Intended for
Four Ashes Ltd

Date
September, 2016

Project Number
UK15-22821_Scoping

WEST MIDLANDS INTERCHANGE
FORMAL EIA SCOPING OPINION REQUEST

RAMBOLL ENVIRON

WEST MIDLANDS INTERCHANGE
FORMAL EIA SCOPING OPINION REQUEST

Project No.	**UK15-22821**
Issue No.	**4**
Date	**12/09/2016**
Made by	**Rachel Naylor**
Checked by	**Matt Royall**
Approved by	**Matt Royall**

Made by:	[redacted]
Checked/Approved by:	[redacted]

Version Control Log

Revision	Date	Made by	Checked by	Approved by	Description
1	07/03/2016	RN	MR	MR	First Draft
2	25/07/2016	RN	MR	MR	Second Draft For Team Re-view
3	06/09/2016	RN	MR	MR	Final Draft For Legal Sign-off
4	12/09/16	RN	MR	MR	Final

Ramboll Environ
Artillery House
11-19 Artillery Row
London
SW1P 1RT
United Kingdom
T +44 207 808 1420
www.ramboll-environ.com

CONTENTS

1. INTRODUCTION

1.1 Background

1.1.1 Four Ashes Limited (hereafter referred to as the 'Applicant') intends to make an application ('Application') to the Secretary of State ('SoS') via the Planning Inspectorate ('PINS') for a Development Consent Order ('DCO') under the Planning Act 2008 for the development of a new Strategic Rail Freight Interchange ('SRFI') and associated warehousing (together, the 'Proposed Development') at land located at Four Ashes, Staffordshire (the 'Site') (see Figure 1). The Proposed Development is also known as the West Midlands Interchange ('WMI').

1.1.2 The Site covers an area of approximately 260 hectares (ha) and falls within the administrative boundary of South Staffordshire Council ('SSC'). The application redline boundary for the purposes of scoping the Environmental Impact Assessment ('EIA') is shown in Figure 1, with Figure 2 showing the Site's location in the wider context.

1.1.3 The Proposed Development comprises the demolition of existing structures and the construction of an intermodal SRFI and associated rail freight warehousing, ancillary buildings and infrastructure.

1.1.4 Ramboll Environ UK Ltd (Ramboll Environ) have been commissioned by the Applicant to undertake an Environmental Impact Assessment ('EIA') for the Proposed Development, in accordance with the requirements of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (as amended) ('EIA Regulations') and relevant EIA guidance, including the National Networks National Policy Statement (2014)[1].

[1] Department for Transport. National Policy Statement for National Networks. December 2014.

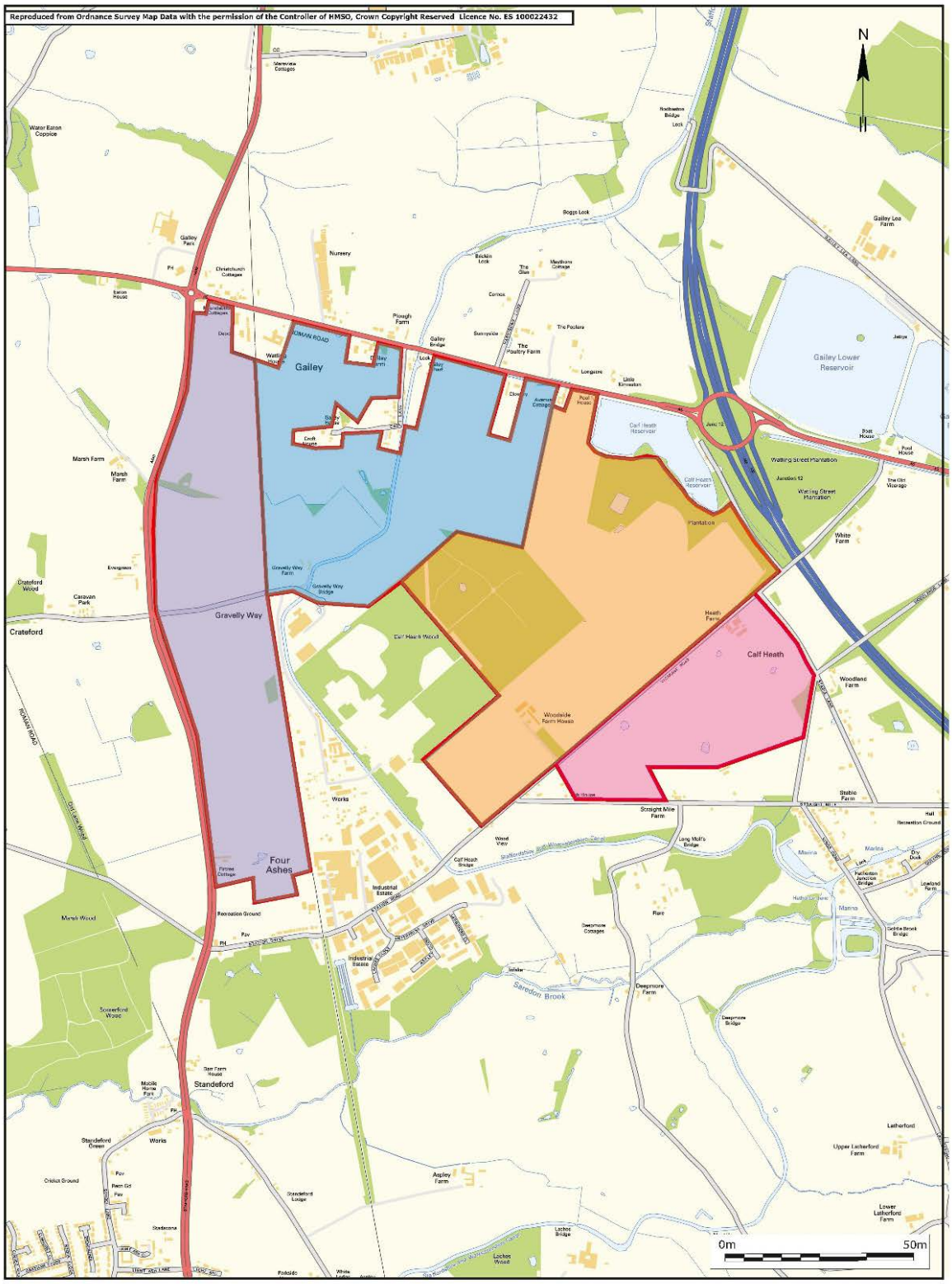


Figure 1: Scoping Redline Boundary

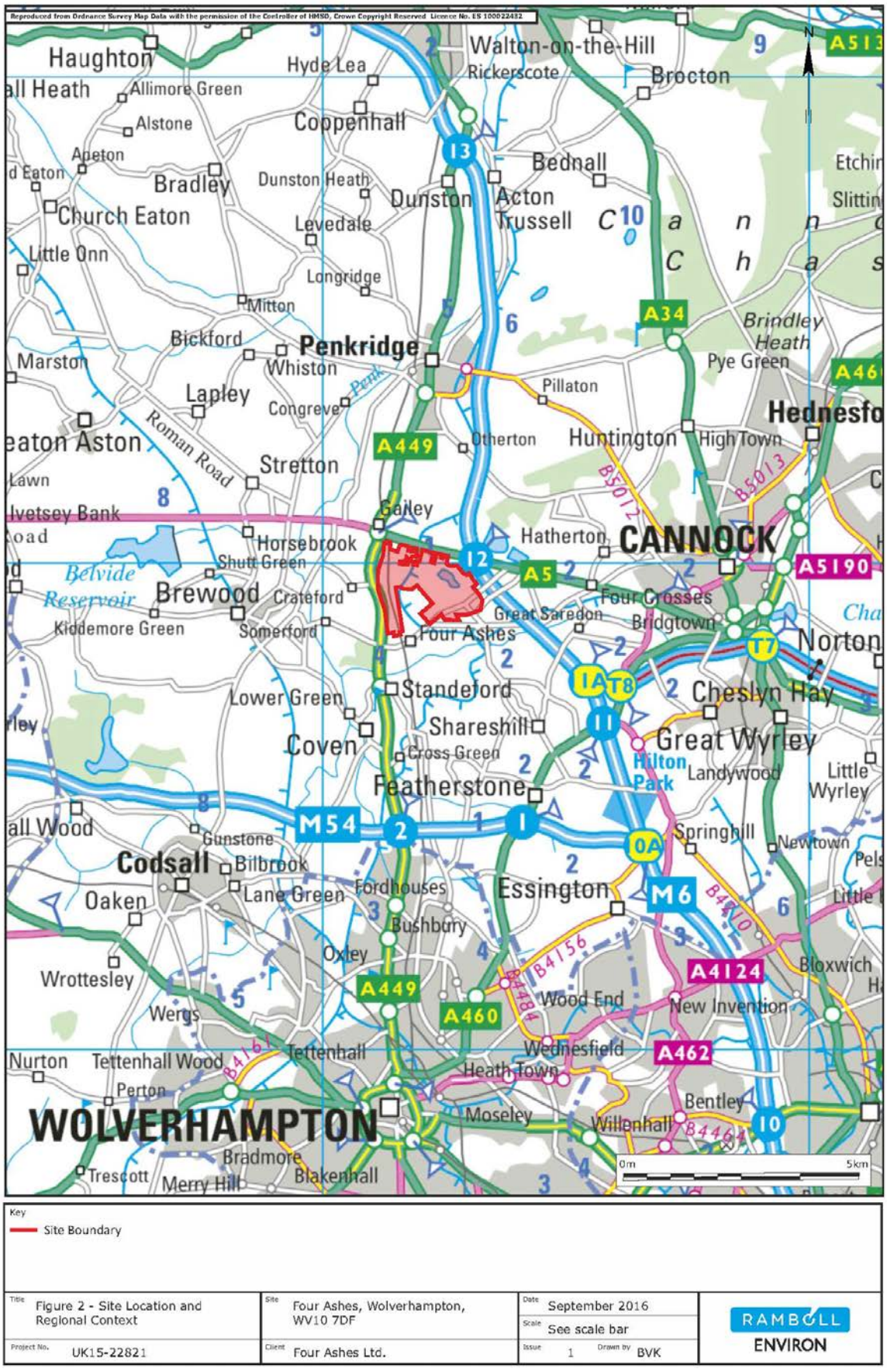


Figure 2: Site Location and Regional Context

1.2 Nationally Significant Infrastructure Projects and Need for an Environmental Impact Assessment

1.2.1 The Proposed Development, as a rail freight interchange, constitutes a Nationally Significant Infrastructure Project ('NSIP') under Sections 14(1)(l) and 26 of the Planning Act 2008.

1.2.2 The Planning Act 2008 defines what projects constitute Nationally Significant Infrastructure Projects ('NSIP'). Under Section 14(1)(l) of the Act an NSIP includes a 'rail freight interchange'. Section 26 of the Act requires that the land on which the proposed 'rail freight interchange' will be situated must be in England and must be at least 60 hectares in area. In addition, the rail freight interchange must:

- be capable of handling consignments of goods from more than one consignor and to more than one consignee;
- be capable of handling at least 4 trains per day;
- be part of the rail network in England;
- include warehouses to which goods can be delivered from the railway network in England either directly or by means of another form of transport.

1.2.3 The Proposed Development fulfils all the requirements set out above and, accordingly, is a NSIP.

1.2.4 Environmental Impact Assessment (EIA) is a process that identifies the likely significant environmental impacts (both beneficial and adverse) of a proposed development and aims to prevent, reduce and offset any potential significant adverse environmental effects. EIA is required for certain developments under the EIA Regulations. Some NSIPs always require EIA (defined by the EIA Regulations under Schedule 1), others only require EIA if they are likely to have significant effects on the environment by virtue of their nature, size or location (defined by the EIA Regulations under Schedule 2).

1.2.5 In this instance, the Applicant is undertaking an EIA (in accordance with the EIA Regulations) under paragraph 10 of Schedule 2 because of the characteristics, location and potential impact of the Proposed Development, to ensure that any potentially significant effects of the development on the environment are considered and where appropriate, mitigated. Therefore, in accordance with Regulation 6(1) of the EIA Regulations, the Applicant has notified the Secretary of State, by the letter addressed to the Secretary of State that accompanies this request for a Scoping Opinion that it intends to undertake an EIA as part of the DCO application for the Proposed Development. In accordance with Regulation 4(2)(a) of the EIA Regulations, the Proposed Development will be determined as EIA development and will comply with the requirements of the EIA process set out in the EIA Regulations.

1.2.6 The findings of the assessment will be presented in a single document called an Environmental Statement ('ES'). The ES will be a clear and concise assessment of the environmental impacts associated with demolition, construction, operation and decommissioning of the Proposed Development – including direct, indirect, secondary and cumulative short, medium and long term, permanent, temporary, beneficial and adverse effects.

1.2.7 The purpose of the ES is to inform the SoS, statutory consultees, non-statutory consultees and the public about the Proposed Development, allowing consultees and the public to provide feedback, and enabling PINS and the SoS to take into account all relevant environmental information when making a determination of the Application.

1.2.8 The EIA Regulations specify the scope of information to be included in the ES and the involvement of environmental regulatory bodies in the process. In addition to the consultation with regulatory bodies, the participation of non-statutory organisations is also important.

1.3 Request for a Scoping Opinion

1.3.1 This document comprises a request by the Applicant for the SoS to adopt a Scoping Opinion to confirm the information to be provided within the ES. This request is made pursuant to, and in accordance with, Regulation 8 of the EIA Regulations and relevant Planning Inspectorate Advice Notes.

1.4 Purpose of the EIA Scoping Report

1.4.1 The purpose of this EIA Scoping Report (the 'Report') is to seek to agree with the SoS the proposed scope and approach to be adopted for the EIA, and to facilitate wider consultation with statutory consultees and key stakeholders likely to have an interest in the Proposed Development.

1.4.2 In line with PINS guidance, this Report includes the following:

- a plan sufficient to identify the land i.e. the Site;
- a brief description of the nature and purpose of the Proposed Development and of its possible effects on the environment (topic-by-topic);
- an outline of the main reasons why the Site was chosen and some information on the evolution of the design (alternatives that were considered and the reasons for selecting a preferred option will be addressed within the EIA, as the scheme has not yet been fixed);
- results of desktop and baseline studies to date, where available;
- plans to convey all known aspects associated with the Proposed Development (including the two masterplan layout options consulted on during the Stage One consultation period in June / July 2016);
- guidance and best practice to be relied upon, and whether this has been agreed with the relevant bodies (for example the statutory nature conservation bodies or local authorities) together with copies of correspondence to support these agreements;
- methods used or proposed to be used to predict impacts and the significance criteria framework used;
- details of cumulative schemes and the proposed methodology for assessing the impacts of cumulative schemes in the ES;
- an indication of any European designated nature conservation sites that are likely to be significantly affected by the Proposed Development and the nature of the likely significant impacts on these sites;
- key topics covered as part of this scoping exercise;

- identifies the non-significant environmental issues that are proposed to be 'scoped out' of the EIA process; and
- an outline of the structure of the proposed ES.

1.4.3 At this stage, the design is still evolving, therefore we are not in a position to confirm mitigation measures and expected residual effects. These will be confirmed within the ES.

1.4.4 The specific objectives of this Report are to:

- invite comment on the environmental issues, to determine whether the key environmental issues have been correctly included ('scoped in') or excluded ('scoped out') as appropriate;
- invite comment on the proposed approach to baseline data collection, prediction of environmental impacts and assessment of significance; and
- request information or advice on how to obtain access to environmental information held by third parties.

1.5 Consultation Strategy

1.5.1 The process of consultation is a key requirement of EIA and the views of statutory consultees and stakeholders serve to help identify specific issues, as well as highlighting the existence of any information in their possession, or of which they have knowledge, which may be of assistance in progressing the EIA. The key statutory consultees contributing to the formal EIA Scoping process include (but are not limited to):

- Staffordshire County Council ('SCC');
- South Staffordshire Council ('SSC');
- The Environment Agency;
- Natural England;
- English Heritage; and
- Highways England.

1.5.2 Unless consultees specifically request otherwise, all responses will be collated and presented in an appendix to the ES, as a record of the results of the scoping exercise.

1.5.3 As part of the design and EIA process, measures will be developed and discussed with relevant consultees to avoid, reduce, mitigate potential adverse effects, or provide enhancements, where appropriate.

1.5.4 In terms of the consultation undertaken to date on EIA matters, in addition to some early discussions with statutory consultees, an Environmental Report was produced and publicised as part of the Stage 1 consultation process. The Environmental Report summarised the planning policy, legislation and guidance that will be considered throughout the EIA process, the baseline studies undertaken up to that point, and provided an indication on the potential likely significant environmental effects of the Proposed Development.

2. SITE DESCRIPTION

2.1 Site Location

2.1.1 The Site is approximately 10 kilometres to the north of Wolverhampton and immediately west of Junction 12 of the M6 in South Staffordshire. As referenced earlier within this Report, the Site is approximately 260 ha in size and is located within the administrative boundary of SSC, within the Civil Parishes of Brewood and Coven, Penkridge and Hatherton.

2.1.2 Figures 1 and 2, as presented earlier within this Report, identify the Site's location.

2.1.3 The Site is broadly bound by the A5 road to the north (from Junction 12 to the Gailey Roundabout); calf heath reservoir, the M6, Stable Lane and Woodlands Lane to the east; Station Drive and Straight Mile to the south; and the A449 (Stafford Road), from the Gailey Roundabout to Station Drive to the west.

2.1.4 The surrounding area is characterised by a mixture of agricultural fields and employment uses. A small number of residential and commercial properties are located along the A5 to the north of the Site, including a petrol filling station and a nursery/garden centre. Calf Heath Reservoir is located adjacent to the north-eastern Site boundary.

2.1.5 The large chemical works operated by SI Group is located between the western and eastern sections of the Site. The chemical works does not form part of the Site. Outline planning permission was granted in 2008 for development on land (known as the Bericote site) adjoining the chemical works. The approval is for 84,000 square metres of storage and distribution warehousing with ancillary office, parking and servicing. The existing Four Ashes Industrial Estate is located adjacent to the southern Site boundary and the Veolia energy recovery facility is also located south of the Site.

2.1.6 There a Site of Special Scientific Interest ('SSSI') located approximately 140 m south of the Site. The SSSI is designated for its geological value.

2.2 Site Description

2.2.1 The Site is characterised by a large area of sand and gravel mineral extraction within the east known as Calf Heath Quarry; a patchwork of agricultural fields with hedgerows and trees to the west and south of this and an area of mixed woodland known as Calf Heath Wood. To the south lies the Bericote development site, the chemical works operated by SI Group and the Four Ashes Industrial Estate, as mentioned above. The area south of Vicarage Road is made up of agricultural fields with trees and hedgerows. [The Site / Part of the Site] falls within the greenbelt.

2.2.2 The Staffordshire and Worcestershire Canal runs roughly north to south through the western part of the Site. The West Coast Main Line (WCML) runs north to south through the Site, near the western edge.

2.2.3 Public access to the Site is limited. A single Public Right of Way exists in the north-west and provides a link between Croft Lane and the A449 via an overbridge to the railway. A towpath also extends along the western side of the canal along its length through the Site. There is limited public access to the large area of the Site to the east of the canal or to Calf Heath Wood.

2.3 Alternatives Sites

2.3.1 Research undertaken by the project team has identified that a SRFI is important to the future prosperity of the West Midlands region, and there is considered to be a significant gap in the network to the north and west of the West Midlands area.

2.3.2 The proposed location for the Proposed Development is considered uniquely suited to meet the need for a large scale SRFI in this part of the country and the growing demand for rail-served floorspace to serve South Staffordshire, the Black Country and the West Midlands.

2.3.3 The Applicant and the project team concentrated its search for a SRFI location on the area to the north-west of the greater Birmingham area because the previous independent research by public bodies indicated that additional SRFI and / or rail-served warehouse floorspace was needed in this part of the West Midlands and that this area should be treated as a priority.

2.3.4 Using the WCML, which forms part of the Strategic Freight Network for Rail, as a starting point, the Applicant considered a number of alternative sites in the West Midlands Area. The Site was identified because:

- the Site can accommodate 795m reception sidings directly adjacent to the rail line. This allows the Site to have the capability to handle 775 metre trains – maximising train efficiency;
- the Site is located on a branch of the WCML. The rail line is W10 gauge[2], has access to the main line from both directions of travel and there is a reasonable expectation of securing up to 10 train paths per day on and off the main line in the medium to long term;
- this section of rail line is twin-track, as opposed to the four-track main section of the WCML through Rugeley to the east. A twin-track railway is typically much easier to link into from an SRFI, avoiding the need for a complex rail junction to be created;
- the M6 is one of the busiest roads for the transfer of freight within the UK. The WMI location is where the M6, the A5 trunk road, the A449 trunk road and the Strategic Freight Network for Rail come together to provide a unique opportunity to move goods between road and rail;
- the Site is large enough to accommodate a SRFI and achieve the critical mass required for success. Experience shows that the larger SRFIs are most successful at attracting frequent train movements and at 260 hectares, the Site is capable of generating enough critical mass to attract operators wishing to make the modal shift between road and rail;
- the Site would provide easy access for businesses which currently either don't have access to the rail network or those who have to rely on remotely located rail terminals;
- the Proposed Development would be one of a network of SRFIs that serve the needs of the country as a whole and the West Midlands in particular. At present, the north-western part of the West Midlands is poorly served by modern rail-linked

[2] The 'loading gauge' is a measure of the height and width of rolling stock and freight wagons which defines the size of vehicles which can be carried on a specific rail route. The NPS states that, as a minimum, SRFIs should be located on a route with W8 gauge. W10 gauge allows 2.9m (9ft 6in) high *Hi-Cube* shipping containers to be carried on standard wagons and also allows 2.5m (8ft 2in) wide *Euro* shipping containers.

distribution facilities – the Proposed Development could therefore make a substantial contribution to the logistics network that supports Staffordshire and the Black Country in particular;

- proximity to market is key for businesses which need to get their goods to consumer, particularly where a product is perishable; and
- given its central location in the UK and easy access to the strategic road network, it has been calculated that 88% of the UK population can be reached within a 4.5 hour heavy goods vehicle (HGV) drive from the Site. The South Staffordshire area is exceptionally well located for both regional and national distribution but unable to take advantage of this attribute without the provision of large scale distribution floorspace.

2.3.5 No other locations have been identified that can offer this exceptional combination of advantages. A detailed Alternative Sites Assessment (ASA) will accompany the Application to explain why certain alternatives have not been taken forward and why the preferred option has been selected, and this will be summarised within the ES.

3. PROJECT AND DESCRIPTION OF DEVELOPMENT

3.1 Introduction

3.1.1 The Application will define the key principles of the Proposed Development in sufficient detail to allow the likely significant environment effects to be assessed, whilst seeking to preserve enough flexibility to allow the developed scheme to accommodate the specific requirements of subsequent occupiers.

3.1.2 In accordance with PINs "Advice Note Nine: Rochdale Envelope", the Application will seek approval of a set of parameters within which the framework of development would take place. The parameters would be clearly defined by a set of key drawings, written statements and supporting graphic materials.

3.1.3 In accordance with the EIA Regulations, the final submission will also include any plans, drawings and sections necessary to describe the Proposed Development, as well as, a Land Plan, a Works Plan(s), plans identifying any new or altered means of access and, where applicable, plans containing details of sites or features of nature conservation, habitats of protected species, a river basin management plan, details relating to sites or features of the historic environment, etc.

3.1.4 Whilst the detailed proposals are still evolving, the Proposed Development is likely to include the following principal elements:

- an intermodal rail freight terminal with connections to the West Coast Main Line, accommodating up to 10 trains per day with the capability to receive trains of up to 775m long and including container storage and associated HGV parking;
- around 800,000 square metres of rail served warehousing, ancillary service buildings and parking;
- new road infrastructure and works to the existing road infrastructure;
- a new principal access from the A5 into the Site;
- landscaping; and
- demolition of existing structures within the Site, where necessary.

3.1.5 Two main masterplan layout options are currently being explored, which will inform the parameters of the Proposed Development sought for approval, they are referred to as the 'West Terminal Option' and the 'East Terminal Option'. Both options have the capability to receive a full length 775 metre freight train from the WCML. Both options use a similar road infrastructure and will utilise the A5 roundabout as the primary access into the Site, with the A449 and Vicarage Road roundabouts acting as secondary and tertiary accesses respectively.

3.1.6 Heights of the buildings across both options are expected to vary between a minimum of 18 metres and a maximum 36 metres, with the buildings nearest residents and sensitive areas being at the lower end of that scale. Substantial landscape screening would be provided to the perimeter of the Site to provide screening of the warehouses and the rail terminal.

3.1.7 A summary of each current option is provided below.

3.2 West Terminal Option

3.2.1 This option has the rail terminal access points to the west of the existing rail line. The trains would be split in two in the reception sidings and then moved into the terminal. The West Terminal Option can accommodate 775m trains in the reception sidings and 395m sections in the rail terminal area. The container stacking area will be alongside the rail terminal area with all the facilities to the west of the WCML.

3.2.2 Substantial landscape screening would be provided as part of the scheme to the south and west of the rail terminal, in addition to the comprehensive landscape scheme throughout the Site.

3.2.3 The indicative masterplan for the West Terminal Option is presented within Figure 3. Note, this masterplan is illustrative, representing what could come forward within the parameters submitted for approval through the DCO process.

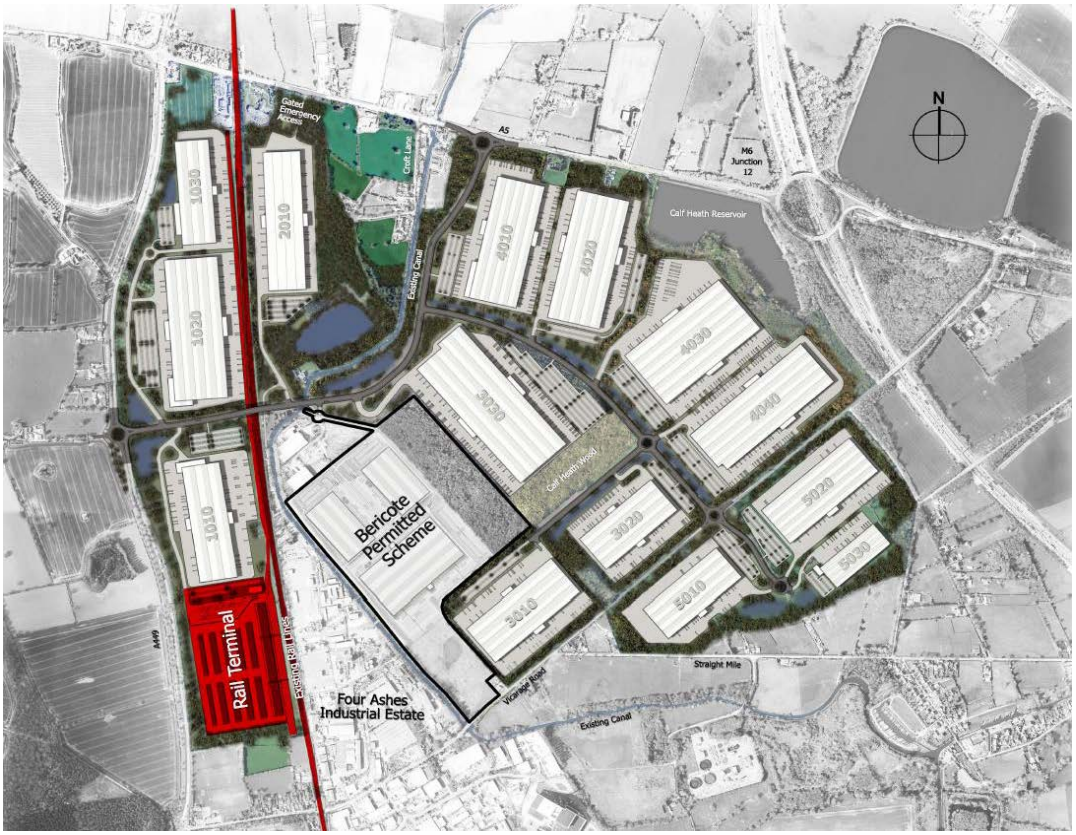


Figure 3: West Terminal Illustrative Masterplan Option

3.3 East Terminal Option

3.3.1 The East Terminal Option positions a 750m rail terminal plus locomotive and associated container stacking with the required ancillary facilities to the east of the rail line. Using this facility the terminal would be able to accept full length trains without the need to split them in the sidings. This option has the rail terminal access points to the east of the existing WCML and would require a new rail bridge over the existing canal.

3.3.2 Substantial landscape screening would be provided as part of the scheme to the west of the rail terminal and alongside the access rail lines, in addition to the comprehensive landscape scheme throughout the Site.

3.3.3 The indicative masterplan for the East Terminal Option is presented within Figure 4.

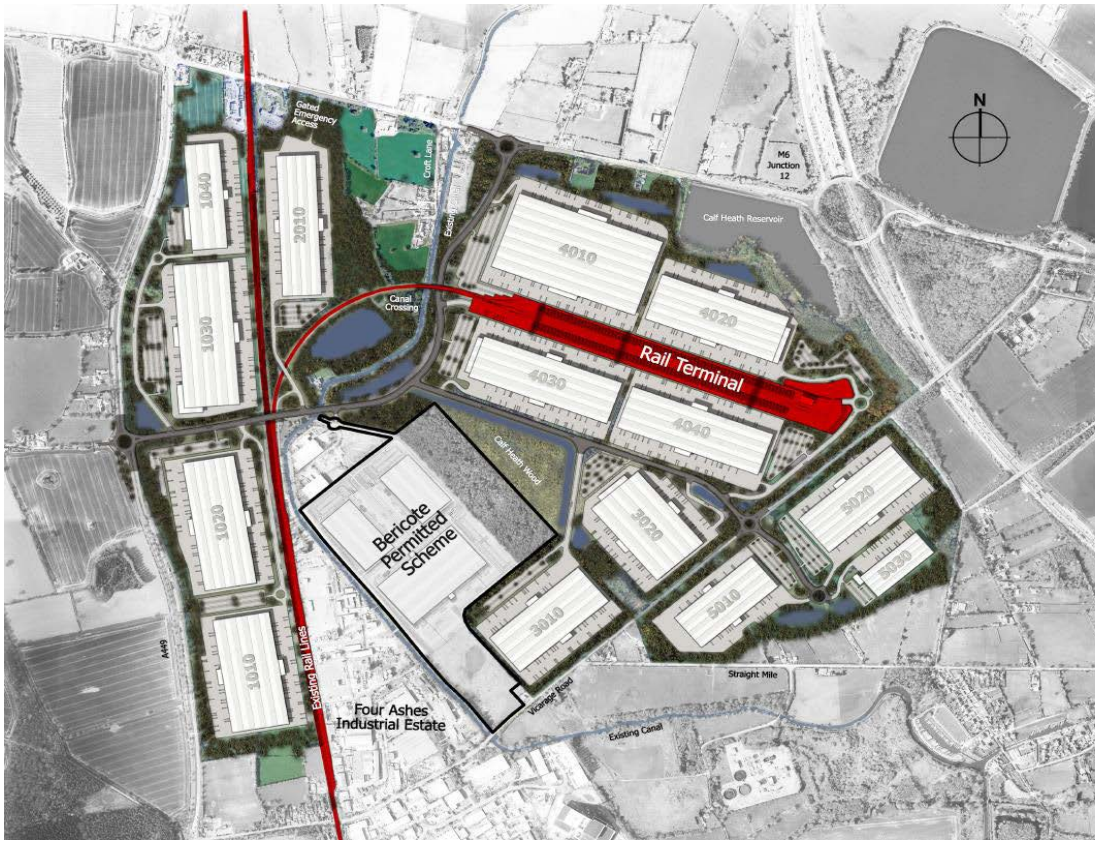


Figure 4: East Terminal Illustrative Masterplan Option

3.4 Development Evolution

3.4.1 As referred to above, the Proposed Development is currently evolving. A large amount of work has taken place to inform the evolution of the scheme. In the early examination of layout options by the project team, the principal practical constraints set by the existing rail line, canal and road network were identified. The relationship of the Site to its surroundings, particularly the environmental constraints and where the Proposed Development would potentially impact on local communities was examined. The layout is far from fixed at this stage in the design process and through the Stage One consultation process, two different options for the layout of the masterplan are currently being consulted on (as described above).

3.4.2 As the project team gather more information, the two options will continue to be investigated to determine which would provide the most suitable and deliverable layout to inform the parameters sought for approval. A description of the design evolution and how the Proposed Development has responded to environmental considerations will be presented within the ES.

4. PLANNING CONTEXT

4.1 Planning History

4.1.1 A number of planning permissions have been granted by Staffordshire County Council (SCC) relating to a sand and gravel extraction quarry which is currently operational on a large area of the Site. The current permission (SS.07/19/681) allows the phased extraction of sand and gravel to a depth of 4 metres and subsequent restoration of approximately 40 hectares of land in the north-east of the Site.

4.1.2 SSC approved an outline planning application in March 2008 for the erection of 84,000 sq m of warehousing (Use Class B8) and associated offices, parking, and access arrangements at a roughly 25 hectare site located between the Staffordshire and Worcestershire Canal and Calf Heath Wood, directly adjacent to the Site (Ref No. 07/01363/OUT). This development was never commenced, however, a similar application was recently submitted in May 2016 which seeks outline consent for the erection of four industrial/distribution buildings (Use Class B1(c)/B2/B8) along with access and servicing arrangements, car parking, landscaping and associated works (16/00498/FUL). At the time of producing this Report, the most recent application is not yet determined.

4.1.3 The locations of the aforementioned planning applications are presented within Figure 5.

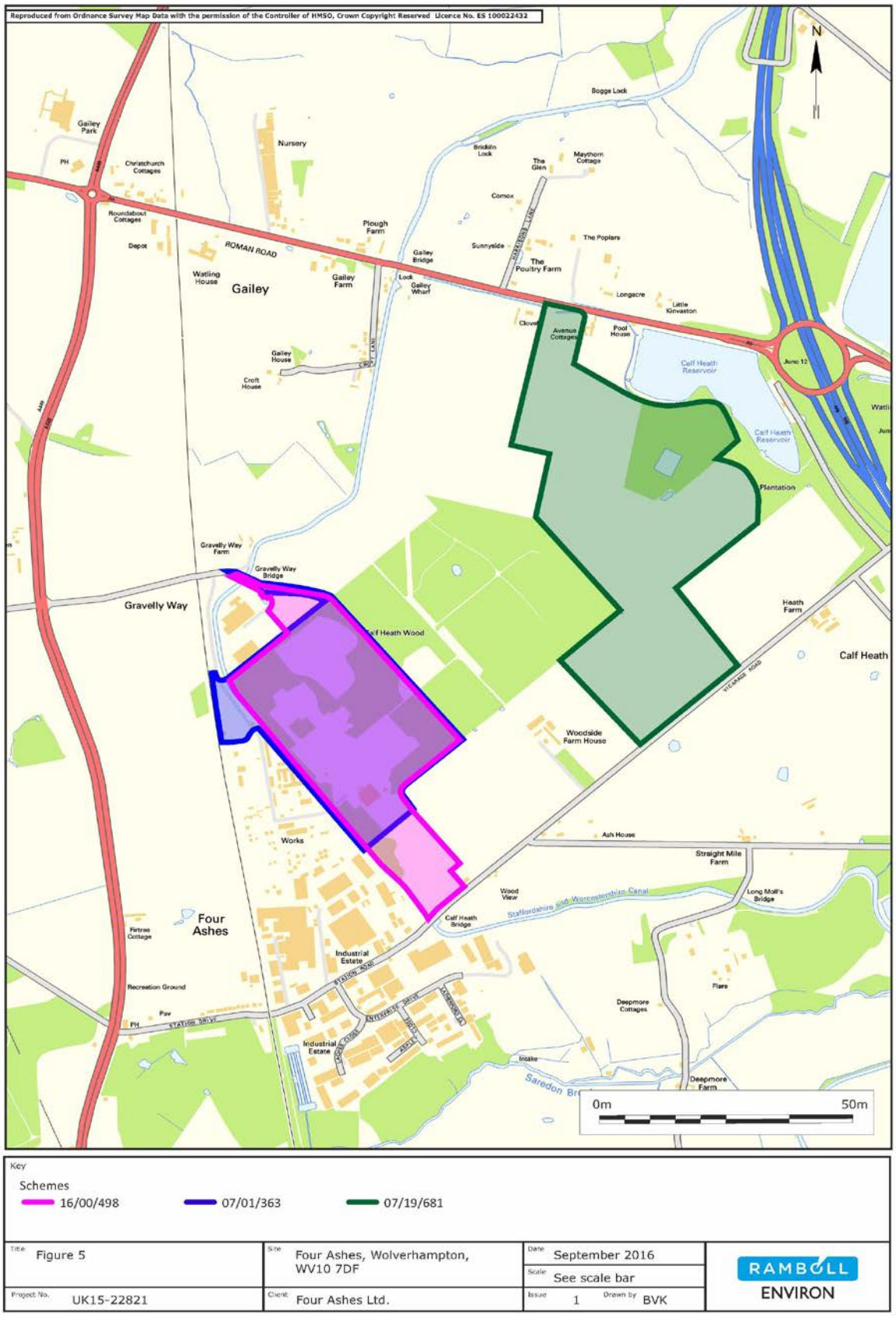


Figure 5: Planning History Context

4.2 Legislation and Policy

4.2.1 The Proposed Development will be guided by a range of legislation, policy, and guidance, as discussed in the sections below. It is important to note however that although the relevant legislation, policy, and guidance will inform the scope of technical assessments within the EIA, the Proposed Development's compliance with that legal and policy framework (together with associated standards/targets) will be appraised within the planning statement to be submitted with the Application. The main documents considered within the ES are identified below. The Environmental Report published as part of the Stage One Consultation process outlines the policy and guidance relative to each technical topic area. Each individual technical chapter of the ES will present the applicable planning context.

National Level

The Planning Act 2008

4.2.2 The Planning Act 2008 ('PA2008') states that in order to be considered nationally significant, a strategic rail freight interchange should be over 60 hectares in size and capable of handling at least four goods trains per day with rail-connected or rail-accessible buildings.

National Policy Statement (NPS)

4.2.3 NPSs are issued by the Government and under section 104 of the PA2008 an application for a 'national networks' infrastructure project must be considered and determined in accordance with the NPS, unless to do so would:

- lead to the UK being in breach of its international obligations;
- be unlawful;
- lead to the Secretary of State being in breach of any duty imposed by or under
- any legislation;
- result in adverse impacts of the development outweighing its benefits; and
- be contrary to regulations about how the decisions are to be taken.

4.2.4 The NPS is therefore a key source of policy guidance for the Proposed Development and forms the primary basis for decisions by the SoS.

National Networks National Policy Statement (2015)

4.2.5 The National Networks NPS was designated in accordance with Section 5 (4) of the PA 2008 (as amended) on 14 January 2015. It sets out the Government's policy for the delivery of nationally significant road and rail projects in England, including the development of SRFIs.

4.2.6 Section 5 of the National Networks NPS sets out how a wide range of impacts that may arise from national networks infrastructure should be considered as part of a DCO application. Accordingly, Table 4.1 sets out the environmental impact topics included within the National Networks NPS, and seeks to confirm (based on the information known at present) which technical chapter(s) of the ES will address and comply with the relevant requirements.

Table 4.1: NPS Compliance

NN NPS IMPACTS TO BE CONSIDERED	HOW CONSIDERED WITHIN SCOPE OF PROPOSED EIA?	FURTHER COMMENTS
Air Quality	ES Volume I: Air Quality chapter	
Carbon Emissions	Considered indirectly as part of the Transport Assessment relating to traffic impacts, and with regard to the positive impacts of facilitating a modal shift from road to rail.	The Sustainability Statement, which will accompany the Application will include details in relation to energy minimisation and efficiency
Biodiversity and Ecological Conservation	ES Volume I: Ecology and Nature Conservation chapter	
Waste Management	Considered that the Proposed Development would not give rise to significant environmental effects in relation to waste. A Waste Assessment is therefore proposed to be scoped out of the ES. However, ES Volume I: Demolition and Construction chapter will include commitments in relation to waste management and minimisation.	Waste arising from the construction phase will be managed in accordance with a Construction Environmental Management Plan (CEMP).
Civil and Military Aviation and Defence Interests	No aviation-related impacts are expected. Accordingly, consideration of aviation effects is proposed to be scoped out of the EIA.	
Coastal Change	The site is not located near the coast or in a low lying area. Accordingly, assessment of coastal change effects will not be considered within the EIA.	
Dust, Odour, Artificial light, Smoke, Steam	Dust - ES Volume I: Demolition and Construction chapter and Air Quality chapter. Artificial Light - ES Volume I: Ecology and Nature Conservation chapter, ES Volume III: Landscape and Visual Impact Assessment. Odour, smoke and steam effects are not expected.	

Flood Risk	ES Volume I: Water Environment and Flood Risk chapter.	
Land Instability	ES Volume I: Geology and Ground Conditions chapter and Agriculture and Soils chapter.	
The Historic Environment	ES Volume I: Cultural Heritage chapter and Archaeology chapter.	
Landscape and Visual Impacts	Volume II: The Landscape and Visual Impact Assessment, ES Volume I: Cultural Heritage chapter and Archaeology chapter.	
Land Use Including Open Space, Green Infrastructure and Green Belt	Volume II: The Landscape and Visual Impact Assessment (in relation to trees), ES Volume I: Ecology chapter, Agriculture and Soils chapter (in relation to land use).	
Noise and Vibration	ES Volume I: Noise and Vibration chapter.	
Impacts on Transport Networks	ES Volume I: Transport and Access chapter (including the Transport Assessment).	
Water Quality and Resources	ES Volume I: Water Environment.	

National Planning Policy Framework (2012)

4.2.7 Section 104 of the PA2008 requires that the Secretary of State must have regard to relevant NPSs but also matters that are both important and relevant to the decision. Accordingly, the ES will have regard to the National Planning Policy Framework (NPPF), which became immediately effective in March 2012. The NPPF sets out the Government's economic, environmental and social planning policies for England. The policies contained within the NPPF articulate the Government's vision of sustainable development, which are intended to be interpreted at a local level, to meet the requirements of local aspirations.

Planning Practice Guidance (2014)

4.2.8 The ES will also make reference to the Planning Practice Guidance (PPG), which is an online resource that became effective in March 2014. The PPG aims to make planning guidance more accessible, and to ensure that the guidance is kept up to date.

Local Policy

4.2.9 The South Staffordshire Core Strategy Development Plan Document (DPD), 2012, is the Local Plan for South Staffordshire and will be given due consideration in all technical assessments.

5. EIA PROCESS

5.1 Format and Content of the EIA

5.1.1 The ES will form of three main volumes, as follows:

- Volume I: The main ES;
- Volume II: The Landscape and Visual Impact Assessment; and
- Volume III: Technical Appendices to the main ES.

5.1.2 The three volumes of the ES will be summarised within a Non-Technical Summary (NTS), which will outline the key findings of the EIA, presented in non-technical language to assist the reader.

5.1.3 It is intended that Volume I of the ES will contain the following chapters:

- Introduction
- EIA Methodology and Significance Criteria
- Consideration of Alternatives and Design Evolution
- Description of the Proposed Development
- Demolition and Construction
- Agriculture and Soils
- Air Quality
- Cultural Heritage
- Archaeology
- Ecology and Nature Conservation
- Geology and Ground Conditions
- Socio-economics
- Transport and Access
- Noise and Vibration
- Water Environment
- Summary of Residual Effects and Mitigation

5.1.4 For consistency, it is intended that the structure of the ES chapters will be as follows:

- Introduction;
- Legislation, Policy and Best Practice;
- Assessment Methodology and Significance Criteria;
- Limitations and Assumptions;
- Baseline Conditions;
- Assessment of Potential Effects;
- Mitigation;
- Assessment of Residual Effects;
- Assessment of Cumulative Effects and Inter-relationships;
- References; and
- Glossary.

5.2 EIA Approach

Baseline Conditions

5.2.1 The EIA for the Proposed Development will predict the likely scale of change in environmental conditions as a result of the redevelopment proposals. The assessment of the scale and significance of a predicted change is undertaken against a reference condition, known as the baseline. In most cases, the baseline represents the environmental condition of the Site and the surrounding area at the time of the assessment, although it may also include a projected environmental condition at some point in the future (e.g. when considering future traffic flows).

5.2.2 The baseline for the EIA will be taken as the 'current' Site and its immediate surrounds.

5.2.3 Within section 6 of this Report baseline information gathered to date is presented.

Predictive Methods and Assessment Criteria

5.2.4 The EIA employs a range of tools and approaches aimed at predicting the likely nature and extent of environmental effects. Some technical assessments rely on mathematical models which provide a quantitative estimate of the size of an environmental change or impact, such as the levels of noise or air pollutants likely to arise from net additional traffic. Other technical assessments rely on map-based techniques to plot the extent of land use change or habitat loss or use illustrative methods, to communicate how a proposed development might appear in a particular viewpoint.

5.2.5 The predictions in the EIA will indicate the nature and magnitude of Proposed Development's potential impacts and likely effects, to enable informed decisions about the likely environmental outcomes of the Proposed Development. However, these predictions may be subject to a degree of uncertainty. As such, the tools employed and the assumptions made in each case will be developed accordingly and set out clearly.

5.2.6 Predicted environmental effects are described by reference to their anticipated significance. Significance is not an absolute concept, but is usually framed with reference to thresholds or criteria. A range of quantitative and qualitative thresholds and values tend to be used, supported by narrative descriptors. The aim is to ensure the terms and assumptions used in assessing significance are transparent.

5.2.7 Qualitative assessment techniques rely on expert judgment and are exercised within a structured framework to ensure consistency of conclusions drawn. Clear distinctions will be made between matters of fact, judgement and opinions with all sources identified. Assumptions, degrees of confidence and areas of uncertainty will be clearly stated.

5.2.8 As a general rule, the EIA will assess the environmental effects that are likely to arise as a consequence of a potential impact/change to environmental receptors as a result of both the demolition, construction and decommissioning of the Proposed Development and once the Proposed Development is complete and operational. Environmental considerations have been, and will continue to be, influencing the evolving scheme, which informs the parameters sought for approval. Within the ES, an assessment will firstly be presented of the potential effects of the Proposed Development, taking into account all inherent 'in-built' design measures that have been incorporated within the scheme. Following this assessment, any required mitigation measures or environmental enhancement measures will be considered, and then included within the Proposed Development as appropriate. A

further assessment will then be undertaken and reported upon (as relevant), taking these measures into consideration, to understand the likely residual effects of the Proposed Development.

5.2.9 In assessing the significance of effects, regard will be had to:

- the sensitivity of the environmental receptor to the change or impact, based on a scale of high, medium and low;
- the magnitude of the potential impact, based on a scale of high, medium, small and unknown which is informed by the following:
- the likelihood of the impact occurring, based on a scale of certain, likely or unlikely;
- the duration of the impact, based on a scale of long, medium and short-term;
- the geographical extent of the impacts at local, borough, regional, national and international levels;
- the reversibility of the impact, being either reversible or irreversible; and
- the mitigation measures integral to the design; demolition and construction; and completed Proposed Development.

5.2.10 Where published industry guidance and terminology do not exist and in order to provide a consistent approach to the presentation of likely effects, the following terminology will be used throughout the ES:

- Nature/Type of Effects:
- Adverse: detrimental or negative effect to an environmental resource or receptor;
- Neutral: no effect to an environmental resource or receptor; and
- Beneficial: advantageous or positive effect to an environmental resource or receptor.
- Scale of Effects:
- Negligible: effects which are beneath levels of perception;
- Minor: slight, very short or highly localised effects;
- Moderate: limited effects (by magnitude, duration, reversibility, value and sensitivity of receptor) which may be considered significant; and
- Major: considerable effect (by magnitude, duration, reversibility, value and sensitivity of receptor, which may be more than of a local significance or lead to a breach of a recognised environmental threshold, policy, legislation or standard).

5.2.11 Residual effects will be defined as either 'significant' or 'not significant'. Significant effects would be considered material to the DCO decision making process. Based on the above, residual effects of moderate and major scale may be considered significant, but would be dependent on the relevant technical assessment, as well as the existence of published assessment guidance. Where published assessment guidance is not definitive in respect of categorising/determining significant environmental effects, professional judgement would be applied, taking into account the duration, extent and context of the effect, to determine significant effects.

5.2.12 Where there are any deviations to the terminology set out above (e.g. due to published industry guidance or professional judgement), this would be clearly identified and explained within the relevant ES Chapter.

5.2.13 As part of the design and EIA process, measures will be developed and discussed with relevant consultees to avoid, reduce, mitigate potential adverse effects, or provide enhancements, where appropriate.

6. PROPOSED ENVIRONMENTAL IMPACT ASSESSMENT SCOPE

6.1 Introduction

6.1.1 This section presents the potential environmental impacts and identifies those topics where likely significant effects are anticipated to arise in connection with the Proposed Development and will therefore be addressed in the EIA. It sets out the scope of each assessment to be undertaken and the methods proposed for adoption in each case. Discussion is also presented for those topics that should be scoped out from the EIA (Section 7).

6.1.2 The EIA and associated technical studies will be carried out in accordance with relevant guidelines, legislation and statutory guidance / Advice Notes, including the requirements for the contents of an ES. Where appropriate, the ES will also make reference to other relevant Application documents.

6.1.3 The following environmental topics have been considered in terms of having potential impacts associated with the Proposed Development and are addressed further within this Scoping report:

- Socio Economics;
- Landscape and Visual;
- Cultural Heritage;
- Archaeology;
- Agriculture;
- Transport and Access;
- Air Quality;
- Noise and Vibration;
- Biodiversity;
- Water Environment and Flood Risk; and
- Ground Conditions.

6.1.4 The potential impacts of a new development to affect climate change would largely be determined by the demolition and construction works of the proposed development, as well as the way the new buildings and infrastructure are used during operation. The Applicant would seek to achieve a number of sustainable design initiatives in line with policy requirements. A number of technical assessments within the EIA will consider the Proposed Development's indirect or secondary impacts on climate change, namely, the:

- Flood Risk Assessment; and
- Air Quality Assessment.

6.1.5 Furthermore, the Applicant is proposing to commit to appropriate best practice measures during the demolition and construction stage to minimise potential climate change impacts, being:

- Re-use and recycling of demolition, excavation and waste materials (where reasonably practicable);
- Appropriate selection of construction materials;

- Monitoring of air emissions;
- Air and dust management; and
- Storm-water and sediment control.

6.1.6 The above measures would be set out within a Construction and Environmental Management Plan (CEMP) and would be secured by means of a suitably worded DCO requirement.

6.1.7 Accordingly it is considered that climate change will be comprehensively considered within the ES as a whole, such that a discrete Climate Change technical assessment will not be presented within ES Volume I.

6.1.8 The requirement for cumulative effects assessment (CEA) is set out in Article 4(3) and Article 5(1) of the Environmental Impact Assessment (EIA) Directive. With respect to NSIPs under the PA2008, the requirements of the Directive are transposed into UK law by the EIA Regulations. The EIA will therefore identify the potential for (a) effect interactions and (b) cumulative effects for each environmental topic area. This is discussed further within section 6.12.

6.1.9 The following sections of this Report provides initial baseline information gathered to date (noting that the amount of the baseline information available at this stage varies across the different technical topic areas and different areas of the Site) and outlines the approach to Site characterisation; baseline data collection; and impact prediction tools that will be adopted within the EIA. A summary of the potential for likely significant environmental effects is also provided.

6.2 Agriculture and Soils

6.2.1 An agriculture and soils assessment will be presented as a Chapter in ES Volume I.

Baseline Conditions

6.2.2 This section summarises the characteristics of the existing agriculture and soil conditions of the Site and the surrounding area from a desktop study of published information on climate, geology, soil and Ministry of Agriculture, Fisheries and Food (MAFF) Agricultural Land Classification (ALC). This desktop assessment will be complemented by a soil/ALC investigation, which was carried out in the field in August 2016. The results will be included within the ES.

Climate

6.2.3 Based on interpolated climatic data, the Site has an average annual rainfall of 700 mm and is predicted to be at field capacity for 164 days per year. These values are comparable to the averages for lowland England of 700 mm annual rainfall and 150 field capacity days, and overall climate does not limit the quality of agricultural land at the Site.

Geology

6.2.4 The bedrock underlying most of the Site is described by the British Geological Survey (BGS) (1:50,000 map) as sandstone of the Wildmoor Sandstone Formation. The bedrock underlying the north-western tip of the Site, to Croft Lane along the northern edge and to

300 m south of Gravelly Way along the southern edge, is described as pebbly, gravelly sandstone of the Bromsgrove Sandstone Formation.

Soil Resources

6.2.5 The 1:250,000 scale Soil Survey of England and Wales (SSEW) Provisional Soil Maps indicate that most of the Site is covered by seasonally waterlogged, slowly permeable, clay loams or sandy clay loams of the Clifton soil association. Part of the southern tip of the Site, which extends from the south-western boundary of the Site to just past Gravelly Way is covered by deep, well drained, permeable, sandy loams or sandy silt loams of the Wick 1 soil association. Soil data has been taken from the SSEW Soil Bulletin No. 12 'Soils and their use in Midland and Western England', 1984.

Agricultural Land Quality

6.2.6 The Site consists of grassland and arable land, with some woodland. The former Ministry of Agriculture, Fisheries, and Food (MAFF), which has been superseded by the Department for Environment, Food & Rural Affairs (DEFRA), produced Agricultural Land Classification (ALC) maps for England and Wales during the 1960s and 1970s. These ALC maps were produced for strategic land-use planning purposes at a scale of 1:250,000. The MAFF Provisional ALC map indicates that agricultural land quality at the Site is Grade 3 (not differentiated between Subgrades 3a and 3b).

6.2.7 MAFF post-1988 ALC survey information exists for the eastern part of the Site (i.e. Agricultural Land Classification: Four Ashes (Site 64)), showing Grade 2, and Subgrade 3a and 3b land. Staffordshire Aggregates Local Plan (Ref. 079/94, 1994), which is shown to be mainly Grade 2 and Subgrade 3a, with a small amount of Subgrade 3b on the eastern tip. A soil/ALC survey was undertaken in August 2016 and the sensitive receptors, in terms of ALC grades of agricultural land and different types of soil affected by the scheme, will be determined upon completion of field and laboratory work. The Applicant will take into account the economic and other benefits of the best and most versatile agricultural land.

Rural Land Designations

6.2.8 Areas of land to the west of the WCML rail line running through the Site, and to the south-west of Woodside Farm are managed within an agri-environmental scheme (i.e. Entry Level Environmental Stewardship) by a single agricultural holding (i.e. Somerford Home Farm).

6.2.9 The entire Site is designated a Medium Priority Countryside Stewardship Water Quality Priority Area.

6.2.10 The entire Site is under the West Midlands Theme Area of the Higher Level Stewardship Themes.

6.2.11 Five parcels of land within the Site, including the two large areas of woodland at the centre of the Site, have current Felling Licence Agreements for Selective Felling/Thin or Clear Felling management.

6.2.12 An area of 0.6 hectare (ha) at the centre of the Site is designated as Woodland Grant Scheme 1 under the Somerford Estate.

6.2.13 An area of 4.8 ha at Woodside Farm is designated as Woodland Grant Scheme 2 under Barr Farm (Phase 1).

Sensitive Receptors

6.2.14 The main agriculture and soil resource receptors likely to be affected are:

- agricultural land quality (i.e. ALC grades of land);
- soil resources;
- farm businesses; and
- rural land designations/agri-environmental schemes.

Assessment Methodology

6.2.15 The following studies will be carried out as part of the EIA:

- The quality of the agricultural land affected by the Proposed Development will be determined in accordance with the NPS and planning policy guidance set out in the NPPF (2012), namely that the Applicant will take into account the economic and other benefits of the best and most versatile agricultural land. Subject to consultation feedback, this will be achieved by utilising information provided by DEFRA and, supplemented by a detailed ALC survey of agricultural land within the Site.
- Consideration will be given to any rural land-use designations (e.g. agri-environmental schemes, Nitrate Vulnerable Zones (NVZ), common land, access land, Environmentally Sensitive Area, etc) identified above, and during a desk-top study of published sources of information.
- The impacts of the Proposed Development on local farm businesses and rural diversification will be assessed. This will be achieved by visiting the Site and recording the types of agricultural enterprises employed within the Site, and by interviewing landowners and farmers affected by the Proposed Development by telephone, if possible.
- A strategy for the mitigation of impact upon soil resources will be prepared to ensure that soils can continue to fulfil as many as possible of their functions and ecosystem services, thus meeting the aspirations of the DEFRA Soil Strategy, and the sustainable use of soil resources will be described with regard to Paragraph 109 of the NPPF and relevant Development Plan policy, i.e. Core Policy 2: 'Protecting and Enhancing the Natural and Historic Environment' of the South Staffordshire Core Strategy, Adopted 11th December 2012 (i.e. natural and heritage assets in South Staffordshire includes, in part, the best and most versatile agricultural land). The DEFRA 'Code of Practice for the Sustainable Use of Soil on Construction Sites' (2009), which describes the preparation and use of Soil Management Plans on construction sites, will be considered as possible mitigation for adverse impacts of the proposed development on soil resources.

Potential Impacts

6.2.16 The demolition and construction stage of the Proposed Development could generate some potential significant direct and indirect agriculture and soils impacts, being temporary effects. The potential impacts could include:

- Affecting topsoil and subsoil resources during the construction works;
- Affecting and/or sealing over land currently in agricultural use (the ALC grades of agricultural land affected will be determined by soil/ALC survey in the Summer of 2016); and

- One or more agricultural holdings (to be determined during Site work) could be affected during the construction works, including loss of on-site agricultural land.

6.2.17 It is predicted that the Proposed Development will result in loss of on-site agricultural land, but will not affect off-site agricultural land, agricultural holdings or soil receptors once construction is completed, i.e. there will be no further effects during the operation of the Proposed Development. Throughout the evolution of the Proposed Development, using areas of poorer quality land in preference to higher quality will be considered, where practicable.

6.3 Air Quality

6.3.1 An air quality technical assessment will be presented in ES Volume I.

Baseline Conditions

6.3.2 This section summarises the characteristics of the existing air quality conditions of the Site and the surrounding area. The section is focussed on concentrations of NO_2, PM_{10} and $PM_{2.5}$.

6.3.3 The main source of existing air pollutants close to the Site is road traffic in particular associated with the main road network to the north, east and west of the Site. This includes the A5, M6 and A449.

6.3.4 There is an existing light industrial area immediately to the south-west of the Site, and other commercial uses at various locations surrounding the Site, including the Veolia energy recovery facility and a sludge disposal centre to the south.

6.3.5 The Site is not located within an air quality management area (AQMA).

6.3.6 SSC has declared four small areas within its area as AQMAs due to NO_2. The closest and most relevant are located on the A5 to the east of junction 12 of the M6 (known as Oak Farm, approximately 1.5km east of the Site as shown in Figure 6), and on the A4601 Wolverhampton Road at Wedges Mill, approximately 3km to the east of the Site. The others are located close to the M6 between junctions 12 and 13 (known as Woodbank), approximately 5km north of the Site, and in Essington, approximately 6.5km to the south-east of the Site.

6.3.7 Cannock Chase District Council has also declared an area of the A5 and A4601 as an AQMA due to NO2, also shown on Figure 6.

6.3.8 Wolverhampton City Council has declared the while of the City of Wolverhampton as an AQMA due to NO_2 and PM_{10}.

6.3.9 Walsall Metropolitan Borough Council has declared the whole of the Borough as an AQMA due to NO_2.

6.3.10 All AQMA's locations are presented within Figure 6.

6.3.11 SSC undertake air quality monitoring at a number of locations within the district. Those most relevant to the assessment are a NO_2 automatic monitoring location in Penkridge which is located to the west of the M6, which is located approximately 4km north of the Site; and three NO_2 diffusion tubes at the Hatherton Roadside site, located approximately

1.5km east of the Site. The Hatherton diffusion tubes are located to the south of the A5 near Oak Farm, and are located within 1 metre of the kerb. The Hatherton diffusion tube site locations are shown within Figure 6. A summary of the sites and data recorded over the last three years where data are available is provided below in Table 6.1.

Table 6.1: Summary of Air Quality Monitoring Data (annual mean NO_2 concentrations $\mu g/m^3$)

Site ID	Name	OS grid Reference	2012	2013	2014
Penkridge	Automatic	393171, 313859	38.0	44.0	45.0
HA2	Hatherton Roadside	394776, 309756	41.8	40.0	40.4
HA5	Hatherton Roadside	394828, 309737	34.9	34.8	31.4
HA6	Hatherton Roadside	394905, 309708	36.1	34.2	32.0

6.3.12 The monitored annual mean NO_2 concentrations show some exceedances of the objective at the Penkridge automatic site and the HA2 Hatherton Roadside site.

6.3.13 The air quality objective for annual mean NO_2 is 40 µg/m3. Hourly mean NO_2 concentrations at the Penkridge automatic site met the objective for this averaging time in each year.

6.3.14 SSC do not operate any PM_{10} or $PM_{2.5}$ monitoring stations. This is likely to be because SSC have not identified any areas within the district where PM_{10} or $PM_{2.5}$ concentrations are likely to exceed the national objectives in the review and assessment work it has undertaken.

6.3.15 Air quality at the Site is likely to meet the relevant air quality standards and objectives for NO_2 and particulate matter, based on local monitoring data and review and assessment work carried out by SSC. Very close to major roads in the vicinity (i.e. within a few metres, such as the A5, A449 and M6), there may be some exceedances of the annual mean standard for NO_2, however elsewhere the standard is likely to be met.

6.3.16 Relevant exceedances of the air quality standards and objectives (i.e. exceedances at locations where they apply) should be limited to within the designated AQMAs. The closest and most relevant of these is at Oak Farm on the A5.

6.3.17 Figure 6 depicts the air quality context of the Site.

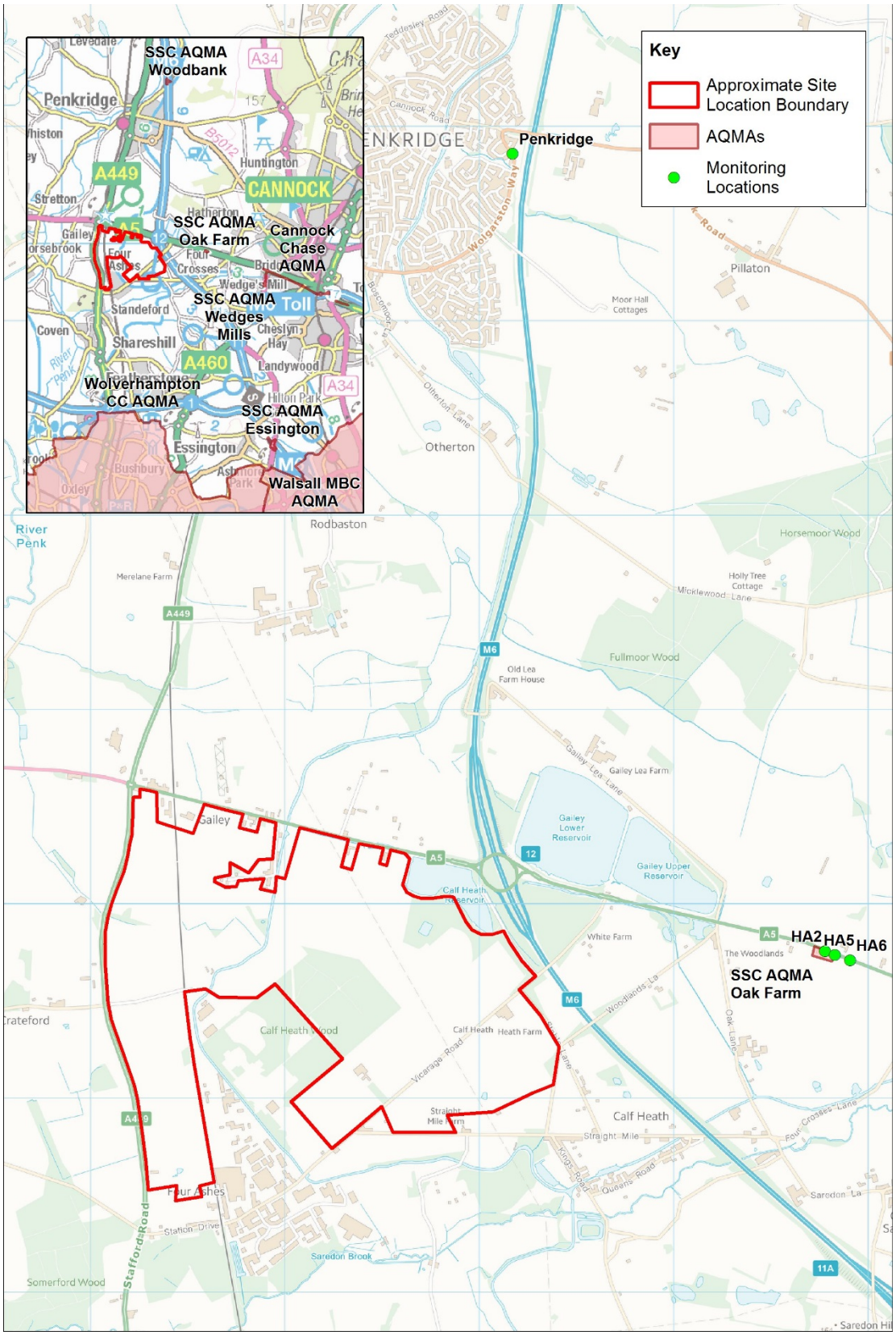


Figure 6: Monitoring Stations and Nearby AQMAs

Sensitive Receptors

6.3.18 The baseline section confirms the following sensitive receptors that may be affected by the Proposed Development:

- Existing residential properties and other sensitive land uses where members of the public would spend extended periods of time located immediately adjacent to the Site boundary, namely on Croft Lane, the A5, Vicarage Road, Station Drive and off the A449. Other sensitive land uses might include canal users and other recreational areas;
- Existing residential properties and other sensitive land uses where members of the public would spend extended periods of time located close to roads that will experience a significant change in traffic due to the development, including within AQMAs;
- Sensitive or designated ecology close to the Proposed Development or roads that will experience a significant change in traffic due to the Proposed Development; and
- Locations within 350m of the Site where nuisance or other effects may occur during construction, such as residential properties, or other places where people might reasonably expect a certain level of amenity.

Assessment Methodology

6.3.19 The baseline conditions will be assessed using the following:

- SSC monitoring data;
- Relevant published Review and Assessment of Air Quality reports;
- DEFRA's modelled background concentrations for NO_2, NO_x,PM_{10} and $PM_{2.5}$;
- Consultation with SSC Environmental Health Officer (EHO) and check of the Environment Agency's "What's in My Backyard" database to obtain details of potential significant industrial emissions associated with the industrial estate and the Veolia energy recovery facility to the south; and
- The use of the ADMS Roads model to predict existing baseline pollution concentrations across the Site (see modelling details below).

6.3.20 During the construction phase, the potential exists for the generation of coarse and fine dust from construction activities including excavation, earthmoving, materials storage and movement of construction vehicles over unpaved surfaces. Construction activities can occur over large areas at any one time and therefore the use of complete enclosures or sophisticated dust extraction and collection systems are not suitable for avoidance of dust effects. Instead, the control of dust emissions from construction Site activities relies upon management provisions and mitigation techniques to reduce emissions of dust and limit dispersion.

6.3.21 Dust and PM_{10} impacts during the construction phase will be assessed following the Institute of Air Quality Management's guidance for assessing impacts from demolition and construction activities by providing a qualitative assessment of the potential sources and effects, together with a risk assessment to identify those receptors that may experience impacts. The construction dust assessment would consider the potential for impacts at relevant human and ecological receptors within 500 m of the Site boundary. Mitigation of dust impacts will largely rely on management measures to minimise emissions at source and to protect sensitive receptors.

6.3.22 During the construction phase there is likely to be a significant increase in heavy goods vehicles (HGVs) delivering and removing materials from the Site. Potential impacts from these vehicles would be assessed using the ADMS Roads air dispersion model.

6.3.23 The assessment of operational impacts will be undertaken in accordance with the guidance provided by the Institute of Air Quality Management (IAQM) and Environmental Protection UK (EPUK)[3] for the completion of air quality assessments. The air quality assessment will undertake a comparison of the predicted pollutant concentration with current National Air Quality Strategy Objectives; and provide an assessment of the significance of air quality effects using the EPUK/IAQM significance criteria.

6.3.24 The impact of the road traffic generated by the Proposed Development will be modelled using the ADMS-Roads dispersion model to consider impacts on NO_2, PM_{10} and $PM_{2.5}$.

6.3.25 The following scenarios will be modelled:

- Baseline year to verify the model and characterise the existing situation;
- Future Baseline in the year of opening;
- Future Year in the year of opening when the Proposed Development is complete; and
- Cumulative Baseline: Future Baseline + Proposed Development + Cumulative Developments.

6.3.26 The need to model impacts from rail movements would be dependent on the final layout of the Site and on the number of predicted movements per day.

6.3.27 As at this stage it is considered unlikely that the specific location or occupants of buildings for the Proposed Development will be fixed for the Application, therefore detailed information on the energy plant(s) likely to be installed to provide heating and hotwater to the warehousing element of the Proposed Development would not be sufficiently progressed to allow for a quantitative assessment of operational emissions. Instead a qualitative assessment would be carried out, focussing on the design measures which would be put in place to minimise emissions and ensure adequate dispersion of pollutants to ensure the potential for significant effects would be negligible.

6.3.28 An assessment of decommissioning impacts as a result of potential dust PM_{10} will be included in the Air Quality ES chapter. As specific decommissioning timescales are unknown this assessment would comprise a qualitative assessment and outline potential mitigation measures.

Potential Impacts

6.3.29 The demolition and construction stage of the Proposed Development could generate some potential significant direct and indirect air quality impacts, with temporary effects. The potential impacts could include:

- Dust and PM_{10} arising during the demolition, construction and decommissioning phases, and the potential to cause nuisance and affect local pollution concentrations and existing sensitive receptors; and

[3] Institute of Air Quality Management (IAQM) and Environmental Protection UK, 2015, Land-Use Planning & Development Control: Planning for Air Quality.

- Exhaust emissions (NO_2, PM_{10} and $PM_{2.5}$) from vehicles travelling to and from the Site during the demolition, construction and decommissioning phases, and the potential to affect local pollution concentrations and existing sensitive receptors.

6.3.30 The operational phase of the Proposed Development could generate a range of potential significant direct and indirect air quality impacts, with likely permanent effects. These could include:

- Exhaust emissions (NO_2, PM_{10} and $PM_{2.5}$) from vehicles travelling to and from the Site during operation, and the potential to affect local pollution concentrations and existing sensitive receptors; and
- Emissions from plant proposed within the Proposed Development for example associated with heating, power or industrial processes.

6.4 Archaeology and Cultural Heritage

6.4.1 An archaeology and cultural heritage assessment will be presented as separate Chapters in ES Volume I. A Historic Environment Desk-based Assessment report will be included as an appendix to the ES (ES Volume III).

Baseline Conditions

6.4.2 This section summarises the characteristics of the existing Cultural Heritage and Archaeology conditions of the Site and the surrounding area. To date archaeology and cultural heritage baseline assessment has comprised the western, northern and eastern parts of the Site (refer to Figures 7 and 8). Assessment of the southern part of the Site will take place and be reported in the ES.

6.4.3 The Site is located immediately to the north of Four Ashes Industrial Estate approximately 1.6 km north-north-east of the village of Coven and approximately 5 km west of the town of Cannock. The Staffordshire and Worcestershire canal bisects the Site and comprises a designated conservation area.

6.4.4 The Site is situated within a relatively flat area of land at an elevation of approximately 16-18m above Ordnance Datum (aOD). Local topography falls gently to the south towards the valley of the River Stour.

6.4.5 The majority of the Site is currently under arable cultivation consisting of numerous fields enclosed by hedgerows with one area of woodland and a large section which is used for gravel extraction.

6.4.6 The underlying bedrock geology throughout the Site is mapped as sandstone of the Wildmoor Sandstone Formation and the Bromsgrove Sandstone Formation with areas of superficial Glaciofluvial deposits of sand and gravel / till from the Devensian period (British Geological Survey).

6.4.7 A Study Area comprised a 1km buffer around the assessment boundary (which to date comprises the western, northern and eastern parts of the Site). The recorded historic environment resource (which includes Historic Environment Record, archives, National Monuments Record, etc.) within the Study Area was reviewed in order to provide a context for the discussion and interpretation of the known and potential resource within the Site. A walkover survey was undertaken on the 10th March and 23rd March 2016 to assess the general aspect, character, condition and setting of the assessment area and to identify any

prior impacts not evident from secondary sources. The Site visit also sought to ascertain if the Site contained any previously unidentified features of archaeological, architectural or historic interest. From this a brief summary of the archaeological and historical development of the assessment area and the Study Area was compiled. A summary of this is presented below.

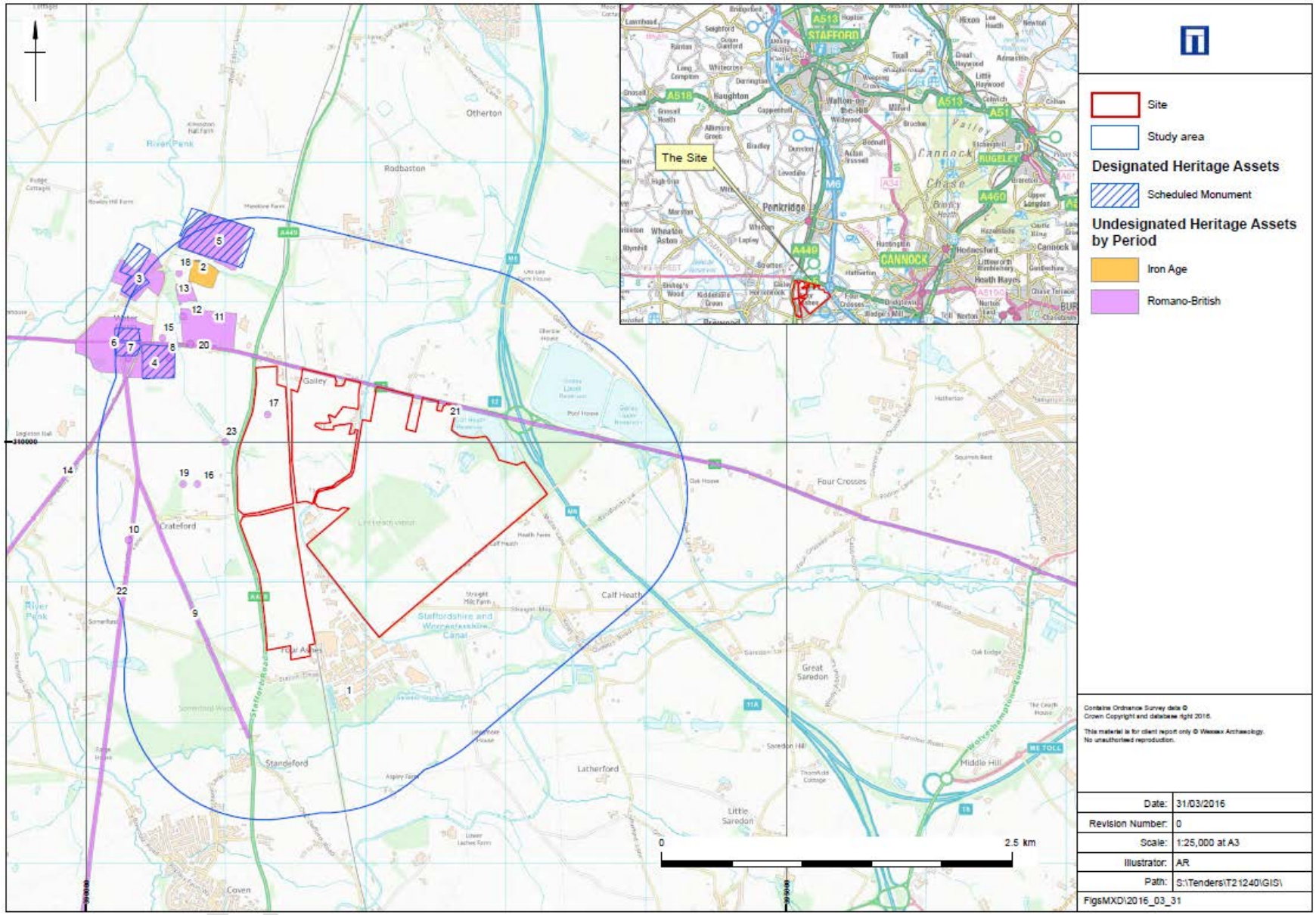


Figure 7: Site area (subject to the baseline review undertaken to date), Study Area and known heritage assets from the prehistoric to Romano-British periods (based on Historic England, SHER and other sources)

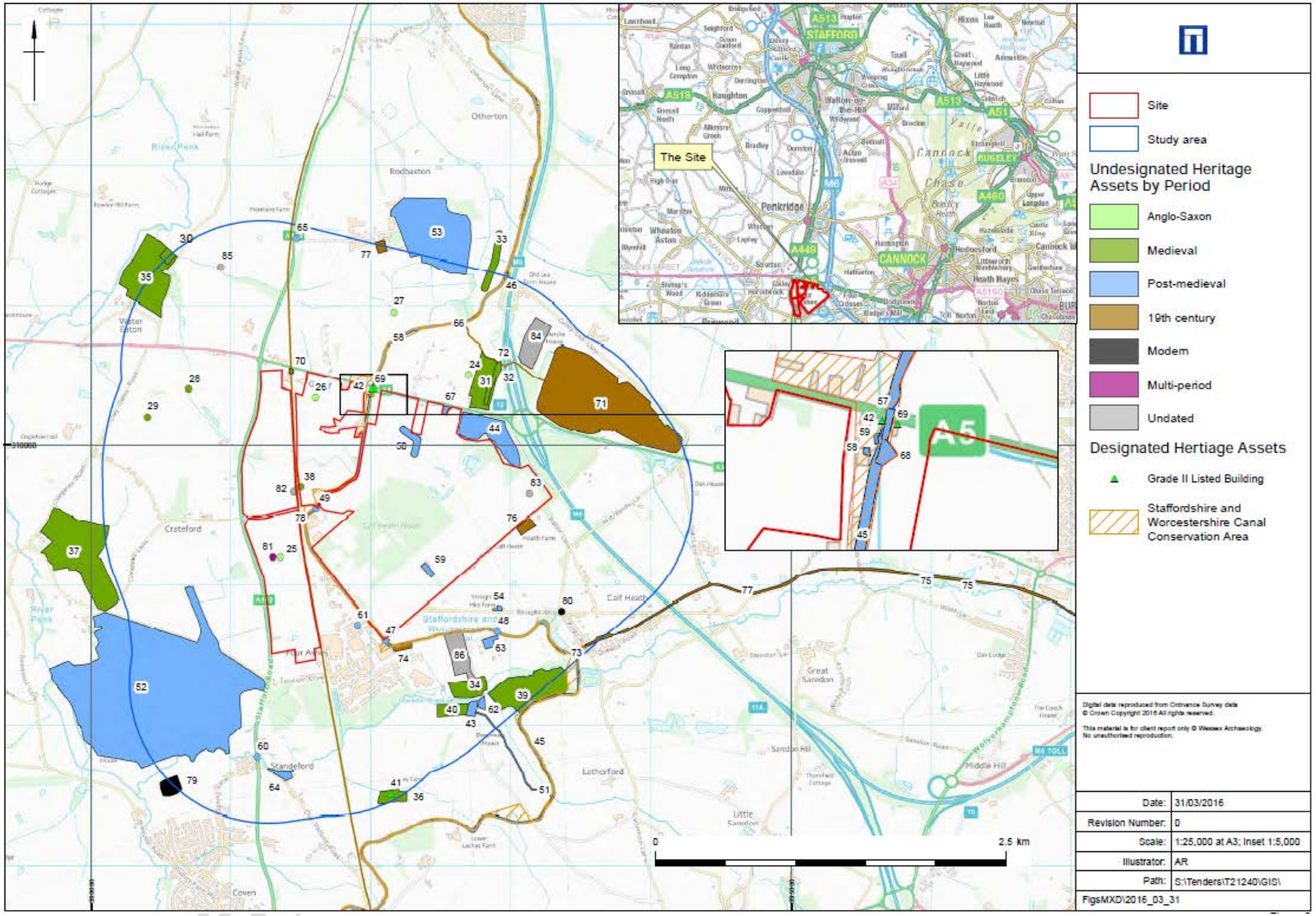


Figure 8: Site area (subject to the baseline review undertaken to date), Study Area and known heritage assets from the Anglo-Saxon period to the modern period, including multi-period and undated assets (based on Historic England, SHER and other sources)

Archaeological and historical context

Prehistoric

6.4.8 There is no evidence for human activity within the Study Area until the Neolithic period. The superficial deposits of Devensian glaciofluvial sands and gravels within the Site and its proximity to the River Penk lead to a general potential for remains dating to the earlier prehistoric periods to be present, albeit deeply stratified.

6.4.9 The earliest archaeological evidence within the Study Area lies within the Site. Cropmarks identified from aerial photographs indicate the presence of a ring ditch and linear feature which have been provisionally dated to the Neolithic period.

6.4.10 Also, within the Site, lies a possible Bronze Age ring ditch identified from aerial photographs. Additionally, two barrows located approximately 480 m south of the assessment area, were noted by antiquarians in the 17th and 18th centuries. However, gravel quarrying in the area appears to have removed any remains.

6.4.11 Cropmarks identified from aerial photographs approximately 660 m north-west of the Site form two contemporary enclosures, one of which contains two sub-circular enclosures and linear features; these features probably date to the Iron Age.

Romano-British

6.4.12 The Study Area contains evidence of significant occupation during the Romano-British period which includes four Scheduled Monuments. These are mainly clustered approximately 750 m north-west of the Site occupying and is described in the National Heritage List Entry as occupying a strategic location and a nodal point in the Roman road system, with roads leaving Watling Street for Chester, Wroxeter, Greensforge, and perhaps Metchley'.

6.4.13 Three of the Scheduled Monuments relate to camps or forts constructed by the Roman military. Two camps north of Water Eaton survive as buried archaeological remains. The camps comprise rectangular or sub-rectangular enclosures which were used by Roman soldiers when on campaign or as practice camps, and as such were likely only used temporarily.

6.4.14 Watling Street ran from the east coast of England, through the major settlements at London (*Londinium*) and St Albans (*Verulaium*), along the northern edge of the Site to the settlement at Water Eaton (*Pennocrucium*) and on towards the major town at Wroxeter (*Viroconium Cornoviorum*). Three subsidiary roads are recorded within the Study Area comprising the road from Crateford to Standeford Green, the road from *Pennocrucium* to Kingswood and the road from *Pennocrucium* to Greensford.

6.4.15 In addition, several features identified from cropmarks on aerial photographs are potential Roman roads including two sets of parallel linear cropmarks in a north-westerly alignment, located approximately 745 m north-west of the Site.

6.4.16 Aside from the Scheduled Monuments and roads within the Study Area, eight separate findspots of Roman coins are recorded including a complete silver republican denarius minted in 82 BC found within the Site. Also within the Study Area are several findspots of Roman pottery.

Anglo-Saxon and medieval

6.4.17 Two settlements are recorded within the Study Area are recorded in the Domesday Survey of 1086 and may have origins in the Anglo-Saxon period. Gailey, or Gragelie, located within the Site is recorded as having one villager while the settlement at Rodbaston, or Redbaldeson, located approximately 540 m north of the Site, comprised four smallholders at the time of the survey. At Rodbaston the earthwork remains of at least three house platforms have been identified. Water Eaton comprised ten households, also suggesting its establishment during the Anglo-Saxon period.

6.4.18 Other finds from the Anglo-Saxon period within the Study Area include two copper alloy strap ends found approximately 250 m north of the Site while a copper alloy strap end and stirrup strap mount with an animal's head were recovered within the Site.

6.4.19 A series of upstanding earthworks located approximately 600 m south-east of the assessment area have been interpreted as the possible remains of a medieval moat while a rectangular feature interpreted as a ploughed out moat is located approximately 1 km north-west of the Site.

6.4.20 There are numerous features within the Study Area relating to medieval agricultural practices which include areas of ridge and furrow and earthworks associated with former field boundaries and drainage systems. An isolated farmstead of possible medieval origin lies approximately 1 km south of the Site.

6.4.21 Other finds from the medieval period within the Study Area include several shards of 11th to 14th century pottery located approximately 500 m west of the Site and an incomplete 14th century cast copper alloy horse harness suspension mount located approximately 785 m west of the Site.

6.4.22 The Study Area is likely to have been characterised as an agricultural landscape during the Anglo-Saxon and medieval periods as evidenced by the presence of numerous remains relating to agricultural practices and the scattered nature of the settlements within the Study Area at this time.

Post-medieval, 19th century and modern

6.4.23 The rural character of the landscape surrounding the Site changed little between the end of the medieval period and the beginning of the post-medieval period. Assets include the Grade II Listed Aspley Farmhouse, located approximately 1 km south of the Site, along with numerous other isolated farms and farmsteads throughout the Study Area. Linear earthworks identified from aerial photographs likely represent former post-medieval field systems, while a linear feature, located approximately 370 m south of the Site, is recorded as undated by the Staffordshire Historic Environment Record (SHER) although it is likely the features relate to post-medieval agricultural activity.

6.4.24 Two post-medieval mills are recorded in the Study Area. Deepmore Mill is located approximately 820 m south-east of the assessment area. The mill has been dated to c. 1700 and is depicted on maps from the late 18th century. The former course of the mill stream is also still visible on the ground as a cropmark although some remains of the mill are still visible including a dry pond and a stone and brick revetment. The second mill, Standeford Mill, is located approximately 800 m south of the Site and initially operated as a watermill, although it is recorded as a corn mill in the late 19th century.

6.4.25 In addition to the features relating to agriculture, within the Study Area lie two landscape parks associated with large country houses. Somerford Park is located approximately 220 m south-west of the Site and was likely laid out in the mid-18th century. The layout of the park is almost identical to the park at Prestwood Hall which was designed by the famed landscape architect Humphrey Repton, although there is no documentary evidence to suggest Repton was involved. The other park in the Study Area is Rodbaston Park, associated with the 19th century hall and located approximately 1 km north of the Site.

6.4.26 The most significant change in the landscape was the construction of the Staffordshire and Worcestershire Canal in 1772. The canal was designed by James Brindley, the engineer responsible for the Trent and Mersey Canal, as part of his wider plan to link the cities of Hull, Bristol and Liverpool with waterways[4]. The canal took six years to construct and remained privately run from an office in Wolverhampton, having never been taken over by the railway companies like many other canals, until the waterways were nationalised in 1948[5].

6.4.27 Several features associated with the canal lie within the Study Area. These mainly comprise locks and lock keeper's cottages including the Grade II Listed 18th century Round House located between two of the land parcels west of Gailey along the northern edge of the Site. Adjacent to the Round House, Gailey Wharf is a Grade A locally listed building which includes a restored 18th century revolving crane.

6.4.28 Other assets from the post-medieval period within the Study Area include a reservoir associated with the canal and the site of a former toll house and gate, approximately 970 m north of the Site.

6.4.29 The character of Site and the Study Area changes little in the 19th century as the area remaining broadly rural. The Grade II Listed Wharf Cottage lies at the northern edge of the Site, adjacent to the Round House and Gailey Wharf. The Hatherton Branch of the canal was built in 1860 to connect the Staffordshire and Worcestershire canal to the Wyrley and Essington Canal. Archaeological excavations during the construction of the M6 toll at Great Wyrley uncovered remains connected with the canal including railway tracks, a wharf and an aqueduct.

6.4.30 The Grand Junction Railway was constructed in 1833 and ran between Newton Junction near Warrington to Birmingham[6]. The route of the railway still runs through the Site. Gailey Railway Station is located between two of the land parcels west of Gailey along the northern edge of the Site. It was built in 1837 along the Grand Junction Railway line which runs through the Site, although is not located within any of the constituent parcels.

6.4.31 Several further assets associated with the canal within the Study Area can also trace their origins to the 19th century which include two reservoirs, a Grade B locally listed feeder channel and a canal junction.

6.4.32 Other assets from the 19th century within the Study Area include a group of cottages approximately 150 m south of the assessment area, the locally listed Heath Farm, and Model Farm located immediately adjacent to the south-eastern edge of the assessment area and 1 km north of the Site respectively.

[4] www.gracesguide.co.uk 2016

[5] Staffordshire County Council, 1978. *Staffordshire and Worcestershire Canal Conservation Area*. Available at: http://www.sstaffs.gov.uk/pdf/Staffordshire%20and%20Worcestershire%20Canal.pdf

[6] www.gracesguide.co.uk 2016

6.4.33 Two assets within the Study Area date to the modern period, the site of a sewage works, approximately 1 km south-west of the Site, and a finger post located approximately 670 m south-east of the assessment area.

Undated

6.4.34 Five assets within the Study Area are recorded as being of unknown date, four of which are identified from aerial photographs and thus have yet to have their date confirmed. Two circular cropmarks, located within the Site, are believed to be prehistoric in date, while linear features identified approximately 700 m north and 300 m south of the Site are possible remains of former field boundaries or drainage features. A small silver ring, located approximately 800 m north-west of the Site, is also undated.

Historic Landscape Character

6.4.35 The present character of vast majority of the Site can be defined as '18th/19th century planned enclosure'. Smaller sections of the Site are noted as 'plantations established after 1800', 'pre-1880s settlements', 'artificial water bodies' and 'industrial extractive'. The historic character of the Site can be broadly defined as heathland prior to 1800 with small sections having been enclosed prior to this date. The Historic Landscape Characterisation complements the evidence provided by the SHER and historic mapping noted above indicating the rural nature of the Site and the surrounding area.

6.4.36 Several mature hedgerows within and at the edges of the Site have the potential to fulfil the criteria for being considered historically 'Important' as defined under the *Hedgerows Regulations* 1997 (as amended in 2002)[7] through the interrogation of historic maps. Some of these hedgerows may have originated as a process of planned enclosure, however due to the absence of early mapping showing the location of boundaries, an early date for these cannot be precluded.

Sensitive Receptors

6.4.37 The baseline section confirms the following sensitive receptors that may be affected by the Proposed Development:

- The Scheduled Romano-British sites around Water Eaton;
- The Grade I Listed Church of St Mary and St Chad, Brewood;
- The Grade II Listed Round House;
- The Grade II Listed Wharf Cottage;
- The Staffordshire and Worcestershire Canal Conservation Area and the locally listed buildings along its route through the Site;
- The Locally Listed Heath Farm; Potential unidentified buried archaeological remains within the Site;
- Potentially historically 'Important' hedgerows, as defined in the Hedgerows Regulation 1997 (amended in 2002);
- The Historic Landscape Character of the Site and the surrounding area; and
- Grade II Listed Hatherton Hall and Somerford Hall.

[7] *The Hedgerows Regulations* 1997 (as amended 2002). Available at: http://www.legislation.gov.uk/uksi/1997/1160/contents/made

Assessment Methodology

6.4.38 The Proposed Development has the potential for direct adverse impacts on buried archaeological resources and to have long-term impacts on the setting of heritage resources. A Historic Environment Desk-based Assessment of the Site will be undertaken to determine the impacts of the Proposed Development on archaeology and cultural heritage.

6.4.39 The assessment will comprise a desk-based assessment and walkover-survey, review and analysis of the historic environment records and identification any known archaeological resource within the Site, a discussion of the potential for further archaeological features, assessment of residual effects, consideration of mitigation measures and recommendations for the scope of any necessary further archaeological works, as appropriate. Given the nature of the consent being sought, a DCO, which provides flexibility for the Proposed Development, further desk-based work may be required and secured via a DCO Requirement prior to determining the scope of any necessary archaeological works.

6.4.40 The assessment will be undertaken in accordance with standards and guidance specified by the Chartered Institute for Archaeologists[8] (CIfA) and taking account of guidance provided by Historic England[9]; and will adopt the following format:

Archaeological Archives and Databases

6.4.41 Information on any known and recorded archaeological and historic environment resources (above and below ground) at the Site, and within a 1 km study will be obtained from relevant sources. Sources consulted will include the Staffordshire Historical Environment Record (HER), Staffordshire Record Office, National Monuments Record, Historic England's online sources as appropriate. The information obtained will be augmented as necessary through consultation of other on-line resources. The Staffordshire Archives will be consulted for examination of historic maps and plans, antiquarian histories and other relevant documentary sources. Where judged relevant, other, local archives will be consulted to fully inform the archaeological potential of the Site.

6.4.42 Details of the locations and extents (where present) of listed buildings, scheduled monuments, registered parks and gardens and historic battlefields will be obtained from Historic England and the Staffordshire HER as necessary.

Published and Unpublished Sources

6.4.43 A range of published and unpublished material will be consulted. This will include archaeological archived reports and records from construction projects in the vicinity of the Site and any academic articles, together with general sources on the area and its wider historical background.

Geological and Soil Surveys

6.4.44 Information on the underlying geology and soils within the study area will be taken from data collected by the BGS (2001) and the Soil Survey of England and Wales (1980).

Field Survey

[8] Chartered Institute for Archaeologists, 2014. Standard and guidance for historic desk-based assessment. Reading.

[9] Historic England, 2008. Conservation Principles, Policies and Guidance.

6.4.45 The assessment will also include a walkover survey and basic photographic survey to assess the potential effect of development on heritage assets which lie within the Site, and its visual envelope.

Potential Impacts

6.4.46 The demolition and construction stages of the Proposed Development have the potential to generate significant direct and indirect Cultural Heritage and Archaeology impacts, with permanent and temporary effects. The potential impacts that could arise include:

- Potential visual impact from construction traffic and machinery etc. upon the Scheduled Romano-British sites around Water Eaton; the Grade I Listed Church of St Mary and St Chad, Brewood; the Grade II Listed Round House; the Grade II Listed Wharf Cottage and the Staffordshire and Worcestershire Canal Conservation Area and its locally listed buildings; the locally listed Heath Farm;
- Potential impact through a potential increase in noise, vibration and dust during construction impacting upon the setting of the Scheduled Romano-British sites around Water Eaton; the Grade II Listed Round House; the Grade II Listed Wharf Cottage and the Staffordshire and Worcestershire Canal Conservation Area and its locally listed buildings; the locally listed Heath Farm;
- Potential impacts due to the disturbance and/or removal buried archaeological remains; and
- Potential impacts through the removal of historically 'Important' hedgerows.

6.4.47 The Proposed Development has the potential to generate a range of potential significant direct and indirect Cultural Heritage and Archaeology impacts, with possible permanent effects. These could include:

- Potential impact through visual impact upon the Scheduled Romano-British sites around Water Eaton; the Grade I Listed Church of St Mary and St Chad, Brewood; the Grade II Listed Round House; the Grade II Listed Wharf Cottage and the Staffordshire and Worcestershire Canal Conservation Area and its locally listed buildings; the locally listed Heath Farm;
- Potential impact through an increase in noise and vibration impacting upon the setting of the Scheduled Romano-British sites around Water Eaton; the Grade II Listed Round House; the Grade II Listed Wharf Cottage and the Staffordshire and Worcestershire Canal Conservation Area and its locally listed buildings; the locally listed Heath Farm; and
- Potential impact upon the impact on the Historic Landscape Character of the Site and its immediate surrounding area.

6.5 Ecology

6.5.1 An ecological assessment will be presented in ES Volume I.

Baseline Conditions

6.5.2 This section summarises the characteristics of the existing ecological conditions of the Site and the surrounding area. To date the western, northern and eastern parts of the Site (refer to the Phase 1 habitat figure within Appendix 1) have been assessed, with further assessment of the south-eastern part of the Site proposed. The study area assessed to date is a 2km radius around the assessment area (which comprises the western, northern and eastern parts of the Site); this study area is a convention which covers a broad enough

area to consider the movement of species and potential indirect impacts on nearby ecological receptors[10]. Data from within the study area was obtained from Staffordshire Environmental Records Centre (SERC) and has been reviewed to inform this section. The ES will include similar assessment of the south-eastern part of the Site.

6.5.3 A phase 1 habitat survey of the assessment area was carried out on the 23rd and 24th November 2015 and the 24th and 25th February 2016.

Designated sites

6.5.4 There are no Special Protection Areas or Ramsar Sites within 10km of the Proposed Development. Mottey Meadows Special Area of Conservation (SAC) is 7.5km to the west-north-west. Cannock Chase SAC is 7.4km to the north-east. In due course a preliminary screening exercise will be undertaken (a Habitats Regulations Statement) which will assess potential impacts upon European Sites within 10 km of the Proposed Development (the two SACs outlined above).

6.5.5 Four Ashes Pit Site of Special Scientific Interest (SSSI) lies within 140m of the Proposed Development; this site is a geological SSSI and it is therefore not discussed in this section further, but is considered in the Ground Conditions section. There are no other SSSI sites within 5km of the Proposed Development.

6.5.6 There are 17 Local Wildlife Sites (LWS) within 2 km of the assessment area:

- Gailey Reservoirs: This is an important area for water birds (located immediately to the north-east of the assessment) for which there is no citation, this is awaiting review);
- Calf Heath Bridge (east of): comprises of a section of the Staffordshire and Worcester Canal (10 m south of the assessment area);
- Somerford Wood: a species rich woodland ground flora, which retains a mix of ancient woodland indicator species. (50 m west of the assessment area);
- Land at Four Ashes: a settling pond and five parallel ditches, native broad-leaved trees, ponds, wet woodland, dense scrub and swamp (75 m south of the assessment area);
- Watling Street Plantation: broad-leaved woodland believed to be a failed plantation (100 m east of the assessment area);
- Crateford Wood: a small woodland, half of which is dominated by a coniferous plantation (200 m west of the assessment area);
- Gailey Old Reservoir: designated for its wet woodland and its associated wetland plants, which have colonised the edges of the pools (250 m east of the assessment area);
- Pennymore Hay Farm: comprises of a mosaic of wet ditches and pools supporting wetland vegetation, associated areas of marshy grassland and swamp habitat surrounded by pockets of willow carr (250 m south of the assessment area);
- Boggs Marsh consists of drying out swamp and largely unmanaged marshy grassland surrounded by water-loving trees (400 m north of the assessment area);
- Water Eaton Coppice: a semi-natural area of broad-leaved woodland (400 m north west of the assessment area);

[10] Eds Morris P and Therivel R (2000) Methods of Environmental Impact Assessment 2nd Edition

- Rodbaston Wood: a small wet woodland on Rodbaston Farm (450 m north of the assessment area);
- Hatherton Bridge: a small rough field found alongside the northern bank of the Hatherton Branch Canal (500 m south of the assessment area);
- Deepmore Farm: a field containing a created pond and a wildflower mix sown onto it (550 m south of the assessment area);
- Rodbaston College: an intensively managed agricultural college consisting of arable fields and improved grassland as well as woodlands and marshy grassland (1.5 km north of the assessment area);
- Fullmoor Wood: the LWS comprises of a section of woodland and scrub on the southern edge of Fullmoor Wood (1.5 km east of the assessment area);
- Pond Bay: a pond which is partly fringed by willow *Salix spp*. and alder *Alnus glutinosa* (1.5 km west of the assessment area); and
- Hatherton Branch Canal: an area of disused canal and some wet fields between the canal and Saredon Brook (1.7 km south-east of the assessment area).

Habitats

Arable

6.5.7 The majority of fields on the assessment area is utilised for arable cultivation. At the time of the extended Phase 1 habitat survey, these had been mostly harvested, leaving stubble and bare earth, or had been recently sown. The cropped area extends close to the surrounding hedgerows, leaving very narrow field margins (less than one metre wide). The narrow field margins are vegetated with coarse grasses, predominantly Yorkshire fog *Holcus lanatus* and cock's-foot *Dactylis glomerata* as well as locally dominant common herbs including common nettle *Urtica dioica*, broad-leaved dock *Rumex obtusifolius*, broad-leaved willowherb *Epilobium montanum* as well as bracken *Pteridium aquilinum* The widest field margins are within the arable fields to the east of the canal, where they are approximately 5 m wide and contain a sward of tall grasses and herbaceous species. Species present include cock's-foot, false oat-grass *Arrhenatherum elatius*, Yorkshire fog, lesser knapweed *Centaurea nigra*, rosebay willowherb *Chamerion angustifolium*, teasel *Dipsacus fullonum* and creeping thistle *Cirsium arvense*.

Improved Grassland

6.5.8 One of the fields in the eastern portion of the assessment area supports improved grassland. This habitat type comprises homogenous grassland of low species diversity, which appears to be managed for hay production or forage. The habitat type is dominated by grasses, predominantly false oat-grass and timothy *Phleum pratense*.

Poor Semi-Improved Grassland

6.5.9 Seven fields containing grassland are of poor species diversity and are grazed by sheep. The dominant species is usually false oat-grass, cock's-foot, perennial rye-grass *Lolium perenne* and Yorkshire fog. The herbaceous component is sparse and includes occasional creeping thistle, broad-leaved dock and common nettle.

Semi-Improved Grassland

6.5.10 Three fields as well as some marginal areas of the assessment area contain semi-improved grassland. This habitat appears to be relatively unmanaged and has a rank appearance, often with tussocks of grasses including cock's-foot and Yorkshire fog as well as false oat-grass and smooth meadow-grass *Poa pratensis*, as well as hard rush *Juncus inflexus*. Frequently herbs are present within the sward including creeping buttercup *Ranunculus repens*, creeping thistle, cleavers *Galium aparine*, dandelion *Taraxacum officinale* agg, common ragwort *Senecio jacobaea*, yarrow *Achillea millefolium*, ribwort plantain *Plantago lanceolata* and broad-leaved willowherb.

Hedgerows

6.5.11 The majority of the field boundaries are formed by hedgerows, which are intact and stock proof. Only a few small sections of hedgerow are defunct and have wide gaps. The majority of hedgerows appear to be regularly trimmed and as a result are quite compact and of a fairly uniform shape and height (approximately 1 to 2m wide and 2 to 3m high). Many of the hedgerows occur in association with shallow drainage ditches (approximately 0.5 m deep and 1 m wide), which were predominantly dry during the survey.

6.5.12 Hawthorn *Crataegus monogyna* and hazel *Corylus avellana* are generally the dominant hedgerow species. Also present are abundant blackthorn *Prunus spinosa*, ash *Fraxinus excelsior*, elder *Sambucus nigra*, lime *Tilia* sp., dog rose *Rosa canina* agg., holly *Ilex aquifolium* and pedunculate oak *Quercus robur*, along with the occasional field maple *Acer campestre* and goat willow *Salix caprea*. The hedgerow survey completed of hedges surrounding Calf Heath Quarry recorded a number of additional species including damson *Prunus domestica*, elm *Ulmus* sp., elder, lime and bird cherry *Prunus padus*.

6.5.13 The majority of hedgerows contain mature trees at regular intervals along their lengths; usually pedunculate oak and ash, with occasional grey poplar *Populus* x *canescens*, silver birch *Betula pendula* and alder *Alnus glutinosa*. A previous hedgerow survey of hedges surrounding Calf Heath Quarry[11] recorded a number of black poplar *Populus nigra*. Ground flora within each hedgerow is typically quite poor, comprising common species of grass as well as common nettle, foxglove Digitalis purpurea and bracken.

Mixed Plantation Woodland

6.5.14 The centre of the assessment area is occupied by a large section of mixed plantation woodland (Calf Heath Wood). The woodland comprises of semi-mature silver birch interspersed by blocks of early mature pine *Pinus* sp.. The shrub layer in much of the woodland is formed by dense rhododendron *Rhododendron* sp., bramble or bracken. The woodland is managed for game and a large game pen is located in the centre of the woodland. Occasional mature pedunculate oak and silver birch are located within the woodland. Several more open areas are situated in the centre of the plantation woodland. These areas are dominated by bracken and scattered silver birch. An open area is also formed by a wayleave for an overhead powerline.

6.5.15 According to MAGIC[12], Calf Heath Wood is not on the Ancient Woodland Inventory (i.e. not ancient semi-natural woodland (ASNW) or plantation on an ancient woodland site (PAWS). On the 1884 Ordnance Survey map, it appears that the woodland was a mixed conifer and

[11] Pleydell Smithyman Limited (2007) Hedge Survey, drawing number MOS133.20.

[12] www.magic.defra.gov.uk accessed 05/05/16

broadleaved plantation at that time and given the name, which suggests that it is an early forestry plantation on a former heath.

6.5.16 MAGIC shows marginal parts of Calf Heath Wood as well as several smaller areas of woodland on the Site as being in the Priority Habitat inventory, but the confidence stated in the main habitat classification is low. The main part of Calf Heath Wood is mapped as part of the National Inventory of Woodland and Trees (NIWT). This differs from information received from Natural England which shows only a narrow strip of Calf Heath Wood within the Site and a small area on the eastern boundary as being Woodland (ASNW, PAWS and NIWT) patches (with no distinction between the woodland types).

6.5.17 A smaller area of coniferous plantation woodland, dominated by pine with the occasional pedunculate oak and alder is situated towards the west of the Site.

Broad-Leaved Plantation Woodland

6.5.18 A small area of broad-leaved plantation woodland is located in the north-east corner of the assessment area, adjacent to Calf Heath Reservoir. The woodland predominantly comprises a dense stand of early mature silver birch of uniform size and age and the occasional semi-mature alder. Marginal areas of the woodland are occupied by scattered mature pedunculate oak and scots pine *Pinus sylvestris*. The field layer is predominantly bracken with locally dominant bramble *Rubus fruticosus* agg. and the occasional hard rush and broad buckler fern *Dryopteris dilatata*.

6.5.19 A small area of broad-leaved plantation woodland is located in the south of the assessment area beside the access road to Woodside Farm House. The woodland contains a mix of early mature pedunculate oak, silver birch, sycamore *Acer pseudoplatanus* and hornbeam *Carpinus betulus*.

Broad-Leaved Semi-Natural Woodland

6.5.20 There are six areas of broad-leaved semi-natural woodland on the assessment area. One of the largest areas adjoins the mixed plantation woodland within Calf Heath Wood. The woodland is mature and dominated by silver birch and pedunculate oak, ranging from small saplings to large late mature specimens. The occasional mature alder and horse chestnut *Aesculus hippocastanum* are also present. The understorey comprises locally dominant stands of bramble or rhododendron, which largely obscure the field layer.

6.5.21 A second area is located in the north-west portion of the assessment area. The woodland contains several large mature pedunculate oak and grey poplar, as well as the occasional ash and beech *Fagus sylvatica*. The shrub layer consist of elder and goat willow, with the occasional bramble. The field layer contains lesser celandine *Ranunculus ficaria*, lords and ladies *Arum maculatum* and common ivy *Hedera helix*. Parts of the woodland are quite damp and two ponds are located in close proximity to each other.

6.5.22 A small area of woodland is located towards the south-west of the assessment area beside the railway line. The woodland contains early mature sycamore and scots pine with several mature pedunculate oak specimens. The canopy in part of the woodland is quite open and the ground flora in these areas is dominated by common nettle and grasses. Bramble is more abundant in areas of the woodland where the canopy is closed.

6.5.23 The area of broad-leaved woodland in the east of the assessment area extends off-site onto an embankment formed by the M6 motorway. Internal areas of the woodland contain semi-mature and early mature silver birch, alder, oak and holly. Trees are more mature towards the west of the woodland and many of the trees closest to the adjoining field are late mature and showing signs of extensive die-back. The shrub layer contains scattered bramble, gorse *Ulex europaeus* and elder amongst a field layer of hard rush and grasses, which extend into the woodland from the adjoining semi-improved grassland habitat.

6.5.24 An area of broad-leaved woodland is located beside the canal in the centre of the assessment area. The woodland is mature and predominantly occupied by oak and alder with abundant silver birch and the occasional horse chestnut. The shrub layer predominantly comprises holly. Parts of the woodland appear to be quite wet and several small shallow ponds are located in low lying depressions.

6.5.25 A small area of broad-leaved woodland in situated in a slightly damp area in the south of the assessment area. The woodland is dominated by semi-mature alder with occasional oak and sycamore. It appears to be regenerating naturally. The shrub layer includes scattered bramble scrub with extensive grassland and tall ruderal vegetation at ground level.

Individual Trees

6.5.26 The majority of individual trees are located within the assessment area's hedgerows and are predominately late mature ash and pedunculate oak trees. Occasionally grey poplars have been planted at regular intervals amongst the hedgerows. A small number of trees, predominantly mature oak, are located away from the hedgerows within the fields themselves. A line of early mature cherry *Prunus* sp. silver birch and alder are located to the side of the railway line in the south-west of the assessment area. Several of the individual mature trees throughout the assessment area are showing signs of die-back or have fissures within the trunk.

Standing Water

6.5.27 Ten ponds were identified from maps and during the walkover within the assessment area with a further 20 ponds identified within the surrounding 500 m.

Running Water

6.5.28 Running water on the assessment area is confined to three slow flowing drainage ditches (TN16, TN7 and TN8 within the Phase 1 habitat figure within Appendix 1). TN10 comprises a ditch with 1 m high banks. Water flows towards the northern boundary of the assessment area. The water level is shallow and the banks are predominantly shaded by trees, although short sections of the ditch are open with grassy banks. Emergent vegetation is absent. TN7 is beside the assessment area's northern boundary and is approximately 3 m wide. The ditches banks are approximately 1 m high and vegetated with rank grasses and bramble. Vegetation within the ditch is predominantly duckweed *Lemna* sp.. The depth of the ditch is not known. TN8 is located in the centre of the assessment area and comprises a short section of shallow water in a narrow ditch. The ditch banks are approximately 1 m high and vegetated with grasses. Emergent vegetation was largely absent but this is likely to be a result of the time of year of the Phase 1 habitat survey.

6.5.29 Several of the other drainage ditches are located adjacent to hedgerows but these were dry at the time of the survey and appear to rarely hold water, because of an absence of wetland vegetation.

Scrub

6.5.30 Parts of the assessment area beside the canal and quarry are occupied by scattered scrub. Scrub predominantly comprises bramble and hawthorn. Ash and oak saplings, as well as and gorse are also occasionally present.

Buildings

6.5.31 There are several buildings on the assessment area including a group of three small derelict utility buildings (TN3, within the Phase 1 habitat figure within Appendix 1) in the centre of the assessment area, a cluster of buildings at Gravelly Way Farm (TN5) near to the canal, a farmhouse and barns at Woodside Farm in the south of the Site (TN 9) and a cottage and barn at Firtree cottage in the south west of the Site (TN12).

Quarry

6.5.32 Five fields the east of the assessment area is currently subject to quarrying. The quarrying is taking place in the central portion of the fields but the surrounding hedgerows are largely intact. The quarrying has stripped and removed the topsoil to access the underlying aggregate, which has been mined to a depth of several metres. Vegetation is absent in these areas and standing water is common.

Invasive Vegetation

6.5.33 No invasive species of vegetation, such as Japanese knotweed *Fallopia japonica*, were identified at the Site during the extended Phase 1 habitat survey.

Species

Bats

6.5.34 SERC provided records of seven species of bat within 2 km of the assessment area including common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, brown long-eared bat *Plecotus auritus*, Daubenton's bat *Myotis daubentonii*, noctule *Nyctalus noctula*, Brandt's bat *Myotis brandtii* and whiskered bat *Myotis mystacinus.* Whiskered bat have been recorded in the north-west of the assessment area. The other species have been recorded with 200 m of the assessment area. All of these species are likely to occur on-site.

6.5.35 The woodlands, hedgerows, scrub and ponds on-site could provide significant densities of invertebrates, on which bats could prey, and are considered to have moderate foraging value for bats. However, the majority of the assessment area is occupied by arable and species-poor grassland fields, which are considered to provide low value foraging habitat for bats. Linear features running through the assessment area, such as the canal, railway and the network of hedgerows are likely to be used by commuting bats and provide good connectivity with the wider landscape.

6.5.36 Roosting opportunities on the assessment area include buildings and trees.

6.5.37 There are three small buildings in the centre of the assessment area (TN3 within the Phase 1 habitat figure within Appendix 1). These three buildings are all single storey and of redbrick construction. Two have pitched slate roofs and one has a flat felt roof. The slate roofs are in poor condition and have large gaps. The door to one of the buildings is missing and the building is largely surrounded by scrub. Two of the buildings are assessed as providing moderate suitability for roosting bats. One of the buildings is considered to be of negligible suitability for roosting bats.

6.5.38 The three buildings at Gravelly Way Farm are suitable for roosting bats (TN5, within the Phase 1 habitat figure within Appendix 1). The main farm house is considered to be of moderate suitability for roosting bats due to its older design and the presence of a tiled roof within potential access points into the loft space. The two annexes appear to be modern barn conversions and are fairly well insulated, with tight fitting tiles and soffits, which reduces the suitability of these buildings for bats to low.

6.5.39 The buildings at Woodside Farm include a series of barns and a farmhouse (TN9, within the Phase 1 habitat figure within Appendix 1). Several of the barns are of open construction with single ply corrugated roofs, which are considered to be of negligible suitability for bats. There is an 'L' shaped old stone barn on the farm with a slate roof and several loose tiles. The barn is considered to be of moderate suitability for roosting bats due to the presence of a large attic space with access via open windows and doorways. The associated farm house is also considered to be of moderate suitability for roosting bats due to the presence of some small cracks in the fascias, loose tiles and some small gaps between the flashing and the chimney.

6.5.40 The buildings at Firtree Cottage include an older cottage and two corrugated metal barns (TN12, within the Phase 1 habitat figure within Appendix 1. The barns are of single skin metal construction and are considered to be of negligible suitability for use by roosting bats. The cottage is generally in good condition with small gaps in the soffits, although a single storey extension has larger gaps around the roof and is considered to be of moderate bat roost suitability.

6.5.41 Many of the mature hedgerow trees on the assessment area are suitable for roosting bats, due to the presence of holes created by rot or woodpeckers. The suitability of each mature tree for roosting bat is presented in the Tree and Building Bat Roost Potential figure within Appendix 1. In summary, 40 trees are considered to be of Low suitability for roosting bats, 13 trees are considered to be of Moderate suitability for roosting bats and two trees are considered to be of High suitability for roosting bats.

6.5.42 All species of bat are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of The Conservation of Habitats and Species Regulations 2010 (as amended), making all species of bat European Protected Species. The legislation also protects the resting places of bats including roost sites and it is an offence to intentionally disturb bats occupying places used for shelter or protection.

Badger

6.5.43 The assessment area and surrounding area are suitable for foraging badgers. Three active badger setts were identified on the assessment area during the extended Phase 1 habitat survey. These are located on the edge of arable fields close to the Site boundaries in hedgerows and beside the railway embankment. Two of the setts are potentially main setts and one appeared to be an outlier sett. A further two disused badger setts are present in

the plantation woodland. Two dead badgers were found during the extended Phase 1 habitat survey in the south of the assessment area. SERC provided 53 records of badger, including nine setts, within a 2 km radius of the assessment area. Under the protection of Badgers Act (1992), setts showing "signs of current use by badgers" are protected.

Hazel Dormouse

6.5.44 Broadleaved woodland and an associated network of native hedgerows are present on-site and provide suitable habitat for hazel dormouse *Muscardinus avellanarius*. The broad range of vegetation species present could potentially provide a reliable food source for hazel dormouse year-round. However, the assessment area is close to the edge of the northern range of the species in the UK. SERC provided no records of the species within 2 km of the assessment area. Dormice have only recently been rediscovered in Staffordshire, having been thought extinct in the county. The size of the current population is unknown, but they appear to be concentrated in the west and north-west of the Staffordshire where it abuts parts of the rural counties of Shropshire and Cheshire [13]. Therefore it seems unlikely that the species would occur on the Site.

6.5.45 The hazel dormouse is fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of The Conservation of Habitats and Species Regulations 2010 (as amended) making it a European Protected Species. The legislation makes it illegal to capture, kill, disturb or injure hazel dormice or damage or destroy a breeding or resting place.

Water vole

6.5.46 SERC provided a record of water vole *Arvicola terrestris* on the assessment area's northern boundary and a further four records within 2 km of the assessment area. The ditch beside the assessment area's northern boundary (TN14 within the Phase 1 habitat figure within Appendix 1) is approximately 3 m wide and has vegetated banks where water voles could burrow. Therefore, the presence of the species in the north of the assessment area is possible. The only other drainage ditches on-site containing water (TN6 and TN8, within the Phase 1 habitat figure within Appendix 1) are potentially too shallow and isolated to support a population of water vole and are likely to be dry for much of the year (the ditches were dry in November 2015 but wet in February and April 2016). Water voles would be unlikely to occur elsewhere on the assessment area due to the absence of habitat network of suitable drainage ditches. Whilst several of the ponds are potentially suitable they are not in connectivity with drainage ditches, which reduces the likelihood of water voles being present in ponds. Water vole is protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).

European Otter

6.5.47 SERC provided two records of otter *Lutra lutra* on the canal, which crosses the western, northern and eastern parts of the Site and a further 26 records within 2 km of the assessment area. It is therefore likely that otter regularly passes through the assessment area on the canal. Otter could occasionally use the broad-leaved woodland habitat on-site, where it adjoins the canal, for resting up although the hard engineered sides of the canal potentially reduces the amount of access for otters into the adjacent areas.

[13] http://www.staffordshire.gov.uk/environment/eLand/planners-developers/biodiversity/protectedspecies/SCCProtectedSpeciesGuidanceDocumentCombinedParts1.pdf, accessed 10th December 2015

6.5.48 Feeding remains found adjacent to the Calf Heath Reservoir in the east of the assessment area in May 2016 (fish remains) may be attributed to otter although confidence in this prediction is low. Otter is fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of The Conservation of Habitats and Species Regulations 2010 (as amended) making it a European Protected Species.

Polecat

6.5.49 SERC provided seven records of polecat *Mustela putorius* within a 2 km radius of the assessment area, the closest is on the assessment area's north-western boundary. Territories sizes of this wide-ranging and elusive species typically vary between 16 and 500 ha[14] and therefore could potentially exist within the assessment area due to the presence of suitable mosaic farmland and woodland habitat and an abundance of rabbits *Oryctolagus cuniculus* on which they prey, although none were observed during the extended Phase 1 habitat survey. Polecat is a s.41 priority species.

Brown Hare

6.5.50 SERC provided 13 records of brown hare *Lepus europaeus* within a 2 km radius of the assessment area. The closest records are 1 km to the north of the assessment area. The arable and grassland habitats on the assessment area provide suitable habitat for the species and the species could be expected to be present, although none were observed during the extended Phase 1 habitat survey. Brown hare is a s.41 priority species.

Harvest Mouse

6.5.51 SERC provided six records of harvest mouse *Micromys minutus* within a 2 km radius of the assessment area, the majority of records are from 1 km to the north of the assessment area. The presence of cereal crops surrounded by a network of hedgerows represent suitable habitat for the species on the assessment area and the species could potentially be present although none were observed during the extended Phase 1 habitat survey. Harvest mouse is a s.41 priority species.

European Hedgehog

6.5.52 SERC provided 29 records of European hedgehog *Erinaceus europaeus* within a 2 km radius of the assessment area. The closest record being 10 m to the north of the assessment area along the A5 road corridor. The woodland and hedgerows provide suitable habitat for hedgehogs although the arable land, which occupies the majority of the assessment area, is considered to be of lower suitability as it is likely to lack sufficient invertebrate prey. This species was not observed during the extended Phase 1 habitat survey. European hedgehog is a s.41 priority species.

Amphibians

6.5.53 SERC provided 12 records of common toad *Bufo bufo* and 14 records of great crested newt *Triturus cristatus* in the surrounding 2 km. The closest great crested newt record is 300 m south of the assessment area, with the majority over 1 km to the south of the assessment area.

[14] http://www.mammal.org.uk/sites/default/files/factsheets/polecat_complete.pdf

6.5.54 Eight ponds have been identified on-Site from available maps (Ponds 4, 5, 6, 8, 14, 18, 20, and 27 within the Ponds Figure within Appendix 1):

- Pond 4 is located within broad-leaved woodland in the west of the assessment area. The pond comprises a pool of water approximately 5 m by 15 m that appears to be shallow. It is shaded by the broad-leaved woodland. No emergent vegetation is present in the pond and it is full of fallen leaves. The pond has a habitat suitability index (HSI) score of 0.57 indicating Below Average suitability for great crested newts. This pond contained no great crested newt eDNA when sampled in April 2016.
- Pond 5 is located in woodland in the centre of the Site. This pond is small (approximately 5 m by 8 m), full of fallen leaves and shaded by the surrounding woodland. The pond has an HSI score of 0.56, indicating Below Average suitability for great crested newts. This pond contained no great crested newt eDNA when sampled in April 2016.
- Pond 6 is located amongst woodland in the centre of the assessment area. It comprises three interconnecting pools with a total length of approximately 50 m and a maximum width of 10 m. The southernmost pools are shallow and full of leaves. The northern pool is dominated by floating sweet-grass Glyceria fluitans and appears to be very shallow. The pond is heavily shaded by trees. The pond has an HSI of 0.61 indicating Average suitability for great crested newts. This pond contained great crested newt eDNA when sampled in April 2016 although none were recorded in the first two GCN population count surveys in May 2016.
- Pond 8 is located in centre of the Calf Heath Wood in centre of the assessment area. The pond is surrounded by rhododendron and appears to be deep. No emergent vegetation is present in the pond. The pond has an HSI score of 0.75 indicating Good suitability for great crested newts. This pond contained great crested newt eDNA when sampled in April 2016 although none were recorded in the first two GCN population count surveys in May 2016.
- Pond 14 is in south-west of the assessment area and has an HSI score of 0.74, indicating Good suitability for great crested newts. The pond is located in the corner of a field between hedgerows. The pond measures approximately 30 m by 25 m and is bounded to the north by mature trees. The depth of the pond is unknown but emergent vegetation was present in parts of the pond, predominantly soft rush *Juncus effusus*. The pond has good connectivity to terrestrial habitats and there are several other ponds off-site, approximately 375 m to the south (good connectivity to nearby ponds can indicate the increased likelihood of a sustainable great crested newt population being present). This pond contained great crested newt eDNA when sampled in April 2016 although none were recorded in the first two GCN population count surveys in May 2016.
- Pond 18 in the north of the assessment area was dry during the habitat survey but held water in April 2016. This pond contained great crested newt eDNA when sampled in April 2016 although none was recorded in the first two GCN population count surveys in May 2016.
- Pond 20 is located on the edge of broad-leaved woodland. The pond measures approximately 5 m by 8 m and is partly shaded. The pond was dry in November 2015, but held water in February 2016. The pond has an HSI score of 0.48 indicating Poor suitability for great crested newts. This pond contained no great crested newt eDNA when sampled in April 2016.

- Pond 27 is located beside the woodland in the south of the assessment area measuring approximately 5 m by 10 m, with aquatic connectivity to a larger ditch system. The pond was dry in November 2015, but held water in February 2016. Vegetation is largely absent except for the occasional stand of floating sweet-grass. The pond has an HSI score of 0.49 indicating Poor suitability for great crested newts. This pond contained no great crested newt eDNA when sampled in April 2016.
- Pond 29 is located on the edge of the woodland in the south east of the assessment area. The pond was dry in November 2015 but held a substantial amount of water when revisited in April 2016. Abundant aquatic vegetation was present in the pond, predominantly water star-wort Callitriche sp.. The HSI score of 0.52 indicates below average suitability for great crested newts. This pond contained great crested newt eDNA when sampled in April 2016 although none were recorded in the first two GCN population count surveys in May 2016.

6.5.55 A review of available maps and the information provided by SERC indicates there are 20 additional ponds within a 500 m radius of the [assessment area]. Of these ponds, Ponds 1, 3, 10, 11, 12, 16, 19, 21, 22, 23, 24, 26 and 28 contain some water. Ponds 16, 21, 22, 23 and 24 contained great crested newt eDNA when sampled in April 2016 although none were recorded in the first GCN population count in May 2016.

6.5.56 Ponds 7, 9 and 25 were dry during the extended Phase 1 habitat survey and do not appear to have held water for several years. The status of Ponds 2, 13, 15 and 17 is not currently known. If great crested newts are present within the off-site ponds, the species could potentially occur within a 500 m radius of these ponds, including within suitable habitats on-site. However, Stafford Road (a dual carriageway) to the west, the A5 to the north and Vicarage Road to the south are all wide and busy roads, which are likely to represent significant barriers to newts and would likely prevent dispersal of newts from off-site (if present) to habitats within the Site boundary.

6.5.57 Great crested newt is fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of The Conservation of Habitats and Species Regulations 2010 (as amended) making it a European Protected Species.

Reptiles

6.5.58 The majority of the [assessment area] is occupied by arable land or a short sward of poor semi-improved grassland and these habitats have a very low potential to support populations of reptiles. Potential reptile habitat on-site is largely confined to the hedgerows, semi-improved grassland, field margins, small areas of scrub and woodland, and areas immediately adjacent to these habitats.

6.5.59 SERC provided one record of common Lizard *Lacerta vivipara* 1.4 km north of the assessment area. CSa Environmental Planning (2011) reported that a single common lizard was recorded within the Calf Heath Quarry Area during a survey completed in 2008. Therefore, it is reasonably likely that common lizard is present on-site. Anecdotal evidence of adder *Vipera berus* from TN3 on the Phase 1 habitat figure within Appendix 1was received from the manager of this part of the Site[15].

[15] pers. comm. Mike Bowerman

6.5.60 It is also possible that other widespread species of reptile such as grass snake *Natrix natrix* and slow worm *Anguis fragilis* could also occur within suitable habitat on the assessment area. Common lizard, grass snake, adder and slow worm are all protected from harm under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).

Birds

6.5.61 The matrix of agricultural fields, hedgerows and woodland habitats on-site provide suitable breeding habitat for a wide range of bird species. SERC provided a long list of bird species records, although many of these relate to either vagrants or winter migrants unlikely to breed within habitats on-site.

6.5.62 According to Drivers Jonas (2007), a breeding bird survey was completed in 2006 and 2007 within Calf Heath Wood, adjacent to the assessment area. The survey also included one field within the assessment area boundary, located to the south east of Calf Heath Wood. A total of 29 species were recorded as either confirmed or probably breeding within the woodland area. Most of the species recorded are common and widespread, listed as green on Bird of Conservation Concern[16]. However, 3 red listed species were also recorded: mistle thrush *Turdus viscivorus*, song thrush *Turdus philomelos* and willow tit *Poecile montanus*. In addition, 4 amber listed birds were recorded: tawny owl *Strix aluco*, willow warbler *Phylloscopus trochilus*, dunnock *Prunella modularis* and bullfinch *Pyrrhula pyrrhula*. In an adjacent field, and additional two red list species, skylark *Aluada arvensis* and starling *Sturnus vulgaris*, and an amber list species common kestrel *Falco tinnunculus* was recorded.

6.5.63 SERC provided a record of barn owl *Tyto alba,* which was recorded in the north of the assessment area. This species can nest in hollows in mature trees as well as agricultural barns.

6.5.64 Calf Heath Wood in the centre of the assessment area contains clearings and wayleaves, which could potentially be used by nightjar C*aprimulgus europaeus,* although the woodland is probably sub-optimal for this species.

6.5.65 The large open fields on-site are potentially suitable for supporting large aggregations of wintering birds such as lapwing *Vanellus vanellus* and a group of ten birds was observed in the west of the assessment area during the extended Phase 1 habitat survey. Small numbers of Snipe *Gallinago gallinago*, mistle thrush, house sparrow *Passer domesticus* and starling were recorded in the arable habitats in during the survey. Fieldfare *Turdus pilaris* were recorded during the survey in small groups of approximately 20 to 30 birds.

6.5.66 In the first 2016 breeding bird survey visit the following red list and s.41 species of principal importance were recorded: lapwing, skylark, linnet *Carduelis cannabina*, yellowhammer *Emberiza citrinella*, song thrush, house sparrow and starling.

6.5.67 Also in the first 2016 breeding bird survey visit dunnock and reed bunting *Emberiza schoeniclus* (s.41 and amber list) and mistle thrush (red list) were recorded. Amber list species recorded were mallard *Anas platyrhynchos*, stock dove *Columba oenas* and willow warbler.

6.5.68 Under Section 1 of the Wildlife and Countryside Act 1981 (as amended), wild birds are protected from being killed, injured or captured, while their nests and eggs are protected

[16] https://www.rspb.org.uk/Images/birdsofconservationconcern4_tcm9-410743.pdf accessed 6/5/16

from being damaged, destroyed or taken. In addition, certain species such as barn owl are included in Schedule 1 of the Act and are protected against disturbance while nesting and when they have dependent young.

Invertebrates

6.5.69 The majority of the assessment area comprises arable farmland and poor semi-improved grassland with limited plant-species diversity. The relative intensive nature of agricultural activity including the regular use of insecticides is likely to limit the value of the invertebrate communities in these areas. The assessment area's broad-leaved woodland, mature trees hedgerows and ponds provide higher value habitats for invertebrates. The woodland and mature hedgerow trees contain dead wood and the woodland ground flora are likely to support populations of common and widespread species of invertebrates. More notable species of invertebrate could potentially be present in areas of mature woodland due to the presence of an apparently established ecosystem and an abundance of dead and decaying wood.

6.5.70 SERC provided records of two rare beetles within a 2 km radius of the assessment area: *Ceutorhynchus constrictus* and *Scaphidema metallicum. Scaphidema metallicum* is associated with dead or decaying wood and therefore could potentially occur within broad-leaved woodland habitats on the Site. *Ceutorhynchus constrictus* is understood to prefer open mosaic habitat and is therefore less likely to be present on the assessment area.

6.5.71 SERC provided nearby records of two species of moth: cinnabar moth *Tyria jacobaeae* and dark brocade moth *Blepharita adusta*. Both are priority species under the UK Biodiversity Action Plan (UK BAP) for monitoring purposes only. Cinnabar moth is a widespread species, which is in decline. The moth could potentially be present in areas of the assessment area where semi-improved grassland and its larval food-plant ragwort occur. Dark brocade moth is also a widespread species and the woodland on Site is potentially suitably habitat.

6.5.72 SERC also provided records of two rare butterfly species within a 2 km radius of the assessment area: small heath butterfly *Coenonympha pamphilus* and wall butterfly *Lasiommata megera.* Both are priority species under the UK BAP. Small heath is unlikely to occur on the Site due to an absence of dry grassland habitat types, which the species favours. Woodland edge habitats and areas of semi-improved grassland are potentially suitable habitat for wall butterfly, although the absence of ungrazed grassland is likely to limit the overall suitability of the assessment area for this species.

6.5.73 A detailed invertebrate survey was completed on-site to inform the planning application for Calf Heath Quarry (CSa Environmental Planning 2011). This survey targeted areas of uncultivated sandy soil within an area that have been subsequently quarried. A total of 271 invertebrate species were recorded, representing a good overall diversity. A number of species which appear to be scarce or very local in the county were recorded. A good range of 34 aculeate Hymenoptera (bees, wasps and ants) were recorded, the great majority were largely confined to the vicinity of a sandy mound. No areas of sandy soils with sparse vegetation were identified during the extended Phase 1 habitat survey.

6.5.74 The 2011 invertebrate survey also recorded two invertebrate species categorised as Nationally Scarce Category B, both beetles: Adonis' Ladybird *Adonia variegata* (Coccinellidae) and a flea beetle *Longitarsus dorsalis* (Chrysomelidae). The report makes the following statements regarding these species:

- Adonis' Ladybird: "Although still classified as nationally scarce, this species is now known to be relatively common and will almost certainly lose its status at the next review. It prefers dry ground and is often found on post-industrial sites."
- Longitarsus dorsalis: "Although classified as nationally scarce this species, which is associated with ragwort, appears to have undergone a considerable expansion in recent years and in areas where flea beetles are well recorded it is often common particularly where ragwort is growing in open sunny sites. A review of its status would almost certainly result in it being relegated from nationally scarce to local. Nevertheless, the recent national atlas (Cox, M.L. 2007. Atlas of the seed and leaf beetles of Britain and Ireland) shows the species to be confined to the south and east of the Calf Heath site which thus represents an extension to its known range, A single specimen were swept from ragwort on Phase 2."

White Clawed Crayfish

6.5.75 SERC provided four records of white clawed crayfish, the closest of which is 750 m to the south-west of the assessment area. The drainage ditches on-site do not contain any slow flowing stony sections or boulder riffles and do not appear to be well oxygenated or calcareous in nature. The lack of suitable habitat reduces the likelihood of white-clawed crayfish *Austropotamobius pallipes* occurring on the assessment area. White-clawed crayfish are protected under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended).

Assessment Methodology

6.5.76 The baseline will be defined, i.e. an assessment of the Site in its current status and condition based on existing baseline data and additional ecological surveys.

6.5.77 An 'extended' Phase 1 habitat survey has been undertaken by competent field ecologists to assess potential issues regarding flora / fauna for the western, northern and eastern parts of the Site (refer to the Phase 1 habitat figure within Appendix 1). An extended Phase 1 habitat survey is proposed for the south-eastern part of the Site. Dependent on the findings of this survey the scope of further surveys (where applicable) will be determined for the south-eastern part of the Site.

Recommended Scope of Surveys – Western, Northern and Eastern parts of the site

6.5.78 At the current time, no further detailed vegetation surveys (i.e. National Vegetation Classification) are deemed to be required. However, as the extended Phase 1 survey was completed November 2015 and February 2016 when some species would not be apparent, it is recommended that additional walkover surveys are completed during the summer (May-August). The aim of the walk-over survey would be to confirm the Phase 1 habitat classification and record additional plant species that may be present. These walk-over surveys would focus on the areas of semi-improved grassland and woodland. Although the woodland on-site appears to be of relatively recent origin, a walk-over survey would confirm whether ancient woodland indicator plant species are present. Due to the large number of hedgerows on-site, some of which appear to be of moderate diversity, a hedgerow survey is recommended. This would assess the hedgerows on-site in relation to criteria of an "important hedge" as defined in the Hedgerow Regulations (1997).

Invertebrates

6.5.79 It is proposed that an invertebrate survey is undertaken within Calf Heath Wood. Good practice guidelines for invertebrate surveys recommend that four or five visits are undertaken at monthly intervals between May and October to identify species during a terrestrial survey. The wetland habitats on-site (i.e. ponds and short lengths of ditches) are sub-optimal for white-clawed crawfish and specific surveys for this species are not recommended.

Reptiles

6.5.80 It is proposed that further survey work is undertaken to establish whether reptiles are present on-site. This would be targeted towards the most suitable patches of habitat present.

6.5.81 The ideal times for reptile surveys are March to July or late-summer (September). Surveys would involve deployment of artificial heat refuges (small squares of sheet material) at minimum densities of 5-10 refuges per hectare. Reptile refuges would be deployed by a suitably experienced ecologist and subsequently checked for reptile presence on at least seven separate survey visits in accordance with best practice[17].

Great Crested Newts

6.5.82 It is proposed that further surveys are completed to investigate the presence / absence of great crested newts (where accessible is permissible) for relevant ponds. It is recommended that surveys be undertaken for all on-site ponds and those in the surrounding area except where landscape features such as busy roads and canals are considered to provide sufficient barriers to prevent the dispersal of newts. For example, Stafford Road to the west of the Site is a wide and busy dual carriageway. This road is likely to represent a significant barrier for the species.

Birds

6.5.83 Breeding bird surveys are proposed to record the potential presence of notable species as well as assess the overall assemblage present. The survey would include at least three visits between mid-March and mid-June and be based on the British Trust for Ornithology's Common Bird Census[18] methodology. Two evening visits to Calf Heath Wood would be included as part of the breeding bird survey to confirm the presence or absence of nightjar and tawny owl.

Hazel Dormouse

6.5.84 Although potentially suitable habitat for hazel dormouse is present on-site, the known distribution of dormice in Staffordshire reduces the likelihood of the species being present. Therefore, it is not recommended that surveys are required for this species.

Water Vole

6.5.85 The ponds on-site are mostly sub-optimal for water voles. However, it is proposed that a water vole survey is completed of both the ditches and ponds on-site to confirm their

[17] Gent, T. and Gibson, S. (2012). Herpetofauna Workers' Manual 2nd Edition. JNCC, Peterborough

[18] http://www.bto.org/about-birds/birdtrends/2011/methods/common-birds-census

presence or absence. Surveys are ideally carried out during the breeding season from mid-April to mid-September[19] .

Bats

6.5.86 The Site is considered to offer moderate habitat suitability for bats in this part of the country. The mixture of water and woodland habitats interspersed with connective features provides for a range of commuting and foraging opportunities for bat species. In line with the 3rd Edition of the Bat Conservation Trust (BCT) Bat Survey Guidelines (2016) it is proposed that bat activity surveys are undertaken once per month between May and October. Given the size of the site, activity surveys will be broken down into five transects providing coverage of the entire Site. The manual activity surveys would be supplemented with automated surveys involving the deployment in parallel of a static detector on each transect for five consecutive nights. Detectors will be deployed in areas of woodland, connective features e.g. hedgerows and in more isolated habitats. These static and manual activity surveys will be further supplemented by bat activity tracking data from the radio tracking surveys described below allowing understanding of home ranges of key bat species and populations to be established.

6.5.87 Emergence surveys can be undertaken for trees with moderate or high potential, however, as acknowledged in the 3rd Edition of the BCT Bat Survey Guidelines, emergence surveys on trees will not provide confidence in a negative result (unlike buildings). The main constraint relates to the very low encounter rates of finding bat roosts in trees due to their frequent movements and the small cavities they can occupy, as well as many of the potential roost sites being obscured by vegetation during emergence surveys. Advanced bat survey techniques (radio tracking) will therefore be used to locate tree roosts of a range of species and roost types on and adjacent to the Site (all bats will be captured on the Site). This approach is fully supported by the 3rd Edition of the Bat Survey Guidelines (see 6.3.6 and Chapter 9 generally).

6.5.88 Two to four trapping nights using six harp traps/mist nets and lures (Sussex Autobats) will be deployed in June/July and another two to four nights trapping will be undertaken in August. All bats captured will be identified to species level, aged, breeding status assessed and released immediately unless retained for radio tracking. A project licence to cover the trapping will be in place, issued by Natural England. This method is very effective for determining the presence of quiet echolocating bats such as long-eared bats. The establishment of the breeding status of bats will assist in evaluating the Site's importance. As part of each trapping survey, up to 5 breeding bats or notable bats (any sex) from species known to roost in trees, including barbastelle, alcathoe, noctule, leisler's, daubenton's, brown long-eared, whiskered and natterer's bats will be fitted with light weight transmitters. Tagged bats will be released immediately after tagging and followed on the night of capture to locate roost sites at dawn. Tagged bats will also be tracked for two nights and/or days post capture each trapping session and emergence counts of roost trees using infrared cameras will be undertaken to establish an estimate of population sizes and roost status.

6.5.89 In addition to the above, Tree climbing will be undertaken of trees identified as offering moderate or high potential to support roosting bats. Features suitable for roosting bats will be inspected, evidence of bats, or presence of bats will be noted. Where features are, on

[19] Strachan R and Moorhouse T (2006). Water Vole Conservation Handbook, 2nd Edition. Wildlife Conservation Research Unit (WildCRU), Oxford University.

close inspection ruled out as suitable to support roosting bats, the suitability categorisation of the tree will be revised in respect of findings.

6.5.90 Evening emergence and or dawn re-entry surveys will be undertaken for the buildings assessed as offering potential to support roosting bats that would be removed during the development of the Site. In line with the BCT guidelines, three surveys will be undertaken of the buildings with high bat roost potential, two surveys will be undertaken of the buildings with moderate bat roost potential and one survey will be undertaken of the buildings with low bat roost potential. Adequate surveyors will be deployed to cover all elevations where potential roost features or access/egress points have been observed.

Badgers

6.5.91 The Site was surveyed for badgers during the extended Phase 1 habitat survey. Further surveys for badgers are not currently proposed at this time although badger activity on the Site would continue to be monitored and appropriate mitigation would be devised if necessary.

Otter

6.5.92 It is unlikely that the Canal would be directly impacted by the Proposed Development as it is situated off-site. Therefore, otter surveys are not recommended as long as the potential presence of otters within the canal are taken into account during the design of the development (e.g. as long as indirect effects such as lighting can be avoided).

6.5.93 In order to identify the potential impacts of the Proposed Development on ecology, an approach will be taken whereby the Site will be assessed in its existing form, then the potential impacts on the ecological resources of the existing Site will be assessed against this baseline. The assessment will consider the baseline and impacts on the baseline in a systematic way, considering the various aspects of ecology, nature conservation and biodiversity as follows:

- the potential impact and sources of impact on ecological resources will be defined and quantified, where possible, in terms of magnitude and duration. Impacts resulting from the Proposed Development will be assessed for construction and operation of the Proposed Development; and
- the significance of impacts will be assessed and where impacts are significant, outline mitigation measures proposed.

6.5.94 The ecological assessment would be undertaken in accordance with standard guidelines such as 'Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland' (CIEEM, 2016).

6.5.95 The Ecology ES Chapter would follow a logical progression to describe:

- the Site and background to the ecological assessment;
- the ecological baseline;
- potential ecological impacts (on habitats and species) during construction works and on completion of the Proposed Development;
- any mitigation measures which will be employed to avoid / reduce / offset potential impacts;
- recommendations for ecological enhancement; and

- an assessment of residual and cumulative effects.

Potential Impacts

6.5.96 The demolition and construction stages of the Proposed Development could generate some potential significant direct and indirect ecological impacts, with temporary and permanent effects. The potential impacts include:

- Indirect impacts on designated sites. Potential impacts on these sites may include;
  - Effects of construction on surface water quality through sediment mobilisation or pollution to demolition/construction site runoff;
  - Effects of demolition/construction on air quality, for instance the effects of demolition dust or construction emissions on sensitive habitats in a LWS;
  - Effects of demolition/construction noise. Whilst birds (for example) are a receptor in their own right, the effects of construction noise on features of designated sites would be considered in the assessment of effects on the designated site. For instance Gailey Reservoirs LWS is noted as an important area for water birds, and the assemblage of birds there will be considered in assessment of effects on the LWS; and
  - Lighting. As with noise effects, disturbance to species forming part of LWS sites from construction lighting (for instance displacement of the species due to lighting) could occur.
- Direct impacts on habitats. Demolition of buildings and clearance of the Site to facilitate construction would entail removal of habitats present on the Site including woodland, hedgerows, trees, semi-improved grassland and standing water which would be a permanent effect;
- Bats. Demolition in the absence of mitigation would result in loss of any bat roosts present in buildings and site clearance (notably tree felling) would also have the same effect on any tree roosts without mitigation. Demolition and Site clearance could also result in impacts on the animals themselves. Removal of features in the landscape such as ponds, hedgerows or woodland blocks that bats use for foraging and construction phase lighting may affect bat commuting or foraging behaviour;
- Impacts on badger. Site clearance would entail loss of badger setts and foraging habitat and in the absence of mitigation could result in impacts on the animals themselves;
- Water vole. If the species is present Site clearance would entail loss of their bankside habitat and burrows and in the absence of mitigation could result in impacts on the animals themselves. Site works could affect connectivity for the species between habitat either side of the Site;
- Otter. In the absence of mitigation demolition or construction could result in disturbance to otters although direct effects on a place of shelter impacts on the animals themselves is unlikely because there would be little effect on the canal which runs through the Site;
- Amphibians including great crested newt. Site clearance would entail loss of ponds and terrestrial habitat used by the s.41 common toad and protected and s.41 great crested newt. In the absence of mitigation Site clearance could result in impacts on the animals themselves;
- Reptiles. If present, Site clearance would entail loss of terrestrial habitat used by s.41 reptiles. In the absence of mitigation Site clearance could result in impacts on the animals themselves;

- Birds; Site clearance would entail loss of habitat used by birds for foraging and nesting and in the absence of mitigation could result in disturbance or other impacts on birds and their nests or eggs; and
- Invertebrates. Site clearance would entail loss of habitat for a range of invertebrate species.

6.5.97 The Proposed Development could generate a range of potential significant direct and indirect ecological impacts during its operation, with likely permanent effects. These could include;

- Indirect impacts on designated sites. Potential impacts on these sites may include;
  - Effects of operation on air quality, for instance the effects of emissions from HGV diesel and fixed plant on sensitive habitats in a LWS;
  - Effects of operational noise. The effects of operational noise on features of designated sites would be considered in the assessment of effects on the designated site. For instance Gailey Reservoirs LWS is noted as an important area for water birds, and the assemblage of birds there will be considered in assessment of effects on the LWS;
  - Lighting. As with noise effects, disturbance to species forming part of LWS sites from operational lighting (for instance displacement of the species due to lighting) could occur; and
  - Please note that whilst pollution of surface waters in operation is possible, it is anticipated that this would be mitigated through sensitive drainage design and implementation of an operational phase pollution avoidance and control plan that would form part of the proposals.
- Bats. In operation there may be disturbance to bats roosting in adjacent areas (i.e. an indirect impact on retained roosts through lighting or noise of the facility in operation). In addition there may also be indirect impacts on bat activity away from a roost through severance effects of lighting and noise and replacement of features in the landscape such as ponds, hedgerows or woodland blocks that bats use for foraging with roads and buildings which may affect bat commuting or foraging behaviour;
- Badger. Additional or concentrated road and rail movements may result in increased incidence of badger road/rail casualties. There may be effects of operational lighting and noise, for instance influencing badger foraging behaviour and distribution patterns or leading to disturbance to badgers in existing or new artificial setts;
- Water vole. In operation there may be disturbance to water voles sheltering in adjacent areas (i.e. an indirect impact on retained burrows through lighting or noise of the Proposed Development in operation). There may be further effects of operational lighting and noise, for instance influencing water vole foraging behaviour and distribution patterns or leading to disturbance to water voles in their burrows;
- Otter. In operation there may be disturbance to otters sheltering in adjacent areas (i.e. an indirect impact on a retained holt (if present) through lighting or noise of the facility in operation). Replacement of features such as ponds, hedgerows or woodland blocks that otters use for foraging and movement in the landscape with roads and buildings may affect otter commuting or foraging behaviour;
- Amphibians including great crested newt. In operation any new surface water attenuation features may provide habitat for great crested newts, but in the

absence of mitigation, additional or concentrated road and rail movements may result in increased incidence of amphibian casualties. Without mitigation replacement of features such as ponds, hedgerows or woodland blocks that amphibians use for dispersal and movement in the landscape with roads and buildings may affect long term viability of great crested newt meta-populations;

- Reptiles. Without mitigation, replacement of features such as hedgerows and field headlands that reptiles (if present) use for dispersal and movement in the landscape with roads and buildings may affect long term viability of reptile populations; and
- Birds. In operation there may be disturbance to birds nesting in adjacent areas (i.e. an indirect impact from lighting or noise from the facility in operation). In addition there may also be indirect impacts on bird activity through severance effects of lighting and noise and replacement of features in the landscape such as ponds, hedgerows or woodland blocks that birds use for foraging.

6.6 Ground Conditions

Introduction

6.6.1 A ground conditions assessment will be presented in ES Volume I. The assessment will consider the implications of the Proposed Development on geological, hydrological and hydrogeological sensitive receptors.

6.6.2 The main receptors with the potential to be affected are:

- Soil quality and ecological features;
- Groundwater quality;
- Surface watercourses;
- Property, buildings and structures (proposed and existing); and
- Humans (through direct contact and recreational use).

6.6.3 Although not a receptor, the ground conditions assessment will also consider the implications for known and potential presence of on-site mineral / aggregates reserves and how the Proposed Development may affect these resources. Furthermore, part of the Site (in the south-west) is currently subject to an Environmental Permit (ref: DP3033NX, held by SI Group Ltd) under the Environmental Permitting (England and Wales) Regulations 2010 relating to ongoing remediation works and the ground conditions assessment will also consider implications on the Proposed Development as a result of the Environmental Permit activities and vice versa.

Baseline Conditions

6.6.4 The Site forms an approximate horseshoe shape. The topography of the Site is gently undulating with a gentle rise to the east.

6.6.5 A railway line bisects the western arm of the horseshoe creating a parcel of land between the railway and the A449 (‘the western part’). The ‘northern part’ of the horseshoe is formed by land located between the railway (to the west) and Calf Heath Quarry (to the east). The Staffordshire and Worcestershire Canal runs approximately north-south through the centre of the northern part, bisecting it.

6.6.6 The majority of the Site is utilised for agriculture. The Site has a small number of access roads and paths for maintenance works for the canal and the railway.

6.6.7 Calf Heath Quarry has been in operation in the eastern part of the Site since March 2012. Salop Sand and Gravel Ltd have an Environmental Permit to extract sand and gravel from six fields in total.

6.6.8 Geological maps for the area indicate that the Site is located on a Secondary A Aquifer (superficial deposits) which is further underlain by a Principal Aquifer (sandstone formation) and there is one potable water groundwater abstraction within 2 km. Approximately 85% of the Site is situated within a Zone 3 Environment Agency designated Groundwater Source Protection Zone (SPZ) and the remainder of the Site is situated within a Zone 2 SPZ. Overall, the hydrogeological sensitivity in the vicinity of the Site is considered to be high, furthermore the vulnerability of the groundwater resources is considered to be high due to the lack of extensive building/hardstanding coverage of the Site, and the presence of abstractions including one for potable water supply located 1.39 km west.

Assessment Methodology

6.6.9 A ground condition desk study will be assessed as part of the ES chapter. The desk study shall provide further characterisation of the Site conditions through review of published information, including historical maps and environmental database records, geological and hydrogeological maps, regulatory information and review of available third party reporting pertaining to the Site. The desk study information will be supplemented by a Site inspection.

6.6.10 Based on the findings of the desk study / Site inspection, Ramboll Environ developed a proposed scope of intrusive investigation which was subsequently issued in separate correspondence to both the Environment Agency (letter reference: L-UK15-19880_1-SI Scope EA) and South Staffordshire Council (letter reference on L-UK15-19880_1-SI ScopeSSDCEP) on 14th September 2015.

6.6.11 The scope of investigation allowed for advancement of approximately 57 exploratory locations for environmental assessment purposes, some of which comprised deeper boreholes, with the remaining comprising shallower window samples or trial pits. The exact depths were dependent on the ground conditions identified during the investigation. In general the investigation was designed to provide coverage of the Site, however certain areas of the Site would be subject to more intensive investigation such as areas of 'historic' landfilling (in the Eastern and South-eastern parts of the Site, to the south of Calf Heath Wood). The investigation scope included allowance for soil and groundwater sampling and return groundwater and ground gas monitoring. To date the assessment has not included the south-eastern part of the Site (as per Figure 1). The ES chapter will report on assessment of the entire Site.

6.6.12 The general approach of investigation included:

- the soils encountered at each location were logged by an appropriate specialist in general accordance with British Standard BS5930:1999, Code of practice for site investigations. The logging provided a description of the frequency, depth and nature of the strata encountered to enable further assessment on the presence of any potential varying geological features at the Site;
- soil samples were taken at regular intervals from the shallow excavation locations at changes in strata and from discrete horizons, with selected samples also taken from the deeper excavations. A minimum of one or two soils samples per exploratory hole location were submitted for a targeted suite of chemical analysis outlined in the following section below. The soil samples were placed in sealed

glass jars and bottles (appropriate to the type of analysis to be undertaken) and labelled with site specific sample identification information. Samples were stored and transported to an accredited laboratory in cool boxes maintained at a low temperature. Chain of custody forms were completed and signed on release by the field staff and upon receipt at the laboratory;

- headspace testing was carried out on selected soil samples utilising a fully calibrated a photo ionisation detector (PID) fitted with a 10.2eV lamp;
- return groundwater monitoring visits undertaken with samples obtained from the newly installed wells (25 in number) on two occasions:
- following installation, the newly installed monitoring wells were developed to remove any driller added fluids and fine particles within the well and to stabilise the gravel pack. Groundwater samples were retrieved from the newly installed wells no sooner than three days after well development;
- groundwater samples obtained in accordance with standard best practice, with all samples submitted for a suite of analysis outlined in the following section;
- retrieved groundwater samples tested in the field for pH, temperature, dissolved oxygen, redox potential, electrical conductivity and total dissolved solids utilising a fully calibrated multi-parameter water quality field kit;
- rising head testing undertaken at the Site in order to facilitate further assessment of the Site specific hydraulic conductivity;
- all groundwater monitoring wells surveyed in order to facilitate determination of groundwater flow direction; and
- The findings of the intrusive (Phase II) Environmental Site Assessment will be utilised to refine the conceptual model for the Site with the findings detailed within the ground conditions ES chapter. The soil analytical data would be assessed in accordance with appropriate generic assessment criteria (GAC) in relation to Human Health, with groundwater data assessed broadly consistent environmental quality standards (or alternative criteria where applicable).

6.6.13 Correspondence was subsequently received from both the Environment Agency (correspondence dated 30th September 2015) and South Staffordshire Council (correspondence dated 25th September 2015) confirming acceptance of the proposed investigation approach. The following were noted:

- The Environment Agency indicated that given the industrial usages in the western area of the Site there was potential for contamination to have occurred and consideration should be given to a further borehole in this portion of the Site. The Environment Agency also provided details of petroleum loss at a Petrol Filling Station on Watling Street (National Grid Reference: SJ 9191 1047). The Petrol Filling Station site was redeveloped in 2013 with the old tanks and pipework replaced. This facilitated soil remediation; reportedly 3,337 tonnes of hydrocarbon impacted soils were excavated and disposed of off-site. This was considered to account for approximately 90% of the contamination with some areas (close to the A5 and adjacent buildings) being inaccessible. The Environment Agency considered it unlikely that hydrocarbon impact associated with the Petrol Filling Station would be recorded as part of the proposed Site investigation, with the details provided for information only.
- South Staffordshire Council indicated that further ground gas monitoring would be required at a later stage to support the Proposed Development.

6.6.14 The findings of the Phase II Investigation will be used to inform the ES Ground Conditions Chapter.

6.6.15 A ground contamination desk study will be prepared in line with BS 10175:2011 "Investigation of potentially contaminated sites - Code of practice"; relevant parts of BS 5930:1999 "Code of practice for site investigations (+A2:2010)" and; the Environment Agency "CLR 11 Model Procedures for the Management of Land Contamination" (Conceptual Site Model and Preliminary Risk Assessment).

6.6.16 The 'Model Procedures for the Management of Land Contamination' (CLR11)[20] provides the technical framework for applying a risk management process when dealing with contaminated land. The process involves identifying, making decisions on, and taking appropriate action to deal with land contamination in a way that is consistent with government policies and legislation within the UK. CLR11 procedures are intended to assist all those involved in dealing with land contamination, including landowners, developers, professional advisors, regulatory bodies and financial providers.

6.6.17 Guidance on the development of Category 4 Screening Levels for Assessment of Land Affected by Contamination[21] was published in 2014. It constitutes the primary output of a Department for Environment Food and Rural Affairs (DEFRA) funded research project (SP1010), and it incorporates feedback from both the project's Steering Group and the wider contaminated land community. The report presents a suggested methodology for the development of Category 4 Screening Levels (C4SLs). The overall objective of the C4SLs research project has been to assist the provision of technical guidance in support of DEFRA's revised Statutory Guidance (SG) for Part IIA of the Environmental Protection Act 1990.

6.6.18 The ES chapter will also take account of the Environment Agency's Groundwater Protection: Principles and Practice (GP3) document with respect to activities associated with the Proposed Development. Noting groundwater aspects of the Water Framework Directive.

6.6.19 For the purposes of the EIA, the baseline will be taken as the 2015 / 2016 conditions on site.

6.6.20 The ground conditions impact assessment and resulting ES chapter will set out the baseline conditions, including but not limited to, a description of on-site and relevant off-site history, geology and hydrogeology, groundwater abstractions and discharges, underground structures, ground gas and the potential for ground contamination. An overview of previous site investigations and the results (as relevant) will be presented, identifying any potential sources of contamination.

6.6.21 A Conceptual Site Model (CSM) and risk assessment (in text and illustrative form) for the demolition, construction and decommissioning stages and for the Proposed Development will be included within the ground conditions ES chapter. The CSM will identify potential sources of contamination and assess potential effects upon different receptors (noting

[20] Environment Agency, 2004, 'Model Procedures for the Management of Land Contamination - CLR 11'. Bristol.

[21] Contaminated Land: Applications in Real Environments (CL:AIRE), SP1010 – Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination, Final Project Report (Revision 2), FINAL dated 24th September 2014 and Erratum dated December 2014.

relevant pathways). This assessment will consider the various stages of the Proposed Development.

6.6.22 Where a complete contamination source, pathway and receptor relationship is identified (known as a potential pollutant linkage) outline measures for mitigation will be identified, along with any post approval DCO Requirements comprising further assessment, monitoring and commitment required for remediation strategies. The CSM will specifically consider development related aspects such potential changes in topographic levels and the need for earthworks to enable the Proposed Development.

6.6.23 A qualitative review of the effects of impacting a potential source of minerals (i.e. current and proposed extraction) will be presented within the ES Chapter. This will draw upon consideration of the wider mineral resources within the SCC boundary.

Potential Impacts

6.6.24 The demolition and construction stages of the Proposed Development could generate some potential significant direct and indirect Geology and Ground Condition impacts, with temporary effects. Subject to the findings of further Phase II Investigation, the potential impacts could include:

- construction workers may come into direct contact with potentially contaminated soils / groundwater (to be further defined based on findings of the Phase II Site investigation) and groundwater during the redevelopment works;
- as with any former commercial / industrial site, a potential exists for further limited contamination hotspots to be discovered during construction works;
- contaminated dust emissions (particularly associated with construction vehicle movement) and hazardous gas emissions generated could present a potential health risk to construction workers, off-site commercial users and members of the public;
- land gas and / or residual volatile contaminants (if present) could pose a risk to construction workers within confined spaces (such as excavations for installation of new Site drainage);
- oil and diesel stored at the Site during demolition and construction, if spilled may contaminate soil and groundwater;
- controlled waters could be affected during demolition and construction by accidental spillage of oil and diesel through infiltration of polluted runoff through the soil and groundwater to the controlled water;
- generation and temporary stockpiling of potentially surplus materials (depending on finalised Site levels) associated with excavation of building foundations, installation of drainage systems and services. Inefficient management of stockpiled materials could lead to direct and indirect pollution impacts from silt-laden runoff;
- uncontrolled dewatering of deeper excavations, should extended foundation depths or site level reduction be required, could create surface water runoff if not adequately mitigated;
- in the absence of mitigation, demolition, excavation and construction works could introduce new contaminant sources and pathways creating a possible link to Site workers, visitors and contamination within the soil and groundwater; and
- changing in groundwater levels as a result of excavations within the Site. This may be a temporary direct or an indirect impact affecting hydrological receptors and the off-site Geological site of special scientific interest (SSSI).

6.6.25 The Proposed Development could generate a range of potential significant direct and indirect Geology and Ground Condition impacts, with likely permanent effects. Supplementary assessment is necessary to further identify the impacts, however it is considered they could include:

- future commercial Site users, who may come into contact with residual contaminants (if present) in areas of soft landscaping;
- future maintenance workers may come into direct contact with potentially contaminated soils (such as within shallow made ground deposits if present) and contaminated groundwater (if present);
- landgas and / or residual volatile contaminants (if present) could pose a risk to future occupants of Site buildings, e.g. via ingress through service cavities and accumulation within confined spaces;
- existing soils may not provide a suitable horticultural growth medium to support future planting within areas of soft landscaping;
- impact to drainage system from increased Site surface water run-off from hardstanding areas such as external car parks; and
- buildings associated with the Proposed Development could potentially affect ongoing remediation works in the south-west of the Site. The remediation works comprise abstraction wells in the Western part of the Site, to the south of Gravelly Way, which are pumping groundwater to be treated at the off-site, adjacent SI Group facility.

6.7 Landscape and Visual

6.7.1 The Landscape and Visual Impact Assessment will be presented as Volume II of the ES.

Baseline Conditions

6.7.2 This section summarises the characteristics of the existing landscape and visual conditions of the Site and the surrounding area, based upon the information, surveys and appraisals undertaken to date. This work is ongoing and will be extended and refined in the ES to include more detailed information on the relevant landscape and visual receptors.

Landscape Character

6.7.3 Landscape Character Assessments have been prepared at National, County and District-wide scales covering the Site and its context.

National

6.7.4 National Character Area (NCA) profiles have been prepared by Natural England for the 159 NCAs defined across England. These NCA profiles include a description of the natural and cultural features that shape the landscape, how the landscape has changed over time, the current key drivers for ongoing change, and a broad analysis of each area's characteristics.

6.7.5 At this broad landscape scale, the Site and its wider context encompass three NCAs. The Site lies just within the south-east corner of NCA 61 'Shropshire, Cheshire and Staffordshire Plain'. To the east is NCA 67 'Cannock Chase and Cank Wood' and to the south is NCA 66 'Mid Severn Sandstone Plateau'. As the Site and its wider context lies across multiple character areas it also combines characteristics and features that are relevant to varying degrees to all three NCAs. In landscape character terms, it is not therefore strongly associated with, or representative of, any one of the three areas.

6.7.6 NCA 61 'Shropshire, Cheshire and Staffordshire Plain' stretches from Wolverhampton and Shrewsbury in the south, to Chester and Macclesfield in the north. The summary description of this NCA includes the following reference:

6.7.7 "This is an expanse of flat or gently undulating, lush, pastoral farmland, which is bounded by the Mersey Valley NCA in the north, with its urban and industrial development, and extending to the rural Shropshire Hills NCA in the south."

6.7.8 NCA 67 'Cannock Chase and Cank Wood' extends from Halesowen in the south-west to Stafford in the north-west and Tamworth in the east. The summary description of this NCA includes the following reference;

6.7.9 "It is situated on higher land consisting of sandstone and the South Staffordshire Coalfield. The NCA principally coincides with the historical hunting forest of Cannock Chase, with major remnants surviving within the Cannock Chase Area of Outstanding Natural Beauty (AONB)….. There are no major rivers within the area, but canals are a significant feature and some major transport routes also cross the NCA. The current landscape is extremely varied, including extensive areas of urban development predominantly in the south of the NCA and extensive conifer plantations and heathlands in the north interspersed with farmland. The Forest of Mercia, a Community Forest, lies in the heart of the NCA."

6.7.10 NCA 66 'Mid Severn Sandstone Plateau' stretches from Telford in the north-west to Kidderminster in the south. The summary description of this NCA includes the following reference;

6.7.11 "The Mid Severn Sandstone Plateau is predominantly rural and important regionally for food production, with large arable fields in the central and eastern areas, and remnant areas of characteristic lowland heathland. Parklands provide an estate character in places, as exemplified by Weston Park. The plateau is drained by fast-flowing tributaries of the rivers Worfe and Stour…"

6.7.12 These three NCA`s set the broad landscape character context for the Site.

County

6.7.13 A county level of landscape character is provided in the 'Staffordshire Planning for Landscape Change 1996 - 2011' (2000) SPG[22]. The introduction to this landscape study advises that it is 'aimed primarily at planning officers in the Staffordshire and Stoke-on-Trent Structure Plan area, and at developers and others who need to be informed about policy and practice for the conservation, enhancement and regeneration of the rural landscapes of the Plan area. It may also prove to be of value in a wider context, as a means of informing other decisions relating to land use and land management.'

6.7.14 The study was prepared in 2000 and draws on government guidance at this time on development plan policies for the conservation and enhancement of landscape character and quality, and on work undertaken by the former Countryside Commission and English Nature to map and describe the landscape character of England.

6.7.15 The study maps Landscape Character Types (LCT) across the county. No judgements about the relative worth of the LCT`s are determined but the approach does acknowledge that any given landscape type will be represented by some areas in which the underlying

[22] 'Staffordshire Planning for Landscape Change 1996 - 2011' (2000) SPG, Staffordshire County Council

landscape character is strongly expressed and the constituent elements are in good condition, and other areas where this is not the case.

6.7.16 Within this study, the Site stretches across two LCT. The land to the east of the Staffordshire and Worcestershire Canal lies within the 'Settled Heathlands' LCT and to the west of the canal it lies within the 'Ancient Clay Farmlands' LCT.

6.7.17 The description of the 'Settled Heathlands' LCT advises:

6.7.18 "The soils are mainly acid sands and brown earths which support cropping and mixed farming in a regular pattern of small and large hedged fields. Many areas of this type are quite well wooded, although there may be few hedgerow trees. The settlement pattern is dispersed, and urbanised in places."

6.7.19 Under the heading 'Visual Character', it states,

6.7.20 "This is a flat, intensively farmed landscape characterised by a well-wooded appearance due either to the high percentage of interlocking woodlands or coalescence of stunted hedgerow oaks and overgrown hedgerows. Remnant heathland character is evident in the presence of birch, bracken and gorse.

6.7.21 Tree cover defines the medium scale of both the arable landscape of irregular fields, and pastoral areas of a more regular pattern. These areas of planned landscape are given a sense of apparent naturalness by the woodland cover and grown-up hedgerows…..The presence of railways and electricity pylons and the intrusive nature of the individual residential properties erode the quality of the area."

6.7.22 The characteristic landscape features for the 'Settled Heathlands' LCT are listed as, "Interlocking woodlands and woodland edges; flat landform; straight roads; canal; relic heathland; well-defined hedgerows and numerous hedgerow trees; Staffordshire red brick rural villages."

6.7.23 The SPG study advises that the 'Ancient Clay Farmlands' LCT is "geographically well defined and restricted to the western side of the county. It is characterised by the irregular pattern of hedged fields with ancient hedgerows and oaks, by subtle evidence of former heathland, and by a dispersed settlement pattern with small rural towns. The major land use has been dairying…."

6.7.24 Under the heading 'Visual Character', it states, "This is a landscape of mixed arable and pastoral farmland, the character of which is strongly influenced by existing land use and farming practices.

6.7.25 In the areas of pastoral farming an intact irregular ancient pattern of hedgerows and hedgerow trees is still retained. In places this pattern is beginning to break down, with hedgerows either being allowed to grow up and become ragged, or being mechanically trimmed and becoming gappy as a result. The mature hedgerow oaks are characteristic of this countryside…

6.7.26 Localised industrial and commuter development does not impact to any great extent on this general character, although a general decline, both of village character and landcover elements, could result in long-term irreversible erosion of the landscape character. Major road corridors have a significant localised effect and result in some areas being particularly well viewed".

6.7.27 This landscape study is now quite dated but does still provide some relevant background to the landscape character and context of the Site.

District

6.7.28 At a District wide scale, a 'Landscape Sensitivity Assessment Study for Employment Site Allocations'[23] for South Staffordshire was published in December 2015. At paragraph 1.2 of the Introduction, it advises that the purpose of this study is to "produce a landscape sensitivity analysis of the land parcels which are under consideration to accommodate the expansion of the four strategic employment sites at i54, ROF Featherstone, Hilton Cross and Four Ashes. This analysis will form part of Local Plan evidence base and the findings should be set out in a report accompanied by maps clearly showing the relative sensitivity of accommodating the proposed development type on each of the identified sites."

6.7.29 The study is split into two parts. Part A details the methodology adopted and a summary of sensitivity findings for each of the employment areas. Part B contains the sensitivity assessment for each identified land parcels

6.7.30 The study considers and assesses the majority of the land within the Site (with the exception of land in the north-west towards the A449/ A5 Gailey roundabout) as part of the potential 'Four Ashes' employment area. In summary, the study states at paragraph 3.1, 'Overall, the study has found that there is capacity for employment around each of the areas defined in the site allocations document.'

6.7.31 Across the land identified as 'Four Ashes', the study subdivides this land into nine Land Cover Parcels (LCP) (FAE01 – FAE09). Four of these LCPs are assessed as being of High Landscape Sensitivity to Employment Development; one as High/ Medium; and four as Medium. The Site includes land within three of the LCPs (FAE01 – FAE03) and avoids the other remaining six LCPs.

6.7.32 None of the LCPs within the Site are assessed as being of High Landscape Sensitivity. All of the High Sensitivity LCPs within the Four Ashes area lie to the south of Station Drive and the existing Four Ashes industrial area. The three LCPs that lie within the Site include one assessed as High/ Medium Landscape Sensitivity (FAE01) (to the west of the rail line in the west of the Site) and two of Medium Landscape Sensitivity (FAE02 and FAE03), stretching across the vast majority of the Site to the east of the rail line.

6.7.33 Part B of this study includes the detail of each of the LCP assessments. The following extracts are taken from these assessments for the three LCPs that cover land within the Site.

LCP FAE01 (west of the rail line)

6.7.34 "Summary description:

….The main receptors are users of the A449, sports ground, pub garden and residents to the south and on the main road. The tranquillity is limited by the road, railway and presence of settlement and industry nearby. The LCP lies in the Green Belt….

Evaluation justification:

[23] Landscape Sensitivity Assessment Study for Employment Site Allocations', December 2015; South Staffordshire District Council by White Consultants in association with Steven Warnock

The sensitivity of the LCP lies in its openness, especially to the north, its rural character and its visibility to users of the A449. Residents and users of the sports ground to the south are sensitive…

Potential for mitigation and improvement of settlement edge:

If the area was selected for development a strong Mixed tree belt buffer would be needed to the west along the A449 to screen views from the wider landscape and to the north along Gravelly Way."

LCP FAE02 (majority of the Site to the east of the rail line and north of Vicarage Road)

6.7.35 *"Summary description:*

A very gently rolling landscape comprising of a series of rectilinear fields of arable to the north, pasture to the south with blocks of Mixed plantation, secondary woodland and Calf Heath reservoir in the north eastern corner. The arable fields to the north have trimmed hedges and occasional trees and bound the straight A5 Watling Street Roman Road which has occasional settlement along the road, particularly at Gailey Wharf where the road crosses the Staffordshire and Worcestershire Canal….Further south west there are sand and gravel workings with an access road off the A5 and a power line. These workings further reduce tranquillity.

The core of the LCP is formed by Calf Heath Wood plantation which appears dominated by conifers with deciduous tree edges to the north-west and south-east. These trees form a strong edge in views across the area. The main receptors are users of the canal, A5, reservoir and Vicarage Road, and scattered residents. The tranquillity is limited by the roads and presence of settlement the industrial estate nearby. The LCP lies in the Green Belt and the Canal Conservation Area runs through the area.

Potential for mitigation and improvement of settlement edge:

If the area was selected for development care would be needed to avoid or mitigate impacts on the canal corridor and its users, and on the broad strip of landscape to the north south of the A5, including the reservoir and its users. It would be desirable to maintain parts of the Calf Heath Wood plantation to act as a screen and buffer, as well as a strong landscape element. Hedgerow trees, especially oaks should be maintained where possible."

LCP FAE03 (South of Vicarage Road)

6.7.36 *"Summary description:*

A relatively flat landscape comprising of a series of rectilinear fields of pasture with small blocks of secondary woodland and the Staffordshire and Worcestershire Canal on the southern boundary…..

….The canal appears to be well used and well maintained and has a strong deciduous tree buffer between it and the area for the majority of its length. A power line is a detractor. The tranquillity of the area is reduced by noise from the nearby M6 to the north east, views of the adjacent industrial estate and Energy from Waste building to the south west and the urban fringe character of the area. The LCP lies in the Green Belt and the Canal Conservation Area.

Potential for mitigation and improvement of settlement edge:

If the area was selected for development care would be needed to avoid or mitigate impacts on the canal corridor and its users, and on rural residents. Hedgerow trees, especially oaks should be maintained where possible."

6.7.37 This district scale landscape sensitivity assessment indicates that all of the Land Cover Parcels (LCP`s) within the Site have the potential to accommodate new employment development, subject to the inclusion of suitable landscape design and mitigation measures.

Site

6.7.38 For the purposes of evaluating the Site landscape, it will be subdivided into a number of description areas. This will be informed by the published district level landscape character study and by desk based analysis and field appraisal. The primary purpose of this more detailed and localised assessment is to provide a more Site specific description of the local landscape.

6.7.39 The Site comprises a mix of uses, features and influences that vary across the area. A large proportion of the land is under agricultural use with other notable areas of mineral workings in the east and woodland (Calf Heath Wood) towards the centre of the Site. The existing Four Ashes Industrial Area lies alongside the Site in the south, contained between the railway and the canal. Existing residential properties are located along Croft Lane and the A5(T) around the northern part of the Site, with a small number of other farming and residential properties positioned around or close to the Site boundaries.

6.7.40 Further settlement and properties exist at Calf Heath close to the south-eastern corner of the Site and along Vicarage Road, Straight Mile and Station Drive.

6.7.41 The Site is effectively contained between the A5(T) to the north, the M6 motorway the east, the A449 (Stafford Way) to the west and by Vicarage Road and Straight Mile to the south. The Staffordshire and Worcestershire Canal and a railway extend broadly north – south through the central and western part of the Site.

6.7.42 The agricultural land is sub divided by a network of hedgerows and hedgerow trees with other wooded copses located across the area. The Calf Heath Reservoir lies just beyond the north-east extent of the Site and also alongside Junction 12 of the M6 motorway.

6.7.43 Public access to the Site is limited. A single Public Right of Way exists in the north-west and provides a link between Croft Lane and the A449 via an overbridge to the railway. A towpath also extends along the western side of the canal for its length through the Site. There is no public access to the large area of the Site to the east of the canal or to Calf Heath Wood.

Cannock Chase Area of Outstanding Natural Beauty (AONB)

6.7.44 The Cannock Chase AONB lies approximately 3km to the east of the Site at its nearest point. The majority of this AONB stretches across the landscape to the north and north-east of Cannock. Cannock Chase AONB is the smallest mainland AONB at 68 km^2 (26 square miles). It is relatively geographically isolated as an accessible area of higher environmental quality and is surrounded by many urban areas. It includes three Local Nature Reserves, as well as two working quarries and a wide range of historical features.

6.7.45 The Cannock Chase AONB Management Plan 2014 – 2019[24] includes relevant baseline information on landscape character and issues facing the AONB. These include references to views into and out of the AONB and to the potential effects of development upon the character of the AONB landscape and its setting. The AONB and Management Plan will be considered further as part of the baseline and subsequent design and assessment work stages.

Sensitive Receptors

6.7.46 There will be a number of landscape and visual receptors which could potentially be affected by the Proposed Development. Those identified to date are listed below. Further receptors may be identified as part of the ongoing baseline work.

Landscape

- The character of the landscape – on both a Site wide and broader contextual basis. This will include consideration of any effects upon the Cannock Chase AONB landscape and its setting which lies approximately 3km to the east of the Site and upon Somerford Park to the south-west;
- Landscape features of the Site, including:
- Woodland and trees;
- Hedgerows;
- Canal;
- Ponds and water features; and
- Open space.

Visual

- Residents – including principally those in properties within or surrounding the Site. This will include residents of properties:
  - on Croft Lane;
  - along both sides of the A5 (T) (along the northern boundary of the Site);
  - at Gravelly Way House;
  - close to the south-west corner of the Site on Station Drive and the A449;
  - along and around Vicarage Road and the Straight Mile;
  - at Calf Heath to the south-east; and
  - other residents of properties in the wider area with potential views towards the Proposed Development.
- Users of the canal and the canal towpath;
- Users of Calf Heath Reservoir (including sailors and anglers);
- Users of Public Rights of Way (PROW) (including that within the north-west part of the Site) and any others with potential views towards the Proposed Development;
- Users of existing employment and commercial facilities;
- Users of Rodbaston College to the north of the Site;
- Users of the surrounding roads; and
- Visitors/ users of the Cannock Chase AONB.

[24] Cannock Chase AONB Management Plan 2014 – 2019, DEFR

6.7.47 All of these receptors and any other subsequently identified will be assessed by the impact assessment process.

Assessment Methodology

6.7.48 A landscape and visual impact assessment of the proposed scheme will be undertaken following the "Guidelines for Landscape & Visual Impact Assessment" (GLVIA) published by the Landscape Institute and the Institute of Environmental Management and Assessment 2013 (3rd Edition).

6.7.49 The Guidelines for landscape and Visual Impact assessment (3rd Editions) (GLVIA3) state:

"Landscape and Visual impact assessment (LVIA), is a tool used to identify and assess the significance of and the effects of change resulting from development on both landscape as an environmental resource in its own right and on people's views and visual amenity."

6.7.50 There are two components of LVIA:

- Assessment of landscape effects; assessing effects on the landscape as a resource in its own right;
- Assessment of visual effects: assessing effects on specific views and on the general visual amenity experienced by people.

6.7.51 The components of the assessment will include: baseline studies; description and details of the landscape proposals and mitigation measures to be adopted as part of the scheme; identification and description of likely effects arising from the Proposed Development; and an assessment of the significance of these effects.

6.7.52 In terms of baseline studies the assessment will provide an understanding of the landscape in the area to be affected, its constituent elements, character, condition and value. For the visual baseline it will include an understanding of the area within which the development may be visible, the people who may experience views, and the nature of views.

Assessment of Landscape Effects

6.7.53 GLVIA3 states that *"An assessment of landscape effects deals with the effects of change and development on landscape as a resource".* The baseline landscape will be described by reference to existing landscape character assessments and by a description of the Site and its context.

6.7.54 A range of landscape effects can arise through development. These can include:

- Change or loss of elements, features, aesthetic or perceptual aspects that contribute to the character and distinctiveness of the landscape;
- Addition of new elements that influence character and distinctiveness of the landscape; and
- Combined effects of these changes.

6.7.55 The characteristics of the existing landscape resource will be considered in respect of the susceptibility of the landscape resource to the change arising from this Proposed Development. The value of the existing landscape is also considered.

6.7.56 Each effect on landscape receptors is assessed in terms of size or scale, geographical extent of the area influenced and its duration and reversibility. In terms of size or scale,

the judgement will take account of the extent of the existing landscape elements that will be lost or changed, and the degree to which the aesthetic or perceptual aspects or key characteristics of the landscape will be altered by removal or addition of new elements.

6.7.57 The overall landscape effect is determined by considering the sensitivity of the landscape receptors and the magnitude of effect on the landscape. Final conclusions on the overall landscape effects are drawn from the assessment components described.

Assessment of Visual Effects

6.7.58 An assessment of visual effects addresses the effects of change and development on the views available to people and their visual amenity.

Mapping Visibility

6.7.59 The first stage in the assessment is to map approximate visibility of the proposed development. This will be modelled as a computer based Zone of Theoretical Visibility (ZTV). Subsequently this will be refined by field evaluation to take account of physical features (e.g. buildings and woodlands) that are not be included as part of the computer model.

Photo Viewpoints and Photomontages

6.7.60 A series of photographic viewpoints will be included in the assessment that are representative of views towards the Site and the maximum massing parameters of the Proposed Development from surrounding visual receptors. Other photographs of the Site may also be included where they support the description and understanding of the Site`s landscape and visual characteristics. The viewpoints will also typically represent what can be seen from a variety of distances towards the Site.

6.7.61 In addition to the photo viewpoints, a series of photomontages will been prepared from agreed locations. The photomontages will aim to simulate the likely visual changes that will result from the Proposed Development. The photo viewpoints and photomontages will be prepared in accordance with guidance, as set out in The Landscape Institute Advice Note 01/11 *'Photography and photomontage in landscape and visual impact assessment*'.

6.7.62 The location of the photo viewpoints and photomontages will be agreed with the relevant consultee(s).

Visual Receptors

6.7.63 It is important to remember that visual receptors are all people. The assessment will consider both the susceptibility to change in views and the value attached to views for the identified receptors. The visual receptors most susceptible to change are generally likely to include:

- residents at home;
- people engaged in outdoor recreation, including use of public rights of way, whose attention or interest is likely to be focused on the landscape or particular views;
- visitors to heritage assets or other attractions, where views of surroundings are an important contributor to the experience;
- communities where views contribute to the landscape setting enjoyed by residents in the area; and

- travellers on road, rail or other transport routes tend to fall into an intermediate category of susceptibility to change. Where travel involves recognised scenic routes awareness of views is likely to be particularly high.

6.7.64 Visual receptors likely to be less sensitive to change include:

- people engaged in outdoor sport or recreation which does not involve or depend upon appreciation of views of the landscape; and
- people at their place of work whose attention may be focused on their work or activity, not on their surroundings.

6.7.65 Each of the visual effects will be evaluated in terms of its size or scale, the geographical extent of the area influenced and its duration or reversibility.

6.7.66 In terms of size or scale, the magnitude of visual effects will take account of:

- The scale of the change in the view with respect to the loss or addition of features in the view and changes in its composition, including proportion of the view occupied by the Proposed Development;
- The degree of contrast or integration of any new features or changes in the landscape with the existing or remaining landscape elements and characteristics in terms of form, scale and mass, line height, colour and texture;
- The nature of the view of the proposed development, in terms of the relative amount of time over which it will be experienced and whether views will be full, partial or glimpses.

6.7.67 The geographical extent of the visual effect in each viewpoint is likely to reflect:

- The angle of view in relation to the main activity of the receptor;
- The distance of the viewpoint from the proposed development; and
- The extent of the area over which the changes would be visible.

6.7.68 As with landscape effects, the duration of the effect could be short to long term or permanent and the same definitions apply.

Potential Impacts

6.7.69 The demolition, construction and decommissioning stages of the Proposed Development could generate some potential significant landscape and visual impacts, with temporary and permanent effects. The potential impacts could include:

- Effects upon the landscape character of the Site and its context. At a Site-wide scale the character of the landscape will progressively change from one of a varied mix of uses and characteristics, including farmland, mineral workings, woodland to a character dominated by new large scale employment uses and associated infrastructure and landscape areas. These potential adverse effects upon landscape character will also include the impact upon openness;
- Effects upon the landscape character of the canal corridor;
- Effects upon the landscape setting of the AONB and Somerford Park; and
- Effects arising from the direct loss of features, including:
  - some or all Calf Heath Wood;
  - existing wooded copses, groups of trees and individual trees;
  - existing hedgerows; and

- existing other habitats including open space and ponds.

6.7.70 In visual terms, the potential impacts will include the effects of the demolition and construction activity upon:

- Residents within and immediately surrounding the Site. These effects will include the impact of the construction of the earthworks, infrastructure, buildings and landscape proposals in close proximity to those properties within and immediately surrounding the Site. These effects will vary throughout the course of construction and for different properties at different times depending on the phasing and working arrangement of the construction. The extent of the visual effects will vary for these properties with some experiencing greater visual impact over a longer period of construction and others more limited impact;
- Residents of properties in the wider context. These effects will vary and will include some with relatively limited views over a shorter period of time and others with greater views over a longer period of time. The differing nature of these visual impacts during the demolition and construction work stages will be determined as part of the assessment process;
- Users of the canal and the canal towpath. These effects will arise from views towards construction activity to both sides of the canal in the northern part of the site and is likely to include views towards earthworks operations and to the construction of the buildings and infrastructure. It may also include changes arising from the loss of some existing trees and other planting. There is also likely to be will be some other construction activity views from the canal to the north and south of the Site;
- Users of the surrounding roads (including the A5, A449, Vicarage Rd, Straight Mile). These effects are likely to arise from close views towards construction activity, including the earthworks operations and to the construction of the buildings and infrastructure;
- Users of Calf Heath Reservoir. These effects are likely to arise principally from construction activity in the north-eastern part of the Site nearest to the reservoir; and
- Other users and receptors in the wider landscape, as listed under the preceding Existing Sensitive Receptors section and including users of Cannock Chase AONB (potential long distance views) and staff and students at Robaston College.

6.7.71 The completed and operational Proposed Development could generate some potential significant landscape and visual impacts. The potential impacts could include:

- Effects upon the landscape character of the Site and its context. At a Site wide scale the character of the landscape will change from one of a varied mix of uses and characteristics, including farmland, mineral workings, woodland to a character dominated by new large scale employment uses and associated infrastructure and landscape areas. These potential adverse effects upon landscape character will also include the impact upon openness;
- Effects upon the landscape character of the canal corridor; including any direct impacts upon existing trees and planting and indirect impacts arising from the influence of the operational Proposed Development;
- Effects upon the landscape setting of the AONB and Somerford Park; comprising potential indirect effects upon the landscape setting of these areas; and
- Effects arising from the direct loss of features, including:

- some or all Calf Heath Wood;
- existing wooded copses, groups of trees and individual trees;
- existing hedgerows; and
- other existing habitats including open space and ponds.

6.7.72 In visual terms, the potential impacts will include the effects of the completed Proposed Development upon:

- Residents within and immediately surrounding the Site. These effects will include the impact of the infrastructure, buildings and landscape proposals in close proximity to those properties within and immediately surrounding the Site. These effects will vary for different properties depending on nature and extent of the available views;
- Residents of properties in the wider context. These effects will similarly vary depending on the nature and extent of the available views towards the completed development. The differing nature of these visual impacts will be determined as part of the assessment process;
- Users of the canal and the canal towpath. These effects will arise from views towards the operational development on both sides of the canal in the northern part of the Site and is likely to include views towards the nearest building units and intervening landscape proposals. It may include views towards other infrastructure elements and to activity associated with the completed development. There are also likely to be some other views towards the completed development from the canal to the north and south of the Site;
- Users of the surrounding roads (including the A5, A449, Vicarage Rd, Straight Mile). These effects are likely to arise from close views towards the completed development, including views towards the completed buildings, infrastructure and perimeter landscape proposals;
- Users of Calf Heath Reservoir. These effects are likely to arise principally from views towards the nearest completed building units in the north-east part of the Site; and
- Other users and receptors in the wider landscape, as listed under the preceding Existing Sensitive Receptors section and including users of Cannock Chase AONB (potential long distance views) and staff and students at Robaston College.

6.8 Noise and Vibration

6.8.1 A noise and vibration assessment will be presented in ES Volume I.

Baseline Conditions

6.8.2 This section describes the baseline information gathered to date, in terms of the characteristics of the existing noise and vibration conditions at the Site and in the surrounding area. Baseline surveys will be undertaken in due course and will inform the impact assessment as part of the ES.

6.8.3 The principle study area is limited to the area immediately around the Site, as the worst-case impacts will generally dissipate within several hundred metres of the sound sources. Off-site road and rail traffic is assessed beyond the boundary of the Site at locations close to public roads and railway lines.

6.8.4 Baseline surveys are proposed, however, it is anticipated that the dominant sound sources at and around the Site will include road traffic on the M6 motorway, A5 and A449 as well as more local roads, trains on the WCML, and industrial and commercial sound principally from the Four Ashes Industrial Estate.

6.8.5 The baseline surveys will include sound measurements at up to nine locations, and vibration measurements at two further locations. The majority of the measurements will cover a period of approximately one week under neutral conditions, i.e. outside of school holidays or Bank Holidays. Baseline sound data will be gathered over both weekdays and weekend so that a range of conditions is captured.

6.8.6 Figure 9 shows the planned monitoring locations, as well as the key receptors. The monitoring locations have been chosen to give a comprehensive picture of the acoustic climate at the receptors close to the Site. As far as is possible, a monitoring location has been chosen close to each receptor or group of receptors. Depending on access, the availability of suitable locations to secure the monitoring equipment, and the variability of the sound climate, the positions may be altered or rationalised as the survey progresses.

6.8.7 The monitoring protocol, in terms of measurement locations and durations, has been agreed with the Environmental Health Department of SSC. The Environmental Health Department of SSC also agreed that it would be acceptable to amend or rationalise the monitoring positions should on-site conditions make this necessary.

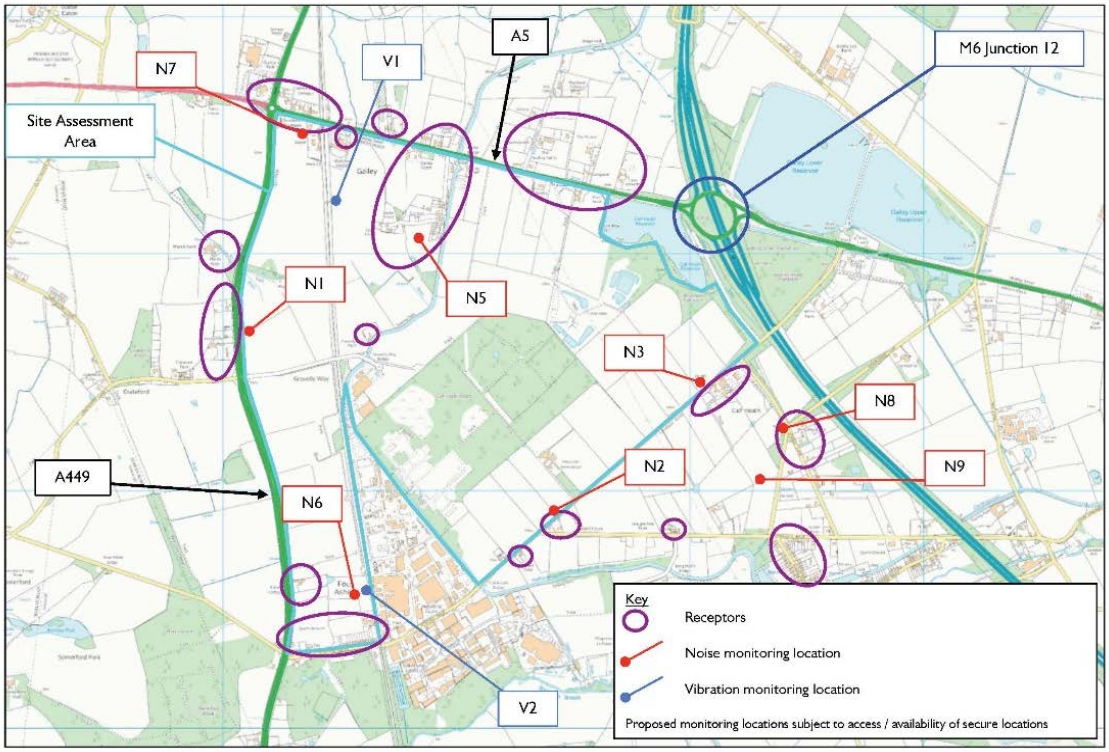


Figure 9: Planned Monitoring Locations

Sensitive Receptors

6.8.8 The main receptors likely to be affected are:

- Existing sensitive receptors close to the Site;
- Sensitive receptors along the route of the railway adjacent to the Site;
- Sensitive receptors close to roads used by traffic accessing the Site; and

- Recreational users of the canal and local area.

6.8.9 Sensitive receptors are considered to be residential properties, schools, hospitals, residential care homes and churches. Other classes of building may be considered sensitive in some circumstances, for example, businesses that involve the use of precision machinery or laboratories would be considered sensitive to vibration. The range and extent of receptors will be discussed and agreed with SSC prior to the assessment being undertaken.

6.8.10 The Proposed Development is not considered to be sensitive to noise; therefore, the existing noise environment across the Site will not be assessed for its suitability for the Proposed Development.

Assessment Methodology

Demolition / construction Phase

6.8.11 In relation to demolition and construction noise impacts, plant and equipment lists, HGV movements and demolition and construction activities will be defined, addressing peak period(s) as appropriate. The assessment will be undertaken in accordance with the guidance in British Standard 5228: 2009+A1:2014 Code of practice for noise and vibration control on construction and open sites and any other guidance required by SSC.

6.8.12 Any mitigation measures that are deemed appropriate and necessary will be set out to reduce any identified adverse effects. Residual effects will be identified.

6.8.13 Noise levels associated with peak construction traffic flows will be calculated and assessed in line with Calculation of Road Traffic Noise (CRTN 1988) and Design Manual for Roads and Bridges.

Operational

6.8.14 The likely noise emissions from the operation of the Proposed Development will be predicted, using the proprietary noise modelling software CADNA, which implements the common UK standard methods of noise calculation, source data appropriate for the range of activities proposed at the Site, and a breakdown of the likely rail and road-going vehicle movements at the Site.

6.8.15 Where appropriate, it may be necessary to measure noise from activities at an existing rail-freight terminal so that the source data used in the noise calculations correlates with the activities at the Proposed Development.

6.8.16 The scope of the predictions will include:

- Rail movements, both on the existing lines and any new sidings serving the rail freight terminal;
- Road-going HGV movements;
- Loading/unloading activities, including, where appropriate, gantry cranes, reach stackers, and fork-lift trucks; and
- Car movements.

6.8.17 The potential impacts at affected sensitive receptors will be assessed against the methods set out in British Standard 4142: 2014 Methods for rating and assessing industrial and commercial sound. Where appropriate, reference will also be made to the Institute of Environmental Management and Assessment's (IEMA) 'Guidelines for environmental noise

impact assessment, BS8233: 2014 and the World Health Organization's Guidelines for community noise, and any other methods requested by SSC.

6.8.18 Building services noise associated with the operation of the Proposed Development will be assessed in accordance with BS4142: 2014. Where information on specific plant noise emission levels is absent, limits will be set so that potential impacts are minimised.

6.8.19 Changes in off-site road traffic noise levels associated with future operational traffic flows will be calculated and assessed in line with the Calculation of Road Traffic Noise (CRTN) and Design Manual for Roads and Bridges.

6.8.20 Changes in off-site railway noise will be calculated in line with the Calculation of Railway Noise (CRN) and assessed in accordance with IEMA's Guidelines for environmental noise impact assessment.

6.8.21 Potential changes in off-site railway vibration will be considered in broad terms, as it is not possible to assess in detail the potential impacts at every sensitive location along the railway line. The received level of railway vibration at each sensitive location along the railway line will be highly dependent on the specific conditions at that receptor; general statements will therefore be made on the likely changes in railway vibration as a result of changes in rail traffic composition following the opening of the rail freight terminal.

6.8.22 Cumulative effects of combined construction works and operational traffic from other nearby schemes will be assessed quantitatively where noise emission data is available for the other schemes, and qualitatively where it is not available.

6.8.23 The ES chapter will be supported by a technical appendix which will contain useful reference material and tabulated noise survey results.

Potential Impacts

6.8.24 The demolition and construction stages of the Proposed Development have the potential to generate some potential significant direct and indirect noise and vibration impacts, with temporary effects. The following potential impacts will be considered further as part of the ES:

- Noise and vibration generated by construction and demolition plant operating at the Site and works being undertaken, such as soil excavation; and
- Noise, and to a lesser degree, vibration, generated by construction vehicles accessing the Site and on the surrounding road network.

6.8.25 The operational Proposed Development has the potential to generate a range of significant direct and indirect noise and vibration impacts, with likely permanent effects. The following potential impacts will be considered further as part of the ES:

- Noise and vibration generated by trains on and accessing the Site [including the loading / unloading of trains];
- Noise and vibration generated by road-going heavy goods vehicles on and accessing the Site;
- Noise, and to a lesser degree, vibration, generated by plant and machinery installed at the Site;
- Noise, and to a lesser degree, vibration generated by road-going vehicles such as heavy goods vehicles on roads around the Site; and

- Noise generated by activities and processes within or around buildings at the Site.

6.9 Socio-economics

6.9.1 A socio-economic assessment will be presented as a Chapter in ES Volume I.

6.9.2 The specific impacts assessed will be:

- Immediate community and business impacts (including agriculture);
- Gross and net employment opportunities related to the construction and operation of the Proposed Development;
- The effect of this gross employment creation i.e. the ability of local labour market to meet the labour requirement, in the context of the labour market and economy at different spatial scales;
- Health impacts specifically arising as a result of other impacts assessed in the EIA (noise and vibration, landscape and visual, recreation and amenity, if these matters are scoped in to the EIA);
- The wider economic impacts including the likely effects of spending, investment, supply chain and multiplier impacts and economic effects of regional or national significance; and
- Mitigation and enhancements.

Baseline Conditions

6.9.3 This section summarises the characteristics of the existing Socio-Economic conditions of the Site and the surrounding area. These characteristics include:

- Population;
- Age profile;
- Labour market;
- Claimant count;
- Youth unemployment;
- Qualifications;
- Occupational and industrial sector of working residents;
- Deprivation;
- The local economy;
- Wider economic context; and
- Recreation and amenity receptors.

6.9.4 The current baseline will be assessed at a local, district, regional and national level which are outlined below.

6.9.5 The Site is located in Penkridge South East Ward in South Staffordshire. The Site is located close to the ward boundary with four neighbouring wards – Brewood Coven, Huntingdon and Hatherton, Cheslyn Hay North and Saredon and Featherstone and Shareshill. Data on all five wards have been collected to represent the current baseline of the area and will referenced as the ‘Local Area’.

6.9.6 In order to understand the economic geography of the UK, the office of national statistics (ONS) has created a set of geographies to reflect areas where there is labour market containment. That is to say that the area where most of the residents of an area also work.

These are known as Travel to Work Areas (TTWA). These are defined as areas where at least 75% of an area's workforce live in the area and at least 75% of the people who live there also work there. This baseline collects data from the Wolverhampton, Walsall and Stafford TTWA. This is referenced as the TTWA in the following baseline.

6.9.7 The Site is located within the Stoke on Trent and South Staffordshire Local Enterprise Partnership (SSLEP). This spatial scale has been used as a regional comparator.

6.9.8 In summary the spatial scales that will be considered in this *Baseline Conditions* Section are as follow:

- Local – 'Local Area' (five wards - Brewood Coven; Penkridge South East; Huntingdon and Hatherton; Cheslyn Hay North and Saredon; and Featherstone and Shareshill);
- Local – Wolverhampton, Walsall and Stafford travel to work area ('TTWA');
- District – South Staffordshire;
- Regional - Stoke on Trent and South Staffordshire Local Enterprise Partnership ('SSLEP'); and
- National – England and Wales

6.9.9 Figure 10 depicts the local, district and regional context of the Site.

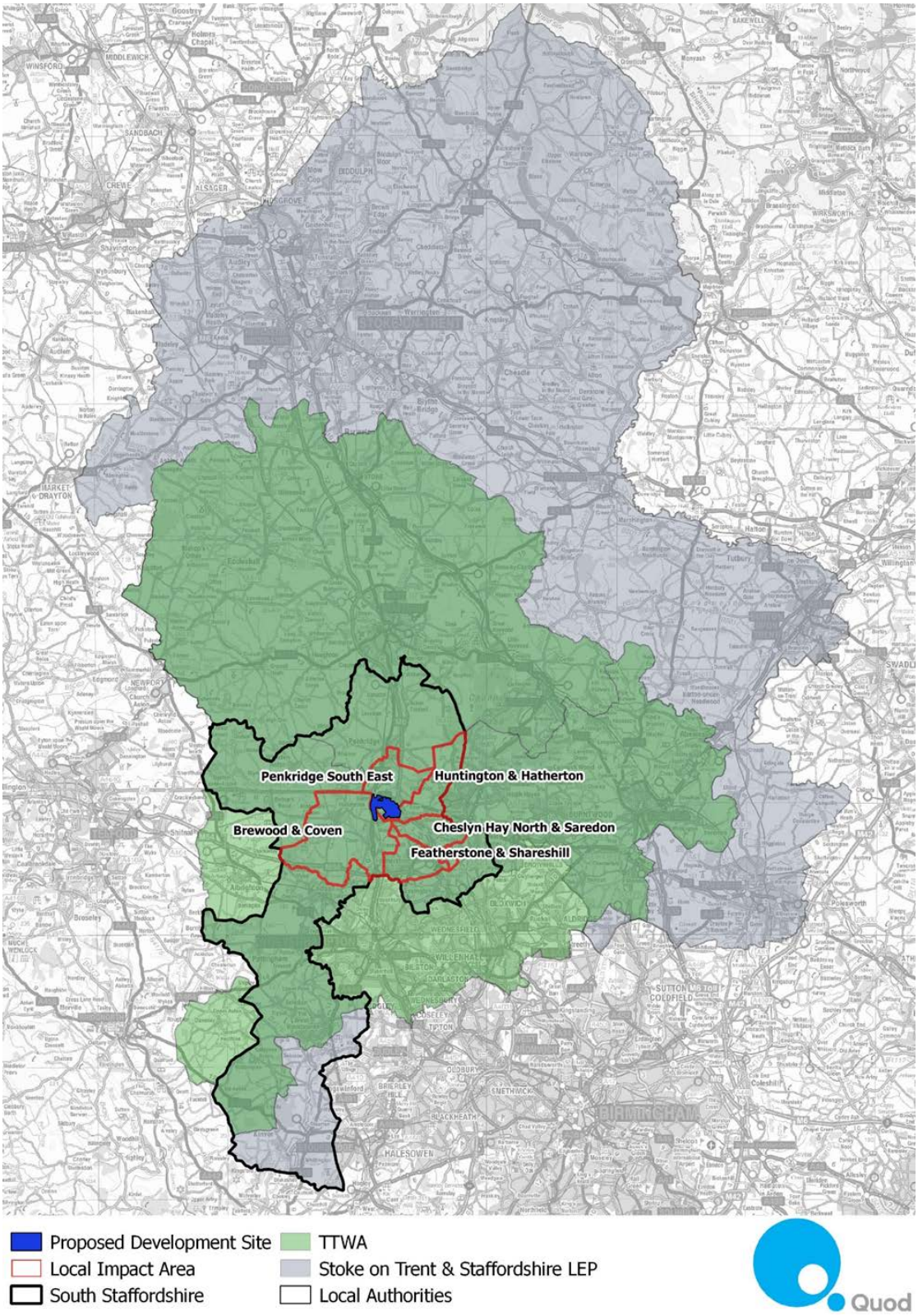


Figure 10: Site Location and Context

Population

6.9.10 Population statistics are provided to set out the context of the number and characteristics of the people at each spatial scale.

6.9.11 The total population of the Local Area is approximately 26,250. The population profile of the Local Area is broadly in line with all comparator areas. As set out in Table 6.2 and Figure 11, the proportion of the total population aged 65 and over is higher in the Local Area (18%) than England and Wales (16%).

6.9.12 The Local Area experienced a slight increase in the population between 2001 and 2011 (4%), as shown in Table 6.3. This is in the context of 8% growth across England and Wales. The population of over 65s in the Local Area significantly increased (38%) in the ten years from 2001. Growth in this age group has been experienced at all spatial scales although at a lower rate than the Local Area – 34% across South Staffordshire, 19% across the SSLEP and 11% across England and Wales.

6.9.13 The proportion of under 16s has decreased between 2001 and 2011. The greatest decline has been felt in South Staffordshire at the district level (-13%) closely followed by the Local Area (-12%). This is in the context of 1% growth across England and Wales.

6.9.14 Population projections can be obtained at the regional and national level but are unavailable at ward level. At the national level only figures for England are available. The population in South Staffordshire and the SSLEP are projected to grow slightly (2% and 4% respectively) in the 10 years from the 2011 Census. This growth is lower than the national projection of 7%.

6.9.15 Across all spatial scales the population of people aged 65 and older is projected to grow significantly.

Table 6.2: Population and age profile of local, regional and national areas

	All	% Under 16	% 16-64	% 65+
Local Area	26,241	17%	65%	18%
TTWA	940,479	19%	63%	18%
South Staffordshire	108,131	16%	63%	21%
SSLEP	1,097,497	18%	64%	18%
England & Wales	56,075,912	19%	65%	16%

Figure 11: Age profile of local, regional and national areas

Table 6.3: Population dynamics within local, regional and national areas

	Population 2001	Population 2011	Projected Population 2021	% growth 2001-2011	% growth 2011-2021
Local Area	25,202	26,241	n/a	4%	n/a
TTWA	891,852	940,479	n/a	5%	n/a
South Staffordshire	105,897	108,131	110,000	2%	2%
SSLEP	1,047,373	1,097,497	1,137,000	5%	4%
England	49,138,831	53,012,456	56,962,000	8%	7%

The Size of the Labour Market

6.9.16 The size of the labour market sets the context for assessing the potential effects of the new jobs that would be created at the Proposed Development.

6.9.17 As set out in Table 6.4, there are 19,870 people aged between 16 and 74 within the Local Area. Of these, 63% are economically active. The labour market profile of the Local Area is broadly in line with all spatial scales.

6.9.18 Unemployment within the TTWA is relatively high, at 6% of the population aged 16 to 74 which is higher than all other Spatial Scales.

Table 6.4: Labour market within local, district, regional and national areas						
	All Persons 16-74	**Active: Part Time**	**Active: Full Time**	**Active: Self Employed**	**Active: Unemployed**	**All economically active (not including full time students)**
Local Area	19,870	15%	38%	10%	3%	12,542
TTWA	685,554	14%	37%	8%	6%	408,462
South Staffordshire	80,718	15%	38%	10%	3%	51,671
LEP	812,166	14%	39%	9%	4%	501,507
England & Wales	41,126,540	14%	38%	10%	4%	25,449,863

6.9.19 The proportion of those aged 16 to 74 who have retired within the Local Area is 17% of the population, significantly higher than the average across England and Wales (14%) and the TTWA (15%), but lower than the average in South Staffordshire (18%).

6.9.20 The overall employment rate measures the proportion of people aged 16 to 65 who are in employment (full-time, part-time or self-employed) as per the European Commission official statistics. As set out in Table 6.4, the employment rate within the Local Area is 70%, which is lower than the average of all other spatial scales. In particular, the employment rate of the Local Area is significantly lower than the district average within South Staffordshire of 79%.

Table 6.5: Employment rate within local, regional and national areas	
Area	**Employment Rate 16 to 64**
Local Area	70%
TTWA	76%
South Staffordshire	79%
SSLEP	74%
England & Wales	74%

Claimant Count

6.9.21 Jobs Seekers Allowance (JSA) is an unemployment benefit paid to individuals of working age (defined in this dataset as all individuals aged 16 to 64) who are registered as unemployed and actively seeking work. Due to changes in the way unemployment benefits are paid via the introduction of Universal Credit, the JSA is being phased out. The ONS produces “experimental” statistics of Claimant Count including both Universal Credit and JSA claimants who are claiming unemployment benefits. These are modelled estimates to be used as a guide.

6.9.22 Claimant Count sets the context for assessing the potential effects of the new jobs that would be created at the Proposed Development in terms of the potential to reduce unemployment.

6.9.23 As shown in Table 6.6, the Claimant Count rate is broadly in line with the figures from the JSA. The Local Area reports the lowest rate at 0.8%, well below the national average of 1.8% and the TTWA with a rate of 2.4%.

Table 6.6: Claimant Count (population aged 16 to 64)

Area	Claimant Count Rate
Local Area	0.8%
TTWA	2.4%
South Staffordshire	1.0%
SSLEP	1.2%
England & Wales	1.8%

6.9.24 The majority of job seekers ward are looking for sales, customer service and elementary occupations, as is the pattern generally in the economy. Within the Local Area, there are approximately 90 job seekers looking for work in these types of occupations. The figures for job seekers claimants by sought occupation are set out in Table 6.7.

Table 6.7: Job seekers sought occupation (population aged 16 to 64)

Area	Managers and Senior Officials	Skilled Trades Occupations	Sales and Customer Service occupations	Elementary Occupations
Local Area	0	10	65	25
TTWA	775	360	6,390	2,345
South Staffordshire	25	25	315	120
SSLEP	440	165	4,135	1,395
England & Wales	46,735	16,665	286,820	88,535

Youth Unemployment

6.9.25 Youth unemployment statistics set the context for assessing the potential effects of the new jobs that would be created at the Proposed Development in terms of the potential to reduce youth unemployment.

6.9.26 Between 16% and 20% of Job Seekers Allowance claimants in each of the study areas are aged under 24. Within the Local Area this amounts to 25 young people; 2,235 within the TTWA; 120 in South Staffordshire; 1,205 in the SSLEP; and 88,745 across England and Wales as a whole.

Qualifications

6.9.27 Qualifications statistics set the context for assessing the potential effects of the new jobs that would be created at the Proposed Development in terms of providing new jobs that match the skill-set of the people within impact areas.

6.9.28 As set out in Table 8 the population of the Local Area is relatively poorly skilled with 1 in 4 residents having no formal qualifications. However, this figure is lower than the TTWA (29%) and the SSLEP (27%).

6.9.29 The proportion of residents in the Local Area gaining Level 4+ qualifications is relatively low at 22% compared to the district average of 25% and the national average of 27%.

6.9.30 The proportion of residents achieving Level 1 and Level 2 qualifications is broadly in line across all comparator areas.

Table 6.8: Qualifications (population aged 16 and over) within local, district, regional and national areas

Area	None	Level 1	Level 2	Apprenticeship	Level 3	Level 4+	Other
Local Area	25%	15%	17%	4%	12%	22%	4%
TTWA	29%	14%	16%	3%	12%	21%	5%
South Staffordshire	24%	14%	17%	4%	13%	25%	4%
SSLEP	27%	14%	16%	4%	13%	22%	5%
England & Wales	23%	13%	15%	4%	12%	27%	6%

Occupational and Industrial Sector of Working Residents

6.9.31 The occupational and industrial profile set the context for assessing the potential effects of the new jobs that would be created at the Proposed Development in terms of providing new jobs that match the experience and skill-levels of existing residents within the impact areas, or in terms of addressing structural weaknesses in the economy within these areas.

6.9.32 The occupation profile of the population of the Local Area and comparator areas is set out in Table 6.9.

6.9.33 Across the local, regional and national areas the largest proportion of residents are engaged in professional and associate professional occupations. In the Local Area this group comprises 27% of the working resident population. This figure is higher than the SSLEP (26%) but lower than South Staffordshire (29%) and England and Wales as a whole (30%).

6.9.34 The industry of working age residents within local, regional and national areas is set out in Table 6.10 and Table 6.11. As is the case generally in the economy of England and Wales, wholesale and retail trades and health and social work are amongst the most significant employers. Additionally, in the Local and Regional areas those employed in manufacturing is higher than the national average 12% to 13% compared to 9% in England and Wales. In the Local Area the highest proportion of residents (17%) are employed in the wholesale and retail trades.

Table 6.9: Occupation profile (resident population aged 16 to 74)

Area	Managers	Professionals and associate professionals	Administrative and secretarial occupations	Skilled trades	Caring, leisure, service occupation, sales and customer services	Process, plant and machine operatives and elementary occupations

Table 6.9: Occupation profile (resident population aged 16 to 74)						
Local Area	12%	27%	12%	14%	16%	18%
TTWA	10%	26%	12%	13%	18%	22%
South Staffordshire	13%	29%	13%	13%	16%	16%
SSLEP	10%	25%	11%	13%	18%	22%
England & Wales	11%	30%	11%	11%	18%	18%

Table 6.10: Industrial profile of the Local Area (resident population aged 16 to 74)				
Area	**% of residents**	**Total employed residents (figures have been rounded)**	**% of residents in South Staffordshire**	**Total employed residents in South Staffordshire**
Wholesale and retail trade; repair of motor vehicles and motor cycles	17%	2,200	17%	9,000
Human health and social work activities	11%	1,400	12%	6,200
Manufacturing	12%	1,600	12%	6,500
Construction	10%	1,300	10%	5,300
Education	10%	1,300	10%	5,600
Public administration and defence; compulsory social security	7%	900	7%	3,500
Transport and storage	5%	2,200	4%	2,000
Administrative and support service activities	4%	600	4%	2,100
Accommodation and food service activities	4%	600	4%	3,000

Table 6.11: The manufacturing, construction and transport and storage sectors (resident population aged 16 to 74)					
	Local Area	**TTWA**	**South Staffordshire**	**SSLEP**	**England & Wales**
% of residents in Manufacturing	12.4%	12.9%	12.1%	13.1%	8.9%
Total employed residents in Manufacturing (figures have been rounded)	10	54,800	6,500	68,400	2,370,000
% of residents in Construction	10.4%	8.6%	9.9%	8.5%	7.7%

Table 6.11: The manufacturing, construction and transport and storage sectors (resident population aged 16 to 74)					
Total employed residents in Construction (figures have been rounded)	1,350	36,300	5,270	44,460	2,043,230
% of residents in Transport and Storage	4.5%	5.3%	3.8%	5.5%	5.0%
Total employed residents in Transport and Storage (figures have been rounded)	600	22,600	2,050	28,750	1,313,300

6.9.35 The construction sector broadly represents 9% of working aged residents across all spatial scales. This equates to 1,350 residents engaged in the construction sector in the Local Area and 5,270 in South Staffordshire.

6.9.36 The transport and storage sector broadly represents 5% of working aged residents across all spatial scales. This equates to 600 residents in the Local area and 2,050 across South Staffordshire as a whole.

Deprivation

6.9.37 Deprivation statistics set the context for assessing the potential effects of the new jobs and economic activity that would be generated by the Proposed Development in terms of reducing deprivation amongst local residents. Residents of a deprived area are assessed to be more sensitive to the effects of economic benefits such as new jobs.

6.9.38 The Indices of Multiple Deprivation measures relative deprivation of neighbourhoods in England, taking into account a range of indicators including employment, crime, health and access to services. Figure 12 shows the relative levels of deprivation across South Staffordshire and surrounding districts. Areas shown in red are within the 10% most deprived in the country and areas shown in yellow are within the 20% most deprived. This illustrates that South Staffordshire does not have concentrations of deprivation compared to the neighbouring districts. The TTWA experiences high levels of deprivation to the south within Wolverhampton and Walsall districts. Small pockets of deprivation are present in Lichfield and Stafford within the TTWA.

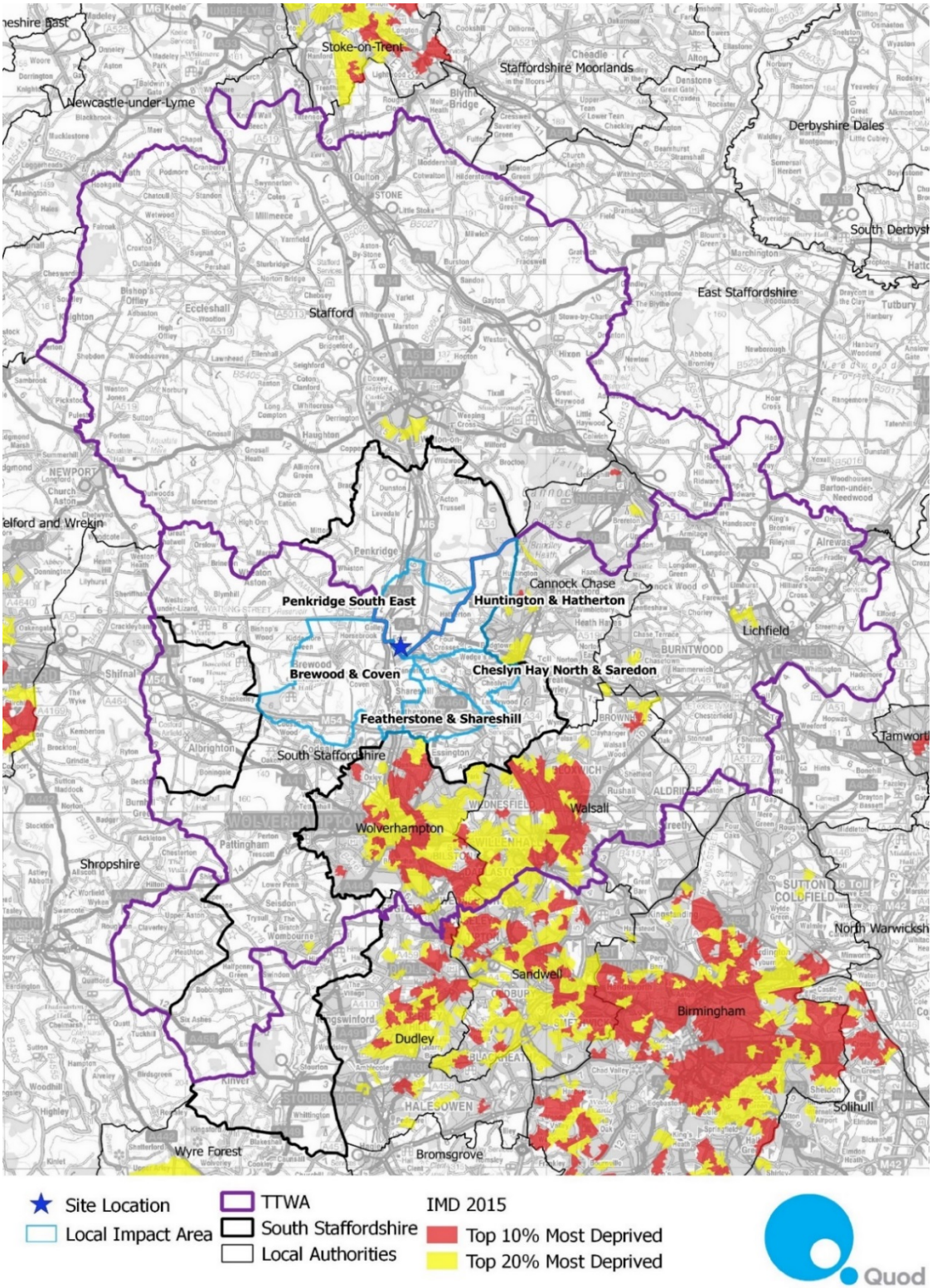


Figure 12: Deprivation

The Local Economy

Employment

6.9.39 There are approximately 9,000 people working within the Local Area. The largest sector of employment is the manufacturing sector making up 15.2% of all employment in the Local Area. Other major employment sectors within the Local Area are education, wholesale, retail trade and public administration and defence.

6.9.40 Table 6.12 provides additional detail regarding employment within the Local Area and South Staffordshire as a whole.

Table 6.12: Local Area and South Staffordshire Employment

Area	% of residents	Total employed residents (figures have been rounded)	% of residents in South Staffordshire	Total employed residents in South Staffordshire
Manufacturing	15.2%	1,400	14.6%	4,300
Education	12.5%	1,100	10.1%	3,00
Wholesale	8.9%	800	5.8%	1,700
Retail	8.2%	700	9.7%	2,900
Public administration & defence	8.5%	800	4.2%	1,300
Construction	6.3%	600	7.4%	2,200
Accommodation & food services	6.1%	600	7.5%	2,200
Business administration & support services	5.5%	500	5.9%	1,700
Health	5.3%	500	13.2%	3,900
Professional, scientific & technical	5.0%	500	6.4%	1,700
Transport & storage (inc postal)	4.6%	400	4.0%	1,200
Motor trades	4.0%	400	2.2%	700
Mining, quarrying & utilities	3.9%	400	1.8%	500
Arts, entertainment, recreation & other services	2.2%	200	3.2%	1,000
Financial & insurance	2.0%	200	1.2%	400

Employment in logistics

6.9.41 The Business Register and Employment Survey, from which this data is drawn, is survey based and therefore subject to sampling errors which means that is should be used with caution, especially when used for a time series or at a local level.

6.9.42 Recent trends indicate that the number of people engaged in logistics (transport and storage sector) has declined in the Local Area between 2009 and 2014. There was a sharp decline in employment between 2012 with some recovery in 2014 which was experienced across all spatial scales considered.

6.9.43 In all comparator areas the employment figures for 2014 surpassed those prior to the decline in 2013 with the exception of the Local Area where only a slight increase was recorded. These figures are set out in Table 6.13 below.

Table 6.13: Employment in Logistics (time series)

Area	2009	2010	2011	2012	2013	2014
Local Area	600	600	600	700	300	400

Table 6.13: Employment in Logistics (time series)						
TTWA	17,300	16,900	17,400	20,500	19,200	22,300
South Staffordshire	1,500	1,400	1,300	1,400	900	1,200
SSLEP	26,400	24,200	23,200	25,400	23,800	25,600
England & Wales	1,120,300	1,111,500	1,115,900	1,118,200	1,109,200	1,151,300

The public sector

6.9.44 The Government's 2010 *Local Growth White Paper* sets out the objective that growth should be broad-based, industrially and geographically (Paragraph 1.23); should create a business environment that competes with the best internationally (Paragraph 1.23); and should establish a sustainable and growing private sector, in particular in areas that are currently dependent on the public sector (Paragraph 4.5)[25]. This remains a government priority. Public sector employment statistics therefore provide a context for assessing the benefits of supporting new private sector jobs.

6.9.45 Exact numbers of people working in the public sector at a ward level was not available from national datasets. However, estimates of public sector prevalence can be made using the health, education and public administration and defence sectors as a proxy. This is likely to be a monomial overestimate as some of these jobs could be in the private sector.

6.9.46 For wider spatial scales, the Business Register and Employment Survey (BRES) provides an estimate of public sector reliance. Comparative levels of estimated public sector employment are set out in Table 6.14 below. Public sector employment in the Local Area and TTWA is estimated to be substantially higher than the comparator areas.

Table 6.14: Public sector employment estimates		
Area	**Public Sector Number BRES (figures have been rounded)**	**Public Sector Proportion BRES**
Local Area	2,400	26%
TTWA	106,500	29%
South Staffordshire	4,200	14%
SSLEP	74,500	17%
England & Wales	4,524,200	18%

Wages

6.9.47 Wage statistics provide context for the potential economic benefits of new jobs – and therefore an increase in wages – in an impact area.

6.9.48 Wages in the area vary according to location and between resident based measures and workplace based measure. Figures for both the gross annual pay of full time residents and those working in the same geographies were obtained from the Annual Survey of Hours and Earnings from the ONS.

[25] BIS, 2010, Local Growth: Realising every place's potential, paragraph 1.23, paragraph 4.5

6.9.49 Resident based average annual pay in South Staffordshire is in line with the national average at £27,550 although it is £2,120 higher than the average of the SSLEP. The highest wages within the SSLEP are within Stafford and South Staffordshire with both reporting wages over £27,500. The lowest wages are within Stoke-on-Trent at £22,250, approximately £5,500 less than the national average. Resident Wages have steadily increased across all spatial scales since 2002 although growth at both regional levels has been slower than the national rate.

6.9.50 Data on workplace based wages in 2015 is unavailable in South Staffordshire therefore data from 2014 has been used for this geography only. South Staffordshire and the SSLEP have large discrepancies between resident based and workplace based incomes. Workers earn approximately £3,500 less than workplace incomes in South Staffordshire, and approximately £2,000 less in the SSLEP area. This suggests that higher value jobs tend to go to residents within the borough.

6.9.51 Table 6.15 below outlines the figures for gross annual pay based on residents and workplaces.

Table 6.15: Median gross annual pay 2015 (resident based and workplace based)

	Resident based median gross annual pay (full time) £	Workplace based median gross annual pay (full time) £
South Staffordshire	27,551	24,071*
SSLEP	25,612	23,833
England & Wales	27,732	27,715

*figure taken from 2014

Wider Economic Context

6.9.52 Gross Value Added (GVA) indicate the size of a local economy and provide context for the potential economic benefits of new jobs and new economic activity in an impact area.

6.9.53 At the regional level, the West Midlands contributed £49.6 billion of total Total Gross Value Added (GVA) to the national economy in 2012. Data is unavailable at the district level with data only reported at a county level. Staffordshire and Shropshire are combined for GVA reporting purposes. Shropshire and Staffordshire contributed £27 billion of total GVA to the national economy.

6.9.54 In 2014, the SSLEP contributed £20.2 billion of GVA to the national economy. When compared to the other LEPs in the West Midlands (Black Country local enterprise partnership (LEP); Greater Birmingham and Solihull LEP; Worcestershire LEP; Coventry and Warwickshire LEP; and Marches LEP), the GVA created by the SSLEP lower than Greater Birmingham and Solihull LEP (£41.8bn) and Coventry and Warwickshire (£21.6bn). This is set out in Table 6.16.

Table 6.16: Total GVA (£ million) 2008 to 2014

	2008	2009	2010	2011	2012	2013	2014
Shropshire and Staffordshire	25,868	24,276	25,984	27,900	27,052	n/a	n/a

Table 6.16: Total GVA (£ million) 2008 to 2014							
SSLEP	17,873	16,959	17,913	18,504	18,655	19,538	20,197
West Midlands	46,158	44,909	48,829	48,474	49,611	n/a	n/a
UK	1,368,717	1,345,046	1,400,684	1,441,598	1,475,948	n/a	n/a

Health Profile

6.9.55 Public Health England produced a health profile for the district of South Staffordshire in June 2015. This reviews a variety of health indicators across South Staffordshire in comparison to the region (West Midlands) and nation as a whole.

6.9.56 Overall, health indicators of South Staffordshire residents are better than the England average. The male life expectancy at birth is significantly better than England average at 80.4 years compared to 79.4 years across England. Approximately 62% of adults record achieving at least 150 mins of physical activity per week compared to only 56% across England. Deprivation and statuary homelessness is also much lower across South Staffordshire than the regional and national averages.

6.9.57 Two indicators were ranked 'significantly worse than England average' in 2015 – excess weight in adults and recorded diabetes. South Staffordshire recorded that approximately 70% of their adult population were classified as overweight or obese by the Active People Survey. This compares to 64% as the national average. The percentage of people on GP registers with a recorded diagnosis of diabetes was recorded at 6.6% in South Staffordshire compared to 6.2% across England. While this rate is significantly worse than the England average it is better than the regional average across the West Midlands.

Sensitive Receptors

6.9.58 The main receptors likely to be affected by the Proposed Development are:

- Existing local residents within the Local Area;
- The Labour Force within the TTWA;
- The Local Economy within the LEP;
- The National Economy; and
- The Recreation and Amenity Receptors within the Recreation and Amenity Impact Area.

6.9.59 The Recreation and Amenity Receptors refer to those facilities and locations (and routes access to them) that have recreation and amenity value for residents and visitors. This includes consideration of Public Rights of Way, any existing sports and recreation facilities (both land and water based) and any areas of open access land and public open space. The Recreation and Amenity Impact Area refers to the area within which these receptors might be indirectly impacted on by the Proposed Development by the effects of, for example, air quality, noise, landscape and visual or traffic effects.

Assessment Methodology

6.9.60 The proposed methodologies used to identify the range of potential socio-economic effects of the Proposed Development will be in accordance with general guidelines where these exist (and as referred to) and wider professional experience. There is no Government guidance specifically setting out a preferred methodology for assessing the socio-economic

effects of a major development, although the NN NPS identifies issues that should be addressed by applicants for SRFIs.

6.9.61 In accordance with the NN NPS, the objective of the Socio-Economic Chapter of the ES will be to address:

- The ability of the proposals to support national and local economic growth and regeneration, particularly in the most disadvantaged areas;
- The ability to support businesses and help re-balance the economy (sectorally and geographically) through more efficient distribution networks;
- The existence of an available and economic local workforce;
- Reasonable opportunities to deliver environmental and social benefits;
- Economic impacts on the best and most versatile agricultural land.

Methodology for Determining Baseline Conditions and Sensitive Receptors

6.9.62 In order to assess the potential impacts of the Proposed Development, it is essential that the characteristics of the baseline environment are identified and described. Understanding the baseline conditions also assists in the identification of appropriate mitigation which could be put in place to minimise any significant adverse impacts.

6.9.63 Baseline socio-economic conditions have been and will continue to be established through the analysis of nationally recognised research and survey information, including:

- 2001 Census (ONS);
- 2011 Census (ONS);
- Business Register and Employment Survey (BRES) (ONS);
- Indices of Multiple Deprivation (IMD) (2015) (DCLG);
- Claimant Count Data (ONS);
- Department for Work and Pensions Labour and Benefits Data (ONS);
- Annual Survey of Hours and Earnings (ONS); and
- Population Projections (ONS and local sources where available).

6.9.64 The baseline assessment presented in the ES will cover the following topic areas:

- The labour market;
- Businesses and industry, with a specific focus on distribution;
- Population and Demographics; and
- Future projections of the population and labour force.

Identification of Relevant Spatial Scale

6.9.65 The Inner Impact Area will be the area within 1km of the [edge of the] Site.

6.9.66 The Wider Impact Area will be determined for the Proposed Development based on evidence on travel to work patterns, labour market catchment areas, and the commercial property market area particularly for distribution uses. It is likely to cover the at least the two travel to work areas around the Site – which include Wolverhampton, Lichfield, Rugeley, Stafford, Stone and Eccleshall.

6.9.67 Effects will also be assessed at Local Enterprise Partnership (Stoke on Trent & Staffordshire LEP), the Regional (West Midlands) Level and the National Level.

Identification of Sensitive Receptors

6.9.68 The spatial spread of effects will vary depending on the different topic area. The sensitive receptors against which impacts have been assessed will be:

- The economy (labour market and business) at all spatial scales;
- Existing residents within the Inner Impact Area; and
- Potential employees within the Wider Impact Area.

Receptor Sensitivity

6.9.69 The main sensitive receptors for the socio-economic assessment are the labour markets, businesses and communities at a number of spatial levels. It is not possible to ascribe specific 'values' to socio-economic sensitive receptors due to their diversity in nature and scale.

6.9.70 There socio-economic impact assessment focusses on the qualitative (rather than quantitative) "sensitivity" of each receptor. In this context, this means, the ability of the receptor to respond to change. The assessment of sensitivity is based on recent rates of change and turnover.

6.9.71 The socio-economic environment is a dynamic and adaptive one with constant background change and turnover, for example people moving into and out of the area and changing jobs. This is a particular feature of the construction sector. This qualitative sensitivity is based on professional judgement but broadly ascribes low sensitivity to those receptors that are easily adaptive to change and high sensitivity to those receptors that are not easily adaptive to change.

6.9.72 Broadly speaking, in the context of the size, change and turnover of the population and economy of the wider impact area, these factors are of lower sensitivity whilst provision of local services for which there is greater lead time and less dynamism, are of higher sensitivities. More specific quantitative values to assess these changes cannot be realistically made.

Potential Impacts

6.9.73 The demolition and construction stages of the Proposed Development have the potential to generate some significant direct and indirect socio-economic impacts, with temporary effects. The potential impacts could include:

- Medium term, temporary, direct, beneficial impacts with respect to demolition and construction employment; and
- Medium term, temporary, indirect impacts on the recreation and amenity receptors and the people who use them which could be adverse.

6.9.74 The operational Proposed Development has the potential to generate a range of significant direct and indirect Socio-Economic impacts, with likely permanent effects. These could include:

- Permanent, direct, beneficial, impacts on residents and the labour market due to creation of operational jobs;
- Permanent, direct, beneficial impacts on the economy due to the creation of operational jobs and increase in economic output;

- Permanent, indirect impacts on the recreation and amenity receptors and the people who use them which could be adverse or beneficial; and
- Permanent, indirect impacts on the health and well-being of the population which could be adverse or beneficial (these would be indirect effects arising from the Proposed Development related to, for example, effects on air quality, noise or traffic).

6.10 Transport and Access

6.10.1 A Transport Assessment Report (TA) and a Framework Travel Plan (FTP) will be prepared as supporting documents to the planning application and this will form the basis of the transport and access assessment within the ES. The FTP will accompany the Transport Assessment. This document will seek to encourage employees and visitors of the site to use healthier and lower carbon transport options in contrast with single occupancy vehicle trips. This document will set out to achieve this through the provisions of appropriate measures and incentives.

Baseline Conditions

6.10.2 The Site is located within a network of predominately strategic roads, providing good links to nearby towns and the wider UK. The key road links in proximity to the Site include:

- M6 - located east of the Site and providing access to Birmingham, the West Midlands and the wider UK.
- A5 – forms the northern boundary to the Site and provides access to the M6 junction 12, Cannock (east), Telford and Shrewsbury (west).
- A449 – forms the western boundary to the Site and provides access to Stafford, Penkridge (north) and Wolverhampton (south).
- Vicarage Road – forms the southern boundary to the Site and provides local access to Four Ashes village.

6.10.3 The M6 and the A5 and A449 east and south of the Gailey Roundabout form part of the strategic road network and are operated by Highways England.

6.10.4 There are two bus services between Stafford and Wolverhampton which operate along the A449. They both stop immediately opposite Gravelly Way, the existing access into the Site. These currently provide a combined 30 minute frequency during the day, offering opportunity for connectivity.

6.10.5 The nearest railway station is at Penkridge, approximately 4km from the Site. Services to Wolverhampton, Birmingham, London Euston (South) and Stafford and Manchester (North) are provided from here.

6.10.6 There is one existing public right of way (PRoW), a footpath, which passes through the Site. It enters the site from the A449 approximately 400m south of the Gailey Roundabout crossing the railway to Croft Lane.

Sensitive Receptors

6.10.7 The assessment will consider the temporary and permanent effects on the road network, including any closures and diversions to the highway and public rights of way due to construction, changes in traffic levels and potential for congestion on junctions during both

construction and operation, as well as consideration of vehicle and pedestrian routes providing access to and within the Site.

Assessment Methodology

6.10.8 The scope of the traffic and transportation assessment will be established in consultation with Staffordshire County Council (SCC) as local highway authority, Highways England (HE) as authority for the nearby strategic road network and Wolverhampton City Council (WCC) as highway authority for nearby areas affected by the Proposed Development. Consultation is ongoing and meetings with SCC and HE have already been held to initiate discussions. Agreements to the geographic study area, technical parameters and assumptions with regards future year assessments and an agreed transport modelling assessment tool are all on going. Regard will be given to the use of WebTAG methodology as required by paragraph 5.207 of the National Planning Statement for National Networks.

6.10.9 The methodology utilised in this chapter will take account of guidance concerning the assessment of transport effects and the provision of SRFI as detailed within:

- NPS;
- NPPF;
- The Guidelines for the Environmental Assessment of Road Traffic published by the Institute of Environmental Assessment in 1993 (now the Institute of Environmental Management and Assessment);
- Volume 11 of the Design Manual for Roads and Bridges – Environmental Assessment (Highway Agency et al.);
- Guidance contained in the National Planning Policy Framework, Planning Practice Guidance under the theme 'Travel Plans, Transport Assessments and Statements in Decision-Taking' (on-line); and
- Department for Transport Circular 02/13 'The Strategic Road Network and the Delivery of Sustainable Development'.

6.10.10 An indicative study area for the Transport Chapter is expected to extend from M6 junction 13 in the north to M6 Junction 10A in the south and the A5 junction with the M6 Toll in the east to the Belvide Reservoir along the A5 in the west. The study area is likely to include the A449 between M6 J13 and the M54 and Vicarage Road as well as other links within this area identified through analysis of traffic data changes arising from the Proposed Development. The study area will also need to extend beyond the M54 into northern Wolverhampton in order to account for sensitive receptors identified in this area. Other localised sensitive receptors may require consideration such as specific Special Areas of Conservation, which are located at Cannock Chase and the Cannock Extension Canal. At this stage, whilst the study area has been discussed with the various highway authorities, work is ongoing to establish the final area for assessment.

6.10.11 The baseline section of the ES will consider the existing conditions across the local transport network within the study area identifying details of relevant transport models, traffic surveys and analysis of this work is currently ongoing. The final baseline assessment will include assessment of:

- Current levels of accessibility in the context of access to local facilities and amenities;
- The existing pedestrian and cycle network including severance and fear and intimidation characteristics in the vicinity of the Site;

- Public transport provision including both bus and rail services;
- The operation of the highway network and road safety based on available traffic data sources; and
- An assessment will be made of accident risk and highway safety based upon existing accident rates and specific local circumstances to identify accident clusters.

6.10.12 The EIA will focus on environmental issues associated with potential changes to the traffic and transport behaviour - in particular changes in traffic flows on links and at key junctions in the network and consequent effects on local communities. The EIA will assess the impacts recommended by the IEMA in their Guidelines for the Environmental Assessment of Road Traffic (Guidance Note No. 1), as follows:

- Severance;
- driver delay;
- pedestrian delay;
- pedestrian amenity;
- fear and intimidation;
- accidents and safety;
- hazardous loads; and
- dust and dirt.

6.10.13 The TA will consider the impact of additional traffic on the highway network and include a detailed review of associated and relevant local transport policy and guidance.

Assessment of Construction Effects

6.10.14 There is likely to be limited information available on the proposed construction works. The transport and access effects of the construction of the Proposed Development would be dependent on various factors including, the final programme of construction works, build out rate, import/export of materials and construction processes adopted.

6.10.15 Consequently a qualitative assessment will be carried out with regard to the potentially significant transport and access effects of the proposed construction works. The assessment will draw upon experience of assessing the environmental effects of similar scale developments.

6.10.16 Consideration would be given to any temporary diversions/closures of the highway network and/or public rights of way, necessary to facilitate the construction phase.

6.10.17 Suitable management and control measures will be identified; it is anticipated that these would be incorporated into a Construction and Environmental Management Plan (CEMP) as a basis for managing the construction works process on-site.

Assessment of Operational Effects

6.10.18 Accordingly, the impact assessment of the operation of the Proposed Development will focus on changes in traffic and transportation flow and user behaviour. The assessment would be based on traffic data agreed with both SCC and HE and entail a comparison of an agreed future year for both a ‘base’ and ‘with development’ scenario. The effects of the

Proposed Development will be identified and assessed, separate to any increase in background traffic that is not associated with the Proposed Development.

6.10.19 Both assessment scenarios will incorporate the aggregate effects of any consented / committed development and infrastructure within the vicinity of the Site as agreed during the TA scoping discussions. The impact assessment will be based on and include:

- Determination of trip generation for the Proposed Development, including any future scenario years and daily patterns, using relevant agreed sources;
- Examination of the impact of the development on traffic flows and accident rates on the existing road network at, and immediately surrounding, the Site. In addition to pure highways impact, predicted changes in flow will consider the effects on receptors based on the IEMA / Institute for Highways and Transportation (IHT) guidelines;
- Assessment of the likely significant effects of the Proposed Development on the local highway and public transport network, and identified sensitive receptors;
- Assessment of the potential for driver delay and pedestrian and cyclist severance and fear and intimidation; and
- Assessment of the potential impact on pedestrian / cyclist and residential amenity surrounding the Site.

6.10.20 The generic significance criteria for the EIA, as applied to the assessment of transport and access effects, would draw upon the Guidelines for Environmental Assessment of Road Traffic.

6.10.21 Categories of receptor sensitivity will be defined from the principles set out in the Guidelines for the Environmental Assessment of Road Traffic, including the following:

- The need to identify particular groups or locations which may be sensitive to changes in traffic conditions;
- The list of affected groups and special interests set out in the guidance; and
- The identification of links or locations where it is felt that specific environmental problems may occur. Such locations would include accident blackspots, conservation areas, hospitals, links with high pedestrian flows, schools etc.

6.10.22 A qualitative review of the potential decommissioning effects will be described within the ES Chapter.

Cumulative Effects

6.10.23 The traffic data will include traffic associated with all known committed and consented development. Therefore the assessment of the Site will include the cumulative impact of all known committed and consented schemes elsewhere in the area.

Potential Impacts

6.10.24 Both during demolition and construction activities and once the Proposed Development is operational, there is the potential for the local highway and public transport network to be affected, in addition to pedestrians and cyclists, and local residents' amenity.

6.11 Water Environment and Flood Risk

6.11.1 A Water Environment assessment will be presented as a Chapter within ES Volume I.

6.11.2 In parallel to the ES, it is proposed that a Flood Risk Assessment (FRA) will be prepared which will assess flood risk to and from the Site in accordance with the requirements of the NPS and NPPF. The ES chapter will refer to the results of the FRA, however the FRA will be included within the ES technical appendices.

6.11.3 Risk of groundwater contamination due to migration and leaching associated with contaminated land will be considered as part of the Ground Conditions ES Chapter, along with potential effects associated with ground conditions. This section, therefore, discusses only those sources of pollution to controlled waters that may arise as a direct result of the construction / decommissioning phases and upon completion and operation of the Proposed Development.

Baseline Conditions

Surface water features

6.11.4 Environment Agency (EA) mapping shows the Site to sit astride the watershed dividing three surface water catchments. Current evidence suggests that these catchments comprise subcatchments of the Penk but this will be confirmed during more detailed site data collection.

6.11.5 There are numerous surface water features situated within close proximity of the Site. These include but are not limited to:

- River Penk, Saredon Brook (both defined as Main Rivers so managed by the EA) and tributaries;
- Calf Heath reservoir and Gailey reservoirs (canal feeder reservoirs with recreational use);
- Staffordshire and Worcestershire Canal and Hatherton Canal;
- Several ordinary watercourses, drainage ditches and land drains within and adjacent to the Site; and
- A number of ponds located on and near to the Site.

6.11.6 The River Penk is the largest tributary of the River Sow, for which the confluence is located at Stafford to the north, approximately 17km downstream of the Site. The Sow is a tributary to the River Trent, and joins the Trent at Great Haywood/Shugborough, approximately 24km downstream of the Site.

6.11.7 The A indicative online mapping shows the Water Framework Directive (WFD) ecological receptor designations for surface water bodies that fall under the WFD River Basin Management Plan. This is a measure of the current ecological quality of a surface water body and status designations are classified as 'high', 'good', 'moderate', poor' or 'bad'. The Staffordshire and Worcestershire Canal and Hatherton Canal are shown to be designated as having 'bad' to 'moderate' ecological quality and Saredon Brook and the River Penk are shown to be designated as having 'moderate' ecological quality within the vicinity of the Site.

6.11.8 The WFD River Basin Management plans also show designations regarding the chemical quality of surface water bodies, with the status designations as either 'good', 'fail' or 'not assessed'. Not all surface water bodies are assessed. The River Penk and some sections of canal adjacent to the Site fall under the 'not assessed' category, however sections of the Staffordshire and Worcestershire Canal that are assessed, including the part of the canal

within the Site boundary, and Saredon Brook, are both shown to be designated as having "good" chemical quality.

Flood Risk

6.11.9 According to the EA indicative flood maps, the Site is situated within Flood Zone 1, at less than a 0.1% (1 in 1000 annual probability of tidal/ fluvial flooding), however the EA maps also show that some parts of the Site may be susceptible to surface water flooding in discreet areas.

6.11.10 A small part of the northern boundary of the Site is shown to be at risk of Reservoir flooding.

Sewerage Infrastructure

6.11.11 It is not yet known whether there is any below ground sewerage infrastructure within the vicinity of the Site. This will be confirmed as part of the FRA.

Water Resources

6.11.12 There is on surface water abstraction source situated immediately adjacent to the Site – adjacent to the northern Site boundary. There are a further 10 surface water abstraction sources within close proximity of the Site.
The majority of abstraction licenses within the catchments relate to use for agricultural irrigation but also include potable water supply and industrial uses.

Sensitive Receptors

6.11.13 Potential receptors have been identified in relation to impacts to and from the water environment, listed as follows:

- The River Penk, Saredon Brook and tributaries;
- Staffordshire and Worcestershire Canal and Hatherton Canal;
- Calf Heath and Gailey Reservoirs;
- All surface water drainage ditches and land drains within and adjacent to the Site;
- Ponds on or within the vicinity of the Site;
- Workers during the construction / decommissioning phases of the Proposed Development;
- Site occupants during the operation of the Proposed Development;
- Existing potable and non-potable water supplies; and
- Sewerage Infrastructure, including public sewers, if applicable.

Assessment Methodology

6.11.14 Further desk study information will be collated, including but not limited to:

- Review of detailed mapping, aerial photography and historical photographs;
- Detailed review of publicly available information such as EA indicative mapping for flood risk (from all sources) and water quality (Water Framework Directive); and
- Request for data from the relevant stakeholders including the Environment Agency, South Staffordshire Council/Staffordshire County Council, Severn Trent and/or the Lead Local Flood Authority (LLFA).

6.11.15 A FRA is to be undertaken in accordance with the requirements of the NPS and NPPF in order to assess the risk of flooding to and as a result of the Proposed Development. The results of the FRA will be used to refine the design of the Proposed Development, in particular the drainage design. Therefore, it is considered that the assessment of flood risk does not need to be duplicated within the EIA. However, a summary of the key conclusions from the FRA will be provided and the FRA will be used to inform the impact assessment for the water environment.

6.11.16 An analysis of the impacts on the hydrological regime at the Site will be undertaken, including an assessment of the potential for the Proposed Development to impact upon the watershed and catchments at the Site. As the Site sits astride the watershed dividing three river catchments, there is the potential for development to alter surface water flow and volumes reaching watercourses within each catchment by means of the drainage design and changes to Site levels. The EIA will therefore include a calculation of the anticipated impacts of surface water flows for each catchment to determine whether water volumes reaching a receptor would reduce or increase. Surface water runoff analysis will be undertaken using the Wallingford Procedure and Modified Rational Method within Micro Drainage WinDes software. Allowances for the predicted effects of climate change over the lifetime of the development, in accordance with NPPF guidance, will be incorporated into the assessment.

6.11.17 The potential impacts to water quality as a result of the Proposed Development will be assessed using a source-pathway-receptor approach, and utilising the criteria and standards set by the WFD. In conjunction with drainage engineers, appropriate sustainable drainage systems (SuDS) will be considered for the Proposed Development to address water quality/quantity to prevent impacts to downstream receptors.

6.11.18 In line with current best practice, the findings of the EIA will be fed into the design for the Proposed Development in an iterative process so as to influence the design and take advantage of early opportunities to resolve environmental issues. The EIA would therefore seek to assess a scheme with a number of measures already incorporated, and would report on where necessary, details of any further mitigation measures.

6.11.19 Any potential impacts to water supply will be assessed in consultation with the relevant stakeholder, which in this case are anticipated to be Severn Trent and the Canal and Rivers Trust, but could also include private or commercial stakeholders relating to abstraction licenses.

6.11.20 The water environment has strong links with geology and ecology – as such the water ES chapter will work alongside those chapters within the EIA, both for baseline information such as receptors (e.g. ecological receptors such as aquatic protected species) and for the assessment of effects.

6.11.21 In summary, the scope would involve consideration, to baseline level at least, of all receptors and interactions with the water environment including surface and groundwater within a nominal 2km radius of the Site. A more detailed and refined study area and scope can be developed once more baseline and project information becomes available.

6.11.22 Impacts to groundwater from contaminated land/ground conditions at the Site would be assessed under the Ground Conditions ES chapter.

Potential Impacts

6.11.23 The demolition and construction stages of the Proposed Development have the potential to generate potential significant direct and indirect water environment impacts that may both temporary and permanent. The potential impacts could include:

- Risk of surface water pollution from silt-laden runoff as a result of construction activities;
- Release of sediment into watercourses for any works close to or crossing a watercourse;
- Risk of surface water pollution from accidental spills of fuels and chemicals and other wastes during general construction activity;
- Risk of surface water pollution from mobilisation of existing contaminants, if applicable;
- Risk of physical damage to the banks and beds of watercourses as a result of construction activity in close proximity of or crossing a watercourse;
- Risk that surface water pollution from construction areas may adversely affect water quality of watercourses and water bodies;
- Risk that surface water pollution from construction areas may adversely affect construction workers present on Site. These may be of a temporary or permanent nature;
- Risk of increased surface water flood risk to the Site and Site occupants as a result of increased surface water runoff within the Site due to construction activity;
- Risk of increased surface water flood risk to downstream receptors, including people and property, as a result of increased surface water runoff within the Site due to construction activity; and
- Risk of flooding due to changes in groundwater levels as a result of excavations within the Site.

6.11.24 The operational Proposed Development has the potential to generate a range of potential significant direct and indirect water environment impacts, with likely permanent effects. These could include:

- Risk of increased surface water flood risk to the Site and Site occupants due to increases in surface water runoff, resulting in damage and economic losses. This may arise due to increases in impermeable area on greenfield land and the predicted effects of climate change. (Note that it is intended to mitigate this through the use of SuDS features included in the drainage strategy for the Site);
- Risk of increased surface water flood risk to downstream receptors, including people and property due to increases in surface water runoff, resulting in physical damage and economic losses. As detailed above, this may arise due to increases in impermeable area on greenfield land and the predicted effects of climate change. (Note that it is intended to mitigate this through the use of SuDS features included in the drainage strategy for the Site);
- Risk of flooding due to changes in groundwater levels (as a result of ground level changes) within the Site following construction of structural foundations. This may have a direct and permanent impact on hydrological receptors and Site occupants;
- Risk that surface water pollution from processes at the Site during operation of the completed Proposed Development may adversely affect water quality and WFD status of watercourses and water bodies;

- Risk of impact upon local water supply due to the requirements of the Proposed Development during the operation (although it is anticipated that this is a very low risk due to the presence of local reservoirs); and
- Risk of impact upon public sewer network capacity in the local area, if applicable.

6.12 Cumulative Effects

6.12.1 Two types of Cumulative Effects will be considered:

- Intra-Project effects of different types of impact from the Proposed Development that could interact to jointly affect a particular receptors at the Site. Potential impact interactions include the combined effects of noise, dust and visual impacts during from demolition and construction of the Proposed Development on a particular sensitive receptor; and
- Inter-Project effects which are combined effects generated from the Proposed Development with other committed or planned developments ('other development'). These 'other developments' may generate their own individually insignificant effects but when considered together could amount to a significant cumulative effect, for example, combined townscape and visual impacts from two or more (proposed) developments.

6.12.2 Cumulative impacts will typically be assessed using professional judgment and this approach is outlined below. It is a relatively straightforward process to identify combined effects, or 'impact interactions'. However, the assessment of other planned developments in combination with the Proposed Development is more complex, as discussed below.

Intra-Project Cumulative Effects

6.12.3 Intra-project cumulative effects from the Proposed Development itself on surrounding sensitive receptors during the demolition and construction works and also once the Proposed Development is completed will be considered. It is possible however, that depending on the predicted individual 'completed developments' effects, only the demolition and construction work effects will actually be considered as often they generate the greatest likelihood of interactions occurring and hence significant effects. Indeed, demolition and construction effects are usually more adverse (albeit on a temporary basis) than effects as a result of a completed development.

6.12.4 Dependent on the relevant sensitive receptors, the assessment will focus either on key individual receptors or on groups considered to be most sensitive to potential interacting effects. The criteria for identifying those receptors which are considered to be potentially sensitive would include existing land uses, proximity to the demolition and construction works and the Site, and likely duration of exposure to impacts. It should be noted that only residual effects that are minor moderate or major in magnitude of impact will be considered within this assessment. The results will be presented within the ES in a discrete Cumulative Effects Assessment (CEA) chapter in a matrix table.

6.12.5 With regards the potential for cumulative effects to occur, it is anticipated that standard mitigation measures as detailed in a site-specific Construction and Environmental Management Plan (such as dust suppression measures, use of quiet plant, restrictions on working hours) can be applied to prevent temporary unacceptable effects from the interaction of effects occurring on-site.

Inter-Project Cumulative Effects

6.12.6 Inter-project effects arising from the Proposed Development in combination with 'other development' schemes during the demolition and construction works and also once the Proposed Development is complete will be considered by the EIA.

6.12.7 The EIA Regulations require an assessment of potentially significant cumulative effects of proposed development along with other developments. There are no legislative or policy requirements which set out how a CEA should be undertaken. However, PINS have issued an Advice Note[26] which sets out the staged approach that applicants are encouraged to adopt in CEA for NSIPs. The Advice Note suggests adopting a structured and (generally) sequential approach to the CEA process, involving four 'Stages'. This approach was discussed with PINS during a meeting on 27 June 2016. It was agreed that the staged approach to the cumulative effects assessment process (Table 1 within the Advice Note) was intended to reflect an iterative and broad continuum of activity rather than a rigid timetable and that elements of work could be brought forward if required.

6.12.8 Stage 1 of the process involves establishing an appropriate 'Zone of Influence' (ZOI) to help identify 'other development' relevant to the CEA. In accordance with the Advice Note Table 6.16 presents the proposed ZOIs for the Proposed Development. The ZOIs have been established by the Applicant's consultant team using professional judgment. A 2km ZOI addresses localised cumulative effects from topic areas such as agriculture and soils, geology and ground conditions, and the water environment; a 9km ZOI addresses the potential for cumulative effects associated with landscape and traffic (including secondary traffic effects in relation to air quality and ecology); and the entirety of SCC ZOI captures socio-economic (specifically employment related) effects.

Table 6.16: ZOI

Environmental Topic	**Zone of Influence**
Agriculture and Soils	2km
Air Quality	9km
Cultural Heritage	9km
Archaeology	2km
Ecology and Nature Conservation	9km
Geology and Ground Conditions	2km
Socio-economics	Entirety of SCC
Transport and Access	9km
Noise and Vibration	9km
Water Environment	2km

6.12.9 Following the determination of the ZOIs, the Applicant then considered the criteria for 'other development' selection within the identified ZOIs. The definition of 'major development', as defined within the Town and Country Planning (Development Management Procedure) (England) Order 2015, was used as a starting point for the thresholds of 'other development'. However, alterations to the thresholds have been applied, based upon the team's professional judgment and experience on the scale of

[26] The Planning Inspectorate. Cumulative Effects Assessment. Version 1. December 2015

developments likely to cause significant environmental effects, to ensure that the CEA is focused and proportionate.

6.12.10 The proposed 'other development' criteria is therefore:

- development comprising more than 10,000m2 of gross development floor area or more than 150 units;
- minerals and waste developments;
- significant highways or infrastructure schemes, as stipulated within Highways England's Road Investment Strategy: Post-2020[27]; and
- public transport schemes.

A tiered approach was then applied to consider the level of certainty of 'other development' being carried out that falls within the above criteria and ZOI. The level of certainty, or tiered assigned, is as follows:

- Tier 1(a): Under construction (although if it is expected to be completed at the time of our project commencement, the scheme will form part of the baseline – please specifically note this, if this is the case);
- Tier 1(b): permitted application(s), whether under the PA2008 or other regimes, but not yet implemented;
- Tier 1 (b): submitted application(s) whether under the PA2008 or other regimes but not yet determined;
- Tier 2: projects on the Planning Inspectorate's Programme of Projects where a scoping report has been submitted;
- Tier 3: projects on the Planning Inspectorate's Programme of Projects where a scoping report has not been submitted;
- Tier 3: identified in the relevant Development Plan (and emerging Development Plans - with appropriate weight being given as they move closer to adoption) recognising that much information on any relevant proposals will be limited;
- Tier 3: identified in other plans and programmes (as appropriate) which set the framework for future development consents/approvals, where such development is reasonably likely to come forward

6.12.11 On this basis, a desk study was undertaken to determine, with reference to planning applications, relevant development plans and other relevant sources, which developments within the ZOIs fall within the 'other developments' that are relevant to the assessment of potential cumulative effects. The resulting list and location map is presented within Appendix 2. This list and map reflects the temporal scope and scale and nature of the 'other development', in line with Stage 2 of the Advice Note.

6.12.12 Following agreement from PINS and statutory consultees, more detailed information will be gathered for the ES on the 'other developments' for use within the technical topic areas' cumulative impact assessments before proceeding to Stage 3. Once information is gathered on each of the 'other developments', each technical ES topic area will compile a short-list of 'other development' for their individual CEA, with clear justification for inclusion or exclusion.

6.12.13 Following this stage, the CEA will be undertaken (Stage 4) in accordance with the Advice Note.

[27] https://www.gov.uk/government/collections/road-investment-strategy-post-2020

7. NON-SIGNIFICANT ISSUES

7.1.1 During the EIA Scoping Process, consideration has been given to ensuring that the EIA is proportionate and therefore only focuses on the likely significant effects of the Proposed Development. Accordingly, the Scoping Process has identified a number of potential environmental issues that are unlikely to generate significant effects on the environment and are recommended to be scoped out of the EIA.

7.2 Waste

7.2.1 During a typical demolition and construction stage, the greatest potential for waste arisings would be from the demolition of existing buildings and the excavation and ground works. As is typical of similar redevelopments, waste management would be undertaken in accordance with a Construction Site Waste Management Plan (SWMP) to ensure the sustainable management of construction waste, minimisation of waste arisings and maximisation of waste re-use and recycling.

7.2.2 The Applicant's contractors would be encouraged to maximise opportunities for waste recycling and re-use both on and off-site where practically possible. In the event that residual materials require off-site disposal, the Applicant's contractors would ensure the appropriate categorisation of waste in accordance with current regulatory requirements.

7.2.3 The ES will include a description of the standard mitigation and management controls that would be committed to during the demolition and construction works, and present an outline of the content of the CEMP.

7.2.4 Once completed, operational waste would primarily comprise commercial waste streams which would be managed either by individual occupants or by an on-site facilities management team, in accordance with applicable waste management legislation.

7.2.5 Based on the Proposed Development's land uses and waste streams, plus the proactive commitment to waste reduction, it is considered that waste generation would not be a significant issue in itself, requiring assessment within the EIA. It is not anticipated that there would be any environmental effects from the future waste generation streams by the proposed land uses, save for the environmental effects of the collection of waste and secondary effects of emissions and traffic noise associated with waste vehicles. The movements of waste vehicles would be factored into the Proposed Development's trip generation figures and assessed in Transport and Accessibility, Air Quality and Noise and Vibration chapters of the ES.

7.2.6 Accordingly, it is considered that the Proposed Development would not give rise to significant environmental effects in relation to waste. A Waste Assessment is therefore proposed to be scoped out of the ES, however, waste management commitments in relation to the demolition and construction works will be outlined within the ES.

7.3 Telecommunication Interference

7.3.1 New buildings and structures have the potential to impact on radio, television and other broadcast services as a result of shadowing and reflection effects caused.

7.3.2 There are 3-4 telecommunications masts within the Site, which will be considered throughout the evolution of the Proposed Development's layout.

7.3.3 When considering the Site location and surrounding context, potential impacts on telecommunication services is expected to be limited to fixed microwave links and other point-to-point Radio Communications Channels, and digital satellite television services only (should such links and services be present in the vicinity of the Site).

7.3.4 Radio and microwave links can be adversely affected by obstructions on and near to their transmission path such as construction cranes, buildings and trees. In general, the directional nature of radio links means that interference can be avoided by defining clearance zones beyond which any degradation will be insignificant, or by moving the link to avoid the obstruction.

7.3.5 Should any existing links be impacted upon as a result of the Proposed Development, standard mitigation options are likely to comprise the following:

- use of other radio scanner sites;
- use of a radio relay site;
- construction of a new base station site;
- use of private circuits or satellite services; and
- redefining the exclusion zones by the use of aerial engineering.

7.3.6 The identification of the appropriate measures would be determined by a detailed review of the existing radio communications infrastructure at each base station, confirmation of the data for the services operated by the link's owner from the identified radio sites; and review of the theoretical analysis of the proposed development layout on the existing radio communication systems, to identify the exclusion zone for any affected radio infrastructure.

7.3.7 Digital satellite television services are provided by geo-stationary earth orbiting satellites positioned above the equator. For the optimum reception of all satellite services, all receiving dishes must be positioned on the highest part of the rooftop as possible to ensure views to the sky's south-east horizon are free from other local skyline building clutter.

7.3.8 Should there be any roof mounted satellite signal receive dishes on the adjacent locations where line-of-sight views to the serving satellites may be obscured by the Proposed Development, relocating dishes to areas on the roof top where views to those satellites remain clear, would ensure the good reception of satellite television signals.

7.3.9 It is noted that such standard mitigation measures can be readily implemented to ensure the continuing operation of links and services such that the Proposed Development is not considered likely to generate any significant residual effects on these links or services.

7.3.10 Accordingly, it is considered that the Proposed Development would not give rise to significant environmental effects in relation to telecommunication interference. A Telecommunication Interference Assessment is therefore proposed to be scoped out of the EIA.

7.4 Light Spillage

7.4.1 Light spill is defined as any light emitted from artificial sources into spaces where this light would be unwanted. An example of this would include egressing light from a car parking's flood lights into surrounding residential receptors accommodation, where this would cause inconvenience to their occupants.

7.4.2 Although initial lighting concepts would be explored by the Applicant, definitive proposals will not accompany the Application. At the appropriate time, and in response to a suitably worded DCO requirement, quantitative criteria for acceptable levels of light as detailed within the Institution of Light Engineers (ILE) document entitled 'Guidance Notes for the Reduction of Light Pollution', would be used to proactively inform a detailed Lighting Strategy for the Site and submitted to SSC for approval (to be secured by means of an appropriately worded DCO Requirement).

7.4.3 Light spillage will however be addressed within the relevant assessments of the EIA, such as in relation to landscape and ecological effects. This will be based on an initial lighting concept.

7.5 Daylight, Sunlight and Overshadowing

7.5.1 When considering the maximum height of the Proposed Development, and the commitment of the Applicant to ensure that the maximum height parameters are located away from existing sensitive residential receptors, and that the building footprints would not extend to the Site boundary, daylight, sunlight and overshadowing effects are not expected.

7.5.2 Accordingly, it is considered that the Proposed Development would not give rise to significant environmental effects in relation to daylight, sunlight and overshadowing. A daylight, sunlight and overshadowing assessment is therefore proposed to be scoped out of the EIA.

7.6 Wind Microclimate

7.6.1 When considering the maximum height of the Proposed Development, adverse wind microclimate effects are not anticipated.

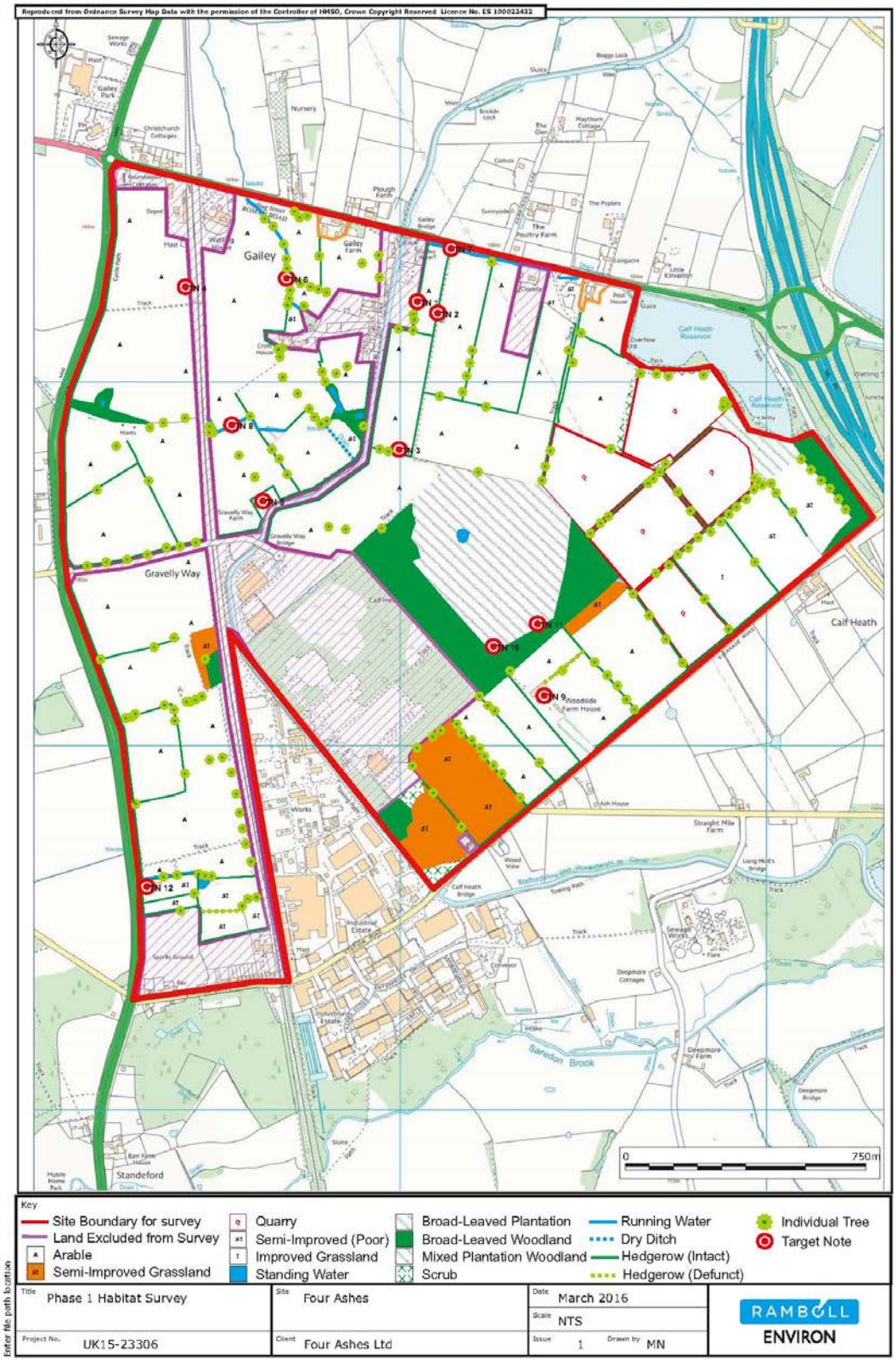
7.6.2 Accordingly, it is considered that the Proposed Development would not give rise to significant environmental effects in relation to wind. A wind assessment is therefore proposed to be scoped out of the EIA.

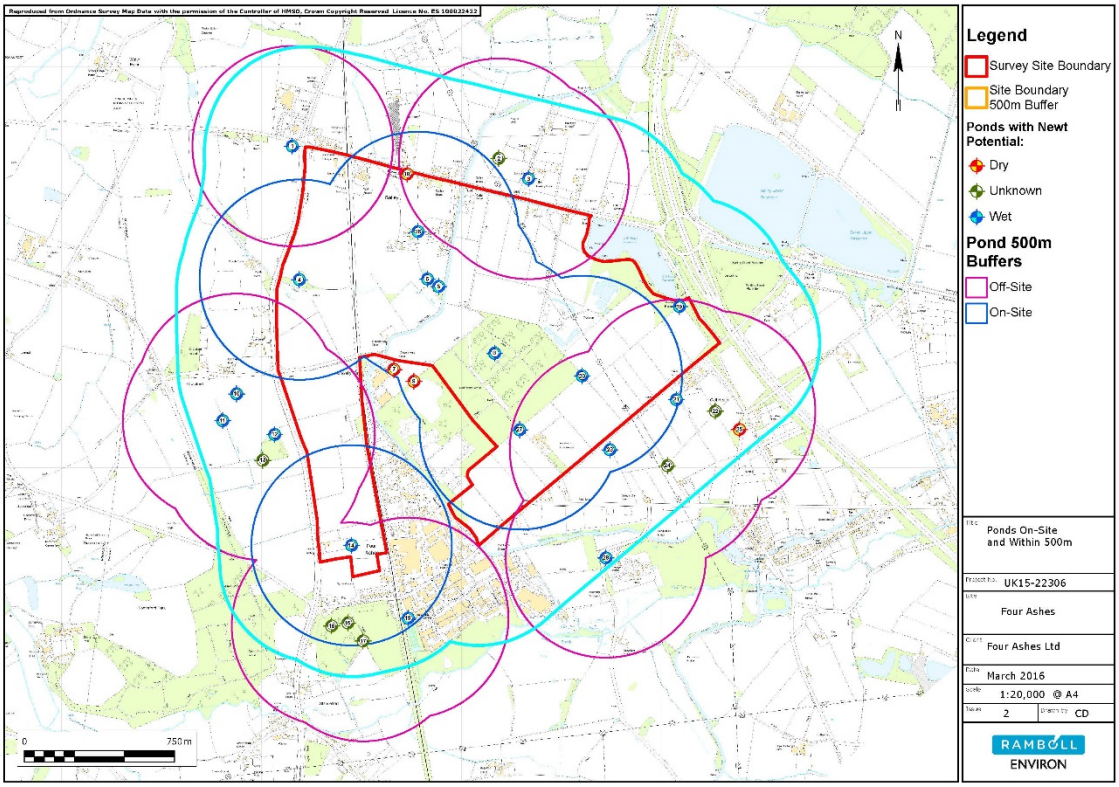
7.7 Aviation

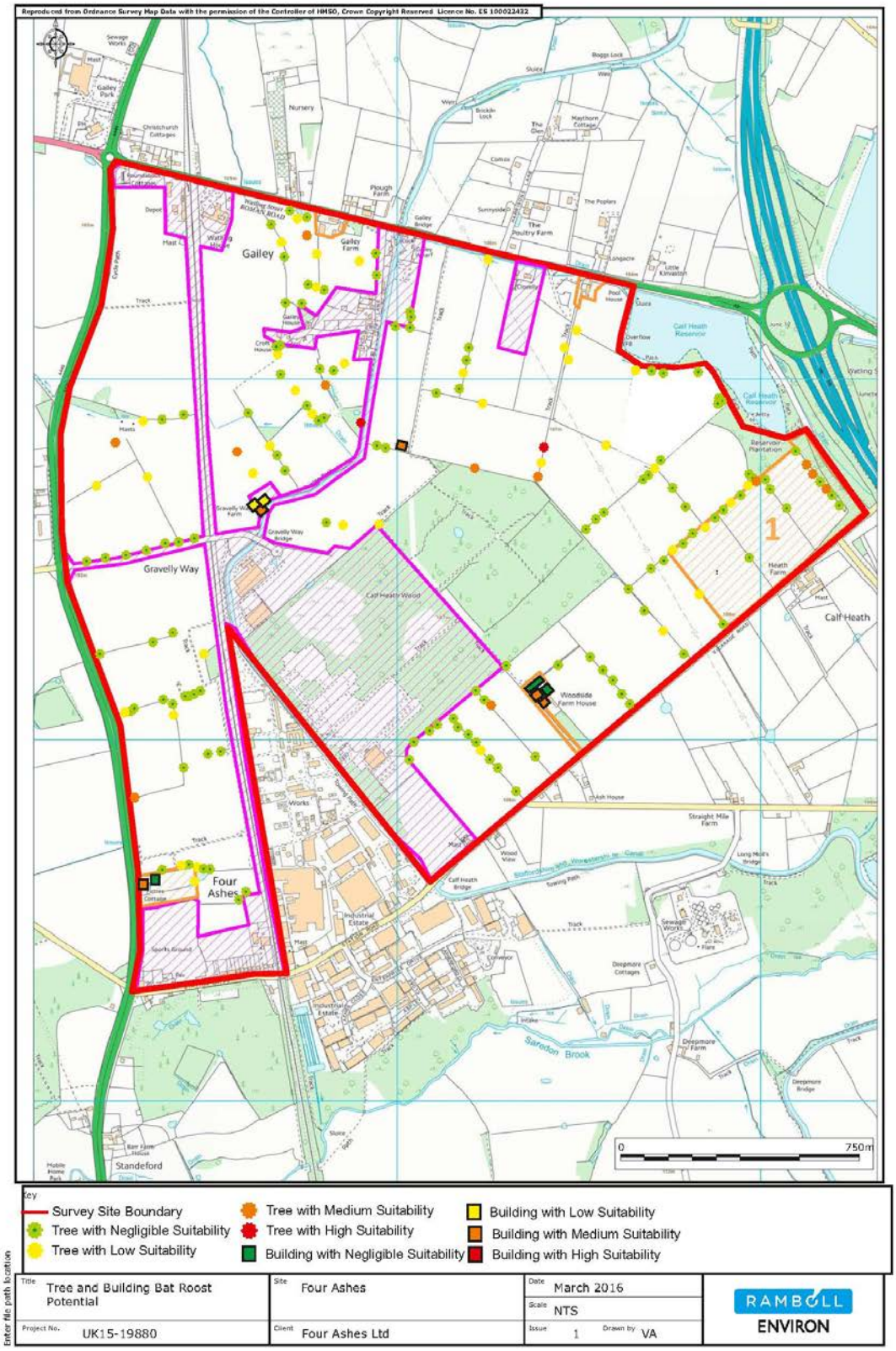
7.7.1 The Site is not located within an airport's safeguarding zone, and when considering the maximum height of the Proposed Development, no aviation related impacts are expected.

7.7.2 Accordingly, consideration of aviation effects is therefore proposed to be scoped out of the EIA.

APPENDIX 1
ECOLOGY FIGURES


Reproduced from Ordnance Survey Map Data with the permission of the Controller of HMSO, Crown Copyright Reserved. Licence No. ES 100022432
Gailey
Gravelly Way
Calf Heath
Standeford
Saredon Brook
0
750m
Key
Site Boundary for survey
Land Excluded from Survey
Arable
Semi-Improved Grassland
Quarry
Semi-Improved (Poor)
Improved Grassland
Standing Water
Broad-Leaved Plantation
Broad-Leaved Woodland
Mixed Plantation Woodland
Scrub
Running Water
Dry Ditch
Hedgerow (Intact)
Hedgerow (Defunct)
Individual Tree
Target Note
Title Phase 1 Habitat Survey
Site Four Ashes
Date March 2016
Scale NTS
Project No. UK15-23306
Client Four Ashes Ltd
Issue 1
Drawn by MN
RAMBOLL
ENVIRON
Enter file path location


Reproduced from Ordnance Survey Map Data with the permission of the Controller of HMSO, Crown Copyright Reserved Licence No. ES 100032432
N
0
750m
Legend
Survey Site Boundary
Site Boundary 500m Buffer
Ponds with Newt Potential:
Dry
Unknown
Wet
Pond 500m Buffers
Off-Site
On-Site
Ponds On-Site and Within 500m
UK15-22306
Four Ashes
Four Ashes Ltd
March 2016
1:20,000 @ A4
2
CD
RAMBOLL
ENVIRON


Reproduced from Ordnance Survey Map Data with the permission of the Controller of HMSO, Crown Copyright Reserved Licence No. ES 100022432
Gailey
Gravelly Way
Four Ashes
Calf Heath
Standeford
Saredon Brook
0
750m
Key
Survey Site Boundary
Tree with Negligible Suitability
Tree with Low Suitability
Tree with Medium Suitability
Tree with High Suitability
Building with Negligible Suitability
Building with Low Suitability
Building with Medium Suitability
Building with High Suitability
Title Tree and Building Bat Roost Potential
Site Four Ashes
Date March 2016
Scale NTS
Project No. UK15-19880
Client Four Ashes Ltd
Issue 1
Drawn by VA
RAMBOLL ENVIRON
Enter file path location

APPENDIX 2
CUMULATIVES LIST AND MAP

‘OTHER DEVELOPMENT’ FOR INCLUSION IN CEA

ID	Consenting Authority	Application Reference	Applicant for ‘other development’ and brief description	Distance from WMI (taken from edge)	Status	Tier
South Staffordshire Council						
1.	South Staffordshire Council	16/00498/FUL	**Land off Gravelly Way, Four Ashes, South Staffordshire** *“Erection of 4no. industrial / distribution buildings (B1(c) / B2 / B8).”* Approved new floorspace - **105,419 sqm**	0km	**Full Planning Permission Granted** 02 August 2016	Tier 1 (b)
2. (a)	South Staffordshire Council	13/00394/OUT	**Lyne Hill Industrial Estate, Boscomoor Lane, Penkridge South, Staffordshire** *“Residential development of up to **170 dwellings** and demolition of industrial units”*	2.9km	**Outline Permission Granted** 07 August 2013	Tier 1 (b)
2. (b)		12/00497/OUT	*“Residential development for **up to 165 units** including assisted living accommodation, 60 bed nursing home and a minimum of 10 assisted living units.”*		**Outline Permission Granted** 30 January 2013	
3.	South Staffordshire Council	15/00748/OUT	**Land At Landywood Lane, Cheslyn Hay, South Staffordshire** *“Development of land to provide station car park, allotments, public open space (linear park); **103no 'enabling development' market dwellings** (linked to the*	5.7km	**Submitted Outline Application** Target date for determination 23 September 2016	Tier 1 (c)

			restoration of listed buildings at Teddesley Park) and ***33no dwellings*** *that include 40% affordable units."* [1]			
4.	South Staffordshire Council	16/00487/OUT	**Land On The South East Side Of Hobnock Road Essington South Staffordshire** *"The erection of approximately* ***210 dwellings*** *with ancillary parking and private amenity space; a convenience store to serve existing and future residents; additional parking to serve St John's Primary School; Allotments for use by the wider community; site infrastructure and landscaping."*	6km	**Submitted Outline Application** Target date for determination 31 October 2016	Tier 1(c)
5.	South Staffordshire Council	15/0072/OUT	**Essington Brickworks Site At Hobnock Road Essington South Staffordshire WV11 2RF** *"Revision of planning application 15/00722/FUL for a proposed new phased distribution centre and office facility."* Proposed new floorspace - **33,000 sqm**	6.2km	**Application Refused** 19 May 2016 However, the Applicant is intending to submit a new scheme in Autumn 2016 LINK	TBC[2]

[1] Whilst this application is below the 150 dwellings threshold, it has been included due to the scale of the associated works.

[2] This application was refused and, therefore, should not be included in the CEA. However, the Applicant has released a statement stating their intention to submit a revised application in Autumn 2016.

6.	South Staffordshire Council	16/00187/REM	**i54 Site, Wobaston Road, Pendeford, South Staffordshire** "*Approval of reserved matters comprising details of a manufacturing buildings (B2 Use Class) including ancillary offices, research and development and warehousing facilities, together with associated landscaping, parking and servicing*." Approved new floorspace - **12,600 sqm**	5.6km	**Reserved Matters Granted** 01 June 2016	Tier 1 (b)
7.	South Staffordshire Council	15/00555/FUL	**Land At i54 Innovation Drive, Pendeford, South Staffordshire, WV9 5GA** *"Construction of manufacturing building (Use Class B2) comprising 93,505 sqm GEA with associated car parking (1,159 new car parking spaces), service yard, hard and soft landscaping, drainage and other infrastructure."* Approved new floorspace - **93,505 sqm**	5.6km	**Full Planning Permission Granted** 16 October 2015	Tier 1 (b)
8. (a)	South Staffordshire Council	15/00417/OUT	**Land West Of Watery Lane And North Of Sandy Lane Codsall South Staffordshire** *"Outline planning permission for residential development (Class C3) with associated access, landscaping, open space and drainage infrastructure at land off Watery Lane, Codsall, South Staffordshire. All matters are reserved, save for access."*	7.6km	**Outline Permission Granted** 25 September 2015	Tier 1(b)

8. (b)			'Approximately' **160 dwellings** approved		**Submitted Reserved Matters** Target date for determination 01 September 2016	
		16/00495/REM	*"Reserved matters consent for appearance, landscaping, layout and scale."* Seeking consent for **180 dwellings**			
9.	South Staffordshire Council	05/00834/FUL	**Former Littleton Colliery, Stafford Road, Huntington** "Erection of **313 dwellings** and garages with associated parking, infrastructure works, public open space and landscaping"	5.6km	**Planning Permission Granted** 30 June 2006	Tier 1 (a)
10.	South Staffordshire Council	06/00888/FUL	**Mercury, Hilton Cross Business Park, Featherstone, Wolverhampton, South Staffordshire, WV10 7QZ** *"Erection of 3 units for B1 business use and associated works"*[3]	5.3km	**18 October 2006**	Tier 1 (a)
11.	South Staffordshire Council	13/00154/COU	**White Gate Farm Watling Street Ivetsey Bank Stafford South Staffordshire ST19 9QT**	8.9km	**Planning Permission Granted** 05 April 2013	Tier 1 (a)

[3] This application has been included as it is included on the Highways England committed development list and there are no planning documents available online.

			"Temporary change of land use for six day period on an annual basis for 'V Festival' and 'Midland Game Fair' caravan and camping site (major application)"[4]			
12.	South Staffordshire Council	13/00187/COU	**White Pump Farm Watling Street Ivetsey Bank Stafford South Staffordshire ST19 9QU** *"Use of site for camping for 'V festival' and 'Midland Game Fair' on a permanent basis"*	8.9km	**Planning Permission Granted** 19 April 2013	Tier 1 (a)
13.	South Staffordshire Council	-	**ROF Featherstone Strategic Employment Site** *The 24ha site is designated in the* South Staffordshire Council Core Strategy (2012) *as a Strategic Employment Site and a 22ha extension to the site is currently being promoted in the emerging Site Allocations Document 'Preferred Options' (December 2015).*	3.5km	**Identified in the South Staffordshire Council Core Strategy (2012) and the emerging Site Allocations Document 'Preferred Options' (December 2015) as a Strategic Employment Site**	Tier 3
14.	South Staffordshire Council	-	**i54 South Staffordshire Strategic Employment Site** *A 40ha extension to the existing i54 South Staffordshire Strategic Employment Site is currently being promoted in*	4.3km	**Identified in emerging Site Allocations Document 'Preferred Options' (December**	Tier 3

[4] Whilst this scheme is not captured by the Project Selection Criteria, it has been included as it is considered to have the potential to have cumulative affects for a short duration of the year.

			the emerging Site Allocations Document 'Preferred Options' (December 2015).		**2015) as a Strategic Employment Site**	
15.	South Staffordshire Council	-	**ROF Featherstone Access Road** *Option C access road to ROF Featherstone*	3.5km	**Identified in emerging Preferred Options Site Allocations Document (December 2015)**	Tier 3
Cannock Chase District Council						
16.	Cannock Chase District Council	CH/14/0452	**Former mid Cannock Coal Disposal Point, Land West of Eastern Way, Rumer Hill, Cannock, WS11 0HA** *Section 73 permission to allow the development of new rail head and associated works at an established container handling depot.*	7.1km	**Planning Permission Granted** 24 June 2015	Tier 1 (b)
17.	Cannock Chase District Council	CH/10/0294	**Land off Norton Hall Lane and Butts Lane, Norton Canes** *"Mixed use development of up to **450 houses** and up to 6,300 square metres of employment floorspace (class B1 and B2 uses); formal and informal open space and new highway access Outline application with access specified."*	7.7km	**Outline Permission Granted** 06 March 2013	Tier 1 (b)
18.	Cannock Chase District Council	CH/16/013	**Land at Cley Road, Cannock** *"Erection of a building for B8 storage and distribution with integral B1 office (34,560 sq. m.) along with ancillary developments and associated landscaping"*	6.5km	**Full Planning Permission Granted** 13 July 2016	Tier 1 (b)

			Approved new floorspace - **34,560 sqm**			
19.	Cannock Chase District Council	CH/15/0425	**Kingswood Lakeside, Blakeney Way, Cannock** *"Proposed distribution warehouse with associated offices, car parking and landscaping."* Approved new floorspace - **12,454 sqm**	6.5km	**Full Planning Permission Granted** 21 December 2015	Tier 1 (b)
20.	Cannock Chase District Council	CH/15/0048	**Mill Green, Eastern Way, Cannock** *"Hybrid planning application for a designer outlet village development comprising:* *Full application for Phase 1- Comprising remodelling of existing landform of the site; erection of up to 23,758 sqm (GEA) of commercial units comprising a mix of uses at ground floor, including retail, restaurants/cafes and drinking establishments (Classes A1, A3 and A4) and outdoor play areas and centre management suite and retail storage areas at first floor level; diversion of water courses and sewers and associated drainage works. Associated works include hard and soft landscaping, new vehicular and pedestrian access from A460/Eastern Way including underpass and formation of two pedestrian accesses to the adjoining Mill Green Nature Reserve and associated works to include formation of part of the Heritage Trail, and upgraded pedestrian and cycle route*	5.9km	**Hybrid Planning Permission Granted** 29 July 2016	Tier 1 (b)

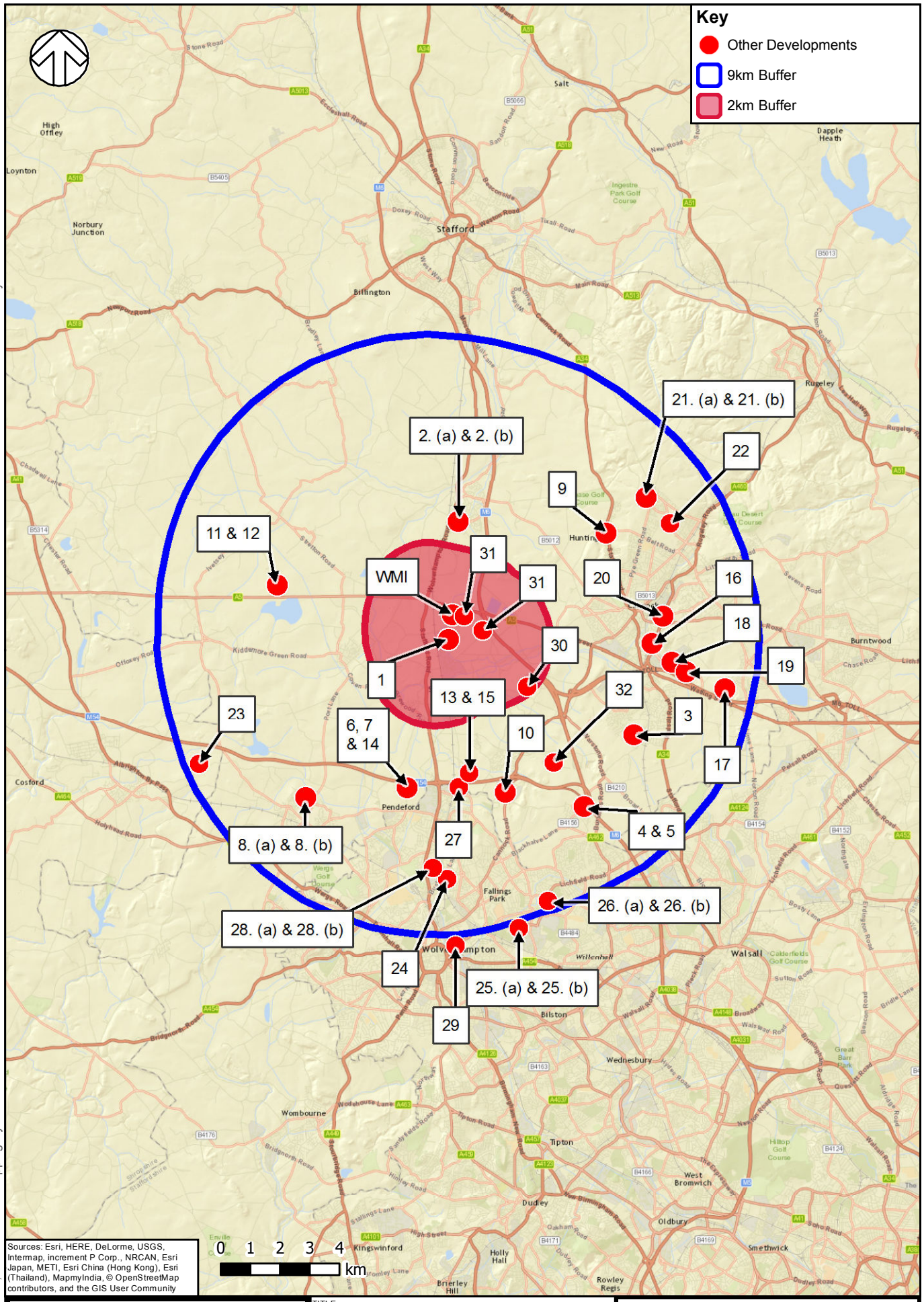
			along Eastern Way, provision of temporary and permanent car and coach parking. *Outline application for Phase 2 - Comprising erection of up to 10,389 sqm (GEA) of commercial units comprising retail uses at ground floor (Class A1), erection of multi storey car park with associated access and hard/soft landscaping (all matters reserved except access)."* Total approved new floorspace – up to **34,147 sqm**			
21.(a)	Cannock Chase District Council	CH/11/0395	**Land north of Limepit Lane and west of Pye Green Road, Cannock** *"Mixed use development involving - erection of **up to 700 dwellings**; local centre consisting of retail / commercial (A1, A2, A3, A4, A5), and use class D1; a primary school; formal and informal open space, equipped play areas and allotments; new highway infrastructure onto Pye Green Road and Limepit Lane; and associated engineering, ground modelling works and drainage infrastructure (Outline including access)"*		**Outline Permission Granted** 24 June 2014	Tier 1 (a)
20.(b)		CH/15/0113	**Land north of Limepit Lane and west of Pye Green Road, Cannock** *"Residential development: Erection of **219 dwellings** (Reserved matters: Appearance, landscaping, layout and scale, in respect of planning permission CH/11/0395)"*	6km	**Reserved Matters Granted** 16 September 2015	Tier 1 (a)

22.	Cannock Chase District Council	CH/14/0268	**Pye Green Valley Between, Greenheath Road And Cannock Road, Hednesford** *"Erection of **425 dwellings** and associated infrastructure (Application for approval of Reserved Matters including - access, appearance, landscaping, layout and scale)"*	7km	**Reserved Matters Granted** 26 May 2015	Tier 1 (a)
Shropshire Council						
23.	Shropshire Council	15/02787/FUL	**North Of Harriots Hayes Lane, Albrighton, Shropshire** *"Formation of solar farm (circa 29.7ha) to include the installation of a solar PV panels, access track, temporary construction compound, ancillary buildings, underground cabling, 2m high perimeter fencing, four pole mounted (6.6m high) CCTV security monitoring system, landscaping and associated works and infrastructure."*	8.7km	**Full Planning Permission Granted** 14 December 2015	Tier 1 (b)
Wolverhampton Council						
24.	Wolverhampton Council	15/01026/LDO	**Land At Showell Road, Fifth Avenue And Broome Road** The Council authorised the adoption of a Local Development Order, granting planning permission for a maximum of **150 dwellings** at this site.	7.7km	**Local Development Order adopted** 11 November 2015	Tier 1 (b)
25.(a)	Wolverhampton Council	09/00429/OUT	**Land Between Planetary Road And Wednesfield Way Wolverhampton West Midlands** *"Outline Application with all matters reserved. Demolition of existing industrial buildings; construction of new*	9km	**Outline Permission Granted** 05 November 2010	Tier 1 (b)

			industrial and warehouse buildings (Classes B1, B2, B8) with associated car parking, yard space circulation and landscaping; and use of the existing access to Wednesfield Way."			
25.(b)		15/01012/REM	"*New Industrial/warehouse development (Classes B1, B2 and B8). Approval of the details of the following reserved matters are sought; layout, scale, appearance, landscaping and access."* Approved new floorspace – **38,164 sqm**		**Reserved Matters Granted** 18 December 2015	
26.(a)	Wolverhampton Council	11/00627/OUT	**Former Jennie Lee Professional Centre Lichfield Road Wednesfield Wolverhampton West Midlands WV11 3HT** *"Outline application with all matters reserved. The re-development of the Jennie Lee Centre site and adjoining open space for up to **217 residential** dwellings."*	8.5km	**Outline Permission Granted** 18 June 2013	Tier 1 (b)
26.(b)		14/00361/REM	*"Residential development comprising **217 dwellings** with public open space (including appearance) and pursuant to outline application 11/00627/OUT"*		**Reserved Matters Granted** 25 June 2014	
27.	Wolverhampton Council	11/00100/OUT	**Wolverhampton Business Park Off Stafford Road Wolverhampton West Midlands** *"Outline application for B1 (Business) Uses with all matters reserved except for access."*	4.2km	**Outline Permission Granted** 13 May 2011	Tier 1 (a)

			Approved new floorspace – **15,726 sqm**			
28. (a)	Wolverhampton Council	05/1989/OP/M	**Goodyear Site, Mercury Drive, Wolverhampton** "Mixed use development comprising residential, local retail, community and ancillary uses"	7.3km	**Outline Permission Granted** 20 June 2007	Tier 1 (a)
28. (b)		11/01022/EXT	*"Application for the extension of time for the submission of reserved matters related to outline application 05/1989/OP/M - mixed use residential led development."*		**Outline Permission Granted** 18 April 2012	
28. (c)		15/00915/REM	*"Minor amendment to highway design in respect of residential development for **124 houses** (approval of reserved matters under outline permission 11/01022/EXT - access, appearance, landscaping, layout and scale)."*		**Reserved Matters Granted** 07 September 2015	
29.	Wolverhampton Council	10/00736/VV	**Low Level Station , Sun Street /Wednesfield Road** *"Material amendment to previous approval (05/0494/FP/M) for mixed use scheme including residential, hotel, pub/diner, car showroom and offices. The application is to amend block B of the residential element. Alterations include changes to external materials, balcony design and removal of metal pole pinnacle."*	9.5km	**Full Permission Granted** 14 July 2011	Tier 1 (a)
		05/0494/FP/M	*"Mixed Use scheme including residential, hotel, car showroom, pub/diner, A1/A3 (retail/food and drink) and offices"* Approved development **– 208 dwellings**		**Full Permission Granted** 22 March 2006	

Staffordshire County Council						
30.	Staffordshire County Council	New Minerals Local Plan	**Saredon South Quarry** *New allocation for Sand and Gravel, with anticipated duration of 13 years.* 8ha	1.7km	**Emerging Policy** Staffordshire and Stoke New Minerals Local Plan	Tier 3
31.	Staffordshire County Council	New Minerals Local Plan	**Calf Heath Quarry** *New allocation for Sand and Gravel, with anticipated duration of 6 – 8 years.* 35ha	0km	**Emerging Policy** Staffordshire and Stoke New Minerals Local Plan	Tier 3
The Planning Inspectorate						
32.	PINS	-	**M54 M6/M6 Roll Link Road Scheme**	4.5km	**Planned** Completion anticipated by end of March 2022	Tier 3



Date Modified: 01/09/2016 14:11

Drawn By: UKEES001

File: Created using iGIS, WSP's Online Mapping System

WSP | PARSONS BRINCKERHOFF

TITLE:

WMI 'Other Development'

FIGURE No:

Formal EIA Scoping Opinion Request

West Midlands Interchange