Volume 8

ON BEHALF OF
Satnam Millennium Ltd

IN RESPECT OF

Outline application for a new residential neighbourhood including C2 and C3 uses; local centre including food store up to 2000m², A1-A5 (inclusive) and D1 use class units of up to 600m² total (with no single unit of more than 200m2) and family restaurant/ pub of up to 800m2 (A3/A4 use); site for primary school; open space including sports pitches with ancillary facilities; means of access and supporting infrastructure at Peel Hall, Warrington

AT PEEL HALL, WARRINGTON

# ADDENDUM 2 TO ENVIRONMENTAL STATEMENT
*(Volume 8)*

March 2020

Landscape Institute
Registered practice

17 Chorley Old Road,
Bolton,
Lancashire
BL1 3AD
Tel: 01204 393 006
Fax: 01204 388 792
E-mail: info@appletons.uk.com

appletons

www.appletons.uk.com @Appletons_LArch
Landscape Architecture • Ecology • Environmental Planning & Assessment • Arboriculture

# appletons

17 Chorley Old Road
Bolton
Lancashire
BL1 3AD

Tel: 01204 393006
Email: info@appletons.uk.com
Web: www.appletons.uk.com

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## Document

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| **FINAL** | **ENVIRONMENTAL STATEMENT ADDENDUM 2** | **-** | **DA** | **DA/DJS** | **CG/ CLM** | **20.03.2020** | |
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## Revisions to Final Document

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## 0.0 GENERAL INTRODUCTION

0.1 Satnam Millennium Ltd submitted a planning application to Warrington Borough Council on 11th July 2016: the description of the development is now agreed to be amended and now reads,

*"Outline application for a new residential neighbourhood including C2 and C3 uses; local centre including food store up to 2000m², A1-A5 (inclusive) and D1 use class units of up to 600m² total (with no single unit of more than 200m2) and family restaurant/ pub of up to 800m2 (A3/A4 use); site for primary school; open space including sports pitches with ancillary facilities; means of access and supporting infrastructure at Peel Hall, Warrington."*

*Local employment omitted as part of addendum 2

The Environmental Statement was been prepared after consultation with the Local Planning Authority, Warrington Borough Council, and their EIA Regulation 13 Scoping Opinion issued on the 28th November 2014 (**ES Appendix APP 4**).

0.2 This Environmental Statement Addendum (ESA) serves to up-date where necessary due to the passage of time information contained within the original ES and addendum 1, particularly with regard to planning policy, highways, noise, air quality, ecology and socio economic.

0.3 A revised layout has been considered as part of this addendum. The Parameters Plan for this layout can be found under **Appendix APP 6.**

0.4 The purpose of this Addendum is as a result two-fold:

1. To ensure the updated survey information are fully considered, and consulted upon as part of the EIA process; and,

2. To respond to comments relating to the findings of the original Environmental Statement and Addendum 1.

0.5 For reference, this ESA2 should be read alongside the ES dated July 2016 submitted with the application and the ES Addendum 1 dated January 2018, together with its associated Technical Appendices.

0.6 Each EIA topic has been given a separate chapter in this ESA2. However, in some instances it is not necessary to provide any additional information and in these cases the reader will be directed to the original ES (Environmental Statement) dated July 2016 and / or ESA1 (Environmental Statement Addendum 1) dated January 2018. The numbering of sections and paragraphs within this addendum follows that contained within the submitted Environmental Statement and

Addendum 1. Text should be read in conjunction with these volumes. Where there is no change to sections/paragraphs set out within the ES or ESA1, this will be referenced in the text without repetition. Where changes or supplementary information are made or provided, then new text will replace that within the ES or ESA1.

**Environmental Statement Addendum Format**

0.7 This Environmental Statement Addendum consists of four parts;

**Part 1 – Environmental Statement Addendum**

0.8 This section of the addendum in summary comprises of the following:

- Description of the Proposals
- Planning Policy and Designations
- Assessment of Impacts
- Identification of Mitigation
- Mitigation Proposals
- Identification of Residual Impacts
- Assessment of Cumulative Impacts
- Appendices

**Part 2 – General Conclusions**

0.10 This section provides a revised set of impact tables along with overall conclusions.

**Non Technical Summary**

0.11 This is a summary of results of the Environmental Statement in non-technical language and bound as a separate document.

# CONTENTS

- *APP 1: Detailed Phase 1 Habitat Maps (Drawings 1820-T1-A to -I)*
- *APP 2: Site Concerns Map*
- *APP 3: Phase 1 Survey Photographs*

ECO 10 2019 Roosting Bat Surveys

- *APP 1: Bat Survey Plans (Drawings 1820-T2-01 & 1820-T2-02)*
- *APP 2: Raw Data - Preliminary Bat Roost Assessment of Buildings*
- *APP 3: Raw Data - Dusk Emergence Bat Survey*
- *APP 4: Survey Photographs*

ECO 11 2019 Foraging Bat Surveys

- *APP 1: Figures 1820-T3-01 & -02: Transect routes*
- *APP 2: Figure 1820-T3-03: Overview of common pipistrelle bat activity*
  *Figure 1820-T3-04: Overview of noctule bat activity*
  *Figure 1820-T3-05: Overview of soprano, nathusius & natterer's bat activity*
- *APP 3: Raw transect data*

ECO 12 2019 Breeding Bird Survey

- *APP 1: Map 1: Peel Hall – Breeding Bird Survey Map - Visit 1*
  *Map 2: Peel Hall - Breeding Bird Survey Map - Visit 2*

ECO 13 2019 Barn Owl Habitat Suitability Assessment

ECO 14 2019 Water Vole Survey

- *APP 1: Appletons Drawing 1820-T6-01: Water vole survey plan & results*

ECO 15 2019 Great Crested Newt Survey

- *APP 1: Appletons Drawing 1820-T7-01: Pond locations and GCN Survey results*
- *APP 2: Pond photographs*

ECO 16 2019 Badger Survey- **(SEE SEPARATE FOLDER- Part 2)**

- *APP 1: Drawing 1820-T8-01 – Badger Survey Plan and Results*

ECO 17 2019 Hedgerow Regulations Survey

- *APP 1: Site Map and Hedgerows*
- *APP 2: Hedgerow photographs*

**HYDROLOGY, DRAINAGE AND FLOOD RISK**

*Refer to Original ES and Addendum 1.*

**LANDSCAPE AND VISUAL IMPACT** **3**

LND 10 Landscape Masterplan (1820_36)

**TRANSPORTATION AND HIGHWAYS** **4**

T1 Study Area
T2 Highway Network Rev A
T3 WOB Network Map
T4 PRoW
T5 19H Access
T6 Access Arrangement Plans
T7 WOB PH Timetables
T8 Pedestrian and Cycle Links
T9 Indicative Phasing Plans
T10 Junction Improvement Plans
T11 Flow Diagrams 2018
T12 Development Flow Diagrams
T13 Forecast Years Flow Diagrams
T14 TN09 Link Capacity Text

## 1.0 ENVIRONMENTAL STATEMENT PROJECT TEAM

1.1 The Peel Hall Environmental Statement was prepared on behalf of Satnam Millennium Limited by a project team comprising of Architects, Planners, Drainage and Hydrology Consultants, Ecologists, Environmental Consultants, Landscape Architects and Transportation Consultants. Both parts of this Addendum have been prepared by the same team members.

1.2 This document has been prepared by the same specialist consultants who prepared the original ES / ESA1, as set out below:

1.3 The following disciplines were commissioned;

| | |
|---|---|
| **Appletons** | Environmental Statement co-ordination, Site Context, Project Description, Landscape Masterplanning, Landscape and Visual Amenity, and Ecology |
| **Satnam Planning Ltd** | Planning Policy Context |
| **Transport Planning Associates** | Hydrology, Drainage and Flood Risk |
| **Highgate Transportation Ltd** | Transportation and Highways |
| **Nexus Heritage Ltd** | Archaeology |
| **Miller Goodall Ltd** | Air Quality and Noise (replace Hawkins Environmental for ESA2) |
| **Lichfields** | Socio-economics, Demographic Modelling and Social Infrastructure |
| **3D Reid** | Masterplanning and Block Design |

# PART 1

# 2.0 INTRODUCTION

## 2.1 Purpose and Approach

2.1.1 Satnam Millennium Ltd propose to develop the land at Peel Hall, Warrington. The proposed new residential neighbourhood would include up to 1200 houses with new access, a neighbourhood centre, ecological enhancement and public open space. The proposals now do not include the employment floor space proposed originally. This has been omitted following the concerns expressed by Inspector Schofield in his report (October 2018) and discussions with the highways department of Warrington Borough Council. This Environmental Statement has been prepared after consultation with the Local Planning Authority, Warrington Borough Council, and their EIA Regulation 13 Scoping Opinion issued on the 28th November 2014 (**ES Appendix APP 4**).

2.1.2 This remainder of this section of the Environmental Statement remains unchanged (2.1.2-2.1.6).

2.1.3 This ES Addendum 2 Part 1 has been prepared on the basis of the following documents:

- Parameters framework plan **(Appendix APP 6)** prepared by Appletons, landscape architects and environmental consultants, including areas for landscape retention, ecological features and proposed planting screen planting.
- Access Arrangement Plans **(Appendix T6)** prepared by Highgate Transportation Ltd.
- Site Location Plan.

**Environmental Statement Format**

2.2 This section of the ES remains unchanged (2.2- 2.2.3). See Section 0.0 General Introduction for details of Environmental Statement Addendum 2.

**Scope**

2.3 This section of the Environmental Statement remains unchanged (2.3).

**Consultations**

2.4 This section of the Environmental Statement remains unchanged (2.4).

## 2.5 The Development Proposals

### Description

2.5.1 The proposals subject of this addendum are for the construction of a new residential neighbourhood comprising up to 1200 houses. The location of the site is shown on **ES Appendix APP 1**.

2.5.2 **Appendix APP 6** is the Parameters Plan for the development. The Parameters Plan has planning status as it sets out the general disposition of separate land uses on the site and also the maximum heights of buildings and/ or infrastructure (vertical parameters) to be located within each development zone. The Parameters Plan shows the main constraints and opportunities for development such as vegetation to be retained together with proposed new planting and areas of open space. It is anticipated that the Parameters Plan will form the basis of outline planning permission for the site upon which reserved matters applications can be conditioned, as set out in the planning application covering letter dated 11th July 2016. Formal approval for vehicular access to the site is also sought at this stage of the approval process, based on the submitted plans (**Appendix T6**). As part of the EIA process, the proposed layout has undergone various amendments in response to baseline information gathered. The proposed layout inherently minimises some of the potential impacts identified especially in respect of habitats, protected species, visual amenity and landscape character. This is reflected in the Parameters Plan.

<u>The Housing</u>

2.5.3 This section of the Environmental Statement remains unchanged (2.5.3).

<u>Other Uses</u>

2.5.4 A local centre for retail and services also forms part of the application. This will comprise of a food store of up to 2000m2 and other ancillary stores and food outlets of up to 600m2. There is scope within the local centre for additional uses such as healthcare and local services. A primary school site and public open space also form part of the proposals.

2.5.5 Formal open space for sports is provided in two way, firstly as a replacement for the Mill Lane playing fields and secondly as a significant upgrade of the council owned facility at Radley Common.

2.5.6 Informal open space is to be created on the site as an extension of Peel Hall Park to the south east, up through the center of the site, connecting notable public areas outside the site (Radley Woodland Plantation and Radley Common linking to the PRoW thereby creating a significant area of open space to the south of the motorway. The whole network will link east/ west/ north/ south and will be fully accessible to the public.

Access

2.5.7 The proposed vehicular access to the site would be taken off a number of roads around the perimeter of the site including Poplars Avenue to the South, Birch Avenue to the west and Blackbrook Avenue and Mill Lane to the east. Pedestrian access will be from footpath links from adjacent residential areas to the south, east and west as well as from new footpaths alongside the vehicular access ways. The associated highways work will form a main spine road through the development allowing access via secondary roads into the various phases of residential development.

Landscape Scheme

2.5.8 The proposed landscape scheme for the site includes the retention of existing features of amenity, ecological and character importance, landscape and ecological enhancement to the northern boundary against the M62 motorway with extensive planting, and the creation of amenity areas with the planting of native species of local providence. Surface water retention ponds would be created within the northern buffer zones and would be designed and managed for wildlife. Both the outline landscape scheme and the master plan have been guided by baseline information gathered as part of the design process.

2.5.9 Fences and planting will form new boundaries to the site where required and the main spine road through the site will be in the form of a boulevard. External lighting will be kept to a minimum throughout the site with the exception of any lighting for sports.

**Construction Phasing and Timescales**

2.5.10 Before the commencement of any works on site, including preparation work, areas identified for exclusion will be marked out on site with access restricted.

2.5.11 In year one the construction of the new access points and roads, internal roads to phase 1 housing parcels, initial internal roads, associated drainage, acoustic fencing and screen planting would take place.

2.5.12 This section of the Environmental Statement remains unchanged (2.5.11 – 2.5.16).

# 3.0 THE SITE IN CONTEXT

## 3.1 Introduction

3.1.1 This section of the Environmental Statement remains unchanged (3.1.1).

## 3.2 Site Location and Adjacent Land uses

3.2.1 This section of the Environmental Statement remains unchanged (3.2.1 – 3.2.6).

## 3.3 Site Description

3.3.1 This section of the Environmental Statement remains unchanged (3.3.1 – 3.3.5).

## 3.4 Agricultural land Quality

3.4.1 Refer to paragraph 8.21.2.

## 3.5 Flood risk assessment

This section of the Environmental Statement remains unchanged (3.5).

# 4.0 DEVELOPMENT ALTERNATIVES

## 4.1 Introduction

4.1.1 This section describes the main alternatives that were assessed in the consideration of the scheme and development of the proposals.

## 4.2 Alternative Options

4.2.1 The following options have been considered as part of the Environmental Impact Assessment process:

**Do nothing scenario**

4.2.2 This section of the Environmental Statement remains unchanged (4.2.3 – 4.2.4).

## 4.3 Alternative Layouts

4.3.1 As part of the design process the proposed layout has undergone various amendments in response to baseline information gathered. The proposed layout therefore would inherently minimise some of the potential impacts identified especially in respect of biodiversity, ecological features, visual amenity and landscape character.

## 4.4 Conclusion

4.4.1 This section of the Environmental Statement remains unchanged (4.4.1).

# 5.0 PLANNING POLICY CONTEXT

## 5.1 Introduction

This section of the Environmental Statement remains unchanged (5.1.1).

5.1.2 The process of Environmental Impact Assessment is governed by the Town and Country Planning (Environmental Impact Assessment) Regulations 2011, as updated in 2017

## 5.2 National Planning Guidance

### 5.2.1 Planning Policy

Current land use planning policy for England is contained within National Planning Policy Framework (February 2019). The policies contained therein provide a strategic framework for the preparation of development plans, which may be considered in the determination of individual planning applications as material consideration.

5.2.2 NPPF sets out the achievement of sustainable development are a central objective of the Government's aims and this has economic, social and environmental aspects (paras 7 & 8). The NPPF states (paragraph 11) that the development plan is the starting point for decision making and "*development proposals that accord with an up to date Development Plan"* should be approved without delay. Paragraph 2 confirms that *"NPPF is a material consideration in planning decisions".*

5.2.3 Paragraph 7 states that, *"the purpose of the planning system is to contribute to the achievement of sustainable development"* and para 11 states that,

*For decision taking this means:*

*c) approving development proposals that accord with the Development Plan without delay; or*

*d) where there are no relevant development plan policies, or the policies which are most important for determining the application are out-of-date, granting permission unless;*

*i. the application of policies in this Framework that protect areas or assets of particular importance provides a clear reason for refusing the development proposed; or*

ii. *any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in this Framework taken as a whole.*

5.2.4 Paragraph 59 relates to housing development and requires the planning process "*to support the Government's objective of significantly boosting the supply of housing"* and Para 67 requires Local Authorities to maintain *"specific deliverable sites"* for a 5 year period as a minimum.

5.2.5 Further, and with specific reference to Warrington (which does not have a minimum 5 year plus buffer supply of housing land) the footnote to para 11(d) confirms in relation to the requirement for local authorities to maintain a 5 year (plus buffer) supply of housing sites that, relevant policies for the supply of housing should not be considered up to date if the local planning authority cannot demonstrate a 5 year supply of deliverable housing sites.

5.2.6 Guidance regarding landscape designations is set out at paragraph 172 and this refers to national designations which states that,

> "*Great weight should be given to conserving landscape and scenic beauty in the National Parks, The Broads and Areas of Outstanding Natural Beauty which have the higher status of protection in relation to landscape and scenic beauty*".

5.2.7 Further, paragraph 172 also states,

> "*Planning permission should be refused for major developments in these designated areas*".

There are no national or local designations in the context of this proposal.

**5.2.8 Local Planning Policies**

This section of the Environmental Statement remains unchanged.

**5.3 The Local Plan Core Strategy July 2014**

**Designations**

This section of the Environmental Statement remains unchanged (5.3.1 – 5.3.2).

**Housing Supply**

5.3.3 There are 2 issues relevant to the supply of housing in Warrington Borough. Firstly, as a direct result of the high court quashing the part of the plan relating to housing requirements there is no housing requirement or target for Warrington against which supply can be measured. As such, there is not able to be a 5 year supply of housing land within Warrington Borough. Secondly, as set out in the 2020 monitoring documents published by Warrington Borough Council, there is less than a 5 year supply set against OAN for the Borough.

5.3.4 In the light of this shortfall the advice in paragraph 11(d) that relevant policies for the supply of housing should not be considered up to date applies.

5.3.5 Furthermore since the site is agreed to be regarded as a sustainable location, the housing element of this scheme should be considered in the context of the presumption in favour of sustainable development (paragraph 11 of NPPF).

## 5.4 Sustainability

5.4.1 The site and the development is able to be regarded as sustainable. There is a policy presumption in favour of the approval of substantial development set out in NPPF (paragraph 11).

5.4.2 This section of the Environmental Statement remains unchanged (5.4.2 – 5.4.5).

## Conclusion

5.5 This section of the Environmental Statement remains unchanged.

# 6.0 ECOLOGY AND NATURE CONSERVATION

## 6.1 INTRODUCTION

6.1.1 Section 6.1 of this Addendum serves as an update to the original Environmental Statement and Addendum 1; it therefore entirely replaces Section 6.1 of the submitted Environmental Statement and Addendum 1. Methodologies are presented separately as Section 6.2.

6.1.2 This chapter of the ES deals with ecological and nature conservation issues in relation to the proposed development. It considers both direct and indirect ecological effects and mitigation. The 2019 surveys act as a comprehensive update to all ecology work previously undertaken at the site between 2012 and 2017, detailed within the Environmental Statement (July 2016) and Addendum 1 (January, 2018).

6.1.3 The basic objective of the 2019 survey work was to obtain up to date information on habitats and/or species that may be affected by the development of the site. To achieve this objective the survey effort identified the following:

- The presence of any statutory wildlife sites
- The presence of any non-statutory wildlife sites
- The presence/potential presence of species or habitats with statutory protection
- The presence/potential presence of species or habitats with non-statutory protection
- The presence/potential presence of species or habitats that require special consideration during the development.

6.1.4 The 2013, 2016 & 2017 survey work was re-evaluated to identify where surveys needed to be updated or repeated. The following requirements were established:

- Phase 1 Habitat Survey - updated evaluation required.
- Breeding Bird Survey - updated evaluation required.
- Water Vole Survey - updated evaluation required.
- Great Crested Newt Survey - updated evaluation required.
- Badger Survey - updated evaluation required.
- Hedgerows Regulations Assessment - updated evaluation required.
- Bat Activity Survey - updated evaluation required.
- Barn Owl Survey - updated evaluation required.

6.1.5 The extent of the survey area has been amended since previous survey work to include properties along Poplar Avenue. Consequently, in addition to the updated surveys listed above, a Preliminary Bat Roost Assessment of Buildings and Trees was undertaken along with subsequent Bat Roost Emergence surveys. This work included an updated assessment of all trees within the site area in relation to potential roosting value for bats.

6.1.6 Lorraine McKee MSc GradCIEEM, Project Ecologist at Appletons acted as lead surveyor for the 2019 habitat, hedgerow and bat survey work at the site. Paula Bateson MSc ACIEEM, Senior Ecologist acted as lead surveyor for badger, water vole and barn owl survey work. The breeding bird survey was undertaken by an experienced ornithologist, familiar with the site from previous bird survey work: Ian Ryding, Consultant Ecologist for Pennine Ecological. The great crested newt survey undertaken as part of this study was undertaken by an experienced ecologist familiar with the site from previous GCN survey work: Robert Leatham, Consultant Ecologist for Pennine Ecological.

6.1.7 The current ES Chapter has been compiled by Paula Bateson MSc ACIEEM, Senior Ecologist at Appletons, with Ian Ryding, Consultant Ecologist for Pennine Ecological, contributing text relating to breeding birds.

**Accompanying technical information**

6.1.8 An overall Phase 1 Habitat Map is supplied as **Appendix ECO 1**, selected raw desk study data is provided as **Appendix ECO 2.**

6.1.9 The current chapter of the ES provides an overview of survey findings, conclusions and any recommended mitigation relative to potential impact of proposals. Detailed mitigation strategies are appended to the current report as **Appendices ECO 3, ECO 4, ECO 5** and **ECO 6**.

6.1.10 Other documents referenced within the current Chapter include a Site Concerns Map, provided as **Appendix ECO 7** and an overview of relevant wildlife legislation, **Appendix ECO 8.**

6.1.11 The current chapter of the ES includes an overview of survey methodologies (Section 6.2) and findings (Sections 6.4 and 6.5) of the 2019 survey work. For further technical detail in relation to specific survey methodologies, survey personnel, dates and raw results data, a suite of annex reports has been prepared to accompany this Chapter, supplied as separate technical appendixes. These appendixes also include comparisons with previous survey results where relevant. Accompanying technical appendices are as follows:

- **ECO 9:** 2019 Phase 1 Habitat Survey
- **ECO 10:** 2019 Roosting Bat Surveys
- **ECO 11:** 2019 Foraging Bat Surveys
- **ECO 12:** 2019 Breeding Bird Survey
- **ECO 13:** 2017 Barn Owl Habitat Suitability Assessment
- **ECO 14:** 2019 Water Vole Survey
- **ECO 15:** 2019 Great Crested Newt Survey
- **ECO 16:** 2019 Badger Survey
- **ECO 17:** 2019 Hedgerows Regulations Assessment

**Site Location and Description**

6.1.12 The site area measures approximately 68ha and is centred at Ordnance Survey Grid Reference SJ 61601 91689 within the northern limits of Warrington (see **Figure 6.1**). The site is bound by the M62 motorway to the north and residential development to the east, west and parts of the southern boundary. Mill Lane abuts to the east, Poplars Avenue to the south, and Birch Avenue and Elm Road to the west. Radley Plantation and Radley Common are located immediately adjacent to southern parts of the site.

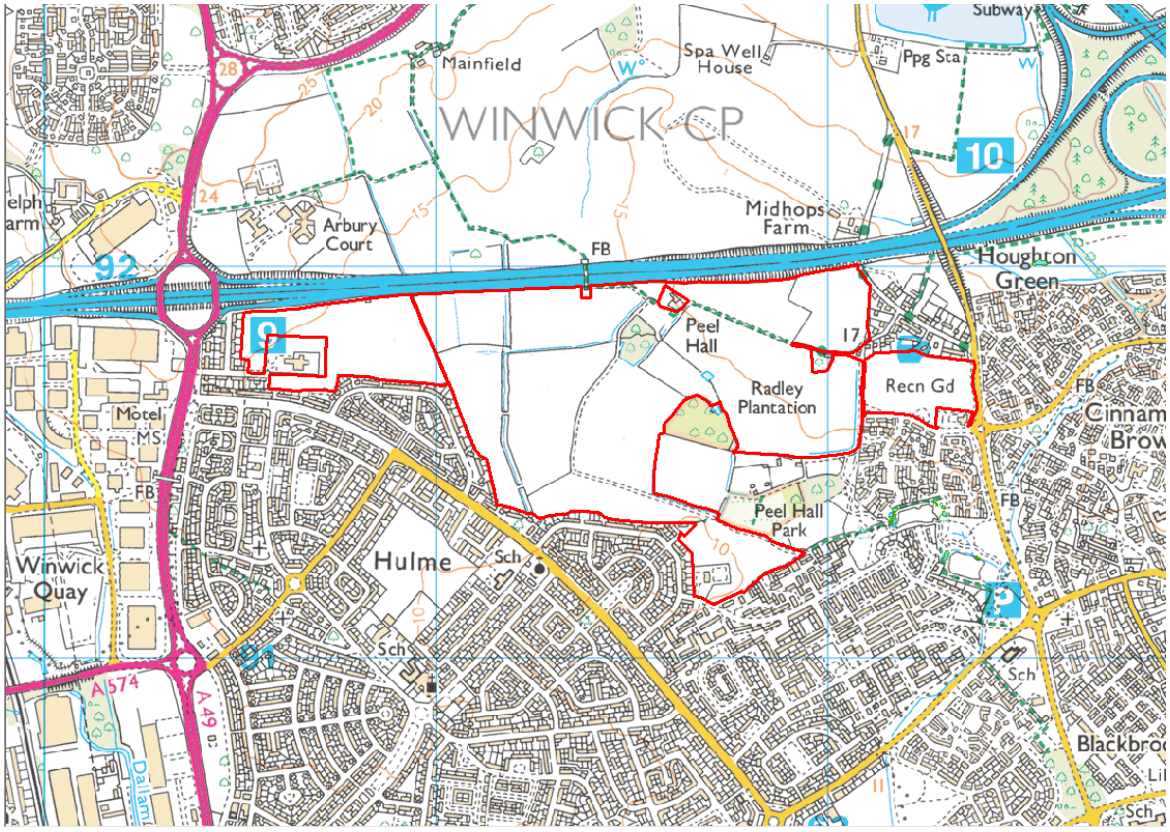


**Figure 6.1: Site area, location and context in landscape (Ordnance Survey, 2019)**

6.1.13 The wider landscape is dominated by residential and industrial developments of Warrington to the south and arable farmland to the north of the M62 motorway.

6.1.14 The application site itself comprises a series of large former arable fields sub-divided by ditches and defunct fragmented hedgerows. The open fields have been historically ploughed and left to grow rank and are now characterised by complex mosaics of coarse grassland, tall ruderal herb, dry stands of common reed and regenerating scrub of varying densities. It is understood the fields have not been managed as arable land since at least 1990, although it is understood vegetation has occasionally been managed by cutting and/or spraying. Other habitats on site include three ponds and substantial linear stands of immature broad-leaved woodland to the southern site boundary. To the east and south of the main site area, two recreational fields characterised by regularly mown of amenity grassland with boundary habitats of trees, woodland and hedgerow are also included within the application site boundary.

6.1.15 Seven residential properties along Poplars Avenue are newly included within the application site boundary, at two locations along the south-western site boundary.

6.1.16 In comparison to previous surveys, the main site area has continued along the trajectory of seral succession from grassland through to scrub.

**Summary of site proposals**

6.1.17 Satnam Millennium Ltd propose to develop the land at Peel Hall, Warrington. The proposed new residential neighbourhood would include up to 1200 houses, a neighbourhood centre, school, recreational playing fields, public open space and ecological enhancement areas. A main non through link road with bus gate will pass east-west through the site connecting Mill Lane and the east of the site to Poplars Avenue at the west.

6.1.18 A Parameters Plan is attached to this report as **Appendix APP 6** which demonstrates the conceptual layout of proposals in terms of key proposed land-use types. Based on the results of previous and updated ecology survey work at the site, various linear buffer zones of habitat creation have been included on the parameters plan including either side of Spa Brook, along ditches and hedgerows as well as adjacent to Radley Woods Plantation. A wide (~50metre) belt of habitat creation is also proposed along the northern site boundary.

## 6.2 METHODOLOGIES AND CONSTRAINTS

6.2.1 Section 6.2 of this Addendum serves as an update to the original Environmental Statement and Addendum 1; it therefore entirely replaces the corresponding Section of the submitted Environmental Statement and Addendum 1.

6.2.2 This section provides a summary of survey methodologies for each ecology survey undertaken on site, which largely conform with those described by the original ES and Addendum 1, aside from additional survey work for bats and great crested newt, along with a finer grain of detail in relation to habitat data collection.

**Scope of Assessment**

6.2.3 The surveys and assessment aim to inform the likely impact of the proposed development on:

- Designated statutory and non-statutory nature conservation sites within 2km of the development;
- Species and habitats protected by European or/and UK legislation;
- Habitats and species of principle importance for the conservation of biodiversity in England (Section 41 of NERC Act, 2006); and,
- Habitats and species listed is priority species on the Local Biodiversity Action Plan.

**Desk study**

6.2.4 An updated desk top study was undertaken in December 2019, to determine the presence of any designated nature conservation sites and records of protected/notable habitats and species within a 2km radius of the site. The desk study search included the following consultees and resources:

- rECOrd, the local biological record centre for the Cheshire region, to determine the presence of any designated nature conservation sites and records of protected/notable species;
- 'MAGIC' (Multi Agency Geographical Information for the Countryside), to search locations of statutory nature conservation sites, as well as potential priority habitat types, ancient woodland and EPSM (European Protected Species Mitigation) licences;
- Ordnance Survey (OS) maps and aerial imagery (Google Earth), to help determine the extent of habitats occurring on and close to the site and habitat connectivity to the wider landscape; historical map and aerial data was also consulted using Google Earth to inform an understanding of former site use, in combination with previous survey reports;
- Natural England website to review the National Character Area profile for the Mersey Valley (http://publications.naturalengland.org.uk/file/5757459629080576); and,
- The Woodland Trust Ancient Tree Inventory (https://ati.woodlandtrust.org.uk/) to search for any potential ancient, veteran or notable tree specimens within the local area.

6.2.5 The Warrington Borough Council Planning Portal was also consulted for nearby planning applications in order to assess potential cumulative impacts. Any associated ecological reports were reviewed for potentially relevant data.

6.2.6 The data collected from these consultees is discussed in Section 6.3. Selected raw data are provided as **Appendix ECO 2**. In compliance with the terms and conditions relating to its commercial use, full desk study data is not provided within this report.

**Habitat Surveys**

6.2.7 A Phase 1 Habitat Survey and Hedgerows Regulations Assessment were undertaken at the site.

*Phase 1 Habitat Survey*

6.2.8 The Phase 1 Habitat Survey is a standard technique for classifying and mapping British habitats. The aim is to provide a record of habitats that are present on site.

6.2.9 The Phase 1 Habitat Survey was conducted following the methodology of the Joint Nature Conservation Committee (JNCC, 2010) and the Institute of Environmental Assessment (IEA, 1995) and was carried out across various dates between May and October 2019 by Lorraine McKee MSc GradCIEEM, Project Ecologist.

6.2.10 Chapter 6.4 of the current report provides broad descriptions of each habitat type with references to representative and notable species only, and an overall Phase 1 Habitat Survey map is

provided as **Appendix ECO 1**, which illustrates the location and extent of all habitat types recorded within the site area.

6.2.11 Species lists with DAFOR abundance scores were collected for individual habitat areas where appropriate, which are provided with detailed habitat descriptions and Target Notes as **Appendix ECO 9**. **Appendix ECO 9** also includes further detail on survey methodologies along with compartmentalised Phase 1 Habitat Maps with Target Notes.

6.2.12 Whilst every effort has been made to identify and map any invasive plant species listed on Schedule 9 of the Wildlife and Countryside Act (1981, as amended), it should be noted that this was not a specific survey for these species. A Site Concerns map is provided as **Appendix ECO 7**, which was produced for purposes separate to ecology, but is of relevance in demonstrating the approximate location and extent of invasive flora as well as other areas of anthropogenically caused habitat degradation.

*Hedgerow Regulations Assessment*

6.2.13 All hedgerows, excluding those defining the boundaries of adjacent domestic properties were assessed in relation to the ecology and landscape criteria that defines an 'important hedgerow' in accordance with The Hedgerow Regulations Act (1997). This survey was undertaken in March 2019 by Lorraine McKee MSc GradCIEEM, Project Ecologist. Results are summarised in Section 6.4 of the current chapter whilst detailed methodologies and results are provided as **Appendix ECO 17.**

**Protected Species Surveys**

6.2.14 Phase 2 surveys were undertaken in respect of roosting and foraging bats, water vole *Arvicola amphibius*, breeding birds, barn owl *Tyto alba*, badger *Meles meles*, great crested newt *Triturus cristatus*, as set out as **Table 6.1**, overleaf. Further detail on survey methodologies, including survey dates, survey personnel and weather conditions is provided in **Appendices ECO 9 to 16.**

**Survey constraints**

6.2.15 No limitations were experienced during the hedgerow or breeding bird surveys. The remainder of surveys were subject to constraints, ranging from minor to major, outlined below.

<u>Phase 1 Habitat Survey</u>

6.2.16 The survey was undertaken across numerous site visits between May and October 2019, covering the peak survey season for botanical assessment. However botanical assessments of site areas of such a large scale are accompanied with an inherent risk that certain species may not be apparent within areas of the site surveyed, dependent on the time of year that separate areas area surveyed. Considering the generally homogenous character of site habitats however, this was a minor constraint and not considered significant in the context of overall survey conclusions.

**Table 6.1: Summary of protected species survey methodologies**

| Faunal group | Survey methodology | Date of 2019 surveys<br>*Date of any previous surveys* | Guidance |
|---|---|---|---|
| Roosting bats | Daytime assessments of all buildings and trees for potential bat roosting features, followed by dusk emergence bat surveys. | April – July 2019<br>*No previous survey undertaken* | Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd edition*. The Bat Conservation Trust, London. |
| Foraging and commuting bats | Monthly dusk manual transect surveys throughout the bat activity season & one dawn transect survey. Transect routes walked by surveyors with regular data collection stop points. Surveys lasted approximately 2 hours. | April - Sept 2019<br>*July - Sept 2015*<br>*July - Sept 2016** | Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd edition*. The Bat Conservation Trust, London.<br>Bat Conservation Trust (no date) *National Bat Monitoring Programme*. The Bat Conservation Trust, London. |
| Breeding birds | Two morning visits during which all bird activity was recorded from walked transect routes and listening points. Criteria to determine whether birds were breeding or not follows 'The New Atlas of Breeding Birds in Britain and Ireland: 1988-1991.' | April - May 2019<br>*June - July 2013*<br>*June - July 2017* | British Trust for Ornithology (1983) *Common Bird Census Instructions*. BTO, Norfolk.<br>British Trust for Ornithology (2018) *BTO/JNCC/RSPB Breeding Bird Survey Instructions*. BTO, Norfolk. |
| Barn owl | Review of all site survey field notes for recordings of barn owl and habitat and suitability assessment. | April - Sept 2019<br>*Sept 2015* | Barn Owl Trust (2012). *Barn Owl Conservation Handbook.* Pelagic Publishing. Exeter<br>Shawyer, C. R. (2011). *Barn Owl Tyto alba Survey Methodology and Techniques for use in Ecological Assessment: Developing Best Practice in Survey and Reporting*. IEEM, Winchester. |
| Water vole | A search of watercourses / waterbodies on and within 200m of the site for any signs of water vole presence, such as burrows, droppings, latrine sites, feeding stations, footprints and runs. | April 2019<br>*August 2013*<br>*August 2015* | Dean, M., Strachen, R., Gow, D. and Andrews, R. (2016) *The Water Vole Mitigation Handbook (The mammal society mitigation guidance series)* Eds Fiona Matthews and Paul Chanin. The Mammal Society, London. |
| Great crested newt | All potential aquatic habitat for breeding great crested newts within 250m of the proposed development footprint was subject to an initial Habitat Suitability Assessment and between four and six subsequent survey visits between May and June. Survey methodologies on each visit included torchlight search, bottle trapping, egg search and refuge search. 2019 surveys included GCN environmental DNA (eDNA) analysis | April - June 2019<br>*May - June 2012* | Biggs, J., Ewald, N., Valentinim A., Gaboriaud, C., Griffiths, R.A., Foster, J., Wilkinson, J., Arnett, A., Williams, P. and Dunn, F. (2014). *Analytical and methodological development for improved surveillance of the Great Crested Newt.* Defra Project WC1067. Freshwater Habitats Trust: Oxford.<br>Oldham R. S., Keeble, J., Swan, M. J. S. and Jeffcote, M. (2000). '*Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus)'.* Herpetological Journal 10 (4), 143-155.<br>English Nature. (2001). *Great Crested Newt Mitigation Guidelines*. English Nature, Peterborough. |
| Badger | A comprehensive search for badger field signs within suitable habitats on and within 50 metres of the site boundary. (i.e. pawprints, sett entrances, pathways, hairs, snuffle holes and latrine sites) | March 2019<br>*August 2013*<br>*August 2015* | Harris, S. Cresswell, P. and Jefferies, D. (1989) *Surveying Badgers*. The Mammal Society Publication No. 9. |
| *: survey of southern amenity playing field only | | | |

Badger

6.2.17 Occasional areas of the site could not be fully inspected for evidence of badger at the time of the survey due to the presence of impenetrable scrub. Key areas of constrained access are highlighted on the associated survey plan. Any mammal trails into dense scrub were followed and no evidence of badger was recorded, indicating a lack of use by badger. Owing to the time of year (March) and low vegetation cover, this constraint was minor in comparison to Moderate-Minor by the August 2013 and 2015 surveys, and was not considered likely to influence the overall survey conclusions.

Water vole

6.2.18 Occasional stretches of ditches and watercourses could not be fully inspected for evidence of water vole at the time of the April survey due to the presence of impenetrable scrub. Dense stands of common reed also impaired visual inspections of banks. Key areas of dense scrub and reed are highlighted on the associated survey results plan. Owing to the time of year of the April survey visit and low vegetation cover, this constraint was Moderate, in comparison to August 2013 and 2015 surveys, which experienced Major constraints.

6.2.19 Water vole evidence and activity can vary along a watercourse between Spring and Summer, and thus a second summer survey visit is recommended by guidance (Dean et al., 2016). This second survey was subject to Major constraints owing to continuous impenetrable scrub and reed within and adjacent to ditch features and was concluded as not physically possible. Constraints are taken into account within all conclusions, discussions and impact assessments in relation to water vole.

Great crested newt (GCN)

6.2.20 Guidance recommends at least half of all GCN survey visits should be undertaken between mid-April and mid-May to record peak numbers of GCN (English Nature, 2001). In this instance, all surveys were undertaken between mid-May and mid-June; however due to the cold weather in April 2019 (only six nights with an overnight low of above 5$^{o}$C) the timing of survey is considered acceptable. Natural England have accepted mid-May to mid-June survey data in the past under similar circumstances and this was not considered a significant constraint to overall survey conclusions.

Roosting Bats

6.2.21 Of the seven buildings within the site area, one residence (No. 346, Poplars Avenue) could not be accessed to undertake an internal or external bat roost inspection, or dusk/dawn bat activity surveys. The house was viewed from the street and considered likely to be of the same build and condition as all other houses surveyed. In addition, the property was incidentally observed during dusk emergence surveys of adjacent buildings. However, without direct access the potential value of the property for roosting bats could not be comprehensively assessed and the presence or likely absence of roosting bats could not be categorically concluded.

6.2.22 Property No.s 350, 456 and 466 Poplars Avenue are all directly connected to properties within the site area, and as such could be indirectly impacted upon by proposals owing to proximity. Similar to above, these properties could not be accessed and were only partially covered by dusk emergence surveys of the neighbouring buildings.

6.2.23 Some outbuildings and garages could not be entered due to health and safety concerns, such as structural safety or the presence of asbestos.

6.2.24 The inspection of trees on site for potential roosting features was minorly constrained due to the presence of foliage throughout the summer months. This was considered to be a minor constraint due to a general lack of maturity in the tree species present on site.

6.2.25 All above constraints are taken into account within all conclusions, discussions and impact assessments in relation to roosting bats.

Foraging Bats

6.2.26 Bat Conservation Trust guidance (Collins, 2016) recommends that monthly automated surveys are undertaken in conjunction with transect surveys for sites with moderate potential value for foraging/commuting bats. Static bat detectors were not deployed in this instance due to the high risk of equipment theft or vandalization.

6.2.27 Transect routes were started from the same vantage and stop points each visit and walked in the same directions each visit. This approach was undertaken for the purpose of accurately comparing data between months, however it is acknowledged that this approach comes with the inherent risk that areas of bat activity at certain locations and times could be missed, especially given the large size of the site.

6.2.28 All but one of the transect routes were modified for the August and September survey visits, due to impenetrable vegetation and unsafe conditions underfoot. Transects aimed to cover as many original stop points and linear features as possible.

6.2.29 Woodland habitats were not entered into by any of the transect routes owing to safety hazards (e.g. giant hogweed, fly tipping, asbestos and evidence of drug use). Woodland edge habitats were fully surveyed.

6.2.30 Each occurrence of a bat (heard or seen) was treated as one record or “contact” in the context of data analysis. This may result in the over-representation of species with short wavelength echolocation, and underrepresentation of bat species with long wavelength echolocation. For example, one pipistrelle bat foraging along the length of a hedgerow may be recorded as several

separate bat passes, whereas continuous noctule activity may only be recorded as one contact if the bat does not go out of range. Qualitative data collected provides context to these instances.

6.2.31 All of the above constraints are taken into account within conclusions, discussions and impact assessments in relation to foraging and commuting bats.

**Determining importance of site features**

6.2.32 The ecological value, or potential value, of site features is determined within a defined geographical context. The geographic frame of reference used to determine the predicted value of the ecological receptors is as follows:

- International
- National (England)
- County (Cheshire)
- District (Unitary Authority or Borough)
- Local (Parish)
- Site (Within confines of site)

6.2.33 The value of habitats and species assemblages had been measured against published selection criteria which include the following:

- Guidelines for the selection of biological SSSIs
- UK Biodiversity Action Plans and Section 41 Species and Habitats of principal importance in England (NERC Act, 2006).
- Local Wildlife Site Criterion for the Cheshire Region
- Cheshire Biodiversity Action Plan
- Relevant Red Data List/Book species and Nationally Scarce species not covered by the above, or any other lists / schedules of species rarity or importance.

6.2.34 The legislative requirements of key species and habitats are also considered in this assessment including:

- Wildlife and Countryside Act 1981 (as amended)
- Conservation of Habitat and Species Regulations 2017
- Protection of Badgers Act 1992

6.2.35 An overview of relevant wildlife legislation and policy is provided as **Appendix ECO 8.**

6.2.36 Habitats and species were also evaluated with reference to standard nature conservation criteria as described by Ratcliffe (1977) and the Nature Conservancy Council (1989), including diversity; naturalness; rarity; fragility and position in an ecological unit.

6.2.37 The site was also assessed in terms of 'functionality', in relation to nearby nature conservation sites. Functional habitat is the term given to an undesignated area lying beyond the boundary of a protected site, which is nevertheless used by designated species populations. When an essential ecological function, such as foraging, occurs beyond a site boundary, then the area within which this occurs is termed *functionally linked land*, or is known as *functional habitat*.

**Determining significance of impacts**

6.2.38 Impacts are assessed based on Landscape Parameters Plan (**Appendix APP 6**). The following characteristics of impact will be considered:

- Positive or negative
- Extent
- Magnitude
- Duration
- Timing
- Frequency
- Reversibility

6.2.39 The significance of effects will be qualified with reference to an appropriate geographic scale. For example, impacts upon the national populations of species of importance at a nationally designated nature conservation site, or impacts to local populations of species within a locally designated nature conservation site.

6.2.40 The likely impact of the proposed site works, in the absence of mitigation, is evaluated against the criteria laid out in **Table 6.2** below which is based on NATA (New Approach to Appraisal) as described by Byron, 2000.

6.2.41 Impacts will be considered for each development phase i.e. site clearance and development (construction impacts), and post-development (operational impacts)

**Table 6.2: Impact Assessment Table**

| Impact magnitude | Nature conservation importance | | | | |
|---|---|---|---|---|---|
| | ***Site*** | ***Local*** | ***District / County*** | ***National*** | ***European*** |
| **Beneficial** | Non significant | Non significant | Non significant | Non significant | Non significant |
| **Nil effect** | Non significant | Non significant | Non significant | Non significant | Non significant |
| **Minor** (short term/ reversible) | Non significant | Non significant | Slight | Moderate | Moderate |
| **Moderate** (deterioration of feature) | Non significant | Slight | Moderate | Severe | Severe |
| **High** (loss of feature) | Non significant | Slight | Moderate | Severe | Severe |

## 6.3 DESK STUDY RESULTS

6.3.1 Section 6.3 of this Chapter serves as an update to the original Environmental Statement and Addendum 1; therefore it replaces the corresponding section of the original ES. Refer to original ES and Addendum 1 for August 2015 and August 2017 Desk Study Results (6.2.1 – 6.2.3).

**Statutory Nature Conservation Sites**

6.3.2 No statutory nature conservation sites are present within the application site.

6.3.3 Reference to the Natural England MAGIC website indicates that no statutory nature conservation sites are present within a 2km radius of the site.

6.3.4 The site area is located across three Site of Special Scientific Interest (SSSI) Impact Risk Zones (IRZs). SSSI IRZs are utilised by Local Planning Authorities to assess planning applications for likely impacts on SSSIs. The Impact Risk Zones within which the site is located do not stipulate that any further consultation or assessment is required for residential planning applications.

**Non-Statutory Nature Conservation Sites**

6.3.5 The data provided by the local biological records centre indicates that five non-statutory nature conservation sites (Local Wildlife Sites) occur within a 2km radius of the site, summarised in **Table 6.3** overleaf. **Table 6.3** also summarises the connectivity between each Local Wildlife Site and the proposal site. Sites are listed in order of proximity to the scheme (closest site first). Owing to its proximity to the site, the map and citation for Radley Plantation and Pond Local Wildlife Site is included within **Appendix ECO 2**.

**Table 6.3: Local Wildlife Sites within 2km of the application site**

| Local Wildlife Site | Proximity to site | Key ecological features (as extracted from rECOrd citations) | Connectivity Assessment |
|---|---|---|---|
| Radley Plantation and Pond | Directly abuts the application site | A mixed broadleaf plantation with a reasonably good structure although not conforming to any NVC community. Large, mature sycamore, pedunculate oak and ash form the main canopy with frequent mature wild cherry. There is evidence of ash regeneration and much under-planting.<br><br>Hazel, hawthorn, rowan and field maple form the understorey. The ground flora of the plantation is typically impoverished. There is a pond of moderate to good quality in the north east corner which is becoming surrounded by scrub and Himalayan balsam. A locally rare species of cranefly (*Prionocera subserricornis*) has been recorded by the pond.<br><br>Criteria for selection: Ponds and ditches & accessible natural green space | Excellent connectivity:<br><br>Radley Plantation and Pond abuts the site with no barrier or hinderance to species wishing to move between the LWS and the proposal site. One of the LWS ponds lies on the boundary of the LWS and the proposal site. |
| Houghton Green Pool | 600m north | A field excavated in the 1960s which now attracts significant and increasing numbers of wildfowl and waders.<br><br>Species present include: coot, pochard, tufted duck, little grebe, great crested grebe, golden plover, wigeon, gadwall, mallard, pintail, garganey, shoveler, ringed plover, ruddy duck, lapwing, dunlin, snipe, redshank, common sandpiper, lesser yellowlegs. various gull species and passerines. | Poor connectivity:<br><br>LWS situated beyond the M62 motorway from the application site. Low flying bird species have limited connectivity across the M62 owing to collision risk and air turbulence caused by the movement of vehicles.<br><br>Higher flying bird species may move between and application site & LWS.<br><br>No known hydrological connections exist between the proposal site and this LWS. |
| Winwick Old Quay | 850m south-west | Winwick old quay has large areas of rank grassland which are succeeding to tall ruderal vegetation and scrub. Other parts of the site are closely mown and there are blocks of species poor plantation woodland.<br><br>There are several patches of species rich grassland which have probably been sown with species such as birdsfoot trefoils, cowslip, selfheal, yarrow, meadow vetchling, toadflax, wild carrot, ladies bedstraw, field scabious and the scarce grass vetchling. These areas are particularly important for terrestrial invertebrates.<br><br>A number of old ponds are overgrown with typha (common reedmace) and Himalayan balsam dominates the surrounding areas. One pond has large areas of the non-native invasive *Crassula helmsii*. Stanner's pool is a well-managed fishing pool and has a good variety of wetland vegetation, albeit probably introduced. The non-native invasive waterweed *Elodea* is present in Stanner's pool. | Exceptionally poor connectivity:<br><br>The LWS is situated a significant distance from the proposal site beyond residential areas, a large industrial estate and the A49.<br><br>Citation implies key ecological features of LWS are plants and habitats as opposed to mobile or migratory terrestrial species.<br><br>No known hydrological connections exist between the proposal site and this LWS. |
| Sankey Brook | 995m south-west | Sankey brook wildlife corridor provides a physical link between three wildlife sites, Bewsey LNR, Gemini Washlands and Winwick quay. Although the stream itself is | Exceptionally poor connectivity: |

| | | | |
|---|---|---|---|
| | | of low wildlife value, its position in the landscape is crucially important as it provides a mechanism for species dispersal between the three sites as well as to the wider countryside to the north. The brook supports several wetland bird species including kingfisher, heron and moorhen. | The LWS is situated a significant distance from the proposal site beyond residential areas, a large industrial estate and the A49.<br><br>No known hydrological connections exist between the proposal site and this LWS. |
| Gemini Washlands | 1.3km west | The site description for the washlands is incomplete and provides a species list as follows:<br><br>Couch grass *Agropyron repens*, Common bent grass *Agrostis repens*, Wild angelica *Angelica sylvestris*, Rosebay willow herb *Chamerion angustifolium*, Tufted hair grass *Deschampsia cespitosa*, Yorkshire fog *Holcus lanatus*, Soft rush *Juncus effusus*, Reed Canary grass *Phalaris arundinacea*, Stinging nettle *Urtica dioica*, Reed bunting *Emberiza schoeniclus*, Sedge warbler *Acrocephalus schoenobaenus*, Snipe *Gallinago gallinago*. | Exceptionally poor connectivity:<br><br>The LWS is situated a significant distance from the proposal site beyond residential areas, a large industrial estate and the A49.<br><br>Citation implies key ecological features of LWS are plants and habitats as opposed to mobile or migratory terrestrial species.<br><br>No known hydrological connections exist between the proposal site and this LWS. |

**Habitats**

6.3.6 A review of Priority Habitat types undertaken using MAGIC.gov website identified the following habitats recorded as present within the application site:

- Priority Habitat Inventory: Deciduous Woodland (Low confidence in classification*, >50% invasive species, 1.82ha and 0.73ha)
- Priority Habitat Inventory: Traditional Orchards (England) (Low confidence in classification*, >50% invasive species, 0.35ha).

*: "Low confidence" records imply that no survey to verify priority status has occurred within the last ten years to the knowledge of Natural England/Defra.

6.3.7 MAGIC.gov website implies that no areas of ancient woodland are located within at least 100m of the site.

6.3.8 No ancient, veteran or notable trees are highlighted as present on or adjacent to the site area by The Woodland Trust Ancient Tree Inventory.

6.3.9 Ordnance Survey data suggests the presence of two ponds within the application site, one pond immediately adjacent to the site within Radley Plantation and six ponds within 250 metres of the site to the south-east.

6.3.10 Ordnance Survey data suggests the presence of one watercourse within the site boundary, Spa Brook. This is a narrow, straightened watercourse which is culverted at the northern and southern site boundaries. Spa Brook is aligned north-south and bisects the site with an on-site length of approximately 575m. United Utilities data suggests that Spa Brook drains into Mill Brook behind the Alban Retail Park (ES, 2016). Ordnance Survey data also suggests the presence of ditches on site. Drainage reports state that one of these ditches drains into Dallam Brook via a large culvert (ES, 2016).

6.3.11 The nearest offsite watercourse to the development is Cinnamon Brook, approximately 125m to the east of the site. This watercourse is culverted beneath the M62 and possesses no connectivity with the watercourses on site.

**Natural Character Area**

6.3.12 Natural England's Natural Character Area (NCA) for the area is NCS 60: Mersey Valley (NE492). This area "consists of a wide, low-lying river valley landscape focusing on the River Mersey, its estuary, associated tributaries and waterways… The area encompasses a complex mix of extensive industrial development and urban areas, with high-quality farmland in between. Farmland in the north of the Mersey Valley NCA is predominantly arable, while in the south there is a mix of arable and pasture. Field pattern is regular and large scale, often defined by degraded hedgerows with isolated hedgerow trees" (Natural England, 2013).

**Species**

Local records - Protected Species

6.3.13 **Table 6.4** overleaf provides a summary of protected species records identified within data provided by rECOrd within a 2km radius of the site. Absence of a species record should not be taken as confirmation that a species is absent from the search area.

EPSM (European Protected Species Mitigation) Licences

6.3.14 Five EPSM licenses were identified during a search of MAGIC to have been granted within 2km of the Site at Peel Hall, Warrington. Information with respect to these records is provided in **Table 6.5**, overleaf.

Local records - Priority Species

6.3.15 In addition to the protected species listed in **Table 6.4**, the rECOrd desk study also identified 'Section 41' species (NERC Act, 2006) and Local Biodiversity Action Plan (LBAP) species. The legislation/policy relating to Section 41 Species and Biodiversity Action Plans is provided in Appendix **ECO 8.** Section 41 species and LBAP species recorded are listed in **Table 6.6**.

Local records - Invasive Species

6.3.16 **Table 6.7** provides a summary of invasive species records identified by the rECOrd desk study within a 2km radius of the site. Note that absence of a species record should not be taken as confirmation that a species is absent from the search area.

Local records - Species with no designations

6.3.17 A large number of species with no specific designations attached were identified by the local record centre data. This included 50 bird species common to garden, woodland, and wetland habitats; 57 flowering plant species, including ornamental species and those common to garden, woodland, grassland and wetland habitats; 4 common species of fungus, 293 invertebrate species of a variety of habitats including aquatic, woodland, garden, grassland, and wetland habitats, 6 common species of moss and 6 common species of terrestrial mammal.

**Adjacent Planning Application/s**

6.3.18 One application for the extension of an existing hospital carpark was identified north of the motorway, ~150m of the site area from 2016. This was approved and aerial imagery suggests the work has been completed. These works impacted upon formal habitats within the hospital grounds only. No ecology reports associated with this application are available on the planning portal.

6.3.19 The remainder of planning applications within 2km of the site made within the last 3 years comprise small-scale householder applications only, usually for extensions.

**Table 6.4: Summary of Protected Species Records Provided by rECOrd Within 2km of Survey Area**

| Species | No. of Records | Most Recent Record | Proximity of Nearest Record to Study Area | Legislation | Section 41 Species | Cheshire BAP Species |
|---|---|---|---|---|---|---|
| **Mammals** | | | | | | |
| Common pipistrelle *(Pipistrellus pipistrellus)* | 16 | 2016 | On site** | ECH 4, WCA 5, WCA 6 | - | ✓ |
| European water vole (*Arvicola amphibius*) | 7 | 2016 | 200m south-east | WCA 5 | ✓ | ✓ |
| **Herpetiles** | | | | | | |
| Common frog (*Rana temporaria*) | 12 | 2016 | 540m north-west | WCA 5 S9(5) | - | - |
| Common toad (*Bufo bufo*) | 7 | 2016 | 1.3km south-west | WCA 5 S9(5) | ✓ | - |
| Smooth newt (*Lissotriton vulgaris*) | 5 | 2014 | 975m south-west | WCA 5 S9(5) | - | - |
| Common lizard *(Zootoca vivipara*) | 1 | 2008 | 1.3km north | WCA 5 | ✓ | - |
| **Birds** | | | | | | |
| Barn owl *(Tyto alba*) | 2 | 2012 | 720m north | WCA1i | - | ✓ |
| Black-necked grebe (*Podiceps nigricollis*) | 14 | 2011 | 700m north | WCA1i | - | ✓ |
| Black tern *(Chlidonias niger)* | 2 | 2011 | >1km* (Houghton Green Pool) | WCA1i | - | - |
| Brambling (*Fringilla montifringilla*) | 2 | 2012 | 725m north | WCA1i | - | - |
| Fieldfare (*Turdus pilaris*) | 15 | 2014 | 65m north | WCA1i | - | - |
| Goldeneye *(Bucephala clangula*) | 2 | 2012 | 810m north | WCA1ii | - | - |
| Green sandpiper (*Tringa ochropus*) | 1 | 2012 | 810m north | WCA1i | - | - |
| Greenshank (*Tringa nebularia*) | 2 | 2011 | >1km* (Houghton Green Pool) | WCA1i | - | - |
| Hobby (*Falco subbuteo*) | 2 | 2011 | >1km* (Houghton Green Pool) | WCA1i | - | - |
| Kingfisher (*Alecedo atthis*) | 2 | 2014 | 730m east | WCA1i | - | - |
| Little Ringed Plover (*Charadrius dubius*) | 14 | 2012 | 800m north | WCA1i | - | - |
| Merlin (*Falco columbarius*) | 5 | 2011 | >1km* (Houghton Green Pool) | WCA1i | - | - |
| Peregrine (*Falco peregrinus*) | 2 | 2012 | 715m north | WCA1i | - | - |
| Redwing (*Turdus iliacus*) | 18 | 2014 | 270m south-east | WCA1i | - | - |

**Key:**
*: Grid reference provided less than six figures, but listed with the recorded location
**: Record detail = foraging activity as recorded by previous 2013/2015 survey work
ECH 4: Annex IV of the European Communities Council Directive on the Conservation of Natural Habitats and Wild Fauna and Flora. Animal and plant species of community interest in need of strict protection.
WCA 1i: Schedule 1 Part 1 of Wildlife and Countryside Act 1981 (as amended). Birds protected by special penalties at all times.
WCA 1ii: Schedule 1 Part 2 of Wildlife and Countryside Act 1981 (as amended). Birds protected by penalties during the close season for that bird.
WCA 5: Schedule 5 of Wildlife and Countryside Act 1981 (as amended). Protected animals (other than birds).
WCA 5 S9(5): Schedule 5 Section 9(5) of Wildlife and Countryside Act 1981 (as amended). Protected animals (other than birds). Protection limited to selling, offering for sale, processing or transporting for purpose of sale, or advertising for sale, any live or dead animal, or any part of, or anything derived from, such animal.
WCA 6: Schedule 6 of Wildlife and Countryside Act 1981 (as amended). Animals which may not be killed or taken by certain methods.
Note. This table does not include reference to the Berne Convention (Convention on the Conservation of European Wildlife and Natural Habitats), the Bonn Convention on the Conservation of Migratory Species of Wild Animals or the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

**Table 6.5: Summary of granted EPSM bat licences within 2km of the Site at Peel Hall**

| Species | Distance & Vector from Site | Active Dates | Case Reference Number | Purpose |
|---|---|---|---|---|
| Common pipistrelle *Pipistrellus pipistrellus* | 1.7km southeast | 14/02/2014 – 31/07/2016 | 2014-5423-EPS-MIT | Destruction and damage to a maternity roost |
| Common pipistrelle *Pipistrellus pipistrellus* | 1.9km southeast | 03/03/2016 – 31/08/2017 | 2016-22136-EPS-MIT | Disturbance to a resting place |
| Great Crested Newt *Triturus cristatus* | 615m due west* | 11/01/2012 – 01/05/2012 | EPSM2011-3316 | To allow the destruction of a resting place |
| Great Crested Newt *Triturus cristatus* | 1.99km southeast | 19/05/2010 – 12/05/2012 | EPSM2009-1280 | To allow the destruction of a resting place |
| Great Crested Newt *Triturus cristatus* | ~2.3km northeast** | 25/07/2014 – 30/04/2015 | 2014-1645-EPS-MIT | To allow the damage of a resting place |
| *: Licenced work follows the linear feature of the M62 motorway.<br>**: Licenced work follows the linear feature of the M62 motorway and thus may come within 2km of the site area. | | | | |

**Table 6.6: S41 and LBAP species recorded within data provided by rECOrd**

| Species | No. of Records | Most Recent Record | Proximity of Nearest Record to Study Area | Section 41 | Cheshire BAP |
|---|---|---|---|---|---|
| **Mammals** | | | | | |
| Brown hare (*Lepus europaeus*) | 1 | 2008 | 1.2km west | ✓ | ✓ |
| West european hedgehog (*Erinaceus europaeus*) | 16 | 2018 | 270m south-east | ✓ | - |
| **Insects** | | | | | |
| Centre-barred sallow (*Aththmia centrago*) | 1 | 2012 | >500m west* | ✓ | - |
| Cinnabar (*Tyria jacobaeae*) | 6 | 2017 | On site | ✓ | - |
| Ringlet (*Aphantopus hyperantus*) | 1 | 2012 | >1km north* | - | ✓ |
| **Birds** | | | | | |
| Bullfinch (*Pyrrhula pyrrhula*) | 28 | 2014 | 270m south-east | ✓ | ✓ |
| Corn bunting (*Emberiza calandra*) | 10 | 2014 | >70m north* | ✓ | ✓ |
| Dunnock (*Prunella modularis*) | 36 | 2014 | >70m north* | ✓ | - |
| Grey partridge (*Perdix perdix*) | 41 | 2017 | 30m south | ✓ | ✓ |
| Herring gull (*Larus argentatus*) | 12 | 2014 | >70m north* | ✓ | - |
| House sparrow (*Passer domesticus*) | 35 | 2014 | >70m north* | ✓ | ✓ |
| Lapwing (*Vanellus vanellus*) | 60 | 2014 | >70m north* | ✓ | ✓ |
| Reed bunting (*Emberiza schoeniclus*) | 19 | 2012 | >70m north* | ✓ | ✓ |
| Skylark (*Alauda arvensis*) | 26 | 2014 | >70m north* | ✓ | ✓ |
| Song thrush (*Turdus philomelos*) | 43 | 2014 | >70m north* | ✓ | ✓ |
| Starling (*Sturnus vulgaris*) | 53 | 2014 | On site | ✓ | ✓ |
| Tree sparrow (*Passer montanus*) | 25 | 2012 | >70m north* | ✓ | ✓ |
| Wood warbler (*Phylloscopus sibilatrix*) | 1 | 2013 | >2km south-west (Sankey Valley Park) | ✓ | - |
| Yellow wagtail (*Motacilla flava*) | 1 | 2013 | 730m north | ✓ | - |
| Yellowhammer (*Emberiza citrinella*) | 24 | 2012 | >70m north* | ✓ | ✓ |
| **Key:** *: Grid reference provided less than six figures | | | | | |

**Table 6.7: Summary of Invasive Species Records Within 2km of Survey Area**

| Species | No. of Records | Most Recent Record | Proximity of Nearest Record to Study Area | Legislation |
|---|---|---|---|---|
| **Plants** | | | | |
| Curly waterweed (*Lagarosiphon major*) | 1 | 2016 | >1.6m south-west* | WCA 9 |
| Himalayan balsam *(Impatiens glandulifera)* | 4 | 2012 | 900m west | WCA 9 |
| Japanese knotweed *(Fallopia japonica)* | 1 | 2008 | 1.3km south | WCA 9 |
| New Zealand pygmyweed (*Crassula helmsii*) | 3 | 2016 | 980m south-west | WCA 9 |
| Rhododendron *Rhododendron ponticum* | 1 | 2013 | 1.3km | WCA 9 |
| **Animal** | | | | |
| American mink (*Neovison vison*) | 1 | 2016 | 1.18km south-west | WCA 9 |
| Canada goose (*Branta canadensis*) | 8 | 2012 | 260m south-east | WCA 9 |
| Eastern grey squirrel (*Sciurus carolinensis*) | 2 | 2017 | On site | WCA 9 |
| Red-eared terrapin *(Trachemys scripta*) | 1 | 2011 | 980m south-west | WCA 9 |
| Ruddy duck (*Oxyura jamaicensis*) | 2 | 2012 | 810m north | WCA 9 |
| **Key:**<br>WCA 9: Schedule 9 of Wildlife and Countryside Act 1981 (as amended). Invasive, non-native, plants and animals.<br>*: Grid reference provided less than six figures | | | | |

## 6.4 BASELINE HABITATS

### Introduction

6.4.1 Section 6.4 of this Addendum serves as an update to the original Environmental Statement and Addendum 1; therefore it replaces the corresponding section of the original ES. Refer to original ES and Addendum 1 (Sections 6.4 & 6.5) for August 2015 and August 2017 Phase 1 Habitat Survey and Hedgerow Survey results.

6.4.2 Section 6.4 provides a summary of broad habitats recorded by the Phase 1 Habitat Survey. An overall Phase 1 Habitat Survey map is provided as **Appendix ECO 1**, which illustrates the location and extent of all broad habitat types recorded. The survey was carried out across various dates between May and October 2019 by Lorraine McKee MSc GradCIEEM, Project Ecologist. Weather conditions were generally dry at the time of each survey visit, although some site visits undertaken later in the season were after periods of heavy rain. Survey temperatures ranged from 10-31°C.

### Habitat Descriptions

6.4.3 Species lists with DAFOR abundance scores collected for individual habitat areas are provided with detailed habitat descriptions and habitat maps as **Appendix ECO 9.** This current chapter

provides broad descriptions of each habitat type with references to representative and notable species only.

6.4.4 Habitats recorded by the survey within the application site are listed below, with the corresponding JNCC Phase 1 Habitat Survey codes (JNCC, 2010).

Woodland and Scrub

- A1.1.2: Plantation broadleaved woodland
- A2.1: Dense scrub
- A2.2: Scattered scrub
- A3.1: Scattered trees

Grassland

- B5: Marshy grassland
- B6: Species Poor Improved Grassland

Tall herb and fern

- C1.1: Bracken
- C3.1: Tall ruderal herb

Swamp, marginal and inundation

- F1: Swamp

Open water

- G1: Pond
- G2: Stream

Cultivated/disturbed land

- J1.2: Amenity grassland

Boundaries

- J2.1.2: Intact species-poor hedgerow
- J2.2.2: Defunct species-poor hedgerow
- J2.6 & G1: Dry & wet ditches

Other

- J3.6: Bare ground/hard standing
- J5: Fine-scale habitat mosaics of ruderal herb-scrub-grassland (C3.1, A2.1 and B2)

*Plantation Broadleaved Woodland/Scrub*

6.4.5 Two broad character types of woodland were present within the application site boundary, comprising young to early-mature plantation woodland, and established planted scrub species with a canopy height of over five metres.

6.4.6 Early-mature plantation woodland bordered the recreational field at the east of the site, comprising abundant ash (*Fraxinus excelsior*) and silver birch (*Betula pendula*) as dominant

canopy species and a well-developed, planted understorey of common broadleaved tree and shrub species. Ground flora was recorded as sparse.

6.4.7 Belts of early-mature woodland were also present along the southern site boundaries, either side of Radley Plantation. The woodland to the east of Radley Plantation comprised a mix of alder (*Alnus glutinosa*), sycamore (*Acer pseudoplantanus)*, ash, oak (*Quercus robur)* and horse chestnut (*Aesculus hippocastanum)* as canopy species. Understorey species comprised a mix of regenerating willow (*Salix* spp.) and birch along with hawthorn (*Crataegus monogyna)*, hazel (*Corylus avellane)* and raspberry (*Rubus idaeus)*. Ground flora was indicative of damp conditions, and Himalayan balsam *(Impatiens glandulifera)* had partly encroached into the wood. The habitat was relatively structurally diverse owing to the mix of scrub and tree species and sizes present.

6.4.8 To the west of Radley Plantation, the woodland comprised a substantial belt of planted scrub species co-dominated by goat willow (*Salix caprea)* and silver birch, interspersed with occasional hawthorn, dogwood (*Cornus sanguinea*), hazel, cherry (*Prunus* sp.), holly (*Ilex aquifolium)* and rowan (*Sorbus aucuparia*). Ground flora was characterised by typical common shade tolerant species such as wood avens (*Geum urbanum*), ivy and male fern (*Dryopteris felix-mas*), which species such as red campion (*Silene dioica*) also present indicative of damp soil, and broadleaved helleborine (*Epipactis helleborine*) which is a species associated with disturbed ground. Residential gardens backs onto this habitat area and the woodland was severely degraded owing to extensive fly tipping and the presence of invasive species including giant hogweed (*Heracleum mantegazzianum*), Himalayan balsam and montbretia (*Crocosmia x crocosmiiflora*).

6.4.9 A ~1.3ha block of planted scrub species was present towards the centre of the site, south of Peel Hall. This was dominated by grey willow (*Salix cinereal)* and goat willow with occasional silver birch. This habitat was characterised by large planted scrub species as well as self-set saplings, and thus exhibited a relatively diverse habitat structure despite being species poor.

*Scattered Scrub*

6.4.10 The site was dominated by a series of abandoned agricultural fields undergoing seral succession from grassland through to woodland/scrub, and as such scattered scrub was a common habitat type throughout the site area, generally characterised by establishing grey willow, goat willow and/or bramble (*Rubus fruticosus* agg.).

*Dense Scrub*

6.4.11 Dense scrub habitats were found throughout the site at Peel Hall, comprising four general scrub character types: continuous bramble, grey/goat willow scrub, mixed scrub, and mature scrub. Continuous bramble scrub was encountered most often. These scrub types were generally found at boundaries and/or planted, in some cases as part of a former water management system. Additional species recorded within occasional areas of mixed scrub include elder *Sambucus nigra*, honeysuckle *Lonicera periclymenum*, oak and ash saplings.

6.4.12 A significant ~1.8ha block of grey willow scrub with occasional silver birch was present immediately south-east of Peel Hall buildings (centre-north of site), which occupied an area of wet ground bound by ditches to the north-east and south-east. The ground within this habitat area was uneven with localised impeded drainage, considered to be the result of heavy historic disturbance in this area. Regular natural ephemeral pools were present, with tall ruderal and wetland species occurring within clearings, dominated by common reed (*Phragmites australis)*. This habitat had developed in size and structural integrity since 2013/2015 survey work composition had some affinity to wet woodland NVC habitat community 'W2' *Salix cinerea – Betula pubescens – Phragmites australis*, however was lacking downy birch and is still in the early stages of establishment with ground flora species generally representing former open ruderal and marshy grassland habitats, confirmed as previously present by habitat surveys and historic aerial imagery.

*Scattered Trees*

6.4.13 Scattered trees had generally been planted within amenity play areas, along streets as amenity planting and at field edges. Species recorded include cherry, horse chestnut, alder, ash, London plane (*Platanus × acerifolia*), lime *(Tilia sp.)*, hornbeam *(Carpinus betulus)*, oak and whitebeam *(Sorbus aria*). Trees were generally young to semi-mature with no major defects noted.

*Marshy Grassland*

6.4.14 Pockets of marshy grassland throughout the site were generally characterised by the same grasses and forbs found within the species poor improved grassland habitats, but with increased abundances of rush species (*Juncus spp.*) along with other competitive species associated with wet nutrient rich habitats such as common reed and marsh thistle *(Cirsium palustre)*.

6.4.15 One small patch of floristically notable marshy grassland was present at the north-easternmost field on site, which included locally frequent common figwort (*Scrophularia nodens*) and southern marsh orchid (*Dactylorhiza praetermissa*).

*Species Poor Improved Grassland*

6.4.16 This comprised the most abundant habitat type within the site area. The majority of the site had been left fallow after historical arable usage, and the resultant grassland sward was recorded as generally rank in nature and very species poor with an average of 7.5 – 8.5 species per square metre (excluding injurous species). All grassland on site was suffering severe encroachment from tall ruderal and scrub habitats. Species compositions generally comprised a mix of competitive and agricultural species indicative of high nutrient levels and historic seeding such as cock's foot (*Dactylis glomerate)*, meadow foxtail (*Alopecurus pratensis)*, creeping bent (*Agrostis stolonifera),* rough meadow grass (*Poa trivialis)*, false oat grass (*Arrhenatherum elatius)* and perennial ryegrass (*Lolium perenne)* and occasional locally dominance of species associated with moist ground conditions such as soft rush (*Juncus effuses)* and creeping buttercup (*Ranunculus*

*repens).* Yorkshire fog (*Holcus lanatus)* was the most frequently recorded species throughout the full extent of the site area.

6.4.17 The north-easternmost field of the survey area possessed the most species-diverse grassland habitat, mainly owing to the prominence of species associated with recently disturbed ground such as silverweed (*Argentina anserine),* changing forget-me-not (*Myosotis discolour)*, hairy tare (*Vicia hirsute)*, common ramping fumitory (*Fumaria muralis)* and scented mayweed (*Pulicaria dysenterica)*.

6.4.18 Local dominance of fleabane (*Matricaria chamomilla)* was also recorded in abundance across disturbed ground within the centre of the site.

*Bracken*

6.4.19 Stands of continuous bracken were present within two areas on site, both bounded by tall ruderal and scrub habitats. The stand to the east was comparatively small restricted to ditch side habitat, whilst the stand to the west of the site comprised a more substantial area.

*Tall Ruderal Herb*

6.4.20 Tall ruderal herb habitats were found throughout the grassland habitats and at habitat boundaries, frequently contributing to habitat mosaics in combination with grassland and/or scrub. Large swathes of continuous tall ruderal were present in the centre of the site, dominated by rosebay willowherb *Chamaenerion angustifolium* and creeping thistle (*Cirsium arvense*). These have significantly increased in extent since 2013/2015 habitat survey work.

6.4.21 One area of relative floristic diversity was recorded in the centre of the site, containing a mix of species associated with disturbed, wet ground amongst rosebay willowherb, including species such as bristly oxtongue (*Helminthotheca echioides),* redshank (*Persicaria maculosa)*, butterbur (*Petasites hybridus),* changing forget-me-not (*Myosotis discolour)* and European field pansy (*Viola arvensis).*

*Swamp*

6.4.22 Dry stands of common reed (*Phragmites australis*) were present within and adjacent to Spa Brook and ditches at the west of the site, as well as along the west of Radley Plantation and Pond LWS. These stands had significantly increased in extent since 2013/2015 habitat survey work. The water table at these habitat areas was below ground throughout the year despite heavy rainfall, and tall ruderal and scrub species occasionally encroached on some areas.

*Pond*

6.4.23 Three manmade ponds were present within the centre of the site interlinked by dry ditches. The northernmost comprised a small linear pond, heavily shaded by immature willow scrub. Common duckweed (*Lemna minor*) covered the pond surface.

6.4.24 The remaining two ponds are located immediately north of Radley Plantation. One comprised a heavily-shaded, shallow pond surrounded by alder and scrub. No aquatic vegetation was present and marginal species were restricted to occasional soft rush and Himalayan balsam. The pond was dry during 2015 surveys, and water levels fluctuated in the 2019 season. The second pond was unshaded and dominated by reed canary grass (*Phalaris arundinacea*), with water pepper (*Persicaria hydropiper)* and American water plantain (*Alisma subcordatum*) occasionally present as submerged species.

6.4.25 Descriptions of off-site ponds within Radley Plantation are provided in **Appendix ECO 15** (great crested newt survey).

*Stream*

6.4.26 The northernmost section of Spa Brook contained a narrow, shallow stream which was recorded to dry out almost completely over the course of the summer. Dense bankside habitats included reed canary grass, bramble, ruderal herb and rank grasses. The central section appears to only hold water following heavy rain. The southern section of the brook was largely dry and choked by stands of common reed, reed canary grass and greater willowherb (*Epilobium hirsutum)*. Tall ruderal herb and scrub including bramble and willow continue to dominate bankside habitats. The brook is culverted both at the north and southern site boundaries.

*Amenity Grassland*

6.4.27 Amenity grassland habitats present on site were largely used as playing fields and by dog walkers. The grassland community composition was typical of the habitat type, containing species indicative of an amenity grass seed mix and regular mowing such as perennial rye grass (*Lolium perenne*), white clover (*Trifolium repens*), dandelion (*Taraxcum officiniale* ag. sp.), daisy (*Bellis perennis)* and selfheal (*Prunella vulgaris).*

*Hedgerow*

6.4.28 Intact species poor hedgerows were occasionally present within the site, generally to the east. These were generally hawthorn dominated with poor ground flora.

6.4.29 Defunct hedgerows were present in low densities across the site, largely within the east, and were generally fragmented and species poor. The majority of defunct hedgerows were dominated by hawthorn, and two graded into lines of grey and goat willow along ditches. Other rarely recorded woody species included dogwood, elder, blackthorn (*Prunus spinosa*) and hazel.

6.4.30 No notably diverse ground flora was recorded at the base of any hedgerows. No hedgerows were identified to qualify as 'important' hedgerows in relation to ecology or landscape value by the Hedgerows Regulations Assessment study (see **Appendix ECO 17**).

*Dry Ditch*

6.4.31 Dry ditches were present as boundary features to fields and woodland blocks, usually in conjunction with hedgerows or areas of planted scrub. Mammal burrows were sometimes present within ditches that were habitually dry, including rabbit and fox. No notably diverse ground flora was recorded within any of the ditches, which were mostly either crowded by dense reed or heavily shaded by woodland and scrub.

*Wet Ditch*

6.4.32 Ephemerally wet ditches were present on site, ranging from heavily shaded to open and overgrown by dense reed, scrub and ruderal herb. No notable plant communities were associated with these ditches, with plants generally indicative of nutrient enrichment. A wet ditch in the centre of the site was recorded as heavily polluted based on water colouration.

*Bare ground/Hard standing*

6.4.33 Areas of bare ground/hardstanding were associated roads, paths, and with the community centre at the south of the site in the form of play spaces and car parks.

*Fine-scale habitat mosaics*

6.4.34 Fine scale mosaics of tall ruderal herb, scrub and grasses were present throughout the abandoned fields on site, containing typical species of each habitat type as described above. Ratios of habitats within these mosaic habitats were variable depending on the successional stage.

*Additional notes re: habitat damage*

6.4.35 Stands of invasive species were present within the site. Whilst some stands were relatively small and/or localised, others were large and extensive, affecting many habitats within the site. Localised stands of Japanese knotweed (*Fallopia japonica*), cotoneaster (*Cotoneaster* sp.) and montbretia (*Crocosmia x crocosmiiflora*) were recorded; giant hogweed was present in an extensive stand bordering on residences; and Himalayan balsam was present in varying densities throughout the centre of the site. False Virginia creeper was also noted immediately adjacent to the site in two locations, within 2m of the site boundary.

6.4.36 A high proportion of the habitats on site were damaged due to a variety of flytipped materials, usually derived from household, garden, or food and drink waste. Asbestos was present within areas of the site where former farm buildings had been demolished or within flytipped waste. Fire damage was present within parts of the site, along with obvious areas where rough sleeping, drug and alcohol abuse had taken place in the past. A small marijuana growing operation was present to the north of the site. Extensive discarded litter was recorded throughout several habitat areas, including frequent discarded bags of dog waste close to footpaths and parks.

## 6.5 OVERVIEW OF PROTECTED SPECIES SURVEYS

### Introduction

6.5.1 Section 6.5 of this Addendum serves as an update to the original Environmental Statement and Addendum 1; therefore it replaces the corresponding sections of the original ES. Refer to original ES and Addendum 1 for August 2015 and August 2017 Protected Species Survey results (6.6 – 6.13).

6.5.2 This section provides a summary of key findings from the most recent protected species surveys on site. Where relevant, comparisons are made with past survey data. Survey dates, personnel, methodologies, constraints and results are detailed within **Appendices ECO 9 to 16**.

### Badger

6.5.3 Badger surveys have been undertaken at the site in 2015, 2016 and 2019. No badger setts or evidence of badger activity such as pawprints, latrines or snuffle holes, was recorded by any of the surveys within the site area, or within 50 m of the site area.

### Water vole

6.5.4 A water vole survey was undertaken at the site in 2013 and 2015, which was updated in 2019. Spa Brook was considered suboptimal habitat for water vole by each of the three surveys across six years owing to its predominantly dry nature. The network of ditches around the site were also largely dry at the time of the survey visits, aside from one stretch of wet ditch habitat which was assessed by the survey and concluded to be unsuitable for water vole due to its shallow banks and polluted nature.

6.5.5 All accessible sections of Spa Brook and the ditches surrounding the site were inspected in detail in Spring 2019 and no evidence of water vole, such as burrows, latrines or feeding remains, was recorded, concluding the likely absence of water vole from within the survey area, however the density of vegetation such as dense stands of common reed prevented a full inspection, and a Summer survey was not possible.

### Bats

*Roosting bats*

6.5.6 Six of the seven residences within the application site boundary were inspected and assessed by 2019 preliminary bat roost assessment of buildings (shown on Drawing 1820-A5-01, **Appendix ECO 10**). No bat surveys have been undertaken of these residences in previous years. All surveyed residences and associated outbuildings were concluded to possess low or negligible potential value by roosting bats and no evidence of bat roosts was identified by the assessments. The buildings with low potential value for roosting bats were subject to one dusk emergence survey and no potential bat roosting activity was recorded.

6.5.7 It is considered unlikely for bat roosts to be present within the inaccessible property onsite, or any of the three terrace properties that adjoin the onsite buildings, solely based on observations during survey work on adjacent properties, however daytime inspections of the buildings will be required as a minimum to verify this.

6.5.8 All trees within and immediately adjacent to the site area were assessed in terms of potential to support roosting bats in conjunction with the Phase 1 Habitat Survey visits. Two trees were identified to possess low potential value for roosting bats (shown on Drawing 1820-A5-01, **Appendix ECO 10**). All other trees surveyed were not of an age or structure likely to contain potential roosting features, and no other features were recorded. No potential roosting features in trees have been identified by previous 2013/2015 survey work.

6.5.9 One of the two trees with low bat potential may be directly impacted upon by proposals (Tree T1), and as such was subject to one dusk emergence/dawn re-entry survey as a precaution. No potential bat roosting activity was recorded.

*Foraging and Commuting bats*

6.5.10 To assess the current value of the site for foraging and commuting bats, monthly manual bat transect surveys were undertaken at the site from April to September 2019.

6.5.11 The survey results indicate the close proximity of a number of small bat roosts to the site including common pipistrelle, soprano pipistrelle, noctule and Nathusius pipistrelle and it is highly likely that buildings in the general local area surrounding the site support roosting pipistrelle bats. A peak in June common pipistrelle activity levels implies the potential presence of a common pipistrelle maternity roost within the local area.

6.5.12 Field boundary hedgerows, ditches and woodland edge habitats were most utilised by foraging and commuting bats. The greatest number of bat species and concentration of bat activity was recorded at the northern-most tip of Radley Plantation, adjacent to woodland edge and pond habitats.

6.5.13 Key habitats of importance to common and soprano pipistrelle bats include pond habitats, hedgerows and boundary habitats to playing fields. The few Nathusius pipistrelle recordings were generally at the west of the site. Noctule bats regularly utilise the open grassland and ruderal habitats within the centre and west of the site area for foraging, although no more than one bat was recorded at any one time. Based on the locations of Natterer's bat recordings, it is assumed that the species utilises Radley Plantation and connecting woodland habitats for foraging. Artificial lighting from the M62 resulted in reduced bat activity along the northern boundary, although noctules were occasionally recorded to pass over the carriageway.

6.5.14 The overall number of recorded bat contacts at Peel Hall was considered to be relatively low

considering the size of the site, however results imply the site is of local importance to noctule and pipistrelle species roosting within the local area.

6.5.15 The common pipistrelle activity results align with previous bat surveys undertaken at the site in 2013, 2015 and 2016. However, no other species aside from common pipistrelle bats were recorded the previous survey work. The additional four species recorded in 2019 may be owing to the increased number of survey visits undertaken across the activity season (owing to updated Bat Conservation Trust guidance (Collins, 2016), the succession of site habitats towards scrub and/or potential increases in soil moisture.

**Breeding birds**

6.5.16 Twenty-six bird species were recorded during the 2019 Breeding Bird Survey, **Table 6.8** on the following page shows those considered to be breeding, those present in suitable habitat but with no evidence of breeding, and those not breeding.

6.5.17 Reference to the study undertaken in 2015 identified a natural trend that the site had become increasingly rank/coarse through seral succession since the original survey in 2013. The survey in 2017 showed that this trend had continued with notable increases in rankness and the development of scrub communities, thus making the site less suitable for those species which require shorter open grassland habitats for nesting, such as skylark and meadow pipit. Consequently, no ground-nesting species were recorded during the survey in 2017. However, the 2019 survey revealed that some grassland areas had been cut which reduced the immediate rankness and temporarily arrested the succession to scrub as noted previously. As a result of this management, suitability for ground-nesting species improved and an estimated two pairs of skylark were recorded as breeding on the site. For the other species recorded on site in 2019, the site remains as suitable as it was in 2013 and 2017.

6.5.18 An estimation of breeding pairs based on observations made in the field is provided in column 3 of **Table 6.9** overleaf. It should be noted that the 'actual' number of breeding pairs might differ from the figure given, in addition, other species recorded in column two of **Table 6.8** might also possibly breed on site although activity to indicate/suggest breeding may have been absent or not observed during the survey.

6.5.19 **Table 6.9** also provides a broad comparison between the species recorded during the 2013 survey and those recorded in 2017. Overall, the number of species breeding on the site hasn't changed significantly with twelve, thirteen and twelve species considered to be breeding on site in 2013, 2017 and 2019 respectively. However, the range of species has changed as well as the number of registered territories (estimated). The return of skylark as a breeding species is attributed to the mowing of the grassland which has provided an open grass sward habitat which is more suitable for ground-nesting species. Blackcap was also recorded as a breeding species

**Table 6.8: Breeding Status of Birds Recorded in 2019**

| Birds Recorded as Breeding | Birds Present (no evidence of breeding) | Birds not Breeding (no suitable habitat, foraging/flying over or passage migrant) |
|---|---|---|
| Blackbird<br>Robin<br>Dunnock S41‡<br>Wren<br>Chiffchaff<br>Blackcap<br>Whitethroat<br>Skylark S41*†<br>Woodpigeon<br>Chaffinch<br>Reed bunting S41‡†<br>Magpie | Mistle thrush*<br>Song thrush S41*†<br>Blue tit<br>Great tit<br>Willow warbler<br>Bullfinch S41‡†<br>Goldfinch<br>Goldcrest | Carrion crow<br>Jackdaw<br>Swift‡<br>Swallow<br>Starling S41*†<br>House sparrow S41*† |
| **Total: 12** | **Total: 8** | **Total: 6** |
| **Key:**<br>S41 = Section 41: Species of Principal Importance in England NERC Act 2006.<br>*Red List - Birds of Conservation Concern 4 (BoCC4)<br>‡ Amber List - Birds of Conservation Concern 4 (BoCC4)<br>† Cheshire Local Biodiversity Action Plan (BAP) | | |

**Table 6.9: Breeding Status Comparison Table**

| Bird Species | 2013 (including number of pairs) | 2017 (including number of pairs) | 2019 (including number of pairs) |
|---|---|---|---|
| Skylark | 2 | Species not recorded | 2 |
| Meadow pipit | 1 | Species not recorded | Species not recorded. |
| Reed bunting | 2 | Species not recorded | 2 |
| Blackbird | 1 | 12 | 10 |
| Song thrush | 1 | 1 | Species not recorded as breeding |
| Robin | 1 | 5 | 10 |
| Dunnock | Species not recorded as breeding | 3 | 4 |
| Wren | Species not recorded as breeding | 14 | 10 |
| Chiffchaff | 1 | 2 | 2 |
| Blackcap | 1 | Species not recorded as breeding. | 4 |
| Whitethroat | 1 | 10 | 6 |
| Sedge warbler | Species not recorded | 2 | Species not recorded |
| Willow warbler | Species not recorded | 2 | Species not recorded as breeding |
| Woodpigeon | 3 | 8 | 6 |
| Chaffinch | 2 | 2 | 2 |
| Moorhen | 2 | 1 | Species not recorded |
| Magpie | Species not recorded as breeding | 2 | 2 |
| **Total Number of Species** | **12** | **13** | **12** |

in 2019 despite it being recorded on only a single visit in 2017. In addition, reed bunting has returned as a breeding species after its absence in 2017.

6.5.20 The reasons why blackcap and reed bunting have returned to the site to breed is not clear, as there has been no significant change in the extent of suitable nesting habitat for these species on

the site. Consequently, this change is attributed to ‘natural variation’ in the distribution of the population locally.

6.5.21 Increases in the numbers of the more 'ubiquitous' species such as wren and blackbird was reported in 2017, and this increase was attributed as much to the earlier survey season which had improved the chances of registrations, as to any increase in available suitable habitat.

6.5.22 In 2019 the survey was undertaken at an optimum period and the numbers of pairs of these species recorded remain relatively stable from the 2013 and 2017 surveys.

6.5.23 The number of pairs of whitethroat recorded as breeding in 2017 was ten, in comparison to the six pairs recorded in 2019. Whilst the scrub habitats on the site have been retained, the mowing of the site’s grassland has changed the general structure of the site resulting in less tall grassland cover, and less tall grass/scrub interface which is one of the preferred nesting habitats of this species.

6.5.24 The change in habitat might have influenced numbers, but general variation in the population locally might also be a significant influencing factor.

6.5.25 The absence of song thrush and sedge warbler cannot be attributed to management or any on-site natural trend as the extent of suitable nesting habitat available for those species hasn’t significantly changed.

**Barn Owl**

6.5.26 The site had been evaluated in 2015 and found to be clearly unsuitable for sustainable barn owl occupation. The site was re-evaluated in 2019 as a precaution.

6.5.27 Whilst the habitat on the site is potentially suitable for hunting barn owl, the species was not recorded during any 2013, 2015 or 2019 bat or bird survey work at the site despite being undertaken at the optimum time for barn owl activity during the main breeding period.

6.5.28 No potential suitable nesting sites are present on or close to the site. The combined presence of the M62 and the absence of appropriate nest sites south of the motorway, has effectively removed any reasonable possibility that a resident population of barn owls on the site is sustainable. In addition, suitable grassland foraging habitats are suffering severe scrub encroachment, thus further reducing the suitability of the site for hunting barn owl.

6.5.29 The site was concluded to be unsuitable for sustainable barn owl occupation, in line with the 2015 survey work.

**Amphibians**

6.5.30 The three ponds on site and three ponds within Radley Plantation were subject to great crested newt presence/absence surveys in 2012 and 2019.

6.5.31 In contrast to the negative 2012 GCN survey work (bottle trapping and torching methods), Environmental DNA analysis identified the presence of GCN DNA within two ponds on site and further survey work (bottle trapping and torching methods) identified a peak count of one great crested newt (GCN) along with GCN eggs within one pond on site (Drawing 1820-T7-01, **Appendix ECO 15**). A peak count of less than 10 GCN equates to a 'small' population class size. It is possible that GCN have colonised the site either from ponds located south-west of the site in Peel Park, or from terrestrial habitats along the motorway verge (EPSM licences identified by desk study along M62 within 2km of site). Motorway verge dispersal is considered unlikely in this instance owing to the fragmentation effects of junction slip roads at either side of the site area. The ponds located within Peel Hall Park were not included in the original survey effort owing to their distance being over 250 metres from the closest proposed area of built development (when intervening dispersal barriers are taken into account). Any future updates to survey work will include these ponds to gauge a full understanding of GCN meta-population dynamics at the site.

6.5.32 Low numbers of smooth newts and common toad were also recorded by the GCN survey.

**Notable Incidental observations**

6.5.33 A list of sightings or evidence of faunal species that were recorded as incidental observations on site during the 2019 Phase 1 Habitat Survey visits is included within **Appendix ECO 9**. These species included four Section 41 priority species (NERC Act, 2006): cinnabar moth *Tyria jacobaeae*, European hedgehog *Erinaceus europaeus*, polecat *Mustela putorius* and starling *Sturnus vulgaris*. Evidence of one invasive Schedule 9 faunal species was seen on site: grey squirrel *Sciurus carolinensis*.

## 6.6 ASSESSMENT OF ECOLOGICAL IMPACTS

6.6.1 Section 6.6 of this Addendum serves as an update to the original Environmental Statement and Addendum 1; therefore it replaces the corresponding sections of the original ES (Section 6.14). Refer to original ES and Addendum 1 for August 2015 and August 2017 assessments of ecological receptors and impact assessment.

6.6.2 A detailed assessment has been undertaken which collates the existing baseline information through field surveys and desk study information, that will reasonably conclude the ecological value of site features and predict potential impacts of proposals on ecological receptors.

6.6.3 Predicted impacts are based on the latest site Parameters Plan (**Appendix APP 6**). No detailed landscaping plans are yet available.

**Nature Conservation Areas**

6.6.4 No designated nature conservation sites are directly associated with the site.

**Radley Plantation and Pond Local Wildlife Site**

*Nature Conservation Importance*

6.6.5 Radley Plantation and Pond Local Wildlife Site (LWS) comprises an area of broad-leaved woodland located immediately adjacent to the application site, which is designated as a Local Wildlife Site based on the following qualifying criteria: 'accessible natural greenspace' and 'ponds and ditches'. No ancient woodland is associated within this site. Radley Plantation and Pond LWS is of **'County'** value in terms of nature conservation importance.

*Application Site functionality*

6.6.6 The application site does not play a key part in either of the qualifying criterions for Radley Plantation and Pond LWS, although nearby ponds on site may contribute to the diversity and resilience of any pond metapopulation ecology at the conservation site.

6.6.7 The application site directly abuts the woodland of Radley Plantation and Pond providing semi-natural woodland edge habitats. Woodland edge habitats are of importance to ecological functionality and resilience of woodland habitats.

*Likely scale of impacts in the absence of mitigation – Construction*

6.6.8 Given the proximity of the proposal site to Radley Plantation, indirect impacts of site development in the form of noise, pollution, lighting and dust are potential risks to the LWS habitats and associated wildlife. Removal of connecting woodland and semi-natural woodland edge habitats

immediately adjacent to the LWS and one nearby pond may adversely affect habitat functionality, connectivity, resilience and ecology.

6.6.9 The potential impact magnitude is considered **'Moderate'** (deterioration of feature).

6.6.10 The overall potential impact of site construction work in the absence of mitigation is **'Moderate'** (County importance: Moderate impact).

*Required mitigation and residual impact – Construction*

6.6.11 A Construction Environmental Management Plan (CEMP) will be implemented to minimise any potential indirect impacts of construction works to LWS habitats. This will incorporate good working practices to minimise noise, dust, artificial light, run-off and pollution.

6.6.12 Six ponds are proposed as part of habitat creation works, including one immediately adjacent to the LWS.

6.6.13 A buffer of between 15 and 20 metres around the northern half of the woodland has been designed into the site layout, which will retain a functional woodland edge habitat, avoid any root protection areas and allow for a substantial belt of habitat creation and enhancement.

6.6.14 No residential development will be located within 20metres of the southern half of the LWS, however current semi-natural woodland edge habitats (tall ruderal herb and scrub) will be displaced by recreational playing fields.

6.6.15 With mitigation, the adjusted potential impact magnitude is considered as **'Minor'** and thus the adjusted overall potential impact of site construction work is **'Slight'** (County importance: Minor effect impact).

*Likely scale of impacts in the absence of mitigation – Operational*

6.6.16 The nature of proposals will undoubtedly cause an increase in public access to Radley Plantation and Pond LWS. However, the LWS already currently experiences high levels public usage owing to its ease of accessibility from surrounding extensive residential areas and the site partly qualifies as a LWS owing to its value as 'accessible natural greenspace'. The LWS is not notified for species communities or ground flora that are susceptible to human disturbance, and in line with the LWS citation, field observations from site visits confirm a sparse woodland ground flora, likely owing to a combination of public use and an abundance of sycamore. An increase in public access is not anticipated to greatly influence the character or value of the LWS.

6.6.17 The potential impact magnitude is considered as **'Nil Effect'** and the overall potential impact of site operation in the absence of mitigation is **'Non-significant'** (County importance: Nil Effect).

*Recommended mitigation and residual impact – Operational*

6.6.18 The development presents an opportunity to enhance habitats within the Local Wildlife Site through for example funding invasive species control, footpath infrastructure and/or management of sycamore to allow for the establishment of a more diverse ground flora.

6.6.19 With mitigation, the potential impact magnitude is considered as **'Beneficial'** and thus the adjusted overall potential impact of site operation is **'Not Significant'** (County importance: Beneficial).

**Other Local Wildlife Sites**

6.6.20 All other nature conservation areas are located over 0.5km from the site with poor habitat connectivity and are not discussed further within the current report.

6.6.21 The SSSI Risk Impact Zones within which the site is located do not specify further consultation with Natural England for residential planning applications in relation to SSSIs.

**Site habitats**

**Grassland**

*Nature Conservation Importance*

6.6.22 None of the grassland habitats on site were concluded to qualify as good quality priority habitats, primarily owing to their species-poor nature and prominence of rank and agricultural grass species. The species assemblages present do not qualify as species-rich in relation to the Magnificent Meadow criteria (see **Appendix ECO 9**), and do not qualify as Local/UK BAP grasslands or 'restorable grassland' in relation to the Cheshire Local Wildlife Site selection criteria (Cheshire Wildlife Trust 2014). All grassland on site is experiencing severe encroachment from ruderal and scrub.

6.6.23 Despite the low quality of grassland, owing to the extent and semi-natural nature of the grassland in comparison to the intensively managed wider landscape, the habitat is considered of **'Local'** value in terms of nature conservation importance.

*Likely scale of impacts in the absence of mitigation – Construction*

6.6.24 Loss of >30ha of low diversity coarse/improved grassland during construction.

6.6.25 The potential impact magnitude is considered **'High',** and thus the overall potential impact of site construction work in the absence of mitigation is **'Slight'** (Local importance: High impact).

*Required mitigation and residual impact – Construction*

6.6.26 The impact is partially reversible by the provision of 14.6ha of habitat creation and/or enhancement, which will include a mosaic of species-rich grassland, wetland habitats, woodland and scrub. Over 7ha of amenity grassland will also be created.

6.6.27 With mitigation, the potential impact magnitude is considered as **'Minor'** and the adjusted overall potential impact of site construction work is **'Not Significant'** (Local importance: Minor impact).

**Woodland**

*Nature Conservation Importance*

6.6.28 The woodlands within the site boundary are predominantly immature and do not qualify as UK or local priority woodland habitats owing to a lack of affiliation with any relevant NVC communities. The woodlands on site are largely degraded owing to extensive fly tipping and presence of invasive species. However, woodland habitats are likely to be of functional value owing to connectivity with Radley Plantation and Pond LWS and contribution to the site-scale structural habitat diversity of the site area.

6.6.29 The woodland areas on site are considered of **'Local'** value in terms of nature conservation importance.

*Likely scale of impacts in the absence of mitigation – Construction*

6.6.30 Proposals imply the direct loss of ~3.3ha of immature woodland during construction. Potential indirect impacts of site construction work include pollution, dust, disturbance and root damage.

6.6.31 The potential impact magnitude is considered **'High',** and the overall potential impact of site construction work in the absence of mitigation is **'Slight'** (Local importance: High impact).

*Required mitigation and residual impact – Construction*

6.6.32 The impact is reversible by the provision of 14.6ha of habitat creation and/or enhancement on site, which will include a minimum of 3.3ha of woodland.

6.6.33 The woodland areas to be retained will be enhanced by the removal of invasive species, installation of deadwood habitat and sensitive woodland management.

6.6.34 A Construction Environmental Management Plan shall be required to ensure pollution prevention and tree protection measures are in place throughout works, in accordance with British Standard "Trees in relation to construction - Recommendations" BS5837:2005.

6.6.35 With mitigation, the potential impact magnitude is considered as **'Minor'** and the adjusted overall potential impact of site construction work is **'Not Significant'** (Local importance: Minor impact).

*Likely scale of impacts in the absence of mitigation – Operational*

6.6.36 The nature of proposals will undoubtedly cause an increase in public access to woodland habitats. The woodlands are currently highly disturbed and subject to fly tipping and antisocial behaviour. No notable ground flora potentially sensitive to human disturbance was recorded by baseline

surveys. As such, an increase in public access is not anticipated to greatly influence the character or value of the woodlands on site.

6.6.37 The potential impact magnitude is considered **'Nil Effect',** and the overall potential impact of site operation in the absence of mitigation is **'Not Significant'** (Local importance: Nil Effect).

*Recommended mitigation and residual impact – Operational*

6.6.38 Site development, removal of waste by a landscape management team and the creation of formal footpaths with shrubs either side may reduce habitat degradation, concentrate footfall and allow the recovery of wider woodland ground flora.

6.6.39 Layout plans will ensure that no proposed residential gardens back onto woodland habitats, removing the risk of increased fly-tipping.

6.6.40 With mitigation, the potential impact magnitude is considered potentially **'Nil Effect/Beneficial'** and the adjusted overall potential impact of site construction work is **'Not Significant'** (Local importance: Nil Effect/Beneficial).

**Ponds**

*Nature Conservation Importance*

6.6.41 Good quality ponds are UK priority habitats. The ponds on site were considered of poor to moderate quality based on water quality, heavy shade, vegetation and permanence, however may form part of the surrounding network of ponds within Radley Plantation.

6.6.42 The ponds on site are considered of **'Site-Local'** value in terms of nature conservation importance.

*Likely scale of impacts in the absence of mitigation – Construction*

6.6.43 Proposals imply the direct loss of one of the three ponds during construction.

6.6.44 Potential indirect impacts of site construction work include runoff, pollution and dust.

6.6.45 The potential impact magnitude is considered **'High',** and the overall potential impact of site construction work in the absence of mitigation is **'Slight'** (Site-Local importance: High impact).

*Required mitigation and residual impact*

6.6.46 The impact is reversible by the provision of seven new ponds on site, three of which will be managed for wildlife and four of which will form part of a SUDS system.

6.6.47 The two ponds to be retained on site will be enhanced by opening up overshadowing canopies, the removal of invasive species, plug planting of aquatic species and reprofiling if appropriate.

6.6.48 A Construction Environmental Management Plan shall be required to ensure protection of aquatic habitats throughout development work from indirect impacts such as pollution or siltation. Any drainage/SUDS scheme shall be designed specifically to ensure no silt or pollutants enter the ponds.

6.6.49 With mitigation, the potential impact magnitude is considered as **'Minor'** and the adjusted overall potential impact of site construction work is **'Not Significant'** (Site-Local importance: Minor impact).

*Likely scale of impacts in the absence of mitigation – Operational*

6.6.50 Development may result in pond pollution through site runoff from roads, and increased public disturbance through play, swimming dogs or plant/fish introduction etc.

6.6.51 The potential impact magnitude is considered **'High',** and the overall potential impact of site operation in the absence of mitigation is **'Slight'** (Site-Local importance: High impact).

*Recommended mitigation and residual impact – Operational*

6.6.52 The proposed SUDS system shall be designed to ensure all retained and created ponds are protected from pollution/siltation.

6.6.53 Walkway barriers and information boards around ponds detailing sensitive pond ecology and advising dogs are kept out of water.

6.6.54 With mitigation, the potential impact magnitude is considered potentially **'Nil Effect'** and the adjusted overall potential impact of site operation is **'Not Significant'** (Local importance: Nil Effect).

**Stream & Ditches**

*Nature Conservation Importance*

6.6.55 River habitats of high ecological quality, chalk rivers, headwaters and those that support rare or protected species qualify as Section 41 Habitat of Principal Importance (NERC Act, 2006), and good quality ditch habitats can also be of high ecological value. Spa Brook is a mostly dry, highly modified, silted stream with limited flowing water, a deep silt substrate, and choked by stands of common reed and scrub. No aquatic vegetation or open water of good quality is present on site. The stream is fed by ditch boundaries of intensive arable farmland to the north of the M62 and is culverted for a significant distance to the south of the site. The brook was considered to be in poor condition, with no obviously good quality habitat up or downstream from the site.

6.6.56 The ditch habitats on site were mostly heavily shaded, polluted and/or dry, thus considered to be in poor condition.

6.6.57 The stream and ditch habitats on site are considered of **'Site-Local'** value in terms of nature conservation importance.

*Likely scale of impacts in the absence of mitigation – Construction*

6.6.58 All streams and ditches will be retained as part of proposals, however roads will cross Spa Brook at three locations and cross ditches at five locations. Potential indirect impacts of site construction work include runoff, pollution and dust.

6.6.59 The potential impact magnitude is considered **'Moderate',** and the overall potential impact of site construction work in the absence of mitigation is **'Slight'** (Site-local importance: Moderate impact).

*Required mitigation and residual impact*

6.6.60 Spa Brook and wet ditches will be protected by 10 metre construction exclusion buffer zones. The water course will be enhanced by reed management, scrub management and reprofiling were feasible and appropriate.

6.6.61 Any drainage/SUDS scheme shall be designed specifically to ensure no silt or pollutants enter the watercourse or wet ditches. A Construction Environmental Management Plan shall be required to ensure protection of aquatic habitats throughout development work from indirect impacts such as pollution or siltation.

6.6.62 With mitigation, the potential impact magnitude is considered as **'Minor'** and the adjusted overall potential impact of site construction work is **'Not Significant'** (Site importance: Minor impact).

*Likely scale of impacts in the absence of mitigation – Operational*

6.6.63 Development may result in stream/ditch pollution through site runoff from roads.

6.6.64 The potential impact magnitude is considered **'High',** and the overall potential impact of site operation in the absence of mitigation is **'Slight'** (Site-Local importance: High impact).

*Recommended mitigation and residual impact – Operational*

6.6.65 The proposed SUDS system shall be designed to ensure all retained and created ponds are protected from pollution/siltation.

6.6.66 With mitigation, the potential impact magnitude is considered potentially **'Nil Effect'** and the adjusted overall potential impact of site operation is **'Not Significant'** (Local importance: Nil Effect).

**Hedgerows**

*Nature Conservation Importance*

6.6.67 No hedgerows on site were classed as 'important' under the Hedgerow Regulations (1997) in relation to ecology or landscape value. All native hedgerows qualify as Habitats of Principal Importance (NERC Act, 2000) and are Cheshire Biodiversity Action Plan Habitats, which includes all hedgerows on site. The hedgerows are largely fragmented, outgrown and species-poor, and thus represent a priority habitat in poor condition in terms of structure and diversity, although several are associated with ditches which increases habitat distinctiveness.

6.6.68 The hedgerow habitats on site are considered of **'Site-Local'** value only in terms of nature conservation importance.

*Likely scale of impacts in the absence of mitigation – Construction*

6.6.69 All hedgerows on site shall be retained, however two short sections will be displaced at cut through points for the proposed link road. Potential indirect impacts of site construction work include pollution, disturbance, root damage and dust.

6.6.70 The potential impact magnitude is considered **'Moderate',** and the overall potential impact of site construction work in the absence of mitigation is **'Slight'** (Site-Local importance: Moderate impact).

*Required mitigation and residual impact*

6.6.71 A Construction Environmental Management Plan shall be required to ensure pollution prevention and hedgerow protection measures are in place throughout works.

6.6.72 All retained hedgerow sections will be separated from any development by minimum two metre buffer zones of species-rich grassland, and any gappy hedgerow sections will be planted up and/or laid to enhance habitat integrity. New hedgerow habitat will also be created as part of the proposed landscaping plans, which should seek to be native and species-diverse to maximise ecological value.

6.6.73 With mitigation, the potential impact magnitude is considered as **'Minor'** and the adjusted overall potential impact of site construction work is **'Not Significant'** (Site-Local importance: Minor impact).

**Reedbed**

*Nature Conservation Importance*

6.6.74 The dense stands of common reed on site are not typical of those associated with Section 41 priority habitats, being permanently dry.

6.6.75 The secondary dry reedbed habitats on site are considered of **'Site-Local'** value in terms of nature conservation importance.

*Likely scale of impacts in the absence of mitigation – Construction*

6.6.76 Approximately ~2ha of secondary reedbed on abandoned farmland will be displaced.

6.6.77 The potential impact magnitude is considered **'High',** and the overall potential impact of site construction work in the absence of mitigation is **'Slight'** (Site-Local importance: High impact).

*Required mitigation and residual impact*

6.6.78 The loss of wetland habitat will be partially compensated for by the creation of SUDS, ponds, balancing ponds and ditch/stream enhancement.

6.6.79 As this habitat will be mostly lost, the potential impact magnitude is considered unchanged as **'High'** and the overall potential impact of site construction work with mitigation is **'Slight'** (Site-Local importance: High impact).

**Tall ruderal herb, scrub and bracken**

*Nature Conservation Importance*

6.6.80 Individual habitats of low distinctiveness and poor species diversity, reflective of high nutrient status of soils. These habitats are not listed as local or priority habitats. The habitats contribute to the wider site-scale habitat mosaic (see 6.6.86).

6.6.81 The tall ruderal, scrub and bracken habitats on site are considered of **'Site'** value in terms of nature conservation importance.

*Likely scale of impacts in the absence of mitigation – Construction*

6.6.82 Habitats to be largely displaced, including over 2ha of scrub habitat.

6.6.83 Impact partially reversible through relaxed management of scrub, hedgerow and woodland habitat edges, and 14.6ha of habitat creation, to include areas of scrub planting.

6.6.84 The potential impact magnitude is considered **'Moderate',** and the overall potential impact of site construction work in the absence of mitigation is **'Non-significant'** (Site importance: High impact).

*Required mitigation and residual impact*

6.6.85 No habitat-specific mitigation required.

**Overall Habitat Mosaic**

*Nature Conservation Importance*

6.6.86 'Habitat mosaics' measuring over 1ha in size can deem an area of land to be of county-level importance in Cheshire, but only if the individual contributing habitats meet LWS criteria in every way aside from size (Cheshire Wildlife Trust, 2014). All of the individual habitats on site are degraded and do not meet the LWS criteria. Despite not being of district/LWS quality, the overall mosaic of semi-natural habitats that dominates the site is locally unique and represents the largest area of semi-natural habitat in the locality.

6.6.87 The overall site-scale habitat mosaic is considered of **'Local-District'** value in terms of nature conservation importance.

*Likely scale of impacts in the absence of mitigation – Construction*

6.6.88 Displacement of the majority of semi-natural habitats with residential development and amenity space.

6.6.89 The potential impact magnitude is considered **'High',** and the overall potential impact of site construction work in the absence of mitigation is **'Moderate'** (Local-District importance: High impact).

*Required mitigation and residual impact*

6.6.90 The loss of habitat will be partially compensated for by 14.6ha of habitat creation and/or enhancement as part of site plans, to include a mosaic of moderate to high quality habitats including species-rich grassland, scrub, wetland and woodland creation.

6.6.91 As the majority of the open semi-natural mosaic habitat across the site area will be displaced, the potential impact magnitude is considered unchanged as **'High'** and thus overall potential impact of site construction work with mitigation remains **'Moderate'** (Local-District importance: High impact).

**Other habitats**

6.6.92 No habitat that could potential qualify as traditional orchard was identified on site, which was identified as potentially present by the ecological desk study.

**Protected / priority species**

6.6.93 Protected and notable species that have been identified by the desk study, protected species surveys and those for which potentially suitable habitat occurs within or adjacent to the site, are discussed in the text below in terms of the likely impact of site proposals.

Mammals

**Badger**

*Nature conservation importance*

6.6.94 No evidence of badger was identified on or adjacent to the site area by any surveys between 2013 and 2019, indicating the likely absence of this species.

*Likely scale of impacts in the absence of mitigation*

6.6.95 The potential impact magnitude is considered **'Nil effect'**.

*Required mitigation and residual impact*

6.6.96 No specific mitigation required. However, if during site works there is reason to believe that any badger setts have become established, works should cease and further ecological advice should be sought.

6.6.97 Due to the mobile nature of badger, as a precautionary measure, a repeat survey should be carried out prior to any works commencing.

**Water vole**

*Nature Conservation Value*

6.6.98 No evidence of water vole was identified on or adjacent to the site area by any surveys at the site between 2013 and 2019, and the watercourses and ditches on site are considered suboptimal for the species. Owing to areas of dense scrub and reed, survey work has been subject to significant constraints and although likely, the absence of water vole cannot be categorically confirmed. In addition, the desk study search returned records of water vole ~200m from the site, although along water courses unconnected to the site.

6.6.99 Although presence is unlikely, the site value for water voles is classed as '**unknown'** as a precaution.

*Likely scale of impacts in the absence of mitigation*

6.6.100 Potential habitat loss and disturbance caused by site clearance, and several road crossings across ditches, including three road crossings across Spa Brook. The potential impact magnitude is considered **'High'.**

*Required mitigation and residual impact*

6.6.101 Precautionary buffer zones of habitat protection and enhancement measuring at least 10 metres in width have been incorporated into proposals along Spa Brook and all other site ditches as mitigation for water voles.

6.6.102 A precautionary water vole protection strategy is provided as **Appendix ECO 6**, which includes pre-works checks and sensitive vegetation clearance methodologies at each of the road crossing

points. No features will be installed beneath the road crossings such as grills which would block the Spa Brook or ditch habitats for wildlife including small mammals.

6.6.103 The adjusted potential impact magnitude with mitigation is considered **'Minor'** for water vole potentially present.

*Likely scale of impacts in the absence of mitigation – Operational*

6.6.104 See Paragraphs 6.6.63 to 6.6.66.

**Bats**

*Nature Conservation Importance*

6.6.105 No potential roosts were identified within the buildings or trees on site, however one property on site and several properties directly connecting to the site buildings could not be fully assessed owing to access constraints. In addition, all trees with bat roosting potential should be considered part of a resource that will be used at one time or another by tree-roosting bats (Collins, 2016).

6.6.106 The building habitats are of **'unknown'** roosting value for bats, whilst the tree habitats on site are considered of potential **'site'** value for roosting bats.

6.6.107 Five bat species utilise the site for foraging and commuting including common and uncommon species. The bat species assemblage does not currently qualify to be of county importance for bats according to the LWS selection criteria (Cheshire Wildlife Trust, 2014). Field results suggest common pipistrelle and noctule bats roost nearby and utilise the site as core foraging habitat, whilst Nathusius pipistrelle and soprano pipistrelle at least occasionally roost nearby. Natterer's bat was occasionally present at woodland habitats.

6.6.108 A peak in June common pipistrelle activity suggests the potential utilisation of the site area by a maternity colony, although no large numbers of bats were recorded to enter the site from a particular direction. One record of a common pipistrelle maternity roost was identified by the desk study over 1.7km south of the site.

6.6.109 A low number of noctule bats regularly utilise the open mosaic and grassland habitats on site as foraging habitat, a habitat that is relatively uncommon within the immediate locality, although it is acknowledged that without intervention, the open habitat mosaic would naturally become colonised by scrub and dense habitats over time.

6.6.110 Based on the habitat usage of the site by bats outlined in Chapter 6.5, the following comprises a summary of key important habitat areas on site for the remaining bat species on site:

- Lane to Peel Hall Farm
- Woodland edge & pond habitats

- Field boundary habitats
- Southern-most playing field

6.6.111 The habitats listed above are considered to be of **'District'** value for common pipistrelle bats, and the open fields are of **'Local'** value for noctule bats.

*Likely scale of impacts in the absence of mitigation – Construction*

6.6.112 Building demolition and removal of single tree with roosting potential. Loss of woodland edge habitats along the southern site boundary, fragmentation of key foraging corridors for common pipistrelle owing to road construction, and displacement of open habitats, of value to noctule, with residential development. Indirect impacts include artificial lighting illuminating habitats of value.

6.6.113 The potential impact magnitude is considered **'High',** and the overall potential impact of site construction work on foraging bats in the absence of mitigation is **'Moderate'** (Local-District importance: High impact).

6.6.114 The overall potential impact of site construction work on roosting bats in the absence of mitigation is **Unknown**.

*Required mitigation and residual impact*

6.6.115 Further survey work is required to establish the presence/absence of roosting bats on site.

6.6.116 Suitable replacement roosting habitat for bats shall be provided in the form of bat boxes to be installed on existing trees and proposed dwellings adjacent to suitable foraging habitat.

6.6.117 Precautionary working methods in relation to removal/pruning of any trees with bat roost potential are included in the Bat Mitigation Strategy provided as **Appendix ECO 4.**

6.6.118 The loss of suitable woodland edge habitat for foraging pipistrelle will be partially compensated for by 14.6ha of habitat creation and/or enhancement as part of site plans, to include a mosaic of moderate to high quality habitats including species-rich grassland, scrub, wetland and woodland creation. A barrier will be created along the north of the site to buffer noise and light from the motorway, which will lessen the effects of existing light spill from the motorway on bats.

6.6.119 As open semi-natural habitat cannot be compensated for within the context of development, the potential impact magnitude with mitigation is considered **'High'** for noctule, and thus the overall potential impact of site construction work on foraging noctule bat with mitigation is **'Slight'** (Local importance: High impact).

6.6.120 The potential impact magnitude with mitigation is considered **'Minor'** for all other recorded bat species, and the overall potential impact of site construction work on other bats with mitigation is **'Slight'** (District importance: Minor impact).

6.6.121 The overall potential impact of site construction work on roosting bats in the absence of mitigation is **Unknown**.

*Likely scale of impacts in the absence of mitigation – Operation*

6.6.122 Artificial lighting such as streetlights could result in the loss and fragmentation of key commuting and foraging habitats for bats and deplete invertebrate numbers.

6.6.123 The potential impact magnitude is considered **'High',** and the overall potential impact of site operation on foraging bats in the absence of mitigation is **'Moderate'** (Local-District importance: High impact).

*Required mitigation and residual impact*

6.6.124 Unlit buffer zones measuring at least ten metres will be upheld along key foraging corridors, to ensure the retention of dark habitats for foraging pipistrelle bats. The bat method statement and lighting strategy provided as **Appendix ECO 4** will be implemented to minimize impacts to key foraging and commuting corridors for bats. In addition to sensitive lighting design, this includes strategic planting either side of the proposed breaks in the hedgerows, invertebrate attracting habitat creation and woodland edge habitat restoration.

6.6.125 The adjusted potential impact magnitude with mitigation is considered **'Minor'** for bat species, and the overall potential impact of site operation on bats with mitigation is **'Slight'** (District importance: Minor impact).

**Hedgehog**

*Nature Conservation Value*

6.6.126 No specific survey for hedgehog has been undertaken. The desk study found 16 records of hedgehog within 2km of the site, with the most recent being from 2017 and the nearest being 270m south-east of the site. Hedgehogs, and evidence of hedgehogs, was also sighted on three separate occasions during survey visits.

6.6.127 The site provides a variety of habitats where hedgehogs can feed and commute, with opportunities for refugia within areas of scrub, woodland and hedgerows. Whilst wetter parts of the site are likely to be avoided by hedgehogs, these do not necessarily prevent dispersal across the site due to seasonal drying. The site is also likely to provide relatively safe commuting corridors, free of vehicles, for hedgehogs in the local area. Brashing present due to households discarding garden waste also provide valuable refugia for hedgehogs along site boundaries. Site

habitats are therefore considered to be of high value to hedgehogs on site and within the local area.

6.6.128 The site is therefore considered likely to be of **'local'** value for hedgehog.

*Likely scale of impacts in the absence of mitigation – construction*

6.6.129 Habitat loss and direct impacts on hedgehog refugia.

6.6.130 The potential impact magnitude is considered **'High',** and thus the overall potential impact of site construction work on hedgehog in the absence of mitigation is **'Slight'** (Local importance: High impact).

*Required mitigation and residual impact*

6.6.131 Retained linear woodland and hedgerow habitats will retain connectivity across the site for hedgehogs and hibernacula and log piles will be installed within woodland areas as additional refugia for hedgehog along with species rich grassland creation to enhance foraging opportunities.

6.6.132 To further minimise potential impacts upon hedgehogs throughout development work a Hedgehog Mitigation Strategy is provided as **Appendix ECO 5** which includes sensitive vegetation clearance methodologies and covering any excavations or open-ended pipes overnight.

6.6.133 The adjusted potential impact magnitude with mitigation is considered **'Minor'** for hedgehog and thus the overall potential impact of site construction work on hedgehog with mitigation is **'Non-significant'** (Local importance: Minor impact). No specific survey work is recommended.

*Likely scale of impacts in the absence of mitigation – operation*

6.6.134 Habitat fragmentation by garden/boundary fences and walls, increased disturbance from pedestrians and household pets, and increased mortality risks from roads.

6.6.135 The potential impact magnitude is considered **'High',** and thus the overall potential impact of site operation on hedgehog in the absence of mitigation is **'Slight'** (Local importance: High impact).

*Required mitigation and residual impact*

6.6.136 As detailed in the Hedgehog Mitigation Strategy is provided as **Appendix ECO 5**, all boundary garden fences will be lifted or possess hedgehog access points to allow access between gardens for small mammals including hedgehog. Wildlife underpasses beneath roads, proposed at strategies locations as part of the GCN mitigation strategy (see **Appendix ECO 3**) are large enough for hedgehog to pass through.

6.6.137 The adjusted potential impact magnitude with mitigation is considered **'Minor'** for hedgehog and thus the overall potential impact of site construction work on hedgehog with mitigation is **'Non-significant'** (Local importance: Minor impact).

**Brown hare**

*Nature Conservation Value*

6.6.138 Records of brown hare were returned by the desk study within 2km of the site. No hares were witnessed throughout any of the multiple days spent surveying on site between 2012 and 2019, likely owing to the isolation of the site in addition to its increasing ratio of scrub to grassland. As such this species is concluded as likely absent.

**Polecat**

*Nature Conservation Value*

6.6.139 Evidence of pole cat was incidentally recorded on site, which is a priority species. Pole cat primarily predate upon rabbit, of which there is a healthy population of at the site.

6.6.140 The site is therefore considered likely to be of **'local'** value for pole cat.

*Likely scale of impacts in the absence of mitigation*

6.6.141 Habitat loss and direct impacts during construction.

6.6.142 The potential impact magnitude is considered **'High'** thus the overall impact is **'slight'** (local value: high impact).

*Required mitigation and residual impact*

6.6.143 The parameters plan implies ditch habitats are to be retained within corridors of habitat creation/enhancement, which is where the greatest concentration of rabbit activity was recorded.

6.6.144 Retention of hedgerows and linear wooded areas across the site.

6.6.145 All mitigation recommended for hedgehog within the appended mitigation strategy (Appendix **ECO 5**) should also inadvertently ensure protection and retained habitat connectivity for polecat.

6.6.146 The adjusted impact magnitude is considered **'Minor'** thus the overall impact is **'non-significant'.**

<u>Herpetofauna</u>

**Amphibians**

*Nature Conservation Importance*

6.6.147 The desk study search identified common frog, toad, smooth newt and great crested newt (GCN) records within the local area, all separated from the site by over 0.5km.

6.6.148 The site supports a small breeding population of GCN, a species that is fully protected under a combination of the Conservation of Habitats and Species Regulations 2017 (as amended) and the Wildlife and Countryside Act 1981 (as amended), however the amphibian assemblage does not currently qualify to be of county importance for amphibians according to the LWS selection criteria (Cheshire Wildlife Trust, 2014).

6.6.149 The site is considered to be of **'Local'** value for amphibian assemblages.

*Likely scale of impacts in the absence of mitigation – Construction*

6.6.150 One of the two ponds within which GCN were identified will be displaced by a proposed link road as part of the development. It is understood that the link road cannot be rerouted to avoid the pond. Destruction of a breeding pond is classed as 'high' scale impact in accordance with Great Crested Newt Mitigation Guidelines (English Nature, 2001). The remaining waterbodies on site will be retained, although indirect impacts of pollution and siltation may pose a risk of degradation (see para 6.6.43).

6.6.151 The mosaic of semi-natural habitats on site is considered of good potential value for GCN. Terrestrial habitat within 50m of breeding GCN ponds (immediate habitat) is of the greatest value and is used most frequently by GCN. Regular movement of GCN is likely to be restricted to habitats within 250m of a breeding pond (intermediate habitat 50-250m). Distant habitat (250m to 500m) may still be used by GCN, but not on a regular basis. The location of the GCN ponds, with 50m, 250m and 500m buffer zones, is indicated on Figure 1820-A4-01, **Appendix ECO 3.** Proposals will result in the permanent loss of approximately 0.6ha of terrestrial habitat within 50m of the GCN ponds and 13.92ha of terrestrial habitat within 250m of the GCN ponds.

6.6.152 The potential impact magnitude is considered **'High',** and the overall potential impact of site construction work on amphibians in the absence of mitigation is **'Slight'** (Local importance: High impact).

*Required mitigation and residual impact*

6.6.153 At the time of writing, the District Level Licensing Scheme for GCN is not yet available in Warrington.

6.6.154 A great crested newt mitigation strategy is outlined in **Appendix ECO 3**. To avoid the killing or injury of GCN, a European Protected Species Mitigation (EPSM) Licence will be required in order to trap and translocate amphibians from the proposed development area to newly created or enhanced receptor habitats, prior to works commencing. This mitigation strategy is detailed in **Appendix ECO 3,** which demonstrates how the Favourable Conservation Status of GCN, and other priority amphibians, can be maintained on site. Habitat creation/enhancement as part of the GCN EPSM licence will include hibernaculum installation, pond creation, woodland/scrub/species

rich grassland creation, to compensate for the loss of suitable terrestrial habitats. There would need to be a management plan for the created/enhanced habitats.

6.6.155 In should be noted that applying for a Natural England GCN Mitigation Licence requires GCN population size survey data from within the two years prior. Considering GCN are likely to have colonised the site from ponds within Peel Hall (the only other ponds with habitat connectivity to the site), these ponds will be surveyed to fully inform a Natural England EPSM licence application post-planning permission.

6.6.156 It is considered likely that with aquatic and terrestrial habitat creation and enhancement, the post-development site area will be able to maintain and potentially enlarge the existing small population of amphibians.

6.6.157 With mitigation, the potential impact magnitude with mitigation is considered **'Minor'** for amphibians, and the adjusted overall potential impact of site construction work on amphibian populations is **'Non significant'** (Local importance: Minor impact).

*Likely scale of impacts in the absence of mitigation – Operational*

6.6.158 Current proposals would cause habitat fragmentation and mortality risks to amphibians owing to the proposed link road passing between two clusters of ponds.

6.6.159 Newly created mitigation ponds could also be polluted via road run-off and/or disturbed by residents (see Paragraph 6.6.50).

6.6.160 The potential impact magnitude is considered **'High',** and the overall potential impact of site operation on great crested newt in the absence of mitigation is **'Slight'** (Local importance: High impact).

*Required mitigation and residual impact*

6.6.161 As specified in the GCN mitigation Strategy (**Appendix ECO 3**), the installation of permanent amphibian walls/fences and amphibian underpasses beneath the link road will minimise the mortality risk and fragmentary effects of the proposed link road. The strategy also advises scrub or post fencing around ponds with information signs. SUDS shall ensure ponds are protected from potential pollution sources.

6.6.162 The adjusted potential impact magnitude is considered **'Minor',** and the overall potential impact of site operation of great crested newt with mitigation is **'Not significant'** (Local importance: Minor impact).

**Reptiles**

*Nature Conservation Value*

6.6.163 One record of common lizard was returned by the desk study over 1km from the site area. No reptile surveys have been undertaken at the site to date. The overall mosaic structure of habitats on site was considered potentially suitable for reptiles in terms of foraging habitats, however given the history of the site as intensive agricultural land, current high levels of anthropogenic disturbance and isolated nature of the site from any other open semi-natural habitats, it is rendered highly unlikely that reptile species such as common lizard will have colonised the site. The motorway verge adjacent to the site was considered suboptimal for dispersing reptiles based on habitat structure, narrow width, northern facing slope aspect, and its termination at a slip road junction at the west of the site.

Birds

**Breeding birds**

*Nature conservation value*

6.6.164 Survey work has shown that site supports a range of common nesting birds, including several species that use the site for foraging but nest off site. These birds include seven species listed in Section 41 (NERC Act 2006), five of which are Red-listed in BoCC4, and seven Amber-listed in BoCC4.

6.6.165 The seven S41 bird species recorded during the 2019 survey include skylark, reed bunting and dunnock as breeding species, song thrush and bullfinch recorded in suitable habitat but no evidence of breeding, and starling and house sparrow present but no suitable nesting habitat present.

6.6.166 Six species recorded on the site are included in the Cheshire Local BAP. These include skylark, reed bunting, house sparrow, bullfinch, starling, and song thrush. Of those, only skylark and reed bunting were recorded as breeding species on site.

6.6.167 Using the criteria for selection it can be confirmed that the site fails to meet the required criteria for selection based upon the number of species recorded over the two survey visits.

6.6.168 Based upon the 2019 survey the bird fauna of the site is considered to be of **'local-district'** value, which concurs with the evaluation provided following surveys in 2013 and 2017.

*Likely scale of impacts in the absence of mitigation – Construction*

6.6.169 Loss of extensive areas of nesting/foraging habitat for a range of common birds of local-district value.

6.6.170 The potential impact magnitude is considered **'High',** and thus the overall potential impact of site construction work on breeding birds in the absence of mitigation is **'Moderate'** (Local-District importance: High impact).

*Required mitigation and residual impact*

6.6.171 In order to avoid the risk of directly impacting upon breeding birds, all trees and shrubs scheduled for removal must be felled outside of the breeding season i.e. within the period September-February inclusive.

6.6.172 All brash must be chipped on site or removed before the onset of the breeding season to prevent secondary colonisation by breeding birds.

6.6.173 All stands of common reed requiring removal must be mown to ground level during September-February inclusive to avoid impacting on breeding warblers.

6.6.174 If breeding birds are found, then an appropriately sized buffer zone for the species found must be implemented around the nest to prevent disturbance until the young have fledged and left the nest. The buffer zone must be fenced off temporarily until the nest is unoccupied. The vegetation containing the nest site can only be removed once the ecologist has declared the site clear of nesting birds.

6.6.175 To maintain and enhance the bird population at the site, over 7ha of bird habitat including woodland, hedgerows, ditches/streams and ponds will be retained. These areas will be enhanced further by over 7.6ha of tree/shrub planting, new ponds and the enhancement/creation of existing/new linear wildlife corridors/links.

6.6.176 The potential impact magnitude with mitigation is considered **'Moderate'** for breeding birds, and the adjusted overall potential impact of construction development work on breeding birds with mitigation is **'Moderate'** (Local-District importance: Moderate impact).

*Likely scale of impacts in the absence of mitigation – Operation*

6.6.177 Disturbance to nesting birds due to increased pedestrian use and general development, noise and lighting.

6.6.178 The potential impact magnitude is considered **'Minor',** and thus the overall potential impact of site operation of breeding birds in the absence of mitigation is **'Slight'** (Local-District importance: Minor impact).

*Required mitigation and residual impact*

6.6.179 To reduce anthropogenic disturbance, barriers and buffer zones either side of valuable breeding habitats will be implemented including 10 metre buffers of unlit habitat retention and creation along ditches, hedgerows and woodland.

6.6.180 The potential impact magnitude with mitigation is considered **'Non significant'** for breeding birds, and the overall potential impact of site operation on breeding birds with mitigation is **'Non significant'** (Local-District importance: Non-significant impact).

**Barn Owl**

*Nature Conservation Value*

6.6.181 No evidence of barn owl was identified on or adjacent to the site area by any surveys at the site between 2012 and 2019, and the presence of the M62 reduces the potential presence of this species to highly unlikely.

*Required mitigation and residual impact*

6.6.182 No mitigation is required for this species. In line with the Barn Owl Trust guidance, no provision for barn owls must be made due to the close proximity of the M62 which is a serious hazard to barn owl survival.

Invertebrates

*Nature conservation importance*

6.6.183 No structured invertebrate survey has been undertaken. Based on incidental observations alone, the site possesses a diverse assemblage of common species but does not currently qualify to be of county importance for butterflies, dragonflies/damselflies or other terrestrial/freshwater invertebrates according to the LWS selection criteria (Cheshire Wildlife Trust, 2014). However, a low number of priority species were identified and owing to extent of semi-natural habitats within the site, it is likely that the site is of **'local'** value to invertebrate populations.

6.6.184 One Section 41 priority invertebrate species was recorded on site: cinnabar moth, which is a relatively widespread species owing to its preferred larval plant being ragwort.

*Likely scale of impacts in the absence of mitigation*

6.6.185 Loss of seminatural habitats. The potential impact magnitude is considered **'High'** thus the overall impact is **'slight'.**

*Required mitigation and residual impact*

6.6.186 Over 14.6ha of invertebrate attracting habitats are to be created and/or enhanced as part of proposals.

6.6.187 The adjusted impact magnitude is considered **'Minor'** thus the overall impact is **'non-significant'.**

## 6.7 SUMMARY EVALUATION

6.7.1 Section 6.7 of this Addendum serves as an update to the original Environmental Statement and Addendum 1; therefore it replaces the corresponding sections of the original ES (Sections 6.15 & 6.16). Refer to original ES and Addendum 1 for August 2015 and August 2017 summary evaluations of ecological receptors and potential impacts.

6.7.2 A summary of nature conservation value of each of the ecological receptors is provided in **Table 6.10** below.

**Table 6.10: Ecological Receptors – Nature Conservation Value**

| Ecological receptor | Associated Species and Habitats | Nature Conservation Value |
|---|---|---|
| **Nature Conservation Sites** | | |
| Radley Plantation and Pond Local Wildlife Site | Broad-leaved woodland and ponds<br>Off-site feature located immediately adjacent to the proposal site | County |
| **Habitats** | | |
| Grassland | Coarse, improved, low diversity grassland communities and amenity grassland. No priority grassland NVC communities present. | Local |
| Woodland | Mature plantation woodland >100 years old<br>Immature plantation woodland <30 years old<br>No priority woodland NVC communities present. | Local |
| Ponds | Three on-site ponds with no significant plant communities | Site-Local |
| Stream & ditches | Modified channel in Spa Brook and ditches with no significant plant communities | Site-Local |
| Hedgerows | Native hedgerows. No ecologically 'important' hedgerows present. | Site-Local |
| Swamp | Dry stands of common reed | Site-local |
| Ruderal / fern | Tall ruderal herb and bracken | Site |
| Scrub | Secondary scrub | Site |
| Collective Evaluation of Habitats | Extensive mosaic of all semi-natural habitats listed above (Excluding Radley Plantation & Pond LWS) | Local-District |
| **Species** | | |
| Badger | No evidence of occupation and very low possibility due to major landscape barrier effects | Not applicable |
| Water vole | No evidence of presence and very low possibility of colonisation owing to negligible-poor habitat conditions. Dense vegetation prevented full fingertip search of some sections of Spa Brook and ditches. | Not known |
| Roosting bats | Likely absence of bat roosts within trees and properties surveyed (all low potential value). One property on site, and three semi-detached properties directly attached to buildings on site could not be accessed to survey | Not known |
| Foraging/Commuting bats | Five species recorded. Woodland edge and field boundaries of importance to common pipistrelle, open field habitats of value to noctule. | Local-District |
| Hedgehog | Evidence of presence & extensive suitable habitat on site | Local |

| | | |
|---|---|---|
| Brown Hare | No evidence of occupation and very low possibility due to major landscape barrier effects. | Not applicable |
| Polecat | Evidence of presence & extensive suitable habitat on site | Local |
| Amphibians | Small breeding populations of great crested newt, smooth newt and common toad present on site. | Local |
| Reptiles | No survey undertaken. Very low possibility of colonisation owing to site disturbance, isolation from surrounding suitable habitat by barriers and distance. | Not applicable |
| Breeding birds | Assemblages of birds that are typical of the local area including occasional ground nesting species | Local-District |
| Barn owl | No evidence of occupation and very low possibility due to major landscape barrier effects & lack of potential nest sites | Not applicable |
| Invertebrates | Assemblages of invertebrates typical of the local area. No significant invertebrate community compositions present. | Site-Local |
| Other species | No red data book species present, or potentially suitable habitat for species such as otter, red squirrel, white-clawed crayfish, dormouse. | Not applicable |

6.7.3 The evaluation of the Ecological Receptors has shown that the development will affect areas of immature woodland, course low-diversity grassland, amenity grassland, hedgerows, tall ruderal herb, secondary scrub and secondary stands of dry reed bed. The individual habitats affected within the application boundary are at most of Site-Local value only, however the site is large and when evaluated collectively that habitats are considered of Local-District value.

6.7.4 In addition, the collective faunal interest of the site is of Local-District value.

6.7.5 The habitats within Radley Plantation and Pond Local Wildlife Site (off-site) are of county importance and will not be directly affected by proposals, however could be indirectly impacted in the absence of mitigation.

6.7.6 To provide an overview of the detailed impact assessment included in Section 6.6, a summary of predicted impacts of construction and site operation are summarised in **Tables 6.11 and 6.12**.

**Table 6.11: Assessment of potential impacts – Construction**

| **Ecological receptor** | **Nature Conservation Value** | **Predicted Impact & Reversibility** | **Overall impact** (in the absence of mitigation) | **Mitigation** (Based on Parameters Plan and various appended species mitigation/protection strategies) | **Residual predicted impact** |
|---|---|---|---|---|---|
| Nature Conservation Sites | | | | | |
| Radley Plantation and Pond Local Wildlife Site | County | Owing to proximity, LWS at risk from disturbance during site works (light, noise, dust, disturbance, root damage, run-off, pollution, spread of invasive species). - Temporary effect<br>Partial removal of semi-natural woodland edge buffer habitats + one nearby pond - Medium term effect. | Moderate | No built development within 15 metres of woodland. No residential curtilage within 25 metres of LWS.<br>10-20metre buffer zone of habitat creation around northern perimeter of LWS including pond creation.<br>Construction Environmental Management Plan. | Slight |
| Habitats | | | | | |
| Grassland | Local | Loss of >30ha of low diversity grassland.<br>Impact partially reversible through creation of species-rich grassland creation on site within ecological enhancement areas.<br>Medium term effect. | Slight | 14.6ha of habitat creation and/or enhancement on site to include open areas of species-rich grassland creation. | Non-significant |
| Woodland | Local | Loss of >3.3ha of immature woodland.<br>Impact reversible through woodland creation on site within ecological enhancement areas.<br>Medium term effect. | Slight | 14.6ha of habitat creation on site to include minimum 3.3ha woodland creation.<br>Enhancement and protection of retained woodland. | Non-significant |
| Ponds | Site-Local | One pond to be directly displaced.<br>Impact reversible through pond creation and enhancement.<br>Medium term effect. | Slight | Three new ponds (separate from SUDS systems) to be created on site. Enhancement of two retained ponds. | Non-significant |
| Stream & Ditches | Site-Local | Stream to be retained. Short sections to be impacted upon by road crossings.<br>Impact reversible through habitat enhancement of stream corridor.<br>Medium term effect. | Slight | 10m buffer zones either side of Spa Brook and ditches.<br>Habitat enhancement of stream corridor. | Non-significant |

| | | | | | |
|---|---|---|---|---|---|
| Hedgerows | Site-Local | Hedgerows to be largely retained. Short sections displaced by roads.<br>Impact reversible through hedgerow planting and enhancement on site.<br>Medium term effect. | Slight | Boundary hedgerows to be planted & retained hedgerow habitat to be protected by buffer zones and enhanced. | Not significant |
| Reedbed | Site-local | Loss of ~2ha secondary reedbed on abandoned farmland.<br>Partial reversibility possible through provision of SUDS.<br>Medium term effect | Slight | Provision of four attenuation ponds. | Slight |
| Ruderal / fern | Site | Loss of habitat.<br>Impact partially reversible through relaxed management of scrub, hedgerow and woodland habitat edges.<br>Medium term effect. | Not significant | Relaxed management of scrub, hedgerow and woodland habitat edges. | Not significant |
| Scrub | Site | Loss of >2ha of scrub habitat.<br>Impact partially reversible through scrub habitat creation on site within ecological enhancement areas.<br>Medium term effect. | Not significant | 14.6ha of habitat creation and/or enhancement to including scrub habitats. | Not significant |
| Collective Evaluation of Habitats | Local-District | Very high impacts on a large area of semi-natural habitat.<br>Impact partially reversible through habitat creation on site within ecological enhancement areas.<br>Medium term effect.<br><br>All retained habitats at risk from disturbance during site works (light, noise, dust, disturbance, root damage, run-off, pollution).<br>Temporary effect | Moderate | 14.6ha of habitat creation on site including species-rich grassland, scrub, wetland and woodland creation & invasive species removal<br><br>Construction Environmental Management Plan to ensure protection of all retained habitats at risk from disturbance during site works (light, noise, dust, disturbance, root damage, run-off, pollution). | Moderate |
| Species | | | | | |
| Badger | Not applicable | No effect | Not applicable | Precautionary pre-commencement badger survey. | Not applicable |

| | | | | | |
|---|---|---|---|---|---|
| Water vole | Not known | Potential water vole habitats to be retained. Short sections of ditches and Spa Brook to be impacted upon by road crossings.<br>Impacts avoidable through precautionary working methodologies during road construction & buffer zones of habitat creation and enhancement along all wet ditches and streams.<br>Medium term effect. | Not known | See water vole protection plan (Appendix **ECO 6**), which includes precautionary working method statement and details of 10 metre buffer zones of habitat creation and enhancement along all wet ditches and streams. | Not known |
| Roosting bats | Not known | No roosts present within surveyed habitats on site.<br>Demolition of properties that have not yet been accessed to inspect/survey for evidence of roosting bats.<br>If bats found present by survey work, impact likely reversible through licenced bat mitigation to avoid harm to individual bats and create replacement roost features.<br>No effect / temporary effect. | Not known | See bat mitigation strategy (Appendix **ECO 4**).<br>If bats present, licenced bat mitigation will avoid harm to individual bats and create replacement roost features. | Not known |
| Foraging/Commuting bats | Local-District | Loss/modification of pipistrelle bat foraging routes along field boundaries.<br>Impact avoidable through the establishment of buffer zones along key corridors, and habitat creation throughout the wider site area.<br>Temporary effect | Moderate | See bat mitigation strategy (Appendix **ECO 4**), which specifies corridors of habitat creation and 10m buffer zones of unlit habitats along key habitat features e.g. ditches, woodland edge & hedgerow habitats. | Slight |
| Hedgehog & Polecat | Local | Loss/fragmentation of commuting, foraging and potential hibernation habitat.<br>Impacts avoidance/reversible through sensitive site clearance and retaining/creating habitat corridors.<br>Medium term effect. | Slight | See Hedgehog Mitigation Strategy (Appendix **ECO 5**), which includes sensitive site clearance methodologies and habitat retention/creation. | Non-significant |
| Amphibians | Local | Loss of one breeding pond and surrounding terrestrial habitats.<br>Impacts reversible through pond creation, terrestrial habitat creation and amphibian translocation under a Natural England EPSM licence.<br>Medium term effect. | Slight | See great crested newt mitigation strategy (Appendix **ECO 3**), which includes an overview of newt translocation requirements & methods and habitat creation specifications. | Non-significant |
| Breeding birds | Local-District | Loss of extensive areas of nesting/foraging habitat for a range of common birds. | Moderate | Sensitive timing of vegetation removal. | Moderate |

| | | | | | |
|---|---|---|---|---|---|
| | | Impact partially reversible through habitat creation on site within ecological enhancement areas.<br>Medium term effect. | | 14.6ha of habitat creation and/or enhancement on site to include woodland, hedgerows and ponds. | |
| Barn owl | Not applicable | No effect | Not applicable | No mitigation required | Not applicable |
| Invertebrates | Site-Local | Extensive habitat loss of semi-natural habitats<br>Impact partially reversible through species-rich habitat creation.<br>Medium term effect. | Slight | Species-rich habitat creation on site within ecological enhancement areas. | Non-significant |
| Other protected/priority species e.g. reptiles & brown hare | Not applicable | No effect | Not applicable | No mitigation required | Not applicable |

**Table 6.12: Assessment of potential impacts – Operation**

| Ecological receptor | Nature Conservation Value | Predicted Impact & Reversibility | Overall impact (in the absence of mitigation | Mitigation | Residual predicted impact |
|---|---|---|---|---|---|
| **Nature Conservation Sites** | | | | | |
| Radley Plantation and Pond Local Wildlife Site | County | Increased public disturbance, although site already heavily utilised with no sensitive ground flora species | Not significant | Woodland enhancement and public awareness | Not significant |
| **Habitats** | | | | | |
| Grassland | Site-Local | Any losses of grassland have occurred during the construction phase. No operational effects predicted | Not applicable | No mitigation required | Not applicable |
| Woodland | Local | Increased public disturbance, although habitats currently significantly degraded owing to human activities. | Nil effect | Woodland enhancement through management.<br>Proposed layout to ensure no rear gardens adjacent to woodland edges. | Not significant |
| Ponds | Site-Local | Pollution through site runoff & increased public disturbance. | Slight | SUDS system to prevent any pollution/siltation of waterbodies.<br>Walkway barriers and information boards around ponds detailing sensitive pond ecology and advising dogs are kept out of water. | Not significant |
| Stream & ditches | Site-Local | Pollution through site runoff<br>Impact avoidance through effective SUDS | Slight | SUDS system to prevent any pollution/siltation of watercourse | Not significant |
| Hedgerows | Site-Local | Increased public disturbance.<br>Impact avoidable through buffer zones | Not significant | Provision of walkways outside of hedgerow protection buffer zones | Not significant |
| Swamp | Site-local | No operational effects | Not significant | - | Not significant |
| Ruderal / fern | Site | No operational effects | Not significant | - | Not significant |
| Scrub | Site | No operational effects | Not significant | - | Not significant |
| Collective Evaluation of Habitats | Local-District | No operational effects | Not significant | - | Not significant |
| **Species** | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Badger | Not applicable | No effect | Not applicable | No mitigation required | Not applicable |
| Water vole | Not known | Pollution through site runoff<br>Impact avoidance through effective SUDS | Not known | 10 metre buffer protection zones to be maintained.<br>SUDS system to prevent any pollution/siltation of watercourse | Non-significant |
| Roosting bats | Not known | No operational effects | Not applicable | Bat box installation | Not applicable |
| Foraging/Commuting bats | District | Impact on bat foraging areas through the site lighting.<br>Impact avoidable through an appropriate lighting plan. | Moderate | See bat mitigation strategy (Appendix **ECO 4**), which specifies corridors of habitat creation and 10m buffer zones of unlit habitats along key habitat features e.g. ditches, woodland edge & hedgerow habitats. | Slight |
| Hedgehog & Polecat | Likely local | Fragmentation of commuting and foraging habitat by garden fences and roads.<br>Impacts avoidable through provision of wildlife underpasses. | Slight | See Hedgehog Mitigation Strategy (Appendix **ECO 5**), which includes wildlife underpasses suitable for small mammals/herptiles and garden fence design. | Non-significant |
| Amphibians | Local | Pollution through site runoff & increased public disturbance.<br>Impact avoidance through effective SUDS & raising environmental awareness of residents<br>Roads between pond clusters present permanent dispersal barrier and significant risk of mortality. | Slight | See great crested newt mitigation strategy (Appendix **ECO 3**), which includes permanent mitigation features such as permanent GCN fencing along link road between ponds, amphibian underpasses at key locations & pond protection. | Non-significant |
| Breeding birds | Local-District | Disturbance to nesting birds due to increased pedestrian use of site and general development.<br>Partially reversible through provision of barriers and buffer zones. | Slight | Walkways outside of any vegetation buffer zones with barriers. | Non-significant |
| Barn owl | Not applicable | No effect | Not applicable | No mitigation required. | Not applicable |
| Invertebrates | Site-Local | No effect | Not applicable | No mitigation required | Not applicable |
| Other protected/priority species e.g. reptiles & brown hare | Not applicable | No effect | Not applicable | No mitigation required | Not applicable |

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# 7.0 HYDROLOGY, DRAINAGE AND FLOOD RISK ASSESSMENT

7.1 This section of the Environmental Statement remains unchanged.

## 7.2 Site Description

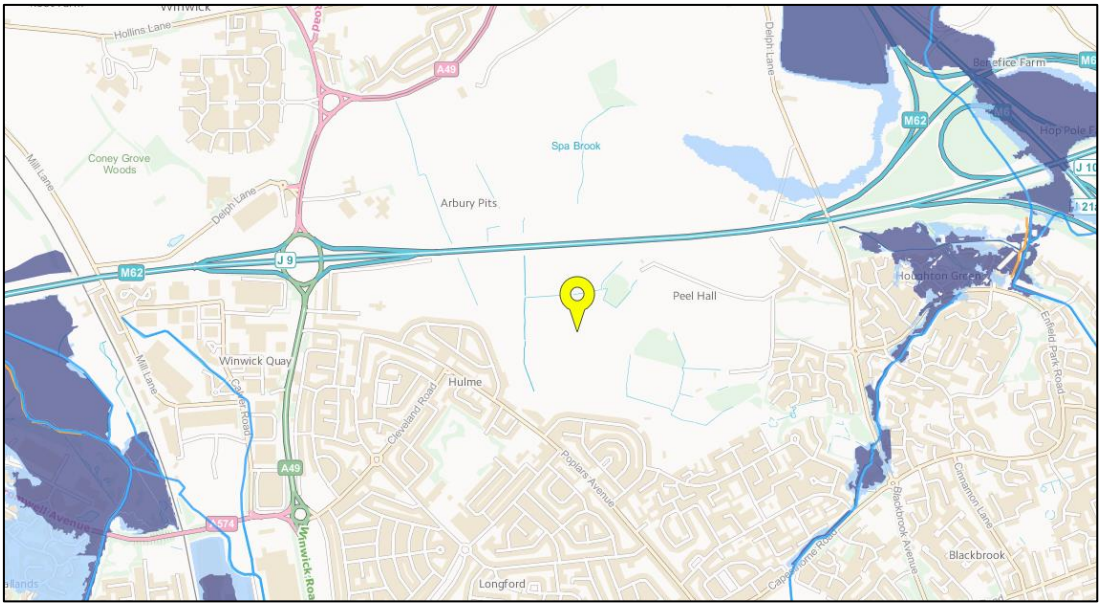
This section of the Environmental Statement remains unchanged (7.2.1 - 7.2.3).

## 7.3 Flood Risk

7.3.1 This section of the Environmental Statement remains unchanged.

7.3.2 This section of the Environmental Statement remains unchanged.

**Figure 1 – EA indicative Flood Map – Peel Hall Farm**




**Warrington Borough Council Strategic Flood Risk Assessment (SFRA) and Flood Risk Management Strategy (FRMS)**

7.3.3 This section of the Environmental Statement remains unchanged.

7.3.4 This section of the Environmental Statement remains unchanged.

7.3.5 This section of the Environmental Statement remains unchanged.

7.3.6 This section of the Environmental Statement remains unchanged.

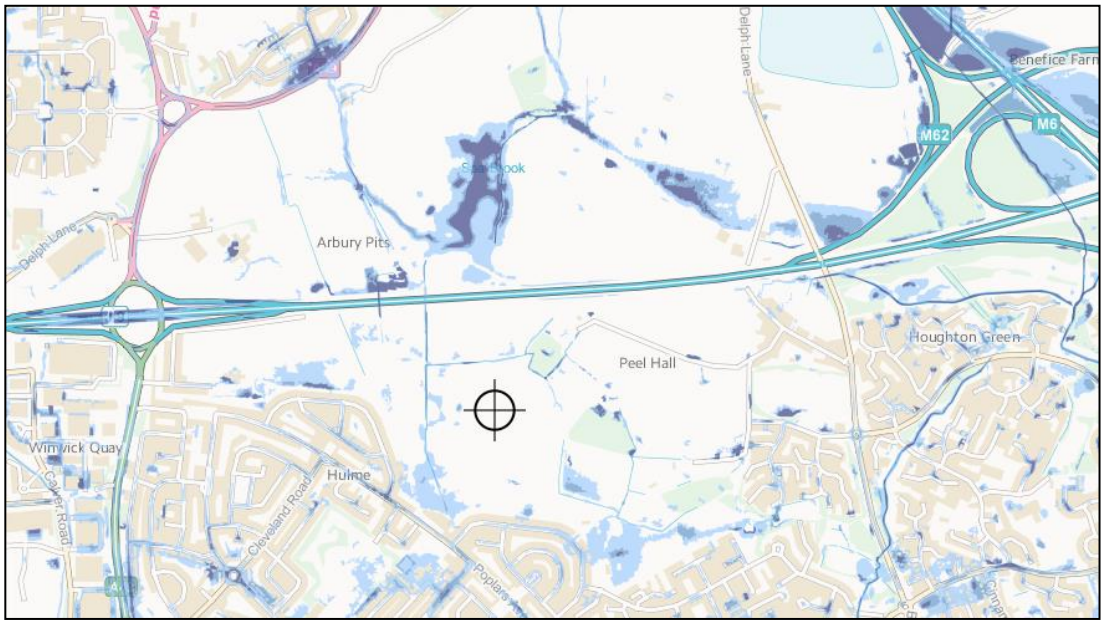
7.3.7 This section of the Environmental Statement remains unchanged.

7.3.8 This section of the Environmental Statement remains unchanged.

7.3.9 This section of the Environmental Statement remains unchanged.

7.3.10 This section of the Environmental Statement remains unchanged.

**Figure a – EA Indicative Surface Water Flood Risk Map – Peel Hall**




7.3.11 This section of the Environmental Statement remains unchanged.

## 7.4 Proposed Surface Water Drainage Strategy

This section of the Environmental Statement remains unchanged (7.4.1 – 7.4.13).

**Section 22 Response**

7.4.14 This section of the Environmental Statement remains unchanged from ES addendum 1 (7.4.14 - 7.4.17).

## 7.5 Proposed Foul Water Drainage Strategy

This section of the Environmental Statement remains unchanged (7.5.1 - 7.5.2).

7.5.3 **Proposed Foul Water Drainage Strategy**

This section of the Environmental Statement remains unchanged (7.5.3).

## 7.6 Conclusions and Recommendations

This section of the Environmental Statement remains unchanged (7.6.1 - 7.6.9).

7.6.10 This section of the Environmental Statement remains unchanged from ES addendum 1 (7.6.10).

# 8.0 LANDSCAPE AND VISUAL AMENITY IMPACT ASSESSMENT

**Introduction**

8.1 This section provides a systematic assessment of the potential effects of the proposed development on landscape resources and character and the visual amenity of the site, its surroundings and the people who use it. This update as part of addendum 2 considers the changes to the scheme and any changes to the impact on landscape.

**Prediction Methodology**

**Potential impacts**

8.2 This section of the Environmental Statement remains unchanged.

**Information Sources**

**Desk top study**

8.3 This section of the Environmental Statement remains unchanged (8.3.1 - 8.3.3).

8.3.4 This assessment should be read in conjunction with the following drawings produced by Appletons:

**Appendix APP 6 Parameters Plan**.

The Parameters Plan has been replaced by **Appendix APP 6** (drawing no. 1820_35) to include vertical parameters. An additional drawing showing a north-south cross section has been prepared and is included in the **Appendix APP 14** (drawing no. 1820_31).

**Appendix LND 10 Landscape Masterplan**

This drawing is contained in **Appendix LND10.**

**Field Survey**

8.3.5 Field studies were undertaken in July 2015, May 2016 and August 2019 to verify and supplement information. A photographic survey of views into the site and its surroundings was undertaken using a camera with a 50mm focal length, which is that closest to the human eye.

8.3.6 This section of the Environmental Statement remains unchanged (8.3.6 - 8.3.7).

**Methodology**

8.4 This section of the Environmental Statement remains unchanged (8.4.1 - 8.4.6).

**Significance of Impacts**

8.5 This section of the Environmental Statement remains unchanged. (8.5.1 - 8.5.2) together with the tables included in the text describing landscape and visual effects.

**Baseline Environment**

**Location and Context**

8.6 This section of the Environmental Statement remains unchanged (8.6.1 - 8.6.3).

**The Physical Characteristics of the Site**

8.7 This section of the Environmental statement remains unchanged.

**Landscape Designations**

8.8 This section of the Environmental statement remains unchanged.

**Landscape Character Assessment**

8.9 This section of the Environmental Statement remains unchanged.

**Regional Assessment – Landscape Character Areas**

8.10 This section of the Environmental Statement remains unchanged.

**Local Assessment**

8.11 This section of the Environmental statement remains unchanged.

**Site Character Assessment**

8.12 This section of the Environmental Statement remains unchanged (8.12.1 - 8.12.4).

**The Character of Adjacent Landscape**

8.13 This section of the Environmental Statement remains unchanged.

**The Impact of the Proposed Development on Landscape Character**

8.14 This section of the Environmental Statement remains unchanged.

**Visual Amenity and Prominence**

Topography and Existing Screening Features

8.15 This section of the Environmental Statement remains unchanged (8.15.1 - 8.15.2).

**Identification of Important Features and Potential Sensitive Receptors**

8.16 This section of the Environmental Statement remains unchanged (8.16.1 - 8.16.4).

**Baseline Projection**

8.17 This section of the Environmental statement remains unchanged.

**Impact Assessment and Evaluation**

8.18 This section of the Environmental Statement remains unchanged.

**Construction Phase**

8.19 This section of the Environmental Statement remains unchanged.

**Mitigation Measures - General**

8.20.1 The construction phase would bring about changes to the landscape and visual amenity. Whilst some of these are inevitable, and of a temporary nature, it would be beneficial to provide mitigation.

8.20.2 The phasing of onsite operations would ensure that proposed screening and assimilation features, fencing and tree planting to the northern boundary to give visual screening to the motorway would be undertaken at the earliest practicable opportunity and within year 1 of commencement of the construction phase. The physical construction of the proposed 1200 houses and associated development over 12-15 years would also allow the establishment of planting prior to the entire site being operational. It is anticipated that detailed mitigation proposals would be subject to planning conditions imposed on Reserved Matters planning applications for individual development parcels, but in general terms the following principles would apply.

a) The sensitive location of storage areas and the utilisation of existing screening afforded by vegetation would be utilised to mitigate any potential short term adverse effects of the storage of materials, plant and machinery.

b) To ensure protection of those features appropriate protection and management of existing vegetation during the construction phase would be undertaken in line with recognised best practice.

## 8.21 Residual Impacts for the Construction/Operational Phases

### Character of the Site and Adjacent Land

8.21.1 The character of the Site itself is considered to be urban fringe. The predominant use and character to the south, east and west of the site is residential. The land to the north beyond the M62 is rural in character. There would be **neutral** impact on the character of the residential areas. The impact of the development on land to the north, which is already visually influenced by the M62 motorway would be mitigated by screen fencing and planting undertaken during the early stages of development and would be **negligible adverse.**

***Landscape features (Construction Phase)***

8.21.2 This section of the Environmental Statement remains unchanged from ES addendum 1 (8.21.2)

***Visual Impact (Construction/Operational Phases)***

8.21.3 This section of the Environmental Statement remains unchanged.

8.21.4 **Table 8.1** below summarises the significance of residual effects based on an analysis of the 24 photograph viewpoints contained within **Appendix LND4** in Volume 2 of the Environmental Statement.

| Table 8.1 Viewpoint Analysis Table Summaries | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Vp Number** | **Representation of View** | **Susceptibility of Visual Receptor** | **Value Attached to View** | **Sensitivity of Visual Receptor** | **Magnitude of Change** | **Significance of Visual Effect during Construction** | **Siginificance of Residual Effects (Operational and after landscaping established)** |
| **1** | Rear view of properties of Elm Road and track users. | Medium | Moderate | Medium | Large Adverse | Major Adverse | Moderate Adverse |
| **2** | Private view within Site, on track leading to utilities building. | Low | Low | Low | Very large/ Substantial Adverse | Moderate Adverse | Moderate Adverse |
| **3** | View from rear gardens from properties on Newhaven Road. | High | Low | Medium | Very large/ Substantial Adverse | Major-Moderate Adverse | Moderate Adverse |
| **4** | | High | Low | Medium | Very large/ Substantial Adverse | Major-Moderate Adverse | Moderate Adverse |
| **5** | | High | Low | Medium | Very large/ Substantial Adverse | Major-Moderate Adverse | Moderate-Major Adverse |
| **6** | PROW M62 Footbridge | High | Moderate | Medium (due to context) | Large Adverse | Moderate to Major Adverse | Moderate Adverse |
| **7** | | High | Moderate | Medium (due to context) | Large Adverse | Moderate to Major Adverse | Moderate Adverse |
| **8** | Radley Lane users (motorists and pedestrian) | High | Moderate | High | Large Adverse | Major Adverse | Major Adverse. Over time Moderate Adverse |
| **9** | Private View within Site, on boundary of Radley Plantation | Low | Moderate | High | Very large/ Substantial Adverse | Moderate Adverse | Moderate Adverse |
| **10** | On Site, private view. | | | | | | |
| **11** | Recreational Ground users. | High | Moderate | High | Very large/ Substantial Adverse | Major Adverse | Major Adverse |
| **12** | General public and residential properties, Ballater Drive. | Medium | Low | Medium | Medium adverse | Moderate | Moderate Adverse |
| **13** | General public and residential properties, Lockerbie Close. | Medium | Low | Medium | Small adverse | Minor adverse | Minor adverse |
| **14** | Private view. Representative of view from Fairhaven/ the Alders NHS facility. | Low | Low | High | Very large/ Substantial Adverse | Moderate adverse | Moderate Adverse |
| **15** | View of motor users and pedestrians | Medium | Moderate | Medium | Negligible | Negligible | Negligible |
| | View gained from adjacent properties | Medium | Moderate | Medium | Small adverse | Minor adverse | Negligible |
| **16** | PROW FP6. View of walkers. | High | Moderate | Medium | Small adverse | Minor adverse | Minor adverse |
| **17** | Delph Lane. General public and residential properties | Medium | Moderate | Medium | Small adverse | Minor adverse | Minor adverse |
| **18** | PROW FP1. View of walkers. | High | Moderate | Medium | Medium adverse | Moderate | Moderate Adverse, reducing to Minor Adverse during summer months and longer term. |
| **19** | Mill Lane bridge over M62. Road users and pedestrians. | Medium | Low | Medium | Small adverse | Minor adverse | Moderate to Minor Adverse, reducing to Minor Adverse during summer months and longer term. |
| **20** | Mill Lane. Road users and pedestrians. | Low | Low | Moderate | Moderate adverse | Moderate adverse | Moderate Adverse |
| **21** | PROW FP2. View of road users and pedestrians. Peel Cottage Lane. | High | Moderate | Medium | Very large/ Substantial Adverse | Major Adverse | Major Adverse |
| **22** | | High | Moderate | Medium | Very large/ Substantial Adverse | Major Adverse | Major Adverse |
| **23** | PROW FP 23. View of pedestrians. | High | Moderate | Medium | Small adverse | Minor adverse | Minor adverse |
| **24** | On Site, private view. | | | | | | |

**Key: Dark Grey- PROWs/ Track/ Pedestrian Views. Orange- Private views from properties. Blue- Vehicle users and pedestrians on pavements. Green- Recreational views. White- Private View within Site.**

| Summarised Impact | | | | | |
|---|---|---|---|---|---|
| **Landscape** | | **Character** | | **Visual** | |
| **Construction Phase** | **Operational Phase (Post Mitigation)** | **Construction Phase** | **Operational Phase (Post Mitigation)** | **Construction Phase** | **Operational Phase (Post Mitigation)** |
| Minor-Moderate Adverse | Minor Adverse | Minor Adverse | Negligible | Moderate | Minor Adverse |

## 8.22 Visual Receptors

### Highways

8.22.1 Users of the M62 motorway would be aware of construction works to the central area of the northern part of the site, where it is at grade and where clear views are possible for the period of construction of the screen fencing. Such works would be short term (9-12 months depending on weather conditions and build out rates). However motorists and their passengers would be travelling at speed and would have oblique views. In any event views from roads are not considered to be 'sensitive'. There are no other significant views from highways into the body of the site though construction works to form vehicular access points into the site would be obvious. The residual impact on highway users is considered to be **minor** prior to mitigation and **negligible** after the construction of the screen mounds.

### Users of the Public Footpath to the North of the Site

8.22.2 There is no authorised pedestrian access to the main body of the site other than the public right of way which crosses the motorway and follows Peel Cottage Lane in the north east corner. Views of the site from the pedestrian over-bridge to the M62 motorway are panoramic of the whole the site (**Appendix APP5 Photographs 1 and 2**). These views would be very difficult to screen. This would be a short experience of a longer route, however. In the section leading the southern base of the motorway footbridge the track is well screened from the main body of the site and views are limited. The adjacent vegetation would be retained. Beyond the motorway to the north possible views of the site diminish with distance. (**Appendix LND4 Photographs 15, 16, 17, 18 and 23**). Views of the site from that direction are restricted to the central area of the site. To the east and west the site is screened by motorway embankment and mature trees within the curtilage of the motorway itself. After the screen fencing have been constructed views from the north would be obscured. It is considered that the residual visual impact on public footpaths would be **minor**

### Users of the Amenity Space/Playing Fields to the East and South of the Site

8.22.3 This section of the Environmental statement remains unchanged from ES Addendum 1 (8.22.3)

### Views from Private Properties

8.22.4 This section of the Environmental statement remains unchanged from ES Addendum 1 (8.22.4 – 8.22.6)

**Night time visual effects**

8.22.7 Lighting from the M62 motorway to the north could impact on the new residents of the site in as much as it already has such an impact on existing dwellings, though with modern methods of illumination which are designed to reduce the lateral spread of light, such impact would be minimised. TD3407 (The relevant section of the *Highway Agency Design Manual for Roads and Bridges*) deals with the design of road lighting for the strategic motorway and all-purpose trunk network. Paragraph 2.2 of that document states that: *'All road lighting shall be designed and installed such that the installation will emit no light above the horizontal.'* Furthermore there would be a stand-off zones varying between 29 and 52 metres from the boundary of the motorway within which any light overspill would dissipate and that proposed tree planting within that zone would further reduce any light pollution. Housing adjacent to the north could also be single aspect with no habitable room windows facing the motorway, which would also have benefits in terms of noise attenuation. Views from houses are, in any event, generally obscured as occupiers close their curtains at night. Any impact from the development itself to the wider environment would be seen within the context of other existing street lighting within the urban area of Warrington along with the illuminated M62 to the north.

**Residual Impacts**

8.23 This section of the Environmental statement remains unchanged from ES Addendum 1 (8.23)

**Post Development Monitoring**

8.24 This section of the Environmental Assessment remains unchanged (8.24.1-8.24.2).

**Cumulative impacts**

8.25 This section of the Environmental Statement remains unchanged (8.25).

**8.26 Conclusion**

**8.26.1** Subject to the mitigation proposed, there would be no overall **significant adverse impact in landscape, character and/or visual terms.'** This is based on combining the separate assessments for Landscape impacts **(moderate/minor adverse**), Character impacts **(neutral/no impact**), and visual impacts **(minor adverse),** based on the professional judgement of the authors.

**8.27 Summary**

8.27.1 This section of the Environmental Statement remains unchanged (8.27.1).

8.27.2 This section of the Environmental Statement remains unchanged (8.27.2).

8.27.3 This section of the Environmental statement remains unchanged from ES Addendum 1 (8.27.3).

8.27.4 This section of the Environmental statement remains unchanged from ES Addendum 1 (8.27.4).

8.27.5 **Request for additional information/clarification from PINS**

This section of the Environmental statement remains unchanged from ES Addendum 1 (8.27.5).

# 9.0 TRANSPORTATION AND HIGHWAYS

This section replaces in entirety the corresponding section of the submitted ES and addendum 1.

## 9.1 Introduction

9.1.1 This chapter focuses on the effects that the proposed development will have on access and transport during the construction phase as well as when the development is fully operational. It draws on the detailed analysis and mitigation measures set out in the full Transport Assessment (ref: 1107/TA/01/A dated January 2018) and the Addendum Transport Assessment (ref: 1901/TA/01/A/Addendum dated March 2020) prepared by Highgate Transportation.

9.1.2 Discussions outlining the approach and methodology have been held with Warrington Borough Council (the Council) in its role as the local highway authority and with Highways England as the strategic highway authority. This set out how the development would be accessed, how its impact would be assessed and the type of sustainable transport, travel plan and physical measures that could support the development.

9.1.3 The Transport Assessment considers all modes of travel and the demands that the proposed development will place on transport infrastructure. The study area covers the local transport network including pedestrian and cycle links to the surrounding areas as well as public transport services and facilities. Plans showing the overall study area, the existing highway network within the study area, the existing bus network and the existing PRoW network are contained in **Appendices T1**, **T2**, **T3** and **T4** respectively.

9.1.4 In transport terms the guiding principles in the development of the scheme have been to encourage the use of sustainable modes of transport and to contain trips within the development as far as possible. **Appendix T5** contains an illustrative plan showing the proposed road network within the development. In terms of vehicular access each site access will generally provide access to a specific area of the overall development and the plan in **Appendix T5** also shows the amount of development from each access.

9.1.5 It is proposed that the main vehicular accesses to the development will be provided from the Mill Lane arm of the Blackbrook Avenue/Ballater Drive/Mill Lane/Enfield Park Road roundabout junction to the west of the site, and from Poplars Avenue to the south. Additional access will provided from Mill Lane, Birch Avenue and a second access on Poplars Avenue. Access to the improved sports pitches will be from Grasmere Avenue. Plans showing these accesses are contained in **Appendix T6**.

9.1.6 A Memorandum of Understanding has been agreed between the developer and Warrington's Own Buses regarding how best to serve the Peel Hall site by bus. Indicative timetables have been drawn up (**Appendix T7**) showing the diversion of the existing 25 and 20 routes into the proposed development. During the construction phase it is proposed that first existing service 25 would be extended into the easterly part of the site from Blackbrook Avenue, followed by service 20 from Poplars Avenue to the south. These services will offer Peel Hall residents regular bus connections for Warrington Town centre, Warrington Central Railway Station and Bus Interchange/Shopping Centre, Birchwood Rail Station and Business Park/Shopping, Warrington Vale Royal and Priestley College as well as the Orford Jubilee Hub and Winwick Road retail parks. The developer will provide gap funding for the first five years to establish the services. Given these are existing services it is expected that these route extensions will be profitable.

9.1.7 **Appendix T8** contains the illustrative pedestrian and cycle linkages to the surrounding area. The plan outlining the proposed construction and highway phasing of development is contained in **Appendix T9**.

9.1.8 The assessment work is based on the Council's WMMTM16, cordoned for the Peel Hall study area; the data from which has been analysed and then used to model individual junctions to further test the impact of the development as well as provide a VISSIM corridor model for the A49. The WMMTM16 output files are contained in the Addendum Transport Assessment (March 2020) and the resultant mitigation measures proposed are provided at **Appendix T10**.

## 9.2 Transport Policy and Guidance

9.2.1 Throughout the development of the scheme, account has been taken of both national and local transport related policy and guidance.

9.2.2 The main national transport policy and guidance is set out in:

i. National Planning Policy Framework (2019)
ii. LA 101 Introduction to Environmental Assessment (July 2019)
iii. LA 102 Screening Projects for Environmental impact Assessment (July 2019)
iv. LA 103 Scoping Projects for Environmental Assessment (January 2020)
v. DfT Circular 02/2013 - Strategic Road Network and the Delivery of Sustainable Development (2013)
vi. The Strategic Road Network - Planning for the Future (2015) published by Highways England
vii. Manual for Streets (2007) and Manual for Streets 2 (2010) published by DfT

viii. Transport Advice Note TA 79/99 (May 1999)
ix. DMRB Volume 11 Section 3 Part 8: Pedestrians, Cyclists, Equestrians and Community Effects (1993)
x. DMRB Volume 11 Section 3 Part 9: Vehicle Travellers (1993)
xi. Institute of Environmental Assessment – Guidelines for the Environmental Assessment of Road Traffic (1993)

9.2.3 Local transport policy and guidance is set out in:

i. Local Plan Core Strategy (policies CS1, CS4, MP1, MP3, MP4, MP7, MP10, QE3, QE6 and QE7) adopted in July 2014
ii. Emerging Local Plan 2017-2037 (March 2019)
iii. Warrington Local Transport Plan 4
iv. Warrington's Design Guide - Residential and Industrial Estate Roads (2008) [withdrawn]
v. Warrington's Standards for Parking in New Development (2015)
vi. Warrington's DGN1 Parking and Servicing (2015)
vii. Warrington's DGN2 Travel Plans (2016)
viii. WBC's SPD on Design and Construction (October 2010, updated 2016)

9.2.4 The thrust of these policies and guidance is to encourage development that will be safe and accessible to all, and that will be sustainably located or can be made to be sustainably located by the introduction of mitigation measures.

## 9.3 Prediction Methodology

**Potential Impacts**

9.3.1 The anticipated impacts on access and transport relate to:

i. Nuisance, disruption and severance arising from the construction of the development
ii. The use of and implications for public transport
iii. The effect on walking and cycling opportunities
iv. The vehicular traffic impact resulting from the occupation of the development

**Sources of Information**

9.3.2 Data from the following sources have been used in the assessment:

i. Traffic flows derived from manual and automatic surveys carried out by independent specialist surveyors
ii. Agree development trip rates derived from the TRICS database

iii. NTEM adjusted traffic growth derived from the TEMPRO database
iv. Trip distribution and assignment based on origin-destination data within WMMTM16
v. Highway ownership records and public right of way information supplied by the Council
vi. Site-wide topographical surveys carried out by independent specialist surveyors

**Methodology**

9.3.3 The methodology used in this assessment is to assess the magnitude of change and significance of impact for drivers, bus passengers, pedestrians and cyclists both during the construction phase and the operational phase.

**Magnitude of Change and Significance of Impacts**

9.3.4 In terms of significance of impacts the following terminology has been adopted:

i. Negligible - equals no impact on the local highway network
ii. Minor - some increase in traffic flows but not leading to congestion or delays
iii. Moderate - Increase in traffic flows capable of mitigation by traffic engineering or sustainable transport measures
iv. Major - significant impact on the local highway network leading to delays and reduced traffic flows, not possible to mitigate

## 9.4 Baseline Environment

**Baseline Conditions – Existing Network**

9.4.1 The Peel Hall site is located on the northern edge of Warrington, adjacent to the existing residential areas of Hulme, Blackbrook, Cinnamon Brow and Houghton Green. It is bounded by the M62 to the north, Mill Lane to the east, Poplars Avenue to the south and Birch Avenue to the west.

9.4.2 Baseline conditions have been identified by reviewing the existing highway, bus, rail, pedestrian and cyclist networks. Existing traffic flows have been obtained from survey work.

9.4.3 The modelling has been carried out using the Council's WMMTM16 area-wide SATURN model, created by their consultants AECOM. The modelling uses survey data from 2016, such as road-side interview data, mobile phone data and ATC traffic surveys, to create a 2016 base model. The WMMTM16 was cordoned to represent the Peel Hall study area and updated where required using 2019 survey data.

**Existing Highway Network**

9.4.4 The WMMTM16 was used to provide 2018 traffic flows. These are illustrated on flow diagrams contained in **Appendix T11.**

9.4.5 At times during the peak period's congestion can occur along the main corridors in the area including the M62, Winwick Road, Sandy Lane West, Long Lane, Blackbrook Avenue and Birchwood Way, as well as elsewhere.

Existing Bus Network

9.4.6 There are around 10 existing bus services that currently operate close to the proposed site accesses and are as follows:

i. Mill Lane and Blackbrook Avenue Roundabout
   Service 25
ii. Poplars Avenue Central Access
   Services 20 and 20A; 21, 21A and 21E
iii. Poplars Avenue West
   Services 20 and 20A; 21, 21A and 21E; 19 and 22 on the A49; 329 and 360
iv. Birch Avenue
   Services 19 and 22; 20 and 20A; 21, 21A and 21E; 329 and 360
v. Grasmere Avenue
   Services 20 and 20A; 21, 21A and 21E; and 25

9.4.7 All services connect this part of Warrington with the town centre. Services 25, 26 and 26E provide access to Birchwood Station and Birchwood Park in the east. Information regarding the existing bus network is contained in **Appendix T3**.

9.4.8 It is considered that the level of bus provision to the site is very good. At peak times these routes are busy, especially closer to the centre of Warrington. Existing journey times by bus from the site to key locations are set out in **Table 9.4.1**.

**Table 9.4.1: Existing bus journey times from closest bus stop to key locations**

| From Existing Bus Stop Closest to Proposed Site Access | Key Locations – Journey Time | | | | | |
|---|---|---|---|---|---|---|
| | Town Centre | Birchwood Station | Birchwood Park | Warrington Business Park & Collegiate | Warrington Campus University of Chester | Orford Jubilee Hub |
| Poplars Ave west | 15-18min | - | - | 6min | - | 8min |
| Poplars Ave central | 14-20min | 23min | 15min | 10min | 8min | 12min |
| Mill Lane/ Blackbrook Ave | 17-22min | 17-20min | 9-10min | 9-10min | 3min | 7min* |

* Monday-Saturday Evenings, Saturdays

**Existing Rail Network**

9.4.9 Existing rail stations that serve Warrington are:

i. Padgate - on the Manchester to Liverpool Line. This is approximately 3.0 kilometres from the site
ii. Warrington Central - on the Manchester to Liverpool line. This is approximately 3.5 kilometres from the site
iii. Warrington Bank Quay - on the West Coast Mainline. This is approximately 4.5 kilometres from the site
iv. Birchwood - on the Manchester to Liverpool Line. This is approximately 5.2 kilometres from the site

9.4.10 A summary of the railway services (approximate times) is as follows:

i. Manchester - 6 per hour, 28 minute journey time express (40 minute journey time stopping service)
ii. Liverpool - 4 per hour, 34 minute journey time
iii. Preston - 2 per hour, 27 minute journey time
iv. Birmingham - 1 per hour, 1.25 hour journey time
v. London - 2 per hour, 1.75 hour journey time express (3 hour stopping service)

9.4.11 The railway stations are generally located within a 10 to 20 minute cycle ride of the site. This is therefore considered to be a realistic modal choice and provides future residents with alternative options for non-car travel.

9.4.12 It is therefore concluded that existing public transport facilities are very good and that rail travel is a realistic travel choice for commuter journeys for future residents of the Peel Hall site.

9.4.13 Overall the Peel Hall site is considered to be located in a highly sustainable and accessible location with excellent public transport facilities close by.

**Existing Pedestrian Network**

9.4.14 Existing pedestrian access into the site is from Mill Lane, Radley Lane and Peel Cottage Lane in the east; Birch Avenue in the west; Grasmere Avenue and Windermere Avenue in the south. There is a footbridge across the M62 to the north of the site, which forms part of PRoW number 2 and links with A49 and Winwick to the north of the site via Public Rights of Way (PRoW) 1, 1a, 3 and 5. The Peel Hall site currently attracts dog walkers and recreational walkers using the PRoW, Mill Lane playing fields, Radley Common/former playing fields off Grasmere Avenue. A plan showing the local PRoW is contained within **Appendix T4**. Pedestrian connectivity to the Peel Hall site is very good and walking is a realistic alternative mode of travel to the private car.

**Existing Cycle Network**

9.4.15 Local cycling facilities comprise off-road segregated cycleways and footways along the A49 Winwick Road from the junction with Long Lane to the town centre. On-road cycleways and advanced stop lines are also provided, for example at Winwick Road junction with A50 Long Lane and the A49 junction at the Warrington Wolves Halliwell Jones Stadium. The site is located in an area that will support and encourage cycle travel.

**Baseline – WMMTM16 Data**

9.4.16 WMMTM16 has been cordoned and used as the base modelling for this transport assessment work in agreement with the Council.

**Baseline Projection – Proposed Accesses and Internal Transport Network**

9.4.17 **Appendix T5** contains an illustrative plan showing the proposed road network within the development and the amount of development off each access. It is proposed that the main vehicular accesses to the development will be provided from the Mill Lane arm of the Blackbrook Avenue/Ballater Drive/Mill Lane/Enfield Park Road roundabout junction and this will connect with a second main access from Poplars Avenue via a new 7.3 metre wide local distributor road. To prevent this road becoming a bypass for through traffic a bus gate will be introduced. Additional access to specific areas of development will be provided from Birch Avenue to the west, Mill Lane to the north-east and an additional location on Poplars Avenue to serve the employment area. Access to the sports pitches and ancillary facilities will be from Grasmere Avenue.

9.4.18 The plan showing the proposed access from the Mill Lane arm of the Blackbrook Avenue/Ballater Drive/Mill Lane/Enfield Park Road roundabout junction is contained in **Appendix T6**. This access road comprises a 7.3 metre wide carriageway from a proposed 36 metre diameter three-arm roundabout junction with associated facilities for pedestrians and cyclists and is expected to serve up to 700 dwellings.

9.4.19 The plan showing the proposed access from Mill Lane is also contained in **Appendix T6**. This access has been created by extending Mill Lane north-westwards into the site, with pedestrian and cycle facilities, and is expected to serve up to 150 dwellings.

9.4.20 The plan showing the proposed access from the central part of Poplars Avenue, which is located between its junctions with Newhaven Road and Windermere Avenue, is also contained in **Appendix T6**. This access road comprises a 7.3 metre wide carriageway from new a priority junction with ghost right turn lane. It includes associated pedestrian, cycle and relocated and improved bus stop facilities. It is expected to serve up to 180 dwellings, care home and local centre.

9.4.21 The plan showing the proposed access from the western part of Poplars Avenue, which is located between its junctions with Cotswold Road and Newhaven Road, is also contained in **Appendix T6**. This access comprises a simple priority junction with a 7.3 metre carriageway and associated pedestrian and cycle facilities and is expected to serve up top 150 dwellings. This was previously the access serving the employment land use (now deleted from the application).

9.4.22 The plan showing the proposed accesses from Birch Avenue is also contained in **Appendix T6**. These accesses comprise a simple priority junction located to the west of the Health Centre with 4.8 metre wide carriageway and footways on both sides, and the other is a continuation of Birch Road to the immediate south of the NHS youth facility, which will becomes a 5.5 metre wide shared surface road. In total these accesses will serve up to 20 dwellings.

9.4.23 The plan showing the proposed access to the improved sports pitches from Grasmere Avenue is also contained in **Appendix T6**. The proposal is to modify the existing access that serves local recreational facilities.

9.4.24 Because of the introduction of the bus gate on the local distributor road it is important that the local centre car park can be accessed without residents having to leave the development. Therefore, this car park has been designed to be split in two, with two points of vehicular access, but designed so that a through route that could allow traffic to bypass the bus gate has not been created. The local centre car park is also expected to be used as a drop off facility for the primary school.

9.4.25 To serve the Peel Hall development by bus, extensions to existing service 25 during the early construction phases followed by extensions to service 20 are proposed, in agreement with Warrington's Own Buses.

9.4.26 The proposed pedestrian and cycle linkages within the development will generally be in line with the Council's guidance, with shared cycleway-footway facilities separated from the carriageway by a verge. A high level of connectivity for pedestrians and cyclists will be provided through the site and connections will be made to the existing pedestrian routes around the site and enhanced by the additional accesses at Poplars Avenue and Mill Lane/Blackbrook Avenue. This is shown on the illustrative plan contained within **Appendix T8**.

9.4.27 Car and cycle parking will generally be provided to reflect the Council's guidelines and and addressed at the Reserved Matters stage(s).

**Baseline Projection – Trip Distribution and Assignment**

9.4.28 All trip distribution and assignment has been carried out using WMMTM16, in agreement with the Council.

9.4.29 The development trips have been assigned in WMMTM16. Flow diagrams are contained in **Appendix T12**, based on the trips set out in **paragraphs 9.4.30** to **9.4.33**.

**Baseline Projection – Development Trips Arising**

9.4.30 The number of development trips associated with each use has been calculated using the TRICS database. A proportion of the trips will be contained within the development and will not impact on the wider transport network. This has been agreed with the Council.

9.4.31 The number of external development trips using each of the proposed site accesses during the AM and PM peak hour is set out in **Table 9.4.2** for a full development scenario.

**Table 9.4.2: External development trips at each site access (full development)**

| Access | Quantum of Development | AM Arrival | AM Departure | PM Arrival | PM Departure |
|---|---|---|---|---|---|
| Poplars Avenue (Central) | 180 dwellings | 41 | 94 | 89 | 55 |
| | care home | 7 | 7 | 8 | 8 |
| | food store* | 28 | 18 | 54 | 57 |
| | local shops | 0 | 0 | 0 | 0 |
| | family pub | 0 | 0 | 23 | 15 |
| | *Sub Total*** | *48* | *101* | *120* | *78* |
| Poplars Avenue (West) | 150 dwellings | 34 | 79 | 74 | 46 |
| Mill Lane | 150 dwellings | 34 | 79 | 74 | 46 |
| Mill Lane/Blackbrook Avenue | 700 dwellings | 158 | 366 | 347 | 215 |
| | primary school | 57 | 40 | 10 | 14 |
| Birch Avenue | 20 dwellings | 5 | 11 | 10 | 6 |
| Grasmere Avenue | community uses | 10 | 5 | 7 | 8 |
| | **Total**** | **346** | **681** | **642** | **413** |

*** pass-by trips only**
**** excluding pass-by**

9.4.32 In the opening year (2022), it is considered that there will be 120 dwellings occupied. These 120 dwellings will be built out (60) from the Mill Lane extension north of the junction with Radley Lane and (60) from the proposed priority junction with Poplars Avenue (central). The corresponding trips are set out in **Table 9.4.3**.

**Table 9.4.3: External development trips at each site access (part dev.2022)**

| Access | Quantum of Development | AM Arrival | AM Departure | PM Arrival | PM Departure |
|---|---|---|---|---|---|
| Mill Lane | 60 dwellings | 14 | 31 | 30 | 18 |
| Poplars Avenue (central) | 60 dwellings | 14 | 31 | 30 | 18 |
| | **Total** | **28** | **62** | **60** | **36** |

9.4.33 Five years after opening (2027), will be assessed in terms of the traffic impact on the local highway network before the internal link to the local centre is created (see **Figure 9.4.1**). It is agreed that this will present a worst-case intermediate build out scenario, with no discounting of vehicular trips for any of the land uses, because residents on the development would have to use the local highway network to access shops without the direct vehicular link to the local centre through the site. The corresponding trips are set out in **Table 9.4.4**.

**Figure 9.4.1: Peel Hall network 2027 before road link to local centre**

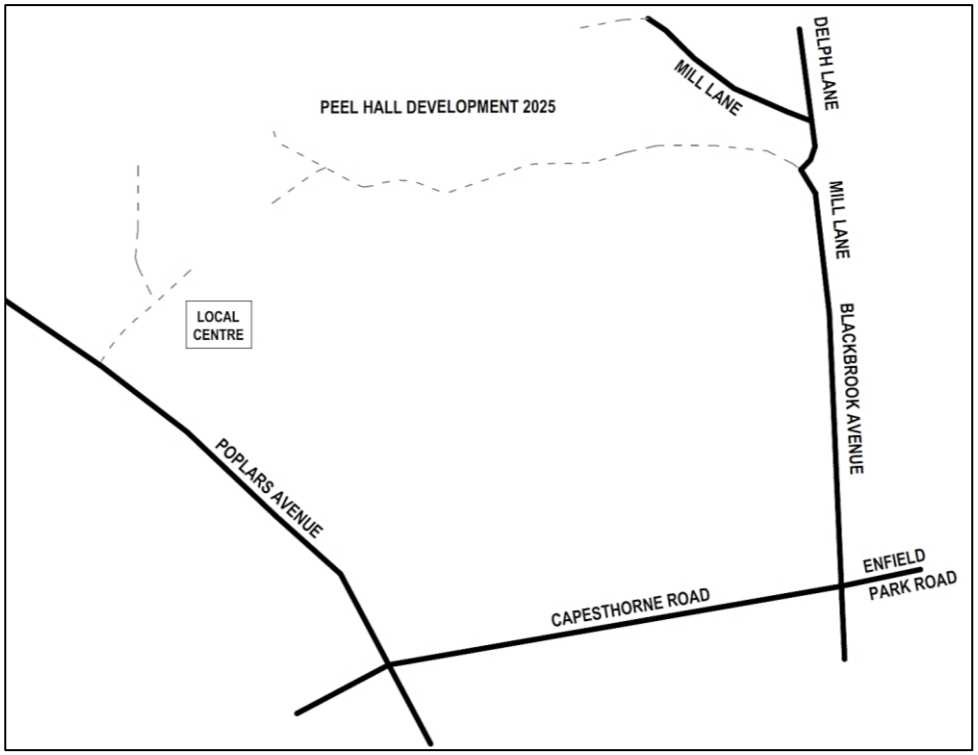


**Table 9.4.4: External development trips at each site access (part dev.2027)**

| Access | Quantum of Development | AM Arrival | AM Departure | PM Arrival | PM Departure |
|---|---|---|---|---|---|
| Poplars Avenue (Central) | 75 dwellings | 17 | 39 | 37 | 23 |
| | care home | 7 | 7 | 8 | 8 |
| | food store | 92 | 61 | 181 | 191 |
| | local shops | 30 | 29 | 36 | 39 |
| | family pub | 0 | 0 | 23 | 15 |
| | *Sub Total* | *146* | *136* | *285* | *276* |
| Poplars Avenue (West) | 75 dwellings | 17 | 39 | 37 | 23 |
| Mill Lane | 150 dwellings | 34 | 79 | 74 | 46 |
| Mill Lane/Blackbrook Avenue | 280 dwellings | 63 | 147 | 139 | 86 |
| Birch Avenue | 20 dwellings | 5 | 11 | 10 | 6 |
| Grasmere Avenue | community uses | 10 | 5 | 7 | 8 |
| | **Total** | **275** | **417** | **552** | **445** |

**Baseline Projection – Background Traffic Growth and Committed Development**

9.4.34 Background growth was forecast to NTEM levels within the cordoned Peel Hall WMMTM16, with known committed developments explicitly modelled as follows:

i. J9 Retail Park (2016/29425)
ii. Parkside Phase 1 (2018/32247)
iii. Birchwood Park (2015/26044)

**Baseline Projection – Forecast Traffic Flows**

9.4.35 The Peel Hall WMMTM16 has been used for the following forecast scenarios to test for development impact:

i. Opening Year 2022
    - Do Minimum (no development)
    - Do Something (120 dwellings)
    - Do Something (full development)

ii. Five Years After Opening 2027

- Do Minimum (no development)
- Do Something (600 dwellings and Local Centre)

iii. 10 years After Opening 2032

- Do Minimum (no development)
- Do Something (full development)

9.4.36 The corresponding flow diagrams are contained in **Appendix T13**.

## 9.5 Impact Assessment – Construction Phase

**Predicted Impacts – Phasing of Development**

9.5.1 The Peel Hall site will generate construction traffic throughout its development period, and this will have an impact on the local highway network, especially in the immediate vicinity of each site access. In reality each access and associated area of development will have its own timetable and impact, although there will be overlapping.

9.5.2 It is anticipated that the development will come forward in 10 phases over a 10 year period with typically around 120 residential units being constructed each year; with the relocated sports pitches in year one, the local centre and care home opening at the end of year two, and the primary school by the end of year eight. **Table 9.5.1** below sets out indicatively how the development may be phased in highway terms and the accompanying plan is contained in **Appendix T9**.

**Table 9.5.1 – Indicative Highways Build Out Table**

| Year End | Number of Residential Units off Each Access | | | | | | | | Cumulative Total | Indicative Phasing (number of properties sold at year end) |
|---|---|---|---|---|---|---|---|---|---|---|
| | Distributor Road Blackbrook Ave | | Poplars Ave | | Mill Lane | | Birch Ave | | | |
| | New | Cum. | New | Cum. | New | Cum. | New | Cum. | | |
| 1 | 0 | 0 | 60 | 60 | 60 | 60 | 0 | 0 | 120 | 1a **60**<br>1b **60**<br><br>Relocated sports pitches |
| 2 | 50 | 50 | 50 | 110 | 20 | 80 | 0 | 0 | 240 | 2a **20**<br>2b **50**<br>2c **50**<br><br>Need first part of distributor road from east and turning area for bus service<br><br>Local Centre and Care Home off Poplars Ave |
| 3 | 50 | 100 | 45 | 155 | 25 | 105 | 20 | 20 | 380 | 3a **25**<br>3b **30**<br>3c **20**<br>3d **30**<br>3e **7**<br>3f **13**<br>3g **15** |

**Table 9.5.1 Continued**

| Year End | Number of Residential Units off Each Access | | | | | | | | | Indicative Highways Build Out (number of properties sold at year end) |
|---|---|---|---|---|---|---|---|---|---|---|
| | Distributor Road Blackbrook Ave | | Poplars Ave | | Mill Lane | | Birch Ave | | Cumulative Total | |
| | New | Cum. | New | Cum. | New | Cum. | New | Cum. | | |
| 4 | 55 | 155 | 40 | 195 | 25 | 130 | 0 | 20 | 500 | 4a **25**<br>4b **35**<br>4c **20**<br>4d **20**<br>4e **20**<br><br>Temporary emergency link through to Radley Lane |
| 5 | 60 | 215 | 40 | 235 | 20 | 150 | 0 | 20 | 620 | 5a **20**<br>5b **30**<br>5c **30**<br>5d **20**<br>5e **20**<br><br>Potential for initial bus link through Local Centre and connecting to eastern distributor road<br><br>Emergency link through Local Centre created<br><br>Provision of emergency access through to Poplars Avenue (west) from distributor road |
| 6 | 95 | 310 | 25 | 260 | 0 | 150 | 0 | 20 | 740 | 6a **10**<br>6b **30**<br>6c **55**<br>6d **25** |

**Table 9.5.1 Continued**

| Year End | Number of Residential Units off Each Access | | | | | | | | | Indicative Highways Build Out (number of properties sold at year end) |
|---|---|---|---|---|---|---|---|---|---|---|
| | Distributor Road Blackbrook Ave | | Poplars Ave | | Mill Lane | | Birch Ave | | Cumulative Total | |
| | New | Cum. | New | Cum. | New | Cum. | New | Cum. | | |
| 7 | 90 | 400 | 30 | 290 | 0 | 150 | 0 | 20 | 860 | 7a **40**<br>7b **50**<br>7c **30** |
| 8 | 100 | 500 | 20 | 310 | 0 | 150 | 0 | 20 | 980 | 8a **30**<br>8b **70**<br>8c **20**<br><br>Primary School<br><br>Completion of distributor road |
| 9 | 110 | 610 | 10 | 320 | 0 | 150 | 0 | 20 | 1,100 | 9a **10**<br>9b **100**<br>9c **10** |
| 10 | 90 | 700 | 10 | 330 | 0 | 150 | 0 | 20 | 1,200 | 10a **90**<br>10b **10**<br><br>Provision of final emergency access through to employment distributor road |

9.5.3 It is intended that most excavated material will be retained on site, however, there will be a need for building materials to be brought to the site. During the construction phase each site access junction is expected to have HGV construction traffic associated with it as set out in **Table 9.5.2**. It should be noted that the figures represent two-way movements i.e. 4 HGV movements shown in the table would result from 2 arrivals and 2 departures. It should also be noted there will be an overlap for some phases as construction will take longer than one year, whereas other phases may take less.

**Table 9.5.2 – Anticipated HGV movements per day**

| Year End | HGV Movements/Day | | | | | Total HGVs/Day |
|---|---|---|---|---|---|---|
| | Residential | | | | Non-Residential | |
| | Distributor Road Blackbrook Ave | Poplars Ave | Mill Lane | Birch Ave | | |
| 1 | 0 | 6 | 6 | 0 | Relocated Sports Pitches = **2** | 14 |
| 2 | 6 | 6 | 2 | 0 | Local Centre and Care Home off Poplars Ave = **10** | 24 |
| 3 | 6 | 4 | 2 | 0 (2 to access via employment land) | - | 14 |
| 4 | 6 | 4 | 2 | 0 | - | 12 |
| 5 | 6 | 4 | 2 | 0 | - | 12 |
| 6 | 10 | 2 | 0 | 0 | - | 12 |
| 7 | 10 | 2 | 0 | 0 | Remaining Sports Pitches and Ancillary Facilities = **2** | 14 |
| 8 | 10 | 2 | 0 | 0 | Primary School = **4** | 16 |
| 9 | 12 | 2 | 0 | 0 | - | 14 |
| 10 | 10 | 2 | 0 | 0 | - | 12 |

9.5.4 From the above table it can be seen that:

i. Mill Lane in the vicinity of the new access is forecast to have up to six HGVs movements on average per day during the construction phase in Year 1, with less the following four years.

ii. Birch Avenue will have no HGV movements. The associated construction vehicles will access the two parcels of development land via the Peel Hall site while the 20 dwellings proposed are being constructed.

iii. Poplars Avenue is forecast to have up to 16 HGV movements on average per day during the various construction phases.

iv. Blackbrook Avenue/Mill Lane in the vicinity of the new access junction is forecast to have up to 14 HGV movements on average per day during the various construction phases.

9.5.5 At this stage it is anticipated that construction traffic will access the site via the M62 Junction 9, A49 Winwick Road, A50 Long Lane, Birchwood Way, then either Poplars Avenue or Blackbrook Avenue and Mill Lane.

9.5.6 In order to assess the HGV movements on the wider construction route the highest year in terms of construction traffic i.e. Year 2 been identified (24 HGV movements daily) has been compared with surveyed HGV flows. Poplars Avenue and Mill lane have also been reviewed for their corresponding HGV movements set out in **Table 9.5.2**. This is shown in **Table 9.5.3** below.

**Table 9.5.3 – Anticipated 2019 HGV percentage increase**

| Road | 1000-1600 (construction day) | | |
|---|---|---|---|
| | Surveyed HGV | Proposed HGV | % Increase |
| Winwick Road* | 1,042 | 24 | 2% |
| Long Lane | 349 | 24 | 7% |
| Blackbrook Avenue** | 255 | 24 | 9% |
| Birchwood Way** | 830 | 24 | 3% |
| Poplars Avenue | 45 | 16 | 36% |
| Mill Lane | 14 | 6 | 43% |

2019;*2018; **2015

**Predicted Impact – Highway Network**

9.5.7 Construction traffic will be controlled by means of a Construction Management Plan which will form one of the mitigation measures. It is assumed that as the M62 already carries a significant amount of HGV traffic, HGV traffic from the development will have a very minor impact.

9.5.8 It is expected that during the construction phase there will be at times disruption on the local highway network for all users including public transport and there may be temporary restrictions placed in order to construct the new accesses at Poplars Avenue and Mill Lane/Blackbrook Avenue. However, the magnitude of change is considered to be small given the level of HGV traffic set out in **Table 9.5.2** above. Therefore, the impact is expected to be of **minor to moderate adverse significance**.

**Predicted Impact – Bus Passengers**

9.5.9 From year two, service 25 from Blackbrook Avenue in the east will be extended into the site with temporary turning facilities and bus stops provided as appropriate. It is considered that the existing services 20/21 at Poplars Avenue will be adequate to serve the early phases of the new development off the Poplars Avenue (central) access. During the peak periods services 20/21 operate at a frequency of eight to 10 buses per hour, and service 25 will be provided at a frequency of two buses per hour, which will include for the provision of extra buses on the route.

9.5.10 Service 25 will be extended into the site on weekdays and Saturdays in line with the existing level of service. For existing bus users there will be a minor increase in journey times and an increase in

capacity to the eastern services, and for future residents a regular bus service will be available from occupation/year two.

9.5.11 During the construction phase bus routes may at times be affected by the disruption that occurs on the highway network as described above.

9.5.12 Overall it is anticipated that the magnitude of change during the construction phase will be small to medium given the potential for increased journey time. Therefore, the impact is expected to be of **minor beneficial significance**.

**Predicted Impact – Pedestrians and Cyclists**

9.5.13 The changes likely to be noticed by most pedestrians and cyclists during the construction period will be firstly when the new accesses at Poplars Avenue and Blackbrook Avenue/Mill Lane are being built, which will be confined to specific time periods, and secondly the increase in daily HGV traffic on the local highway network.

9.5.14 It is considered that construction of the main accesses will likely result in a small to medium magnitude of change at these locations, which is expected to be of **minor adverse significance**.

9.5.15 It is anticipated that there will be a reduction in the amenity value for pedestrians and cyclists associated with the increase in HGV movements and as such the magnitude of change will be small to medium depending on location. However, as set out in **Table 9.5.3** the percentage increase on most links is low and therefore the impact generally is expected to be of **minor adverse significance** on the majority of links.

9.5.16 On Mill Lane the percentage increase is high, resulting in a medium magnitude of change, but the time period involved is relatively short. It is therefore considered that the impact on these roads will be of **moderate adverse significance**.

9.5.17 On Poplars Avenue the percentage of HGV increase is high and the period of construction vehicles using this route will be for the majority of the 10 year construction period. As such the anticipated magnitude of change will be medium. However, generally the footways are set back from the carriageway by a wide grassed verge. It is therefore considered that the impact on this road will be of **moderate adverse significance**.

**Mitigation Measures**

9.5.18 In order to ensure that appropriate controls will be implemented to protect safety and the environment, it is proposed that one of the planning conditions will require a Construction Management Plan to be agreed. This will cover each phase of the development and include details of lorry routing and hours of site operation, as well as maximum size of vehicles.

9.5.19 When required, traffic management will be introduced to ensure the safety of road users.

9.5.20 It is also anticipated that there will be a planning condition to provide a programme of temporary footpath closures or diversions and opening of new routes during the construction period.

**The Residual Impacts**

9.5.21 The sensitivity of existing and future drivers, bus passengers, cyclists and pedestrians to any long term residual effects of the construction phase is expected to have a **negligible to minor adverse significance**.

9.5.22 The sensitivity of the existing local community to the long term effects of any severance that occurs during the construction phase is expected to have a **minor adverse significance**.

## 9.6 Impact Assessment – Operational Phase

**Predicted Impacts**

9.6.1 The development will give rise to an overall increase in travel demand in the area increasing traffic flows on the surrounding highway network, increasing demand for public transport, increasing the use of walking and cycling routes and increasing the potential for road traffic accidents. Without the development there will be fluctuations and increases in traffic flow generally on the highway network due to natural growth even where the network is constrained; leading to increases in journey times.

9.6.2 It is predicted in **Table 9.4.2** that the level of vehicular trips generated at each access when fully operational will result in the order of 1,027 vehicle movements per hour external to the site during the weekday morning peak hour and 1,055 vehicle movements during the weekday evening peak hour.

9.6.3 There will be an increase in the use of the bus, pedestrian and cycle networks in the area for a variety of purposes including employment, shopping, educational and recreational related trips.

**Predicted Impact – Highway Network (Links)**

9.6.4 The new development will result in additional traffic throughout the local area. The flow diagrams in **Appendix T13** set out the forecast traffic flow movements for the future years of 2022, 2027 and 2032 Do Minimum and plus development traffic, Do Something.

9.6.5 The link capacity of roads within the immediate area is reviewed in Technical Note TN/09, included as the Transport Assessment Addendum submission and contained as text-only at **Appendix T14** for reference. It can be seen from the flow information that the busier links account for use by general through-traffic. A comparison between the 2022 and 2032 Do Minimum SATURN results demonstrate that the flows through the area are expected to substantially increase over time on the majority of links even without Peel Hall development traffic i.e. 200vph or around 2,000vpd.

9.6.6 The data illustrates development traffic impact to be very low on Sandy Lane and Howson Road (one vehicle every two to four minutes), with low increases of around 40 to 80vph on Cotswold Road, Greenwood Crescent and Statham Avenue i.e. around one vehicle per minute. Larger impacts are forecast on Cleveland Road and Sandy Lane West of around 110 to 170vph (two to three vehicles per minute) increasing to between 250 to 450vph Capesthorne Road and Poplars Avenue i.e. four to seven vehicles per minute.

9.6.7 Furthermore, as set out in TN/09, the recommendation within Manual for Streets is that the capacity threshold figure is at least 10,000vpd (for a 30mph road) and it can be seen that the AADT24 figures are generally below this guideline on all roads except for Sandy Lane West, Poplars Avenue and Capesthorne Road, which form the main established through-traffic route. Therefore, from the Manual

for Streets guidelines it is considered that the figures forecast are acceptable. Additionally, this 10,000vpd minimum threshold could increase with a reduction in speed limit.

9.6.8 TA 79/99 states in paragraph 3.6 that, "..effective parking restrictions can lead to higher flows" and it is considered that mitigation measures such as the provision of parking bays within the grass verges of these road links, to formalise what occurs at present and to create further off-street parking capacity to improve through-flow, will be beneficial (see HTp Technical Note TN/10 dated January 2020 contained in the Transport Assessment Addendum – text-only version contained at **Appendix T15**). Furthermore, the provision of developer funding to extend the 20mph speed restriction along the entire length of Poplars Avenue and also into Capesthorne Road (between Poplars Avenue and Blackbrook Avenue) would be a beneficial highway safety improvement.

9.6.9 Whilst inevitably there will be an impact from development traffic on the amenity of the residents in the properties either side of the new accesses onto Poplars Avenue, both Poplars Avenue and the proposed access roads are designed to the appropriate standards i.e. Poplars Avenue is currently a 7.3 metre wide UAP3 road and will remain so apart from local widening to accommodate the access junction. The new access road will also be a road type UAP3.

9.6.10 Therefore, in highway terms although the percentage increase in traffic is high on some links the impact of the development traffic particularly on the area to the south, combined with the measures set out in HTp Technical Note TN/10 should be considered acceptable.

9.6.11 The change of magnitude varies on the links at the site access and across the wider highway network. However, in terms of significance, it is considered that the development impact will be overall **moderate to minor adverse significance**, given that the changes do not result in any of the links being over capacity.

9.6.12 The VISSIM modelling work is included within the Transport Assessment Addendum. In summary, the modelling shows a steady increase There are some relatively minor, steady increases to delay, queue lengths etc. as a result of the growth in background traffic and also in terms of specific development related traffic.

9.6.13 The average peak hour journey times are summarised for both northbound and southbound traffic during the AM peak, for each future year scenario. For both northbound and southbound traffic travelling on the A49, there is not any sort of statistically noticeable impact until 2032. In the PM peak, the development has no real impact on travel times along the A49.

9.6.14 The main issue encountered by the VISSIM model appeared to be the level of traffic (particularly turning movements) forecast through the A49 Newton Road priority junction with Golbourne Road in all scenarios. This was mitigated for with the provision of a ghost right turn lane at this junction, including minor widening works.

9.6.15 The impact on the M62 Junction 9 in the Peel Hall WMMTM16 is forecast as 86 development trips in the AM peak hour and 35 in the PM peak hour. This is not considered to be a significant level of impact and the VISSIM shows that development impact on the M62 Junction 9 is minimal. Therefore, no mitigation measures are proposed.

**Predicted Impact – Highway Network (Junctions)**

9.6.16 The off-site junctions to be considered for further detailed modelling following review of the Peel Hall WMMTM16 outputs and a meeting with the Council, are:

i. Golborne Road/Myddleton Lane
ii. Delph Lane/Myddleton Lane
iii. A49 M62 Junction 9 roundabout*
iv. A50/Hilden Road roundabout and A50/Poplars Avenue
v. A50/Hallfields Lane
vi. A49/A50/Hawleys Lane crossroads*
vii. A49/JunctionNINE Retail Park*
viii. Blackbrook Avenue roundabout with Enfield Park Road and Ballater Drive
ix. Blackbrook Avenue roundabout with Enfield Park Road and Capesthorne Road
x. Poplars Avenue roundabout with Capesthorne Road
xi. Cromwell Avenue/Calver Road linked with Sandy Lane West/A49 roundabout*

9.6.17 The junctions above with asterisks are modelled within the VISSIM as agreed with the Council's highway officer. The analysis for the other seven junctions has been carried out using the Junctions 9 package and LinSig.

9.6.18 **Table 9.6.1** below summarises the impact of development traffic at the site access junctions in 2032.

**Table 9.6.1: Site access junction modelling results 2032**

| Junction | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|
| | Max RFC | Queue Length (veh) | Delay (sec) | Max RFC | Queue Length (veh) | Delay (sec) |
| Mill Lane/ Blackbrook Avenue R/A | 57% | 2 | 7 | 43% | 1 | 5 |
| Poplars Ave. (central) | 15% | 1 | 10 | 20% | 1 | 11 |
| Poplars Ave. (west) | 16% | 1 | 9 | 10% | 1 | 8 |
| Mill Lane/ Delph Lane | 30% | 1 | 16 | 22% | 1 | 15 |

9.6.19 From the above table it can be seen that the site access junctions work well within capacity and therefore in terms of significance it is considered that the impact overall will be of **minor adverse significance**.

9.6.20 **Table 9.6.2** below summarises the impact of development traffic at key junctions for 2032.

**Table 9.6.2: Off-site access junction modelling results 2032**

| Junction | Do Minimum | | | Do Something | | |
|---|---|---|---|---|---|---|
| | Max RFC/DoS | Queue Length (veh) | Delay (sec) | Max RFC | Queue Length (veh) | Delay (sec) |
| Golbourne Rd/ Myddleton La | 112% | 83 | 433 | 115% | 103 | 536 |
| Myddleton La/ Delph La | 148% | 103 | 1120 | 187% | 164 | 2012 |
| Hilden Road/ A50 R/A | 100% | 23 | 76 | 110% | 64 | 180 |
| Hilden Road/ A50 R/A linked with Poplars Ave. | - | 53 | 158 | - | 94 | 293 |
| Hallfields Rd/ A50 | 85% | - | - | 97% | - | - |
| Blackbrook Ave./ Enfield PR/ Ballater | 38% | 1 | 4 | 62% | 2 | 6 |
| Blackbrook Ave./ Enfield Park Road/ Capesthorne Rd | 42% | 1 | 6 | 82% | 5 | 16 |
| Poplars Ave./ Capesthorne Rd | 51% | 1 | 9 | 79% | 4 | 22 |

9.6.21 From the above table it can be seen that the development impact at off-site junctions varies, with the junctions close to the site such as Blackbrook Avenue and Capesthorne Road shown to operate within capacity in 2032, but that unsurprisingly the development traffic impacts those junctions on the wider highway network that are shown to be at or above capacity in the Do Minimum scenario in any event. Proposed mitigation measures are contained in **Appendix T10** and include proposals at the following junctions:

i. Golbourne Road/Myddelton Lane
ii. Myddelton Lane/Delph Lane

9.6.22 Therefore, in terms of significance it is considered that the impact overall will be of a **minor adverse significance**.

**Predicted Impact – Bus Passengers**

9.6.23 It has been agreed in a Memorandum of Understanding with Warrington's Own Buses that the development site ace be served by bus and that they propose to extend service 25 into the site in the east, and service 20 into the site from Poplars Aveneue. It is intended to operate these extended services on the same frequency as the current level of service; service 25 at two per hour Monday to Saturday and service 20 at frequencies of up to every 10 minutes Monday to Friday and every 12-13 minutes on Saturday. The service 20 is one of Warrington's Own Buses flagship services and it is considered that this will be supported further by the new development as well as offer new residents a real alternative travel mode choice to the private car.

9.6.24 These extended bus service will increase capacity of the bus services available between the site and the surrounding area and Warrington town centre to the south. Therefore, it is considered that the provision of these service extensions will result in a medium magnitude of change.

9.6.25 Compared to the existing situation the proposed bus service represents a significant increase in the level of bus accessibility for future residents of the site. In terms of impact it is considered to be **major beneficial significance**.

**Predicted Impact – Pedestrians and Cyclists**

9.6.26 The site currently attracts dog walkers and recreational walkers using the PRoW, Mill Lane playing fields and Radley Common. The proposed development will provide significant new pedestrian and cycle routes through the site which will link into the existing network, and also resurface the existing PRoW to provide betterment to all users including children, those with pushchairs, wheelchair users and those with mobility impairments. Within the development there are proposals for open space and the pedestrian routes will be designed to provide access to this for residents of the surrounding area as well as future residents of the Peel Hall site.

9.6.27 It is considered that the magnitude of change will be medium as the footway and cycleway network will be enhanced across the site. Therefore, the significance of impact will be of **major beneficial significance**.

**The Mitigation Measures**

9.6.28 The proposed mitigation and analysis is set out in the Transport Assessment Addendum the following measures are proposed:

i. A full and comprehensive Travel Plan supported by extensive travel plan measures, to enhance and support sustainable travel of future residents.
ii. An effective bus mitigation strategy based on extending two existing bus services into the site, in the east and south.

iii. A50 Orford Green/Poplars Avenue – development impact at this junction was previously addressed through proposed engineering measures to increase the circulatory to two lanes (as built). However, this capacity restriction was part of a highway safety scheme and as such, instead of mitigation measures at the junction it is proposed to, provide a contribution towards traffic calming measures within the area to the immediate south of the development site.

iv. Provide funding for an extended 20mph speed limit through Poplars Avenue and Capesthorne Road to improve highway safety in the area to the south.

v. Provision of uncontrolled dropped kerb pedestrian crossing points with tactile paving across arms of all roads intersecting with Poplars Avenue and upgrade existing locations for pedestrians to cross Poplars Avenue to promote attractive pedestrian routes, enhance highway safety and assist pedestrians with crossing movements.

vi. Provision of cycle-friendly measures on Poplars Avenue such as painting cycle markings on carriageway near junctions to warn motorists of cycles. Also, the provision of cycle warning signing where suitable poles for doing so at key areas such as the approaches to the Poplars Avenue/Capesthorne Road roundabout.

vii. Potential to provide parking within the highway verges at locations along Poplars Avenue and Capesthorne Road to improve free flow for vehicles and safety for cyclists, should this be considered necessary by the Inspector.

viii. A49/A50/Hawleys Lane signal junction – provide a contribution to upgrade the signal junction to MOVA operation (to cover controller, additional loops and testing).

ix. A50/Hallfields Road signal junction – provide a contribution to upgrade the signal junction to MOVA operation (to cover controller, additional loops and testing).

x. A49 Newton Road/Golbourne Road – provide a scheme of widening and a ghost right turn lane if not provided by other committed schemes.

xi. Golbourne Road/Myddleton Lane - proposed provision of Keep Clear markings on the southbound A49 arm across the Golbourne Road arm to improve junction performance by removing obstructions to the A46 right-turning movement.

xii. Myddleton Lane/Delph Lane – proposed signal junction.

xiii. Birch Ave/A49 – proposed provision of Keep Clear markings on the A49 nearside southbound lane across the Birch Avenue junction.

9.6.29 The proposed indicative mitigation measures for points (iv), (vii) and (x-xiii) above are illustrated on the plans contained in **Appendix T10**.

9.6.30 The mitigation measures will improve the operation of the junctions. Supporting modelling work is contained in the Addendum Transport Assessment. In summary, it is considered that these junctions will experience **moderate beneficial significance** as part of the mitigation package with the development at Peel Hall.

9.6.31 It is considered from a review of the traffic data that those junctions and links on the wider highway network without mitigation will experience **minor adverse significance** as part of the mitigation package with the development at Peel Hall.

9.6.32 As well as the proposed alterations to bus services providing a genuine choice for travel, additional measures such as the introduction of Travel Plans for the various land uses will be provided and this is expected to include, for example, subsidised bus travel and cycle purchase discounts. The implementation of Travel Plan measures will reduce congestion and encourage healthier travel choices.

**The Residual Impacts - Existing Residents and Users of the Local Area**

9.6.33 The local residents will have access to a new local centre and primary school, as well as better access to bus services to and from Birchwood and improved cycle and footway networks. However, there will be more traffic on the highway network as a result of the Peel Hall development. Overall there is likely to be a direct permanent long-term residual effect on existing local residents.

9.6.34 It is therefore considered that there will be a medium to high magnitude of change for existing residents and users of the local area, resulting in a **moderate beneficial significance** of impact overall.

**The Residual Impacts - Future Residents**

9.6.35 It is considered that for future residents of the Peel Hall site there will be a **major beneficial significance** of impact due to the range of facilities that will be on site and the range of sustainable transport choices available.

## 9.7 Summary

9.7.1 The Peel Hall site is located on the northern edge of Warrington, adjacent to the existing residential areas of Hulme, Blackbrook, Cinnamon Brow and Houghton Green. It is bounded by the M62 to the north, Mill Lane to the east, Poplars Avenue to the south and Birch Avenue to the west. At times during the peak periods congestion can occur along the main corridors in the area including M62, Winwick Road, Sand Lane West, Long Lane, Blackbrook Avenue and Birchwood Way, as well as elsewhere.

9.7.2 The Transport Assessment considers all modes of travel and the demands that the proposed development will place on transport infrastructure. The study area covers a large part of the local transport network including pedestrian and cycle links to the surrounding areas as well as public transport services and facilities.

9.7.3 The site is served by very good existing bus services and at peak times these routes are busy, especially closer to the centre of Warrington. The site is also served by existing PRoW that currently

attracts mainly dog walkers and occasional recreational walkers. Facilities for cyclists in the vicinity of the site are limited to shared footways/cycleways and advance stop lines at traffic signals.

9.7.4 It is proposed that the main vehicular accesses to the development will be provided from the Mill Lane arm of the Blackbrook Avenue/Ballater Drive/Mill Lane/Enfield Park Road roundabout junction and from Poplars Avenue. Additional access is provided from Mill Lane, Birch Avenue and a second access on Poplars Avenue. Access to the improved sports pitches will be from the existing access on Grasmere Avenue.

9.7.6 A high level of connectivity for pedestrians and cyclists will be provided through the site and connections will be made to the existing pedestrian routes around the site, and enhanced by the additional accesses at Poplars Avenue and Mill Lane/Blackbrook Avenue.

9.7.7 A Memorandum of Understanding has been agreed between the developer and Warrington's Own Buses regarding how best to serve the Peel Hall site by bus through diverting the existing 25 and 20 routes into the proposed development. During the construction phase it is proposed that first existing service 25 would be extended into the easterly part of the site from Blackbrook Avenue, followed by service 20 from Poplars Avenue to the south. These services will offer Peel Hall residents regular bus connections for Warrington Town centre, Warrington Central Railway Station and Bus Interchange/Shopping Centre, Birchwood Rail Station and Business Park/Shopping, Warrington Vale Royal and Priestley College as well as the Orford Jubilee Hub and Winwick Road retail parks. The developer will provide funding for the first five years to establish the services. Given these existing services it is expected that these route extensions will be profitable.

9.7.8 The assessment work is based on the Council's WMMTM16, cordoned for the Peel Hall study area; the data from which has been analysed and then used to model individual junctions to further test the impact of the development as well as provide a VISSIM corridor model for the A49.

9.7.9 During the construction phase each site access junction is expected to have HGV construction traffic associated with it, although it is anticipated that the Birch Avenue construction traffic will access the site via the Poplars Avenue (west) access, rather than through Birch Avenue. The anticipated route for construction traffic is expected to be via M62 Junction 9, A49 Winwick Road, A50 Long Lane, Birchwood Way, then either Poplars Avenue or Blackbrook Avenue and Mill Lane.

9.7.10 During the construction phase the predicted impact is expected to be:

i. Highway – minor to moderate adverse significance.
ii. Bus – minor beneficial significance
iii. Pedestrians and Cyclists - minor to moderate adverse significance
iv. Residual - negligible to minor adverse significance

9.7.90 During the operational phase the predicted impact is expected to be:

i. Highway Links Adjacent to Site – moderate to minor adverse significance.
ii. Site Access Junctions – minor adverse significance
iii. Wider Highway Network with Mitigation – moderate beneficial significance
iv. Wider Highway Network Not Requiring Mitigation – minor adverse significance
v. Bus – major beneficial significance
vi. Pedestrians and Cyclists – moderate to major beneficial significance
vii. Residual - moderate to major beneficial significance

# 10.0 CULTURAL HERITAGE AND ARCHAEOLOGY

## 10.1 Introduction

10.1.1 This section of the Environmental Statement remains unchanged from ES addendum 1 (10.1.1 - 10.1.5)

## 10.2 Legislation

The cultural heritage and archaeological legislation set out in the ES (10.2) remains valid.

## 10.3 National Planning Policy

The national planning policy framework set out in the ES (10.3) remains valid.

## 10.4 Local Planning Policies

The local planning policy framework set out in the ES (10.4) remains valid.

## 10.5 Guidance

This section of the Environmental Statement remains unchanged from ES addendum 1 (10.5)

## 10.6 Methodology

This section of the Environmental Statement remains unchanged (10.6).

## 10.7 Assessment Site and Assessment Area

This section of the Environmental Statement remains unchanged (10.7).

## 10.8 Surveys

This section of the Environmental Statement remains unchanged (10.8).

## 10.9 Data Collection and Review

This section of the Environmental Statement remains unchanged (10.9).

## 10.10 Assessing the Value of Cultural Heritage and Archaeological Assets

This section of the Environmental Statement remains unchanged (10.10).

## 10.11 Baseline Conditions

This section of the Environmental Statement remains unchanged from ES addendum 1 (10.11)

## 10.12 Baseline Conditions

**Historic Landscape Character**

This section of the Environmental Statement remains unchanged (10.13).

**10.13 Historic Buildings and Structures**

This section of the Environmental Statement remains unchanged (10.14).

**10.14 Scheduled Ancient Monuments, Conservation Areas, Registered Battlefields, Registered Historic Parks and Gardens, UNESCO World Heritage Sites**

This section of the Environmental Statement remains unchanged (10.15).

**10.15 Importance of the Assets**

This section of the Environmental Statement remains unchanged (10.16).

**10.16 Potential Effects**

This section of the Environmental Statement remains unchanged from ES addendum 1 (10.16)

**10.17 Project Design**

This section of the Environmental Statement remains unchanged from ES addendum 1 (10.7)

**10.18 Assessment of Effects**

This section of the Environmental Statement remains unchanged from ES addendum 1 (10.18)

**10.19 Residual Effects**

This section of the Environmental Statement remains unchanged from ES addendum 1 (10.19)

**10.20 Cumulative Effects**

This section of the Environmental Statement remains unchanged from ES addendum 1 (10.20)

**10.21 PINS Request Arising from Schedule 4 of Regulation 22 of the 2011 EIA Regulations**

This section of the Environmental Statement remains unchanged from ES addendum 1 (10.21.1 - 10.21.7)

# 11.0 NOISE & VIBRATION

## 11.1 Introduction

11.1.1 An assessment of the likely significant potential effects of the Project on the local noise environment has been under-taken by Miller Goodall Ltd. This addendum chapter of the ES describes the legislative framework applicable to noise and determines the predicted effects of noise due to the operational phase of the Project and how they relate to appropriate significance criteria.

11.1.2 The effects of existing noise sources on the proposed residential development introduced to the site as part of the Project will be assessed with reference to measured noise levels from the M62, which dominates the existing noise climate in the area and guidance criteria from ProPG: Planning and Noise, New Residential Development, May 2017[Ref: 11.1] and BS8233: 2014 Guidance on Sound Insulation and Noise Reduction for Buildings [Ref 11.2]. The effects of noise generated as part of the operational Project, namely traffic noise, from vehicles introduced to the existing local road network, will be assessed with reference to Design Manual for Roads and Bridges LA 111 Noise and Vibration Rev 0 [Ref 11.3].

11.1.3 Where appropriate, mitigation measures proposed to reduce or remove any likely significant effects are described. Finally, the likely residual impact of the Project on the local noise environment is assessed.

## 11.2 Legislative Framework

11.2.1 The following section describes the relevant legislation, guidance and policy publications to which regard has been had in undertaking the assessments.

**Noise Policy Statement for England**

11.2.2 The Noise Policy Statement for England (NPSE) DEFRA [Ref 11.4], published in March 2010, sets out the long-term vision of Government noise policy. The Noise Policy aims, as presented in this document, are:

> *"Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:*
>
> - *avoid significant adverse effects on health and quality of life;*
> - *mitigate and minimise adverse effects on health and quality of life; and*
> - *where possible, contribute to the improvement of health and quality of life."*

11.2.3 The NPSE makes reference to the concepts of NOEL (No Observed Effect Level) and LOAEL (Lowest Observed Adverse Effect Level) as used in toxicology but applied to noise impacts. It also introduces the concept of SOAEL (Significant Observed Adverse Effect Level) which is described as the level above which significant adverse effects on health and the quality of life occur.

11.2.4 The first aim of the NPSE is to avoid significant adverse effects, taking into account the guiding principles of sustainable development (as referenced in Section 1.8 of the Statement). The second aim seeks to provide guidance on the situation that exists when the potential noise impact falls between the LOAEL and the SOAEL, in which case:

> *"…all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also taking into account the guiding principles of sustainable development".*

11.2.5 Importantly, the NPSE goes on to state:

> *"This does not mean that such adverse effects cannot occur".*

11.2.6 The Statement does not provide a noise-based measure to define SOAEL, acknowledging that the SOAEL is likely to vary depending on the noise source, the receptor and the time in question. NPSE advises that:

> *"Not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available"*

11.2.7 It is therefore likely that other guidance will need to be referenced when applying objective standards for the assessment of noise, particularly in reference to the SOAEL, whilst also taking into account the specific circumstances of a proposed development.

**National Planning Policy Framework**

11.2.8 The National Planning Policy Framework (NPPF) [Ref 11.5] initially published in March 2012, was updated in February 2019. One of the documents that the NPPF replaces is Planning Policy Guidance Note 24 (PPG 24) "Planning and Noise".

11.2.9 The revised NPPF advises that the planning system has three overarching objectives, which are interdependent and need to be pursued in mutually supportive ways (so that opportunities can be taken to secure net gains across each of the different objectives). One of these is an environmental objective which is described in par. 8 (c):

*"to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy."*

11.2.10 At par. 170 we are advised that:

*"Planning policies and decisions should contribute to and enhance the natural and local environment by:*

*e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans.*

11.2.11 Par. 180 goes on to state:

*"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:*

*a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;*

*b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.*

**Planning Practice Guidance – Noise**

11.2.12 Planning Practice Guidance - Noise (PPG) [Ref 11.6] provides additional guidance and elaboration on the NPPF. It advises that when plan-making and decision-taking, the Local Planning Authority should consider the acoustic environment in relation to:

- 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.

11.2.13 In line with the Explanatory Note of the NPSE, the PPG goes on to reference the LOAEL and SOAEL in relation to noise impact. It also provides examples of outcomes that could be expected for a given perception level of noise, plus actions that may be required to bring about a desired outcome. However,

in line with the NPSE, no objective noise levels are provided for LOAEL or SOAEL although the PPG acknowledges that:

> *"…the subjective nature of noise means that there is not a simple relationship between noise levels and the impact on those affected. This will depend on how various factors combine in any particular situation".*

11.2.14 Examples of these factors include:

- The source and absolute noise level of the source along with the time of day that it occurs;
- Where the noise is non-continuous, the number of noise events and pattern of occurrence;
- The frequency content and acoustic characteristics of the noise;
- The effect of noise on wildlife;
- The acoustic environment of external amenity areas provided as an intrinsic part of the overall design; and
- The impact of noise from certain commercial developments such as night clubs and pubs where activities are often at their peak during the evening and night.

11.2.15 The PPG also provides general advice on the typical options available for mitigating noise. It goes on to suggest that Local Plans may include noise standards applicable to proposed developments within the Local Authority's administrative boundary, although it states that

> *"Care should be taken, however, to avoid these being implemented as fixed thresholds as specific circumstances may justify some variation being allowed".*

11.2.16 The PPG was amended in December 2014 to clarify guidance on the potential effect of noise from existing businesses on proposed new residential accommodation. Even if existing noise levels are intermittent (for example, from a live music venue), noise will need to be carefully considered and appropriate mitigation measures employed to control noise at the proposed accommodation.

**Professional Practice Guidance on Planning & Noise – New Residential Development**

11.2.17 ProPG [Ref 11.1] is guidance with the aim of delivering sustainable development and promoting good health and well-being through the effective management of noise which may impact on new residential developments. The guidance aims to complement the national planning policy and encourages the use of good acoustic design at the earliest phase of the planning process. It builds upon the recommendations of various other guidance documents including NPPF, NPSE and PPG-Noise, BS 8233 and WHO.

11.2.18 The guidance is applicable to new residential developments which would be exposed predominantly to noise from existing transport sources. The ProPG advocates a risk-based approach to noise using a two-stage process:

- Stage 1 – an initial noise risk assessment of the proposed development site; and
- Stage 2 – a systematic consideration of four key elements: –
    - Element 1 – demonstrating a 'Good Acoustic Design Process';
    - Element 2 – observing internal 'Noise Level Guidelines';
    - Element 3 – undertaking an 'External Amenity Area Noise Assessment'; and
    - Element 4 – consideration of 'Other Relevant Issues'.

11.2.19 The ProPG approach is underpinned by the preparation and delivery of an 'Acoustic Design Statement' (ADS), whereby the higher the risk for noise at the site, the more detailed the ADS. The ADS should address the following issues:

- Present the initial site noise risk assessment, including the pre-development acoustic conditions prior to development;
- Describe the external noise levels that occur across the site both before and after any necessary mitigation measures have been incorporated. The external noise assessment with mitigation measures in place should use an informed judgement of typical worst-case conditions;
- Demonstrate how good acoustic design is integrated into the overall design and how the proposed acoustic design responds to specific circumstances of the site;
- Confirm how the internal noise level guidelines will be achieved, including full details of the design measures and building envelope specifications;
- A detailed assessment of the potential impact on occupants should be undertaken where individual noise events are expected to exceed 45 dB $L_{AF,max}$ more than 10 times a night inside bedrooms;
- Priority should be given to enable the use of openable windows where practical across the development. Where this is not practical to achieve the internal noise level guidelines with windows open, then full details of the proposed ventilation and thermal comfort arrangements must be provided;
- Present the findings of the external amenity area noise assessment;
- Present the findings of the assessment of other relevant issues;
- Confirm for a low risk site how adverse impacts of noise will be mitigated and minimised;
- Confirm for a medium or high noise risk site how adverse impacts of noise will be mitigated and minimised and clearly demonstrate that a significant adverse noise impact has been avoided.

11.2.20 ProPG target noise levels are based on existing guidance from BS 8233 and WHO (see below). Table11.1 below outlines the guidance noise levels for different room types during day and night times.

**Table11.1: ProPG guideline indoor ambient noise levels for dwellings**

| Activity | Location | 07:00 to 23:00 | 23:00 to 07:00 |
|---|---|---|---|
| Resting | Living Room | 35 dB $L_{Aeq,16hr}$ | - |
| Dining | Dining room/area | 40 dB $L_{Aeq,16hr}$ | - |
| Sleeping (daytime resting) | Bedroom | 35 dB $L_{Aeq,16hr}$ | 30 dB $L_{Aeq,8hr}$<br>45 dB $L_{Amax,F}$ |

11.2.21 The footnotes to this table suggest that internal noise level limits can be relaxed by up to 5 dB where development is considered necessary or desirable, and still represent "reasonable" internal conditions. They also suggest that in such cases, external levels which exceed WHO guidance target levels (see WHO section below) may still be acceptable provided that reasonable internal noise levels are achieved. Although, where the acoustic environment of external amenity areas is intrinsic to the overall design, "noise levels should ideally not be above the range 50 – 55 dB $L_{Aeq,16hr}$". The wording of ProPG (and BS 8233:2014) is clear that exceedance of guideline noise levels in external areas should not prohibit the development of desirable developments in any event.

**BS8233:2014+A1:2019 Guidance on Sound Insulation and Noise Reduction for Buildings**

11.2.22 This standard [Ref 11.2] provides recommended guideline values for internal noise levels within dwellings which are similar in scope to guideline values contained within the World Health Organisation (WHO) document, Guidelines for Community Noise (1999). These guideline noise levels are shown in Table 11.2, below

**Table 11.2: BS 8233: 2014 guideline indoor ambient noise levels for dwellings**

| Location | Activity | 07:00 to 23:00 | 23:00 to 07:00 |
|---|---|---|---|
| Living Room | Resting | 35 dB $L_{Aeq,16hr}$ | - |
| Dining room/area | Dining | 40 dB $L_{Aeq,16hr}$ | - |
| Bedroom | Sleeping (daytime resting) | 35 dB $L_{Aeq,16hr}$ | 30 dB $L_{Aeq,8hr}$ |

11.2.23 BS 8233:2014 advises that:

> *"regular individual noise events…can cause sleep disturbance. A guideline value may be set in terms of SEL or $L_{Amax,F}$ depending on the character and number of events per night. Sporadic noise events could require separate values".*

11.2.24 BS 8233:2014 adopts guideline external noise values provided in WHO for external amenity areas such as gardens and patios. The standard states that it is "desirable" that the external noise does not exceed 50 dB $L_{Aeq,T}$ with an upper guideline value of 55 dB $L_{Aeq,T}$ whilst recognising that development in higher noise areas such as urban areas or those close to the transport network may require a compromise between elevated noise levels and other factors that determine if development in such areas is warranted. In such circumstances, the development should be designed to achieve the lowest practicable noise levels in external amenity areas

**Design Manual for Roads and Bridges**

11.2.25 Volume 11, Section 3 of the DMRB defines environmental assessment techniques for schemes that will make changes to the road network. Part 7 of Section 3 relates to the effect of noise and vibration. Environmental assessment techniques for noise and vibration are set out in Sustainability & Environment Appraisal, LA111 Noise and Vibration, Rev 0, November 2019 [Ref 11.3], which replaces the previous document HD 213/11 which is withdrawn.

11.2.26 The document sets out the requirement for noise and vibration assessments from road projects, applying a proportionate and consistent approach using best practice and ensuring compliance with relevant legislation. It provides a framework for defining the magnitude of change in noise levels due to changes in road traffic flows and for determining the significance of effect of those changes.

11.2.27 LA111 requires comparison of the following traffic scenarios:

- Short term: Do Minimum Opening Year (DMOY) compared against the Do Something Opening Year (DSOY);
- Long-term: DMOY compared against the Do Something Future Year (DSFY); and
- Non-project noise change: Do-Minimum Future Year (DMFY) compared against the DMOY.

11.2.28 Tables within LA111 identify operational LOAEL and SOAEL levels, magnitude of change for short-term and long-term scenarios and initial assessment of significance due to the short-term magnitude of change. These are reproduced in Table 11.3, Table 11.4 and Table 11.5 below.

**Table 11.3: Operational noise LOAELs and SOAELs for all receptors**

| Time Period | LOAEL | SOAEL |
|---|---|---|
| Day (0600 – 0000) | 55 dB $L_{A10,18h}$ facade | 68 dB $L_{A10,18h}$ facade |
| Night (0000 – 0600) | 40 dB $L_{A10,18h}$ free field | 55 dB $L_{A10,18h}$ free field |

**Table 11.4: Magnitude of Change**

| Short Term Magnitude | Short term noise change (dB $L_{A10,18h}$ or $L_{night}$) |
|---|---|
| Major | Greater than or equal to 5.0 |
| Moderate | 3.0 – 4.9 |
| Minor | 1.0 – 2.9 |
| Negligible | Less than 1.0 |
| **Long Term Magnitude** | **Long term noise change (dB $L_{A10,18h}$ or $L_{night}$)** |
| Major | Greater than or equal to 10.0 |
| Moderate | 5.0 – 9.9 |
| Minor | 3.0 – 4.9 |
| Negligible | Less than 3.0 |

**Table 11.5: Initial assessment of operational noise significance**

| Significance | Short Term Magnitude of Change |
|---|---|
| Significant | Major |
| Significant | Moderate |
| Not Significant | Minor |
| Not Significant | Negligible |

11.2.29 Where the magnitude of change in the short term is negligible at noise sensitive buildings, it shall be concluded that the noise change will not cause changes to behaviour or response to noise and as such, will not give rise to a likely significant effect.

11.2.30 For noise sensitive receptors where the magnitude of change in the short term is minor, moderate or major at noise sensitive buildings, further assessment of local circumstances shall be used, together with the output of Table 11.5 to determine final significance. The following local circumstances can be used to determine if the initial assessment of significance based on the absolute change in noise level can be changed in the final assessment on a receptor by receptor basis:

- Is the noise levels change within 1 dB of the Minor / Moderate boundary;
- Is the magnitude of impact different in the short and long term;
- How does the absolute noise level compare to the LOAEL and SOAEL;
- Is the sensitive façade directly exposed to the noise source;
- Is the acoustic character of the area changed as a result of the project; and
- Is the project likely to change the landscape or setting of a receptor.

## 11.3 Assessment Methodology

11.3.1 This section discusses the methodology used in the assessment of impact due to noise on existing and proposed sensitive receptors.

**The Study Area**

11.3.2 The effects of noise will be broken down into two study areas, which will have some element of overlap.

11.3.3 Noise emissions from the existing road network, most notably the M62 which runs along the entire northern boundary of the site, will be assessed to determine potential significant effects of noise on future residents of the site. The extent of this study area will be entirely within the redline of the site as defined in **Appendix APP17**.

11.3.4 Changes in noise levels at existing receptors will be assessed in the residential area to the south of the site. Future road traffic flows have been provided for the noise assessment, a full list of roads and the predicted flows used in the assessment are presented in **Appendix N1**. The area of study is defined as the main routes bounded by and including:

- North – M62
- South – A50 (Long Lane and Orford Green) & Hilden Road
- East – Blackbrook Avenue & Mill Lane / Delph Lane
- West – A49 Winwick Road

11.3.5 Whilst not every road link within the area described is included in the assessment, where there is a high likelihood that road traffic associated with the development will use a link for site access, that link has been included in the assessment. Existing residential receptors are within this area and are presented in Figure 11.2.

**Baseline Survey**

11.3.6 A baseline noise survey has been undertaken to inform the site suitability assessment. Noise levels over the site are dominated day and night by road traffic noise from the M62 which runs for the entire length of the northern site boundary. Attended noise measurements were taken at three locations along the northern boundary of the site at locations presented in **Figure N6**.

11.3.7 Noise measurements were undertaken at a location consistent with the proposed development in accordance with BS 7445-1: 2003 by Matt Wilson and Reid Malster of Miller Goodall Ltd. The calibration of the sound level meter was checked before and after measurements with negligible deviation (<0.1 dB). Details of the equipment used are shown in Table 11.6, below:

**Table 11.6: Noise monitoring equipment**

| Equipment Description | Type Number | Manufacturer | Serial No. | Date Calibrated | Calibration Certification Number |
|---|---|---|---|---|---|
| Class 1[1],[2] Integrating Real Time 1/3 Octave Sound Analyser | NOR 140 | Norsonic | 1406815 | 12/12/2018 | 30355 |
| Microphone | NOR 1225 | Norsonic | 264687 | 12/12/2018 | 30354 |
| Class 1 Calibrator[3] | NOR 1251 | Norsonic | 34123 | 13/07/2018 | 03885/2 |
| Outdoor microphone housing | NOR 1217 | Norsonic | 12175738 | N/a | N/a |
| Class 1[4],[5] Integrating Real Time 1/3 Octave | NOR 140 | Norsonic | 1406017 | 23/05/2017 | 03238/2 |

[1] IEC 61672-1 (2002) Electroacoustics – Sound level meters Part 1: Specifications
[2] IEC 61260 (1995) Electroacoustics – Octave-band and fractional-octave-band filters
[3] IEC 60942 (2003) Electroacoustics – Sound calibrators
[4] IEC 61672-1 (2002) Electroacoustics – Sound level meters Part 1: Specifications
[5] IEC 61260 (1995) Electroacoustics – Octave-band and fractional-octave-band filters

| Equipment Description | Type Number | Manufacturer | Serial No. | Date Calibrated | Calibration Certification Number |
|---|---|---|---|---|---|
| Sound Analyser | | | | | |
| Microphone | NOR 1225 | Norsonic | 151206 | 23/05/2017 | 03238/2 |
| Class 1 Calibrator[6] | Type 4231 | Brüel & Kjær | 2478249 | 13/07/2018 | 03885/1 |
| Outdoor microphone housing | NOR 1217 | Norsonic | 12175146 | N/a | N/a |

11.3.8 Specific, background and ambient noise monitoring was undertaken at the times specified in Table 11.7, below. Weather conditions were determined both at the start and on completion of the survey. It is considered that meteorological conditions were appropriate for environmental noise measurements, further details of onsite weather conditions are presented in **Appendix N2**.

**Table 11.7: Monitoring Information**

| Position | Type | Start | End | SLM |
|---|---|---|---|---|
| MP01 | Attended | 22/05/19 11:12 | 22/05/19 14:12 | 1406017 |
| MP02 | Attended | 22/05/19 11:25 | 22/05/19 14:14* | 1406815 |
| MP04** | Attended and Unattended | 23/05/19 12:00 | 24/05/19 08:00 | 1406815 |

* Monitoring just short of target 3 hours to avoid confrontation

** Attended 12:00 – 15:00, Unattended 16:00 – 08:00

11.3.9 Monitoring at MP03 was to be undertaken at Mill Lane playing fields, immediately north of The Millhouse. Attended monitoring at this location was repeatedly disturbed by pedestrians and eventually terminated due to grass cutting activities on the playing field. The measured data was not suitable for use in this assessment and modelled traffic data will be utilised.

11.3.10 Long term monitoring at MP01 and MP02 was not undertaken as the surveyors were advised that there was an enhanced risk of vandalism to monitoring equipment left on the site unattended. The position at MP04 was deemed suitable for unattended monitoring as equipment could be placed out of obvious sight.

[6] IEC 60942 (2003) Electroacoustics – Sound calibrators

**Consultation**

11.3.11 Consultation has been completed with Mr Steve Smith within the Environmental Health Department of WBC. Table 11.8 provides a summary of the consultation activities undertaken in support of preparation of this Chapter.

**Table 11.8: Noise Assessment Consultation**

| Organisation | Individuals | Date | Summary of consultation |
|---|---|---|---|
| MG | JLM | 22/1/2019 | Outline of proposed methodology for undertaking the site suitability assessment along with details of noise monitoring, noise modelling and assessment criteria. At this stage traffic data was not available and MG aimed to clarify whether a full DMRB assessment would be required. |
| WBC | SS | 28/1/2019 | A response was received from Steve Smith, with a copy of the previous planning consultation response dated 1/2/2017 for planning application ref: 2016/28492. The response confirmed the proposed methodology and confirmed in relation to DMRB assessment, it was confirmed that the level of change in noise levels at the site would need to be assessed in terms of significance of impact. |
| MG | MW | 04/02/2020 | Further consultation methodology provided to Warrington confirming the addresses to be used for the assessment. |
| WBC | SS | 04/02/2020 | Email from Steve Smith confirming he will comment on the proposals the following week. |

**Significance Criteria**

11.3.12 This section of the chapter describes the methodology which has been used to assess the significance of effects on noise. The significance of likely effects arising from the operation of the Proposed

Development on noise has been determined by identifying the magnitude of the impact and the sensitivity of the receptor.

**Method of Assessing Significance – Residential Development**

11.3.13 BS 8233:2014 provides recommended guideline values for internal noise levels within dwellings which are similar in scope to guideline values contained within the World Health Organisation (WHO) document, Guidelines for Community Noise (1999) [Ref 11.7]. The magnitude of impact in comparison to these guideline values is provided in Table 11.9, below.

**Table 11.9: BS 8233: noise level criteria and magnitude for internal and external noise**

| Magnitude of Impact | Activity | 07:00 to 23:00 | 23:00 to 07:00 |
|---|---|---|---|
| Major | Road Traffic | Noise levels > 40 dB $L_{Aeq,16hr}$ living rooms and bedrooms<br>Noise levels > 45 dB $L_{Aeq,16hr}$ in dining rooms<br>Noise levels > 55 dB $L_{Aeq,16hr}$ for external amenity space | Noise levels > 35 dB $L_{Aeq,8hr}$ in bedrooms<br>Noise levels > 50 dB $L_{AFmax}$ in bedrooms |
| Moderate | Road Traffic | Noise levels > 35 ≤ 40 dB $L_{Aeq,16hr}$ living rooms and bedrooms<br>Noise levels > 40 ≤ 45 dB $L_{Aeq,16hr}$ in dining rooms<br>Noise levels > 50 ≤ 55 dB $L_{Aeq,16hr}$ for external amenity space | Noise levels > 30 ≤35 dB $L_{Aeq,8hr}$ in bedrooms<br>Noise levels > 45 ≤ 50 dB $L_{AFmax}$ in bedrooms |
| Minor | Road Traffic | Noise levels ≤ 35 dB $L_{Aeq,16hr}$ living rooms and bedrooms<br>Noise levels ≤ 40 dB $L_{Aeq,16hr}$ in dining rooms<br>Noise levels ≤ 50 dB $L_{Aeq,16hr}$ for external amenity space | Noise levels ≤ 30 dB $L_{Aeq,8hr}$ in bedrooms<br>Noise levels ≤ 45 dB $L_{AFmax}$ in bedrooms |
| Negligible | Road Traffic | | |

**Method of Assessing Significance – Operational Traffic**

11.3.14 CadnaA noise modelling has been used to predict the likely effect of new road traffic associated with the Proposed Development on new and existing residential dwellings using the methodology within Calculation of Road Traffic Noise, CRTN: 1988 [Ref 11.8].

11.3.15 LA111 [Ref 11.3] has been used as the basis for definition of the assessment of road traffic noise in relation to the Proposed Development. The predictions of road traffic have been based on the following scenarios:

- Year of opening 2022 Do Minimum (DMOY)
- Year of opening 2022 Do Something (DSOY)
- Future Year 2037 Do Minimum (DMFY)
- Future Year 2037 Do Something (DSFY)

11.3.16 The future year is defined as the opening year + 15 years. The magnitude of impact is determined with reference to the Table 3.54a and 3.54b in LA111. The level of change can be beneficial as well as adverse. In this assessment, the change in $L_{A10,18h}$ is considered.

**Table 11.10: Magnitude of Impact**

| Short Term Magnitude | Short term noise change (dB LA10,18h) |
|---|---|
| Major | Greater than or equal to 5.0 |
| Moderate | 3.0 – 4.9 |
| Minor | 1.0 – 2.9 |
| Negligible | Less than 1.0 |
| **Long Term Magnitude** | **Long term noise change (dB LA10,18h)** |
| Major | Greater than or equal to 10.0 |
| Moderate | 5.0 – 9.9 |
| Minor | 3.0 – 4.9 |
| Negligible | Less than 3.0 |

**Method of Assessing Significance**

11.3.17 The sensitivity of receptor is dependent on the use of the building or land. For the purpose of this assessment, all residential buildings will be assigned a high level of sensitivity.

11.3.18 Where a magnitude of impact is moderate or major, the effect of noise at the identified receptor will be considered significant.

11.3.19 Changes in traffic noise levels at identified receptors around the proposed development site can be beneficial if the noise level is predicted to reduce as a result of the development. Where levels are expected to rise as a result of the development, the effect will be considered adverse.

11.3.20 The initial assessment of significance for adverse changes in road traffic noise can be revised with reference to each receptor's local circumstances to determine a final significance.

**Mitigation Measures Methodology**

11.3.21 Where there is a potential significant effect due to changes in traffic noise levels, the methodology for application of mitigation will follow the standard hierarchy for noise:

- Eliminate – Can the noise source be removed;
- Substitute – Can the noise be altered or changed;
- Engineering Control – Can a barrier or other mitigation measures be introduced to control the noise on the transmission path;
- Administration Control – Can mitigation be applied to the receptor.

11.3.22 Considering the nature of the noise source, elimination or substitution of the road noise source is unlikely and controlling the noise at the façade of the receptor will only be appropriate where absolute noise levels exceed the sound insulation regulations. The most common method of noise mitigation will be through engineering controls in terms of speed limits or appropriately placed noise barriers.

**Residual Effects Methodology**

11.3.23 Residual effects of the Proposed Development have been identified and assessed using professional judgment taking into account factors such as;

- the existing and future noise levels in the absence of the development;
- the difference in noise level due to the proposed mitigation measures;

- the influence and validity of any assumptions adopted when undertaking the prediction of impacts.

## 11.4 Limitations and Assumptions

11.4.1 The assessment is based on the design and operational details available at the time of preparing the ES.

11.4.2 There are a number of limitations and uncertainties associated with modelling of noise, and where applicable, realistic worst-case scenarios have been assumed (based on professional judgement):

- Noise monitoring at the northern extent of the site in order to determine existing $L_{Aeq,T}$ noise levels for day and night have been measured as a single time period rather than multiple visits to check any seasonal variation.
- Traffic flows for year of opening and future year scenarios are based on predicted traffic flows and growth rates provided by the wider project team. The highways and transportation chapter 9 provides further information regarding uncertainty in traffic figures.
- To ensure the assessment accounts for a worst case, short term traffic flows used in the assessment are those predicted for the opening of the full development at the year of opening.
- Speed limits on each road have been used to generate speeds for vehicles on each road in noise modelling.

## 11.5 Baseline Conditions

11.5.1 At present the development site is open former agricultural land with a small number of existing farm buildings. The area is divided areas and lines of trees, small water courses and Radley Lane, which provides access to the existing farm and is also a Public Right of Way.

11.5.2 A site walkover in May 2019 determined that the existing noise sources on the site are dominated by existing road traffic noise, most notably from the M62. Other noise sources identified on the site include fixed wing aircraft associated with Manchester and Liverpool Airports, passenger helicopters, birds and road traffic noise from roads such as Mill Lane to the east and the A49 to the west.

11.5.3 Off the site, the existing residential receptors along the access routes are dominated by road traffic noise from the existing road network. When traffic levels die down, the baseline background noise level includes a contribution from the distant road network including the M62.

**Baseline Noise Measurements 2019**

11.5.4 A noise survey was undertaken in May 2019 at three locations along the northern boundary of the site, close to the M62. Monitoring locations are shown on **Figure N6**. Full noise monitoring data is detailed in **Appendix N3**, and a summary of measured data from each monitoring location is displayed in Table 11.11.

**Table 11.11: Summary of Monitoring Data**

| Position | Date | Start hh:mm:ss | Duration hh:mm:ss | $L_{Aeq,T}$ dB | $L_{AFMAX}$ dB | $L_{A10,T}$ dB | $L_{A90,T}$ dB |
|---|---|---|---|---|---|---|---|
| MP01 | 22/05/2019 | 11:12:45 | 03:00:00 | 79 | 88 | 82 | 75 |
| MP02 | 22/05/2019 | 11:25:02 | 02:49:32 | 72 | 83 | 74 | 69 |
| MP04 Day | 23/05/2019 | 12:00:08 | 11:00:00 | 76 | 97 | 78 | 72 |
| MP04Night | 23/05/2019 | 23:00:00 | 08:00:00 | 72 | 85 | 76 | 60 |

11.5.5 Night time $L_{AFmax}$ events are given in Table 11.11 as the worst-case single highest maximum noise event. The 10$^{th}$ highest event measured over the 8 hour night time period, with 5 minute resolution, is 83 dB, which is less than 15 dB above the $L_{Aeq,8h}$ and therefore an indication that the average night time noise level and not the maximum noise events will be the influencing factor in acoustic mitigation design.

**Future Baseline Traffic Data**

11.5.6 Traffic flow figures have been provided by Highgate Transportation Ltd. Chapter 9 of this ES gives further detail on the methodology used for predicting flow rates for the traffic scenarios detailed in Section 11.3.15. Table 11.12 below gives a summary of the Average Annual Weekday Traffic flow, AAWT_18h, with full information including HGV% and assumed speed limits for the roads for each of the four traffic scenarios in the assessment given in the accompanying technical appendix.

11.5.7 In order to assess a worst-case scenario, the DSOY 2022 scenario assumes that the fully developed site and all associated traffic will be present at the year of opening.

**Table 11.12: Summary Traffic Flow Data**

| Road Link | AAWT18 DMOY | AAWT18 DSOY | AAWT18 DMFY | AAWT18 DSFY |
|---|---|---|---|---|
| A49 Northbound (Junction NINE Retail Park - Hawleys Lane) | 22674 | 23149 | 25793 | 26581 |
| A49 Northbound (M62/Birch Avenue - Poplars Avenue) | 22885 | 23250 | 25904 | 26602 |
| A49 Northbound (north of M62) | 24531 | 24868 | 27899 | 28340 |
| A49 Northbound (parallel to Brendon Avenue - Sandy Lane West) | 22885 | 23250 | 25904 | 26602 |
| A49 Northbound (Sandy Lane West – Junction NINE Retail Park) | 23212 | 23685 | 26841 | 27670 |
| A49 Southbound (Junction NINE Retail Park - Hawleys Lane) | 24386 | 24459 | 26044 | 26517 |
| A49 Southbound (M62/Birch Avenue - Poplars Avenue) | 24901 | 25167 | 28270 | 28846 |
| A49 Southbound (north of M62) | 22941 | 23245 | 26119 | 26468 |
| A49 Southbound (parallel to Brendon Avenue - Sandy Lane West) | 24901 | 25167 | 28270 | 29051 |
| A49 Southbound (Sandy Lane West – Junction NINE Retail Park) | 23970 | 24040 | 26041 | 26519 |
| A50 Long Lane | 13207 | 13342 | 14249 | 14462 |
| A50 Orford Green | 11802 | 12843 | 13452 | 14746 |
| A50 Orford Green - Birchwood Way | 18416 | 20274 | 21092 | 22298 |
| A50 School Road | 12218 | 12372 | 13741 | 13783 |
| Birch Avenue (Site entrance) | 208 | 391 | 241 | 431 |
| Birchwood Way (A50 - Blackbrook Ave) | 4622 | 4376 | 5160 | 4287 |
| Birchwood Way (Blackbrook Ave - Woolston Grange Ave) | 18572 | 18834 | 21063 | 21649 |
| Blackbrook Avenue (Ballater Dr - Capesthorne Rd) | 7628 | 12686 | 9263 | 14790 |
| Blackbrook Avenue (Capesthorne Rd - Insall Rd) | 7487 | 10613 | 9030 | 13945 |
| Blackbrook Avenue (Insall Rd - Birchwood Way) | 7441 | 8963 | 9412 | 11204 |
| Capesthorne Road (Greenwood Crescent to Blackbrook Avenue) | 7918 | 11466 | 10132 | 14478 |
| Capesthorne Road (Poplars Avenue - parallel to Humber Road) | 2669 | 3253 | 2724 | 3395 |
| Capesthorne Road (Poplars Avenue - School Road) | 5409 | 8632 | 7618 | 11280 |
| Cleveland Road | 3920 | 5064 | 6400 | 7730 |
| Cotswold Road | 397 | 928 | 448 | 989 |
| Delph Lane (Mill Lane - Myddleton Lane) | 7767 | 8631 | 9264 | 9920 |
| Fisher Avenue | 1875 | 2689 | 3472 | 4264 |
| Grasmere Avenue | 1375 | 1409 | 1551 | 1584 |

| Road Link | AAWT18 DMOY | AAWT18 DSOY | AAWT18 DMFY | AAWT18 DSFY |
|---|---|---|---|---|
| Grasmere Avenue (Site entrance) | 0 | 190 | 0 | 197 |
| Greenwood Crescent (Darley Ave to Grasmere Ave) | 1732 | 2059 | 1874 | 2430 |
| Greenwood Crescent (Grasmere Ave to Meteor Cres) | 3205 | 3377 | 3555 | 3863 |
| Hilden Road | 13181 | 15403 | 14735 | 17095 |
| Howson Rd | 463 | 722 | 522 | 830 |
| M62 Eastbound J8 - J9 | 58799 | 59039 | 67917 | 68163 |
| M62 Eastbound J9 - J10 (east of Mill Lane) | 33076 | 33194 | 37946 | 38069 |
| M62 Eastbound J9 - J10 (west of Mill Lane) | 54585 | 54792 | 62801 | 63016 |
| M62 Junction 9 Eastbound Entry Slip | 8214 | 8420 | 9467 | 9682 |
| M62 Junction 9 Westbound Off Slip | 7675 | 7772 | 8815 | 8916 |
| M62 Westbound J8 - J9 | 65929 | 66150 | 76245 | 76476 |
| M62 Westbound J9 - J10 (east of Mill Lane) | 63848 | 63945 | 73481 | 73582 |
| M62 Westbound J9 - J10 (west of Mill Lane) | 63848 | 63945 | 73481 | 73582 |
| Mill Lane (Ballater Dr - Site entrance, north of Millhouse Pub) | 8381 | 14467 | 10011 | 16389 |
| Mill Lane (Delph Lane - underneath the M62) | 7767 | 8631 | 9264 | 9920 |
| Mill Lane (Mill Lane turn off - Site entrance) | 7735 | 9367 | 9228 | 10731 |
| Mill Lane (Site entrance) | 0 | 562 | 0 | 584 |
| Mill Lane/Blackbrook Avenue (Site entrance) | 0 | 5865 | 0 | 5637 |
| Northway NB | 1968 | 1870 | 2066 | 1941 |
| Northway SB | 1304 | 1733 | 2245 | 2557 |
| Poplars Avenue - East of (Central) Site entrance | 4699 | 7662 | 7317 | 10586 |
| Poplars Avenue - West of (Central) Site entrance | 4038 | 5981 | 6538 | 8725 |
| Poplars Avenue (Central) (Site entrance) | 0 | 1968 | 0 | 2044 |
| Poplars Avenue (Greenwood Cres - Capesthorne Road) | 10211 | 13841 | 13875 | 17312 |
| Poplars Avenue (south of Capesthorne Road) | 8115 | 9551 | 9513 | 11114 |
| Poplars Avenue (West) (Site entrance) | 0 | 1322 | 0 | 1373 |
| Radley Lane | 135 | 135 | 148 | 148 |
| Sandy Lane | 4667 | 5406 | 6400 | 6642 |
| Sandy Lane West | 7669 | 9766 | 11742 | 13539 |
| Statham Avenue | 4403 | 5639 | 5108 | 6107 |

| Road Link | AAWT18 DMOY | AAWT18 DSOY | AAWT18 DMFY | AAWT18 DSFY |
|---|---|---|---|---|
| Windermere Avenue (Grasmere Ave to Poplars Ave) | 103 | 339 | 187 | 517 |

## 11.6 Assessment of Effects

11.6.1 The effects of noise have been determined at the existing and proposed receptors due to existing noise sources in the area and noise generated by the development. Where a magnitude of impact at a receptor is determined to cause a significant adverse effect, mitigation is proposed, with a final residual effect determined.

**Noise Impacts Scoped Out**

11.6.2 At this stage of the process, construction phasing and methodologies will not be possible to determine with any accuracy. Construction in each designated phase is by its very nature temporary and transient with each new phase providing further screening to both existing road traffic sources and ongoing construction activities. Construction traffic flows have not been provided as part of the assessment.

11.6.3 A common planning condition is the production of a Construction Environmental Management Plan (CEMP), either for the site as a whole, or for each individual parcel of the site which may be brought forward at different times by individual developers and their chosen construction contractor.

11.6.4 The CEMP will determine hours of construction operations and include a Noise and Vibration Management Plan (NVMP) to control potentially noisy activities with reference to noise thresholds determined in BS5228:2009+A1:2014: Code of practice for noise and vibration control on construction and open sites [Ref 11.9]. Contractors following guidance and Best Practicable Means detailed in the NVMP and CEMP will ensure the impact of construction activities is Negligible to Minor Adverse.

11.6.5 It is proposed that the development contain local amenities such as a care home, school and various other uses such as shops and hot food take away. Where it is intended that a development have requirement for fixed plant, such as air conditioning or kitchen extract, a noise survey should be undertaken when the proposals are determined to ensure noise generated does not result in a significant effect at local sensitive receptors. The assessment should be undertaken with reference to BS4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound [Ref 11.10].

**Embedded Mitigation**

11.6.6 It is proposed that a noise barrier of at least 4.0 m in height will be located along the northern boundary of the site. It is intended that a 4.0 m fence be erected along the northern boundary, which will be designed to avoid conflict with the existing National Grid infrastructure.

11.6.7 The barrier is to be constructed from continuous, imperforate material with a minimum mass of 12 kg/m$^2$ and is to extend from the existing ground level to a minimum height of 4.0 m. Close-boarded or overlapped timber panelling would also be suitable. Alternatively, a proprietary acoustic fence with a minimum weighted sound reduction index of 25 dB $R_w$ would be appropriate.

11.6.8 A buffer zone will be included on the southern side of the barrier to allow further attenuation of road traffic noise from the M62. Detailed design of the residential developments to be constructed on the site will be required to follow the principals of good acoustic design when positioning, orienting and designing the layout of future residential plots.

11.6.9 It is proposed that all plots immediately south of the barrier be four stories tall, and in a tight configuration to allow building massing to provide a further noise barrier. Private outdoor amenity spaces, such as gardens, should be designed in areas with protection from the proposed building massing (south facing).

11.6.10 Vehicles entering and leaving the proposed development will utilise existing roads. Where appropriate it is proposed to reduce the speed limit on roads within the existing residential development. Whilst this is part of the mitigation strategy developed as part of the Highways and Transportation chapter of this ES, the results are also likely to have a beneficial effect on local road traffic noise.

**Assessment of Noise from M62**

11.6.11 At this stage of the development proposals, there is no indicative masterplan showing the arrangement of plots. The Parameters Plan shown in **Appendix APP6**, produced to inform the development indicates the location of where plots will be located closest to the M62, which is identified as the worst-case noise source for day and night.

11.6.12 Typical $L_{Amax}$ noise events at night are likely to be within 15 dB of the typical $L_{Aeq,8h}$ at a receptor, therefore if a façade meets the required mitigation to meet internal $L_{Aeq,8h}$ criteria of 30dB(A), it will also meet the criteria of 45 dB $L_{AFmax}$.

11.6.13 It is proposed that the closest developments to the M62 will be 4 story buildings with a ridge height of approximately 12.0 m. To inform this assessment, an indicative worst-case residential receptor has been included in noise modelling, with a northern façade facing onto the road noise source. Indicative façade levels at heights simulating ground to 3rd floor window heights have been predicted as shown in Table 11.13. Internal levels are assumed to be 15 dB below the façade levels, this is assuming typical noise attenuation provided by an open window. The magnitude of impact is determined using the criteria detailed in Table 11.9.

**Table 11.13: Predicted worst case façade levels**

| Floor | Height | Daytime | | | | Night-time | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Façade $L_{Aeq,16h}$ | BS8233 criteria | Internal $L_{Aeq,16h}$ | Impact | Façade $L_{Aeq,8h}$ | BS8233 criteria | Internal $L_{Aeq,8h}$ | Impact |
| Ground | 1.5 m | 67 | 35 | 52 | Major | 62 | 30 | 47 | Major |
| 1st | 4.0 m | 69 | 35 | 54 | Major | 65 | 30 | 50 | Major |
| 2nd | 6.5 m | 70 | 35 | 55 | Major | 66 | 30 | 51 | Major |
| 3rd | 9.0m | 72 | 35 | 57 | Major | 67 | 30 | 52 | Major |

11.6.14 It can be seen from Table 11.13, that the internal noise levels in living rooms and bedrooms the magnitude of impact will be Major.

11.6.15 Existing noise levels at the most exposed residential receptors will have a **significant adverse effect**.

11.6.16 In order for the effect internal noise levels to be considered not significant, appropriate mitigation will need to be utilised, including closed windows with suitable glazing specifications, alternative forms of ventilation from quiet facades, appropriate building envelope and roof structures.

11.6.17 Building massing should be used at the design stage of each individual parcel of the development to ensure that the private outdoor amenity space for individual plots should be below 55 dB $L_{Aeq,16h}$.

**Assessment of Operational Phase Traffic**

11.6.18 The magnitude of impact due to changes in road traffic noise levels is determined through comparison of noise in the short-term change at the year of opening (2022), i.e. DSOY vs DMOY. Further context to the initial assessment of significance is given through comparison of noise levels in the long term,

i.e. DSFY vs DMOY and comparison of noise levels in the absence of the proposed scheme, i.e. DMFY vs DMOY.

11.6.19 All receptor locations are shown in **Figure N7**. In some locations multiple receptors are close together to ensure a worst-case façade is identified.

11.6.20 Table 11.14, Table 11.15 and Table 11.16 show the predicted absolute noise level for each scenario, the difference in short or long term noise level and the magnitude of impact at each of the indicative receptors identified. All noise levels are given as $L_{A10,18h}$.

11.6.21 Difference plots for the short-term and long-term assessments are shown in **Figure N8** and **N9** respectively.

**Table 11.14: Short Term Assessment (DSOY – DMOY)**

| Receptor | Address | dB $L_{A10,18h}$ DMOY | dB $L_{A10,18h}$ DSOY | dB $L_{A10,18h}$ Difference | Impact |
|---|---|---|---|---|---|
| R_01 | 5 Birch Avenue | 61.5 | 61.1 | -0.4 | Negligible beneficial |
| R_02 | 375 Poplars Ave | 62.2 | 61.9 | -0.3 | Negligible beneficial |
| R_03 | 352 Poplars Ave | 61.0 | 61.3 | 0.3 | Negligible adverse |
| R_04 | 264 Poplars Ave | 63.0 | 63.4 | 0.4 | Negligible adverse |
| R_05 | 28 Cotswold Road | 58.1 | 58.5 | 0.4 | Negligible adverse |
| R_06 | 54 Cleveland Road | 60.9 | 61.8 | 0.9 | Negligible adverse |
| R_07 | 6 Sandy Lane West | 63.7 | 64.7 | 1.0 | Minor adverse |
| R_08 | 31 Howson Road | 52.4 | 53.5 | 1.1 | Minor adverse |
| R_09 | 84 Northway | 59.0 | 58.8 | -0.2 | Negligible beneficial |
| R_10 | 79 Northway | 58.5 | 59.4 | 0.9 | Negligible adverse |
| R_11 | 221 Grasmere | 56.6 | 56.2 | -0.4 | Negligible beneficial |
| R_12 | 57 Coldstream Close | 59.6 | 61.5 | 1.9 | Minor adverse |
| R_13 | 34 Mill Lane | 55.5 | 56.1 | 0.6 | Negligible adverse |
| R_14 | 6 Mill Lane | 62.1 | 59.4 | -2.7 | Minor beneficial |
| R_15 | 55 Mill Lane | 53.4 | 56.4 | 3.0 | Moderate adverse |
| R_16 | 12 Radley Lane | 51.9 | 54.1 | 2.2 | Minor adverse |
| R_17 | 45 Ballater Drive | 58.2 | 56.2 | -2.0 | Minor beneficial |

| Receptor | Address | dB $L_{A10,18h}$ DMOY | dB $L_{A10,18h}$ DSOY | dB $L_{A10,18h}$ Difference | Impact |
|---|---|---|---|---|---|
| R_18 | 37 Shetland Close | 60.3 | 62.1 | 1.8 | Minor adverse |
| R_19 | Fairhaven Care Home | 53.6 | 54.5 | 0.9 | Negligible adverse |
| R_20 | 141 Newhaven Road | 64.8 | 60.0 | -4.8 | Moderate beneficial |
| R_21 | 21 Windermere Avenue | 54.1 | 54.4 | 0.3 | Negligible adverse |
| R_22 | 126 Capesthorne Road | 60.6 | 60.3 | -0.3 | Negligible beneficial |
| R_23 | 136 Poplars Avenue | 64.1 | 64.0 | -0.1 | Negligible beneficial |
| R_24 | 713 Winwick Road | 74.1 | 74.1 | 0.0 | No Change |
| R_25 | 463 Winwick Road | 72.1 | 72.2 | 0.1 | Negligible adverse |
| R_26 | 70 Long Lane | 67.8 | 67.9 | 0.1 | Negligible adverse |
| R_27 | 60 Capesthorne Road | 63.2 | 64.8 | 1.6 | Minor adverse |
| R_28 | 72 Poplars Avenue | 65.6 | 65.0 | -0.6 | Negligible beneficial |
| R_29 | 59 Statham Avenue | 63.3 | 63.9 | 0.6 | Negligible adverse |
| R_30 | 100 Sandy Lane | 63.1 | 63.5 | 0.4 | Negligible adverse |
| R_31 | 323 Greenwood Crescent | 59.1 | 59.4 | 0.3 | Negligible adverse |
| R_32 | 8 Lancaster Close | 62.1 | 63.1 | 1.0 | Minor adverse |
| R_33 | 39 Fisher Avenue | 60.4 | 61.8 | 1.4 | Minor adverse |
| R_34 | 22 St Mawgan Court | 66.4 | 66.7 | 0.3 | Negligible adverse |
| R_35 | 14 Orford Green | 65.9 | 66.2 | 0.3 | Negligible adverse |
| R_36 | 61 Mill Lane | 57.4 | 59.3 | 1.9 | Minor adverse |
| R_37 | Dundee Close | 56.5 | 56.6 | 0.1 | Negligible adverse |
| R_38 | Lavender Barn, Mill Lane | 51.8 | 55.8 | 4.0 | Moderate adverse |

**Table 11.15: Long Term Assessment (DSFY – DMOY)**

| Receptor | Address | dB $L_{A10,18h}$ DMOY | dB $L_{A10,18h}$ DSFY | dB $L_{A10,18h}$ Difference | Impact |
|---|---|---|---|---|---|
| R_01 | 5 Birch Avenue | 61.5 | 61.4 | -0.1 | Negligible beneficial |
| R_02 | 375 Poplars Ave | 62.2 | 62.7 | 0.5 | Negligible adverse |
| R_03 | 352 Poplars Ave | 61.0 | 62.4 | 1.4 | Negligible adverse |
| R_04 | 264 Poplars Ave | 63.0 | 64.8 | 1.8 | Negligible adverse |
| R_05 | 28 Cotswold Road | 58.1 | 58.5 | 0.4 | Negligible adverse |

| Receptor | Address | dB $L_{A10,18h}$ DMOY | dB $L_{A10,18h}$ DSFY | dB $L_{A10,18h}$ Difference | Impact |
|---|---|---|---|---|---|
| R_06 | 54 Cleveland Road | 60.9 | 63.4 | 2.5 | Negligible adverse |
| R_07 | 6 Sandy Lane West | 63.7 | 66.0 | 2.3 | Negligible adverse |
| R_08 | 31 Howson Road | 52.4 | 53.9 | 1.5 | Negligible adverse |
| R_09 | 84 Northway | 59.0 | 58.6 | -0.4 | Negligible beneficial |
| R_10 | 79 Northway | 58.5 | 60.8 | 2.3 | Negligible adverse |
| R_11 | 221 Grasmere | 56.6 | 56.6 | 0.0 | No Change |
| R_12 | 57 Coldstream Close | 59.6 | 62.2 | 2.6 | Negligible adverse |
| R_13 | 34 Mill Lane | 55.5 | 56.6 | 1.1 | Negligible adverse |
| R_14 | 6 Mill Lane | 62.1 | 59.2 | -2.9 | Negligible beneficial |
| R_15 | 55 Mill Lane | 53.4 | 56.6 | 3.2 | Minor adverse |
| R_16 | 12 Radley Lane | 51.9 | 54.0 | 2.1 | Negligible adverse |
| R_17 | 45 Ballater Drive | 58.2 | 56.3 | -1.9 | Negligible beneficial |
| R_18 | 37 Shetland Close | 60.3 | 62.6 | 2.3 | Negligible adverse |
| R_19 | Fairhaven Care Home | 53.6 | 54.7 | 1.1 | Negligible adverse |
| R_20 | 141 Newhaven Road | 64.8 | 60.0 | -4.8 | Minor beneficial |
| R_21 | 21 Windermere Avenue | 54.1 | 54.9 | 0.8 | Negligible adverse |
| R_22 | 126 Capesthorne Road | 60.6 | 60.5 | -0.1 | Negligible beneficial |
| R_23 | 136 Poplars Avenue | 64.1 | 64.9 | 0.8 | Negligible adverse |
| R_24 | 713 Winwick Road | 74.1 | 74.7 | 0.6 | Negligible adverse |
| R_25 | 463 Winwick Road | 72.1 | 72.6 | 0.5 | Negligible adverse |
| R_26 | 70 Long Lane | 67.8 | 68.2 | 0.4 | Negligible adverse |
| R_27 | 60 Capesthorne Road | 63.2 | 66.0 | 2.8 | Negligible adverse |
| R_28 | 72 Poplars Avenue | 65.6 | 65.6 | 0.0 | No Change |
| R_29 | 59 Statham Avenue | 63.3 | 64.3 | 1.0 | Negligible adverse |
| R_30 | 100 Sandy Lane | 63.1 | 63.9 | 0.8 | Negligible adverse |
| R_31 | 323 Greenwood Crescent | 59.1 | 59.8 | 0.7 | Negligible adverse |
| R_32 | 8 Lancaster Close | 62.1 | 64.2 | 2.1 | Negligible adverse |
| R_33 | 39 Fisher Avenue | 60.4 | 63.4 | 3.0 | Minor adverse |
| R_34 | 22 St Mawgan Court | 66.4 | 67.2 | 0.8 | Negligible adverse |
| R_35 | 14 Orford Green | 65.9 | 66.8 | 0.9 | Negligible adverse |

| Receptor | Address | dB $L_{A10,18h}$ DMOY | dB $L_{A10,18h}$ DSFY | dB $L_{A10,18h}$ Difference | Impact |
|---|---|---|---|---|---|
| R_36 | 61 Mill Lane | 57.4 | 60.6 | 3.2 | Minor adverse |
| R_37 | Dundee Close | 56.5 | 57.6 | 1.1 | Negligible adverse |
| R_38 | Lavender Barn, Mill Lane | 51.8 | 55.9 | 4.1 | Minor adverse |

**Table 11.16: Non Project Change (DMFY – DMOY)**

| Receptor | Address | dB $L_{A10,18h}$ DMOY | dB $L_{A10,18h}$ DMFY | dB $L_{A10,18h}$ Difference | Impact |
|---|---|---|---|---|---|
| R_01 | 5 Birch Avenue | 61.5 | 62.1 | 0.6 | Negligible adverse |
| R_02 | 375 Poplars Ave | 62.2 | 63.3 | 1.1 | Negligible adverse |
| R_03 | 352 Poplars Ave | 61.0 | 62.4 | 1.4 | Negligible adverse |
| R_04 | 264 Poplars Ave | 63.0 | 64.5 | 1.5 | Negligible adverse |
| R_05 | 28 Cotswold Road | 58.1 | 58.5 | 0.4 | Negligible adverse |
| R_06 | 54 Cleveland Road | 60.9 | 62.8 | 1.9 | Negligible adverse |
| R_07 | 6 Sandy Lane West | 63.7 | 65.5 | 1.8 | Negligible adverse |
| R_08 | 31 Howson Road | 52.4 | 53.0 | 0.6 | Negligible adverse |
| R_09 | 84 Northway | 59.0 | 59.4 | 0.4 | Negligible adverse |
| R_10 | 79 Northway | 58.5 | 60.4 | 1.9 | Negligible adverse |
| R_11 | 221 Grasmere | 56.6 | 57.2 | 0.6 | Negligible adverse |
| R_12 | 57 Coldstream Close | 59.6 | 60.4 | 0.8 | Negligible adverse |
| R_13 | 34 Mill Lane | 55.5 | 56.1 | 0.6 | Negligible adverse |
| R_14 | 6 Mill Lane | 62.1 | 62.6 | 0.5 | Negligible adverse |
| R_15 | 55 Mill Lane | 53.4 | 54.0 | 0.6 | Negligible adverse |
| R_16 | 12 Radley Lane | 51.9 | 52.4 | 0.5 | Negligible adverse |
| R_17 | 45 Ballater Drive | 58.2 | 58.7 | 0.5 | Negligible adverse |
| R_18 | 37 Shetland Close | 60.3 | 61.0 | 0.7 | Negligible adverse |
| R_19 | Fairhaven Care Home | 53.6 | 54.2 | 0.6 | Negligible adverse |
| R_20 | 141 Newhaven Road | 64.8 | 65.3 | 0.5 | Negligible adverse |
| R_21 | 21 Windermere Avenue | 54.1 | 54.8 | 0.7 | Negligible adverse |
| R_22 | 126 Capesthorne Road | 60.6 | 60.7 | 0.1 | Negligible adverse |
| R_23 | 136 Poplars Avenue | 64.1 | 65.4 | 1.3 | Negligible adverse |

| Receptor | Address | dB $L_{A10,18h}$ DMOY | dB $L_{A10,18h}$ DMFY | dB $L_{A10,18h}$ Difference | Impact |
|---|---|---|---|---|---|
| R_24 | 713 Winwick Road | 74.1 | 74.6 | 0.5 | Negligible adverse |
| R_25 | 463 Winwick Road | 72.1 | 72.5 | 0.4 | Negligible adverse |
| R_26 | 70 Long Lane | 67.8 | 68.2 | 0.4 | Negligible adverse |
| R_27 | 60 Capesthorne Road | 63.2 | 64.3 | 1.1 | Negligible adverse |
| R_28 | 72 Poplars Avenue | 65.6 | 66.3 | 0.7 | Negligible adverse |
| R_29 | 59 Statham Avenue | 63.3 | 63.5 | 0.2 | Negligible adverse |
| R_30 | 100 Sandy Lane | 63.1 | 64.0 | 0.9 | Negligible adverse |
| R_31 | 323 Greenwood Crescent | 59.1 | 59.3 | 0.2 | Negligible adverse |
| R_32 | 8 Lancaster Close | 62.1 | 62.9 | 0.8 | Negligible adverse |
| R_33 | 39 Fisher Avenue | 60.4 | 62.6 | 2.2 | Negligible adverse |
| R_34 | 22 St Mawgan Court | 66.4 | 66.6 | 0.2 | Negligible adverse |
| R_35 | 14 Orford Green | 65.9 | 66.5 | 0.6 | Negligible adverse |
| R_36 | 61 Mill Lane | 57.4 | 58.1 | 0.7 | Negligible adverse |
| R_37 | Dundee Close | 56.5 | 57.1 | 0.6 | Negligible adverse |
| R_38 | Lavender Barn, Mill Lane | 51.8 | 52.3 | 0.5 | Negligible adverse |

11.6.22 Table 11.17 provides a summary of the data in Table 11.14. It shows that there are 9 receptors with an impact of Minor adverse and 2 receptors with an impact of Moderate adverse. The initial assessment of operational noise significance is a likely significant effect where a Moderate adverse impact is identified.

**Table 11.17: Summary of short-term operational noise assessment**

| Short Term (2022 DMOY vs 2022 DSOY) | | | |
|---|---|---|---|
| Change in Noise Level | | | Daytime |
| | | | Number of dwellings |
| Increase | Negligible | 0.1-0.9 | 16 |
| | Minor | 1.0-2.9 | 9 |
| | Moderate | 3.0-4.9 | 2 |
| | Major | 5.0+ | 0 |
| | | | |
| No Change | | 0 | 1 |

| | | | |
|---|---|---|---|
| | | | |
| Decrease | Negligible | 0.1-0.9 | 7 |
| | Minor | 1.0-2.9 | 2 |
| | Moderate | 3.0-4.9 | 1 |
| | Major | 5+ | 0 |
| Total | | | 38 |

11.6.23 Table 11.18provides a summary of the data in Table 11.14. It shows that there are 4 receptors with an impact of Minor adverse and 0 receptors with an impact of Moderate adverse.

**Table 11.18 Summary of long-term operational noise assessment**

| Long Term (2022 DMOY vs 2037 DSFY) | | | |
|---|---|---|---|
| Change in Noise Level | | | Daytime |
| | | | Number of dwellings |
| Increase | Negligible | 0.1-2.9 | 26 |
| | Minor | 3-4.9 | 4 |
| | Moderate | 5-9.9 | 0 |
| | Major | 10+ | 0 |
| | | | |
| No Change | | 0 | 2 |
| | | | |
| Decrease | Negligible | 0.1-2.9 | 5 |
| | Minor | 3-4.9 | 1 |
| | Moderate | 5-9.9 | 0 |
| | Major | 10+ | 0 |
| Total | | | 38 |

11.6.24 Where the assessment detailed in Table 11.14 indicates a Minor, Moderate or Major magnitude of impact, the final operational significance is determined with reference to local circumstances.

11.6.25 Where a receptor has a Minor impact due to changes in road traffic noise, it is noted that the do-something (DSOY and DSFY) absolute noise levels predicted are below 68dB $L_{A10,18h}$, and therefore below SOAEL. As such the initial assessment of Not Significant will not change.

11.6.26 Two receptors (R_15 and R_38) are exposed to a Moderate Impact in the short term and are therefore initially considered to be Significantly affected by changes in road traffic noise. Both receptors are along Mill Lane, with their rear façades facing the proposed entrance road over land currently used as

playing fields. Considering their local circumstances, it is not appropriate to change this initial assessment.

11.6.27 It is concluded that changes to road traffic noise at two identified receptors will have a **significant adverse effect** in the short term.

11.6.28 In order for the receptors in this area to reduce the change in road traffic noise to a minor or negligible impact, and therefore no longer a significant effect, mitigation will be required.

## 11.7 Mitigation

11.7.1 Where a significant effect has been identified at a receptor, mitigation will be required to reduce the impact as far as possible. This section of the ES chapter describes the possible mitigation to be utilised at the site in order to achieve either the required internal noise levels for new residential dwellings, or reduce the change in noise levels due increased traffic flows on access roads.

**Site Suitability for Residential Development**

11.7.2 An indicative 4 story residential block was modelled at a position close to the M62, representative of the closest residential faced to the noise source. The worst-case façade levels predicted are detailed in Table 11.13. A night time predicted 3rd floor façade level of 67 dB $L_{Aeq,8h}$ would be considered the worst case, requiring façade mitigation of 37 dB to achieve the internal criteria of 30 dB $L_{Aeq,8h}$.

11.7.3 Façade mitigation calculations are detailed in **Appendix N5** and show that internal levels for a typical small bedroom (3m façade length, 21m$^3$ volume and 1.2m$^2$ glazed area) can be achieved using the following example faced element design:

- Glazing – 10/12/6 with Sound Reduction Index (SRI) of 33dB $R_w$+$C_{tr}$
- Ventilation – Acoustic rated trickle ventilation with Level Difference $D_{n,e}$ + $C_{tr}$ of 44 dB
- External Wall – Double leaf 112mm brickwork, 50mm cavity, rigid wall ties with SRI of 48 dB $R_w$+$C_{tr}$
- Roof and Ceiling - Tiles on felt, pitched roof with 270 mm wool on plasterboard ceiling consisting of 2 x 12.5mm plasterboard with SRI of 42 dB $R_w$+$C_{tr}$

11.7.4 Plots closest to the road should be designed to provide appropriate ventilation without a requirement to open windows. This does not mean that windows should be fully sealed and unopenable. It may be required that windows are openable to provide rapid purge ventilation or emergency egress from a building.

11.7.5 Possible ventilation schemes for the development include:

- Acoustic trickle ventilation in window frames using specialist acoustic products (assumed in calculations).
- Through wall ventilation units with acoustic covers, linings and internal structure,
- Positive input ventilation (PIV) from a roof space
- Mechanical ventilation drawing air from a quiet façade

**Operational Phase Traffic**

11.7.6 The receptors where the magnitude of significance was found to be moderate in the short term were those located to the north of the proposed access route into the east of the site over the existing playing fields off Mill Lane, to the north of The Millhouse Pub.

11.7.7 At this location it will not be possible to remove or replace the proposed new traffic noise source and as such the best form of mitigation will be a barrier along the north side of the new road. This should be 2.0 m in height and can be formed of a bund, acoustic fence or a combination of the two. An indicative location is identified on **Figure N10**.

11.7.8 Where a fence is required it is to be constructed from continuous, imperforate material with a minimum mass of 12 kg/$m^2$ and is to extend from the existing ground level, or top of a bund to a minimum height of 2.0 m above the existing ground level. Close-boarded or overlapped timber panelling would also be suitable. Alternatively, a proprietary acoustic fence with a minimum weighted sound reduction index of 25 dB Rw would be appropriate.

11.7.9 Trees and foliage can be used to landscape around the barrier but should not be relied upon for noise mitigation in isolation.

11.7.10 Indicative noise modelling has been undertaken to assess the change in magnitude of impact with the inclusion of a barrier as suggested.

11.7.11 Table 11.19 shows the short-term difference between the do minimum and do something scenarios for the receptors identified experiencing a Moderate Impact.

11.7.12 Difference plots for the mitigated short-term assessment is shown in **Figure N11**.

**Table 11.19: Short Term Assessment (DSOY – DMOY) with and without mitigation**

| Receptor | Address | dB $L_{A10,18h}$ DMOY | dB $L_{A10,18h}$ DSOY | dB $L_{A10,18h}$ Difference | Impact |
|---|---|---|---|---|---|
| Without Mitigation | | | | | |
| R_15 | 55 Mill Lane | 53.4 | 56.4 | 3.0 | Moderate adverse |
| R_38 | Lavender Barn, Mill Lane | 51.8 | 55.8 | 4.0 | Moderate adverse |
| With Mitigation | | | | | |
| R_15 | 55 Mill Lane | 53.4 | 55.1 | 1.7 | Minor adverse |
| R_38 | Lavender Barn, Mill Lane | 51.8 | 54.6 | 2.8 | Minor adverse |

## 11.8 Residual Effects

### Assessment of Existing Noise Sources

11.8.1 Assuming the developers of the site include the appropriate façade mitigation detailed, the internal noise levels will have a Negligible magnitude of impact and the effect of existing noise will be **Not Significant**.

### Assessment of Operational Phase Traffic

11.8.2 The results in Table 11.19 show that the mitigation measures suggested will reduce absolute noise level predicted as part of the with development scenario in the short term (DSOY). The difference compared to the DMOY scenario, will result in a Minor magnitude of impact and the effect of changes in operational traffic noise will be **Not Significant**.

## 11.9 References

**Table 0.20: References**

| Reference | Document |
|---|---|
| 11.1 | ProPG: Planning and Noise, New Residential Development, May 2017 |
| 11.2 | BS8233:2014: Guidance on sound Insulation and noise reduction for buildings |
| 11.3 | Design Manual for Roads and Bridges LA111 Noise and Vibration Rev 0, Nov 2019 |
| 11.4 | Noise Policy Statement for England (NPSE), DEFRA, March 2010 |
| 11.5 | National Planning Policy Framework, MHCLG, February 2019 |
| 11.6 | Planning Practice Guidance – Noise March 2012 |
| 11.7 | World Health Organisation (WHO) document, Guidelines for Community Noise (1999) |
| 11.8 | CRTN, Department of Transport, Welsh Office, 1988 |
| 11.9 | BS5228:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites |
| 11.10 | BS4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound |

## 12.0 AIR QUALITY

This section replaces in entirety the corresponding section of the submitted ES and addendum 1.

### 12.1 Introduction

12.1.1 An assessment of the likely significant effects from emissions to air from, or associated with, the Proposed Development and the potential effects upon relevant receptors has been under-taken by Miller Goodall Ltd.

12.1.2 The potential effects of the Proposed Development on local air quality relate to dust and road traffic associated with construction activities, and emissions from road traffic associated with the operation of the Proposed Development.

12.1.3 This chapter of the Environmental Statement (ES) describes the legislative framework applicable to air quality and how the effects of emissions from road traffic associated with the Proposed Development on air quality have been assessed in relation to such matters as the study area, assessment methodology and significance criteria.

12.1.4 The baseline conditions of the Proposed Development Site (PDS) and adjacent areas that may be affected by the Proposed Development at the time of the assessment are presented along with the results of the assessment. Where appropriate, mitigation measures proposed to reduce or remove any potential impacts, are described. Finally, the likely residual impact of the Proposed Development on air quality is assessed.

12.1.5 Existing local air quality may impact upon future residents of the Proposed Development and thus the suitability of the site itself for residential use is assessed within a separate standalone document which is shown at **ES Volume 9: Appendix AQ1**.

### 12.2 Legislation, Policy and Guidance

12.2.1 This section provides details of the legislation, policy and guidance relevant to the assessment of air quality effects associated with the Proposed Development.

**HMSO, (2010) Air Quality Standards Regulations 2010**

12.2.2 European Union (EU) legislation forms the basis for current UK air quality legislation and policy. The EU Air Quality Framework Directive 96/62/EC (Ref 12.1) on Ambient Air Quality Assessment and Management came into force in September 1996. This is a framework for tackling air quality through European-wide air quality limit values in a series of daughter directives, prescribing how air quality

should be assessed and managed by the Member States. Directive 96/62/EC and the first three daughter objectives were combined to form the new EU Directive 2008/50/EC on Ambient Air Quality and Cleaner Air for Europe (Ref 12.2), which came into force June 2008. The Air Quality Standards Regulations 2010 (Ref 12.3) set out the combined Daughter Directive limit values and interim targets for Member State compliance.

**Ministry of Housing, Communities and Local Government, (HCLG) (February 2019) National Planning Policy Framework (NPPF).**

12.2.3 The NPPF (Ref 12.4) advises that the planning system has three overarching objectives, which are interdependent and need to be pursued in mutually supportive ways (so that opportunities can be taken to secure net gains across each of the different objectives). One of these is an environmental objective which is described as follows in Para 8 c;

> *"to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy."*

12.2.4 At para 170 we are advised that

> *"Planning policies and decisions should contribute to and enhance the natural and local environment by:*
>
> *e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans.*

12.2.5 In direct reference to air quality Para 181 states:

> *"Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan."*

**Planning Practice Guidance – Air Quality**

12.2.6 Planning Practice Guidance (PPG) (Ref 12.5) for the NPPF has been issued in respect of Air Quality. It explains that whether 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 an 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).

12.2.7 When deciding whether air quality is relevant to a planning application, Paragraph 005 of the PPG states that considerations could include whether the development would:

- Significantly affect traffic in the immediate vicinity of the proposed development site or further afield. This could be by generating or increasing traffic congestion; significantly changing traffic volumes, vehicle speed or both; or significantly altering the traffic composition on local roads. Other matters to consider include whether the proposal involves the development of a bus station, coach or lorry park; adds to turnover in a large car park; or result in construction sites that would generate large Heavy Goods Vehicle flows over a period of a year or more;
- Introduce new point sources of air pollution. This could include furnaces which require prior notification to local authorities; or extraction systems (including chimneys) which require approval under pollution control legislation or biomass boilers or biomass-fuelled CHP plant; centralised boilers or CHP plant burning other fuels within or close to an air quality management area or introduce relevant combustion within a Smoke Control Area;
- Expose people to existing sources of air pollutants, for example by building new homes, workplaces or other development in places with poor air quality;
- Give rise to potentially unacceptable impact (such as dust) during construction for nearby sensitive locations; and
- Affect biodiversity.

12.2.8 At Paragraph 006, the PPG goes on to state that where there are concerns about air quality, the local planning authority may want to know about:

- The ‘baseline’ local air quality;
- Whether the proposed development could significantly change air quality during the construction and operational phases; and/or
- Whether there is likely to be a significant increase in the number of people exposed to a problem with air quality, such as when new residential properties are proposed in an area known to experience poor air quality.

12.2.9 The PPG further advises at Paragraph 006 that air quality assessments should be proportionate to the nature and scale of development proposed and the level of concern about air quality, and because of this are likely to be location specific and should be agreed between the local planning authority and applicant before it is commissioned.

**Local Planning Policy**

12.2.10 The development plan for Warrington (Ref 12.6) comprises the local plan core strategy (as quashed) 2014. Policy QE6 – Environmental and Amenity Protection – states that the Council will *"support development which would not lead to adverse impact on the environment or amenity of future occupiers or those currently occupying adjoining or nearby properties or does not have an unacceptable impact on the surrounding area."*

12.211 The Local Plan is the statutory development plan for the whole of the Borough and is used in the determination of planning applications. The Local Plan is currently being developed by WBC with air quality modelling and assessments, linked to traffic data, produced in order to allow a number of scenarios to be evaluated.

12.2.12 The Local Plan will include measures that contribute to improving air quality in Warrington, including:

- Reducing the need to travel
- Supporting the delivery of new strategic and local infrastructure
- Locating development in suitable locations through allocation of land and buffer zones to major roads
- Creating high quality built environments
- Green infrastructure

**Air Quality Action Plan (AQAP)**

12.213 Produced as part of the Council's statutory duties required by the Local Air Quality Management framework, this document (Ref 12.7) outlines the actions WBC will take to improve air quality in Warrington between 2017 and 2022. This action plan replaces the previous action plan which ran from 2008 to 2017, although many of the actions remain in place and are on-going. This plan has been introduced to target improvements in these AQMAs and where possible to deliver wider betterment in levels across the town.

12.214 The AQAP describes the key priorities for Warrington Borough Council as;

- Priority 1 – Reduce traffic volume and improve flows
- Priority 2 - Reduce emissions from HGVs and LGVs
- Priority 3 – Reduce emissions from bus and public transport including taxis
- Priority 4 – Reduce exposure for those who are most vulnerable
- Priority 5 – Ensure that future development is designed to reduce exposure and improve air quality

**WBC (May 2013), Environmental Protection Supplementary Planning Document (SPD)**

12.2.15 This document (Ref 12.8) lays out WBC's approach to dealing with Environmental Protection, including air quality. The SPD advises that the Council will, in relation to air quality,

> *"Consider the relative merit of the application with regard to national and local planning policy. The relative weight given to air quality will depend on the significance of any impact. The Council is committed to reducing air quality levels in places where people live, work and relax and accepts that the National Air Quality Objectives provide the basis for assessing significance as detailed in this document. Any development that would interfere with an Air Quality Action Plan, result in the breach of a relevant objective or create a potential new AQMa will be treated as significant."*

12.2.16 The AQAP for WBC advises that "*The current supplementary planning document (SPD) was produced in 2013 and requires updating to include new guidance.*

**Defra, (2018) Local Air Quality Management Technical Guidance TG(16) (LAQMTG16)**

12.2.17 This technical guidance (Ref 12.9), provided by Defra, is designed to support local authorities in carrying out their duties in relation to local air quality management. It provides guidance on air quality monitoring, and modelling.

**Defra Background Maps**

12.2.18 Air pollution background concentration maps (Ref 12.10) are published by Defra and the Devolved Administrations to assist local authorities in carrying out Review and Assessment of local air quality as part of their duties under the Environment Act 1995.

12.2.19 The main purpose of the background maps is to provide estimates of background concentrations for specific pollutants. These can then be used in air quality assessments to better understand the contribution of local sources to total pollutant concentrations. They provide information on how pollutant concentrations change over time and across a wide area; they also provide an estimated breakdown of the relative sources of pollution. The maps allow for the assessment of new pollutant sources that are introduced into an area and the impact they may have upon local air quality.

12.2.20 The current 2017 reference year background maps were considered within this assessment.

**Defra Air Quality Management Area Maps**

12.2.21 This online resource provided by Defra (Ref 12.11) identifies the locations of air quality management areas declared by local authorities.

**Defra $NO_X$ to $NO_2$ Calculator**

12.2.22 This calculator allows users to derive nitrogen dioxide ($NO_2$) from oxides of nitrogen ($NO_X$) wherever $NO_X$ is predicted by modelling emissions from roads. The calculator can also be used to calculate the road component of $NO_x$ from roadside $NO_2$ diffusion tube measurements. Version v7.1 of the calculator (ref 12.12) was utilised in this assessment.

**IAQM, (2014) Assessment of Dust from Demolition and Construction**

12.2.23 This document (Ref 12.13) provides guidance on how to assess air quality impacts from construction. It provides a method for classifying the significance of effect from construction activities based on the magnitude of dust impact, proximity of the site to the closest receptors and background airborne particles of mean aerodynamic diameter less than ten micrometres ($PM_{10}$) concentrations. It also suggests criteria for the classification of dust classes to be used along with professional judgement. The guidance recommends that once the significance of effect from construction is identified, the appropriate mitigation measures are implemented. From experience, it is noted that once mitigation measures are applied the effects are reduced to negligible levels.

**IAQM, (January 2017) Land Use Planning and Development Control: Planning for Air Quality**

12.2.24 This document (Ref 12.14) provides guidance on how to assess air quality impacts of developments. It is applicable to assessing the effects of changes in exposure of members of the public resulting from residential and mixed-use developments

**WBC (June 2019) 2019 Air Quality Annual Status Report (ASR)**

12.2.25 This document (Ref 12.15) provides information in respect of the review and assessment work completed by WBC in relation to local air quality within its administrative area.

## 12.3 Assessment Methodology

12.3.1 This section of the ES chapter describes how the assessment of the potentially significant effects on air quality has been completed, including describing the study area, modelling completed, and the method of assessing significance.

**Scoping**

12.3.2 Neither CHP plants nor biomass boilers are proposed within the Proposed Development. The dwellings within the Proposed Development will each have heating and hot water, which are likely to be provided by high efficiency condensing combination boilers. A typical boiler will emit less than 5 mg/s of $NO_x$. Consequently, combustion plant emissions are unlikely to have a significant effect on local air quality

12.3.3 The potentially significant effects of the Proposed Development on local air quality, consequently, relate solely to dust emissions associated with the construction phase and road traffic emissions associated with the operational phase. There are no designated nature conservation sites within 200 m of the roads within the study area. Effects on ecology are dealt with in **Chapter 6.0;** this chapter deals with the effects on local air quality.

**The Study Area**

12.3.4 In accordance with IAQM guidance "*Assessment of Dust from Demolition and Construction*" (Ref 12.13) the study area in relation to dust associated with construction activities has been defined as 50m from the routes used by construction vehicles on the public highway, up to 500m from the site entrance, and 350m around the location of construction activities. The extent of the study area in relation to construction activities (dust) is shown in **ES Volume 9: Figure AQ6.**

12.3.5 The extent of the study area in relation to road traffic emissions has been informed by the influence of road traffic associated with the Proposed Development, the location of relevant sensitive receptors and the presence of air quality management areas (AQMAs) around the site. The extent of the study area in relation to operational road traffic emissions is shown in **ES Volume 9: Figure AQ7.**

**Baseline Surveys**

12.3.6 This section describes the desk-based research, field surveys, and consultation undertaken to date to identify the baseline environment in the study areas.

***Desk Based Research***

12.3.7 A review of existing air quality information within the WBC 2019 Air Quality Annual Status Report (Ref 12.15) has been completed. This includes a review of existing levels of pollutants of interest, $NO_2$, $PM_{10}$ and airborne particles of mean aerodynamic diameter less than 2.5 micrometres ($PM_{2.5}$).

12.3.8 The location of areas of known poor air quality (in particular the location of nearby AQMAs) in relation to the study area has been identified using the Department of Environment Food and Rural Affairs (Defra) interactive map (Ref 12.11).

12.3.9 The locations and results of $NO_2$ monitoring using diffusion tubes and automatic monitoring stations around the site for 2018 have also been identified from the ASR 2019 (Ref 12.15). This monitoring is carried out by WBC and monitoring results for the period October 2018 to September 2019 have also been provided by WBC in the form of an Excel spreadsheet (Ref 12.16). The locations of these sites are shown in **ES Volume 9: Figure AQ8**

12.3.10 Background concentrations of $NO_2$ and $PM_{10}$ have been obtained from the Defra background maps (Ref 12.10).

***Field Survey***

12.3.11 Monitoring of existing levels of $NO_2$ has been carried out at seven locations around the Proposed Development since February 2019. The locations of these sites are also shown in **ES Volume 9: Figure AQ8**.

12.3.12 The positioning, installation and collection of diffusion tubes was undertaken by Ground Gas Solutions Ltd. Diffusion tubes were provided and analysed by Gradko Environmental; the same company used by WBC to analyse their diffusion tubes. The tubes were changed in line with suggested exposure periods provided by Defra. Details of the monitoring methodology are provided in **ES Volume 9: Appendix AQ2**,

**Consultation**

12.3.13 Consultation has been completed with Mr Richard Moore within the Environmental Health Department of WBC. **Table 12.1** provides a summary of the consultation activities undertaken in support of the preparation of this Chapter. Copies of relevant correspondence are provided in **ES Volume 9: Appendix AQ3**. Mr Moore's comments have been addressed within the assessments undertaken.

**Table 12.1 – Summary of Consultation with WBC**

| Date | Summary of consultation |
|---|---|
| January 2019 | First exchange of emails between Lesley Goodall and Richard Moore concerning monitoring and modelling of the proposed development. Annualisation and bias adjustment as well as preferred locations of $NO_2$ monitoring discussed.<br>Briefing note re monitoring locations suggested 8 monitoring locations.<br>Other inputs specified, for example meteorological data. |
| February 2019 | Meeting at WBC. Lesley Goodall and Richard Moore present.<br>Scenarios agreed. Also agreed that traffic data would come from WBC Saturn traffic model.<br>Agreed $PM_{2.5}$ to be assessed against the WHO value. |
| March 2019 | Email exchange between Richard Moore and Lesley Goodall.<br>Roads to be included within the model agreed. |
| April 2019 | ES Scoping Opinion sought from WBC in respect of anticipated planning application for the site. Issues scoped in relation to air quality included;<br>• Road traffic network to be assessed;<br>• Assessment scenarios<br>• Source of traffic data;<br>• Traffic speeds;<br>• Emission factors<br>• Background concentrations<br>• Model verification<br>• Topography.;<br>• Significant criteria |
| May 2019 | Response to Scoping Opinion – Extract provided;<br>"*WBC Environmental Protection – The noise and air quality impacts of the project, and potential mitigation, has been the subject of very extensive exploration – latterly as part of formal pre-application discussions with the Council. It is agreed that the cumulative effects in respect of noise and air quality should be scoped into the EIA."* |
| January 2020 | Email exchange between Lesley Goodall and Richard Moore regarding diffusion tube results, annualisation and adjustment and background levels to be used in the ADMS dispersion model. |
| March 2020 | Email exchange between Lesley Goodall and Richard Moore in relation to verification of the ADMS model. Mr Moore advised that he had no issues with the data provided. |

**Significance Criteria**

12.3.14 This section of the chapter describes the methodology which has been used to assess the significance of effects on local air quality. The significance of likely effects arising from the construction and operation of the Proposed Development on air quality has been determined by identifying the magnitude of the impact and the sensitivity of the receptor.

***Significance Criteria - Construction Dust***

12.3.15 The IAQM methodology within the document "*Assessment of Dust from Demolition and Construction*" (Ref 12.13) has been used for assessing dust from construction activities. The assessment procedure is divided into four steps and construction activities were divided into four types, as follows:

- Demolition;
- Earthworks;
- Construction; and
- 'Trackout' of material onto local roads.

12.3.16 At step one the need for a detailed assessment is screened. An assessment is normally required where there are human receptors within 350m of the site boundary and/or within 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s). Ecological receptors within 50m of the site boundary or within 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s), are also identified at this stage.

12.3.17 In step two, the Proposed Development site is allocated to a risk category on the basis of the scale and nature of the works (Step 2A) and the sensitivity of the area to dust impacts (Step 2B). These two factors are combined in Step 2C to determine the risk of dust impacts before the implementation of mitigation measures. The assigned risk categories may be different for each of the construction activities outlined by the IAQM (construction, demolition, earthworks and trackout).

12.3.18 Step three of the assessment identifies appropriate site-specific mitigation. These measures will be related to whether the site is a low, medium or high risk site.

12.3.19 At step four the significance of residual effects is assessed. The aim is to prevent significant effects on receptors through the use of effective mitigation.

12.3.20 The risk category is determined by combining a number of criteria including dust emission magnitude, sensitivity of receptors, sensitivity of the area to dust soiling, sensitivity of the area to human health effects which are described below. **Table 12.2** provides the criteria used in the determination of dust emission magnitude.

**Table 12.2 - Dust Emission Magnitude**

| Activity | Criteria used to Determine Dust Emission Magnitude | | |
|---|---|---|---|
| | Small | Medium | Large |
| Demolition | Total building volume <20,000 $m^3$, construction materials with low potential for dust release. | Total building volume 20,000 $m^3$ – 50,000 $m^3$, potential dusty construction material. | Total building volume >50,000 $m^3$, potentially dusty construction material. |
| Earthworks | Total site area <2,500 $m^2$, soil type with large grain | Total site area 2,500 – 10,000 $m^2$, moderately dusty soil type | Total site area >10,000 $m^2$, potentially dusty soil type |
| Construction | Total building volume <25,000 $m^3$. | Total building volume 25,000 – 100,000 $m^3$. | Total building volume >100,000 $m^3$. |
| Trackout | <10 outward HDV trips in any one day. Unpaved road length <50 m. | 10-50 outward HDV trips in any one day. Unpaved road length 50-100 m. | >50 outward HDV trips in any one day. Unpaved road length >100 m. |

12.3.21 Criteria to identify the sensitivity of receptors and the surrounding area are provided in the IAQM guidance (Ref 12.13), as shown in **Table 12.3**, and have been used within the assessment.

**Table 12.3 - Sensitivity of Receptors**

| Sensitivity of Receptor | Criteria for Determining Sensitivity | | |
|---|---|---|---|
| | Dust Soiling Effects | Health Effects of $PM_{10}$ | Ecological Sites |
| High | Dwellings, museums and other culturally important collections, medium and long-term car parks and car showrooms | Residential properties, hospitals, schools and residential care homes | International or national designation *and* the features may be affected by dust soiling |
| Medium | Parks, places of work | Office and shop workers not occupationally exposed to $PM_{10}$ | Presence of an important plant species where dust sensitivity is uncertain or locations with a national designation with features that may be affected by dust deposition |
| Low | Playing fields, farmland, footpaths, short-term car parks and roads | Public footpaths, playing fields, parks and shopping streets | Local designation where features may be affected by dust deposition |

12.3.22 **Table 12.2** and **Table 12.3** were then used to define the sensitivity of the area to dust soiling and human health effects. This has been derived for each of construction, demolition, earthworks and trackout. **Table 12.4** and **Table 12.5** provide the criteria used to define the sensitivity of the area to dust soiling and human health impacts.

**Table 12.4 - Sensitivity of the Area to Dust Soiling Effects on People and Property.**

| Receptor Sensitivity | Number of Receptors | Distance from Source (m)* | | | |
|---|---|---|---|---|---|
| | | <20 | <50 | <100 | <350 |
| High | >100 | High | High | Medium | Low |
| | 10-100 | High | Medium | Low | Low |
| | 1-10 | Medium | Low | Low | Low |
| Medium | >1 | Medium | Low | Low | Low |
| Low | >1 | Low | Low | Low | Low |

**distances considered are to the dust source*

**Table 12.5 - Sensitivity of the Area to Human Health Impacts**

| Receptor Sensitivity | Annual Mean $PM_{10}$ Concentrations | Number of Receptors | Distance from the Source (m) | | | | |
|---|---|---|---|---|---|---|---|
| | | | <20 | <50 | <100 | <200 | <350 |
| High | >32 µg/m$^{-}$ | >100 | High | High | High | Medium | Low |
| | | 10-100 | High | High | Medium | Low | Low |
| | | 1-10 | High | Medium | Low | Low | Low |
| | 28-32 µg/m$^3$ | >100 | High | High | Medium | Low | Low |
| | | 10-100 | High | Medium | Low | Low | Low |
| | | 1-10 | High | Medium | Low | Low | Low |
| | 24-28 µg/m$^3$ | >100 | High | Medium | Low | Low | Low |
| | | 10-100 | High | Medium | Low | Low | Low |
| | | 1-10 | Medium | Low | Low | Low | Low |
| | <24 µg/m$^3$ | >100 | Medium | Low | Low | Low | Low |
| | | 10-100 | Low | Low | Low | Low | Low |
| | | 1-10 | Low | Low | Low | Low | Low |
| Medium | >32 µg/m$^{-}$ | >10 | High | Medium | Low | Low | Low |
| | | 1-10 | Medium | Low | Low | Low | Low |

| Receptor Sensitivity | Annual Mean $PM_{10}$ Concentrations | Number of Receptors | Distance from the Source (m) | | | | |
|---|---|---|---|---|---|---|---|
| | | | <20 | <50 | <100 | <200 | <350 |
| | 28-32 µg/m$^3$ | >10 | Medium | Low | Low | Low | Low |
| | | 1-10 | Low | Low | Low | Low | Low |
| | 24-28 µg/m$^3$ | >10 | Low | Low | Low | Low | Low |
| | | 1-10 | Low | Low | Low | Low | Low |
| | <24 µg/m$^3$ | >10 | Low | Low | Low | Low | Low |
| | | 1-10 | Low | Low | Low | Low | Low |
| Low | - | >1 | Low | Low | Low | Low | Low |

12.3.23 The dust emission magnitude from **Table 12.2** and sensitivity of the area and receptors (shown in **Tables 12.3, 12.4** and **12.5**) were combined, and the risk of impacts from each activity (demolition, earthworks, construction and trackout) before mitigation is applied, determined using the criteria detailed in **Tables 12.6** to **12.9**.

**Table 12.6 - Risk of Dust Impacts- Demolition**

| Potential Impact Sensitivity of the Area | Dust Emission Magnitude | | |
|---|---|---|---|
| | Large | Medium | Small |
| High | High Risk | Medium Risk | Medium Risk |
| Medium | High Risk | Medium Risk | Low Risk |
| Low | Medium Risk | Low Risk | Negligible |

**Table 12.7 - Risk of Dust Impacts- Earthworks**

| Potential Impact Sensitivity of the Area | Dust Emission Magnitude | | |
|---|---|---|---|
| | Large | Medium | Small |
| High | High Risk | Medium Risk | Low Risk |
| Medium | Medium Risk | Medium Risk | Low Risk |
| Low | Low Risk | Low Risk | Negligible |

**Table 12.8 - Risk of Dust Impacts- Construction**

| Potential Impact Sensitivity of the Area | Dust Emission Magnitude | | |
|---|---|---|---|
| | Large | Medium | Small |
| High | High Risk | Medium Risk | Low Risk |
| Medium | Medium Risk | Medium Risk | Low Risk |
| Low | Low Risk | Low Risk | Negligible |

**Table 12.9 - Risk of Dust Impacts- Trackout**

| Potential Impact Sensitivity of the Area | Dust Emission Magnitude | | |
|---|---|---|---|
| | Large | Medium | Small |
| High | High Risk | Medium Risk | Low Risk |
| Medium | Medium Risk | Low Risk | Negligible |
| Low | Low Risk | Low Risk | Negligible |

12.3.24 **Medium** and **High Risk** activities are defined as **significant** impacts within this assessment.

***Road Traffic Emissions – Air Quality Objectives***

12.3.25 The current air quality standards and objectives are presented in Table 12.10. Pollutant standards relate to ambient pollutant concentrations in air, set on the basis of medical and scientific evidence of how each pollutant affects human health. Pollutant objectives, however, incorporate target dates and averaging periods which take into account economic considerations, practicability and technical feasibility.

**Table 12.10: Air Quality Strategy Objectives (England) for the Purposes of Local Air Quality Management**

| Pollutant | Air Quality Objective | | To be Achieved by |
|---|---|---|---|
| | Concentration | Measured As* | |
| Nitrogen dioxide ($NO_2$) | 200 µg/$m^3$ | 1-hour mean not to be exceeded more than 18 times per year | 31/12/2005 |
| | 40 µg/$m^3$ | Annual mean | 31/12/2005 |
| Particles ($PM_{10}$) | 50 µg/$m^3$ | 24-hour mean not to be exceeded more than 35 per year | 31/12/2004 |
| | 40 µg/$m^3$ | Annual mean | 31/12/2004 |
| Particles ($PM_{2.5}$) | 25 µg/$m^3$ | Annual mean (target) | 2020 |
| | Work towards reducing annual mean emissions/concentrations of fine particulate matter ($PM_{2.5}$) | | |

Note:*how the objectives are to be measured is set out in the UK Air Quality (England) Regulations (2000).

12.3.26 Research carried out on Behalf of Defra identified that exceedances of the 1-hour objective of 200 µg/m3 are unlikely to occur where the annual mean is below 60 µg/$m^3$ (Ref 12.9).

12.3.27 The World Health Organisation has set an annual mean guideline value for $PM_{2.5}$ of 10 µg/$m^3$. The UK government have committed to introducing a target that takes the WHO guideline into consideration.

***Significance Criteria - Road Traffic Emissions***

12.3.28 The impact of road traffic associated with the Proposed Development on local air quality has been assessed using the desk-based computer model Atmospheric Dispersion Modelling System for Roads (ADMS-Roads) v4.1.1.0. The model was used to assess the local air quality impact of development-generated vehicle exhaust emissions, on concentrations of $NO_2$, $PM_{10}$ and $PM_{2.5}$, at selected existing receptors located adjacent to the assessed road network. The location of selected receptors is shown in **ES Volume 9: Figure AQ9**.

12.3.29 ADMS-Roads is a comprehensive tool for investigating air pollution in relation to road networks. The model uses algorithms for the height-dependence of wind speed, turbulence and stability to produce improved predictions. It can predict long-term and short-term concentrations, as well as calculations of percentile concentrations.

12.3.30 ADMS-Roads has been comprehensively validated in a large number of studies by the software manufacturer CERC (Cambridge Environmental Research Consultants). This includes comparisons with data from the UK's Automatic Urban Network (AUN) and specific validation exercises using

standard field, laboratory and numerical data sets. CERC is also involved in European programmes on model harmonisation, and their models have been compared favourably against other EU and US EPA systems.

12.3.31 The technical approach to the modelling was in accordance with the DEFRA publication LAQMTG16 (Ref 12.9). The technical inputs into the model are described in **ES Volume 9: Appendix AQ4**.

12.3.32 The magnitude of effect was calculated at individual receptor locations according to the criteria within the IAQM guidance Land Use Planning and Development Control: Planning for Air Quality (Ref 12.14) as shown in **Table 12.10** which bands the change in concentration of the pollutant to the Air Quality Assessment Level into the following bands; ≤ 1; 2-5; 6-10 and >10 %.

**Table 12.10 - Magnitude of Effect**

| Level of Magnitude - % change in concentration relative to the air quality assessment level | Definition of Magnitude |
|---|---|
| ≤1 | Negligible |
| 2-5 | Low |
| 6-10 | Moderate |
| >10 | High |

12.3.33 The sensitivity of individual receptors is reflected in **Table 12.11** below where impact descriptors increase or decrease in magnitude when compared to long term average concentrations in the assessment year.

**Table 12.11 - Sensitivity of Receptor**

| Long term average Concentration at receptor in assessment year | Sensitivity of Receptor |
|---|---|
| 75% or less of AQAL | Negligible |
| 76-94% of AQAL | Low |
| 95-102% of AQAL | Moderate |
| 103-109% of AQAL | High |

12.3.34 The IAQM guidance (Ref 12.14) provides impact descriptors for individual receptors which take into account the impact magnitude (**Table 12.10**) and the sensitivity of the receiving environment and receptors (**Table 12.11**). The impact descriptors are shown in **Table 12.11**. These impact descriptors will inform the assessment of the overall significance of effect as shown in **Table 12.12**.

**Table 12.12 - Impact descriptors for individual receptors**

| Long term average Concentration at receptor in assessment year (Sensitivity of Receptor) | % Change in concentration relative to Air Quality Assessment Level (AQAL)* (Magnitude of effect) | | | |
|---|---|---|---|---|
| | ≤1 | 2-5 | 6-10 | >10 |
| 75% or less of AQAL | Negligible | Negligible | Slight | Moderate |
| 76-94% of AQAL | Negligible | Slight | Moderate | Moderate |
| 95-102% of AQAL | Slight | Moderate | Moderate | Substantial |
| 103-109% of AQAL | Moderate | Moderate | Substantial | Substantial |
| 110% or more of AQAL | Moderate | Substantial | Substantial | Substantial |

**AQAL = Air Quality Assessment Level, which may be an air quality objective, EU limit or target value, or an Environment Agency 'Environmental Assessment Level (EAL)'*

12.3.35 A positive percentage change in concentration relative to the Air Quality Assessment Level is described as Adverse. A negative percentage change in concentration relative to the Air Quality Assessment Level is described as Beneficial.

12.3.36 The IAQM guidance (Ref 12.14) advises that the overall assessment of significance is to be based on professional judgement. Overall significance of impacts has been determined using professional judgement taking into account such factors as:

- impact descriptors for individual receptors;
- the existing and future air quality in the absence of the Proposed Development;
- the extent of current and future population exposure to the impacts; and
- the influence and validity of any assumptions adopted when undertaking the prediction of impacts.

12.3.37 In this case, after considering the individual receptors, and following IAQM guidance (Ref 12.14), professional judgement has been used to assess the overall air quality impact of the Proposed Development which has been described as either: negligible, slight, moderate, or substantial. Any effect described as **moderate** or **substantial** is considered a **"significant" effect**.

**Duration of Effect**

12.3.38 The duration of effects are reported as short term (0-5 years), medium term (5-15 years) or long term (over 15 years).

**Mitigation Measures Methodology**

12.3.39 The identification of mitigation measures has been undertaken having regard to;

- typical construction dust mitigation measures as detailed in IAQM guidance (Ref 12.13);
- mitigation measures set out in IAQM guidance for development (Ref 12.14); and
- mitigation measures within the WBC SPD document (Ref 12.8).

**Residual Effects Methodology**

12.3.40 Residual effects of the Proposed Development have been identified and assessed using professional judgment taking into account factors such as;

- the existing and future air quality in the absence of the development;
- the extent of current and future population exposure to the impacts; and
- the influence and validity of any assumptions adopted when undertaking the prediction of impacts.

**Limitations and Assumptions**

12.3.41 The assessment is based on the design and operational details available at the time of preparing the ES.

12.3.42 There are a number of limitations and uncertainties associated with modelling of air quality and, where applicable, realistic worst-case scenarios have been assumed (based on professional judgement):

- Modelling simplifies real-world processes into a series of algorithms. For example, it has been assumed that wind conditions measured at Rostherne during the period October 2018 to September 2019 (the period used for verification of the ADMS model) were representative of wind conditions at the Proposed Development Site. This meteorological station is that requested for inclusion by WBC and is the closest station to the site where the required meteorological data for predicting air quality impacts of the Proposed Development are measured on a routine basis. Furthermore, it has been assumed that the subsequent dispersion of emitted pollutants will conform to a Gaussian distribution over flat terrain in order to simplify the real-world dilution and dispersion conditions;
- There is an element of uncertainty in all measured and modelled data used within ADMS; and
- Regarding the aspects of the assessment which do not rely on detailed dispersion modelling, the conclusions of the assessment are reliant on the professional judgement of the consultants involved and the validity of the guidance and tools utilised.

12.3.43 All values presented in this chapter are the best possible estimates using professional judgement. To minimise uncertainty a realistic worst-case approach has been taken whereby;

- In relation to the construction phase dust assessment, all activities were considered to be located close to the boundary of the Proposed Development. In reality, there will be long periods of time when activities are in excess of 350 m from sensitive receptors;

- Within the road traffic assessment;
  - Vehicle emission factors were held at 2019 levels for all assessment scenarios which is unlikely;
  - Background levels of $NO_2$, $PM_{10}$ and $PM_{2.5}$ were held at 2019 levels for all assessment scenarios which is unlikely;
  - Modelling has been completed as if the development will be completed and fully occupied (operational) in 2022 which will not be the case. Full build-out will not be completed for approximately 10 years ie circa 2029, by which time background levels of $NO_2$, $PM_{10}$ and $PM_{2.5}$ and vehicle emission will almost certainly be lower than in 2019.

## 12.4 Baseline Conditions

12.4.1 This section of the ES describes the baseline conditions for 2019 which were obtained at the time of assessment. It then goes on to describe the baseline conditions predicted if the Proposed Development were completed and fully occupied by 2022.

### Baseline Conditions 2019

12.4.2 The Proposed Development is partially located within an AQMA, known as the Motorway AQMA. The AQMA was designated in 2001 in relation to breaches of the annual mean $NO_2$ air quality objective along and adjacent to the M62, M6 and M56 motorways. The Proposed Development is also close to a second AQMA, Warrington AQMA, declared in 2016, also in relation to breaches of the annual mean $NO_2$ air quality objective. This AQMA is focussed around the town centre and the major arterial routes through and around Warrington, including the A59 which runs south from the M62 motorway to the west to the Proposed Development Site. Road traffic associated with the Proposed Development is likely to travel through these AQMAs. The location of these AQMAs and their relationship to the Proposed Development is shown in **ES Volume 9: Figure AQ10**.

### *Defra Background Maps*

12.4.3 The background maps provided by Defra (Ref 12.10) provide predicted background concentrations for $NO_x$, $NO_2$, $PM_{10}$ and $PM_{2.5}$, and the values for 2018 (the most recent year with available monitoring data to compare against) are shown in **Table 12.13**.

**Table 12.13 - Defra Background Levels of Pollutants**

| OS Grid Reference | 2018 | | | |
|---|---|---|---|---|
| | $NO_x$ (µg/m$^3$) | $NO_2$ (µg/m$^3$)) | $PM_{10}$ (µg/m$^3$) | $PM_{2.5}$ (µg/m$^3$) |
| 359500, 389500 | 21.40 | 15.11 | 11.36 | 7.91 |
| 359500, 390500 | 27.70 | 18.69 | 11.21 | 7.81 |
| 359500, 391500 | 27.90 | 19.13 | 12.69 | 8.30 |
| 359500, 392500 | 18.95 | 13.64 | 11.14 | 7.27 |
| 359500, 393500 | 16.79 | 12.23 | 11.66 | 7.29 |
| 360500, 389500 | 25.21 | 17.40 | 11.98 | 8.37 |
| 360500, 390500 | 26.92 | 18.42 | 12.02 | 8.25 |
| 360500,391500 | 31.94 | 21.48 | 13.30 | 8.80 |
| 360500, 392500 | 22.80 | 16.09 | 11.77 | 7.77 |
| 360500, 393500 | 18.27 | 13.22 | 11.67 | 7.42 |
| 361500, 389500 | 23.73 | 16.54 | 12.13 | 8.62 |
| 361500,390500 | 23.54 | 16.46 | 11.81 | 8.29 |
| 361500,391500 | 25.89 | 17.97 | 12.78 | 8.56 |
| 362500,392500 | 24.65 | 17.26 | 13.59 | 8.43 |
| 362500, 393500 | 27.84 | 19.24 | 13.43 | 8.29 |

12.4.4 It can be seen that the Defra predicted $NO_2$, $PM_{10}$ and $PM_{2.5}$ background levels are well below the annual mean objectives for $NO_2$, $PM_{10}$ and below the World Health Organisation annual mean guideline of 10 µg/m$^3$ for $PM_{2.5}$. These predicted levels are averaged across 1km grid squares and so there will be some locations within each particular square kilometre where concentrations are higher and some locations where they are lower than predicted, depending on proximity to sources such as road traffic.

***Local Authority $NO_2$ Monitoring***

12.4.5 The locations of the automatic monitoring station and diffusion tubes used by WBC to monitor $NO_2$ close to the Proposed Development Site are shown in **ES Volume 9: Figure 12.3**. The results from these sites for the calendar years 2014 to 2018 are shown below in **Table 12.14** and **Table 12.15**. The verification values shown in **Table 12.15** are the bias adjusted monthly diffusion tube results from October 2018 to September 2019 provided by Richard Moore at WMBC and provided within an excel spreadsheet (Ref 12.17).

**Table 12.14 - Local Authority Annual Mean $NO_2$ Results - Automatic Monitoring Station**

| Site ID | Type of site | OS Grid reference | Level of nitrogen dioxide (µg/m$^3$) | | | |
|---|---|---|---|---|---|---|
| | | | 2015 | 2016 | 2017 | 2018 |
| CM1 Selby Street | Urban Background | 359151, 388218 | 24.4 | 25 | 21 | 21.4 |

**the annual air quality objective for $NO_2$ is 40 µg/m$^3$*

**Table 12.15 - Local Authority Annual Mean $NO_2$ Results – Diffusion Tubes**

| Site ID | Type of site | OS Grid reference | Level of nitrogen dioxide (µg/m$^3$) | | | | |
|---|---|---|---|---|---|---|---|
| | | | 2015 | 2016 | 2017 | 2018 | Verification values 2018-19 |
| WA123 M62 Radley Lane | Roadside | 361655, 391914 | - | - | - | 29.7 | 25.0 |
| WA95 Winwick Road 1 | Roadside | 360598, 389820 | **39.5** | **39.9** | 34.7 | 32.6 | 32.1 |
| WA96 Winwick Road 2 | Roadside | 360484, 390416 | **47.2** | **50** | **44.2** | **40.3** | 39.3 |
| WA112 Winwick Road 3 | Roadside | 360434, 390968 | **52** | **55** | **49.3** | **43.9** | **41.9** |

*$_2$ is 40 µg/m$^3$*

12.4.6 Monitoring by WBC indicates that annual average levels of $NO_2$ were all above or very close to the annual average objective for $NO_2$ at all of the monitoring locations on the A49 Winwick Road in 2015. Since then, concentrations on Winwick Road appear to be reducing and in 2018 DT44 remained above the objective but DT42 was below the objective and DT43 just above. The results used for verification of the ADMS model (calculated from monitoring results for October 2018 to September 2019) indicate that this trend is continuing, with only DT44 above the objective. The 2019 ASR (Ref 12.15) notes that the presence of the Warrington Intelligent Transport System along the A49 Winwick Road in 2018 and

that initial results show improvements in traffic flows and reduced journey time. This may be now being reflected in air pollutant concentrations close to the road network.

***Applicant $NO_2$ Monitoring***

12.4.7 The locations of diffusion tubes used by the applicant to monitor $NO_2$ close to the Proposed Development Site are shown in **ES Volume 9: Figure 12.3**. The results from these diffusion tubes are shown below in **Table 12.16** along with the unadjusted averages for the whole of the monitoring period . The monitoring results for February 2019 to September 2019 have been annualised and bias-adjusted using the local bias adjustment factor provided by WMBC to provide concentrations for use in verification of the ADMS model. The resulting values are also shown in **Table 12.16**. The calculations in relation to the verification values are shown in **ES Volume 9 Appendix AQ2**.

**Table 12.16 Applicant's Monthly $NO_2$ Results – Diffusion Tubes**

| Site ID | OS Grid reference | Level of nitrogen dioxide (µg/m$^3$) | | | | | | | | | | | | | Verification Values |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 2019 | | | | | | | | | | | 2020 | | |
| | | Feb | March | April | May | June | July | Aug | Sept | Oct | Nov | Dec | Jan | Average | |
| MG1 | 362078, 392005 | 35.14 | 39.25 | 33.92 | 33.46 | 17.87 | 26.84 | - | 33.71 | 37.15 | 39.66 | 31.73 | 40.35 | 33.55 | 33.00 |
| MG2 | 361773, 391849 | 32.7 | 30.45 | 31.89 | - | 23.89 | 20.5 | - | 23.21 | 18.69 | 27.36 | 25.52 | 31.73 | 26.59 | 28.22 |
| MG3 | 362383, 391634 | 38.65 | 25.03 | 32.11 | 25.05 | 26.23 | 20.59 | - | 28.75 | 20.12 | 39.31 | 32.79 | 33.92 | 29.32 | 29.44 |
| MG4 | 361211, 391320 | 32.16 | 24.91 | 24.13 | 16.50 | 22.65 | 20.55 | - | 25.95 | 33.76 | 35.46 | 30.46 | 34.21 | 27.34 | 25.01 |
| MG5 | 360660, 391642 | 34.28 | 31.47 | 28.28 | 18.99 | 23.96 | 22.75 | - | 31.35 | 33.54 | 35.56 | 32.4 | 38.05 | 30.06 | 28.62 |
| MG6 | 360574, 391726 | 28.13 | 17.77 | 23.01 | 20.24 | 19.53 | 20.36 | - | - | 29.4 | 31 | 26.88 | 33.92 | 25.02 | 21.92 |
| MG7 | 360531, 391887 | 32.54 | 41.89 | 31.65 | 28.23 | 31.43 | 28.29 | - | 34.01 | 37.37 | 38.1 | 35.34 | - | 33.88 | 34.18 |

***Local Authority $PM_{10}$ and $PM_{2.5}$ Monitoring***

12.4.8 The location of the automatic monitoring station used by WBC to monitor $PM_{10}$ and $PM_{2.5}$ is also shown in **ES Volume 9: Figure AQ8**. The results from the site for the calendar years 2015 to 2018 are shown in **Table 12.17** and **Table 12.18**.

**Table 12.17 - Local Authority Annual Mean $PM_{10}$ Results**

| Site ID | Type of site | OS Grid reference | Level of $PM_{10}$ (µg/m$^3$) | | | |
|---|---|---|---|---|---|---|
| | | | 2015 | 2016 | 2017 | 2018 |
| CM1 Selby Street | Urban Background | 359151, 388218 | 15 | 16 | 12 | 13** |

**the annual air quality objective for $PM_{10}$ is 40 µg/m$^3$*

*** seasonally corrected due to poor data capture (69.8%)*

12.4.9 Monitoring by WBC indicates that annual average levels of $PM_{10}$ are well below the relevant annual air quality objective and the 2019 ASR (Ref 12.15) states that, since 2009, concentrations of $PM_{10}$ have been reducing at this site.

**Table 12.18 - Local Authority Annual Mean $PM_{2.5}$ Results - Automatic Monitoring Station**

| Site ID | Type of site | OS Grid reference | Level of $PM_{10}$ (µg/m$^3$) | | | |
|---|---|---|---|---|---|---|
| | | | 2015 | 2016 | 2017 | 2018 |
| CM1 Selby Street | Urban Background | 359151, 388218 | 11 | 11 | 10 | 9 |

**WHO annual mean guideline is 10 µg/m$^3$*

12.4.10 Monitoring by WBC indicates that the proposed target level of 25 µg/m$^3$ by 2020 is being met at the monitoring site but the concentration remains close to the guideline level of 10 µg/m$^3$ recommended by the World Health Organisation.

***Summary of Existing Baseline Conditions***

12.4.11 Baseline conditions in relation to $NO_2$ show that annual average levels of the pollutant are high close to busy roadside locations such as the A49. Concentrations of $NO_2$ are reducing along the A49 but remain close to, and in some areas above, the annual mean objective in some areas. In less trafficked locations concentrations of $NO_2$ are below the annual mean objective for $NO_2$.

12.4.12 Annual average levels of $PM_{10}$ and $PM_{2.5}$ are well below the relevant annual air quality objective at the roadside site located at Selby Street. There is no indication of any breaches of the annual mean objective for $PM_{10}$.

12.4.13 In agreement with WBC, average annual levels of $NO_2$, $PM_{10}$ and $PM_{2.5}$ for the period October 2018 to September 2019 from the WBC automatic monitoring site at Selby Street have been utilised as background levels within this assessment.

**Future Baseline Conditions – Operational Phase (2022)**

12.4.14 ADMS has been used to estimate baseline annual $NO_2$, $PM_{10}$ and $PM_{2.5}$ concentrations in 2022.

12.4.15 If the full Proposed Development was operational in 2022, other committed developments will also be in construction and/or completed and therefore the associated traffic flows form part of the future baseline environment of the Study Area and have been incorporated within the traffic data used within the ADMS model.

12.4.16 **Table 12.19** below shows the results of modelling $NO_2$, $PM_{10}$ and $PM_{2.5}$ concentrations at selected existing sensitive receptors for the baseline conditions in 2022. The locations of selected existing receptors are shown in **ES Volume 9: Figure AQ9**.

**Table 12.19 - Predicted Baseline $NO_2$ and $PM_{10}$ Annual Mean Concentrations (µg/m$^3$) in 2022 at Selected Existing Sensitive Receptor Locations**

| Receptor ID and Name | 2022 $NO_2$ (µg/m$^3$) | 2022 $PM_{10}$ (µg/m$^3$) | 2022 $PM_{2.5}$ (µg/m$^3$) |
|---|---|---|---|
| R1 | 37.16 | 18.51 | 11.34 |
| R2 | 34.20 | 18.33 | 11.20 |
| R3 | 36.41 | 19.59 | 11.90 |
| R4 | 24.80 | 17.49 | 10.68 |
| R5 | 24.15 | 17.23 | 10.55 |
| R6 | 23.06 | 17.17 | 10.50 |
| R7 | 24.05 | 17.34 | 10.60 |
| R8 | 25.28 | 17.48 | 10.69 |
| R9 | 25.96 | 17.47 | 10.69 |
| R10 | 28.30 | 17.73 | 10.85 |
| R11 | 24.47 | 17.29 | 10.57 |
| R12 | 25.00 | 17.43 | 10.65 |
| R13 | 25.66 | 17.52 | 10.70 |
| R14 | 26.48 | 17.85 | 10.89 |
| R15 | 26.13 | 17.76 | 10.84 |

| Receptor ID and Name | 2022 $NO_2$ ($\mu g/m^3$) | $PM_{10}$ ($\mu g/m^3$) | $PM_{2.5}$ ($\mu g/m^3$) |
|---|---|---|---|
| R16 | 26.01 | 17.44 | 10.66 |
| R17 | 26.70 | 17.55 | 10.73 |
| R18 | 35.39 | 18.31 | 11.20 |
| R19 | 30.46 | 18.06 | 11.03 |
| R20 | 32.55 | 18.03 | 11.09 |
| R21 | 27.97 | 17.66 | 10.81 |
| R22 | 25.17 | 17.38 | 10.63 |
| R23 | 23.28 | 17.18 | 10.50 |
| R24 | 23.18 | 17.19 | 10.51 |

10.4.17 The results in **Table 12.19** indicate that in 2022 without the development, all these existing sensitive receptors are expected to experience annual mean $NO_2$ and $PM_{10}$ concentrations below the respective annual mean objectives. $PM_{2.5}$ concentrations are expected to be above the WHO annual mean guideline value at each of the selected receptors.

## 12.5 Assessment of Effects

12.5.1 This section of the ES presents the assessments of the likely significant environmental effects that are likely to occur during the construction and operational phase of the Proposed Development and draws a conclusion that uses the significance criteria set out within the methodology. It also presents the 'embedded mitigation' which describes how the Proposed Development has been specifically designed to avoid or to minimise the occurrence of adverse environmental impacts and, where appropriate, to deliver a net benefit.

**Assessment of Construction Phase Effects – Dust**

12.5.2 The site boundary is within 350m of human receptors. In addition, there are human receptors within 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance. Therefore, a detailed assessment of the construction phase of the development on residential receptors has been undertaken. Full details of the assessment are provided in **ES Volume 9: Appendix AQ10**, a summary is provided below.

12.5.3 The scale and nature of works onsite were considered to determine the potential dust emission magnitude for demolition, earthworks and trackout activities as outlined in **Table 12.20**.

**Table 12.20 - Dust Emission Magnitudes for Each Activity**

| Activity | Dust Emission Magnitudes | |
|---|---|---|
| Demolition | Small | Limited demolition is required |
| Earthworks | Large | The site area is > 10,000 $m^2$ |
| Construction | Large | Total building volume is > 10,000 $m^3$ |
| Trackout | Large | There are likely to be >50 HDV outward movements per day |

12.5.4 The sensitivity of the area to dust soiling and human health in each activity is summarised in **Table 12.21.**

**Table 12.21 - Outcome of Defining the Sensitivity of the Area**

| Potential Impact | Sensitivity of the Surrounding Area | | | |
|---|---|---|---|---|
| | Demolition | Earthworks | Construction | Trackout |
| Dust Soiling | High | High | High | High |
| Human Health | Medium | Medium | Medium | Medium |

12.5.5 There are residential dwellings adjacent to the site; the sensitivity of receptors is, therefore, High. A summary of the risks, before mitigation measures are applied, for dust soiling and human health are shown in **Table 12.22**.

**Table 12.22 - Risk of Dust Impacts**

| Potential Impact | Dust Risk | | | |
|---|---|---|---|---|
| | Demolition | Earthworks | Construction | Trackout |
| Dust Soiling | High | High | High | High |
| Human Health | Medium | Medium | Medium | Medium |

**Assessment of Operational Phase Effects – Road Traffic**

12.5.6 Predicted $NO_2$, $PM_{10}$ and $PM_{2.5}$ concentrations for the opening year (2022) 'with development' scenario for selected receptors are detailed in **Table 12.23**. The locations of selected receptors are shown in **ES Volume 9: Figure AQ9**. Predicted concentrations for 'without development' scenario and the predicted change in $NO_2$ and $PM_{10}$ concentrations, as a result of the Proposed Development, are also shown for comparison purposes.

12.5.7 Changes in predicted pollutant concentrations between the 'without development' scenario and the 'with development' scenario for $NO_2$ and $PM_{10}$ were compared to the impact descriptors detailed in EPUK and IAQM guidance and contained within **Table 12.12** above.

**Table 12.23 - Dispersion Modelling Results and Impact Descriptors for the Opening Year (2022)**

| Receptor name | Difference in opening year without and with development | Annual average NO2 (µg/m$^3$) | Significance | Annual average PM10 (µg/m$^3$) | Significance | Annual average PM2.5 with Development (µg/m$^3$) |
|---|---|---|---|---|---|---|
| R1 | Without Development | 37.16 | Negligible | 18.51 | Negligible | 11.35 |
| | With Development | 37.46 | | 18.54 | | |
| | % Change relative to AQAL & (Impact) | 0.75(+0.3) | | 0.06(+0.03) | | |
| | % of AQAL with Development | 94 | | 46 | | |
| R2 | Without Development | 34.20 | Slight | 18.33 | Negligible | 11.27 |
| | With Development | 35.10 | | 18.45 | | |
| | % Change relative to AQAL & (Impact) | 2.25(+0.9) | | 0.3(+0.12) | | |
| | % of AQAL with Development | 88 | | 46 | | |
| R3 | Without Development | 36.41 | Negligible | 19.59 | Negligible | 11.92 |
| | With Development | 36.58 | | 19.62 | | |
| | % Change relative to AQAL & (Impact) | 0.43(+0.17) | | 0.08(+0.03) | | |
| | % of AQAL with Development | 91 | | 49 | | |
| R4 | Without Development | 24.80 | Negligible | 17.49 | Negligible | 10.77 |
| | With Development | 26.23 | | 17.63 | | |
| | % Change relative to AQAL & (Impact) | 3.58(+1.43) | | 0.36(+0.14) | | |
| | % of AQAL with Development | 66 | | 44 | | |
| R5 | Without Development | 24.15 | Negligible | 17.23 | Negligible | 10.57 |
| | With Development | 24.34 | | 17.26 | | |
| | % Change relative to AQAL & (Impact) | 0.48(+0.19) | | 0.08(+0.03)10.52 | | |
| | % of AQAL with Development | 61 | | 43 | | |
| R6 | Without Development | 23.06 | Negligible | 17.17 | Negligible | 10.52 |

| Receptor name | Difference in opening year without and with development | Annual average NO2 (µg/m$^3$) | Significance | Annual average PM10 (µg/m$^3$) | Significance | Annual average PM2.5 with Development (µg/m$^3$) |
|---|---|---|---|---|---|---|
| | With Development | 23.33 | | 17.21 | | |
| | % Change relative to AQAL & (Impact) | 0.67(+0.27) | | 0.1(+0.04) | | |
| | % of AQAL with Development | 58 | | 43 | | |
| R7 | Without Development | 24.05 | Negligible | 17.34 | Negligible | 10.67 |
| | With Development | 24.88 | | 17.46 | | |
| | % Change relative to AQAL & (Impact) | 2.08(+0.83) | | 0.28(+0.11) | | |
| | % of AQAL with Development | 62 | | 44 | | |
| R8 | Without Development | 25.28 | Negligible | 17.48 | Negligible | 10.75 |
| | With Development | 26.06 | | 17.59 | | |
| | % Change relative to AQAL & (Impact) | 1.95(+0.78) | | 0.26(+0.11) | | |
| | % of AQAL with Development | 65 | | 44 | | |
| R9 | Without Development | 25.96 | Negligible | 17.47 | Negligible | 10.71 |
| | With Development | 26.18 | | 17.50 | | |
| | % Change relative to AQAL & (Impact) | 0.55(+0.22) | | 0.08(+0.03) | | |
| | % of AQAL with Development | 65 | | 44 | | |
| R10 | Without Development | 28.30 | Negligible | 17.73 | Negligible | 10.87 |
| | With Development | 28.54 | | 17.76 | | |
| | % Change relative to AQAL & (Impact) | 0.6(+0.24) | | 0.08(+0.03) | | |
| | % of AQAL with Development | 71 | | 44 | | |
| R11 | Without Development | 24.47 | Negligible | 17.29 | Negligible | 10.62 |
| | With Development | 25.13 | | 17.38 | | |
| | % Change relative to AQAL & (Impact) | 1.65(+0.66) | | 0.24(+0.09) | | |
| | % of AQAL with Development | 63 | | 43 | | |

| Receptor name | Difference in opening year without and with development | Annual average NO2 (µg/m$^3$) | Significance | Annual average PM10 (µg/m$^3$) | Significance | Annual average PM2.5 with Development (µg/m$^3$) |
|---|---|---|---|---|---|---|
| R12 | Without Development | 25.00 | Negligible | 17.43 | Negligible | 10.77 |
| | With Development | 26.43 | | 17.63 | | |
| | % Change relative to AQAL & (Impact) | 3.58(+1.43) | | 0.5(+0.2) | | |
| | % of AQAL with Development | 66 | | 44 | | |
| R13 | Without Development | 25.66 | Negligible | 17.52 | Negligible | 10.79 |
| | With Development | 26.75 | | 17.67 | | |
| | % Change relative to AQAL & (Impact) | 2.73(+1.09) | | 0.36(+0.15)1 | | |
| | % of AQAL with Development | 67 | | 44 | | |
| R14 | Without Development | 26.48 | Negligible | 17.85 | Negligible | 10.92 |
| | With Development | 26.76 | | 17.91 | | |
| | % Change relative to AQAL & (Impact) | 0.7(+0.28) | | 0.14(+0.06) | | |
| | % of AQAL with Development | 67 | | 45 | | |
| R15 | Without Development | 26.13 | Negligible | 17.76 | Negligible | 10.86 |
| | With Development | 26.40 | | 17.80 | | |
| | % Change relative to AQAL & (Impact) | 0.67(+0.27) | | 0.09(+0.04) | | |
| | % of AQAL with Development | 66 | | 45 | | |
| R16 | Without Development | 26.01 | Negligible | 17.44 | Negligible | 10.69 |
| | With Development | 26.37 | | 17.48 | | |
| | % Change relative to AQAL & (Impact) | 0.9(+0.36) | | 0.12(+0.04) | | |
| | % of AQAL with Development | 66 | | 44 | | |
| R17 | Without Development | 26.70 | Negligible | 17.55 | Negligible | 10.78 |
| | With Development | 27.35 | | 17.65 | | |
| | % Change relative to AQAL & (Impact) | 1.63(+0.65) | | 0.23(+0.09) | | |

| Receptor name | Difference in opening year without and with development | Annual average NO2 (µg/m$^3$) | Significance | Annual average PM10 (µg/m$^3$) | Significance | Annual average PM2.5 with Development (µg/m$^3$) |
|---|---|---|---|---|---|---|
| | % of AQAL with Development | 68 | | 44 | | |
| R18 | Without Development | 35.39 | Negligible | 18.31 | Negligible | 11.22 |
| | With Development | 35.70 | | 18.3511.03 | | |
| | % Change relative to AQAL & (Impact) | 0.78(+0.31) | | 0.1(+0.04) | | |
| | % of AQAL with Development | 89 | | 46 | | |
| R19 | Without Development | 30.46 | Negligible | 18.06 | Negligible | 11.07 |
| | With Development | 30.84 | | 18.11 | | |
| | % Change relative to AQAL & (Impact) | 0.95(+0.38) | | 0.13(+0.05) | | |
| | % of AQAL with Development | 77 | | 45 | | |
| R20 | Without Development | 32.55 | Negligible | 18.03 | Negligible | 11.10 |
| | With Development | 32.62 | | 18.04 | | |
| | % Change relative to AQAL & (Impact) | 0.18(+0.07) | | 0.02(+0.01) | | |
| | % of AQAL with Development | 82 | | 45 | | |
| R21 | Without Development | 27.97 | Negligible | 17.66 | Negligible | 10.82 |
| | With Development | 28.08 | | 17.67 | | |
| | % Change relative to AQAL & (Impact) | 0.27(+0.11) | | 0.03(+0.01) | | |
| | % of AQAL with Development | 70 | | 44 | | |
| R22 | Without Development | 25.17 | Negligible | 17.38 | Negligible | 10.66 |
| | With Development | 25.48 | | 17.43 | | |
| | % Change relative to AQAL & (Impact) | 0.77(+0.31) | | 0.12(+0.05) | | |
| | % of AQAL with Development | 64 | | 44 | | |
| R23 | Without Development | 23.28 | Negligible | 17.18 | Negligible | 10.57 |
| | With Development | 24.18 | | 17.30 | | |

| Receptor name | Difference in opening year without and with development | Annual average NO2 ($\mu g/m^3$) | Significance | Annual average PM10 ($\mu g/m^3$) | Significance | Annual average PM2.5 with Development ($\mu g/m^3$) |
|---|---|---|---|---|---|---|
| | % Change relative to AQAL & (Impact) | 2.25(+0.9) | | 0.29(+0.12) | | |
| | % of AQAL with Development | 60 | | 43 | | |
| R24 | Without Development | 23.18 | Negligible | 17.19 | Negligible | 10.55 |
| | With Development | 23.70 | | 17.27 | | |
| | % Change relative to AQAL & (Impact) | 1.3(+0.52) | | 0.19(+0.07) | | |
| | % of AQAL with Development | 59 | | 43 | | |
| **AQAL: Annual Mean $NO_2$ & $PM_{10}$ Air Quality Objective ($\mu g/m^3$)** | | | | **40** | | |

12.5.8 The results of the ADMS modelling assessment for road traffic in 2022 indicate that annual mean concentrations of $NO_2$ and $PM_{10}$ and would be below the respective annual air quality objectives in 2022, at all of the selected existing sensitive receptor locations within the study area, both 'with' and 'without' the Proposed Development.

12.5.9 In accordance with Defra guidance (Ref 12.9), it can be concluded that exceedances of the 1-hour mean objective for $NO_2$ are unlikely at any of the selected receptors as the predicted annual mean concentrations are less than 60 µg/$m^3$.

12.5.10 To further assess the impact of the development, contour plots of pollutant levels in 2022 with and without the full development in place and no fall in background levels or vehicle emissions have been produced. The results of the modelling of these $NO_2$ concentrations are shown in the contour plots in **ES Volume 9: Figure AQ11** and **ES Volume 9: Figure AQ12**. Concentrations of $PM_{10}$ are shown in **ES Volume 9: Figure AQ13** and **ES Volume 9: Figure AQ14** respectively**.** Concentrations of $PM_{2.5}$ across the study area with the full development in place are shown in **ES Volume 9: Figure AQ15**.

12.5.11 The contour plots indicate that there are no significant areas of new exposure to levels of $NO_2$ or $PM_{10}$ above the relevant air quality objectives. The difference between the "without development" and the "with development" contour plots. pollution concentrations are barely perceptible except at the roundabout junction of Poplars Avenue and Capesthorne Road.

12.5.12 The road traffic associated with the development is expected to have a **Negligible** effect on all of the selected receptors except R2 which is predicted to experience a **Slight** effect. Slight effects are not considered to be significant.

**Summary**

12.5.13 When considering the conservative nature of this assessment, the predicted levels of $NO_2$ and $PM_{10}$, the magnitude of the impacts and the effect of road traffic associated with the Proposed Development is considered to be **Not Significant** in relation to the annual mean objectives at existing receptor locations.

**Assessment of Significant Cumulative Effects**

***Inter-Project cumulative effects***

12.5.14 With regard to the consideration of inter-project cumulative effects, regard has been had to the potential for the Proposed Development to give rise to likely effects in combination with the committed developments, shown in **Table 12.24**.

**Table 12.24 - Developments Considered within Assessment**

| Scheme | Planning Application Reference | Description |
|---|---|---|
| J9 Retail Park | 2016/29425 | Full Planning (Major) - Change of use of two existing units to retail (Use Class A1) and installation of mezzanine floors. Detailed consent for the completion of three retail units and the construction of three new retail units (Use Class A1). Works to include associated parking, servicing and access works to Hawleys Lane and A49 |
| Parkside Phase 1 | 2018/32247 | Adjoining Authority Consultation: Outline application (all matters reserved except for access) for the construction of up to 92,900 m2 of employment floorspace (Use Class B8 with ancillary B1(a)) and associated servicing and infrastructure including car parking; vehicle and pedestrian circulation space; alteration of existing access road including works to existing A49 junction; noise mitigation; earthworks to create development platforms and bunds; landscaping including buffers; works to existing spoil heap; creation of drainage features; substations and ecological works |
| Birchwood Park | 2015/26044 | Outline planning application: Demolition of some existing buildings and erection of new buildings for a combination of offices (B1); light and general industrial (B1/B2); warehousing development (B8) and ancillary retail/ financial & professional services/ non-residential institutions/ assembly and leisure (A1/A2/D1/D2) floor space. |

12.5.15 In particular, the traffic information provided by Highgate Transport Ltd (the Transport consultant for the Proposed Development) takes account of traffic flows associated with these developments and, thus, so does the air quality assessment.

12.5.16 The cumulative effects of construction dust associated with these developments have been considered. IAQM guidance (Ref 12.13) recommends that regular meetings be held with other high-risk construction sites within 500m of the site boundary to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. In particular, the guidance advises that it is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.

***Intra- project cumulative effects***

12.5.17 The impacts of traffic associated with the Proposed Development have been included within the assessment as a direct impact on air quality. Any impacts of the Proposed Development on ecology in relation to ecological receptors have been considered in the relevant assessments.

## 12.6 Mitigation of Effects

12.6.1 This section of the ES describes how the significant effects identified in each of the assessment scenarios above will be mitigated to reduce the effect to a not significant level. The mitigation measures are also applicable to not significant adverse impacts as part of good practice management.

**Embedded Mitigation**

12.6.2 The following measures have been included as integral parts of the design of the Proposed Development;

- Draft travel plan;
- Infrastructure to promote sustainable modes of transport to the Poplars Avenue area such as cycling and walking; and
- A range of highways improvements designed to improve traffic flows. Off-site mitigation measures from the previous public enquiry included improvements to the A50/Hilden Road roundabout and improvements to Sandy Lane West arm of the A49 Cromwell Ave junction. These measures are under review and others are being considered including; parking and traffic calming measures on Poplars Avenue; provision of bus services within the Proposed Development via diversion of existing buses; widening and improvements to the A49 Golborne Road junction. And a contribution to the upgraded MOVA at the A49 / A50 junction.

**Construction Phase – Dust Emissions**

12.6.3 The construction phase assessments identify the potential dust impact significance of dust emissions associated with the Proposed Development. These impacts are medium term i.e. last five to fifteen years.

12.6.4 Using the methodology described in the IAQM Guidance (Ref 12.13), appropriate site-specific mitigation measures associated with the determined level of risk can be defined. Mitigation measures are divided into general measures applicable to all sites and measures applicable specifically to earthworks, construction and trackout. They are categorised into “highly recommended” and “desirable” measures and are a combination of physical and management measures. These are all measures which will be included within the CEMP for the Proposed Development, which will be prepared and implemented pursuant to a planning condition.

12.6.5 The highly recommended and desirable construction dust mitigation measures arising out of this assessment which will be implemented are detailed in **Table 12.25**.

**Table 12.25 Highly Recommended Construction Phase Mitigation Measures**

| *General Measures* |
|---|
| ***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. |
| Develop and implement a Dust Management Plan (DMP). |
| ***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 offsite, and the action taken to resolve the situation in the log book. |
| Hold regular liaison meetings with other high risk construction sites within 500 m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/ deliveries which might be using the same strategic road network routes. |
| ***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 checks of surfaces such as street furniture, cars and window sills within 100 m of 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. |
| If requested by the Local Authority: Agree dust deposition, dust flux, or real-time $PM_{10}$ continuous monitoring locations with the Local Authority; where possible commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction. |
| **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 actives for an extensive period. |
| Avoid site runoff of water or mud. |

| |
|---|
| Keep site fencing, barriers and scaffolding clean using wet methods. |
| 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 on-site cover as described below. |
| Cover, seed or fence stockpiles to prevent wind whipping. |
| **Operating vehicle/machinery and sustainable travel** |
| Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone and the London NRMM standards, where applicable. |
| 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 15 mph 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 appropriate). |
| 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). |
| ***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. |
| Minimise 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. |
| ***Waste management*** |
| Avoid bonfires and burning of waste materials. |

| *Demolition Measures* |
|---|
| Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust). |
| Ensure effective water suppression is used during demolition operations. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground. |
| Avoid explosive blasting, using appropriate manual or mechanical alternatives. |

| |
|---|
| Bag and remove any biological debris or damp down such material before demolition. |

| *Earthworks* |
|---|
| 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. |

| *Construction Measures* |
|---|
| Avoid scabbling (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. |

| **Trackout Measures** |
|---|
| 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 continuously in use. |
| Avoid dry sweeping of large areas. |
| Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport. |
| Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable |
| Record all inspections of haul routes and any subsequent action in a site log book. |
| Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned. |
| Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable). |
| 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. |
| Access gates to be located at least 10 m from receptors where possible. |

**Operational Phase – Road Traffic Emissions**

12.6.6 The assessment of the impact of emissions from road traffic associated with the Proposed Development predicts no significant impacts on local air quality. It is recognised that national guidance and local authority policies adopted by WBC indicates that mitigation in respect of air quality is required (Ref 12.14 and Ref 12.8). As this is an outline application, these matters can be dealt with at reserved

matters stage but it is anticipated that electric vehicle charging will be provided on-site at communal parking areas and that some homes will also be provided with electric vehicle charging points. The level of this provision is to be agreed with WBC.

## 12.7 Residual Impacts

12.7.1 Significant impacts have been identified in relation to construction dust. However, guidance from the IAQM Assessment of Dust from Demolition and Construction (Ref 12.13) is that, with appropriate mitigation in place, the impacts of construction dust will not be significant. With the recommended mitigation measures in place, the residual effects are considered to be negligible during the construction phase of the Proposed Development, and therefore the residual impact of construction dust is **Not Significant**.

12.7.2 No significant impacts associated with road traffic in relation to the operational phase of the Proposed Development have been identified. The residual effects of road traffic associated with the proposed development are, therefore, considered to be negligible.

## 12.8 Conclusions

12.8.1 The potential effects of construction traffic and combustion sources associated with the proposed development have been scoped out of this assessment. The evaluation of key potential impacts has shown that, providing suitable precautions are made in the planning and execution of the construction phase of the development, significant impacts on local air quality can be avoided. The assessment has also shown that any increases in pollutant concentrations as a consequence of road traffic associated with the proposed development will be considered to be “negligible” and therefore would not be considered to be significant.

**References**


| | |
|---|---|
| Ref 12.1 | European Parliament (1996), *Council Directive 96/62/EC on Ambient Air Quality Assessment and Management* |
| Ref 12.2 | European Parliament (2008), *Council Directive 2008/50/EC on Ambient Air Quality and Cleaner Air for Europe* |
| Ref 12.3 | HMSO, (2010) *Air Quality Standards Regulations 2010* |
| Ref 12.4 | Ministry of Housing, Communities and Local Government (MHCLG), (July 2018) *National Planning Policy Framework* |
| Ref 12.5 | DCLG, (Updated March 2014) Planning Practice Guidance – Air Quality see: http://planningguidance.communities.gov.uk/blog/guidance/air-quality/ |
| Ref 12.6 | WBC (2014) *Local Core Strategy Document 2014* |
| Ref 12.7 | WBC (February 2018) *Air Quality Action Plan 2017-2022* |
| Ref 12.8 | WBC (May 2013), Supplementary Planning Document |
| Ref 12.9 | Defra, (2018) *Local Air Quality Management Technical Guidance TG(16)* |
| Ref 12.10 | Defra (2019) online support tool *Background pollution concentrations* see: http://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html |
| Ref 12.11 | Defra online tool *Air Quality Management Areas interactive map* see: https://uk-air.defra.gov.uk/aqma/maps |
| Ref 12.12 | Defra $NO_X$ to $NO_2$ Calculator https://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html#NOxNO2calc |
| Ref 12.13 | IAQM, (2014) *Assessment of Dust from Demolition and Construction* |
| Ref 12.14 | IAQM, (January 2017) Land Use Planning and *Development Control: Planning for Air Quality* |
| Ref 12.15 | WBC (September 2019) 2019 Air Quality Annual Status Report |
| Ref 12.16 | WBC Diffusion Tube Monitoring Results Spreadsheet |

# 13.0 SOCIO-ECONOMIC ASSESSMENT

### Introduction

13.1 This section of the Environmental Statement remains unchanged (paragraphs 13.1.1-13.1.5).

13.2 Since the preparation of the July 2016 socio-economic chapter of the Environmental Statement [ES] and the subsequent Addendum 1 in January 2018, the scheme has evolved further, and the current description of development suggests a different magnitude of floorspace than was originally modelled. From the current description of development, this Chapter updates the socio-economic impacts where necessary.

13.3 The description of development is as follows:

> *"Major Development: Outline planning application for a new mixed use neighbourhood comprising residential institution (residential care home - Use Class C2); up to 1,200 dwelling houses and apartments (Use Class C3); local centre including food store up to 2000 square metres (Use Class A1); financial & professional services; restaurants and cafes; drinking establishments; hot food takeaways (Use Classes A2-A5 inclusive); units within Use Class D1 (no- residential institution) of up to 600 sq m total with no single unit of more than 200 sqm; and family restaurant/ pub of up to 800 sq m (Use Classes A3/A4); primary school; open space including sports pitches with ancillary facilities; means of access (including the demolition of 344; 346; 348; 458 and 460 Poplars Avenue) and supporting infrastructure."*

**Planning Policy**

**National Planning Policy**

13.4 The 2019 Framework sets out the Government's economic, environmental and social planning policies for England. The Framework [§7] states that the purpose of the planning system is to contribute to the achievement of sustainable development. It states in paragraph 8 that achieving sustainable development means that the planning system has three over-arching objectives, which are interdependent and need to be pursued in mutually supportive ways: economic, social and environmental. The economic objective is to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure. Paragraph 11 requires plans to positively seek opportunities to meet the development needs of their area and be sufficiently flexible to adapt to rapid change.

13.5 The widely-cited line that the planning system should do, "*everything it can to support sustainable economic growth*" has been removed from the 2019 version of the Framework, but the general direction remains clear:

> "*Significant weight should be placed on the need to support economic growth and productivity, taking into account local business needs and wider opportunities for development*." [§80]

13.6 The revised Framework prioritises the delivery of new homes in order to address the current national housing crisis:

> *"To support the Government's objective of significantly boosting the supply of homes, it is important that a sufficient amount and variety of land can come forward where it is needed, that the needs of groups with specific housing requirements are addressed and that land with permission is developed without unnecessary delay."* [§59]

**Warrington Core Strategy**

13.7 This section of the Environmental Statement remains unchanged (paragraphs 13.2.4-13.2.5).

13.8 As part of the formulation of the evidence base for the new Local Plan, the Council has reviewed its LHN using the standard methodology and alternative, employment-led, approaches.

13.9 Following consultation on the Draft Local Plan (Proposed Submission Version) in 2019, the Council is currently reviewing the responses and carrying out additional work to respond to the issues raised. According to the Council's website, submission of the Warrington Local Plan for its examination will be delayed until later in 2020, although given the number of representations made on the Draft Local Plan it is considered that this timeframe remains challenging and an Examination in Spring 2021 is more likely.

**Assessment Methodology & Significance Criteria**

13.10 This section of the Environmental Statement remains unchanged.

**Baseline Conditions**

**Economic Characteristics**

**Introduction**

13.11 This section of the Environmental Statement remains unchanged (paragraph 13.4.1).

**Economic Characteristics**
**Economic, Employment and Labour Market Factors**

13.12 The key economic features and trends within Warrington have been reviewed to provide a context in which any socio-economic impacts of the proposed development can be assessed. This local authority area represents the wider impact area for the scheme in economic terms. The key points of this review are summarised below:

1 The resident population within Warrington Borough grew from 191,080 to 202,228 between the 2001 and 2011 Censuses, equating to a 5.8% rise. This is higher than the regional average (4.8%) but lower than the national average (7.9%). The current population of Warrington is 209,547[1]. According to the 2016-based Sub-National Population Projections, the population is set to increase to 219,488 by 2027, the end of the adopted Plan period. This equates to an 8.5% increase on the 2011 Census figure.

2 The number of employee jobs in Warrington Borough equated to around 135,100 jobs in 2018, representing an increase of 14.2% since 2009. This rate of increase in employee jobs was greater than both the North West (10.5%) and England & Wales as a whole (12.4%)[2].

3 Warrington's job density, (the ratio of total jobs to population aged 16-64, often used as a measure of labour demand), as of 2018 was 1.14, higher than both the regional figure of 0.84 and the national figure of 0.86.

4 The largest sectors of employment in Warrington are: Professional, Scientific and Technical (17.2%); Business administration and Support Services (14.2%); Health (9.7%) and Retail (8.9%). The proportion of workforce jobs attributed to each of these sectors, relative to the North West and the UK, is significantly higher in Professional, Scientific and Technical, and Business Administration and Support Services, whilst slightly lower in Health and Retail[3].

5 The number of businesses created in the wider impact area of Warrington Borough increased by 56% between 2010 and 2019, higher than the regional (30%) and national rates of change (31%)[4].

6 Unemployment levels in Warrington, based on the modelled rate derived from the Annual Population Survey, suggest that the Borough's current unemployment rates is 3.4%, which is lower than the regional and national (both 3.9%) levels)[5].

7 The economic activity rate in Warrington Borough (as a percentage of the total population) equated to 79.7% in September 2018. This compares favourably with the economic activity rates of 77.4% across the region and 78.9% across the country as a whole[6].

[1] ONS 2018 Mid-Year Population Estimates (2019)
[2] ONS Business Register and Employment Survey [BRES] (2019)
[3] ONS Business Register and Employment Survey [BRES] (2019)
[4] ONS UK Business Counts (2019)
[5] ONS annual population survey (Oct 2018-Sept 2019)
[6] ONS annual population survey (Oct 2018-Sept 2019)

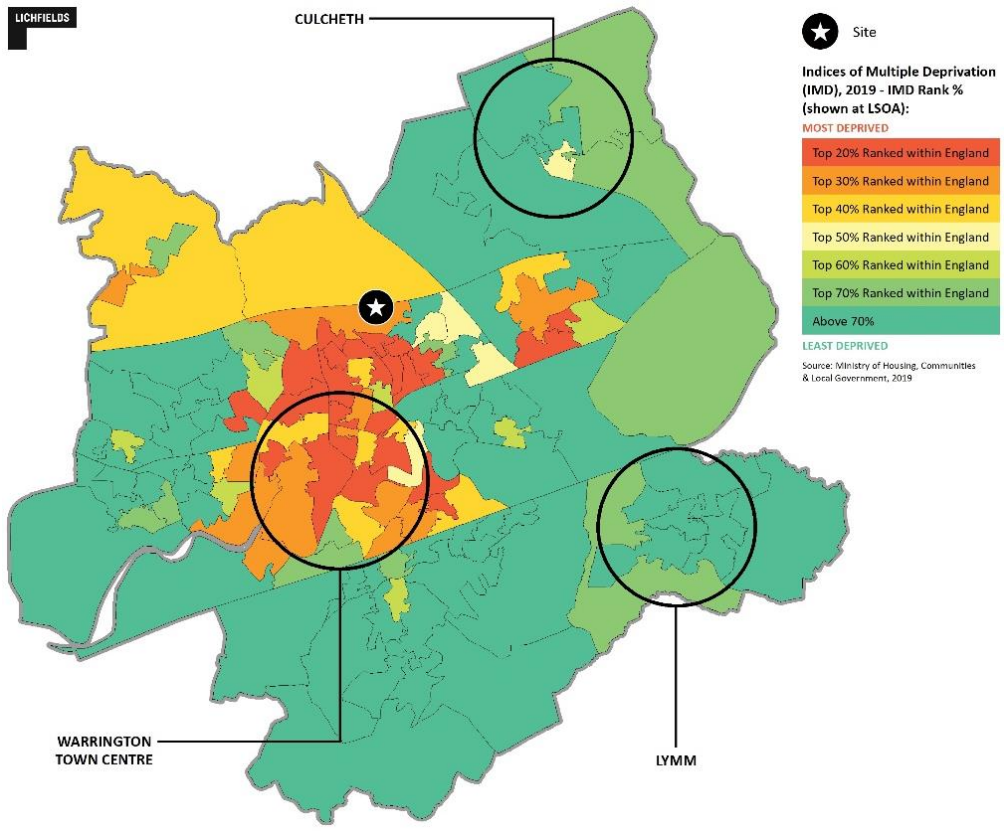
8 The median gross weekly earnings by workplace in Warrington Borough were £549 in 2019, lower than the North West (£550) and the UK (£587) averages. The median gross weekly earnings by residence were slightly higher in the Borough however, at £596, comparing well with both the regional and national averages (£556 and £587 respectively)[7].

9 House price affordability is a key issue in the Borough. The median house price in Warrington (as of 2019) was £180,000, compared to the national average of £239,000. The ratio of median house prices to incomes in Warrington in 2019 is 5.86 – higher than neighbouring authorities of St Helens (5.10), Wigan (5.00) or Halton (5.09), although lower than the national average (7.83)[8].

**Deprivation**

13.13 The English Indices of Deprivation [IMD] 2019 provides a measure of multiple deprivation at the small-area level, based on indicators such as income, employment, health, education and crime. Of the 326 local authorities in England, Warrington is ranked 175th. As can be seen in Figure 13.3, the MSOA in which the Peel Hall site is located is a deprived area, whilst in and around Warrington town centre there are highly deprived areas. Other parts of the local impact area and the Borough as a whole on the other hand, contain some of the least deprived areas in the country.

Figure 13.3 2019 Deprivation Map of Warrington Borough




Source: Indices of Multiple Deprivation 2019 / Lichfields analysis

[7] ONS annual survey of hours and earnings 2019
[8] ONS (2019): Ratio of median house price to median gross annual residence-based earnings by country and region, England and Wales, 2002 to 2018

**Commuting**

13.14 This section of the Environmental Statement remains unchanged (paragraph 13.4.4 and Figure 13.4).

**Other Socio-Economic Factors**
**Housing Provision**

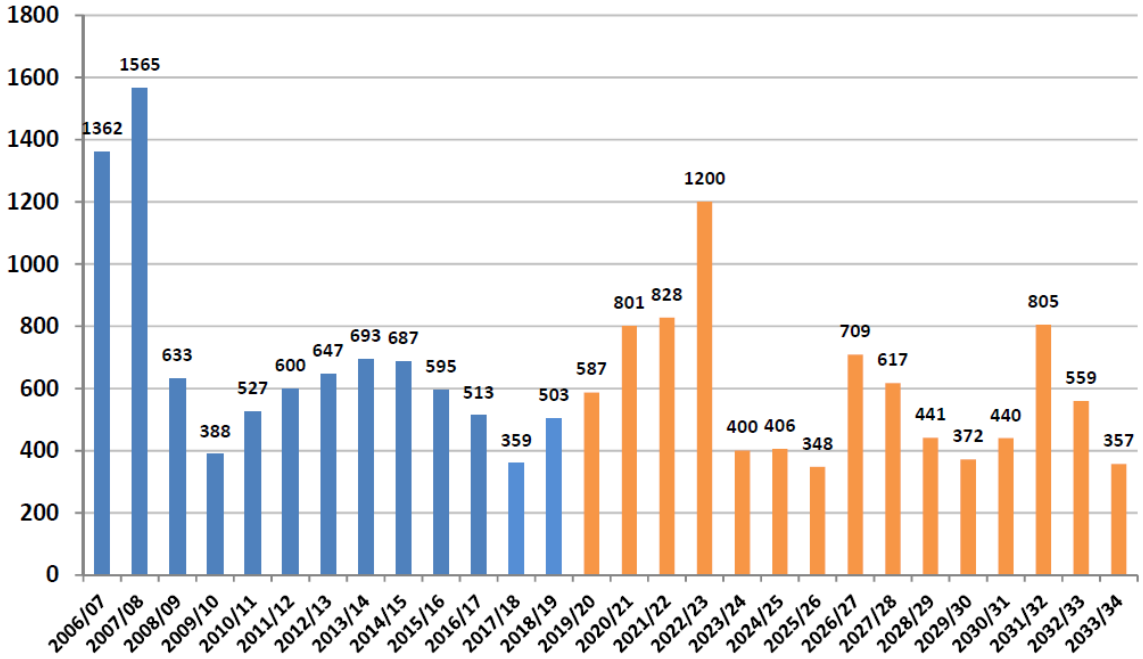
13.15 At the time of the 2011 Census, a total of 87,943 dwellings were located within Warrington Borough.[9] The Local Plan Core Strategy for Warrington sets out a target for at least 10,500 new dwellings to be constructed within the Borough between 2006 and 2027[10], which is equivalent to an annual average requirement of 500 homes. As mentioned previously, the Core Strategy was the subject of a High Court Decision which resulted in the housing target being rescinded.

13.16 Applying the revised approach to the standard methodology as set out in the updated Framework and PPG would result in a LHN figure of **839 dpa** for Warrington Borough. This represents the minimum number of homes needed per year as set out in paragraph 60 of the revised Framework (February 2019).

13.17 The Council's latest evidence on housing supply is set out in the 2019 Annual Monitoring Report [AMR] (published in February 2020) and the emerging Warrington Local Plan. The 2019 AMR contains extracts from the 2019 Strategic Housing Land Availability Assessment [SHLAA] which is yet to be released at the time of writing, having been delayed due to the Council's ongoing Local Plan Review. The latest detailed long-term housing land supply trajectory is summarised in Figure 13.5. In total, the Council considers that it has a deliverable five-year housing supply of **3,816** homes. This includes a windfall allowance of 380 homes that the Council considers likely to come forward on small sites of 0.25 ha or less, at a rate of 76 dwellings annually. With an LHN of 839 and a 5-year requirement of 5,034 dwellings, the **Council has an under-supply of 1,218 dwellings, and a 5YHLS of 3.79 years**. This very much represents a best-case scenario as Figure 13.5 assumes that all of the Council's sites identified in the 2019 AMR really are deliverable. It is considered that this is very unlikely to be the case.

[9] Census (2011) Question QS418EW
[10] Warrington Borough Council (2015) Core Strategy, 9.1

Figure 13.5: Warrington Borough Housing Land Supply (including Windfall Allowance)




Source: Warrington Borough Council (2019) Annual Monitoring Report

**Education Provision**

*This section of the Environmental Statement remains unchanged from ES addendum 1 (**paragraphs 13.4.8-13.4.19**).*

**Health Provision**

13.18 Any development that generates additional housing and population locally will also have an impact on requirements for health and dental clinics. A review of the National Health Service [NHS] General and Personal Medical Services Provisional Experimental Statistics data (published November 2017 and reproduced in Appendix 1) indicates that there are currently 20 General Practitioner [GP] surgeries within the local impact area within 5km of the proposed development. A total of 101 GP practitioners, or 81.5 Full Time Equivalent [FTE] GPs, are operating within these medical centres. Set against 157,428 patients as of September 2017, this would indicate that there around **1,932 patients** per FTE GP.

13.19 Two of these GP surgeries (Springfields Medical Centre and Westbrook Medical Centre) are no longer accepting new patients. If these two GP surgeries (containing 10 FTE GPs and servicing 17,168 patients) are removed from the figures, the number of patients per GP increases to **1,962**.

13.20 The Council's Planning Obligations SPD (January 2017) requires residential developments of 50 units or more to provide a contribution in order to secure delivery of appropriate enhancements to existing health facilities where there is insufficient capacity to meet the needs of the increase in population generated by the development. For large scale proposals which will generate a level of population increase which justifies the delivery of a new health facility, the Council will seek to secure a new facility as part of the overall development proposal [page 31].

13.21 The SPD further states that, based on the National GP Contract:

"*each GP should serve 1,800 patients on average. The NHS's preference is for GP services to be*

*provided as health centres with a minimum of 4 GPs plus support services. This equates to a surgery serving 7,200 patients. Similarly, each General Dental Practitioner should serve between 1,300 and 1,500 patients on average. Consequently GDPs will service an equivalent patient population as 4 GPs*." [paragraphs 3.117-3.118]

13.22 Based on the National GP Contract, each GP should serve 1,800 patients on average and therefore, 1,975 patients per GP is above the typical provision rate. This suggests that GP surgeries within the local impact area are operating above capacity.

13.23 The local impact area also accommodates the NHS's Warrington Hospital, which has 500 in-patient beds and is situated around fifteen minutes' drive (6.3km) from the Peel Hall site.

13.24 There are also currently 14 dental clinics located within the local impact area. Two of these surgeries are only accepting referrals. Of the remainder, 9 of these clinics (containing 42 out of the 61 dental practitioners) are accepting new patients, which suggests that there remains some capacity at existing dental clinics to accept additional patients likely to arise from proposed developments.

13.25 The Council's Planning Obligations SPD suggests that each General Dental Practitioner [GDP] should serve between 1,300 and 1,500 patients on average (paragraph 3.118). Whilst comparable data is not available online to indicate how many patients each GDP has, the fact that over two thirds of the GDPs within 5km of the proposed development site are still accepting new patients suggests that there remains some capacity at existing dental clinics to accept additional patients likely to arise from the proposed development.

13.26 Details of these GP surgeries and dental clinics are provided in Appendix 13.

**Sport, Open Space and Recreation**

13.27 This section of the Environmental Statement remains unchanged **from ES Addendum 1** (paragraphs 13.4.29-13.4.35).

13.28 There are four distinct areas of public open space within the proposed Peel Hall development site at Radley Common Community Centre to the south of the site and the Mill Lane Playing fields to the east, totaling 7.72 ha. Details of these sites are shown in Table 13.8.

Table 13.8 Existing Public Open Space Provision on Site

| OSA Reference | Site Name | Primary Classification | Area (ha) |
|---|---|---|---|
| 245 | Mill Lane Playing Fields[11] | Outdoor Sports Public | 4.31 |
| 250 | Radley Common Community Centre[12] | Outdoor Sports Public | 2.78 |
| 250 | Radley Common Community Centre | Informal Play | 0.59 |
| 250 | Radley Common Community Centre | Equipped Play | 0.04 |
| | | **Total** | **7.72** |

Source: WBC Open Space Audit (2015)

[11] In The 2015 OSA, this site is referred to as the "*Ballater Drive Recreation Ground*"
[12] In the 2015 OSA, this site is referred to as "*Orford Community Centre*". This centre is now referred to as "*Radley Common Community Centre*" on WBC's website and will be referred to as such in this report to avoid confusion with Orford Youth Centre (Site 209) and Orford Community Hub which are further to the south of the ward and outside of the site boundary.

13.29 The Council's Playing Pitch Strategy (2018) [PPS] provides an assessment of existing pitch provision at the Mill Lane and Radley Common sites in terms of Match Equivalent Sessions [MES]:

Table 13.9 Existing Playing Pitch Provision on Site

| Name | Agreed Quality Rating | Existing Facilities | Current Site Capacity (MES) | Current Play (MES) |
|---|---|---|---|---|
| Mill Lane Playing Fields 1no. Adult 11v11-Grass | Poor | No changing facilities.<br>Poor Drainage.<br>Limited existing car parking. | 1 | 0 |
| Mill Lane Playing Fields 1no. Youth 9v9-Grass | Poor | | 1 | 0 |
| Mill Lane Playing Fields 1no. Youth 7v7-Grass | Poor | | 2 | 0 |
| Radley Common 1no. Adult 11v11-Grass | Disused | | 1 | 0 |
| | | **Total MES per week**: | **5** | **0** |

Source: WBC Playing Pitch Strategy Assessment Report (2018)

13.30 This section of the Environmental Statement remains unchanged **from ES addendum 1** (paragraph 13.4.36).

**Community facilities**

13.31 This section of the Environmental Statement remains unchanged **from ES Addendum 1** (paragraph 13.4.37).

## Potential Effects

### Introduction

13.33 The development proposes to build up to 1,200 new dwellings, a 60-unit retirement home, a local centre, a food store and public open spaces.

13.34 This section assesses the main socio-economic impacts from this development during both the construction and occupation phases of the proposed scheme.

13.35 Assuming a favourable appeal decision later this year, and with a Reserved Matters application approved and conditions discharged by Q3 2021, it is assumed that construction works could commence in Q4 2021 and run for around 11 years until 2032.

### Population Increase

13.36 This section of the Environmental Statement remains unchanged (paragraphs 13.5.4-13.5.7).

### Impacts during Construction

### Direct Employment

13.37 The developer has estimated that the total cost of construction of the proposed mixed-use development (including the residential properties, in addition to the care home/ assisted living properties) to be approximately £150 million.

13.38 This can be used to estimate the amount of construction employment that is likely to be generated by the scheme. The Office for National Statistics [ONS] Annual Business Survey data indicates that the average ratio of expenditure (i.e. on materials, goods and services) to jobs in the construction industry was £121,192 in 2018.[13]

13.39 Applying this ratio to the estimated construction cost outlined above implies the development would be likely to generate 1,238 person-years of construction employment over the duration of the build period. As the proposed development is to be built over the course of 11 years, this would support **113 temporary construction jobs per annum** on average during the construction phase, or **124 FTE construction jobs**.[14] Although national construction firms sometimes use their own permanent workforce on projects (who are likely to be drawn from outside the local impact area) based on experience elsewhere it is likely that a proportion of these new construction jobs will be taken up by local workers (particularly if measures are in place to encourage local recruitment, such as apprenticeships). This will help to provide employment opportunities for some of the registered Jobseeker Allowance [JSA] claimants in the local area that are seeking work.

### Indirect and Induced Employment

13.40 Housing construction also involves purchases from a range of suppliers who, in turn, purchase from their own suppliers via the supply-chain. The relationship between the initial direct spending and total economic impacts is known as the 'multiplier effect', which demonstrates that an initial investment can have much larger economic benefits as this expenditure is diffused through the economy. The construction sector is recognised to be a part of the UK economy where there is a particularly high

[13] Annual Business Survey 2018, Released November 2019
[14] Based on HM Treasury assumption that 10 person-years of employment equates to 1 permanent position.

domestic benefit in the supply chain. Research from 2009 showed the construction sector imported less than 8% of its supply, while the UK car manufacturing sector imported nearly 28%.[15]

13.41 It is anticipated that businesses within Warrington would benefit from trade linkages established during the construction phase of the proposed development. As a result, further indirect jobs would be supported within the area through the suppliers of construction materials and equipment.

13.42 In addition, businesses would also be expected to benefit to some degree from temporary growth in expenditure linked to the direct and indirect employment effects of the construction phase. It would be expected that the local economy would gain a significant temporary boost from the wage spending of workers within local shops, bars and restaurants, and other services and facilities. Such effects are typically referred to as 'induced effects'.

13.43 Research undertaken on behalf of the National Housing Federation indicates the construction industry has an indirect and induced employment multiplier of 2.51.[16] Applying this employment multiplier to the 124 direct FTE construction jobs each year derived above indicates an additional **187 FTE jobs could be supported** by the proposed development in sectors throughout the UK economy. This is in addition to the 124 FTE jobs discussed earlier.

13.44 In summary, it is considered that the impact of the construction employment generated by the proposed development is **beneficial** and of **moderate** magnitude across the local impact area.

**Occupational and Operational Impacts**

**Economic Impacts**

**Direct Employment**

13.45 Alongside residential uses, the development scheme at Peel Hall will contain some commercial uses that will generate employment and expenditure within the local area (i.e. once the scheme is fully built-out and operational). The non-residential elements of the proposed mixed-use development will include a 60-bed residential care home, land for a 1 Form Entry [1FE] primary school, a retail foodstore and a local centre, all of which are likely to generate employment.

13.46 In order to estimate the likely employment supported by these retail and office spaces, the Employment Densities Guide (2015), produced by the HCA, can be used by applying an average job ratio to their floorspace. On this basis, and as set out in Table 13.11, it is estimated that around **315 jobs** (239 FTE jobs) could be directly supported by the proposed development.

[15] UK Contractors Group (2009) Construction in the UK Economy: The Benefits of Investment

[16] National Housing Federation, 2013; an employment multiplier of 2.51 implies that for every one direct job generated a further 1.51 indirect and induced jobs are supported in the supply chain.

Table 13.11: Employment Generation from the proposed Peel Hall Development during Operation

| Proposed Use | Proposed New Floorspace (GIA) (sq. m) | Proposed New Floorspace (GEA) (sq. m) + 5% | Average Job Density | Average FTE Employment Density | No. Jobs Generated | FTE Jobs Generated |
|---|---|---|---|---|---|---|
| Foodstore | 2,000 | 2,100 | 1 job per 15 sq. m | 1 job per 22 sq. m | 140 | 95 |
| Local Centre: Financial / Professional A2 | 200 | 210 | 1 job per 17 sq. m | 1 job per 19 sq. m | 12 | 11 |
| Local Centre: Restaurant / Café A3 | 200 | 210 | 1 job per 16 sq. m | 1 job per 22 sq. m | 13 | 10 |
| Local Centre: Fast Food Restaurant A5 | 200 | 210 | 1 job per 11 sq. m | 1 job per 14 sq. m | 19 | 15 |
| Pub / Family Restaurant | 800 | 840 | 1 job per 13.5 sq. m | 1 job per 18.5 sq. m | 62 | 45 |
| Residential Care Home | 60 beds (approx.) | 60 beds (approx.) | 0.875 jobs per bed[17] | 0.875 jobs per bed | 53 | 53 |
| 1 FE Primary School | 1FE | 1FE | 16 jobs per 1FE | 10 FTE jobs per 1FE | 16 | 10 |
| **TOTAL** | | | | | **315** | **239** |

Source: Satnam / HCA Employment Densities Guide (2015) / Lichfields' Analysis

**Net Additional Effects**

13.47 In order to estimate net employment impacts, the extent to which the proposed development would displace jobs from other existing business in the area is also considered.
*Loss of Existing Jobs*

13.48 There are no existing jobs on the site of the proposed development. Therefore, no jobs will be lost as a result of the construction stage of the proposed development.
*Displacement Effects*

13.49 Some of the new employment generated on the site may comprise jobs displaced from elsewhere in the local area. Net employment impacts in the local and regional area have been estimated by considering the extent to which the proposed development would displace some jobs from existing local businesses by taking into account typical job displacement factors for these uses[18]. Displacement effects can be reduced where an area is already deficient in, for example, employment space or is expected to experience strong job growth.

13.50 The increase in the resident population as a result of this development, which is discussed in more detail below, will create additional demand for local services, retail and leisure floorspace. Furthermore, the amount provided in the scheme has been designed to address this increased need, rather than to address wider unmet local needs. In addition to the strong network of local centres, this should minimise any impacts on existing retail, pub and community facilities of this type in the surrounding area hence it is considered that any displacement of retail and leisure jobs will be towards the lower end of any range.

[17] Based on Lichfields experience of an 80-bed care home employing around 70 FTE staff, therefore generating 80 / 70 = 0.875 FTE jobs per bed
[18] HCA (2014): Additionality Guide, 4th edition

13.51 A typical low level of job displacement would be in the order of 25% (i.e. 25% of the new jobs on the site will be relocations from elsewhere in the area). This corresponds to a 'low' level of displacement, as defined by the HCA Additionality Guide Fourth Edition (2014).

13.52 After allowing for such displacement effects, the total net direct jobs resulting from the proposed development is estimated to be in the order of 236 jobs (179 FTEs), as shown in Table 13.12. It is considered that this is a conservative approach to take overall, as it is unlikely that there would be very little, if any, displacement of the education / health / community jobs as these would be generated directly by the new community's needs.

Table 13.12: Net Direct Effects on Employment - Displacement

| Total Jobs | FTE Jobs | Displacement Factor | Net Additional Jobs – Less Displacement (jobs) | Net Additional Jobs – Less Displacement (FTE) |
|---|---|---|---|---|
| 315 | 239 | 25% | **236** | **179** |

Source: Lichfields Analysis / HCA (2014) Additionality Guide Fourth Edition

*Multiplier Effect*

13.53 Some indirect employment will also be supported by the expenditure on goods and services within local businesses by the occupiers of the employment uses. The wage spending by employees of these commercial operations, and also the local businesses supplying these facilities, will support further induced jobs within local shops, services and other businesses.

13.54 As with the construction employment detailed above, there will also be a range of indirect jobs that will be supported by the spending on goods, supplies and services directed from the firms which occupy the retail and leisure uses of the site, as well as the Care Home. For example, many businesses in the Warrington area would require services such as buildings and gardens maintenance; health and hygiene products; medical prescriptions and pharmacists; food and laundry services etc.

13.55 The spending of wages by both employees on the site and of the local firms supplying goods and services to these companies will also support induced employment in other local shops, other services and other firms. These types of employment are normally estimated using employment multipliers derived from research on similar operations elsewhere, with adjustments to reflect the specific characteristics of the proposed development, the amount of spending retained in the local area, and local economic and labour market conditions.

13.56 HCA Guidance on calculating the additionality of economic regeneration projects has been used to select a combined employment multiplier (which combines the supply linkage multiplier and the income multiplier) of 1.21 (for the local area) and 1.38 (for the wider region) to estimate both indirect and induced employment for retailing, leisure and community space.[19]

13.57 Using these multipliers it is estimated that the 236 additional direct jobs (179 FTE) produced by the scheme could result in a further 38 'spin-off' FTE jobs within local services and other businesses in the local impact area, and 68 FTE jobs within the wider Warrington and North West region.

13.58 On this basis, it is estimated that, once in operation, the proposed Peel Hall development could support approximately **217 FTE jobs** in total within the local impact area (and **247 FTEs** within the wider region).

[19] HCA (2014) Additionality Guide Fourth Edition

13.59 In summary, it is considered that the impact of the employment generated by the commercial and community uses and Care Home elements of the proposed development is **beneficial** and of a **moderate** magnitude across the local impact area, and of a **minor magnitude across the wider impact area**.

**Resident Expenditure**

13.60 The proposed mixed-use development scheme also affords an opportunity to increase local expenditure levels. The scale of these benefits is determined by the spending patterns of local residents, and the extent to which new residents move into the area from elsewhere.

13.61 Whilst the residents of the 60 C2 Nursing Home units will, through their spending and patronage, support local shops and services, it may not be of the same magnitude as the residents living in the 1,200 C3 dwellings. As a consequence, and to ensure the results of this ES Chapter are robust, the residential expenditure set out below has been calculated on the basis of the 1,200 C3 dwellings alone and hence represents a 'worse case' scenario.

13.62 Recent research suggests the average homeowner spends around £5,500 to make their house 'feel like a home' within a year and a half of moving into a new property[20]. This money is generally spent on furnishing and decorating a property (i.e. assuming the property is unfurnished). This expenditure provides a range of benefits for the economy including supporting local employment.

13.63 Applying this average level of one-off spending on household products and services, it is estimated that residents of the 1,200 residential units would **generate around £6.6 million of first occupation expenditure**. This injection of expenditure would provide a significant boost to businesses in the local economy.

13.64 Analysis of Output Area Classification data suggests that the residential areas near Peel Hall mostly comprise households in the 'Suburbanites' socio-economic classification group[21]. It is anticipated that the new residents of the proposed market housing at Peel Hall would broadly be in the same type of household group, albeit occupiers of the proposed affordable housing component may fall within a different socio-economic classification.

13.65 The ONS Family Spending Survey 2018 (2019 Edition) provides data on household spending by socio-economic classification. This survey indicates an average expenditure level of £656.20 per week for households in the 'Suburbanites' group. The spending level for North West households is on average around 9% lower than the UK average, which results in an estimated household expenditure level of £595.92 per week for households. Similarly, average expenditure levels amongst the 'Hard-pressed living' group amounts to approximately £479.60 per week before the regional adjustment.

13.66 Based on these assumptions, it is estimated that the households of the 1,200 new residential units would generate **total gross expenditure of around £34 million each year**.

13.67 It is recognised that not all residents of the proposed development will be 'new' to the local area as some will relocate from elsewhere within the Borough or the region. National research provides standards on the average distances moved between a head of household's present and previous residential address, which can be used to estimate the proportion of the population of the proposed development that may be 'new' to the local area.

13.68 In addition, only a proportion of the gross expenditure by new residents of the proposed housing will be retained within Warrington Borough. Adjustments have been made on the basis of existing

[20] Research carried out by OnePoll on behalf of Barratt Homes, August 2014
[21] As identified by http://www.maptube.org/map.aspx?mapid=1

shopping patterns and the leakage of spending to other nearby areas such as Liverpool, Chester and Manchester.[22]

13.69 Taking these factors into consideration, it is estimated that total net additional expenditure of around **£13 million per year** on average will be created by new residents to the area, and be retained within the area (within a distance of ten miles from the site). This net additional expenditure will support the vitality and viability of local businesses, and could encourage other businesses to relocate to the market. It is also expected that this extra resident expenditure could generate a further **146 local FTE jobs** in retail, leisure, hospitality and other service-based sectors.

13.70 In summary it is considered that the impacts of the increased resident expenditure generated by the proposed development is **beneficial** and of a **moderate** magnitude across the local impact area.

**Public Revenue and Savings**

13.71 This section deals with the benefits delivered by the proposed development that accrue to the local authority, and to the wider healthcare system as a whole.
*Local Authority Income*

13.72 In 2010 the Coalition Government introduced an incentive-based system to support their plans to increase the supply of new homes in locations that were willing and able to accept the development. The New Homes Bonus [NHB] originally matched for a 6-year period the increase in Council Tax income from new homes or homes that have brought back in to use. This additional funding is potentially a major new income stream for local authorities at a time when their finances are being squeezed through the public sector austerity measures. The increased income is non ring-fenced and therefore local authorities have discretion to use the cash in the most beneficial way in support of their communities.

13.73 As part of the provisional Local Government Finance Settlement 2016, Sajid Javid, Secretary of State for Communities and Local Government, said that "*for all its successes, the system can be improved*." He confirmed that from 2017 a national baseline for housing growth will be introduced of 0.4%. Below this 0.4% threshold, the NHB will not be paid. The aim of this change is to ensure that "*the money is used to reward additional housing rather than just normal growth*". He also confirmed that in 2017-18, NHB payments will be made for five, rather than six years, and that the payment period will be reduced again to four years from 2018-19. The funding released from this measure will be retained by local authorities to contribute towards adult social care costs "*recognising the demographic changes of an ageing population, as well as a growing population*"[23].

13.74 The proposal will deliver up to 1,200 dwellings. Using the standard method of calculation contained within the NHB Calculator it is estimated that the scheme would generate approximately £1.9 million of NHB award following the scheme's completion, which equates to a total of approximately **£7.7 million over a 4-year period**. Although the timetable of construction for the dwellings is as yet unknown, this is the sum of all revenue that will be collected once all the dwellings are constructed. As noted above, the calculator provides the potential payments of the NHB. These would only materialise if the Council increases its dwelling stock above the annual national baseline level (which remained at 0.4% for 2019).

13.75 This income would also be enhanced by an additional Council Tax income of approximately **£1.9 million per annum** in perpetuity following the scheme's completion (based on 2019/20 rates).

[22] WYG (August 2015) Warrington Retail and Leisure Study
[23] House of Commons (December 2016): Briefing Paper – The New Homes Bonus (England), page 32

13.76 The impact on the Council's income as a direct result of the Development Project is therefore assessed to have a **beneficial impact, and of moderate** significance, although it is accepted that the Practice Guidance[24] indicates that they should not be given significant weight in the planning balance unless they make the scheme acceptable in planning terms, which in this case would not be met.

**Local Labour Market Impact**

13.77 Creating an economic activity rate for the entire population of the Borough and applying it to the likely additional population generated by the proposed C3 dwellings gives an indication as to the quantity of people likely to be added to the local labour market. Applying the rate of economically active residents within the Borough adjusted for the percentage of population aged 16-64 (50.7%) results in an additional 1,366 people likely to be added to the labour market as a result of the proposed development.

13.78 An increase of 1,366 economically active people would increase the Borough-wide total to 107,666. This is equivalent to a growth rate of 1.3% of economically active residents within Warrington Borough. However as noted previously, in reality it is likely that the labour market impacts will be lower due to some of the incoming residents already residing within the local area, which subsequently means the number of net additional workers would also likely to be less. New residents of the dwellings may also already work locally, but commute in from elsewhere. As such, and in the absence of further information concerning the origin/destination of those likely to be moving into the proposed development, these calculations represent a 'best case' scenario. However, any increase in economically active people would commensurably grow the available workforce supporting local businesses. Likely commuting impacts are assessed below.

13.79 Overall, the total number of jobs likely to be generated by the proposed development should not create any significant pressures on the local labour market and will go some way to improving levels of economic inactivity in Warrington. As such, an increase in economically active persons within both the local and wider impact area can be considered **beneficial and of a minor magnitude**.

**Housing Impacts**

13.80 After completion, the primary impact of the proposed development on the local housing market will be the addition of around 1,200 new C3 dwellings to the existing stock of 87,943 dwellings (2011) in Warrington, constituting an increase of 1.4%. This development would help to deliver 6.3% of the emerging target of 18,900 dwellings in Warrington between 2017 and 2037 (945 dpa), the housing need identified for Warrington Borough in the emerging Local Plan Preferred Development Option for Warrington (Proposed Submission Version Local Plan, March 2019).

13.81 The Housing Learning and Improvement Network [LIN] work undertaken for Warrington Borough states that there is currently a supply deficit of Residential Care units (relative to demand) within the Borough, with a current supply of 540 units set against a current demand of 1,008 units (equivalent to a deficit of 46%). This current demand is projected to increase to 1,690 by 2030, approximately when the proposed development (which will include 60 C2 care home spaces) will be almost completed[25]. The Care Home facilities will therefore bring benefits to the increasing proportion of elderly residents who reside in the Borough. It will also release some existing housing that is currently under-occupied into the wider market, thereby making more efficient use of the existing housing stock.

13.82 Warrington's Local Housing Needs Assessment (2019) assesses the overall need for affordable housing. It concludes that the overall need for affordable housing amounts to **377 homes per annum**

[24] Planning Practice Guidance ID 21b-011-20140612
[25] Housing Learning and Improvement Network (2014) Strategic Housing for Older People

**between 2017 and 2037**. At a rate of 25%, this would equate to an overall housing delivery of **1,508 dpa**.

13.83 Emerging Local Plan Policy MD4 – *Land at Peel Hall* states that "*In accordance with Policy DEV2 a minimum of 30% Affordable Housing shall be provided on site.*" This would equate to **360 affordable units** of the overall total of 1,200 dwellings at Peel Hall. Whilst the final mix of this proposed housing is yet to be confirmed and will be subject to negotiations with the Council, it may be assumed the development will provide a range of dwelling types, including around 30% affordable, or 360 dwellings of the 1,200 C3, enhancing the quality of housing choice in the area and going some way to addressing the high level of affordable housing need in the local area. It is worth noting that the 360 affordable dwellings provided as part of the proposed development is almost as high as the Borough's entire annual need for affordable housing (377 dpa).

13.84 The impact of the creation of both C3 housing and C2 Care Home units will be to enhance the quality of housing choice in the local market. The impact of market, care and affordable housing is therefore considered to be **beneficial, and of a moderate magnitude** in relation to the local impact area and Warrington Borough as a whole.

**Deprivation Impacts**

13.85 Despite the area surrounding the proposed development site at Peel Hall being fairly prosperous (as characterised by the 'Prospering Suburbs' Output Classification Group), the area does still lie within an area that exhibits some deprivation issues. Housing deprivation issues, for instance, are typically the result of high house prices leading to affordability difficulties in the local market (although in other instances such deprivation issues relate to lower quality housing stock). The IMD 2019 indicated that the Lower Super Output Area [LSOA] in which the proposed site is located within (Warrington 006E) was ranked in the 30% most deprived LSOAs in England in terms of overall deprivation.

13.86 Moreover, there are other areas of Warrington which contain a high proportion of LSOAs ranked within the top 10% most deprived in England. By delivering greater housing choice and increased employment opportunities the proposed scheme will create significant deprivation benefits to the local area. The benefits of the proposed housing-led development scheme could therefore be expected to improve not only the socio-economic outcomes of the area in the immediate vicinity of the site, but improve the prosperity of other areas in the wider impact area (Warrington Borough)

13.87 For these reasons, it is expected that the mixed-use development scheme would have a **beneficial effect of a minor scale**, as it will increase housing supply in Poplars And Hulme (the ward in which the Peel Hall site is located), help to reduce any affordability difficulties that exist within the wider impact area and provide employment opportunities.

**Commuting Impacts**

13.88 As noted earlier, the construction of 1,200 new dwellings is assumed to increase the number of economically active persons within the area by some 1,366. Across the Borough, 96.7% of residents who are economically active are in employment which, if applied to the 1,366 figure, would result in 1,321 Peel Hall residents likely to be in employment. Consideration must therefore be given to potential impacts on commuting patterns arising from the direct permanent jobs which would result from the proposed development.

13.89 For the purposes of the assessment, it has been assumed that future commuting patterns for the proposed jobs will broadly reflect commuting patterns seen in the past. If it is assumed that 28% of these new residents were to commute outside of the local impact area - as currently occurs based on

the 2011 Census data - the proposed development could produce a further 370 out-commuting trips each day to destinations outside of the local impact area.

13.90 While some employment uses are proposed within the mixed-use scheme, it is expected that the actual amount of out-commuting trips created by the scheme will be reasonably close to that projected (i.e. if local recruitment initiatives are not endorsed). However, it is also possible that some workers with existing jobs in Warrington, but who currently reside outside the Borough, will become residents of the new housing development, helping to reduce their journey time and the level of commuting within the local impact area.

13.91 Therefore, this represents a worse-case scenario, as the high-quality housing to be provided as part of the proposed development at Peel Hall is likely to help retain local employees as they seek to move up the housing ladder, thus potentially helping to reduce levels of in-commuting to the Borough. The employment uses to be provided as part of the Peel Hall scheme is also likely to help attract and retain local workers.

13.92 On this basis, the impact of the proposed development on commuting patterns is assessed as being **adverse** but of a **minor** magnitude.

**Education Impacts**

13.93 This section of the Environmental Statement remains unchanged **from ES Addendum 1** (paragraphs 13.5.60-13.4.70).

**Healthcare Impact**

13.94 Growth in the local population resulting from the 1,200 C3 dwellings at the proposed Peel Hall development is likely to increase the number of patients of the 81.5 FTE GPs to 160,121 (i.e. equal to approximately 33 new patients, or a 1.7% increase, for each FTE GP). This would increase the average number of patients per FTE GP to 1,965 (or 19,999 including only the 18 GP practices accepting new patients). Taking into consideration the typical provision rate of 1,800 patients per GP[26], this rise in demand will be in excess of the Department of Health's standard for General Practitioner Provision.

13.95 There are 15 dental health facilities employing a total of 60 dentists operate within the local area, of which 10 (including 40 GDPs) are accepting new patients. The growth in the local population will increase the number of patients for each of the 10 facilities accepting new patients.

13.96 Because there already exists an over capacity with regard to the number of patients per GP provision at present, it is considered that the increased healthcare impact resulting from the proposed Peel Hall development is likely to be **adverse, but of a minor magnitude** given the scale of the increase and the fact that 18 of the 20 practices are still accepting new patients.

**Open Space & Recreation Impact**

13.97 As already noted, the gross increase in the resident population created by the new dwellings will amount to an increase of 2,753 people in the local area, 60 of which will live in the proposed care home[27]. The additional residents will create extra demands on existing sports, recreation facilities and

[26] WBC (January 2017), Planning Obligations Supplementary Planning Document, LP 14, Para 3.117
[27] These 60 residents have been excluded from the requirement calculations in the Table for equipped play, informal play and outdoor sports.

open spaces within the local impact area. Table 13.15 assesses the Council's requirements (as set out in the Council's Planning Obligations SPD (January 2017)) against the current Peel Hall proposals.

Table 13.15: Adopted Open Space Provision Standards and On-Site Provision within the Proposed Development

| Typology | General Standard | Standard per person | Peel Hall Development Requirement | Peel Hall Proposed Site Figures | |
|---|---|---|---|---|---|
| Equipped Play | 0.25 ha per 1,000 population | 2.5m$^2$ per person | **0.67 ha per 2,693 residents** | Play Space Provisions: | The equipped and informal play space provision to be met by individual housing plots. |
| Informal Play | 0.55 ha per 1,000 population | 5.5m$^2$ per person | **1.48 ha per 2,693 residents** | | |
| Outdoor Sports | 1.6 ha per 1,000 population | 16m$^2$ per person | **4.31 ha per 2,693 residents** | Formal Sport Ground: | See Table 13.16. |
| Parks & Gardens | 1.6 ha per 1,000 population | 16m$^2$ per person | **4.40 ha per 2,753 residents** | Natural/ Semi Natural Areas (this includes all areas set aside as ecological/ motorway buffer zones, retained vegetation areas and attenuation pond areas): | 10.1 ha (Open space shown on the proposed Parameters Plan meets this requirement) |
| Natural / Semi-Natural Greenspace | 2 ha per 1,000 population | 20m$^2$ per person | **5.51 ha per 2,753 residents** | | |
| Allotments | 0.07 ha per 1,000 population | 0.7m$^2$ per person | **0.19 ha per 2,753 residents** | | |

Source: WBC Planning Obligations SPD (January 2017), Table 3 / Appletons (February 2020) / Lichfields Analysis

13.98 The proposed open space provisions for Children's play spaces, Parks & Gardens, Natural & Semi-Natural Greenspace and Allotments, meet the requirements set out in the OSA.

13.99 The proposed outdoor sports provision is set out in Table 13.16:

Table 13.16: Proposed Outdoor Sports Provision

| Name: | Improvements: | Potential Site Capacity: |
|---|---|---|
| On Site<br>1no. Adult 11v11- Grass<br>(Pipe drained with sand grooves or slit drains) | - Changing facilities<br>- High quality drainage system<br>- Car parking | 3 |
| On Site<br>1no. Adult 11v11- Grass<br>(Pipe drained with sand grooves or slit drains) | | 3 |
| On Site<br>1no. Youth 7v7- Grass<br>(Pipe drained with sand grooves or slit drains) | | 6 |
| Total Match Equivalent Sessions per week: | | **12** |

Source: Appletons (February 2020)

13.100 As set out in Table 13.16, the existing sports pitch provision on site is assessed to be of poor quality, and whilst there is a current Match Equivalent Sessions [MES] capacity of 5 per week, the pitches are not currently used. The proposed provision set out in Table 13.16 increases the MES capacity to 12 per week, showing betterment. Furthermore, the pitches provided will be of a high standard, with high quality drainages systems, new changing facilities and car parking. The improved quality of the pitches and new changing facilities provides the developments contribution to the 4.4 ha requirement as agreed with the Council

13.101 This section of the Environmental Statement remains unchanged **from ES Addendum 1** (paragraphs 13.5.82-13.5.84).The proposed development, by providing suitable on-site open space provision and significant improvements to current sub-standard sports fields at a higher quality than currently exists, is therefore considered to have a **beneficial impact of a minor scale** upon open space and recreation provision within the area of impact.

**Summary**

13.102 The significance of the socio-economic impacts identified has been evaluated against the significance criteria matrix. The impacts are assessed as beneficial, neutral or adverse, while their relative magnitude are classified as substantial, moderate, minor or negligible. The significance of the impacts are summarised in Table 13.17.

Table 13.17: Socio-Economic Impacts against the Baseline Position (without Mitigation)

| Socio-Economic Factor | Impact | Magnitude |
|---|---|---|
| Construction Employment | **Beneficial** | Moderate |
| Operational Employment | **Beneficial** | Moderate |
| Resident Expenditure | **Beneficial** | Moderate |
| Public Revenue | **Beneficial** | Moderate |
| Local Labour Market | **Beneficial** | Minor |
| Housing | **Beneficial** | Moderate |
| Deprivation | **Beneficial** | Minor |
| Commuting | **Adverse** | Minor |
| Primary Education | **Adverse** | Minor |
| Secondary Education | **Adverse** | Moderate |
| Healthcare | **Adverse** | Minor |
| Open Space & Recreation | **Beneficial** | Minor |

Source: Lichfields Analysis

## Mitigation and Monitoring

### Introduction

13.103 The proposed mixed-use development at Peel Hall is expected to generate positive impacts to the local area with regards to employment, the local population, the local labour market, housing, open space and deprivation levels, but create some adverse effects on commuting, education, recreation and healthcare provision. Any negative impacts are regarded as being largely minor, so only limited mitigation measures are expected to be necessary.

### Construction Mitigation Measures

13.104 The creation of 124 FTE construction jobs during the construction phase is in itself a positive impact that will not require any mitigation measures. It should be possible to maximise the socio-economic benefits of constructing the mixed-use scheme by undertaking initiatives that encourage local labour recruitment for new employment opportunities at the site.

13.105 The remainder of this section of the Environmental Statement remains unchanged (paragraph 13.6.3).

### Operational Mitigation Measures

### Employment and Local Labour Market

13.106 The proposed development will give rise to a moderate beneficial impact through the development of additional uses and the creation of 179 net additional FTE jobs locally; the generation of net additional expenditure; and the positive contribution to local authority revenues.

13.107 As such, no mitigation measures are required.

### Impact on Commuting Patterns

13.108 This section of the Environmental Statement remains unchanged (paragraphs 13.6.6 – 13.6.9).

13.109 **Impact on Education Facilities**

13.110 This section of the Environmental Statement remains unchanged from ES Addendum 1 (paragraphs 13.6.10-13.6.13).

### Impact on Healthcare Facilities

13.111 Because there already exists an over capacity with regard to the number of patients per GP provision at present, the increased healthcare impact resulting from the proposed Peel Hall development is likely to be adverse, but of a minor magnitude given the scale of the increase and the fact that 18 of the 20 practices are still accepting new patients.

13.112 This section of the Environmental Statement remains unchanged from ES Addendum 1 (paragraphs 13.6.15-13.6.16).

**Impact on Open Space and Recreation Facilities**

13.113 The provision of open space will be a Reserved Matter, although it is proposed that the requirement for equipped and informal children's play space and allotments (as set out in Table 13.15) will be provided to the Council policy requirements. A condition will be requested to approve an open space strategy (addressing size, type and location) prior to the Reserve Matter approvals.

13.114 The natural and semi-natural informal Greenspace requirement will be catered for within the site itself, with a proposed green network through the centre of the site and along the motorway boundary to the north. This will provide informal areas and the potential for allotments, community orchards etc. Within the development land parcels themselves it is also intended that there will be village green areas, play areas and other recreational facilities incidental to the residential element of the proposed development.

13.115 It is considered that the proposed development will include suitable onsite open space provision and significant improvements to current substandard sports fields to the south-east of Windermere Avenue, at a higher quality than currently exists. It therefore provides adequate mitigation for the increased demand for open space and recreational areas that might arise following occupation of the proposed development.

13.116 Any remaining adverse impacts can be most easily mitigated through Section 106 financial contributions. These mitigation measures will enable the impacts of the proposed development on Open Space and Recreation facilities to be fully mitigated.

### Residual Effects

13.117 This section of the Environmental Statement remains unchanged (paragraph 13.7.1).

### During Construction

13.118 No significant adverse effects are anticipated during the construction period.

### After Completion

13.119 Following appropriate developer contributions, any negative impacts on Commuting, Education and Healthcare will be effectively neutralised.

13.120 The scale and significance of these residual impacts (i.e. once the mitigation measures have been implemented) are summarised in Table 13.18.

Table 13.18 Residual Impacts from the Proposed Development at Peel Hall after Mitigation

| Socio-Economic Factor | Impact | Magnitude |
|---|---|---|
| Construction Employment | **Beneficial** | Moderate |
| Operational Employment | **Beneficial** | Moderate |
| Resident Expenditure | **Beneficial** | Moderate |
| Public Revenue | **Beneficial** | Moderate |
| Local Labour Market | **Beneficial** | Minor |
| Housing | **Beneficial** | Moderate |
| Deprivation | **Beneficial** | Minor |
| Commuting | **Neutral** | - |
| Primary Education | **Neutral** | - |
| Secondary Education | **Neutral** | - |
| Healthcare | **Neutral** | - |
| Open Space & Recreation | **Beneficial** | Minor |

Source: Lichfields Analysis

**Summary & Conclusions**

13.121 The proposed mixed-use development on land at Peel Hall has the potential to deliver up to 1,200 new dwellings, helping to meet Warrington's housing need. The 30% of dwellings allocated as affordable housing will help to increase the mix of housing available within the Borough and improve resident's access to much needed social housing in the area. The Care Home facilities will bring benefits to the increasing proportion of elderly residents who reside in the Borough. It will also release some existing housing that is currently under-occupied onto the wider market, thereby making more efficient use of the existing housing stock.

13.122 In addition to this, the development will also have a positive impact on the local economy by creating new construction jobs during the development phase. Moreover, the retail and leisure facilities contained within the development promise to deliver hundreds of new jobs once the development is operational, both directly through the employers based there but also indirectly through the supply chain. The inclusion of community facilities in the site will also help support the infrastructure needs of local residents.

13.123 Based on this assessment, the most significant socio-economic impacts of the proposed development on the local economy are likely to include:

1 Investment of approximately £150 million over the 11-year development period;

2 Creation of 124 FTE construction jobs over the duration of the development phase;

3 Provide 179 FTE net additional jobs generated through the commercial and community uses and Care Home sections of the proposed development;

4 Delivery of up to 1,200 new C3 dwellings which will help to meet 6.3% of the housing target for the Borough over the plan period, improve the level of housing choice (by increasing the level of affordable housing) within the local area and reduce affordability issues;

5 Provide specially-designed housing for the elderly, alongside creating 53 associated FTE jobs;

6 Improve the socio-economic outcomes of highly deprived neighbourhoods in the wider area by offering new employment opportunities; and,

7 Improvement of open spaces as part of the development and improvements to existing poor quality sports facilities that will improve the provision of such facilities within the local area.

13.124 The scale of increase in the resident population will be relatively minor when viewed in the context of the Borough as a whole. Impacts on demand for education, healthcare, open spaces and community facilities can be addressed by new facilities developed within the scheme, alongside current provisions within the local impact area. The proposed mixed-use scheme represents a significant new capital investment within the local area and will help to raise the overall level of economic activity and expenditure within the local economy.

**Abbreviations & Definitions**

1 CCG – Clinical Commissioning Group
2 DPD – Development Plan Document
3 ELR – Employment Land Review
4 1FE – 1 Form Entry
5 FiT – Fields in Trust
6 FTE – Full Time Equivalent
7 GDP – General Dental Practitioner
8 GP – General Practitioner
9 GVA – Gross Value Added
10 HCA – Homes and Communities Agency
11 IMD – Index of Multiple Deprivation
12 JSA – Job Seekers Allowance
13 LAP – Local Area for Play
14 LEAP - Locally Equipped Area for Play
15 LQ – Lower Quartile
16 MSOA – Middle Super Output Area
17 NEAP - Neighbourhood Equipped Area for Play
18 NHB – New Homes Bonus
19 NPPF – National Planning Policy Framework
20 ONS – Office for National Statistics
21 OSA – Open Space Audit
22 R&D – Research and Development
23 SFSNA – Sports Facilities Strategic Needs Assessment
24 SNPP – Sub National Population Projections
25 SPD – Supplementary Planning Document
26 WBC – Warrington Borough Council

# 14.0 CUMULATIVE IMPACTS

**Introduction**

14.1 This section of the Environmental Statement remains unchanged.

14.2 This section of the Environmental Statement remains unchanged.

**Methodology**

14.3 This section of the Environmental Statement remains unchanged.

**Other developments**

14.4 This section of the Environmental Statement remains unchanged.

14.5 This section of the Environmental Statement remains unchanged. (See below)
Sites currently under construction include residential and employment developments.

**Ecology and Nature Conservation**

14.6 This section of the Environmental Statement remains unchanged (14.6-14.7).

**Hydrology, Drainage and Flood Risk**

14.8 This section of the Environmental Statement remains unchanged (14.8-14.9).

**Landscape and Visual Impact**

14.10 This section of the Environmental Statement remains unchanged (14.10-14.11).

**Transport and Highways**

14.12 Cumulative impacts are only likely to occur if the construction of projects within north Warrington coincides with that of the proposed residential development.

14.13 Traffic volumes and the use of the road network has been assessed within the TA Addendum. It is shown that with mitigation (bus service provision, Travel Plan measures, and highway engineering works) the development traffic can be accommodated on the highway network. No adverse cumulative impacts are expected.

**Archaeology and Cultural Heritage**

14.14 This section of the Environmental statement remains unchanged (14.14-14.15).

**Noise**

14.15 The cumulative impacts of road traffic associated with the Proposed Development and other concurrent projects within the vicinity of the has been considered within the assessment within Chapter 11.0

**Air Quality**

14.16 The cumulative impacts of road traffic associated with the Proposed Development and other concurrent projects within the vicinity of the has been considered within the assessment within Chapter 12.0

**Socio-Economic**

14.18 This section of the Environmental Statement remains unchanged (14.18-14.19).

**Significance of Cumulative Impacts**

14.20 This section of the Environmental Statement remains unchanged (14.20).

## 15.0 SUMMARY OF ADVERSE IMPACT AND MITIGATION SUMMARY OF PREDICTED RESIDUAL EFFECTS

15.1 Replace table 15.2 and 15.3 as set out below:

**Table 15.2: Summary of Impacts and Mitigation**
**Temporary- Construction Phase**

| Environmental Topic | Significance of Effect | | Proposed Mitigation | Significance of Residual Effect | |
|---|---|---|---|---|---|
| | Major, Moderate, Minor, Negligible | Adverse, Beneficial, Neutral | | Major, Moderate, Minor, Negligible | Adverse, Beneficial, Neutral |
| **Landscape & Visual Amenity** | | | | | |
| Visual impact and loss of amenity to users of the sports pitches/ recreational area due to construction operations | Moderate | Adverse | Provision of new sports pitches and recreational areas prior to loss of existing facilities. | Minor | Adverse |
| Change in character of an open landscape to construction site | Moderate | Adverse | Elements of existing vegetation will be retained and enhanced to provide setting and assimilate the proposed development into the surrounding landscape, by the use of advanced planting in line with the phasing of the development. | Minor | Neutral |
| Impact on limited number of local residents who currently have unrestricted views of the site due to construction operations | Minor-Moderate | Adverse | Proposed landscape masterplan will inform the detail of development to provide screening for adjacent residents. | Minor | Adverse |
| Impact on users of the public footpath to the north east of the site due to construction operations | Major | Adverse | Footpath routed retained on existing route and protected. | Moderate | Adverse |
| Impact on existing habitats- stream courses, existing woodland, hedgerows etc. | Minor | Adverse | Stream courses retained, new ponds created with habitat enhancement. Existing features protected with barrier fencing etc. | Negligible | Adverse |
| **Highways & Transportation** | | | | | |
| Loss of amenity for existing users of the public right of way network | Minor | Adverse | Construction Management Plan to include information on diversions of PRoW where necessary. | Minor | Adverse |

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|---|---|---|---|---|---|
| Construction operations will result in HGV traffic which could cause congestion and loss of amenity to local residents. | Moderate-Major | Adverse | Have a Construction Management Plan that controls hours of site operation and HGV routes to and from the site. | Minor | Adverse |
| **Hydrology, Flood Risk & Drainage** | | | | | |
| Potential contaminants or particulates seeping into the groundwater and / or river courses. | Minor | Adverse | Construction Management Plan will be in place to control and reduce impact on watercourse. | Negligible | Adverse |
| **Ecology & Nature Conservation** | | | | | |
| Disturbance to Radley Plantation and Pond Local Wildlife Site & Removal of woodland edge buffer habitats | Moderate | Adverse | No built development within 15 metres of woodland. No residential curtilage within 25 metres of LWS. 10-20metre buffer zone of habitat creation around northern perimeter of LWS including pond creation. Construction Environmental Management Plan to ensure protection of all retained habitats at risk from disturbance during site works. | Minor | Adverse |
| Loss of large areas of derelict agricultural land dominated by coarse grassland with general low floristic values. | Moderate | Adverse | 14.6ha of habitat creation on site including species-rich grassland, scrub, wetland and woodland creation & invasive species removal.<br>Construction Environmental Management Plan to ensure protection of all retained habitats at risk from disturbance during site works. | Moderate | Adverse |
| Loss of areas of immature plantation woodland <30 years old. | Moderate | Adverse | Habitat creation on site to include minimum 3.3ha woodland creation.<br>Enhancement and protection of retained woodland. | Minor | Adverse |
| Loss of pond habitat | Minor | Adverse | Three new ponds (separate from SUDS systems) to be created on site. Enhancement of two retained ponds. | Non-significant | Non-significant |
| Road construction over stream and ditch habitats | Minor | Adverse | 10m buffer zones either side of Spa Brook and ditches. Habitat enhancement of stream corridor. Construction Environmental Management Plan to ensure protection of watercourses from pollution/siltation. | Non-significant | Non-significant |

| | | | | | |
|---|---|---|---|---|---|
| Loss of minor sections of species-poor hedgerows. | Minor | Adverse | Boundary hedgerows to be planted & retained hedgerow habitat to be protected by buffer zones and enhanced. | Non-significant | Non-significant |
| Loss of areas of secondary dry reed bed on derelict farmland. | Minor | Adverse | Provision of wetland habitat at attenuation ponds & SUDS. | Minor | Adverse |
| Road construction over potential water vole habitat | Not known (access constraints) | Not known (access constraints) | Precautionary working method statement, 10 metre buffer zones of habitat creation and enhancement along wet ditches and streams. | Not known | Not known |
| Loss of potential roosting habitat | Not known (access constraints) | Not known (access constraints) | Bat roost surveys required on unassessed buildings. | Not known | Not known |
| Loss, reduction and/or alteration of bat foraging habitat. | Moderate | Adverse | Corridors of habitat creation and 10m buffer zones of unlit habitats along key habitat features. | Minor | Adverse |
| Loss/fragmentation of hedgehog & polecat habitat. | Minor | Adverse | Sensitive site clearance methodologies and habitat retention/creation. | Non-significant | Non-significant |
| Loss of great crested newt breeding pond & terrestrial habitats | Minor | Adverse | Amphibian translocation and habitat creation under EPSM licence. | Non-significant | Non-significant |
| Loss of nesting bird habitat. | Moderate | Adverse | Sensitive timing of vegetation removal. 14.6ha of habitat creation and/or enhancement on site to include woodland, hedgerows and ponds. | Moderate | Adverse |
| Loss of large areas of semi-natural habitat of value to common invertebrate assemblages | Minor | Adverse | 14.6ha of invertebrate attracting habitat creation and/or enhancement on site to include woodland, hedgerows and ponds. | Non-significant | Non-significant |
| Impacts on barn owl & badgers | Not applicable | Not applicable | No mitigation required. Precautionary pre-commencement updated survey. | Not applicable | Not applicable |
| **Air Quality** | | | | | |
| Increases in dust and particles due to construction, earthworks, trackout and demolition | Minor | Adverse | Implementation of a Dust Management Plan to reduce the likelihood of dust escaping beyond the boundary of the proposed development site. | Negligible | Adverse |
| **Cultural Heritage & Archaeology** | | | | | |
| Direct physical impact to archaeological remains | Minor | Adverse | Archaeological excavation and/or watching brief on areas where the presence or likely presence | Negligible | Adverse |

| | | | | | |
|---|---|---|---|---|---|
| leading to partial or total loss of an archaeological asset | | | of archaeological remains is coincident with ground works required for the proposed development. Any archaeological attendances would be followed by analysis of the findings, publication and dissemination of the results and deposition of the archive in line with archaeological practice. The archaeological attendances would be configured with reference to the standards and guidance published by the Chartered Institute for Archaeologists with a contingency to respond to findings. | | |
| **Noise & Vibration** | | | | | |
| Increase in noise level from construction noise | Minor-Moderate | Adverse | Implementation of Best Practicable Means and restrictions in working hours to ensure minimal disruption | Minor | Adverse |
| Increase in noise from plant | Minor-Moderate | Adverse | Ensure that a detailed assessment of potential plant noise is carried out when the need for plant is identified | Minor | Adverse |
| **Socio-Economics** | | | | | |
| Employment Resulting from the construction phase | Moderate | Beneficial | - | Moderate | Beneficial |
| **Recreation** | | | | | |
| Loss of Mill Lane Sport Pitches | Moderate-Major | Adverse | - | Moderate-Major | Adverse |
| Peel Cottage Lane PROW | Major | Adverse | - | Major | Adverse |

**Table 15.3: Summary of Impacts and Mitigation**
**Permanent- Operation Phase**

| Environmental Topic | Significance of Effect | | Proposed Mitigation | Significance of Residual Effect | |
|---|---|---|---|---|---|
| | Major, Moderate, Minor, Negligible | Adverse, Beneficial, Neutral | | Major, Moderate, Minor, Negligible | Adverse, Beneficial, Neutral |
| **Landscape & Visual Amenity** | | | | | |
| Visual impact and loss of amenity to users of the sports pitches/ recreational area. | Moderate | Adverse | Provision of new sports pitches and recreational areas prior to loss of existing facilities. | Minor | Adverse |
| Change in character of an open landscape to residential development, industrial uses and infrastructure | Negligible | Adverse | Change in character inevitable but will be in keeping with development to the south. Mitigated by good design and landscape treatment. Elements of existing vegetation will be retained and enhanced to provide setting and assimilate the proposed development into the surrounding landscape. | Negligible | Neutral |
| Impact on limited number of local residents who currently have unrestricted views of the site | Moderate | Adverse | Proposed landscape masterplan will inform the detail of development to provide screening for adjacent residents. | Minor | Adverse |
| Impact on users of the public footpath to the north east of the site | Major | Adverse | Footpath routed retained on existing route and screened from adjacent development, new pedestrian routes created through the site, linking areas of existing and proposed open space. | Moderate | Adverse |
| Impact on existing habitats- stream courses, existing woodland, hedgerows etc. | Minor | Adverse | Stream courses retained, new ponds created with habitat enhancement. | Negligible | Adverse |
| **Highways & Transportation** | | | | | |
| Development traffic will cause congestion. | Moderate- Major | Adverse | Introduce new extended bus services into the site; Travel Plan measures to reduce congestion and encourage healthier travel choices; highway engineering works to mitigate the effect of development traffic at specific locations. | Moderate-Major | Beneficial |

| | | | | | |
|---|---|---|---|---|---|
| Loss of amenity for existing users of the public right of way network | Negligible | Adverse | Proposed to have extensive footway and cycleway network through the developed site. | Moderate | Beneficial |
| **Hydrology, Flood Risk & Drainage** | | | | | |
| Loss of permeable greenfield land | Negligible | Adverse | Surface water is proposed to be controlled through attenuation features across the site, limiting the flow of water from the site to the existing run-off rates | Minor | Beneficial |
| Potential contaminants or particulates seeping into the groundwater and / or river courses. | Negligible | Adverse | Lined permeable paving and attenuation features provide a two stage filtering process across the site, removing and containing any contaminants or particulates. | Minor | Beneficial |
| **Ecology & Nature Conservation** | | | | | |
| Public disturbance to Radley Plantation and Pond Local Wildlife Site | Negligible | Adverse | Woodland enhancement and public awareness | Minor | Beneficial |
| Public disturbance to retained & created woodland | Negligible | Adverse | Woodland enhancement through management.<br>Proposed layout to ensure no rear gardens adjacent to woodland edges. | Non-significant | Non-significant |
| Pollution & disturbance of retained & created ponds | Minor | Adverse | SUDS system to prevent any pollution/siltation of waterbodies.<br>Walkway barriers and information boards around ponds. | Non-significant | Non-significant |
| Road use over stream and ditch habitats | Minor | Adverse | Drainage design to prevent any pollution/siltation of watercourse | Non-significant | Non-significant |
| Impacts to reed bed, grassland, scrub, ruderal & fern. | No operational effects | Not applicable | Any losses have occurred during the construction phase. No operational effects predicted | No operational effects | Not applicable |
| Road usage over potential water vole habitat | Not known (access constraints) | Not known (access constraints) | 10 metre buffer protection zones to be maintained along Spa Brook & Ditch 1.<br>SUDS system to prevent any pollution/siltation of watercourse | Non-significant | Non-significant |
| Impact on invertebrates & bat foraging areas through the site lighting. | Moderate | Adverse | Unlit buffer zones along key habitat features & overall sensitive lighting design. | Minor | Adverse |

| | | | | | |
|---|---|---|---|---|---|
| Fragmentation of hedgehog & polecat habitat by garden fences and roads. | Minor | Adverse | Wildlife underpasses suitable for small mammals/herptiles and garden fence design. | Non-significant | Non-significant |
| Pollution of amphibian ponds & increased public disturbance. Roads present permanent amphibian dispersal barriers. | Minor | Adverse | Permanent GCN fencing along link road between ponds, amphibian underpasses at key locations & pond protection. | Non-significant | Non-significant |
| Disturbance to nesting birds by increased pedestrian use of site and general development. | Minor | Adverse | Walkways outside of any vegetation buffer zones with barriers. | Non-significant | Non-significant |
| **Air Quality** | | | | | |
| Increases in concentrations of NO2, PM10 and PM2.5 from increased traffic flows | Negligible | Adverse | - | Negligible | Adverse |
| **Cultural Heritage & Archaeology** | | | | | |
| Indirect impact on the setting of an archaeological or cultural heritage asset leading to a diminution of its significance | Negligible-Minor | Adverse | For those archaeological and cultural heritage assets for which an indirect impact to setting has been predicted no formal mitigation is recommended as the magnitude of the impacts to settings and significance of the effect is marginally adverse and there is inherent mitigation in the quality of the design and layout of the proposed development. | Negligible | Adverse |
| **Noise & Vibration** | | | | | |
| Noise levels in proposed habitable rooms | Major | Adverse | Appropriate design of site using principals of good acoustic design. Suitable façade mitigation in terms of construction, glazing and ventilation. | Minor | Adverse |
| Change in noise levels due to road traffic | Moderate | Adverse | Use of a landscaped area to include a 2.0m barrier to the north of a new entrance road off Mill Lane. | Minor | Adverse |
| **Socio-Economics** | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Operational Employment | Moderate | Beneficial | - | Moderate | Beneficial |
| Resident Expenditure | Moderate | Beneficial | - | Moderate | Beneficial |
| Public Revenue | Moderate | Beneficial | - | Moderate | Beneficial |
| Local Labour Market | Minor | Beneficial | - | Minor | Beneficial |
| Housing | Moderate | Beneficial | - | Moderate | Beneficial |
| Deprivation | Minor | Beneficial | - | Minor | Beneficial |
| Commuting: Increase in the level of commuting within the local area. | Minor | Adverse | Commuting: Retail / leisure / community floorspace within the proposed development will help minimise net out commuting levels overall. Any remaining adverse impacts can be addressed through suitable planning conditions. | - | Neutral |
| Primary Education: Increased demand for primary school places, which are operating close to capacity. | Minor | Adverse | Primary Education: land will be made available for a 1FE Primary School as part of the Peel Hall proposals. Any residual shortfall in primary school provision would be mitigated through appropriate Section 106 financial contributions. | - | Neutral |
| Secondary Education: Increased demand for secondary school places, which are operating close to capacity. | Moderate | Adverse | Secondary Education: Appropriate Section 106 contributions. | - | Neutral |
| Healthcare: Increased demand for healthcare facilities, which are operating close to capacity. | Minor | Adverse | Healthcare: Appropriate Section 106 contributions or the availability of space within the local centre | - | Neutral |
| Open Space & Recreation: Increased demand for open space and recreational facilities. | Minor | Adverse | Open Space & Recreation: The proposed development will include suitable onsite open space provision and significant improvements to current substandard sports fields to the south-east of Windermere Avenue, at a higher quality than currently exists. It therefore provides adequate mitigation for the increased demand for open space and recreational areas that might arise following occupation of the proposed development. Any remaining adverse impacts | Minor | Beneficial |

| | | | | | |
|---|---|---|---|---|---|
| | | | can be most easily mitigated through Section 106 financial contributions. | | |
| **Recreation** | | | | | |
| Loss of Mill Lane Sport Pitches | Minor | Adverse | Replacement sports pitches of better quality and quantity with supporting amenities including changing facilities. | Minor-Moderate | Beneficial |
| Peel Cottage Lane PROW | Major | Adverse | Footpath route to remain. Landscape planting will reduce impact on footpath over time. | Moderate | Adverse |

## 16.0 CONCLUSIONS

16.1 In summary the following topic areas have been addressed and the findings are set out below:

- Planning Policy - Overall the proposed development complies with relevant national and development plan policies. It aids the fulfilment of objectives and strategies within non-statutory assessments such as the provision of market and affordable housing, local employment and crating investment. The “tilted balance” applies

- Ecology and Nature Conservation - There will be no direct effects on Radley Plantation and Pond LWS, however current semi-natural habitats within the application site that directly abut the LWS woodland edge will be partially displaced by proposed playing fields, resulting in a slight potential impact to woodland structure. The Woodland Trust and County Ecologist/Consulting Body will be consulted as part of the planning process to further assess the potential impacts of proposals on Radley Plantation and Pond LWS.

- The evaluation of predicted effects has shown that a Moderate Adverse effect is predicted on the site as a whole through the loss of common but extensive semi-natural habitats during construction. These effects are partially reversible through the enhancement of retained habitats and provision of new habitats.

- Critical to a moderate adverse effect being predicted, is the overall low diversity and rankness of the plant communities on site, and the artificial nature of the woodlands effected by proposals. Whilst the site is large and losses extensive and of very high magnitude, the individual habitats affected are essentially poor. Extensive habitat degradation in the form of fly tipping and invasive species further reduces the ecological value of the site.

- Faunal species/species groups of conservation concern recorded on site include foraging bats, breeding birds and a small population of breeding great crested newts.

- Mitigation and precautionary method statements are provided for roosting and foraging bats, breeding birds, water vole, great crested newt and hedgehog.

- Species for which on-site mitigation is not possible include skylark and noctule bat, which are likely to be displaced to surrounding open agricultural land.

- A minimum of an internal inspection of the four buildings on/connected to the site that could not be accessed must be undertaken prior to any works commencing.

- GCN survey data must be no more than two years old in order to apply for a GCN licence. It would be prudent to include ponds within Peel Park within any future survey work to fully establish the population status of GCN.

- Hydrology, Drainage and Flood Risk - It is concluded that the development is not at risk of fluvial, tidal, overland groundwater flooding and will not increase flooding to surrounding areas.

- Landscape and Visual Impact - Subject to the mitigation proposals there would not be any overall significant adverse impact in landscape, character or visual terms.

- Transportation and Highways – With mitigation, the predicted impact to the wider highway network is expected to be moderate beneficial, with a high level of provision for public transport, cyclists and pedestrians.

- Cultural Heritage and Archaeology - The mitigation measures and advancement of understanding compensates for the loss of any cultural, heritage and archaeological assets. With regard to the assessment site the investigation and recording of any cultural assets would lead to an overall residual slight adverse/neutral impact for all directly impacted assets.

- Noise - The proposals meet both IEMA and British Standards for sound insulation and noise reduction for buildings. It is considered that the proposed development adheres to the principles of paragraph 109 of the NPPF and 'will not put at risk from or being adversely affected by unacceptable levels of soil, air, water or noise pollution.' It is considered that noise and vibration should not be a constraint on residential amenity.

- Air Quality - It is considered that the proposed development adheres to paragraph 170 of the NPPF and does not adversely affect existing or new development by reason of unacceptable levels of air pollution. It is considered that air pollution should not be a constraint on the proposed residential development.

- Social Infrastructure - The scale of housing and its associated increase in residential population will be relatively minor when viewed in the context of the Borough as a whole. The proposed mixed- use scheme represents a significant new capital investment within the local area and this will help raise the overall level of economic activity and expenditure within the local economy.

16.2 The overall conclusion of this addendum to the environmental statement is that any impact that occurs as the result of the scheme can be successfully mitigated and that all mitigation matters can be conditioned as part of reserved matters planning applications.

# PART 3 GENERAL CONCLUSION

## 17.0 GENERAL CONCLUSIONS

17.1 Since the preparation of the Environmental Statement and Addendum 1 for the proposed development at Peel Hall, a review of traffic, noise and air quality data has been carried out which might have affected the assumptions made in respect of likely impacts as set out in the original document and addendum 1. Updated ecology surveys have also been undertaken. As the result of this the ES Chapters dealing with Highways and Transportation, Noise, Air Quality and Ecology have been revised. The submitted layout has been re-assessed based on the new data and updated accordingly.

17.1 The addendum 2 serves to provide clarification, updated surveys and additional information as part of the reopened inquiry.

17.2 The overall conclusion of this study is that the scheme could be implemented without causing significant adverse environmental effects.