopping, leisure, education and other activities.'

15.12 Paragraph 38 continues by stating that 'For larger scale residential developments in particular, planning policies should promote a mix of uses in order to provide opportunities to undertake day-to-day activities including work on site. Where practical, particularly within large-scale developments, key facilities such as primary schools and local shops should be located within walking distance of most properties.'

15.13 Paragraph 39 'If setting local parking standards for residential and non-residential development, local planning authorities should take into account:

i) the accessibility of the development;

ii) the type, mix and use of development;

iii) the availability of and opportunities for public transport;

iv) local car ownership levels; and

v) an overall need to reduce the use of high-emission vehicles.'

15.14 Paragraph 40 'Local authorities should seek to improve the quality of parking in town centres so that it is convenient, safe and secure, including appropriate provision for motorcycles. They should set appropriate parking charges that do not undermine the vitality of town centres. Parking enforcement should be proportionate.'
15.15 Paragraph 41 'Local planning authorities should identify and protect, where there is robust evidence, sites and routes which could be critical in developing infrastructure to widen transport choice.'

15.16 With respect to the provision of infrastructure to accommodate the needs of planned development, Paragraphs 162 and 173 are important. With respect to the need to ensure that the planning authority identifies necessary infrastructure, but does this in a way which ensures that the provision of any necessary infrastructure does not place a scale of obligations and policy burdens on a development which threatens the ability to develop those sites viably.

Local Planning Policy

Preston Local Plan

15.17 The Preston Local Plan\textsuperscript{210} 2012-26 (Site Allocations and Development Management Policies DPD) was adopted on 2\textsuperscript{nd} July 2015.

15.18 The Local Plan sets out the Council's land-use policies and identifies the following core strategy objections:

- SO3: To reduce the need to travel, manage car use, promote more sustainable modes of transport and improve the road network to the north and south of Preston.
- SO4: To enable easier journeys into and out of Preston City Centre, as well as safeguard rural accessibility, especially for mobility impaired people.

15.19 In order meet these transport related objectives, the Local Plan includes, at Section 7 'Catering for Sustainable Travel', two sustainable transport related policies.

15.20 Policy ST1 'Parking Standards' states:

'All development proposals will provide car parking and servicing space in accordance with the Parking Standards adopted by the Council (Appendix B).

Locations that are accessible to services and well served by public transport may be considered appropriate for lower levels of provision.

Proposals for provision above the adopted standards will need to be supported by evidence detailing the local circumstances that justify deviation from the standard.'

15.21 Policy ST2 'General Transport Considerations' advises:

'All development proposals will need to show that:

a) road safety and the efficient and convenient movement of all highway users (including bus passengers, cyclists, pedestrians and equestrians) is not prejudiced;

b) appropriate provision is made for public transport services;

c) appropriate measures are included to facilitate access on cycle or foot;

\textsuperscript{210} Preston City Council 'Preston Local Plan 2012-26 (Site Allocations and Development Management Policies DPD), adopted on 2\textsuperscript{nd} July 2015
d) where practicable, ensure existing pedestrian, cycle and equestrian routes are protected and extended;

e) the needs of disabled people are fully provided for;

f) corridors which could be developed as future transport routes (e.g. disused railway lines) are not prejudiced.'

15.22 Paragraph 7.26 of the Local Plan advises:

'To ensure that safe and convenient access is afforded to everyone, new developments should reduce rather than increase the dependence on private cars. Whilst much attention is usually given to road improvements to cope with additional traffic, it is important that other transport issues are taken into account if car use is to be reduced.'

15.23 Meanwhile, Paragraph 7.27 confirms that:

'Transport Assessments should be submitted in support of major developments and any other proposals which would have significant transport implications. A Travel Plan should be submitted alongside any planning applications, outlining how these are to be managed in order to ensure the minimum environmental, social and economic impacts.'

Central Lancashire Highways and Transport Masterplan

15.24 The ‘Central Lancashire Highways and Transport Masterplan’\(^\text{211}\) (CLHTM) sets out LCC’s ideas for a future highways and transport strategy for Central Lancashire to 2026 and beyond. It links economic development and spatial planning priorities to the wider strategic policy objectives of LCC and sets out how the LCC proposes to fund and deliver the programme.

15.25 The CLHTM was adopted in January 2013 and sets out a series of specific transport improvement schemes that LCC aspire to see implemented, along with their anticipated funding sources. Since the CLHTM was adopted, a significant additional funding stream was secured in September 2013, known as the ‘City Deal’, which will allow the main infrastructure items in the CLHTM to come forward more rapidly and with more certainty.

15.26 In terms of the CLHTM, infrastructure schemes include the Preston Western Distributor Road (see Figure 15.1). The Masterplan advises that this will provide:

'A new road linking the M55 near Bartle with the A583/A584 at Clifton, to support delivery of the North West Preston strategic housing location and improve access to the Strategic Road Network from the Enterprise Zone site at Warton.

Providing access via a new link between the M55 and the A583 would:

- Give easier access westwards without having to use narrow country lanes.
- Provide options to avoid peak hour congestion in the city centre for east-west journeys.
- Give access to the motorway network without using M55 Junction 1 at Broughton, which will still be busy after its redesign during 2013.'

\(^\text{211}\) Lancashire County Council 'Central Lancashire Highways and Transport Masterplan', dated March 2013
• Enable provision of a new rail station in the Cottam area to serve new development and act as a Park and Ride station similar to Buckshaw Parkway near Chorley and as a possible link to the national high speed rail network in the longer term.

• Allow bus priority measures, public realm enhancements, and improvements to prioritise and promote walking and cycling along the B5411 Tag Lane/ Woodplumpton Road and A583 Riversway corridors and in Lane Ends local centre.

The relationship of this distributor road to the North-West Preston strategic housing area will be critical to ensuring that the new road is fully and properly utilised by local commuting traffic.'

15.27 As agreed with LCC, the Preston Western Distributor Road and the Proposed East-West Spine Route are assumed within the baseline. The Preston Western Distributor Road and East-West Spine Route are shown in Figure 15.1.

Third Local Transport Plan for Lancashire 2011-2021 (LTP3)

15.28 LTP3\(^{212}\) was adopted in May 2011 and provides the statutory framework for the policies and plans that will guide the future transport provision in Lancashire.

15.29 LTP3 contains seven transport goals which are summarised below;

• To help to secure a strong economic future by making transport and travel into and between our major economic centres more effective and efficient and by improving links to neighbouring major economic areas and beyond;

• To provide all sections of the community with safe and convenient access to the services, jobs, health, leisure and educational opportunities that they need;

• To improve the accessibility, availability and affordability of transport as a contribution to the development of strong and cohesive communities;

• To create more attractive neighbourhoods by reducing the impact of transport on our quality of life and by improving our public realm;

• To reduce the carbon impact of Lancashire’s transport requirements, whilst delivering sustainable value for money transport options to those who need them;

• To make walking and cycling more safe, convenient and attractive, particularly in the more disadvantaged areas of Lancashire, bringing improvements in the health of Lancashire’s residents;

• In all that we do, to provide value for money by prioritising the maintenance and improvement of Lancashire’s existing transport infrastructure where it can help to deliver our transport goals.

Guidelines for the Environmental Assessment of Road Traffic

\(^{212}\) Lancashire County Council 'Local Transport Plan 2011-2021; A Strategy for Lancashire', May 2011
15.30 The Institute of Environmental Management and Assessment (IEMA) document 'Guidelines for the Environmental Assessment of Road Traffic'²¹³ was published in 1993.

15.31 As advised within the document 'The purpose of the Guidelines is to provide the basis for a systematic, consistent and comprehensive coverage for the appraisal of traffic impacts for a wide range of development projects.'

**Assessment Methodology and Significance Criteria**

15.32 The assessment methodology underpinning the Transport Assessment which accompanies the application comprises four main components: assessing the existing transportation situation and forthcoming proposals for the area; identifying areas of concern in terms of highways and public transport provision; addressing any problems with a package of transport measures to encourage travel by means other than the private car, and; finally to assess the impact that the development will have on the surrounding highway network by looking at junction capacity.

15.33 Pre-application discussions were held with Lancashire County Council (LCC), in its capacity as the local highway authority, to define the requirements for the TA. These are summarised below.

**Scoping and Consultation**

15.34 An initial meeting was held with representatives of Preston City Council (PCC) and LCC in September 2016.

15.35 Following this, a scoping study setting out the methodology for the assessment of the transport effects of the Proposed Development was included within the EIA Scoping Report²¹⁴ submitted to Preston City Council (PCC). This was forwarded to LCC who provided comments on the transport element of the Scoping Report.

15.36 A further meeting was held with LCC in October 2016. **Table 15.1** summarises the consultation.

**Table 15.1: Consultation Overview**

<table>
<thead>
<tr>
<th>Consultee</th>
<th>Comment</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meeting with PCC/LCC 02 September 2016</td>
<td>Comments include: Additional junctions require consideration</td>
<td>Scope of assessment to be revisited</td>
</tr>
<tr>
<td>LCC Comments on Scoping Report</td>
<td>Build out assumption and future year assessment queried</td>
<td>Future year assessments to be reconsidered</td>
</tr>
<tr>
<td></td>
<td>Alternative trip rates suggested</td>
<td>LCC's suggested trip rates adopted within the analysis</td>
</tr>
<tr>
<td></td>
<td>Committed development should include all allocations within NW Preston strategic site</td>
<td>Included within strategic model traffic flows (see below)</td>
</tr>
<tr>
<td>Meeting with LCC 17 October 2016</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

²¹³ The Institute of Environmental Management and Assessment ‘Guidelines for the Environmental Assessment of Road Traffic’, 2003

15.37 It has been agreed that in order to fully consider the potential implications of the Proposed Development on the highway network, the assessment should provide a consideration of the following junctions:

- M55 Junction 1;
- A6/Eastway Signalised Junction;
- Lightfoot Lane/Wychnor Signalised Junction;
- Tom Benson Way/Tanterton Hall Road/Tag Lane/Tabley Lane Roundabout;
- Tom Benson Way/Tanterton Hall Road/Merry Trees Lane Roundabout;
- Tom Benson Way/Cottam Way Roundabout;
- Tanterton Hall Road/Tag Lane Priority Junction;
- Blackpool Road/Woodplumpton Road Signalised Junction;
- Tom Benson Way/Tulketh Brow Signalised Junction.

15.38 To assist in the assessment of the highways effects of the Proposed Development, LCC has provided 2019 and 2034 AM (0900-0900 hours) and PM peak (1700-1800 hours) modelled link flows. These have been extracted from a SATURN strategic highways model, prepared by Jacobs on behalf of LCC as part of the planning application for the Preston Western Distributor Road, Proposed East-West Spine Route and Termination Roundabout.

15.39 Importantly, the strategic traffic flows include all committed development traffic and traffic associated with site allocations identified within the Preston Local Plan (Site Allocations and Development Management Policies DPD). Indeed, the delivery of the Preston Western Distributor Road, Proposed East-West Spine Route and Termination Roundabout are critical to the Preston Local Plan, including the North West Preston Masterplan proposal, by delivering additional strategic highway capacity.

15.40 In assessing the likely effects of the Proposed Development, it has been agreed with LCC during pre-application consultation that consideration be given to 2023 and 2027 assessment years. 2027 represents the year when it is anticipated the full development (450 dwellings and the Preston North End (PNE) first team Training Facility) will be completed, whilst the effect of Phase
1 of the development (250 dwellings and the PNE Training Facility) has been considered at the interim year of 2023.

15.41 The 2023 and 2027 assessment year base flows have been derived by interpolating between the 2019 and 2034 modelled flows provided by LCC.

15.42 In order to determine the likely levels of traffic that would occur as a result of the proposed residential element, LCC requested during pre-application discussions that the residential trip rates should be as per those agreed as part of other similar applications considered within Preston.

15.43 The proposed residential vehicular trip rates and corresponding vehicle trips for the Phase 1 and full development are identified in Tables 15.2 and 15.3 respectively, below. These identify development associated with each of the residential development parcels.

Table 15.2: Summary of Phase 1 Residential Trips

<table>
<thead>
<tr>
<th>Trip Rates (per dwelling)</th>
<th>Trips</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Weekday AM</td>
</tr>
<tr>
<td></td>
<td>Arr</td>
</tr>
<tr>
<td>Residential Parcel A (74)</td>
<td>0.140</td>
</tr>
<tr>
<td>Residential Parcels B and C (62)</td>
<td>0.140</td>
</tr>
<tr>
<td>Residential Parcels D, E and F (58)</td>
<td>0.140</td>
</tr>
<tr>
<td>Residential Parcel G (6)</td>
<td>0.140</td>
</tr>
<tr>
<td>Residential Parcel H (24)</td>
<td>0.140</td>
</tr>
<tr>
<td>Residential Parcel I (24)</td>
<td>0.140</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
</tr>
</tbody>
</table>

15.44 As can be seen from the above table, based on the assumed quantum of 250 dwellings, the proposed residential development could generate up to 146 two-way trips during the weekday am peak and 166 two-way trips during the weekday pm peak.

Table 15.3: Summary of Full Development Residential Trips

<table>
<thead>
<tr>
<th>Trip Rates (per dwelling)</th>
<th>Trips</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Weekday AM</td>
</tr>
<tr>
<td></td>
<td>Arr</td>
</tr>
<tr>
<td>Residential Parcel A (74)</td>
<td>0.140</td>
</tr>
<tr>
<td>Residential Parcels B and C (62)</td>
<td>0.140</td>
</tr>
<tr>
<td>Residential Parcels D, E and F (58)</td>
<td>0.140</td>
</tr>
<tr>
<td>Residential Parcel G (6)</td>
<td>0.140</td>
</tr>
<tr>
<td>Residential Parcel H (24)</td>
<td>0.140</td>
</tr>
<tr>
<td>Residential Parcel I (24)</td>
<td>0.140</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
</tr>
</tbody>
</table>
15.45 As can be seen from the above table, based on the assumed quantum of 450 dwellings, the proposed residential development could generate up to 266 two-way trips during the weekday AM peak and 298 two-way trips during the weekday PM peak.

15.46 It is understood that the PNE first team training takes place between 0800 and 1400 hours on a weekday. Around 40 vehicles visit the first team training facilities.

15.47 The following table summarises PNE first team Training Facility trips.

**Table 15.4: Summary of PNE First Team Training Facility Vehicle Trips**

<table>
<thead>
<tr>
<th>Residential Parcel A (134)</th>
<th>0.140</th>
<th>0.445</th>
<th>0.437</th>
<th>0.226</th>
<th>19</th>
<th>60</th>
<th>59</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential Parcels B and C (112)</td>
<td>0.140</td>
<td>0.445</td>
<td>0.437</td>
<td>0.226</td>
<td>16</td>
<td>50</td>
<td>49</td>
<td>25</td>
</tr>
<tr>
<td>Residential Parcels D, E and F (105)</td>
<td>0.140</td>
<td>0.445</td>
<td>0.437</td>
<td>0.226</td>
<td>15</td>
<td>47</td>
<td>46</td>
<td>24</td>
</tr>
<tr>
<td>Residential Parcel G (11)</td>
<td>0.140</td>
<td>0.445</td>
<td>0.437</td>
<td>0.226</td>
<td>2</td>
<td>5</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Residential Parcel H (44)</td>
<td>0.140</td>
<td>0.445</td>
<td>0.437</td>
<td>0.226</td>
<td>6</td>
<td>20</td>
<td>19</td>
<td>10</td>
</tr>
<tr>
<td>Residential Parcel I (44)</td>
<td>0.140</td>
<td>0.445</td>
<td>0.437</td>
<td>0.226</td>
<td>6</td>
<td>20</td>
<td>19</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td>64</td>
<td>202</td>
<td>197</td>
<td>101</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

15.48 In order to assign the residential trips to the local highway network, reference has first been made to 'Location of Usual Residence and Place of Work' data available from the 2011 census.

15.49 This indicates that a majority (around two-thirds) of workers within the relevant Preston middle upper output area (MSOA) (012) are employed in Preston, however the census data does not provide a more detailed breakdown. Clearly, there are multiple areas of employment within Preston, e.g. the city centre, the Eastway Business Village, etc., but it is not possible to use the census information to distribute traffic to these employment destinations.
15.50 Therefore, in order to assign the Proposed Development trips to the local highway network, further reference has been made to modelled traffic flows.

15.51 For the PNE training ground facility, it is assumed all traffic would approach/depart the Site via Walker Lane and then Boys Lane.

15.52 The Proposed Development trips have been assigned to the network based on these trip distributions, though account has been taken of local differences in the distribution of development traffic associated with each of the land parcels.

15.53 The proposed residential and PNE training ground trips have been added to the modelled flows to derive 'with Proposed Development' traffic flows. The Phase 1 trips have been added to the 2023 modelled flows whilst the full development trips have been added to the 2027 modelled flows.

15.54 The derivation of the assessment flows are provided in Figures 1 to 28 of the TA.

15.55 The likely pedestrian, public transport and bicycle trips associated with the proposed development have been calculated by utilising the multi-modal survey data provided in the TRICS database. The results of the interrogation are summarised below.

15.56 The analysis identifies the predicted multi modal trips for the Phase 1 development (250 dwellings) and full development (450 dwellings).

**Pedestrian Trip Generation**

15.57 Reference to the TRICS output indicates that the combined peak pedestrian demand associated with the proposed uses would occur between 1500-1600 hours during a weekday. The pedestrian trip rates and trips are presented in Table 15.5, below.

### Table 15.5: Proposed Development Average Pedestrian Trip Rates and Trips

<table>
<thead>
<tr>
<th></th>
<th>Trip Rate</th>
<th>Trips</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Arr</td>
<td>Dep</td>
</tr>
<tr>
<td>Phase 1 Residential Dev (250 dwellings)</td>
<td>0.126</td>
<td>0.065</td>
</tr>
<tr>
<td>Full Residential Development (450 dwellings)</td>
<td>0.126</td>
<td>0.065</td>
</tr>
</tbody>
</table>

**Public Transport Trip Generation**

15.58 Reference to the TRICS output indicates that the combined peak public transport demand associated with the proposals would occur between 0800-0900 hours during a weekday. The public transport trip rates and trips are presented in Table 15.6, below.

### Table 15.6: Proposed Development Average Public Transport Trip Rates and Trips
Cyclist Trip Generation

Reference to the TRICS output indicates that the peak cycle demand associated with the proposals would occur between 1700-1800 hours on a weekday. The cycling trip rates and trips are presented in Table 15.7.

Table 15.7: Proposed Development Average Cycle Trip Rates and Trips

<table>
<thead>
<tr>
<th>Trip Rate</th>
<th>Trips</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arr</td>
<td>Dep</td>
</tr>
<tr>
<td>Phase 1 Residential Dev (250 dwellings)</td>
<td>0.002</td>
</tr>
<tr>
<td>Full Residential Development (450 dwellings)</td>
<td>0.002</td>
</tr>
</tbody>
</table>

Significance Criteria

The approach for this assessment has been undertaken in accordance with the IEMA Guidelines for the Environmental Assessment of Road Traffic, referred to as the ‘IEMA Guidelines’. The purpose of the guidelines is to provide a systematic, consistent and comprehensive approach to the assessment of the environmental effects of traffic associated with major new development projects.

The IEMA guidelines suggest two broad rules-of-thumb can be used as a screening process to delimit the scale and extent of the assessment:

- Include highway links where traffic flows are predicted to increase by more than 30% (or where the number of heavy goods vehicles is predicted to increase by more than 30%); and
- Include any other specifically sensitive areas where traffic flows are predicted to increase by 10% or more.

These rules-of-thumb form the starting point for the assessment of effects. Specifically, sensitive areas under Rule 2 include accident ‘black-spots’.
15.63 The IEMA Guidelines form the basis for the assessment of the effects of the Proposed Development on transport and access, including the consideration of the following:

- Severance;
- Driver delay;
- Pedestrian amenity and delay;
- Fear and intimidation;
- Accidents and safety; and
- Hazardous loads.

15.64 Given the nature of the Proposed Development, there will not be any increase in hazardous loads and this has therefore been excluded from more detailed consideration.

15.65 The Environmental Effects from the Proposed Development have been assessed in the following terms:

- Beneficial - Meaning that they produce environmental benefits in transportation terms, i.e. where overall traffic flows or percentage HGV decrease, or there are improved facilities for pedestrians, cyclists or public transport users;
- Negligible - Meaning that changes are too small to meaningfully measure;
- Adverse - Meaning that they produce environmental disbenefits in transportation terms, i.e. where overall traffic flows or percentage HGV increase, or there are reductions in facilities for pedestrians, cyclists or public transport users;

15.66 Beneficial and adverse effects are further characterised as:

- Minor - highly localised changes in traffic flows/patterns of between 10% and 30%.
- Moderate - Limited change where, changes in traffic flows/patterns are between 30% and 60%; and
- Major - Considerable change, where changes in traffic flows/patterns are greater than 60%.

15.67 Based on the above, Table 15.8 sets out the significance scale.

**Table 15.8: Significance Scale**

<table>
<thead>
<tr>
<th>Significance Scale</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major beneficial</td>
<td>Change that would delay the need for planned modification to off-site infrastructure</td>
</tr>
<tr>
<td>Moderate beneficial</td>
<td>Increased perception of changing conditions that may delay the need for planned modifications to off-site infrastructure</td>
</tr>
<tr>
<td>Minor beneficial</td>
<td>Perception of changing conditions, e.g. reduction in delay</td>
</tr>
</tbody>
</table>
Negligible | No perceptible change
---|---
Minor adverse | Perception of changing conditions, e.g. increase in delay
Moderate adverse | Increased perception of changing conditions that may require modifications to off-site infrastructure
Major adverse | Change requiring modifications to off-site infrastructure

15.68 The IEMA Guidelines advise that it is useful to identify particular groups or locations, which may be sensitive to changes in traffic conditions. The following table provides a summary of the sensitivity of the receptor.

Table 15.9: Sensitivity of the Receptor

<table>
<thead>
<tr>
<th>High</th>
<th>Medium</th>
<th>Low</th>
<th>Negligible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitive groups, including children, elderly and disabled</td>
<td>People walking</td>
<td>Vehicle drivers</td>
<td>n/a</td>
</tr>
<tr>
<td>Sensitive locations, e.g. hospitals and schools</td>
<td>People cycling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accident ‘black-spots’</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

15.69 A magnitude of change scale in respect of each subject has been defined, with thresholds having been derived with reference to the IEMA Guidelines, best practice and professional judgement.

Table 15.10: Magnitude of Change Scale

<table>
<thead>
<tr>
<th>Subject</th>
<th>Magnitude of Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severance</td>
<td>Change in highway link traffic flow of over 60%</td>
</tr>
<tr>
<td>Driver Delay</td>
<td>Change in traffic flow through junction of over 30%</td>
</tr>
<tr>
<td>Pedestrian Amenity and Delay</td>
<td>Change in highway link traffic flow of over 60%</td>
</tr>
</tbody>
</table>
An 'effect matrix' based on the Magnitude of Change and Sensitivity of Receptor is set out in Table 15.11. Moderate or major effects are considered significant for the purposes of the EIA regulations.

**Table 15.11: Effect Matrix**

<table>
<thead>
<tr>
<th>Magnitude of Change</th>
<th>Sensitivity of Receptor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High</td>
</tr>
<tr>
<td>High</td>
<td>Major</td>
</tr>
<tr>
<td>Medium</td>
<td>Major</td>
</tr>
<tr>
<td>Low</td>
<td>Moderate</td>
</tr>
<tr>
<td>Negligible</td>
<td>Negligible</td>
</tr>
</tbody>
</table>

The effects are either long or short term, typically with the effects of construction traffic deemed short term and those associated with the operational stages of the Proposed Development as long term.

**Baseline Conditions**

The Site is irregular in shape and currently comprises land associated with Ingol Village Golf Club. Figure 15.2 shows the local highway network in the vicinity of the Golf Club.

Access to Ingol Village Golf Club is gained via a priority junction along Tanterton Hall Road, which is a 'horseshoe' shaped local distributor road. North of the Golf Club access, Tanterton Hall Road extends as far as the roundabout with Tom Benson Way, Tag Lane and Tabley Lane. To the south, it extends as far as the roundabout with Tom Benson Way and Merry Trees Lane. The B6241 Tom Benson Way is a single carriageway, which forms both the north-eastern and south-western arms of the Tom Benson Way/Tag Lane/Tanterton Hall Road/Tabley Lane roundabout.

To the north-east of the roundabout, Tom Benson Way extends for around 750m, forming a boundary with the Site, until it meets and continues as Lightfoot Lane. After approximately 400m,
Lightfoot Lane forms a signalised junction with Wychnor and then extends for a further 500m until it becomes Eastway. Eastway provides access to the A6 Garstang Road, which in turn provides access to Junction 1 of the M55 to the north and Preston city centre to the south.

From its junction with Lightfoot Lane, Wychnor extends southwards until it meets Walker Lane. To the north of Wychnor, Walker Lane is a no through route providing access to several dwellings. To the south, Walker Lane provides access to several residential developments, after which it continues south-westwards as far as Boys Lane. Boys Lane then extends eastwards as far as Black Bull Lane, which provides access to the A6 to the north and the B6242 Lytham Road to the south.

Around 500m south-west of the roundabout with Tag Lane/Tanterton Hall Road, Tom Benson Way forms the aforementioned roundabout with Tanterton Hall Road and Merry Trees Lane. From here, it extends southwards, forming additional roundabouts, first with Cottam Way and then with the access to the UCLAN Sports Arena, before continuing south-westwards as far as the signalised junction with Tulketh Brow.

From the roundabout with Tom Benson Way, Tabley Lane extends northwards towards Woodplumpton. The southern arm, the B5411 Tag Lane, extends south and then south-eastwards, forming a priority controlled crossroads with Tanterton Hall Road after 600m, and then continuing until it meets Woodplumpton Road.

The B5411 Woodplumpton Road continues southwards for a further 800m until it forms the northern arm of a four-armed signalised junction with the A5085 Blackpool Road and Tulketh Brow. The A5085 extends in a broadly east-west alignment, providing access to northern areas of Preston to the east and the Fylde Coast to the west.

Tulketh Brow extends southwards until it forms the junction with Tom Benson Way. From here it continues south-eastwards towards the city centre.

As agreed with LCC Highways, the Transport Assessment considers the effect of the Proposed Development on a number of junctions on the local highway network. The locations of the junctions on the location highway network are identified in Figure 15.2.

**Accident Statistics**

Records of Personal Injury Accidents (PIA) have been obtained from the Crashmap website (www.crashmap.co.uk) for the period 2012 to 2016.

CrashMap uses data collected by the police in relation to road traffic crashes occurring on British roads where someone is injured. This data is approved by the National Statistics Authority and reported on by the Department for Transport each year. This site uses data obtained directly from official sources but compiled in an easy to use format showing each incident on a map. Incidents are plotted to within 10 metres of their location, and as such, can sometimes appear to be off the carriageway.

The junctions and the number and type of accidents that have occurred during this time period are described below whilst the full detailed PIA data is contained within Appendix 16 of the TA.

A total of two accidents were reported in the 5 year period at the Tanterton Hall Lane/Tag Lane roundabout, both of which were classified as resulting in serious injury. One of the serious accidents occurred when a pedestrian stepped into the carriageway into oncoming vehicles.
whilst the other occurred when a motor vehicle collided with a cyclist travelling in the same direction. Both of these accidents can be attributed to human error.

15.85 In the 5 year study period there were three reported accidents along Tanterton Hall Lane between its junctions with Tag Lane. All of these accidents involved pedestrians, however, all were classified as resulting in slight injury. Two of the accidents occurred when pedestrians emerged from behind parked vehicles into the path of oncoming vehicles whilst the remaining accident occurred when a vehicle turning right onto a side road collided with pedestrians crossing the carriageway.

15.86 Based on the above it can be concluded that all of the reported accidents during the study period can be attributed to human error.

15.87 A slight accident occurred at the Zebra crossing on Tag Lane. The accident, which occurred in 2015, resulted in slight injuries for two pedestrians and occurred when a driver failed to stop at the crossing.

15.88 A total of six accidents were reported in the 5 year period at the Tag Lane/Tabley Lane/Tanterton Hall Road/Tom Benson Way roundabout, all of which were classified as resulting in slight injury. Three of the accidents involved pedal/motorcyclists and occurred when motor vehicles collided with the pedal/motorcyclists when undertaking right-turn manoeuvres. The remaining three accidents were the result of rear end shunts on the approaches to the roundabout junction.

15.89 Based on the above it can be concluded that all of the reported accidents during the study period can be attributed to driver error.

15.90 In the 5 year study period there were two reported accidents at the Lightfoot Lane/Wychnor signal controlled junction. Both of the accidents resulted in slight injury and were the result of rear end shunts and therefore can be attributed to driver error.

15.91 In view of this information it can be concluded that the local highway network in the vicinity of the Site does not have an unduly poor safety record and is essentially operating safely when considering the volumes of traffic the local highway network accommodates.

15.92 A planning application has been submitted for the Preston Western Distributor Road, Proposed East-West Spine Route and Termination Roundabout and it is anticipated that these will be constructed by 2020, and will therefore be implemented in advance of vast majority of the Proposed Development. During pre-application discussions with the highway authority, LCC advised that the Proposed Development should be assessed on the basis that the above infrastructure was delivered.

15.93 The Preston Western Distributor Road and associated works will link the M55 near Bartle with the A583/A584 at Clifton, to support delivery of the North West Preston strategic housing location and improve access to the Strategic Road Network from the Enterprise Zone site at Warton.

15.94 This will result in a proportion of traffic that currently uses Junction 1 to access areas to the north-west and south-west Preston diverting to the new junction, and will therefore:

- Give easier access westwards without having to use narrow country lanes;
- Provide options to avoid peak hour congestion in the city centre for eastwards travel;
- Give access to the motorway network without using the M55 Junction 1 at Broughton.

15.95 As previously stated, the modelled flows take explicit account of traffic associated with the full extent of the NW Preston Masterplan development.

15.96 **Table 15.12** summarises the 2023 and 2027 base year flows at the junctions under consideration.

**Table 15.12: Summary of Base Traffic Flows**

<table>
<thead>
<tr>
<th></th>
<th>2023 Base Flows</th>
<th>2023 (with development)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>M55 Junction 1</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekday AM Peak</td>
<td>6160</td>
<td>6355</td>
</tr>
<tr>
<td>Weekday PM Peak</td>
<td>6187</td>
<td>6397</td>
</tr>
<tr>
<td><strong>A6/Eastway Signalised Junction</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekday AM Peak</td>
<td>4787</td>
<td>4853</td>
</tr>
<tr>
<td>Weekday PM Peak</td>
<td>4544</td>
<td>4648</td>
</tr>
<tr>
<td><strong>Lightfoot Lane/Wychnor Signalised Junction</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekday AM Peak</td>
<td>1983</td>
<td>2074</td>
</tr>
<tr>
<td>Weekday PM Peak</td>
<td>2011</td>
<td>2118</td>
</tr>
<tr>
<td><strong>Tom Benson Way/Tanterton Hall Road/Tag Lane/Tabley Lane Roundabout</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekday AM Peak</td>
<td>2646</td>
<td>2818</td>
</tr>
<tr>
<td>Weekday PM Peak</td>
<td>2470</td>
<td>2662</td>
</tr>
<tr>
<td><strong>Tom Benson Way/Tanterton Hall Road/Merry Trees Lane Roundabout</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekday AM Peak</td>
<td>1719</td>
<td>1744</td>
</tr>
<tr>
<td>Weekday PM Peak</td>
<td>1699</td>
<td>1772</td>
</tr>
<tr>
<td><strong>Tom Benson Way/Cottam Way Roundabout</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekday AM Peak</td>
<td>2206</td>
<td>2271</td>
</tr>
<tr>
<td>Weekday PM Peak</td>
<td>2219</td>
<td>2349</td>
</tr>
<tr>
<td><strong>Tanterton Hall Road/Tag Lane Priority Junction</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekday AM Peak</td>
<td>1393</td>
<td>1532</td>
</tr>
<tr>
<td>Weekday PM Peak</td>
<td>1555</td>
<td>1696</td>
</tr>
<tr>
<td><strong>Blackpool Road/Woodplumpton Road Signalised Junction</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekday AM Peak</td>
<td>1144</td>
<td>1173</td>
</tr>
<tr>
<td>Weekday PM Peak</td>
<td>1329</td>
<td>1355</td>
</tr>
<tr>
<td><strong>Tom Benson Way/Tulketh Brow Signalised Junction</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekday AM Peak</td>
<td>1732</td>
<td>1819</td>
</tr>
</tbody>
</table>
### Access by Foot

15.97 It is important to create a choice of direct, safe and attractive routes between where people live and where they need to travel in their day-to-day life. This philosophy clearly encourages the opportunity to walk whatever the journey purpose and also helps to create more active streets and a more vibrant neighbourhood.

15.98 The pedestrian access points to Residential Parcels A to F will link directly to the Tanterton Hall Road. An existing public right of way (PROW) will also link Residential Parcel G with parcels D-F, which will also facilitate pedestrian linkages to Tanterton Hall Road. Existing pedestrian footways of around two metres in width are located along Tanterton Hall Road, which in turn provide pedestrian links to the wider area. Similarly, the pedestrian access points to Residential Parcels H and I will link directly to the Wychnor, which also benefits from existing footway provision.

15.99 Walking is the most important mode of travel at the local level and offers the greatest potential to replace short car journeys, particularly those under 2km. In addition, the DFT National Travel Survey of 2015\(^{215}\) confirms that 76% of all trips less than a mile (1.6km) are carried out on foot.

15.100 Within the Institution of Highways and Transportation (IHT) document, entitled ‘Guidelines for Providing for Journeys on Foot’\(^{216}\), a distance of 800 metres is identified as the preferred maximum distance for town centres, whilst a distance of two kilometres is defined as a preferred maximum for commuting and school trips. The pedestrian catchment for two kilometres encompasses large areas of Ingol and Cottam, as shown in Figure 15.3.

15.101 Amenities such as BP Petrol Station/Londis, Ingol Health Centre, Tanterton Village Centre, Tanterton Christian Centre, The Guild Merchant, are all within close proximity to Residential Parcels A to F, whilst a Premier convenience store, Fulwood Methodist Church, Newsplus newsagents, Beech Drive Surgery, Our Lady and St Edward Catholic Church and Sharoe Green Post Office, are all situated nearby Residential Parcels G to I.

15.102 In addition to the above, various primary and secondary schools are located within 2km of the Site, namely:

- Pool House Community Primary School;
- Harris Primary School;
- Holy Family Catholic Primary School;
- Ingol Community Primary School;
- St Anthony’s Catholic Primary School;

\(^{215}\) Department for Transport 'National Travel Survey: England 2015', dated 08 September 2016

\(^{216}\) The Institution of Highways and Transportation ‘Guidelines for Providing for Journeys on Foot’, dated 2000
- Queen's Drive Primary School;
- Fulwood and Cadley Primary School;
- Cottam Primary School;
- Our Lady and St Edward's Catholic Primary School;
- Ashton-on-Ribble St Andrew's Church of England Primary School;
- The Roebuck School;
- Fulwood, St Peter's Church of England Primary School and Nursery;
- Ashton Primary School;
- St Clare's Catholic Primary School;
- Lea Neeld's Endowed Church of England Primary School;
- Woodplumpton St Anne's CofE Primary School;
- Broughton-in-Amounderness Church of England Primary School;
- Eldon Primary School;
- Sacred Heart Catholic Primary School;
- Lea Community Primary School;
- Sherwood Primary School;
- Kennington Primary School;
- St Bernard's Catholic Primary School;
- English Martyrs Catholic Primary School, Preston;
- Our Lady's Catholic High School;
- Fulwood Academy;
- Corpus Christi Catholic High School;
- Ashton Community Science College;
- Archbishop Temple School;
- Broughton High School;
- Moor Park High School and Sixth Form;
- Penwortham Priory Academy.

15.103 The socio-economics chapter (Chapter 15) provides additional information relating to the effects on education.
15.104 It is also worth noting that the Preston Local Plan identifies a new district centre in Cottam, which will be located approximately 2km south west from the Site. The Local Plan states that ‘A range of appropriate uses will be encouraged, including a supermarket, food and drink, leisure uses, public and community uses and other uses complementary to local shops.’

15.105 **Table 15.13** shows the walking distance from the Site to the local retail stores and other nearby key amenities in the vicinity of the Site.

**Table 15.13 Distance from the Site to Local Facilities**

<table>
<thead>
<tr>
<th>Local Amenity</th>
<th>Distance (metres)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Guild Merchant Pub</td>
<td>470</td>
</tr>
<tr>
<td>Fulwood Methodist Church</td>
<td>540</td>
</tr>
<tr>
<td>BP Petrol Station/Londis</td>
<td>570</td>
</tr>
<tr>
<td>Premier convenience store</td>
<td>910</td>
</tr>
<tr>
<td>Tanterton Christian Centre</td>
<td>980</td>
</tr>
<tr>
<td>Ingol Health Centre</td>
<td>1,000</td>
</tr>
<tr>
<td>Tanterton Village Centre</td>
<td>1,080</td>
</tr>
<tr>
<td>Our Lady and St Edward Catholic Church</td>
<td>1,400</td>
</tr>
<tr>
<td>Sharoe Green Post Office</td>
<td>1,900</td>
</tr>
</tbody>
</table>

*from access point to closest land parcel

15.106 As can be seen in the above table, the Site is located within close proximity to a number of local amenities including primary services as well as leisure facilities.

**Access by Cycle**

15.107 An alternative mode of travel to the Site will be by bicycle. A distance of 5km is generally accepted as a distance where cycling has the potential to replace short car journeys. This distance equates to a journey of around 25 minutes based on a leisurely cycle speed of 12km per hour and would encompass Cottam, Preston, Fulwood, Broughton and Ribbleton.

15.108 Regional Route 622, promoted by Sustrans, is located to the north of the development site on Lightfoot Lane/Sandyforth Lane. This cycle route is a 21 mile route which encircles the city of Preston; it is also known as the 'Preston Guild Wheel'.

15.109 Additionally, National Cycle Route 62, also promoted by Sustrans, is situated to the south of the Site along the Lancaster Canal. This cycle route connects Fleetwood on the Fylde region of Lancashire with Selby in North Yorkshire. It also forms the west and central sections of The Trans Pennine Trail.

15.110 The Site can therefore be considered as being accessible by cycle.
Access by Bus

15.111 There are existing bus stops located on Tanterton Hall Road, which are in close proximity to Residential Parcels A to F. Furthermore, Residential Parcels G to I will be served by the existing bus stops located on Wychnor and Lightfoot Lane.

15.112 A summary of the services available from the nearest bus stops from the Site is provided in Table 15.14 below.

Table 15.14: Existing Bus Services Operating Past the Site

<table>
<thead>
<tr>
<th>Service No</th>
<th>Route</th>
<th>Frequency per hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Service No</td>
<td>AM Peak</td>
</tr>
<tr>
<td>4C</td>
<td>Malt Klin Brow - Goosnargh - Fulwood - Preston</td>
<td>1</td>
</tr>
<tr>
<td>35</td>
<td>Preston - Tanterton - Preston</td>
<td>6</td>
</tr>
<tr>
<td>236</td>
<td>St Vincents Road by Archbishop Temple CEHS - Fulwood</td>
<td>1 one service/day</td>
</tr>
<tr>
<td>696</td>
<td>Lightfoot Lane - Broughton High School</td>
<td>1</td>
</tr>
<tr>
<td>923</td>
<td>Broughton High School - Fulwood</td>
<td>1</td>
</tr>
</tbody>
</table>

15.113 As can be seen from Table 15.11, the nearest bus stops to the Site provide up to 12 services in peak periods to destinations such as Preston, Fulwood and Goosnargh. It is noted that the above services provide a choice of how people travel. Bus service 35, for example, operates from 00:30 hours in the early morning until 23:47 hours in the evening, making travel by public transport a genuine alternative to travelling by car for commuting trips.

15.114 In order to demonstrate the level of accessibility some example journey times by bus are presented below Table 15.15 below.

Table 15.15: Example Bus Journey Times from the Site

<table>
<thead>
<tr>
<th>Destination</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preston</td>
<td>17 mins</td>
</tr>
<tr>
<td>Fulwood</td>
<td>18 mins</td>
</tr>
<tr>
<td>Goosnargh</td>
<td>21 mins</td>
</tr>
</tbody>
</table>
The above table demonstrates that Preston is a 17 minute bus journey and Fulwood is an 18 minute bus journey from the Site.

It is therefore concluded that the Proposed Development site is accessible by bus.

**Accessibility by Rail**

The most accessible train station to the Site is Preston (Lancs). Although this falls outside the recommended 2km catchment, it is accessible via a 17 minute bus journey and then a short walk, equating to a combined journey time of around 22 minutes.

Preston train station is managed by Virgin Trains and has nine platforms, offering 19 services per hour to destinations throughout the UK including Manchester, Glasgow, London and Liverpool.

It is also worth noting that Preston (Lancs) train station offers 1,025 car parking spaces and 246 cycle storage spaces along with shops, waiting rooms, refreshment facilities and a ticket office, which is open every day of the week.

In addition, the Central Lancashire Highways and Transport Masterplan identifies the provision of 'A new ‘Parkway’ rail station in the Cottam area, similar in concept to Buckshaw Parkway, will serve the North West Preston strategic housing location. The station will be accessed from the Preston Western Distributor Road to provide rail-based Park and Ride opportunities to Preston/Manchester/Liverpool and Blackpool.'

This provides opportunities for commuting/leisure opportunities from the Site via rail.

**Design Evolution**

As the design has evolved over time, various measures have been included to enhance the connections within and through the Site. These are discussed in further detail in Chapter 4, however, key changes from a transport perspective include:

- The switch to locate the Training Facility on Walker Lane. Whilst this was better located from a lighting a noise perspective, it’s limited trip rates also mean that this land was more suited to the Training Facility than a Residential Parcel.
- The provision of access off Tom Benson Way following modelling taking place with the Preston Western Distributor Road in place.
- Changes to the indicative internal road layouts, specifically Parcel B to ensure landscape and ecological benefits are enhanced by the Proposed Development.
- The provision of cycle links to the north and south of the Site.

**Potential Effects**

**Construction Effects**

As set out in Chapter 5, the phasing plan for the Proposed Development anticipates that the scheme will be constructed over a nine year period. The timing and generation of construction traffic is not yet known and will depend significantly upon the contractors associated with each
phase of development. However, it is currently assumed that the Proposed Development would be built out at a rate of circa 50 dwellings per annum.

15.124 During the construction of the development, HGV’s and other small site/plant vehicles together with construction works will undertake trips to and from the Site. Table 15.16 shows the following daily vehicle trips that could be generated during the construction period. It has been estimated based on experience of other similar residential developments and a house construction compound established to build around 50 units per year.

**Table 15.16: Estimated Daily Construction Traffic**

<table>
<thead>
<tr>
<th>Arrivals</th>
<th>Departures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car/Van</td>
<td>HGV</td>
</tr>
<tr>
<td>75</td>
<td>7/8</td>
</tr>
</tbody>
</table>

15.125 The levels of daily construction trips are predicted to be less than the peak hour trips associated with the Proposed Development, when operational. It is also important to consider that the construction period is relatively short-term and temporary in its effects.

15.126 Construction of the development will take place served from the existing highway network, though with multiple access points serving the various land parcels, it is not possible to definitively predict the routing that construction traffic will take.

15.127 Nevertheless, given construction traffic will be instructed to avoid inappropriate routes, the B6241 Tom Benson Way will represent the most likely route into the Site from the highway network. This is an already well trafficked route with only intermittent pedestrian footways aligning the carriageway.

15.128 Increases in traffic along this route as a result of the construction phase will be substantially lower than those associated with the operational phase of the development and minimal compared to base levels of traffic. The construction phase is therefore considered to have a negligible effect on vehicular severance and driver delay.

15.129 In terms of pedestrian severance, pedestrian amenity and delay, and fear and intimidation, the limited levels of construction traffic combined with the absence of footways along certain sections will result in the effects on pedestrians being negligible.

15.130 The effects of the construction phase with respect to Severance, Driver Delay, Pedestrian Amenity and Delay, Fear and Intimidation, and Accidents and Safety will be negligible. This is summarised in the following table.

**Table 15.17: Summary of Effect of Construction Phase**

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Type of Effect</th>
<th>Level of Significance</th>
<th>Duration of Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severance</td>
<td>Negligible</td>
<td>n/a</td>
<td>Short Term</td>
</tr>
<tr>
<td>Driver Delay</td>
<td>Negligible</td>
<td>n/a</td>
<td>Short Term</td>
</tr>
</tbody>
</table>
15.131 During the operational phases of the development, the effects in the surrounding area will occur gradually, as the build out of the development will take place over a number of years.

15.132 The Proposed Development will utilise the existing Golf Club access along Tanterton Hall Road and introduce new access points along Tom Benson Way, Tanterton Hall Road, Wychnor and Walker Lane. Traffic will increase on routes to these access points, though the provision of multiple access points will result in Proposed Development traffic being dispersed more widely.

15.133 In order to assess the effects of the Proposed Development, the levels of development traffic have been based on standard trip generation characteristics for similar sites. The traffic has been assigned by reference the distribution of traffic revealed from the modelled traffic flows.

2023 Assessment Year

15.134 The following table identifies the changes in traffic that would occur as a result of the Proposed Phase 1 Development at the junctions under consideration at the 2023 assessment year. These have been determined by comparing the 2023 Base Flows (as shown within Figures 1 and 2 of the TA) with the Proposed Phase 1 Development Flows (as shown in Figures 21 and 22 of the TA).

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Type of Effect</th>
<th>Level of Significance</th>
<th>Duration of Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedestrian Amenity and Delay</td>
<td>Negligible</td>
<td>n/a</td>
<td>Short Term</td>
</tr>
<tr>
<td>Fear and Intimidation</td>
<td>Negligible</td>
<td>n/a</td>
<td>Short Term</td>
</tr>
<tr>
<td>Accidents and Safety</td>
<td>Negligible</td>
<td>n/a</td>
<td>Short Term</td>
</tr>
</tbody>
</table>

### Operational Effects

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Type of Effect</th>
<th>Level of Significance</th>
<th>Duration of Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedestrian Amenity and Delay</td>
<td>Negligible</td>
<td>n/a</td>
<td>Short Term</td>
</tr>
<tr>
<td>Fear and Intimidation</td>
<td>Negligible</td>
<td>n/a</td>
<td>Short Term</td>
</tr>
<tr>
<td>Accidents and Safety</td>
<td>Negligible</td>
<td>n/a</td>
<td>Short Term</td>
</tr>
</tbody>
</table>

### Table 15.18: Predicted Changes in Traffic Flow Resulting from Proposed Development - 2023

<table>
<thead>
<tr>
<th></th>
<th>2023 Base Flows</th>
<th>2023 ‘With Ph 1 Dev’</th>
<th>Change in Traffic</th>
<th>Percentage Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>M55 Junction 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekday AM Peak</td>
<td>6160</td>
<td>6189</td>
<td>+29</td>
<td>+0.5%</td>
</tr>
<tr>
<td>Weekday PM Peak</td>
<td>6187</td>
<td>6220</td>
<td>+33</td>
<td>+0.5%</td>
</tr>
<tr>
<td>A6/Eastway Signalised Junction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekday AM Peak</td>
<td>4787</td>
<td>4816</td>
<td>+29</td>
<td>+0.6%</td>
</tr>
<tr>
<td>Weekday PM Peak</td>
<td>4544</td>
<td>4577</td>
<td>+33</td>
<td>+0.7%</td>
</tr>
<tr>
<td>Lightfoot Lane/Wychnor Signalised Junction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekday AM Peak</td>
<td>1983</td>
<td>2051</td>
<td>+68</td>
<td>+3.4%</td>
</tr>
<tr>
<td>Weekday PM Peak</td>
<td>2011</td>
<td>2092</td>
<td>+81</td>
<td>+4.0%</td>
</tr>
<tr>
<td>Tom Benson Way/Tanterton Hall Road/Tag Lane/Tabley Lane Roundabout</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

|                   |                 |                      |                    |                   |
| Tom Benson Way/Tanterton Hall Road/Tag Lane/Tabley Lane Roundabout |     |                      |                    |                   |
### Table

<table>
<thead>
<tr>
<th>Location</th>
<th>Weekday AM Peak</th>
<th>Weekday PM Peak</th>
<th>Weekday AM Peak 'With Ph 1 Dev'</th>
<th>Weekday PM Peak 'With Ph 1 Dev'</th>
<th>Change in Traffic</th>
<th>Percentage Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>2023 Base Flows</td>
<td>2646</td>
<td>2470</td>
<td>2753</td>
<td>2574</td>
<td>+107</td>
<td>+4.0%</td>
</tr>
<tr>
<td>'With Ph 1 Dev'</td>
<td></td>
<td></td>
<td>2023 'With Ph 1 Dev'</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change in Traffic</td>
<td></td>
<td></td>
<td>+104</td>
<td></td>
<td></td>
<td>+4.2%</td>
</tr>
</tbody>
</table>

### Text

15.135 Considering the effect of the Proposed Phase 1 Development, following the implementation of the development, all junctions are predicted to experience an increase in traffic of less than 5% during the weekday AM and PM peak periods at 2023.

15.136 The following confirms the effects of the Proposed Development at 2023 with respect to Severance, Driver Delay, Pedestrian Amenity and Delay, Fear and Intimidation, and Accidents and Safety.

**Severance**

15.137 Severance is defined in the IEMA Guidelines as a term used to describe a complex series of factors that separate people from places and other people. Although generally applied to people on foot, severance can also apply to all forms of transport.

15.138 The magnitude of change in traffic flow on the network are predicted to be less than 10% which is regarded as a negligible change under the magnitude of change scale. On this basis, it is concluded the Proposed Phase 1 Development would have negligible effect on severance across the network.
**Driver Delay**

15.139 As identified in Table 15.18, consideration has been given to the effect of the Proposed Development at a number of junctions on the network and it has been concluded that the increase in traffic would be less than 10% at all junctions under consideration. As such, it is concluded the Proposed Phase 1 Development would have negligible to low effect on driver delay across the network.

**Pedestrian Amenity and Delay**

15.140 Pedestrian amenity is defined in the IEMA Guidelines as the relative pleasantness of a journey; this is considered to be affected by traffic flow. Similarly, the IEMA Guidelines point out changes in the volume, composition, or speed of traffic may affect the ability of people to cross the road.

15.141 Given the predicted increases in traffic identified, it is concluded the Proposed Phase 1 Development would have negligible effect on pedestrian amenity and delay across the network.

**Fear and Intimidation**

15.142 Fear and intimidation is discussed in the IEMA Guidelines as the effect on pedestrians due to the volume of traffic, its composition, its proximity to people and the lack of protection.

15.143 Again, given the predicted increases in traffic identified, it is concluded the Proposed Phase 1 Development would have negligible effect on fear and intimidation across the network.

**Accidents and Safety**

15.144 Consideration has been given to the existing accident statistics in the vicinity of the Site. From the review it has been concluded that the local highway network in the vicinity of the Site does not have an unduly poor safety record, most accident being attributable to driver error. As such, the network is essentially operating safely bearing in mind the volumes of traffic the local highway network accommodates and there are no reasons to assume that this situation should be significantly worsened as a consequence of the Proposed Phase 1 Development.

15.145 The effects of the Proposed Phase 1 Development at 2023 with respect to Severance, Driver Delay, Pedestrian Amenity and Delay, Fear and Intimidation, and Accidents and Safety will be negligible. This is summarised in the following table.

### Table 15.19: Summary of Effect of Proposed Phase 1 Development at 2023

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Type of Effect</th>
<th>Level of Significance</th>
<th>Duration of Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severance</td>
<td>Negligible</td>
<td>N/A</td>
<td>Long Term</td>
</tr>
<tr>
<td>Driver Delay</td>
<td>Negligible</td>
<td>N/A</td>
<td>Long Term</td>
</tr>
<tr>
<td>Pedestrian Amenity and Delay</td>
<td>Negligible</td>
<td>N/A</td>
<td>Long Term</td>
</tr>
<tr>
<td>Fear and Intimidation</td>
<td>Negligible</td>
<td>N/A</td>
<td>Long Term</td>
</tr>
<tr>
<td>Accidents and Safety</td>
<td>Negligible</td>
<td>N/A</td>
<td>Long Term</td>
</tr>
</tbody>
</table>

**2027 Assessment Year**
The following table identifies the changes in traffic that would occur as a result of the Proposed Full Development at the junctions under consideration at 2027. These have been determined by comparing the 2027 Base Flows (as shown within Figures 3 and 4 of the TA) with the Proposed Phase 1 Development Flows (as shown in Figures 23 and 24 of the TA).

**Table 15.20: Predicted Changes in Traffic Flow Resulting from Proposed Development - 2027**

<table>
<thead>
<tr>
<th>Junction Description</th>
<th>2027 Base Flows</th>
<th>2027 'With Dev'</th>
<th>Change in Traffic</th>
<th>Percentage Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>M55 Junction 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekday AM Peak</td>
<td>6355</td>
<td>6408</td>
<td>+53</td>
<td>+0.8%</td>
</tr>
<tr>
<td>Weekday PM Peak</td>
<td>6397</td>
<td>6457</td>
<td>+60</td>
<td>+0.9%</td>
</tr>
<tr>
<td>A6/Eastway Signalised Junction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekday AM Peak</td>
<td>4853</td>
<td>4906</td>
<td>+53</td>
<td>+1.1%</td>
</tr>
<tr>
<td>Weekday PM Peak</td>
<td>4648</td>
<td>4708</td>
<td>+60</td>
<td>+1.3%</td>
</tr>
<tr>
<td>Lightfoot Lane/Wychnor Signalised Junction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekday AM Peak</td>
<td>2074</td>
<td>2196</td>
<td>+122</td>
<td>+5.9%</td>
</tr>
<tr>
<td>Weekday PM Peak</td>
<td>2118</td>
<td>2263</td>
<td>+145</td>
<td>+6.8%</td>
</tr>
<tr>
<td>Tom Benson Way/Tanterton Hall Road/Tag Lane/Tabley Lane Roundabout</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekday AM Peak</td>
<td>2818</td>
<td>3011</td>
<td>+193</td>
<td>+6.8%</td>
</tr>
<tr>
<td>Weekday PM Peak</td>
<td>2662</td>
<td>2850</td>
<td>+188</td>
<td>+7.1%</td>
</tr>
<tr>
<td>Tom Benson Way/Tanterton Hall Road/Merry Trees Lane Roundabout</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekday AM Peak</td>
<td>1744</td>
<td>1810</td>
<td>+66</td>
<td>+3.8%</td>
</tr>
<tr>
<td>Weekday PM Peak</td>
<td>1772</td>
<td>1842</td>
<td>+70</td>
<td>+4.0%</td>
</tr>
<tr>
<td>Tom Benson Way/Cottam Way Roundabout</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekday AM Peak</td>
<td>2271</td>
<td>2337</td>
<td>+66</td>
<td>+2.9%</td>
</tr>
<tr>
<td>Weekday PM Peak</td>
<td>2349</td>
<td>2419</td>
<td>+70</td>
<td>+3.0%</td>
</tr>
<tr>
<td>Tanterton Hall Road/Tag Lane Priority Junction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekday AM Peak</td>
<td>1532</td>
<td>1590</td>
<td>+58</td>
<td>+3.8%</td>
</tr>
<tr>
<td>Weekday PM Peak</td>
<td>1696</td>
<td>1779</td>
<td>+83</td>
<td>+4.9%</td>
</tr>
<tr>
<td>Blackpool Road/Woodplumpton Road Signalised Junction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekday AM Peak</td>
<td>1173</td>
<td>1197</td>
<td>+24</td>
<td>+2.0%</td>
</tr>
<tr>
<td>Weekday PM Peak</td>
<td>1355</td>
<td>1388</td>
<td>+33</td>
<td>+2.4%</td>
</tr>
<tr>
<td>Tom Benson Way/Tulketh Brow Signalised Junction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
15.147 Considering the effect of the Proposed Full Development, following the implementation of the development, all junctions are predicted to experience an increase in traffic of less than 10% during the weekday AM and PM peak periods at 2027.

15.148 Therefore, as with the Phase 1 Development, the effects of the Proposed Development at 2027 with respect to Severance, Driver Delay, Pedestrian Amenity and Delay, Fear and Intimidation, and Accidents and Safety will be negligible. This is summarised in the following table.

**Table 15.21: Summary of Effect of Proposed Full Development at 2027**

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Type of Effect</th>
<th>Level of Significance</th>
<th>Duration of Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severance</td>
<td>Negligible</td>
<td>N/A</td>
<td>Long Term</td>
</tr>
<tr>
<td>Driver Delay</td>
<td>Negligible</td>
<td>N/A</td>
<td>Long Term</td>
</tr>
<tr>
<td>Pedestrian Amenity and Delay</td>
<td>Negligible</td>
<td>N/A</td>
<td>Long Term</td>
</tr>
<tr>
<td>Fear and Intimidation</td>
<td>Negligible</td>
<td>N/A</td>
<td>Long Term</td>
</tr>
<tr>
<td>Accidents and Safety</td>
<td>Negligible</td>
<td>N/A</td>
<td>Long Term</td>
</tr>
</tbody>
</table>

**Mitigation and Enhancement Measures**

**Construction Phase**

15.149 Mitigation measures will be implemented during construction in the form of controls imposed by planning conditions, health and safety legislation requirements and construction site practices.

15.150 Management of construction effects will form part of a comprehensive and auditable Construction Environmental Management Plan (CEMP). The CEMP will include control measures, including robustly enforced traffic management measures, to protect the environment, amenity and safety of local residents, businesses, and the general public in the vicinity of the Proposed Development.

15.151 As part of a CEMP, a construction vehicle routeing regime for access to the construction site will be identified and agreed with the local and strategic highway authorities, to ensure that drivers of construction related vehicles do not use inappropriate routes, which are unsuitable due to their width, alignment or character. The regime will ensure that construction vehicles avoid residential and other sensitive areas wherever possible.

15.152 In addition, the CEMP could include details of any:
- access arrangements to the Site;
- the estimated number of vehicles per day/week;
- details of the vehicle holding areas;
- wheel washing facilities;
- estimates for the number and type of parking suspensions that will be required;
- details of any diversion, disruption or other abnormal use of the public highway during demolition, excavation and construction works;
- a strategy for coordinating the connection of services on site with any programmed work to utilities upon adjacent land; and
- work programme and/or timescale for each phase of the demolition, excavation and construction works.

Operational Phase

15.153 Potential enhancement measures for the Proposed Development will be subject to a continuing process of evolution, relating to the results of consultation with the local authorities, and in response to the resolution of detail design issues. Notwithstanding this, the following enhancement measures are identified within the Transport Assessment.

Travel Plan

15.154 In order to manage the travel by residents of the new development, a Travel Plan will be implemented.

15.155 The objective of the Travel Plan is the delivery of the objectives of National Planning Policy, i.e. to encourage residents to travel by non-car modes of travel. The Travel Plan outlines physical and management measures that are designed to achieve this objective.

15.156 The following Travel Plan measures will be considered:

i) Appointment of Travel Plan Co-ordinator;
ii) Residents’ Travel Pack;
iii) Residents’ Travel survey;
iv) Travel Awareness and Information;
iii) Promotion of Lift Share Scheme;
iv) Encouraging Walking/Cycling.

15.157 The development site benefits from good non-car accessibility and it is, therefore, expected that the adoption of a Travel Plan will be effective.

Residual Effects
The following tables confirm the residual effects of the Proposed Development with respect to Severance, Driver Delay, Pedestrian Amenity and Delay, Fear and Intimidation, and Accidents and Safety will be negligible.

**Table 15.22: Summary of Residual Effect of Construction Phase**

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Type of Effect</th>
<th>Level of Significance</th>
<th>Duration of Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severance</td>
<td>Negligible</td>
<td>N/A</td>
<td>Medium Term</td>
</tr>
<tr>
<td>Driver Delay</td>
<td>Negligible</td>
<td>N/A</td>
<td>Medium Term</td>
</tr>
<tr>
<td>Pedestrian Amenity and Delay</td>
<td>Negligible</td>
<td>N/A</td>
<td>Medium Term</td>
</tr>
<tr>
<td>Fear and Intimidation</td>
<td>Negligible</td>
<td>N/A</td>
<td>Medium Term</td>
</tr>
<tr>
<td>Accidents and Safety</td>
<td>Negligible</td>
<td>N/A</td>
<td>Medium Term</td>
</tr>
</tbody>
</table>

**Table 15.23: Summary of Residual Effect of Proposed Phase 1 Development at 2023**

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Type of Effect</th>
<th>Level of Significance</th>
<th>Duration of Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severance</td>
<td>Negligible</td>
<td>N/A</td>
<td>Long Term</td>
</tr>
<tr>
<td>Driver Delay</td>
<td>Negligible</td>
<td>N/A</td>
<td>Long Term</td>
</tr>
<tr>
<td>Pedestrian Amenity and Delay</td>
<td>Negligible</td>
<td>N/A</td>
<td>Long Term</td>
</tr>
<tr>
<td>Fear and Intimidation</td>
<td>Negligible</td>
<td>N/A</td>
<td>Long Term</td>
</tr>
<tr>
<td>Accidents and Safety</td>
<td>Negligible</td>
<td>n/a</td>
<td>Long Term</td>
</tr>
</tbody>
</table>

**Table 15.24: Summary of Residual Effect of Proposed Full Development at 2027**

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Type of Effect</th>
<th>Level of Significance</th>
<th>Duration of Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severance</td>
<td>Negligible</td>
<td>N/A</td>
<td>Long Term</td>
</tr>
<tr>
<td>Driver Delay</td>
<td>Negligible</td>
<td>N/A</td>
<td>Long Term</td>
</tr>
<tr>
<td>Pedestrian Amenity and Delay</td>
<td>Negligible</td>
<td>N/A</td>
<td>Long Term</td>
</tr>
<tr>
<td>Fear and Intimidation</td>
<td>Negligible</td>
<td>N/A</td>
<td>Long Term</td>
</tr>
<tr>
<td>Accidents and Safety</td>
<td>Negligible</td>
<td>N/A</td>
<td>Long Term</td>
</tr>
</tbody>
</table>

**Cumulative Effects**

The transport modelling which underpins the Transport Assessment (and hence this environmental assessment) has taken into account the various committed development and
local plan allocations in the study area and forms part of relevant assessment scenarios. No significant cumulative transport effects are predicted.

Conclusions

15.160 The effects of the project on the surrounding local highway network will not result in any significant adverse effects.

15.161 The timing and generation of construction traffic is not yet known and will depend significantly upon the contractors associated with each phase of development. However, construction of the development will take place served from the existing highway network, with multiple access points serving the various land parcels. As such, Severance, Driver Delay, Pedestrian Amenity and Delay, Fear and Intimidation, and Accidents and Safety will not be significant in EIA terms.

15.162 Following the implementation of the development, all junctions are predicted to experience an increase in traffic of less than 10% during the weekday AM and PM peak periods at 2023 'With Phase 1 Development' and 2027 'With Full Development' assessment years and the effect of the Proposed Development with respect to Severance, Driver Delay, Pedestrian Amenity and Delay, Fear and Intimidation, and Accidents and Safety will not be significant in EIA terms.

15.163 Potential enhancement measures for the Proposed Development will be subject to consultation with the local authorities, however, appropriately worded planning condition will secure a CEMP as part of the construction phase. Similarly, a planning condition will secure a Travel Plan as part of the operational phase, which will assist in identifying and encouraging sustainable travel behaviours in accordance with National and Local Transport Policy.
Table 15.25: Summary of Transport and Access Effects and Mitigation

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Effect</th>
<th>Phase (Construction / Operation)</th>
<th>Embedded Mitigation</th>
<th>Sensitivity of Receptor</th>
<th>Magnitude of Change</th>
<th>Level of Effect and Significance Prior to Mitigation</th>
<th>Mitigation</th>
<th>Enhancement</th>
<th>Level of Effect (and Significance) after Mitigation</th>
<th>Nature of effect (short term / medium term / long term, permanent / temporary, direct / indirect)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severance</td>
<td>Change in separation of people from places and other people</td>
<td>Construction</td>
<td>None</td>
<td>Medium to High</td>
<td>Negligible</td>
<td>Negligible (not significant)</td>
<td>None</td>
<td>CEMP</td>
<td>Negligible (not significant)</td>
<td>Medium term, temporary, direct.</td>
</tr>
<tr>
<td>Driver Delay</td>
<td>Change in vehicular journey times</td>
<td>Construction</td>
<td>None</td>
<td>Low</td>
<td>Negligible</td>
<td>Negligible (not significant)</td>
<td>None</td>
<td>CEMP</td>
<td>Negligible (not significant)</td>
<td>Medium term, temporary, direct.</td>
</tr>
<tr>
<td>Pedestrian Amenity and Delay</td>
<td>Change in pedestrian journey times</td>
<td>Construction</td>
<td>None</td>
<td>Low to Medium</td>
<td>Negligible</td>
<td>Negligible (not significant)</td>
<td>None</td>
<td>CEMP</td>
<td>Negligible (not significant)</td>
<td>Medium term, temporary, direct.</td>
</tr>
<tr>
<td>Fear and Intimidation</td>
<td>Change in perceived levels of fear and intimidation</td>
<td>Construction</td>
<td>None</td>
<td>Medium to High</td>
<td>Negligible</td>
<td>Negligible (not significant)</td>
<td>None</td>
<td>CEMP</td>
<td>Negligible (not significant)</td>
<td>Medium term, temporary, direct.</td>
</tr>
<tr>
<td>Accidents and Safety</td>
<td>Change in number of accidents</td>
<td>Construction</td>
<td>None</td>
<td>Medium to High</td>
<td>Negligible</td>
<td>Negligible (not significant)</td>
<td>None</td>
<td>CEMP</td>
<td>Negligible (not significant)</td>
<td>Medium term, temporary, direct.</td>
</tr>
<tr>
<td>Severance</td>
<td>Change in separation of people from places and other people</td>
<td>Phase 1 Development</td>
<td>None</td>
<td>Medium to High</td>
<td>Negligible</td>
<td>Negligible (not significant)</td>
<td>None</td>
<td>Travel Plan</td>
<td>Negligible (not significant)</td>
<td>Long Term, permanent, direct.</td>
</tr>
<tr>
<td>Driver Delay</td>
<td>Change in vehicular journey times</td>
<td>Phase 1 Development</td>
<td>None</td>
<td>Low</td>
<td>Negligible</td>
<td>Negligible (not significant)</td>
<td>None</td>
<td>Travel Plan</td>
<td>Negligible (not significant)</td>
<td>Long Term, permanent, direct.</td>
</tr>
<tr>
<td>Pedestrian Amenity and Delay</td>
<td>Change in pedestrian journey times</td>
<td>Phase 1 Development</td>
<td>None</td>
<td>Low to Medium</td>
<td>Negligible</td>
<td>Negligible (not significant)</td>
<td>None</td>
<td>Travel Plan</td>
<td>Negligible (not significant)</td>
<td>Long Term, permanent, direct.</td>
</tr>
<tr>
<td>Fear and Intimidation</td>
<td>Change in perceived levels of fear and intimidation</td>
<td>Phase 1 Development</td>
<td>None</td>
<td>Medium to High</td>
<td>Negligible</td>
<td>Negligible (not significant)</td>
<td>None</td>
<td>Travel Plan</td>
<td>Negligible (not significant)</td>
<td>Long Term, permanent, direct.</td>
</tr>
<tr>
<td>Accidents and Safety</td>
<td>Change in number of accidents</td>
<td>Phase 1 Development</td>
<td>None</td>
<td>Medium to High</td>
<td>Negligible</td>
<td>Negligible (not significant)</td>
<td>None</td>
<td>Travel Plan</td>
<td>Negligible (not significant)</td>
<td>Long Term, permanent, direct.</td>
</tr>
<tr>
<td>Severance</td>
<td>Change in separation</td>
<td>Full Development</td>
<td>None</td>
<td>Medium to High</td>
<td>Negligible</td>
<td>Negligible (not significant)</td>
<td>None</td>
<td>Travel Plan</td>
<td>Negligible (not significant)</td>
<td>Long Term, permanent, direct.</td>
</tr>
<tr>
<td>of people from places and other people</td>
<td>Driver Delay</td>
<td>Change in vehicular journey times</td>
<td>Full Development</td>
<td>None</td>
<td>Low</td>
<td>Negligible</td>
<td>Negligible (not significant)</td>
<td>None</td>
<td>Travel Plan</td>
<td>Negligible (not significant)</td>
</tr>
<tr>
<td>Pedestrian Amenity and Delay</td>
<td>Change in pedestrian journey times</td>
<td>Full Development</td>
<td>None</td>
<td>Low to Medium</td>
<td>Negligible</td>
<td>Negligible (not significant)</td>
<td>None</td>
<td>Travel Plan</td>
<td>Negligible (not significant)</td>
<td>Long Term, permanent, direct.</td>
</tr>
<tr>
<td>Fear and Intimidation</td>
<td>Change in perceived levels of fear and intimidation</td>
<td>Full Development</td>
<td>None</td>
<td>Medium to High</td>
<td>Negligible</td>
<td>Negligible (not significant)</td>
<td>None</td>
<td>Travel Plan</td>
<td>Negligible (not significant)</td>
<td>Long Term, permanent, direct.</td>
</tr>
<tr>
<td>Accidents and Safety</td>
<td>Change in number of accidents</td>
<td>Full Development</td>
<td>None</td>
<td>Medium to High</td>
<td>Negligible</td>
<td>Negligible (not significant)</td>
<td>None</td>
<td>Travel Plan</td>
<td>Negligible (not significant)</td>
<td>Long Term, permanent, direct.</td>
</tr>
</tbody>
</table>
16  CUMULATIVE EFFECTS

Introduction

16.1 This Chapter summarises the cumulative effects associated with the Proposed Development. There is a requirement to undertake an assessment of cumulative effects of the Proposed Development through Schedule 4 of the EIA Regulations 2011. At present, there is no widely accepted methodology or best practice for the assessment of cumulative effects although there are a number of guidance documents available. The following approach is based on previous experience, the types of receptors being assessed, the nature of the Proposed Development and the environmental information available to inform the assessment.

16.2 Cumulative effects have been considered within the technical assessments as both cumulative effects from different committed developments and cumulative effects from different environmental features. In consultation with PCC, Table 2.4 (Chapter 2) lists the agreed committed developments that have been identified as part of this assessment. Figure 16.1 illustrates the locations of these sites.

16.3 As part of traffic flow data used as part of the Air Quality and Dust, Noise and Vibration and Transport and Access chapters, the baseline condition has been taken as the Preston Western Distributor Road and East-West Spine Route being operational (see Figure 15.1). As such the baseline condition takes into account that the North West Preston Strategic Location and Cottam Hall Strategic Site (identified within the Preston Local Plan) are constructed, and the assessment therefore already takes cumulative effects into account. Figure 16.2 illustrates the location of these two sites.

16.4 The following chapter provides a summary of the potential cumulative effects already described in each Technical Chapter. It highlights where and how other committed developments may alter and influence the potential effects from the Proposed Development, and indicates whether these effects are considered to be significant or not, so that they may be taken fully into account by the planning determination process.

Effects Interactions

16.5 The approach to the assessment of different environmental features considers the changes in baseline conditions at key common sensitive receptors. The key common sensitive receptors considered within this chapter are those which are assessed within two or more of the Technical Chapters 7-15.

16.6 Common sensitive receptors identified throughout the ES are outlined within matrices alongside their residual effects per technical discipline. The common receptors assessed are:

- Existing and proposed residential properties;
- Local population (comprising existing and future users of the local road and footpath network, third parties and local economic, housing and community receptors);
- Ecological receptors (including designated sites and protected species); and
- Heritage assets.
16.7 An overall assessment of the cumulative effect on the common sensitive receptors identified above has been made using professional judgement as well as through the utilisation of recognised industry standards with regards to the technical assessments provided in Technical Chapters 7-15.

16.8 Table 16.1 comprises a summary matrix showing the effect interactions between environmental topics assessed following the implementation of the recommended mitigation measures set out in Technical Chapters 7-15 of the ES. This enables a summary assessment of the interactions of residual effects outlining the overall significance to the identified common sensitive receptors.

16.9 For the purposes of this assessment, residual effects that have been identified in the Technical Chapters 7-15 that do not affect the common sensitive identified have not been presented below as no effect interactions are anticipated. In addition, negligible residual effects have not been considered during the assessment of interactions.

16.10 The effects listed in Table 16.1 cover both construction and operation phases, and as such will vary depending on the particular activity, location of works, duration of work and type of operation being undertaken. Similarly, the effects vary from temporary nature during construction and permanent nature during operation. The significant residual effects in the table are reliant on mitigation measures being implemented as discussed within the respective Technical Chapter 7-15.

Table 16.1: Matrix of Effects Interactions

<table>
<thead>
<tr>
<th>Technical Topic</th>
<th>Common Sensitive Receptors</th>
<th>Existing and proposed residential properties</th>
<th>Local Population</th>
<th>Ecological receptors</th>
<th>Heritage assets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Quality and Dust</td>
<td>N/A (Negligible)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Archaeology and Cultural Heritage</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Minor adverse but not significant.</td>
<td></td>
</tr>
<tr>
<td>Ecology and Nature Conservation</td>
<td>N/A</td>
<td>N/A</td>
<td>Minor Adverse but not significant.</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Flood Risk, Hydrology and Drainage</td>
<td>Minor Adverse but not significant.</td>
<td>Minor Adverse but not significant.</td>
<td>N/A (assessed under Ecology and Nature Conservation)</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Landscape and Visual</td>
<td>Temporary Major Adverse (significant) to Minor Adverse (not significant).</td>
<td>Temporary Major Adverse (significant) to Minor Adverse (not significant).</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Lighting</td>
<td>Minor Adverse but not significant.</td>
<td>N/A</td>
<td>N/A (assessed under Ecology and Nature Conservation)</td>
<td>N/A (Negligible)</td>
<td></td>
</tr>
</tbody>
</table>
In summary, the effects associated with existing and proposed residential receptors vary from temporary major adverse to minor adverse. The former arises from the assessment of landscape and visual effects, which constitutes a significant adverse residual effect in EIA terms for existing residential properties located adjacent to the Site. Specifically, views from New Rough Hey, West Avenue, New Links Avenue, The Avenue and Holylake Close are likely to be affected temporarily during construction to a major degree due to the proximity of the residential receptors to the Site.

The local population is anticipated to experience a range of effects ranging from temporary major adverse to moderate beneficial, both of which would result in residual significant effects. Again, like residential receptors, major adverse effects are anticipated in relation to landscape and visual during the construction phase. Specifically this relates to:

- Views from residential roads and properties adjacent to the proposed residential development (New Rough Hey, West Ave, New Links Ave, The Avenue, and Holylake Close)
- Views from footpaths through the Site within the new Training Facility and recreational space (DMMO 7, DMMO 8)
- Views from the road through and adjacent to the Site (Tom Benson Way and Tanterton Hall Road)
- Views from the road through and adjacent to the Site (Walker Lane and Wychnor)

However, major beneficial effects are anticipated in relation to Socio-Economics. It is estimated the Proposed Development will accommodate approximately 1,160 residents, assuming a complete and fully occupied development. It is assumed that around 75% of the population will be of working age (aged 16-64). This equates to around 872 working age residents. This rate is higher than the current rate for Preston (66%) but represents a reasonable estimate given the nature of the proposed housing which is targeted at families which would help to address the growing imbalance between young and old people, which could give rise to labour market challenges. Similarly, the provision of maintained open space and a range of new recreational assets is considered to enhance access to new and existing assets and encourage physical activity which has also been assessed as a significant beneficial residual effect in EIA terms.

<table>
<thead>
<tr>
<th>Technical Topic</th>
<th>Common Sensitive Receptors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Existing and proposed residential properties</td>
</tr>
<tr>
<td>Noise and Vibration</td>
<td>Minor Adverse but not significant.</td>
</tr>
<tr>
<td>Socio-Economics</td>
<td>N/A</td>
</tr>
<tr>
<td>Transport and Access</td>
<td>N/A (Negligible)</td>
</tr>
</tbody>
</table>
In relation to ecological receptors, minor adverse effects are anticipated. However, these are not considered to be significant in EIA terms. Similarly, with regards to heritage assets, minor adverse effects are considered, but they are not considered to be significant in EIA terms.

**Cumulative Effects from Different Committed Developments**

An assessment of the effects from different developments has been provided for each of the technical assessments within **Chapter 7-15** of the ES. **Table 16.2** provides a summary of the likely potential significant cumulative effects that may result from the construction and operation of the Proposed Development, in combination with the other committed developments described in **Table 5.2**.

**Table 16.2: Summary of Likely Potential Cumulative Effects from Committed Developments**

<table>
<thead>
<tr>
<th>Environmental Topics</th>
<th>Potential Cumulative Effects</th>
<th>Operational Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Construction Phase</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air Quality and Dust</td>
<td>No significant cumulative effects are anticipated.</td>
<td>No significant cumulative effects are anticipated.</td>
</tr>
<tr>
<td>Archaeology and Cultural Heritage</td>
<td>No significant cumulative effects are anticipated.</td>
<td>No significant cumulative effects are anticipated.</td>
</tr>
<tr>
<td>Ecology and Nature Conservation</td>
<td>No significant cumulative effects are anticipated.</td>
<td>No significant cumulative effects are anticipated.</td>
</tr>
<tr>
<td>Floor Risk, Hydrology and Drainage</td>
<td>No significant cumulative effects are anticipated.</td>
<td>No significant cumulative effects are anticipated.</td>
</tr>
<tr>
<td>Landscape and Visual</td>
<td>No significant cumulative effects are anticipated.</td>
<td>No significant cumulative effects are anticipated.</td>
</tr>
<tr>
<td>Lighting</td>
<td>No significant cumulative effects are anticipated.</td>
<td>No significant cumulative effects are anticipated.</td>
</tr>
<tr>
<td>Noise and Vibration</td>
<td>In the unlikely event that the noisiest periods of construction for the Proposed Development and the North West Preston Strategic Location coincide at a single receptor and both are close enough from that receptor to contribute to the noise climate, there would be an increase in construction noise of up to 3 dB. If at the same time the North West Preston Strategic Site are producing a level of construction noise of 72 dB $L_{Aeq,T}$, both individually would be considered to be of minor effect and therefore not significant in EIA terms. However, the cumulative level could be 73 dB $L_{Aeq,T}$ (in the case of an additional 65 dB $L_{Aeq,T}$ from the Proposed Development), which is a medium impact, resulting in a</td>
<td>No significant cumulative effects are anticipated.</td>
</tr>
</tbody>
</table>
### Environmental Topics

<table>
<thead>
<tr>
<th>Potential Cumulative Effects</th>
<th>Operational Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Construction Phase</strong></td>
<td></td>
</tr>
<tr>
<td>temporary moderate significant effect upon a dwelling and is considered to be significant in EIA terms.</td>
<td></td>
</tr>
<tr>
<td><strong>Operational Phase</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Socio-Economics

All of the developments will generate temporary construction employment and associated training opportunities during the construction phase. While it is not possible to quantify this using the information in the planning applications, a report by the National Homebuilders Federation\(^{217}\) estimates that, on average, each dwelling constructed supports a total of 4.3 temporary jobs, including all direct, indirect and induced effects. It should be noted that this is a national figure and therefore captures all of the jobs created through the supply chain which are located in other parts of the country (i.e. outside Preston).

If applied to the list of cumulative developments identified in Table 2.4 and the Proposed Development this would create in the region of 17,100 temporary jobs nationally (3,970 dwellings x 4.3). A large proportion of these jobs would be expected to be located within Preston, although it is not possible to estimate exactly how many. This is considered to be a major positive effect for Preston which will be significant in EIA terms.

A large number of the cumulative developments will support economic activity and new jobs once operational. This could be directly through the provision of on-site employment space. This is the case for the Proposed Development at the Former Cottam Brickworks site (06/2015/0085) and the consented development on land at Cottam Hall (06/2012/0145) which both include a range of retail, hospitality and community uses which will accommodate employment. Employment could also be supported indirectly as a result of households moving in to Preston and spending money in the local area.

There is insufficient information to quantify employment effects. Given the cumulative scale of new housing development planned (just under 4,000 dwellings in total), and the potential to attract a large number of new households to Preston, it is expected that these household expenditure effects would be very large.

When combined with the direct employment effects associated with the two developments above, this is considered to be a major positive effect for Preston which would be significant in EIA terms.

The list of cumulative developments will create just under 4,000 new dwellings if all are built out. This would be expected to increase the population of Preston by attracting new people to the area. There is insufficient information in the planning applications to quantify population...

\(^{217}\) Home Builders Federation and Nathaniel Lichfield & Partners (2015): The Economic Footprint of UK Housebuilding
<table>
<thead>
<tr>
<th>Environmental Topics</th>
<th>Potential Cumulative Effects</th>
<th>Operational Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Construction Phase</td>
<td>Operational Phase</td>
</tr>
</tbody>
</table>

Given an average household size in England of 2.3 people, it is expected that all of the developments (if fully occupied), will result in a gross increase of around 9,200 people.

The age profile of these residents is subject to uncertainty and will depend on the size and nature of the housing provided. Working age people currently account for 66% of the population in Preston. If the new housing developments attracted a population with a similar age profile, this would result in a gross increase of 6,100 working age people and help to offset the projected falls in this age group in Preston.

This is considered to be a major positive effect for Preston which would be significant in EIA terms.

There is limited information in any of the available EIAs on how the developments will affect communities’ access to leisure and recreation opportunities. Based on the information available, it is worth noting the following points:

A number of the developments include proposals for new public open space, including Maxy House Farm (06/2016/0291), Connemara (06/2012/0094), Land between Hoyles Lane Sidgreaves Lane Lea Road and Lancaster Canal (06/2012/0145), Haydock Grange (06/2011/0473), Lightfoot Lane (06/2012/0822), Land to the rear of Cottam Nursery School (06/2013/0140) and Land off Eastway (06/2013/0195). Although the exact quantity is unclear, this should ensure that all new and existing residents within walking distance of these developments have improved access to publicly accessible open space.
### Potential Cumulative Effects

<table>
<thead>
<tr>
<th>Environmental Topics</th>
<th>Construction Phase</th>
<th>Operational Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The Proposed Development and two of the cumulative developments include proposals for children’s play areas. These are Land between Hoyles Lane Sidgreaves Lane Lea Road and Lancaster Canal (06/2012/0145) and Haydock Grange (06/2011/0473). The Central Lancashire Open Space Audit identified a small deficiency of this type of space in Preston and a need for 0.3 Ha by 2026, which these developments will contribute to. No significant cumulative effects are anticipated.</td>
<td></td>
</tr>
<tr>
<td>Transport and Access</td>
<td>No significant cumulative effects are anticipated.</td>
<td>No significant cumulative effects are anticipated.</td>
</tr>
</tbody>
</table>

16.16 In summary, based on Table 16.2, significant cumulative effects from different developments are anticipated from:

- **Noise and Vibration**: In the unlikely event that the noisiest periods of construction for the Proposed Development and the North West Preston Strategic Location coincide at a single receptor and both are close enough from that receptor to contribute to the noise climate, there is anticipated to potentially be a temporary moderate adverse effect which is considered to be significant in EIA terms.

- **Socio-Economics**: In relation to construction jobs, it is anticipated that in combination with the Sites identified in Table 2.4, then this would create in the region of 17,100 temporary jobs, with a large proportion of these located within Preston. This is considered to be a major beneficial effect which would be significant in EIA terms.
• **Socio-Economics:** In relation to supporting economic activity and new jobs when operational, employment is expected to be delivered on-site but also indirectly as a result of households moving into Preston and spending money in the local area. This is considered to be a major beneficial effect which is significant in EIA terms.

• **Socio-Economics:** In terms of the population, the developments are expected to increase the working age population within Preston. Given an average household size in England of 2.3 people, it is expected that all of the developments (if fully occupied), will result in a gross increase of around 9,200 people. If the new housing developments attracted a population with a similar age profile, this would result in a gross increase of 6,100 working age people and help to offset the projected falls in this age group in Preston. This is considered to be a major positive effect which would be significant in EIA terms.

• **Socio-Economics:** In terms of public open space, a number of developments in Table 2.4 include proposals for public open space, children’s play areas and new or improved footpaths or cycle routes, providing greater opportunities for walking and cycling in new and existing communities. Based on this, the significance of effect is considered to be moderate beneficial which is significant in EIA terms.

**Conclusion**

16.17 This chapter summarised the cumulative effects anticipated by the Proposed Development in relation to effects from different environmental features and effects from different committee developments.

16.18 With regards to cumulative effects from different environmental features, no common receptors included within Table 16.1 (existing and proposed residential receptors, local population, ecological receptors, designated heritage assets) are anticipated to be effected by more than one significant adverse effect from environmental features from the technical assessments undertaken as part of this ES.

16.19 With regards to effects from different committed developments, a temporary adverse significant effect may occur in relation to noise and vibration if at a single receptor the noisiest periods of construction for the Proposed Development and the North West Strategic Location coincide, however, when considering all committed developments, positive significant cumulative effects are anticipated in relation to Socio-Economics through the creation of construction and permanent jobs, an increase in the working age population profile and the provision of public open space.
17

SUMMARY AND STATEMENT OF SIGNIFICANCE

Introduction

17.1 This summary chapter brings together a summary of the significant effects for each of the Technical Chapters of the ES. The respective Technical Chapters provide a Summary of Effects and Mitigation table at the rear for each chapter. These can be found in the following locations:

- Chapter 7: Air Quality and Dust (Table 7.14)
- Chapter 8: Archaeology and Cultural Heritage (Table 8.5)
- Chapter 9: Ecology and Conservation (Table 9.10)
- Chapter 10: Flood Risk, Hydrology and Drainage (Table 10.6)
- Chapter 11: Landscape and Visual (Table 11.3)
- Chapter 12: Lighting (Table 12.5)
- Chapter 13: Noise and Vibration (Table 13.27)
- Chapter 14: Socio-Economics (Table 14.20)
- Chapter 15: Transport and Access (Table 15.25)

17.2 Table 17.1 (located to the rear of this chapter) combines the residual significant effects of these into a single table, detailing any mitigation measures. No significant effects are anticipated in relation Air Quality and Dust (Chapter 7), Archaeology and Cultural Heritage (Chapter 8), Ecology and Nature Conservation (Chapter 9), Flood Risk, Hydrology and Drainage (Chapter 10), Lighting (Chapter 12), Noise and Vibration (Chapter 13) and Transport and Access (Chapter 15). Therefore, these are not included within Table 17.1.

Statement of Significance

17.3 In terms of the assessments undertaken as part of the ES, significant effects are anticipated in relation to the following technical assessments. Full details are provided in Table 17.1.
### Table 17.1: Summary of Significant Effects\(^{218}\)

<table>
<thead>
<tr>
<th>Environmental Topic</th>
<th>Receptor</th>
<th>Effect</th>
<th>Development Phase</th>
<th>Sensitivity / importance of receptor</th>
<th>Magnitude Change</th>
<th>Level of Effect (and Significance) prior to mitigation</th>
<th>Mitigation / Enhancement</th>
<th>Level of Effect (and Significance) after mitigation / enhancement</th>
<th>Nature of effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landscape and Visual</td>
<td>Landscape Character</td>
<td>Landscape Effect</td>
<td>Construction</td>
<td>Medium</td>
<td>Medium</td>
<td>Temporary Moderate Adverse and Significant.</td>
<td>N/A</td>
<td>Moderate and Significant.</td>
<td>Temporary, medium, indirect.</td>
</tr>
<tr>
<td>Landscape and Visual</td>
<td>Landscape Features</td>
<td>Landscape Effect</td>
<td>Construction</td>
<td>Medium</td>
<td>Medium - Minor</td>
<td>Temporary Moderate Adverse and Significant.</td>
<td>N/A</td>
<td>Moderate and Significant.</td>
<td>Temporary, medium, indirect.</td>
</tr>
<tr>
<td>Landscape and Visual</td>
<td>Local Urban Character</td>
<td>Landscape Effect</td>
<td>Construction</td>
<td>Medium</td>
<td>Substantial</td>
<td>Temporary Moderate Adverse and Significant.</td>
<td>N/A</td>
<td>Moderate and Significant.</td>
<td>Temporary, medium, indirect.</td>
</tr>
<tr>
<td>Landscape and Visual</td>
<td>Views from footpaths adjacent to proposed residential development (FP DMMO 1, DMMO 3, DMMO 4)</td>
<td>Visual Effect</td>
<td>Construction</td>
<td>High</td>
<td>Substantial</td>
<td>Temporary Major Adverse and Significant.</td>
<td>N/A</td>
<td>Major and Significant.</td>
<td>Temporary, medium, indirect.</td>
</tr>
<tr>
<td>Landscape and Visual</td>
<td>Views from footpaths adjacent to proposed residential development (FP DMMO 5, DMMO 6, Locally Walked Routes)</td>
<td>Visual Effect</td>
<td>Construction</td>
<td>High</td>
<td>Medium - Minor</td>
<td>Temporary Moderate – Minor Adverse and Significant.</td>
<td>N/A</td>
<td>Moderate and significant.</td>
<td>Temporary, medium, indirect.</td>
</tr>
</tbody>
</table>

\(^{218}\) Note: Cumulative effects are dealt within the preceding Chapter 16 and so are not re-stated in this chapter.
<table>
<thead>
<tr>
<th>Landscape and Visual</th>
<th>Views from footpaths through the Site within the new Training Facility and recreational space (DMMO 6)</th>
<th>Visual Effect</th>
<th>Construction</th>
<th>High</th>
<th>Medium</th>
<th>Temporary Moderate Adverse, Significant.</th>
<th>N/A</th>
<th>Moderate and significant.</th>
<th>Temporary, medium, indirect.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landscape and Visual</td>
<td>Views from footpaths through the Site within the new Training Facility and recreational space (DMMO 7, DMMO 8)</td>
<td>Visual Effect</td>
<td>Construction</td>
<td>High</td>
<td>Substantial</td>
<td>Temporary major Adverse and Significant.</td>
<td>N/A</td>
<td>Major and Significant.</td>
<td>Temporary, medium, indirect.</td>
</tr>
<tr>
<td>Landscape and Visual</td>
<td>Views from footpaths through the Site within the new Training Facility and recreational space (FP 46)</td>
<td>Visual Effect</td>
<td>Construction</td>
<td>High</td>
<td>Medium – Minor</td>
<td>Temporary moderate – minor adverse, Significant.</td>
<td>N/A</td>
<td>Moderate and Significant.</td>
<td>Temporary, medium, indirect.</td>
</tr>
<tr>
<td>Landscape and Visual</td>
<td>Views from road through and adjacent the Site (Tom Benson Way and Tanterton Hall Road)</td>
<td>Visual Effect</td>
<td>Construction</td>
<td>Medium - High</td>
<td>Medium</td>
<td>Temporary moderate adverse and Significant.</td>
<td>N/A</td>
<td>Moderate and Significant.</td>
<td>Temporary, medium, indirect.</td>
</tr>
<tr>
<td>Landscape and Visual</td>
<td>Views from road through and adjacent the Site</td>
<td>Visual Effect</td>
<td>Construction</td>
<td>Medium - High</td>
<td>Medium – Minor</td>
<td>Temporary Moderate – Minor Adverse, Significant.</td>
<td>N/A</td>
<td>Moderate and Significant.</td>
<td>Temporary, medium, indirect.</td>
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<tr>
<td>Landscape and Visual</td>
<td>Views from residential roads and properties adjacent to the proposed residential development (Sheraton Park, Dukes Meadow, Greenfield Way, High Greenfield, Manor Court, Gleneagles Drive, Carnoustie Close, The Maples)</td>
<td>Visual Effect</td>
<td>Construction</td>
<td>Medium - High</td>
<td>Medium</td>
<td>Temporary moderate adverse, Significant.</td>
<td>N/A</td>
<td>Moderate and Significant.</td>
<td>Temporary, medium, indirect.</td>
</tr>
<tr>
<td>Socio-Economics</td>
<td>Population and working age</td>
<td>Change in population size and demographic structure</td>
<td>Operation</td>
<td>Medium</td>
<td>Medium</td>
<td>Moderate Beneficial, Significant.</td>
<td>None</td>
<td>Moderate Beneficial and Significant.</td>
<td>Permanent, long term, direct.</td>
</tr>
<tr>
<td>Socio-Economics</td>
<td>Access to and usage of leisure and recreational assets</td>
<td>Change in access to and usage of leisure and recreation opportunities</td>
<td>Operation</td>
<td>High</td>
<td>Medium</td>
<td>Moderate Beneficial, Significant.</td>
<td>None</td>
<td>Moderate Beneficial and Significant.</td>
<td>Permanent, long term, direct.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
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<tr>
<td>Air Quality Standard</td>
<td>Concentration of a pollutant, over a specified period, above which adverse effects on health and/or the environment may occur and which should not be exceeded</td>
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<tr>
<td>Ambient</td>
<td>Of or relating to the immediate surroundings of something (e.g. ambient noise level)</td>
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<tr>
<td>APS</td>
<td>Annual Population Survey – a quarterly population survey conducted throughout the UK, which gathers information on demographic and labour market characteristics</td>
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<tr>
<td>ARCADY</td>
<td>The roundabout module in Junctions 9</td>
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<tr>
<td>Assessment</td>
<td>Process by which information about effects of a proposed plan, project or intervention is collected, assessed and used to inform decision making</td>
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<tr>
<td>Background Sound Level</td>
<td>Sound level measured in the absence of a specific sound source being studied. It is common practice to measure the background sound level using statistical analysis using the level of sound that is exceeded for 90% of the time: often presented using the L90 descriptor</td>
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<tr>
<td>Barriers</td>
<td>Other structures and buildings which are likely to impact on the propagation of noise from construction works have also been included within the model. This includes permanent surrounding residential and non-residential buildings and any substantial barriers located in the surrounding area</td>
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<tr>
<td>Baseline Conditions</td>
<td>Environment as it appears (or would appear) immediately prior to the implementation of the project together with any known or foreseeable future changes that will take place before completion of the project</td>
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<tr>
<td>Best Available Technique (BAT)</td>
<td>The most effective and advanced engineering practices and methods of operation, which are available and practicable, to prevent, and where this is not practicable, reduce emissions and the impact on the environment as a whole</td>
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<td>BRES</td>
<td>Business Register and Employment Survey – an annual survey of employment based on a sample of firms from the Interdepartmental Business Register</td>
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<tr>
<td>BS42020</td>
<td>British Standard Biodiversity. Code of Practice for Planning and Development</td>
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<tr>
<td>Catchment</td>
<td>Drainage/basin area within which precipitation drains into a river system and eventually into the sea</td>
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<tr>
<td>CLG</td>
<td>Department for Communities and Local Government – Government department with responsibility for local government, communities, local enterprise partnerships, the planning system and local fire and rescue authorities</td>
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<tr>
<td>Committed Development</td>
<td>Development projects that are either under construction or have valid planning permissions/consents</td>
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<tr>
<td>Conservation (for heritage policy)</td>
<td>The process of maintaining and managing change to a heritage asset in a way that sustains and, where appropriate, enhances its significance</td>
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<tr>
<td>Construction Phase</td>
<td>Period during which the building or assembling of infrastructure is undertaken</td>
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<tr>
<td>Construction Traffic Management Plan (CTMP)</td>
<td>Plan setting out proposals for the management of construction traffic including vehicle routes and signing, construction traffic hours, site access and means of protecting the public highway from detritus</td>
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<tr>
<td>Consultation</td>
<td>Process by which those organisations or individuals with an interest in the area associated with the proposed scheme are identified and engaged as part of the EIA process</td>
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<tr>
<td>Culvert</td>
<td>Pipe or box-type conduit through which water is carried under a structure</td>
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<tr>
<td>Cumulative Effect</td>
<td>Effects that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project. A cumulative effect may arise as the result of (a) the combined effect of a number of different environmental topic-specific effects from a single environmental impact assessment project on a single receptor/resource or (b) the combined effect of a number of different projects within the vicinity (in combination with the environmental impact assessment project) on a single receptor/resource</td>
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<tr>
<td>Curfew</td>
<td>Refers to a time when the local planning authority has agreed that the lighting installation should be switched off; this typically refers to 11pm - 7am</td>
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<tr>
<td>dBA (A-weighted Decibel)</td>
<td>A single value in decibels used to represent the noise level from the entire hearing frequency range</td>
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<tr>
<td>Decommissioning</td>
<td>Period during which a development and its associated processes are removed from active operation</td>
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<tr>
<td>Degree of Saturation (DOS)</td>
<td>Measure of capacity of a traffic signal junction</td>
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<tr>
<td>Designated heritage assets</td>
<td>a World Heritage Site, Scheduled Monument, Listed building, Protected Wreck Site, Registered Park and Garden, Registered Battlefield or Conservation Area</td>
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<tr>
<td>Do-minimum Scenario</td>
<td>Also known as the ‘do-nothing’ scenario: the conditions that would persist in the absence of the implementation of a development</td>
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<tr>
<td>ECoW</td>
<td>Ecological Clerk of the Works</td>
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</tbody>
</table>
Effect | Term used to express the consequence of an impact (expressed as the ‘significance of effect’), which is determined by correlating the magnitude of the impact with the importance (or sensitivity) of the receptor or resource in accordance with defined significance criteria. For example, land clearing during construction results in habitat loss, the effect of which is the significance of the habitat loss on the ecological resource.

Embedded Mitigation | Mitigation that has been embedded into the design of the Proposed Development.

Emergency Noise | For the purposes of this document, Emergency Noise is defined as acoustic emission due to unplanned pressure valve release, emergency flaring, or operation/procedures necessary to protect life or property. The duration of emission is short and the frequency of operation is expected to be very low. Longer duration but infrequent noise sources such as start-up/shutdown venting and flaring and audible announcement/alarm systems sounding do not meet the Emergency Noise definition.

Enhancement | Measure that is over and above what is required to mitigate the adverse effects of a project.

Environmental Impact Assessment (EIA) | Statutory process by which certain planned projects must be assessed before a formal decision to proceed can be made. Involves the collection and consideration of environmental information, which fulfils the assessment requirements of the EIA Directive, including the publication of an environmental statement.

Environmental Statement (ES) | Document produced in accordance with the EIA Directive (as transposed into UK law by the EIA Regulations) that reports the outcomes of the EIA process.

Evaluation | Determination of the significance of effects. Evaluation involves making judgements as to the value of the receptor/resource that is being affected and the consequences of the effect on the receptor/resource based on the magnitude of the impact.

Existing Environment | See ‘baseline conditions’

Façade Corrections | a 3 dB(A) correction has been applied to convert a free-field noise prediction to a façade level

Field of view | The horizontal and / or vertical extent of the prospect in view as depicted in the photographs, defined by the angle subtended between the extremities of view frame

FTE | Full Time Equivalent – a measurement of the number of jobs in an area which takes account of full time and part time work, so that employment can be compared on a consistent basis.

Glare | The uncomfortable brightness of the light source against a dark background which results in dazzling the observer, which may cause nuisance to residents and a hazard to road users

Green Infrastructure | Networks of Green Spaces and water courses and water bodies that connect rural areas, villages, towns and cities

Ground Absorption | Hard, acoustically reflective ground (0.5 coefficient) – roads, pavements and hard standing areas

Heavy Goods Vehicle (HGV) | goods vehicle over 3.5 tonnes gross weight

Heritage Asset | A building, monument, site, place, area or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its heritage interest

Hertz | Unit of frequency defined as one cycle per second

Illuminance | The luminous flux incident on unit area of a surface. The unit is the lux which is one lumen per square metre

IMD | Index of Multiple Deprivation – an index which assesses a wide range of indicators to provide an assessment of deprivation in every local super output area in England. This covers income, employment, crime, access to services, health and living environment

Impact Sound | The sound that results when two masses collide (typical peak sound level duration of each impact would be between 25 microseconds and 1 second). Typical examples are hammering and gunfire

Impulse Sound | A sound created by the sudden impulse of pressure. Mathematically expressed as the integral of a force over the time interval during which the force is applied. Sometimes also referred to as impact sound

Intermittent | For the purposes of this document, intermittent is defined as acoustic emissions or operations that occur less than 5% of the time during a work shift and fewer than six times per hour. Longer duration but infrequent noise sources such as start-up/shutdown venting do not meet the intermittent definition

JSA | Jobseekers Allowance – an out of work benefit for those people who are actively seeking employment

Junctions 9 | Industry standard package for modelling roundabouts and priority junctions.

Key Characteristics | Those combinations of elements which are particularly important to the current character of the landscape and help to give an area its particularly distinctive sense of place

LA90, T | A-weighted sound level which is exceeded for 90% of the duration of measurement, often used to provide a value for the ‘background sound level’. T is the period upon which the statistical levelrelates

LAeq, T | A-weighted equivalent continuous sound pressure level, where A-weighted refers to a frequency dependent correction that is applied to a measured or calculated sound of moderate intensity to mimic the varying sensitivity of the ear to sound for different frequencies. T is the period upon which the sound pressure relates

Landscape | An area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landscape and Visual Assessment (LVIA)</td>
<td>A tool used to identify and assess the likely significance of the effects of change resulting from development both on the landscape and as an environmental resource in its own right and on people's views and visual amenity</td>
</tr>
<tr>
<td>Landscape Capacity</td>
<td>The degree to which a particular landscape character type or area is able to accommodate change without unacceptable adverse effects on its character. Capacity is likely to vary according to the type and nature of the change being proposed</td>
</tr>
<tr>
<td>Landscape Character</td>
<td>A distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse</td>
</tr>
<tr>
<td>Landscape Character Areas (LCAs)</td>
<td>These are single unique areas which are the discrete geographical areas of a particular landscape type</td>
</tr>
<tr>
<td>Landscape Character Types (LCTs)</td>
<td>These are distinct types of landscape that are relatively homogeneous in character. They are generic in nature in that they may occur in different areas in different parts of the country, but wherever they occur they share broadly similar combinations of geology, topography, drainage patterns, vegetation, historical land use, and settlement pattern, and perceptual and aesthetic attributes</td>
</tr>
<tr>
<td>Landscape Quality (or condition)</td>
<td>A measure of the physical state of the landscape. It may include the extent to which typical character is represented in individual areas, the intactness of the landscape and the condition of individual elements</td>
</tr>
<tr>
<td>Landscape receptors</td>
<td>Defined aspects of the landscape resource that have the potential to be affected by a proposal</td>
</tr>
<tr>
<td>Landscape Susceptibility</td>
<td>The ability of the landscape receptor...to accommodate the Proposed Development without undue consequences for maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies</td>
</tr>
<tr>
<td>Landscape Value</td>
<td>The relative value that is attached to different landscapes by society. A landscape may be valued by different stakeholders for a whole variety of reasons</td>
</tr>
<tr>
<td>LEP</td>
<td>Local Enterprise Partnership – business-led organisations tasked with delivering economic development for their local area. There are 39 LEPs in the country, with the boundaries determined by local economic geography</td>
</tr>
<tr>
<td>Light Spill</td>
<td>The unwanted spillage of light onto adjacent areas and may affect sensitive receptors, particularly residential properties and ecological sites</td>
</tr>
<tr>
<td>Light Trespass (into Windows)</td>
<td>The spilling of light beyond the boundary of a property which may cause nuisance to others</td>
</tr>
<tr>
<td>Lux</td>
<td>The SI unit of illuminance, equal to one lumen per square metre</td>
</tr>
<tr>
<td>LinSig</td>
<td>Industry standard software for the assessment and design of traffic signal junctions</td>
</tr>
<tr>
<td>LOAEL</td>
<td>This is the level above which adverse effects on health and quality of life can be detected. The term is defined within the Noise Policy Statement for England</td>
</tr>
<tr>
<td>LSOA</td>
<td>Lower Super Output Area – geographical units used for data analysis at a local level in England and Wales. There are nearly 33,000 LSOAs in England and Wales, each with a minimum population of 1,000 people</td>
</tr>
<tr>
<td>MAGIC</td>
<td>Multi-Agency Geographic Information for the countryside</td>
</tr>
<tr>
<td>Mitigation</td>
<td>Measures that are necessary to avoid, minimize, or offset anticipated adverse impacts and, where appropriate, to incorporate these into an environmental management plan or system.</td>
</tr>
<tr>
<td>Monitoring</td>
<td>Continuing assessment of the performance of the project, including mitigation measures. This determines if effects occur as predicted or if operations remain within acceptable limits, and if mitigation measures are as effective as predicted.</td>
</tr>
<tr>
<td>MSOA</td>
<td>Middle Super Output Area - geographical units used for data analysis at a local level in England and Wales. Middle super output areas are made up of several smaller lower super output areas and have a minimum population of 5,000 people</td>
</tr>
<tr>
<td>National Cycle Network (NCN)</td>
<td>A series of safe, traffic free paths and quiet on-road cycling and walking routes that connect to every major town and city</td>
</tr>
<tr>
<td>National Planning Policy Framework (NPPF)</td>
<td>Sets out the Government’s planning policies for England and how these are expected to be applied</td>
</tr>
<tr>
<td>National Transport Model (NTM)</td>
<td>Government model to forecast long term trends in road traffic</td>
</tr>
<tr>
<td>National Trip End Model (NTEM)</td>
<td>Used with TEMPRO to estimate local growth for transport planning purposes</td>
</tr>
<tr>
<td>NOEL</td>
<td>This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise. The term is defined within the Noise Policy Statement for England</td>
</tr>
<tr>
<td>Noise/Sound</td>
<td>Vibrations in air that are in the audible frequency range from 20Hz~20 kHz. The word ‘sound’ is used within this document in relation to emissions which are independent of the effect on the receptor (e.g. a ‘sound power level’ is related to the source and is not related to the receptor). The word ‘noise’ is used where a sound is related to its affect on a receptor and constitutes an unwanted effect of sound (e.g. occupational noise exposure)</td>
</tr>
<tr>
<td>Non-technical Summary</td>
<td>Information for the non-specialist reader to enable them to understand the main predicted environmental effects of the proposal without reference to the main Environmental Statement.</td>
</tr>
<tr>
<td>NPPF</td>
<td>National Planning Policy Framework – the main national planning policy document which was published in March 2012, consolidating the previously issued Planning Policy Statements and Planning Policy Guidance Notes for use in England</td>
</tr>
<tr>
<td><strong>Octave Bands</strong></td>
<td>Subdivision of sound spectrum based on set frequency ranges</td>
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<td>------------------</td>
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<tr>
<td><strong>OFFPAT</strong></td>
<td>Office of Project Advice and Training - a membership network that operates a value for money, shared services approach to programme and project best practice. OFFPAT closed in 2011</td>
</tr>
<tr>
<td><strong>ONS</strong></td>
<td>Office for National Statistics - the UK’s largest independent producer of official statistics and the recognised national statistical institute of the UK</td>
</tr>
<tr>
<td><strong>Operation</strong></td>
<td>Functioning of a project on completion of construction</td>
</tr>
<tr>
<td><strong>Passenger Car Unit (PCU)</strong></td>
<td>Method used in transport modelling to allow the different vehicle types within a traffic flow group to be assessed in a consistent manner. Typical values are 1 for a car or light goods vehicle and 2 for a bus or heavy goods vehicle</td>
</tr>
<tr>
<td><strong>PICADY</strong></td>
<td>The priority junction module in Junctions 9</td>
</tr>
<tr>
<td><strong>Pollution</strong></td>
<td>Any increase of matter or energy to a level that is harmful to living organisms of their environment (when it becomes a pollutant)</td>
</tr>
<tr>
<td><strong>Programme</strong></td>
<td>Series of steps that have been identified by the applicant, or series of projects that are linked by dependency</td>
</tr>
<tr>
<td><strong>Project</strong></td>
<td>One (or more) aspect of a programme or plan that has been identified by the applicant and usually involves a direct physical intervention</td>
</tr>
<tr>
<td><strong>Pure Tone</strong></td>
<td>A narrow band component that is noticeable as a sound of distinguishable pitch and that represents a dominant feature of the facility sound source. Quantitatively, a measured 1/3 octave band sound level that is a minimum of 6 dB higher than both adjacent 1/3 octave band sound levels</td>
</tr>
<tr>
<td><strong>RAMSAR</strong></td>
<td>Convention on Wetlands of International Importance, especially as Waterfowl Habitat</td>
</tr>
<tr>
<td><strong>Ratio of flow to capacity</strong> (RFC)</td>
<td>Measure of traffic capacity of a junction</td>
</tr>
<tr>
<td><strong>Receptor</strong></td>
<td>Defined individual environmental feature usually associated with population, fauna and flora with the potential to be affected by a project</td>
</tr>
</tbody>
</table>
| **Receptor Height** | Ground Floor 1.5m above ground  
First Floor 4.5m above ground |
| **Residential Amenity** | Is understood to involve a combination of sensory factors which inform the living conditions of a property including the visual, sound / noise and olfactory (smell) environments |
| **Resource**     | Defined but generally collective environmental feature usually associated with soil, water, air, climatic factors, landscape, material assets, including the architectural and archaeological heritage that has potential to be affected by a project |
| **Run-off**      | Precipitation that flows as surface water from a site, catchment or region to the sea |
| **Scoping**      | Process of identifying the issues to be addressed by the environmental impact assessment process. It is a method of ensuring that an assessment focuses on the important issues and avoids those that are considered not significant. |
| **Scoping Opinion** | Opinion provided by a competent authority that indicates the issues an environmental impact assessment of a Proposed Development should consider |
| **Screening**    | Formal process undertaken to determine whether it is necessary to carry out a statutory environmental impact assessment and publish an Environmental Statement in accordance with the EIA Regulations |
| **Section 106 Agreement** | A legally binding agreement between a Local Planning Authority and a land developer, often to fund necessary improvements |
| **Sediment**     | Organic and inorganic material that has precipitated from water to accumulate on the floor of a water body, watercourse or trap |
| **Sensitivity**  | A term applied to specific receptor, combining judgements of the susceptibility of the receptor to the specific type of change or development proposed and the value to that receptor |
| **SEP**          | Strategic Economic Plan – strategy document produced by each of the local enterprise partnerships in England which identifies the key economic priorities and interventions for the area |
| **Significance** | See ‘significance of effect’ |
| **Significance (for heritage policy)** | The value of a heritage asset to this and future generations because of its heritage interest |
| **Significance of Effect** | Measure of the importance or gravity of the environmental effect, defined by either generic significance criteria or criteria specific to the environmental topic |
| **Significant Effect** | Environmental effect considered material to the decision-making process |
| **Sky Glow**     | The upward spill of light into the sky which can cause a glowing effect and is often seen above cities when viewed from a dark area |
| **SOAEL**        | This is the level above which significant adverse effects on health and quality of life occur. The term is defined within the Noise Policy Statement for England |
### Sound (Pressure) Level

In air, 20 times the log (base 10) of the given sound pressure to the reference sound pressure of 20 micro-Pascal; the resultant unit is dB. Sound pressure is the root-mean-square of the instantaneous pressure fluctuations caused by an acoustic wave during a specified time interval in a stated frequency band; the unit is Pascal.

### Sound Power Level

10 times the log (base 10) of the given sound power to the reference sound power of 1 pico-Watt; the resultant unit is dB. The sound power (of a source) is the rate per unit time at which sound energy is radiated in a given frequency band in Watts. Sound power is typically calculated as a function of sound pressure and surface area.

### Source Modelling

External noise sources have been treated as omni-directional point sources; Plant complement assumed to be operating on the closest boundary of the construction site to each receptor; Shortest distance from façade of noise sensitive receptor to site assumed; Buildings and structures identified modelled as structures; Average construction source emission height of 1.5m; Construction Plant Data taken from BS5228:2009+A01:2014.

### Strategic Road Network (SRN)

Network of motorways and all-purpose trunk roads in England managed by Highways England.

### Study Area

Spatial area within which environmental effects are assessed (i.e. extending a distance from the project footprint in which significant environmental effects are anticipated to occur). This may vary between the topic areas.

### Sustainable Transport

All forms of transport which minimise emissions of carbon dioxide and pollutants. Can refer to public transport, car sharing, walking and cycling as well as technology such as electric and hybrid cars and biodiesel.

### Terrain

OS terrain data has been included within the model.

### Threshold

Specified level in grading effects (e.g. the order of significance).

### Traffic Information

Traffic data used within the assessment has been provided by PFA Consulting Limited.

### Transport Assessment (TA)

Comprehensive review of the potential transport impacts of a Proposed Development, with proposals to mitigate any adverse consequences.

### Travel Plan

Long term management strategy for encouraging sustainable travel, often prepared in parallel to development proposals.

### TRICS

A database of trip rates for estimating trip generation by development.

### Trip End Model Presentation Program (TEMPRO)

Used with the NTEM forecasts to estimate local growth for transport planning purposes.

### Visual amenity

The overall pleasantness of the views people enjoy of their surroundings, which provides an attractive visual setting or backdrop for the enjoyment of activities for people, living, working, recreating, visiting or travelling through an area.

### Visual Receptors

Individuals and / or defined groups of people who have the potential to be affected by a proposal.

### With Development

Noise predictions taking into account the impact of road traffic flows with the Proposed Development.

### Without Development

Noise predictions taking into account the impact of road traffic flows without the Proposed Development.

### Worst Case

Principle applied where environmental effects may vary (e.g. owing to seasonal variations) to ensure the most severe effect is assessed.

### Zone of Theoretical Visibility (ZTV)

A map, usually digitally produced, showing areas of land within which a development is theoretically visible.